Sectional Planning Area Plan

Appendices

Village 9

Otay Ranch, City of Chula Vista, California

June 3, 2014

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Appendix A

Public Facilities Financing Plan

CITY OF CHULA VISTA

OTAY RANCH VILLAGE 9 SPA PLAN

PUBLIC FACILITIES FINANCE PLAN

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PUBLIC REVIEW
JUNE 3, 2014

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1.0 EXECUTIVE SUMMARY

1.1 OVERVIEW

This Public Facilities Finance Plan (PFFP) addresses the public facility needs associated with the Otay Ranch Village 9 Sectional Planning Area (SPA) and is a component of the SPA document. The developer-proposed project as described in the SPA Plan is referred to as "Village 9", "Village 9 SPA Plan", or "Project" in this PFFP. The Project "Developer" is also referred to in the PFFP as the "Applicant", those words are used interchangeably.

GROWTH MANAGEMENT PROGRAM

The Chula Vista Growth Management Program (GMP) was first adopted by the City Council in 1991. The purpose of the GMP is to implement the City's General Plan and establish a mechanism that helps to insure that development does not occur unless facilities and improvements are available to support that development. The GMP does this by identifying all facilities and improvements necessary to accommodate the land uses specified in the General Plan, by indicating where and when facilities fall short of threshold level of service standards established for each facility type, and by identifying the means by which additional facilities shall be provided. The GMP is implemented through the Growth Management Oversight Commission (GMOC) process. The GMOC monitors the impact of development on the City's ability to provide services. The thresholds monitored by the GMOC are as follows:

- Traffic
- Police
- Fire and Emergency Medical Services
- Schools
- Libraries
- Parks, Trails and Open Space
- Water
- Sewer
- Drainage
- Civic Center
- Corporation Yard
- Air Quality
- Fiscal Impacts

This PFFP for the Village 9 project has been prepared under the requirements of the City of Chula Vista's GMP and Chapter 9, "Growth Management" of the GDP.

The preparation of the PFFP is required in conjunction with the preparation of the SPA Plan for the project to ensure that the development of the project is consistent with the overall goals and policies of the City's General Plan, the GMP, and the GDP. The GDP was originally adopted by the Chula Vista City Council on October 28, 1993, to ensure that development within the Otay Ranch will not adversely impact the City's Quality of Life Standards.

This PFFP is based upon the project information that has been presented in the *Otay Ranch Village 9 Sectional Plan Area (SPA) dated May, 2013, and prepared by William Hezmalhalch Architects, Inc.* The PFFP analyzes the existing demand on facilities based upon the demand from existing development and the specific facility demand of the Project. The PFFP also considers those development projects with various entitlements from 2011 through the year 2016.

Facility Thresholds

Facility thresholds are indicators of the capacity of a given facility to meet increasing demand from new development while remaining in compliance with the GMP Threshold Standards established for each facility category[1]. When the established thresholds for a specific facility are projected to be reached or exceeded based upon the analysis of the development of the project, the PFFP identifies those facilities necessary for continued compliance with the GMP and, where appropriate, outlines conditions of approval that are applied to project entitlements. The PFFP does not propose a different development phasing from that proposed by the Village 9 SPA Plan, but requires that the development 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 Standards. Subsequent changes to the SPA Plan may require an amendment to this PFFP.

Performance of Threshold-Driven Actions

Typically, as an applicant receives each succeeding development approval, the applicant must perform a series of required actions intended to assure that facilities will be provided concurrently with need. Failure to perform any required action will curtail the Project's development approvals. The typical actions are illustrated below:

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 Thresholds;
- 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.

[1] Also found in Sec 19.09.04 of the Chula Vista Municipal Code, *(Growth Management Program Policy and Ordinance)*

Final Map:

- Tentative Map conditions performed;
- Lots created.

Building Permit:

- Impact fees paid as required.

Role of the PFFP in the Entitlement Process

The critical link between the City's Quality of Life thresholds and development entitlement is the PFFP. Part II, Chapter 9, Section C of the *GDP/SPA Processing Requirements, General Development Plan Implementation*, requires the preparation of a PFFP as a condition of approval of all SPAs. 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 based on GMP standards;
- A summary of estimated facilities costs;
- 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 requirements and conclusions of the GDP.

General Municipal Code PFFP Provisions Applicable to the SPA Plan

1) Section 19.09.05D Chula Vista Municipal Code (CVMC) provides that no SPA plan or tentative subdivision map shall be approved, or deemed to be approved, without an approved PFFP. Furthermore *"No final map shall be approved until all the conditions of the PFFP, the water conservation plan and the air quality plan have been met, or the project applicant has provided adequate security to the city that said plans will be implemented." (CVMC 19.09.05E)*

2) No development shall occur in a PFFP area if the demand for any public facilities and services exceeds capacity and it is not feasible to increase capacity prior to completion of development unless means, schedule and financing for increasing the capacity is established through the execution of a binding agreement providing for installation and maintenance of such facilities or improvements in advance of the City's phasing schedule *(CVMC 19.09.05H)*

3) The Chula Vista Municipal Code provides that, if the City Manager determines 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.

4) The PFFP shall be implemented in accordance with 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.

5) A fiscal analysis/economic impact report shall be provided identifying capital budget impacts on the city as well as maintenance and operation costs for each proposed phase of development. The report shall include an analysis of the project impact on school districts and water agencies as well as the life cycle analysis set forth in subsection (F)(2) of CVMC section 19.090.060. Each year during the development of the project, the director of planning and building may require the applicant to provide the city with an updated fiscal impact report reflecting the actual revenue and expenditure impacts based upon the development of the project. The project shall be conditioned to provide funding for periods where expenditures exceed projected revenues *(CVMC Section 19.09.060J)*

The Fiscal Impact Analysis prepared for the Project is in Section 5 of this PFFP. The FIA identifies periods during the build-out of the Project when negative fiscal impacts will occur. Prior to the first final map for the Project the project applicant shall enter into an agreement to provide funding when expenditures due to the Project exceed projected revenues attributed to the Project in compliance with CVMC 19.09.060 J.

PFFP Applicability and Compliance

This PFFP applies to all future projects within its boundaries. Future projects will be reviewed for consistency with the SPA Plan, this PFFP and the Village 9 Environmental Impact Report (EIR). Future projects that are determined to be inconsistent with the SPA Plan, PFFP and/or EIR shall require additional environmental review and may require amendments to the SPA Plan and PFFP. The following also apply to the PFFP and the SPA Plan:

1) This PFFP analyzes the maximum allowable development potential for planning purposes only. The approval of this plan does not guarantee specific development densities.

2) The facilities and phasing requirements identified in this PFFP are based on the Village 9 SPA Plan Site Utilization Plan.

3) The plan analysis is based upon the non-sequential and conceptual phasing presented in the Village 9 SPA Plan document.

4) Approval of this PFFP is contingent upon approval of the amendments to the General Plan, the General Development Plan, certification of the associated Supplemental EIR (SEIR 09-01), and the project level Village 9 SPA EIR, by the City Council.

1.2 PUBLIC FACILITY COST AND FEE SUMMARY FOR VILLAGE 9 SPA

The following tables identify and summarize the various facility costs and impact fees associated with development of the project. The facilities and their estimated costs are identified in detail in subsequent sections of this document. *(NOTE: The costs contained in this PFFP are for illustrative*

purposes only and are based upon estimates made at the time of preparation of this PFFP. The developer's obligation to provide such facilities is not based on the estimate of costs of such facilities as indicated herein.) 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.

TRANSPORTATION IMPROVEMENTS

The Traffic Impact Analysis by RBF Consulting, dated March8, 2013, has identified on-site and off-site road improvements that will be required in connection with the development of the project. The estimated costs of major street improvements needed by the Project are identified in Section 4.1 "Traffic", Table 4.1.7. In the event the developer constructs a Transportation Development Impact Fee (TDIF) improvement, the cost of the improvement may be eligible for credit against payment of TDIF fees. The developer, as a project exaction, shall complete all improvements as required by the Village 9 EIR. Table 4.1.7 lists both off-site and on-site street improvements.

TDIF Fees and traffic signal fees generated by the project are identified on Table 1.1. Funding for street improvements may be accomplished in one or more possible funding alternatives such as:

- Construction of improvements by developer with credit toward DIF fees on building permits.
- Financing through assessment districts or Community Facility Districts (CFD).
- Expenditure of available DIF account funds.
- Construction of improvements by other developers.
- Federal Funds.

WASTEWATER, WATER AND DRAINAGE

Certain off-site sewer, drainage and water facilities are the responsibility of the developer if the facility is needed to support the proposed development.

SCHOOLS

The proposed Village 9 SPA Plan's 4,000 residential units will generate approximately 890 elementary school students. To provide for future elementary school demand in Village 9, two elementary school sites of approximately 20 acres combined are planned within the Project. Final determination for the need for these school sites will be made by Chula Vista Elementary School District. The Project's residential units will generate approximately 327 middle school age students and approximately 488 high school students. Currently, Village 9 is within the Olympian High School attendance area; however, enrollment at that school is expected to exceed capacity before Village 9 has begun construction. However, another high school is being planned at the intersection of Hunte Parkway and Eastlake Parkway. The developer shall satisfy its obligations to mitigate the Project's impacts on school facilities as required by state law.

OTHER PUBLIC FACILITIES

The Project will trigger development impact fees for libraries, police, fire services, civic center, corporation yard, and other City public facilities. These facilities will be funded, in part, from revenues generated from the payment of Public Facilities Development Impact Fees (PFDIF) at building permit issuance.

Altogether, the projected development impact fee revenues (including TDIF, traffic signal fee and the PFDIF) by phase and facility for the Project are identified on Table 1.1.

TABLE 1.1 - SUMMARY OF ESTIMATED CITY DIF REVENUES BY PHASE & FACILITY

	Phase				
Facility	**Orange**	**Blue**	**Yellow**	**Purple**	**Total**
Traffic (a)	$6,242,496	$15,307,968	$7,597,824	$19,306,560	$48,455,000
Traffic Signal	$296,732	$541,970	$198,419	$760,198	$1,797,000
Salt Creek Interceptor (g)	$753,200	$1,324,800	$805,200	$1,675,400	$4,559,000
Sewer	$1,308,739	$3,235,997	$2,024,472	$4,108,332	$10,678,000
Drainage (b)					$0
Water (b)					$0
Schools (c)					$0
Ped Bridge (f)	$173,922	$426,494	$211,682	$537,898	$1,350,000
Parks (d)	$6,597,348	$16,238,334	$10,183,944	$20,615,738	$53,635,000
PFDIF Components					
Police (e)	$825,566	$2,247,875	$1,358,300	$2,828,184	$7,260,000
Fire (e)	$517,487	$1,233,640	$797,307	$1,554,341	$4,103,000
Library (e)	$704,415	$1,926,645	$1,142,925	$2,446,015	$6,220,000
Recreation (e)	$534,540	$1,462,020	$867,300	$1,856,140	$4,720,000
Civic Center (e)	$1,220,379	$3,211,348	$1,967,613	$4,048,720	$10,448,000
Corp. Yard (e)	$207,916	$472,587	$330,666	$575,180	$1,586,000
Administration (e)	$268,184	$705,157	$432,238	$889,019	$2,295,000
PFDIF Total	$4,278,488	$11,259,272	$6,896,348	$14,197,599	$36,632,000
Total	**$19,651,000**	**$48,335,000**	**$27,918,000**	**$61,202,000**	**$157,106,000**

Source: City of Chula Vista Form 5509 - Development Checklist dated 6/28/2013
Notes:
[1]Eastern Area Transportation Development Impact Fee (TDIF).
[2]Salt Creek Interceptor Basin DIF and Sewer Capacity Fees shown are for residential development only; non-residential fees are based on fixture units for each building permit determined at the time of issuance.
[3]No City imposed DIF program in place for drainage improvements the Project developer is fully responsible for all storm water management improvements through the Subdivision Ordinance and Storm Water Manual.
[4]No City imposed DIF program for school facilities. However, all properties, including non-residential, are assessed a fee and/or, if a Mello-Roos district is formed, a special tax to fully mitigate impacts on school facilities caused by residential development.
[5]Ped. Bridge cost and fees are an estimate only at this time. Fee obligation calculation per phase to be based on future Pedestrian Bridge DIF Program to be established with the 1st Final Map of the Project.
[6]Includes both Development and Acquisition in lieu. Not applicable to non-residential projects.
[7]Facilities funded by Public Facilities DIF component.
[8]Fee for administration of PFDIF program
For phasing, refer to Land Use Assumptions Exhibit 3.2.
Totals rounded to nearest $1,000.

PFDIF and TDIF fees are based on the City of Chula Vista's Development Checklist for Municipal Code Requirements, Form 5509, revised June 28, 2013. Fees are subject to change as the ordinance is amended by the City Council from time to time, unless stated otherwise in a separate development agreement.

Table 1.2 specifies the timing and the obligation to provide each facility requirement. Construction of these facilities is timed so that they are in place concurrent with need. Timing is determined by applying the threshold standards of each facility to the need generated for that facility by the development. Along with other facilities Table 1.2 lists only the major TDIF roadway improvements required to be constructed as mitigations for the direct project impacts of either Village 9, or other development projects. See Traffic section 4.1 for the comprehensive list of all local roads necessary for project access.

Roadway Improvements "Assumed to be Constructed by Others"

The traffic impacts of Village 9 were analyzed under the assumption that certain future road improvements are likely to be constructed and in service because they are required to provide mitigation for the direct traffic impacts of other development projects in the Eastern Territory. These improvements are identified in Table 1.2 as: "assumed to be constructed by others". Since the traffic impact mitigations for Village 9 are predicated on these roadways being in service at specific points in the build-out of Village 9, these road improvements are also an obligation of Village 9. In the event that an assumed roadway is not constructed when specified in Table 1.2 significant impacts would occur and one of the following steps shall be taken as determined by the City Engineer:

1. Development in Village 9 shall not proceed until the assumed future roadway is constructed by others; or

2. City and the applicant shall meet to determine the need for the incomplete roadway. A number of factors, including changes to the tolling structure at SR-125, may affect the traffic patterns in the Otay Ranch. Additional traffic analysis of the roadway network and levels of service assessment may be necessary to determine if such improvements are necessary and the scope and timing of additional circulation improvements; or

3. Applicant shall construct the missing roadway links and receive TDIF credit for those improvements as applicable; or

4. An alternative measure is selected by the City in accordance with the City of Chula Vista Growth Management Ordinance.

5. All to the satisfaction of the City Engineer

TABLE 1.2 - TIMING AND OBLIGATION FOR FACILITIES

Facility	Developer Obligation	Timing of Facility in terms of Village 9 entitlements[1]
Eastern Area Transportation Improvements[2]	Pay TDIF	Prior to issuance of each building permit
Traffic Signals	Developer secures and agrees to construct traffic signals at the intersections of all internal Project streets and the major road improvements below that are developer's direct responsibility.[3]	With associated street improvements when triggered below
Project Requirements for TDIF Improvements		
Olympic Parkway		
Construction of Santa Victoria/Olympic Parkway intersection	Assumed to be constructed by others. Developer shall construct or secure the construction of the improvement or the selected alternative to the satisfaction of the City Engineer.	Final Map containing the 1,312th EDU

TABLE 1.2 - TIMING AND OBLIGATION FOR FACILITY (CONTINUED)

Heritage Road		
6 Lane Prime from Olympic Parkway to Main Street and construction of Santa Victoria/Heritage Road intersection	Assumed to be constructed by others. Developer shall construct or secure the construction of the improvement or the selected alternative to the satisfaction of the City Engineer.	Final Map containing the 1,312th EDU
Widen the segment between Main and Avenida de las Vistas from two lanes to six lane prime arterial	Assumed to be constructed by others. Developer shall construct or secure the construction of the improvement or the selected alternative to the satisfaction of the City Engineer.	Final Map containing the 1,312th EDU
Main Street		
6 Lane Gateway from Project Street "A" to Eastlake Parkway	Mitigation for direct Project impact; Developer secures and agrees to construct.	Final Map containing the 1st EDU
6 lane Prime from La Media Road to Magdalena Avenue	Assumed to be constructed by others. Developer shall construct or secure the construction of the improvement or the selected alternative to the satisfaction of the City Engineer.	Final Map containing the 1,312th EDU
6 Lane Gateway from La Media Road to Project Street "A", including SR 125 overcrossing	Mitigation for direct Project impact; Developer secures and agrees to construct.	Final Map containing the 3,074th EDU
North and Southbound ramps at SR-125	Mitigation for direct Project impact, Developer secures and agrees to construct.	Final Map containing the 3,4074th EDU
6 Lane Prime from Heritage Road to La Media Road	Assumed to be constructed by others. Developer shall construct or secure the construction of the improvement or the selected alternative to the satisfaction of the City Engineer.	Final Map containing the 3,074th EDU
La Media Road		
6 Lane Prime extended south from current terminus to Main Street in Village 8 West. Construction of La Media/Main St. intersection.	Assumed to be constructed by others. Developer shall construct or secure the construction of the improvement or the selected alternative to the satisfaction of the City Engineer.	Final Map containing the 1st EDU
Otay Valley Road		
4 Lane Major from Project Street "I" to Street "A".	Mitigation for direct Project impact; Developer secures and agrees to construct.	Final Map containing the 1st EDU
4 Lane Major from Project Street "A" to University Site.	Assumed to be constructed; Developer shall construct or secure the construction of the improvement or the selected alternative to the satisfaction of the City Engineer..	Final Map containing the 1st EDU
4 Lane Major from Project Street "A" to Street "B".	Mitigation for direct Project impact; Developer secures and agrees to construct.	Final Map containing the 1,312th EDU
4 Lane Major from Main Street to Project Street "I" including the SR-125 overcrossing and the traffic signals at Street "I" and Street "B"	Mitigation for direct Project impact; Developer secures and agrees to construct.	Final Map containing the 3,407th EDU

TABLE 1.2 - TIMING AND OBLIGATION FOR FACILITIES (CONTINUED)

Non-TDIF Project Requirements		
Roadways		
Santa Victoria Road from La Media Road to Heritage Road, and the following: • Construction of the intersection at Santa Victoria/Olympic Parkway; • Construction of the intersection at Santa Victoria/Heritage Road.	Assumed to be constructed by others. Developer shall construct or secure the construction of the improvement or the selected alternative to the satisfaction of the City Engineer.	Final Map containing the 1,312th EDU
Sewer[4]		
On-site Sewer	Developer builds as subdivision improvements per Subdivision Ordinance	Concurrent with development
Off-site Sewer (Treatment Capacity)	Pay Sewer Capacity Fees	Prior to issuance of each building permit
Connection to Salt Creek Sewer	Developer builds as subdivision improvements per Subdivision Ordinance	Prior to the Final Map containing the 1st EDU
Salt Creek Interceptor Sewer	Pay Salt Creek Interceptor Impact Fee	Prior to issuance of each building permit
Drainage	Developer builds as subdivision improvements per Subdivision Ordinance	Concurrent with development
Water[5]	Pay OWD Capacity Fees	Pay at purchase of Water Meters
On- and off-site water	Per SAMP	Per SAMP and Fire Marshal
Relocate City of San Diego water lines	Developer/City of San Diego	With 1st grading permit
Police	Pay PFDIF	Prior to issuance of each building permit
Fire	Pay PFDIF	Prior to issuance of each building permit
Schools[6]	Designate Elementary School Site	Per Agreement for Community Facilities District (CFD) for School Facilities, or prior to building permit if paying fees
	Pay SUHSD fees or form CFD	
	Pay CVESD fees or form CFD	
Libraries	Pay PFDIF	Prior to issuance of each building permit
Parks and Trails		
Neighborhood Parks	Developer dedicates land at first Final Map/Developer pays park development fees prior to issuance of a building permit for each dwelling unit.	Dedication at Final Map containing the 1st EDU. Pay PAD fee prior to final map approval unless an agreement between the City and developer permits payment at issuance of each building permit for a dwelling unit.

TABLE 1.2 - TIMING AND OBLIGATION FOR FACILITY (CONTINUED)

Town Center Park in Planning Area I	Developer dedicates land at first Final Map/Developer completes construction at indicated building permit trigger.	Prior to the 192nd Building Permit for residential units in Planning Areas M, N, P, and Q.
Town Center Park in Planning Area C	Developer dedicates land at first Final Map/Developer completes construction at indicated building permit trigger.	Prior to the 460th Building Permit for residential units in Planning Areas A, B-1 and B-2
Pedestrian/Mini Parks in Planning Areas GG, HH and II including pedestrian trail through open space lot OS-3	Developer dedicates land at first Final Map/Developer completes construction at indicated building permit trigger.	Prior to the 719th Building Permit for residential units south of H Street.
Regional Trail through the Project	Developer dedicates land at the first final map and agrees to secure and construct the portions of the Regional Trail though the Project	Prior to the Final Map containing the 1st EDU
Village Pathway and Pedestrian Bridge	Construct over SR-125 to provide non-motorized access between Village 9 and Village 8 East. Developer secures and agrees to construct and/or pay Pedestrian Bridge DIF[7]	Prior to the Final Map containing the 3,074th EDU/ and payment of Pedestrian Bridge DIF prior to the issuance of each building permit
Recreation	Pay PFDIF	Prior to issuance of each building permit
Civic Center	Pay PFDIF	Prior to issuance of each building permit
Corporation Yard	Pay PFDIF	Prior to issuance of each building permit

Table 1.2 Notes

All improvements shall be constructed per the adopted conditions of subdivision approval, or secured to the satisfaction of the City Engineer.

1. *Project timing thresholds for transportation improvements are found in the Village 9 Traffic Impact Analysis report dated March 8, 2013 by RBF Consulting. One Equivalent Dwelling Unit (EDU) generates ten daily trips.*
2. *The developer is obligated to pay with each building permit the Eastern Area Transportation Development Impact Fee (TDIF) in effect at the time of issuance of building permits. Construction by the developer of one or more of the TDIF-eligible road improvements below may result in a credit against the fee, as determined by the City Engineer.*
3. *Developer is also obligated to pay the Traffic Signal Fee with each building permit, but will be eligible for a credit against the fee for installation by the developer of signal improvements. For installation of a signal on a intersection of a TDIF road with a Non-TDIF road the developer will be eligible to receive 50% TDIF credit and 50% Traffic Signal credit.*
4. *Development shall not occur without adequate sewer capacity as determined by the City Engineer. See Sewer section for specific facility requirements per phase.*
5. *See Water section 4.7.7 for specific facility requirements per phase.*
6. *Developer shall comply with State law regarding mitigation of impacts to school facilities, including formation of a CFD (Mellos-Roos districts) for school facilities and/or payment and crediting of fees. Compliance with the mitigation requirements shall be demonstrated prior to the approval of each final map. (See School section 4.4.7)*
7. *Developer may bond and construct the entire bridge or create a funding mechanism prior to the first "A" Map to the satisfaction of the City Engineer.*

2.0 INTRODUCTION

2.1 OVERVIEW

The City of Chula Vista looks comprehensively at the issues dealing with development and the additional impacts it places on public facilities and services. The approval of the Threshold Ordinance and the General Plan update 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 a specific Growth Management Element, which set the stage for the creation of the City's Growth Management Program.

The Chula Vista City Council adopted the Growth Management Program and Implementing 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.

2.2 PURPOSE

The purpose of all PFFP's in the City of Chula Vista is to implement the City's Growth Management Program and to meet the General Plan goals and objectives, specifically those of the Growth Management Element. The Growth Management Program ensures that development occurs only when the necessary public facilities and services exist or are provided concurrent with the demands of new development. The Growth Management Program requires that a PFFP be prepared for every new development project, which requires either SPA Plan or tentative map approval. Similarly, amendments to a SPA Plan may require an amendment or a supplement to the PFFP.

The PFFP is intended to be a dynamic and flexible document. The goal of the PFFP is to assure adequate levels of service are achieved for all public facilities impacted by the project. It is understood that assumed growth projections and related public facility needs are subject to a number of external factors, such as the state of the economy, the City's future land use approval decisions, etc. It is also understood that the funding sources specified herein may change due to financing programs available in the future or requirements of either state or federal law. It is intended that cost estimates contained herein are for illustrative purpose only and it is expected that the actual costs of such improvements will vary over time. These cost changes are not considered revisions to the PFFP and may be handled administratively.

2.3 GROWTH MANAGEMENT THRESHOLD STANDARDS

City Council Resolution No. 13346 identified eleven public facilities and services with related threshold standards and implementation measures that shall be monitored under the GMP. 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 public facilities, services, and threshold standards that are monitored include:

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

During development of the Growth Management Program two new facilities were added to the list of facilities to be analyzed in the PFFP:

- Civic Facilities
- Corporation Yard

Threshold standards are used to identify when new or upgraded public facilities are needed to mitigate the impacts of new development. Development approvals will not be made unless compliance with these standards can be met. These threshold standards have been prepared to guarantee that public facilities or infrastructure improvements will keep pace with the demands of growth.

A. THE THRESHOLD STANDARDS FALL INTO THREE GENERAL CATEGORIES:

1) *A performance standard measuring overall level of service* is established for police, fire and emergency medical services, sewers, drainage facilities, and traffic;

2) *A ratio of facilities to population* is established for park and recreation facilities, and libraries; and

3) *A qualitative standard* is established for schools, water, air quality, and fiscal impacts.

The qualitative standard pertains to some services that are provided by agencies outside of the City -- schools are provided by the Chula Vista Elementary School District and the Sweetwater High School District; water service is provided by two independent water districts (Otay Water District and Sweetwater Authority); and sewer service is provided by the City of Chula Vista which has an agreement with the City of San Diego to treat its wastewater. Finally, the air-quality and fiscal threshold standards do not relate to specific public services but are intended to determine whether growth is having an adverse impact on two other measures of quality of life: the air quality within the region and the City's overall fiscal health.

B. THE THRESHOLD STANDARDS ARE APPLIED IN THREE WAYS:

1) Many of the standards were used in the development and evaluation of the City's General Plan to ensure that quality-of-life objectives are met at the time of General Plan build-out during a 20-to-25 year period;

2) Certain standards are used in the evaluation of individual development projects to determine the possible impacts of the project and to apply appropriate conditions and requirements in order to mitigate those impacts; and

3) All of the standards are monitored by the Growth Management Oversight Commission (GMOC) on an annual basis to ensure that the cumulative impacts of new growth do not result in a deterioration of quality of life, as measured by these standards.

2.4 THE PROJECT

The Otay Ranch is located in southwestern San Diego County approximately 3.5 miles east of downtown Chula Vista and 13 miles southeast of downtown San Diego. The ranch is grouped geographically into three distinct parcels: the Otay Valley parcel; the San Ysidro Mountains parcel; and the Proctor Valley parcel. The 9,449-acre Otay Valley parcel is the largest parcel and is located within the City of Chula Vista. The remaining parcels are primarily located within the unincorporated area of the county (see Regional Vicinity/Location Map Exhibit 2.1).

The Village 9 SPA Plan (Project) area is located at the southerly edge of the Otay Valley Parcel of Otay Ranch. The Project is located east of State Route 125, south of (future) Main Street (Formerly Rock Mountain Road). The Project is surrounded by the Eastern Urban Center (EUC) to the north, the University Site to the east, the Multiple Species Conservation Plan (MSCP) Open Space Preserve area to the south, and Village 8 East to the west. The Project area currently consists of undeveloped land. A SPA Plan for Village 9 dated May, 2013 was submitted by the Project's developer. The SPA Plan land use is described further in Section 3 of this PFFP.

2.5 PUBLIC FACILITIES FINANCE PLAN BOUNDARIES

Section 19.12.070 of the Chula Vista 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 on-site and off-site facilities and improvements required by the development. In establishing the boundaries for the PFFP, the City shall be guided by the following considerations:

1) Service areas, drainage, sewer basins, and pressure zones that serve the project;

2) Extent to which facilities or improvements are in place or available;

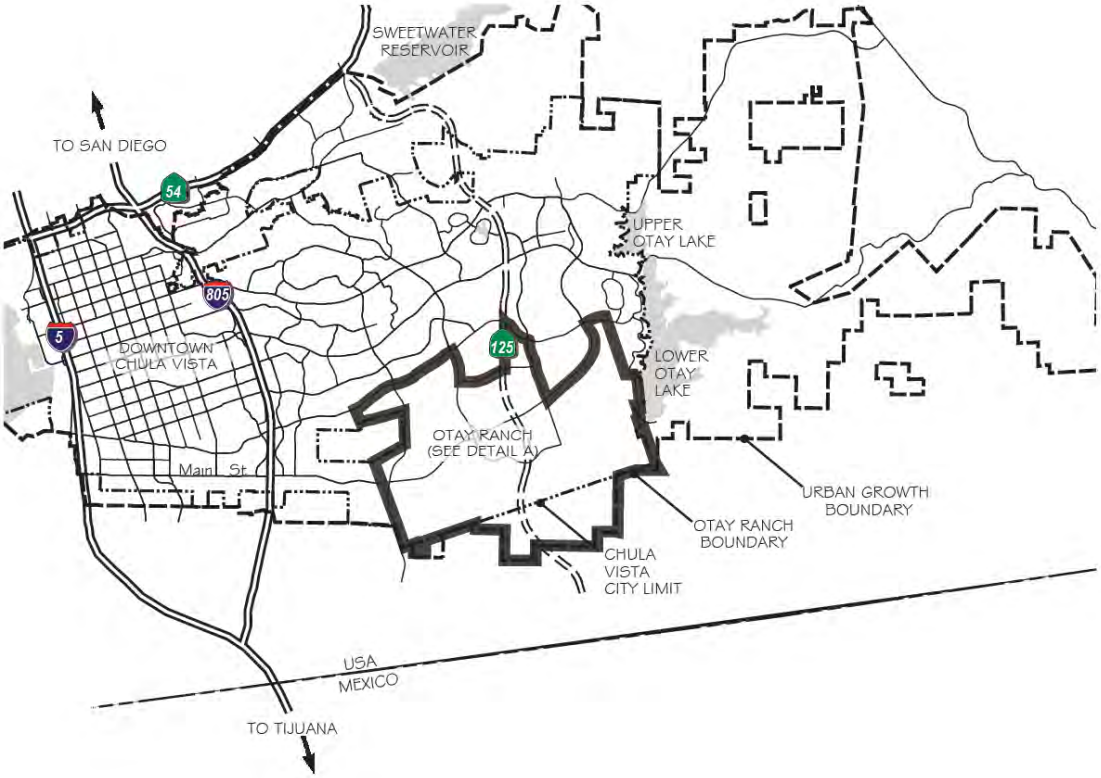
3) Ownership of property;

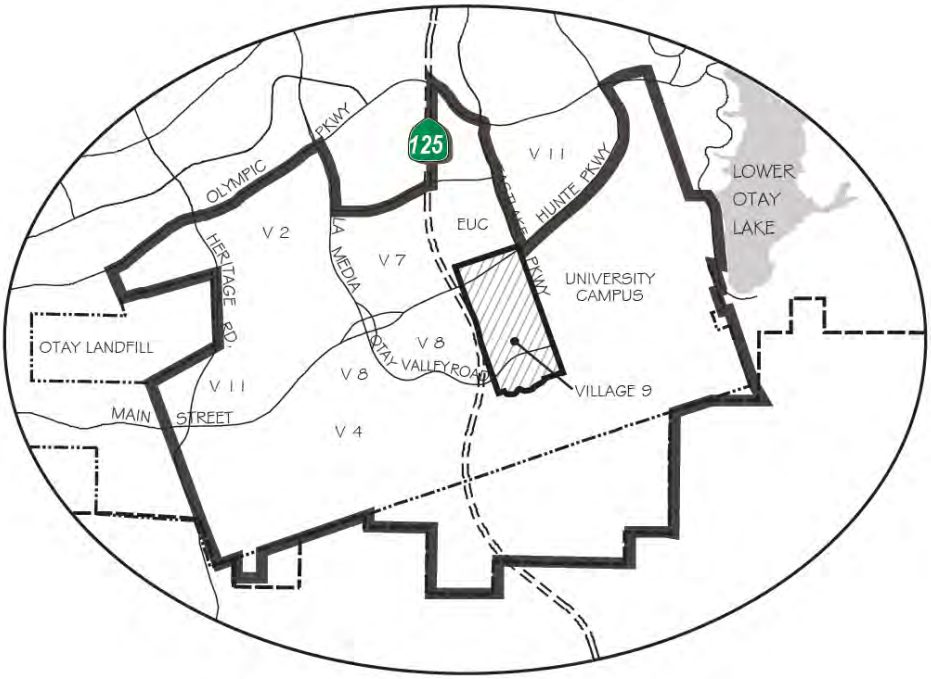
4) Project impact on public facilities relationships, especially the impact on the City's planned major circulation network;

5) Special district service territories;

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

The PFFP for the project addresses public facilities which are within the SPA Plan boundaries. However, the PFFP also addresses certain facilities (streets, drainage, sewer, police, fire, schools, etc.) that are impacted beyond the boundaries of the SPA Plan.





DETAIL A - OTAY RANCH

EXHIBIT 2.1 VICINITY MAP

Source: Village 9 SPA Plan, November, 2013

3.0 LAND USE ASSUMPTIONS

3.1 PURPOSE

The purpose of this section is to quantify how the Otay Ranch Village 9 Sectional Planning Area (SPA) Plan (Project) will be analyzed in relationship to all other projects that are at some stage in the City's development process. The Growth Management Program addresses 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 3.1.

The specific factors, which affect the development-phasing forecast, include the status of development approvals and binding development agreements, and the need to address capacity issues for sewage treatment by the San Diego metropolitan area wastewater treatment system (METRO). 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 requires 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 Municipal Water District that serve the City of Chula Vista. The development phasing 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.

3.2 EXISTING DEVELOPMENT

As a starting point, the PFFP considers all existing development up to November, 2011 as the base condition. This information is based upon City of Chula Vista Department growth management monitoring data. According to this and other data, the population of the City as of January 1, 2013 is estimated at 251,613[1].

Project Population

For the purposes of projecting facility demands for the Project the Project's residential population is estimated based on the following household occupancy rates:

[1] Total population from: *State of California, Department of Finance, E-1 Population Estimates for Cities, Counties, and theState with Annual Percent Change — January 1, 2012 and 2013. Sacramento, California, May 2013.* Note: the 2010 Census gives Chula Vista's population as 243,916 (*Population and Housing Occupancy - Status 2010 State-Place*)

TABLE 3.1 – ESTIMATED POPULATION BY LAND USE ZONES

Zones per Site Utilization Plan Exhibit 3.1	Number of Units	Average Persons per Household	Population
TC and EUC	2,942	2.58	7,590
MU	792	3.10	2,455
M and LMV	266	3.30	878
	4,000		10,923

These household occupancy rates are used throughout this PFFP for calculating the specific facility demands of the Project. One exception is the calculation of parkland dedication and development fees, which are based on the Chula Vista Municipal Code Chapter 17.10 that defines population coefficients of 3.52 persons per single family dwelling unit and 2.61 persons per multi-family dwelling unit.

3.3 DEVELOPMENT PHASING FORECAST

A summary of the latest five-year development-phasing forecast is shown in Table 3.2. The table presents an estimate of the amount of development activity anticipated to the end of year 2018. The estimated total number of dwelling units that could be permitted for Eastern Chula Vista by December 2018 is approximately 8,757. It should be noted that these projections are estimates and are 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. [2]

TABLE 3.2 - ESTIMATED FIVE-YEAR RESIDENTIAL UNIT GROWTH FORECAST 2014 THROUGH 2018

Projects	Forecast of Units Permitted from November 2014 through December 2018			Approximate Units Remaining After 2018
	MF	SF	Total	Total
Otay Ranch	5,423	3,056	8,479	11,822
Eastlake	85	136	221	0
Rolling Hills Ranch	0	15	15	0
Bella Lago	0	42	42	0
Sub - Total	5,508	3,249	8,757	11,822
Eastern Territory [1]	13,770	10,722	24,492	32,629
Western Chula Vista	1,302	56	1,358	7,005
Total Units	6,810	3,305	10,115	18,827
Total Population	17,025	10,907	27,932	51,963[2]

[1] *Household occupancies: multi-family: 2.5 pphh, single family: 3.3 pphh, overall: 2.76 pphh*
[2] *Total population growth of approximately 80,000 is consistent with the SANDAG 2050 Regional Growth projection for the City of Chula Vista: 330,400 Source: City of Chula Vista GMOC 2013 Annual Report.*

[2] A year to year estimate of how many building permits will be issued has been developed for general planning purposes, but should not be relied upon for exactness. The total number of permits that will be issued over the next five years is the best estimate however many variables may and will affect what the actual distribution will be.

3.4 OTAY RANCH VILLAGE 9 SPA DEVELOPMENT SUMMARY

The Project's SPA Plan is designed to reflect new urbanist and traditional town planning principles including the pedestrian and transit-oriented university village concept described in the 2005 Otay Ranch GDP. The proposed land-use of residential, commercial and community uses are designed to provide a mixed-use environment that serves the needs of residents and employees. The SPA plan focuses on promoting a walkable and bikeable community with less emphasis on automobile trips.

Main Street and Otay Valley Road are the major east-west access routes in Village 9. Main Street is a 6-lane Gateway that provides access to SR-125 to the west and Eastlake Parkway to the east. Otay Valley Road is a 4-lane Major also provides access to Eastlake Parkway and SR-125. The major north-south streets are Street "A" and Street "B". Street "A" is a 4-lane Town Center Collector that connects to the EUC to the north and ends at Otay Valley Road. Street "A" forms a couplet (two parallel one-way streets) between Street "C" (just south of Main Street) and north of Otay Valley Road. Street "B" is a 4-lane Town Center Street that also connects to the EUC and extends south of Otay Valley Road. A town square park will be located at the north end of the Main Street between the two branches of the couplet. A second town square park will be located north of Main Street adjacent to the EUC. Mixed-use and mixed-use residential, a neighborhood park, two community purpose facility (CPF) sites, and two elementary school sites are located north of Otay Valley Road. Single family housing, pedestrian parks and open space parcels are planned south of Otay Valley Road. The circulation system will provide for pedestrians, local bus and rapid bus transit connections. This system will provide efficient access throughout the Village and to the ultimate bus rapid transit line serving this region (see Exhibit 3.1).

Pursuant to the Village 9 SPA, the Project will contain:

- 4,000 residential dwelling units;
- 1,200,000 square feet of office space;
- 300,000 square feet of commercial/retail;
- 22.9 net acres of park;
- 9.6 acres of open space;
- 5 acres of community purpose facilities.
- 2 Elementary School Sites;
- A Transit Center

The Project's Site Utilization Plan (Exhibit 3.1) shows the location of the Project amenities. All the land is under the single ownership of the Otay Land Company.

The Site Utilization and Conceptual Phasing Summary on Table 3.2, shows the following maximum components proposed within the Project: 3,734 multi-family and 266 single family residential units, 1,500,000 square feet of office/commercial retail and other supporting land uses within planning areas identified by letters on the table. The discretionary phase of the Project requires the adoption of a SPA Plan, Environmental Impact Report and Tentative Map.

This PFFP and in the particular the SPA Fiscal Impact Analysis (FIA) in Chapter 5 is based on the land uses described in the SPA Site Utilization Plan and the phasing summary in Table 3.2. If the Project were to develop with less than the overall indicated floor area of commercial/retail, the developer will be required to revise this PFFP, and the FIA, to identify other revenues streams that would replace the lost City revenues associated with those land uses and demonstrate that the Project is fiscally sustainable with the reduced commercial/retail development.

Intensity Transfer

The Project's development pattern and interior circulation arrangement is illustrated on the Project's Site Utilization Plan and the Conceptual Phasing Plan (Exhibit 3.2). The Site Utilization Plan is intended to provide the general design intent of the Project; however the SPA recognizes the need for flexibility in planning to accommodate future development constraints and market demands. That flexibility is provided through an "intensity transfer", which is an administrative process, conducted by the Zoning Administrator to ensure that the Project does not exceed the maximum levels of intensity. Unless a proposed project is exactly consistent with the target intensity shown for that planning area on the Site Utilization Plan, an intensity transfer is required. Any transfer of intensity between planning areas within the same land use is permitted provided said transfer is consistent with the SPA Plan, the circulation system, and the technical studies of the associated EIR as related to infrastructure; the overall target intensity of 4,000 residential units and 1,500,000 square feet of non-residential floor area is not exceeded; and a combined total of 500,000 square feet (or 33%) of the non-residential floor area is maintained in the remaining planning areas found in that land use. Any other type of transfer shall require a SPA Amendment. The Zoning Administrator shall approve or deny the proposed intensity transfer subject to the following findings and conditions:

a) The resulting density of both the granting and receiving planning areas shall be consistent with the density ranges specified for each area.

b) The overall SPA intensities shall not be exceeded.

c) The Neighborhood Builder has received a letter of recommendation for approval, modification, or denial of the intensity transfer from the Master Developer.

d) The planned identity of Village 9 SPA is preserved including the creation of pedestrian friendly and transit oriented development

e) The Neighborhood Builder has provided supporting technical studies, if necessary, to the satisfaction of the Zoning Administrator, that substantiate adequate infrastructure exists to support the intensity transfer.

f) Public facilities and infrastructure including schools and parks shall be provided based on the final number of units and the applicant shall agree to pay any additional fees resulting from said transfer. Preserve conveyance obligation shall be based upon the final map development area.

g) The overall target intensity of 4,000 residential units and 1,500,000 square feet of nonresidential floor area is not exceeded; and a combined total of 100,000 square feet of retail commercial is maintained within Village 9.

Community Purpose Facility

If a shift of Community Purpose Facility (CPF) sites or square footage/acreage between planning areas occurs, a SPA Amendment shall be required. The total square footage/acreage for Community Purpose Facility sites shall meet the Village 9 SPA Community Purpose Facility obligation.

School Sites

Transfers of intensity to unused school sites, if the site is not accepted by the school district, shall be as follows:

- Parcel G shall revert to "Mixed Use (MU) - 10-45 du/ac" site utilization.
- Parcel W shall revert to "Mixed Use (MU)- 10-27 du/ac" site utilization.

Transfers between Villages

Unused intensity may be transferred between Villages as permitted by City Council pursuant to the expressed terms set forth by agreement, ordinance, or such other manner approved by City Council.

No transfer shall exceed the maximum number of units shown on an approved Tentative Map without a revised Tentative Map approved by the City Council.

Table 3.2 reflects the maximum target for residential units and commercial/retail floor area in the Project.

The mixed-use nature of the Project makes it difficult to categorize those uses by acreage since a single building (on a single parcel) may include different uses at different levels (e.g., commercial at street level and office or residential uses on upper levels). Because of the difficulty in assigning a building site to a unique use category, the Project's SPA Plan emphasizes the appropriate character and mix of uses for consistency with the Otay Ranch GDP rather than acreage statistics. Consistent with the note to the GDP Land Use Table, non-residential uses are quantified in terms of square feet of building floor area in-lieu of site acreage. Correspondingly, residential use is quantified in terms of number of dwelling units instead of acreage. These statistics will allow for the proper accounting of development intensity within the Project regardless of location within mixed-use structures.

3.5 DEVELOPMENT PHASING

The Project developer has proposed five non-sequential phases illustrated by the Conceptual Phasing Plan Exhibit 3.2 with units and acreages listed in the corresponding Table 3.3 below. Each phase consists of one or more planning areas). The development of the Project will proceed in phases according to the anticipated market demand for development within the Project.

TABLE 3.3 - OTAY RANCH VILLAGE 9
LAND UTILIZATION SUMMARY

	Land Use					
Conceptual Phase	Multi-Family (units)	Single Family (units)	Office[1] and Commercial/Retail (1,000 sq. ft.)	Parks (gross acres)	Schools (acres)	CPF (acres)
Orange	308	145	194	5.7	19.8	5.0
Blue	1,239		494	14.8		
Yellow	614	121	58	3.4		
Purple[1]	1,573		754	3.6		
Total	**3,734**	**266**	**1,500**	**27.5**	**19.8**	**5.0**

[1] Office and commercial totals in each phase is assumed to be distributed as 80% office and 20% commercial/retail

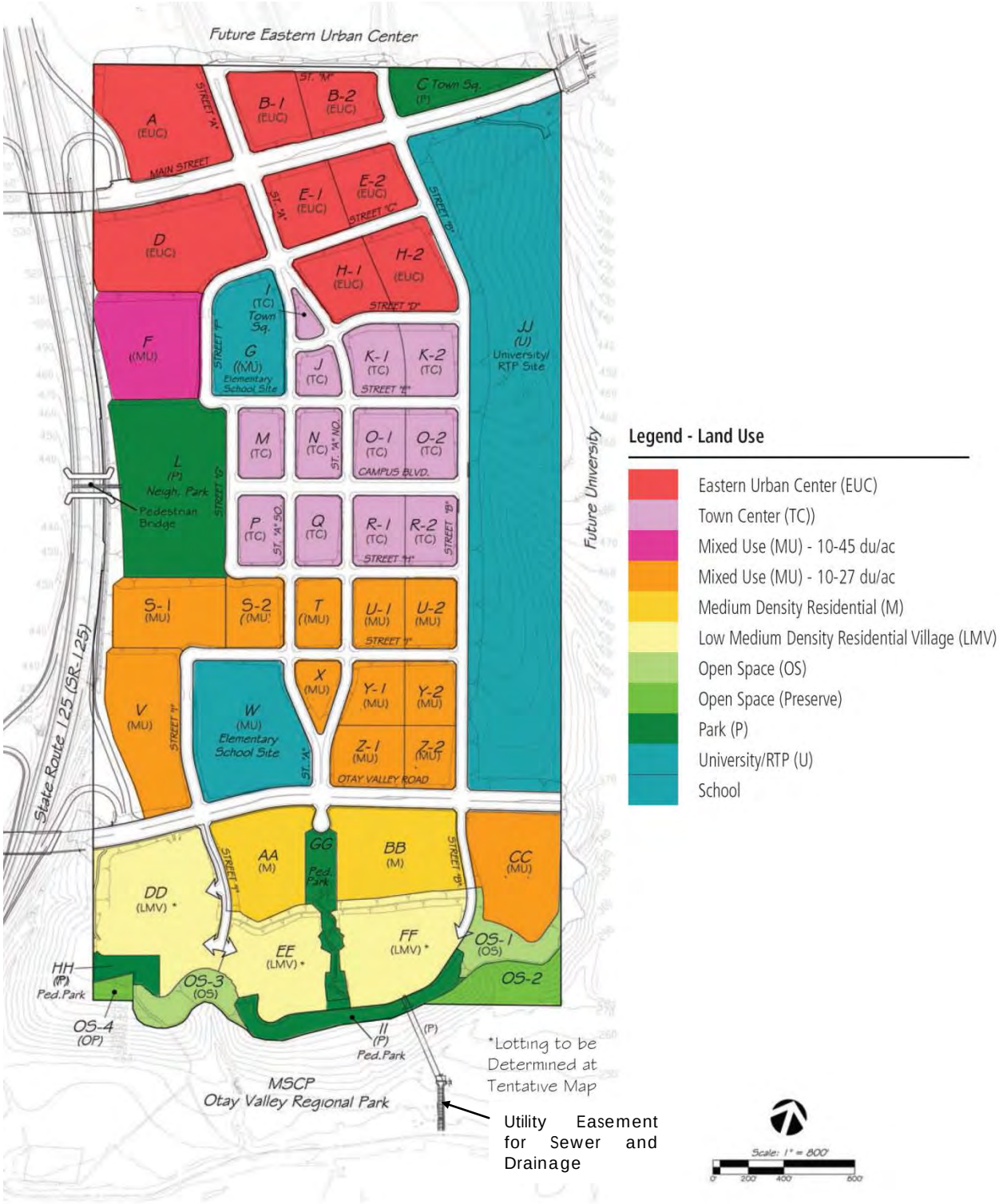


EXHIBIT 3.1 – OTAY RANCH VILLAGE 9 SITE UTILIZATION PLAN

Source: Village 9 SPA Plan, November, 2013

Plan. Area	MF Units	SF Units	C'ml Sq. Ft (K)
Orange			
G	0	0	0
I	0	0	0
J	0	0	0
M	80	0	29
N	57	0	52
P	80	0	29
Q	57	0	52
T	34	0	32
W	0	0	0
X	0	0	0
AA	0	72	0
DD	0	47	0
EE	0	26	0
HH	0	0	0
OS-3	0	0	0
OS-4	0	0	0
Subtotal	**308**	**145**	**194**
Blue			
D	448	0	278
E-1	183	0	115
E-2	168	0	101
F	136	0	0
L	0	0	0
S-1	104	0	0
S-2	58	0	0
V	142	0	0
Subtotal	**1,239**	**0**	**494**
Yellow			
CC	128	0	0
R-1	80	0	29
R-2	80	0	29
U-1	58	0	0
U-2	58	0	0
Y-1	54	0	0
Y-2	50	0	0
Z-1	61	0	0
Z-2	45	0	0
BB	0	89	0-
FF	0	32	0
GG	0	0	0
II	0	0	0
OS-1	0	0	0
Subtotal	**614**	**121**	**58**
Purple			
A	380	0	235
B-1	183	0	115
B-2	136	0	101
C	0	0	0
H-1	188	0	115
H-2	226	0	130
K-1	148	0	0
K-2	152	0	0
O-1	80	0	29
O-2	80	0	29
Subtotal	**1,573**	**0**	**754**
TOTAL	**3,734**	**266**	**1500 K**

EXHIBIT 3.2 – OTAY RANCH VILLAGE 9 SITE CONCEPTUAL PHASING PLAN

Source: Village 9 SPA Plan, November, 2013

4.0 FACILITY ANALYSIS

4.01 OVERVIEW

This portion of the Village 9 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 4.1 highlights the level of analysis for each facility.

TABLE 4.1 – LEVEL OF ANALYSIS

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

Each subsection analyzes the impact of Village 9 project based upon the adopted Quality of Life Standards. The analysis is based upon the specific goal, objective, threshold standard and implementation measures. The proposed Village 9 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 and Recommendations subsection which proposes the appropriate conditions or mitigation to bring the facility into conformance with the threshold standard.

4.1 TRAFFIC

4.1.1 GMOC THRESHOLD STANDARD

1) 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 any two hours of the day.

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

4.1.1.1 GMOC LEVEL OF SERVICE (LOS) STANDARDS FOR ARTERIAL ROADS

The following are notes to the GMOC Threshold Standards for arterial roads found in CVMC Chapter 19.09.040. There are no GMOC standards for local residential streets.

A. Arterial segment LOS measurements shall be for the average weekday peak hours, excluding seasonal and special circumstance variations.

B. Urban and suburban arterials are defined as surface highways having signal spacing of less than two miles with average weekday traffic volumes greater than 10,000 vehicles per day.

C. Arterial segments are stratified into three classifications:

   i. Class I arterials are roadways where free-flow traffic speeds range between 35 mph and 45 mph and the number of signalized intersections per mile is less than four. There is no parking and there is generally no access to abutting property.

   ii. Class II arterials are roadways where free-flow traffic speeds range between 30 mph and 35 mph, and the number of signalized intersections per mile ranges between four and eight. There is some parking and access to abutting properties is limited.

   iii. Class III arterials are roadways where free-flow traffic speeds range between 25 mph and 35 mph, and the number of signalized intersections per mile is closely spaced. There is substantial parking and access to abutting property is unrestricted.

D. The LOS measurement of arterial segments and freeway ramps shall be a growth management consideration in situations where proposed developments have a significant impact at interchanges.

E. Circulation improvements should be implemented prior to the anticipated deterioration of LOS below established standards.

F. The criteria for calculating arterial LOS and defining arterial lengths and classifications shall follow the procedures detailed in Chapter 11 of the Highway Capacity Manual (HCM) and shall be confirmed by the City Traffic Engineer.

G. During the conduct of future traffic monitoring program field surveys, intersections experiencing significant delays will be identified. The information generated by the field surveys will be used to determine possible signal timing changes and geometric and/or traffic operational improvements for the purpose of reducing intersection delay.

H. Level of service values for arterial segments shall be based on the following table:

TABLE 4.1.1 --GMOC LEVEL OF SERVICE (LOS) DEFINITIONS

Level of	Average Travel Speed (mph)		
Service	Class I	Class II	Class III
A	> 35	> 30	> 25
B	> 28	> 24	> 19
C	> 22	> 18	> 13
D	> 17	> 14	> 9
E	> 13	> 10	> 7
F	< 13	< 10	< 7

Source: Highway Capacity Manual (1994).

4.1.2 PROJECT PROCESSING REQUIREMENTS

The PFFP is required by the Growth Management Program to address the following issues for Traffic Facilities *(CVMC 19.09.60)*:

a. Identify on-site and off-site impacts and improvements by phase of Project development; and.
b. Provide cost estimates for improvements.

4.1.3 TRAFFIC IMPACT ANALYSIS AND METHODOLOGY

A. VILLAGE 9 TRAFFIC IMPACT ANALYSIS (TIA)

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 200 peak hour trips (As detailed in the 1991 Congestion Management Program). This analysis: *Traffic Impact Analysis Report* (TIA) *for Otay Ranch Village 9*, (Project), *March 8, 2013 by RBF Consulting* was prepared for the City of Chula Vista. The TIA is the basis of the Traffic Section of this PFFP and addresses both the existing and planned circulation system and land use conditions assumed for the years 2020, 2025 and 2030. The TIA also recommends traffic impact mitigation measures and outlines the incremental circulation improvements based upon planned Project phasing and land development estimated to occur in the TIA study area. Further, the TIA also includes an evaluation of the proposed transit routes within Otay Ranch Village 9.

The TIA study area is generally bounded by Olympic Parkway to the north, Hunte Parkway to the east, Main Street and/or Otay Valley Road to the south and Interstate 805 (I-805) to the West (see Exhibit 4.1.1). All signalized intersections, freeway interchanges and arterial segments within this area were analyzed under various scenarios by RBF Consulting. (see TIA for scenario details).

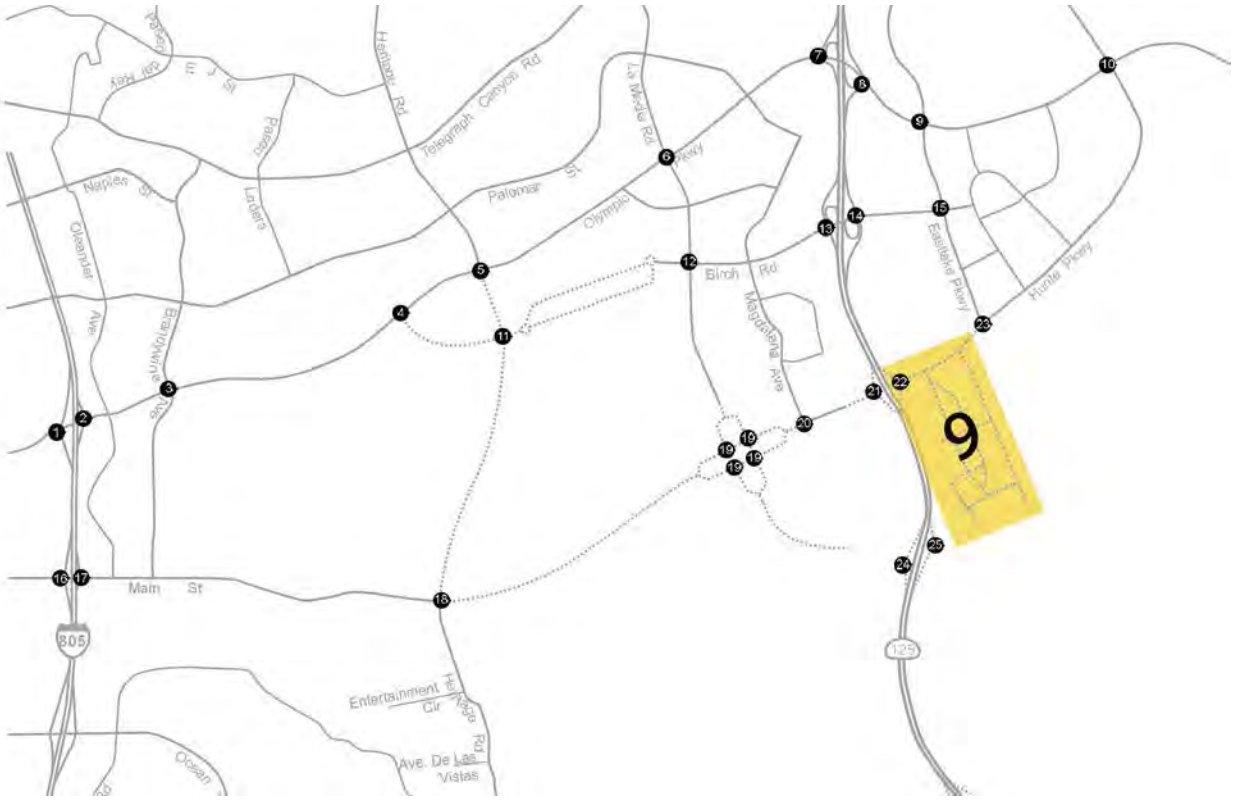


EXHIBIT 4.1.1 PROJECT TRAFFIC IMPACT ANALYSIS STUDY AREA

Source: Village 9 TIA, March 2013, Exhibit 3

Traffic volumes, for the analysis years 2020, 2025 and 2030 were forecast using the Series 11 South Bay Sub Area traffic model produced by San Diego Association of Governments (SANDAG). In collaboration with City of Chula Vista staff and SANDAG, RBF Consulting provided input regarding the land use and network assumptions for each scenario year used in each model run produced by SANDAG, for each study year beginning in 2020.

To determine the existing traffic volumes at the study intersections, intersection movement counts were taken on a typical weekday during the a.m. (7:00 a.m. to 9:00 a.m.) and p.m. (4:00 to 6:00 p.m.) peak periods. Average daily traffic (ADT) volumes were also collected along most roadway segments over a 24-hour period. Traffic count data provided by the City of Chula Vista from previous traffic studies were used if available.

The Project TIA analyzed the Project's impacts at five-year increments up to Project build-out at year 2030 according to the phasing presented in Table 4.1.2. The CEQA -level project analysis uses the following threshold of significance criteria:

A. Intersections

1. Project specific impact if both the following criteria are met:

   (a) Level of service is LOS E or LOS F.

   (b) Project trips comprise 5% or more of entering volume.

2. Cumulative impact if only (a) above is met.

B. Street Segments

Use the planning analysis using the volume to capacity ratio methodology only.

1. Project direct impact if all three of the following criteria are met:

   (a) Level of service is LOS D, LOS E, or LOS F;
   (b) Project trips comprise 5% or more of total segment volume; and
   (c) Project adds greater than 800 ADT to the segment.

2. Cumulative impact if only a) above is met. However, if the intersections along a LOS D or LOS E segment all operate at LOS D or better, the segment impact is considered not significant since intersection analysis is more indicative of actual roadway system operations than street segment analysis. If segment Level of Service is LOS F, impact is significant regardless of intersection LOS.

B. TRAFFIC IMPACT ANALYSIS ASSUMPTIONS

Throughout the TIA, assumptions are made regarding both land development and the constructed road network within the study area. The assumptions for the constructed road network arise in three ways:

1. Road improvements are required for Project access and frontage requirements. The City of Chula Vista Subdivision Ordinance specifies that all land development must construct adjacent roadway and intersection improvements as a project exaction. The Subdivision Ordinance also specifies the maximum number of units that may take access from a local street without additional connections to collector or circulation element roadways. Therefore, the completion of identified major roads and adjacent intersection improvements within the Project are necessary for the Project's compliance with the Subdivision Ordinance; the TIA assumes the Project will comply with all City policies and standards; or,

2. Improvements are recommended as a direct Project impact mitigation measure in a previous study year and become part of the "Mitigated Road Network" of a given study year; or,

3. Certain circulation element roadways are assumed to be constructed by others as either access or frontage improvements, or are the direct impact mitigation measures for other projects in the study area. The TIA makes realistic assumptions regarding the future improvements to the roadway network that are needed to serve the projected development in the study area. The rationale for assuming that these roads will be constructed by others (not the Project applicant) is reasonable given that all new development must comply with the City's GMOC policy that requires the construction of major infrastructure in conjunction with the need generated by new development.

If, however, future land development in the study area does not follow the phasing as assumed by the Project TIA and the assumed roads are not constructed and open for traffic by specified building permit thresholds, the GMOC requirements and mitigation requirements for this Project provide a mechanism whereby development of the Project will cease until either the assumed roads are constructed, or alternative measures are approved.

There are six circulation element road improvements and two local improvements that were assumed in the Project TIA that fall under one or more of the three assumptions described above:

- La Media Road is assumed to be extended south from its current terminus to Main Street in Village 8 West;
- Construction of Heritage Road (from Olympic Parkway to Main Street); re-stripe southbound Heritage Road to include dual left turn lanes, three through lanes and one right turn lane;
- Widening of Heritage Road from Main Street to Avenida de las Vistas from a Class II Collector to a six lane Prime;
- Construction of Main Street from Heritage Road to La Media Road;
- Construction of Main Street between La Media Road and Magdalena Avenue;
- Otay Valley Road between Street "A" in Village 9 to the University Site.
- Construction of Santa Victoria Road from Heritage Road to La Media Road (a local road constructed by Village 2 as project access)
- Construction of "Village Path" pedestrian/bicycle bridge over SR-125 to provide non-motorized access between Village 9 and Village 8 East (constructed by City or developer)

See the Project TIA for a complete discussion of the above.

The mechanism to assure that the Project does not proceed without the assumed road improvements are as follows:

1. Development in the Project will stop until those assumed future roadways are constructed by others; or
2. City and the applicant shall meet to determine the need for the incomplete roadway segments; or
3. Applicant shall construct the missing roadway links and receive TDIF credit for those improvements as applicable; or
4. An alternative measure is selected by the city in accordance with the City of Chula Vista Growth Management Ordinance.
5. All measures selected shall be to the satisfaction of the City Engineer

4.1.4 VILLAGE 9 SPA TRIP GENERATION AND PHASING

The following section describes the proposed Otay Ranch Village 9 SPA Project including the estimated project trip generation, distribution, and assignment for the traffic impact analysis years: 2020, 2025 and 2030.

A. PROJECT TRIP GENERATION

The vision for Village 9 is to develop as a cohesive community with inter-connected land uses including a range of residential land use densities. The Project's land-use plan is designed to provide a complementary, mixed-use environment with a focus on promoting a walkable and bikeable community. As a result, vehicular trip reductions were applied to the TIA to account for walking, biking as well as transit trips. The TIA assumed that a number of trips will travel between the different land uses within the Project, and will not utilize the surrounding arterial roadway network. As a result, these trips, totaling 11,606 at build-out, are considered internal to the Project and are not counted in the Project's traffic impact analysis.

The proposed alignment of the South Bay Bus Rapid Transit (BRT) goes through the Project along "B" Street and Otay Valley Road. Other transit routes are planned along Main Street. Because of the access to transit within the Project, a transit trip credit of 15 percent was applied to the residential and office land uses. As a result, the total transit trip capture credit for the project at build-out resulted in a reduction of 8,059 ADT, including 750 a.m. peak-hour trips (417 in, 333 out) and 833 p.m. peak-hour trips (398 in, 435 out).

The Project is planned to be built in phases. The TIA, upon which this section of the PFFP is based, utilized the land uses shown in Table 4.1.2.

Table 4.1.2 shows the net new trip generation for Otay Ranch Village 9 project (proposed minus internal and transit reductions). As shown in the table, the net trip generation of the proposed project at build-out of the Project would total 34,067 ADT, including 3,784 a.m. peak-hour trips (2,130 in, 1,655 out) and 3,509 p.m. peak-hour trips (1,649 in, 1,859 out).

B. PROJECT PHASING

The development of Otay Ranch Village 9 will occur in phases and will not be fully constructed for many years. Therefore the TIA includes an evaluation of intermediate years: 2020, 2025 and 2030. The phasing and trip generation assumptions of the TIA are reflected in Table 4.1.2. Approximately 26 percent of the project is assumed to be built by 2020, 81 percent of the Project is assumed to be built by 2025, and full build-out of the Project assumed by 2030.

As shown in Table 4.1.2, the Project generates a total of 14,018 ADT (gross) by Year 2020, an additional of 29,726 ADT for a total of 43,744 ADT, by Year 2025, and an additional 9,988 ADT resulting in 53,732 gross ADT through build-out (Year 2030).

The Project is estimated to generate a net total of 13,124 ADT through Year 2020. The Project impact in terms of single family dwelling unit equivalence, or equivalent dwelling units ("EDUs") equates to 1,312 EDUs through Year 2020, 30,737ADT (3,074 EDUs) through Year 2025, and 34,067 ADT (net cumulative) (3,407 EDUS) at build-out (Year 2030)--see TIA).

The following section of this PFFP includes a discussion of the thresholds for project access and frontage requirements, and for CEQA mitigation measures to be constructed by the Project or assumed be constructed by others

TABLE 4.1.2-GROSS AND NET TRIP GENERATION SUMMARY

Land Use	Trips per Unit	Unit	2020			2025			2030			Total Trips at Build-out
			Units/ksf/ac	Trips	EDUs	Units/ksf/ac	Trips	EDUs	Units/ksf/ac	Trips	EDUs	
Single Family	10	Dwelling Unit	114	1,140	114	131	1,310	131	21	210	21	2,660
Multi-Family	6	Dwelling Unit	1,634	9,804	980	1,877	11,262	1,126	223	1,338	134	22,404
Elementary School	100	Acre	0	0	0	11.9	1,190	119	7.9	790	79	1,980
Office	12	Ksf	250	3,000	300	325	3,900	390	625	7,500	750	14,400
Commercial/Retail	40	Ksf	0	0	0	300	12,000	1,200	0	0	0	12,000
Community Purpose	30	Acre	0	0	0	0	0	0	5	150	15	150
Neighborhood Park	5	Acre	14.8	74	7	12.7	64	6	0	0	0	138
Total				14,018	1,402		29,726	2,973		9,988	999	53,732
Cumulative Total				14,018	1,402		43,744	4,374		53,732	5,373	
Percentage of Total					26%			81%			100%	
Internal Capture (cumulative)				193	263		10,820	1,133		11,606		
Transit Reduction (cumulative)				701	87		2,187	177		8,059		
Net Trip Cumulative Total with ADT and EDU				**13,124**	**1,312**		**30,737**	**3,074**		**34,067**	**3,407**	

[1] *EDU = Equivalent (single family) Dwelling Unit thresholds for mitigation measures. The EDUs for each land use is calculated by dividing each land use's total trips by 10–the trips per day of a single family home.*
Source: Village 9 Traffic Impact Analysis, April 26, 2012, RBF Consulting

4.1.5 THRESHOLD COMPLIANCE AND MITIGATION MEASURES

A. MAJOR ROADWAYS AND INTERSECTIONS

The findings of the TIA show that GMOC thresholds will be met with the implementation of the following recommended mitigation measures for intersections and roadway segments, reducing the identified impacts to less than significant. The recommended mitigation measures of the TIA for each analysis year: Existing Conditions with Project, 2020, 2025 and 2030 and the corresponding Project equivalent dwelling unit (EDU) thresholds for each mitigation measure are set forth in the identified tables and exhibits found in the Project TIA.

1. Existing Conditions plus Project Trips

The Existing Conditions plus Project Trips represent the traffic conditions of the existing street network with the addition of Project trips at ultimate build-out (see TIA Tables 9 and 10 for the existing plus Project intersection and roadway LOS summary). This scenario represents a "snap-shot" in time and does not account for changes in traffic volumes and roadway infrastructure un-related to the Project which would occur over the long term build-out of the Project. This scenario also does not reflect the fact that the Project is a phased project and is intended to be built-out over a period of 10 years. The specific geometrics of the intersections and roadway segments in the study area as they currently exist are presented in TIA Exhibits 5A and 7.

Existing Conditions plus Project Trips Impacts and Mitigation Measures

The results of the traffic impact analysis for the Existing Conditions plus Project show that six intersections are forecast to operate at deficient LOS under these conditions. For each of the impacted intersections, listed below, the Project trips added to the intersections exceed the City of Chula Vista's threshold of significance. Therefore, these intersections are forecast to result in direct project impacts.

- Olympic Parkway / 805 Northbound Ramps
- Olympic Parkway/Brandywine Avenue
- Olympic Parkway/La Media Road
- Birch Road / La Media Road
- Birch Road / Eastlake Parkway
- Main Street /Eastlake Parkway

Five roadway segments are forecast to operate at deficient LOS under Existing Conditions plus Project conditions. The Project trips added to the deficient segments listed below exceed the City of Chula Vista's threshold of significance. Therefore, all five segments are forecast to be directly impacted by the project:

- Olympic Parkway:
  - from I-805 to Brandywine Avenue;

- from Brandywine Avenue to Heritage Road; and,
- from Heritage Road to La Media Road.

- Magdalena Ave from Birch Road to Main Street;
- Eastlake Parkway from Birch Road to Hunte Parkway-Main Street.

The improvements identified for the Project's 2020, 2025 and 2030 development scenarios, as listed in Project TIA Recommended Mitigation Measures Tables 25, 26 and 27, and summarized below, would mitigate these direct impacts. The Project, however, is planned to be constructed in a series of phases over a period of nearly 20 years. This phasing would not require construction of all the improvements at once, but rather such improvements will be constructed as is needed to mitigate impacts of the phased development; all as described in the Project TIA.

2. 2020 Conditions

The 2020 Conditions includes analysis of land uses and traffic associated with development expected to occur by that year. The 2020 Conditions includes Project-generated trips associated with the construction of 114 single family and 1,634 multi-family residential dwelling units, 250,000 square feet of office space and 14.8 acres of park space.

2020 Assumed Improvements and Mitigation Measures

The following improvements are required for Project access and subdivision frontage per Table 14 of the TIA. Therefore, prior to the first final map containing the 1st EDU of the Project, the applicant shall have constructed the following Project access and frontage improvements:

Project Access and Frontage Improvement (prior to the first final map containing the 1st EDU):

- Main Street: Construct from Street "A" to Eastlake Parkway as 6-lane Gateway;
- Street "A" : Construct from Main Street to Street "C" as a 4-lane road, and from Street "C" to Otay Valley Road as 2-lane, 2-way road;
- Intersection of Main Street / Street "A: Install traffic signal;
- Otay Valley Road: Construct from Street "I" to Street "A" as a 4-lane Major;
- Street "I": Construct south of Otay Valley Road as a 2-lane road.

The locations of Streets "A", "B", "C" and "I" may be found on Exhibit 4.1.2.

Roadways Assumed to be Built by Others (by Project's 1st EDU)

The TIA assumes the following improvements would be constructed by others prior to 2020:

- La Media Road is assumed to extend south from its current terminus to Main Street in Village 8 West.

The Year 2020 scenario also assumes that the following circulation system improvements would be constructed by Year 2020:

- Main Street/La Media Road intersection;

- Main Street/Magdalena Avenue intersection;
- La Media Road from Birch Road to Main Street; and
- Otay Valley Road from Village 9 Street A to the University Site

The above improvements are required to be constructed prior to the construction of the 1st EDU of the Project. No Project development may occur until the improvements are in place. If the roadways are not constructed and open to traffic prior to the approval of the final map containing the 1st EDU for the Project, then a significant traffic impact will occur and one of the following steps shall be taken as determined by the City Engineer:

1. Development in Village 9 shall not proceed until the assumed future roadway is constructed by others; or
2. City and the applicant shall meet to determine the need for the incomplete roadway. A number of factors, including changes to the tolling structure at SR-125, may affect the traffic patterns in the Otay Ranch. Additional traffic analysis of the roadway network and levels of service assessment may be necessary to determine if such improvements are necessary and the scope and timing of additional circulation improvements; or
3. Applicant shall construct the missing roadway links and receive TDIF credit for those improvements as applicable; or
4. An alternative measure is selected by the City in accordance with the City of Chula Vista Growth Management Ordinance.
5. All to the satisfaction of the City Engineer

The TIA finds that there are no direct project impacts under the 2020 Conditions.

The developer shall construct or enter into an agreement to construct and secure, in accordance with Section 18.16.220 of the Municipal Code, the required street improvements, including traffic signals, prior to approval of the applicable final map that contains the cumulative EDU trigger indicated above.

The Project will contribute to its fair share through payment of the TDIF for mitigation of the following cumulative impacts identified in Table 14 of the TIA:

- Olympic Parkway/I-805 northbound ramps (intersection)
- Olympic Parkway/Brandywine Ave. (intersection)
- Olympic Parkway: I-805 northbound ramps to Brandywine Avenue
- Olympic Parkway: Brandywine Avenue to Heritage Rd.
- Olympic Parkway: Heritage Rd. to La Media Rd.
- Heritage Road: Main Street to Avenida de las Vistas

3. 2025 Conditions

The 2025 Conditions include analysis of anticipated land uses and traffic associated with land development expected to occur by 2025. In addition to the development assumed in 2020, the

2025 scenario includes Project-generated trips associated with the construction of an additional 131 single family and 1,877 multi-family residential dwelling units, an elementary school, 12.7 acres of park, 325,000 square feet of office space, and 300,000 square feet of commercial retail.

2025 Assumed Improvements and Mitigation Measures

The following improvements are required for Project access and subdivision frontage, or as mitigation for direct Project impacts, per Table 18 of the TIA. Therefore, prior to the first final map containing the 1,312th EDU, the applicant shall have constructed the Project access and frontage improvements and prior to the first final map containing the 3,074th EDU shall have constructed, or secured and agreed to construct, the direct Project impact mitigation measures:

Project Access and Frontage Improvement (prior to the first final map containing the 1,312th EDU):

- Otay Valley Road: Construct from Village 9 Street "A" to Village 9 Street "B" as a 4-lane Major. Install traffic signal at Otay Valley Road / Village 9 Street "A" intersection when warranted;
- Street "A": Construct 2 lanes to form couplet and restripe to one-way (2 NB lanes and 2 SB lanes). Construct south end of couplet to Otay Valley Road as a 4-lane roadway. Install either traffic signals or stop control at internal intersections where appropriate;
- Campus Boulevard: Construct from Village 9 Street "G" to Village 9 Street "B" as a 2-lane roadway;
- Street "B": Construct from Campus Boulevard to terminus south of Otay Valley Road as a 2-lane roadway, with dedicated transit lanes from Campus Boulevard to Otay Valley Road;
- Street "I": Construct from Village 9 Street "A" to Otay Valley Road as a 2-lane roadway.

Direct Project Impact Mitigation (prior to the first final map containing the 3,074th EDU):

- Main Street: Construct from La Media Road to Street "A", including SR-125 overcrossing.

The Project will contribute to its fair share through payment of the TDIF for mitigation of the following cumulative impact identified in Table 18 of the TIA:

- Olympic Parkway: Heritage Rd. to La Media Rd.

Roadways Assumed to be Built by Others (by 1,312th EDU)

The TIA assumes the following improvements would be constructed by others prior to 2025:

- Heritage Road: from Olympic Parkway to Main Street as 6-lane prime arterial and southbound Heritage Road restriped to include dual left turn lanes, three through lanes and one right turn lane;
- Widening of Heritage Road: from Class II Collector (2-lanes) to a 6-Lane Prime between Main Street and Avenida de las Vistas, including the bridge over the Otay River.
- Main Street: from La Media to Magdalena Avenue;

- Santa Victoria Road: from Heritage Road to La Media Road.
- The intersections of Santa Victoria/Olympic Parkway and Santa Victoria/Heritage Road.

The above improvements are required to be constructed prior to the construction of the 1,312th EDU of the Project. No additional development may occur until the roadway mitigations (as described in the TIA) are in place. If the Project equivalent dwelling unit count for 2025 is reached (1,312th EDU as shown in TIA Table 18) prior to the completion of all of the above-listed assumed and planned off-site improvements being constructed and open to traffic, then a significant traffic impact will occur and one of the following steps shall be taken as determined by the City Engineer:

1. Development in Village 9 will stop until those assumed future roadways are constructed by others; or
2. City and the applicant shall meet to determine the need for the incomplete roadway segments. A number of factors, including changes to the tolling structure at SR-125, may affect the traffic patterns in the Otay Ranch. Additional traffic analysis of the roadway network and levels of service assessment may be necessary to determine if such improvements are necessary and the scope and timing of additional circulation improvements; or
3. Applicant shall construct the missing roadway links and receive TDIF credit for those improvements as applicable; or
4. An alternative measure is selected by the City in accordance with the City of Chula Vista Growth Management Ordinance.
5. All to the satisfaction of the City Engineer

The developer shall construct or enter into an agreement to construct and secure, in accordance with Section 18.16.220 of the Municipal Code, the required street improvements, including traffic signals, prior to approval of the applicable final map that contains the cumulative EDU trigger indicated above.

4. 2030 Conditions

The 2030 Conditions include analysis of forecast traffic volumes from land uses and traffic associated with land development expected to occur by 2030. In addition to the development and mitigations assumed through 2025, this scenario assumes build-out of the Project to include the construction of an elementary school, 21 additional single family units, 223 multi-family units, an additional 625,000 square feet of office space, and 5 acres of community purpose facilities.

2030 Assumed Improvements and Mitigation Measures

The following improvements are required for Project access and subdivision frontage, or as mitigation for direct Project impacts, per Table 22 of the TIA. Therefore, prior to the first final map containing the 3,074th EDU, the applicant shall have constructed the Project access and frontage improvements and prior to the first final map containing the 3,407th EDU shall have constructed, or secured and agreed to construct, the direct Project impact mitigation measures:

Project Access and Frontage Improvement (prior to the first final map containing the 3,074th EDU):

- Street "A": Construct as four-lane road from Village 9 northern boundary of the Project to Main Street. Modify traffic signal at Main Street/Street "A";

- Street "B": Construct as two-lane road with dedicated transit lanes from Village 9 northern boundary of the Project to Campus Boulevard. Install traffic signal at Main Street/Street "B".

Direct Project Impact Mitigations (prior to the first final map containing the 3,407th EDU):

- Otay Valley Road: Construct from Main Street to Street "I" including the SR-125 Overcrossing;

- SR-125: Construct northbound and southbound ramps at Main Street.

The Project will contribute to its fair share through payment of the TDIF for mitigation of the following cumulative impact identified in Table 22 of the TIA:

- Birch Rd./La Media Rd. (intersection)
- Main St./I-805 Southbound ramps (intersection)
- Main St./Eastlake Parkway (intersection)
- Birch Rd., La Media Rd. to SR-125
- Heritage Rd., Main St. to Entertainment Circle
- Heritage Rd., Entertainment Circle to Avenida de las Vistas

Roadways Assumed to be Built by Others (by 3,074th EDU)

The TIA assumes the following improvements would be constructed by others prior to 2030:

- Main Street: Construct from Heritage Road to La Media Road;

The following improvement shall be constructed by the developer or the City prior to 2030.

- "Village Path" pedestrian/bicycle bridge: Construct over SR-125 to provide non-motorized access between Village 9 and Village 8 East.

The above improvements that are assumed to be built others, by the developer, or the City, in the 2025 scenario plus the 2025 roadway mitigation measures (described in the TIA) are required to be constructed prior to the final map containing the 3,074th EDU. No additional development may occur until the 2025 roadway mitigations, the assumed roadways, and Village Path/Bridge improvements are in place or the applicant has agreed to construct said improvements, or the following alternative measures shall be taken as determined by the City Engineer:

1. Development in Village 9 will stop until those assumed future roadways are constructed by others; or

2. City and the applicant shall meet to determine the need for the incomplete roadway segments. A number of factors, including changes to the tolling structure at SR-125, may affect the traffic patterns in the Otay Ranch. Additional traffic analysis of the roadway

network and levels of service assessment may be necessary to determine if such improvements are necessary and the scope and timing of additional circulation improvements; or

3. Applicant shall construct the missing roadway links and receive TDIF credit (or Pedestrian Bridge Credit as the case may be) for those improvements as applicable; or

4. An alternative measure is selected by the City in accordance with the City of Chula Vista Growth Management Ordinance.

5. All to the satisfaction of the City Engineer

The developer shall construct or enter into an agreement to construct and secure, in accordance with Section 18.16.220 of the Municipal Code, the required street improvements, including traffic signals, prior to approval of the applicable final map that contains the cumulative EDU trigger indicated above.

Table 4.1.3 summarizes all Project direct requirements for major roadways for each of the TIA analysis years.

TABLE 4.1.3-PROJECT ACCESS AND DIRECT TRAFFIC MITIGATION THRESHOLD REQUIREMENTS

TIA Analysis Year	Improvement	Description	Cumulative Project EDU Threshold[1]	Why Required
2020	Main Street	Secure and agree to construct as 6-lane Gateway from Street "A" to Eastlake Parkway.	1	Project access/frontage requirement
	Street "A"	Secure and agree to construct as 4-lane roadway from Main Street to Street "C" and the west side of the future couplet as a 2-lane, 2-way roadway from Street "C" to Otay Valley Road	1	Project access/frontage requirement
	Main Street / Village 9 Street "A"	Secure and agree to construct traffic signal	1	Project access/frontage requirement
	Otay Valley Road	Secure and agree to construct as a 4-lane Major from Street "I" to Street "A"	1	Project access/frontage requirement
	Street "I"	Secure and agree to construct south of Otay Valley Road as a 2-lane roadway	1	Project access/frontage requirement
2025	Otay Valley Road	Secure and agree to construct as a 4-lane Major from Street "A" to Street "B". Install traffic signal at Otay Valley Road/Street "A" intersection when warranted	1,312	Project access/frontage requirement

TIA Analysis Year	Improvement	Description	Cumulative Project EDU Threshold[1]	Why Required
	Street "A"	Secure and agree to construct 2 one-way segments of 2 lanes each (2 lanes northbound and 2 lanes southbound) to form a couplet and restripe the west side of Street "A" to one-way. Construct south end of couplet to Otay Valley Road as 4-lane road. Install stop control at internal intersections.	1,312	Project access/frontage requirement
	Campus Boulevard	Secure and agree to construct as 2-lane roadway from Street "G" to Street "B"	1,312	Project access/frontage requirement
	Street "B"	Secure and agree to construct as 2-lane roadway from Campus Boulevard to terminus south of Otay Valley Road with dedicated transit lanes from Campus Boulevard to Otay Valley Road	1,312	Project access/frontage requirement
	Street "I"	Secure and agree to construct as a 2-lane road from Street "A" to Otay Valley Road	1,312	Project access/frontage requirement
	Main Street	Secure and agree to construct as 6-lane Gateway from La Media Road to Street "A", including SR-125 overcrossing	3,074	Mitigation for Project direct impacts
2030	Street "A"	Secure and agree to construct as four-lane road from Village 9 northern boundary to Main Street. Modify traffic signal at Main Street/Street "A"	3,074	Project access/frontage requirement
	Street "B"	Secure and agree to construct as two-lane road with dedicated transit lanes from Village 9 northern boundary to Campus Boulevard. Install traffic signal at Main Street/Street "B"	3,074	Project access/frontage requirement
	Otay Valley Road	Secure and agree to construct as 4-lane road from Main Street to Street "I", including the SR-125 overcrossing and the traffic signals at Street "I" and Street "B"	3,407	Mitigation for Project direct impacts
	SR 125 at Main Street	Construct northbound and southbound interchanges ramps	3,407	Mitigation for Project direct impacts

[1] The threshold is approval of the final map that contains the indicated cumulative equivalent dwelling unit for the Project
Note: Development patterns are subject to changes in market conditions. The Project's phasing may therefore change in response to the market requiring the need to adjust thresholds for the above street improvements. The City Engineer may amend any threshold based on a technical study submitted by the Developer demonstrating that providing alternative satisfaction of thresholds is achievable.

B. OTAY RANCH VILLAGE 9 INTERNAL CIRCULATION THRESHOLDS

Table 4.1.4 summarizes the internal facilities that need to be constructed for each planning area (PA) within the Project. For each planning area, the internal streets identified on Table 4.1.4 are required for access and frontage of the planning areas within that phase (these internal roadways and their planning area thresholds are also listed in TIA Table 28). The internal streets are subject to further review by the City based on the specific evolution of the development patterns within the Project. The identified improvements for Main Street, La Media Road, Otay Valley Road and Streets "A", "B", and "I" on Table 4.1.4 are triggered either by the 1st EDU in the planning areas, or the cumulative project EDU trigger for these improvements identified in Table 4.1.3 above, whichever comes first. Exhibit 4.1.2 displays the Village 9 internal street system.

Note that level of service requirements do not apply to the residential streets on Table 4.1.4.

TABLE 4.1.4 --INTERNAL STREET IMPROVEMENTS[1]

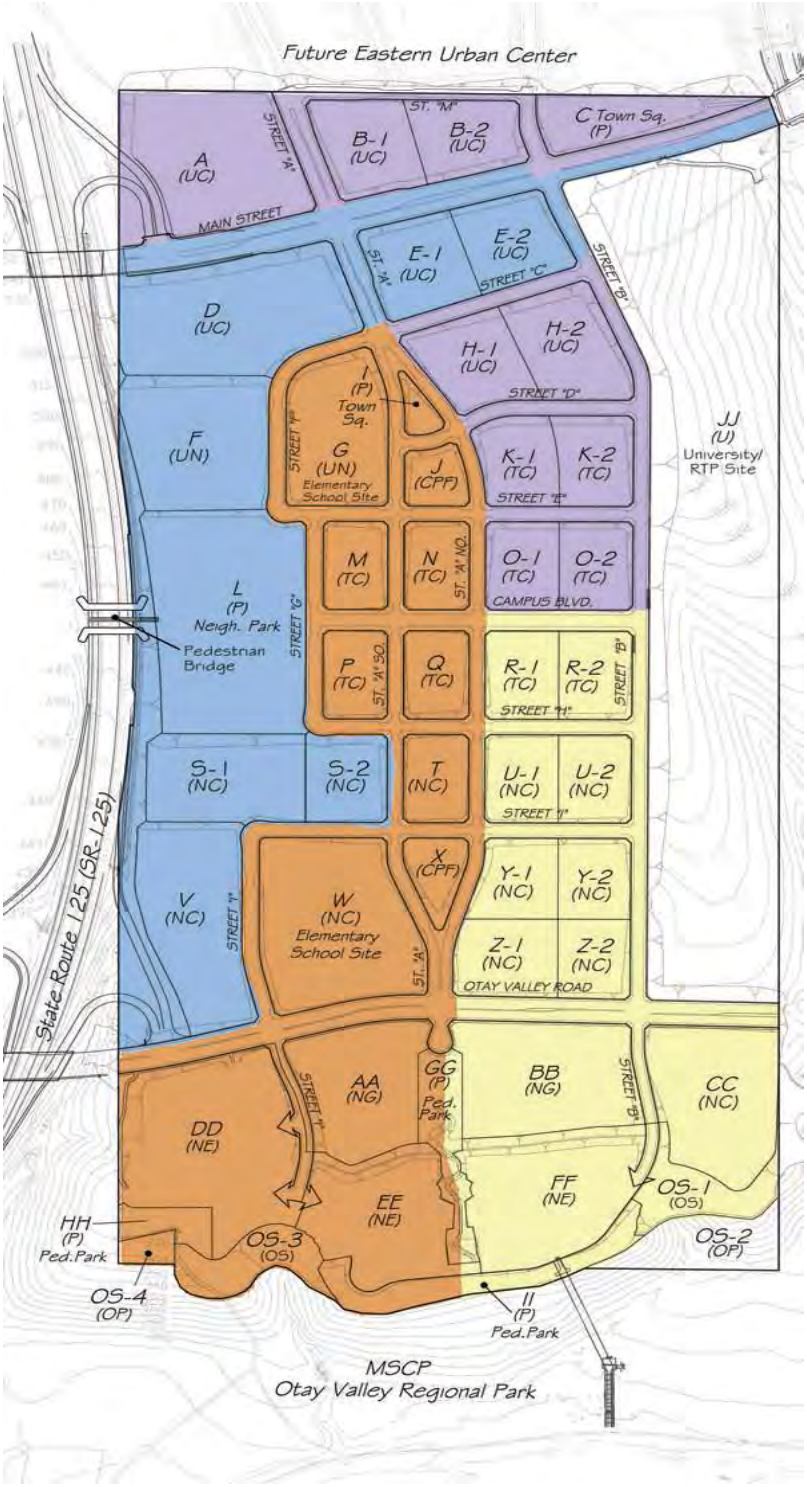
Phase/Planning Areas	Description	Unit Triggers Within Each Phase
ORANGE NORTH G, I, J, M, N, P, Q, T, X, W	Main Street from Street "A" to Eastlake Parkway 1st EDU	1st EDU
	Street "A" from Main Street to Otay Valley Road (west half of future couplet, bi-directional)	
	Street "F" from Street "A" to Street "E" Access/Frontage	Access/Frontage
	Street "G" from Street "E" to Street "H"	
	Street "E" from St. "F" to St. "A"	
	Campus Blvd. from St. "G" to St. "A"	
	Street "H" from St. "G" to St. "A"	
	Street "I" along northern boundary of PA-W to Street "A"	
ORANGE SOUTH AA, DD, EE, GG, HH	Main Street from Street "A" to Eastlake Parkway	1st EDU
	Street "A" from Main Street to Otay Valley Road (west half of future couplet, bi-directional)	
	Otay Valley Road from western project boundary to Street "A"	
	Street "I" south of Otay Valley Road	Access/Frontage
	Street "A" south of Otay Valley Road	
BLUE D, E-1, E-2, F, L, S, V	Main Street from Street "A" to Eastlake Parkway	1st EDU
	Street "A" from Main Street to Street "I" (two-way)	
	Street "C" from Street "A" to eastern boundary of PA-E2	Access/Frontage
	Street "F" from Street "A" to Street "E"	
	Street "G" from Street "E" to Street "H"	
	Street "I" along northern boundary of PA-W to Street "A"	
YELLOW NORTH R-1, R-2, U-1, U-2, Y-1, Y-2, Z-1, Z-2	Main Street from Street "B" to Eastlake Parkway	1st EDU
	Street "B" from Main Street to southern boundary of PA-Y2	
	Street "A" from Campus Boulevard to Street "I" (east half of future couplet, bi-directional)	Access/Frontage
	Campus Boulevard from Street "A" to Street "B"	
	Street "H" from Street "A" to Street "B"	
	Street "I from Street "A" to Street "B	
YELLOW SOUTH	Main Street from Street "B" to Eastlake Parkway	1st EDU

Phase/Planning Areas	Description	Unit Triggers Within Each Phase
BB, CC, FF	Street "B" from Main Street to south of future Otay Valley Road extending into PA-BB & PA-CC	
	Otay Valley Road from Street "A" to eastern project boundary	Access/Frontage
PURPLE NORTH A, B-1, B-2, C	Main Street from Street "A" to Eastlake Parkway	1st EDU
	Street "A" from north project boundary to Main Street	
	Street "B" from north project boundary to Main Street	
PURPLE SOUTH H-1, H-2, K-1, K-2, O-1, O-2	Main Street from Street "A" to Eastlake Parkway	1st EDU
	Street "A" from Main Street to Street "E" (east half of future couplet, bi-directional)	
	Street "B" from Main Street to Street "E"	
	Street "C" from Street "A" to Street "B" Access/Frontage	Access/Frontage
	Street "D from Street "A" to Street "B"	
	Street "E" from Street "A" to Street "B"	

[1] *Unit triggers for Streets "A", "B","I", Otay Valley Road, and Main Street on this table supersede the threshold requirements given on Table 4.1.3*

[2] *The EDU trigger refers to the final map within that phase or planning area which contains the indicated EDU. Development patterns are subject to changes in market conditions. The Project's phasing may therefore change in response to the market requiring the need to adjust thresholds for the above street improvements. The City Engineer may amend any threshold based on a technical study submitted by the Developer demonstrating that providing alternative satisfaction of thresholds is achievable.*

[3] *Project access requirements also apply to the maximum number of units (120 EDUs) that may take access from a single point of connection to a circulation element street in accordance with the City of Chula Vista Subdivision Manual Sec. 3-403.2. Additional points of connection may be required if more than 120 EDU's take access from a single local street which does not have a through connection.*



Transit Stop and Shelter
Signalized Intersection

EXHIBIT 4.1.2 OTAY RANCH VILLAGE 9 STREET MAP

(Source: Village 9 SPA Plan Exhibit 8.5)

As is typical with development projects, Otay Ranch Village 9 project will develop in response to market conditions, with certain areas or certain land uses developing faster than others. Therefore, the interim year construction of boundary intersections and internal roads is not fully certain at this time. The City recommends that boundary intersections be constructed to their full proposed build-out geometry (curb-to-curb) when the connecting internal links are constructed. Future assessment may be required to determine when these connections need to be made, and the boundary intersections constructed, based on the Project's development pattern or as directed by the City Engineer. Due to the uncertainties with the timing and location of the development in each respective phase, the City Engineer will determine if and when additional studies may be needed to update the assumptions and validate the PFFP triggers. In addition, the City Engineer may amend the PFFP triggers at his/her discretion unless stated otherwise in a development agreement.

The developer shall construct or enter into an agreement to construct and secure, in accordance with Section 18.16.220 of the Municipal Code, the required street improvements, including traffic signals, prior to approval of the applicable final map that contains the cumulative EDU trigger.

C. TRANSIT FACILITIES

The Project will be served by a local bus system and the regional Bus Rapid Transit (BRT) system. The BRT is proposed to operate through the Village along dedicated transit lanes located within Street "B" and Otay Valley Road as shown in TIA Exhibit 39. A BRT transit center is proposed at the intersection of Street "B" and Campus Boulevard. The BRT will have traffic signal priority at all intersections. Construction of the transit lanes and transit center is the responsibility of the Project developer and will be completed with the improvements to Street "B" and Otay Valley Road as indicated in Tables 4.1.3 and 4.1.4.

D. THRESHOLD REQUIREMENTS

1. Threshold compliance will continue to be monitored through the annual Transportation Monitoring Program of the GMOC.

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

3. The project shall be conditioned to complete or secure the completion of the transportation facilities (street segments and signalized intersections) according to the thresholds as described in Table 4.1.3 and the internal streets as described in Table 4.1.4 and shown on Exhibit 4.1.2, all to the satisfaction of the City Engineer.

Notwithstanding any threshold requirement stated above, the following general Project requirements shall apply:

1. The Developer shall dedicate the Bus Rapid Transit Right-of-Way and construct BRT lanes within Project and dedicated ROW. Developer shall provide approved bus shelters designs with street improvement plans, or alternatively, provide the City with $20,000 per shelter.

2. Developer shall acquire and dedicate SR-125 Right-of-Way for interchanges, if any.

3. Developer to build all roads surrounding school sites and park sites.

4. Developer shall secure and agree to construct all roadways to their full-width cross section as described in the City of Chula Vista Subdivision Manual unless as previously noted.

4.1.6. FREEWAY SEGMENTS

BASIC FREEWAY SEGMENT ANALYSIS

Segments of northbound and southbound I 805 between Telegraph Canyon Road and Main Street shown on Table 4.1.5 were analyzed under 2030 Without and With Project conditions using the 2000 HCS Basic Freeway Segment analysis methodology. Mainline segment volumes are based on SANDAG forecast 2030 ADT. A 4 percent heavy truck factor was applied and a measured free-flow speed of 65 mph was used in the HCS calculations for multi-lane segments.

TABLE 4.1.5-- FREEWAY SEGMENTS

Interstate 805
Main Street to Olympic Parkway
Olympic Parkway to Telegraph Canyon Road

The results of this analysis are reported on TIA Table 23. The analysis indicates that both I-805 northbound segments between Main Street and Telegraph Canyon Road, are forecasted to operate at LOS E during the PM Peak Hour under both with and without project conditions. The northbound segments both operate at LOS C during the AM peak period in the without-project condition and moves to LOS D in the with-project conditions. The southbound I-805 segments operate at LOS D in both AM and PM peak periods and under both with and without project conditions.

According to *City of Chula Vista Traffic Study Guidelines*, a significant project impact is identified if a project adds 1 mph speed delay or greater to a segment operating at LOS D, E or F. The results of the 2030 With Project mainline segment analysis demonstrate a change in delay of less than 1 mph for each study segment. Therefore, no direct impacts are identified.

The TIA did not analyze freeway segments under the existing with project, the 2020, or the 2025 Conditions. Freeway mainline segment analysis was conducted for northbound and southbound I-805 between Telegraph Canyon Road and Main Street under 2030 Conditions. The Project would not have a direct impact on these segments under 2030 Conditions. Therefore the TIA did not recommend mitigation measures.

Caltrans Intersection Lane Volume (ILV) Analysis

The TIA conducted an ILV analysis for both 2030 Conditions with and without the Project. Table 4.1.6 summarizes the results of the analysis. There are no significance thresholds associated with Project impacts on the freeway intersections, therefore recommended mitigations were not provided.

TABLE 4.1.6-FREEWAY RAMP CONDITIONS WITH AND WITHOUT PROJECT

Intersection	AM or PM?	2030 Without Project	2030 With Project
Olympic Pkwy / I-805 SB Ramps	AM	Stable	Stable
	PM	Unstable	Unstable
Olympic Pkwy / I-805 NB Ramps	AM	Unstable	Unstable
	PM	Unstable	Unstable
Main St / I-805 SB Ramps	AM	Stable	Unstable
	PM	Capacity	Capacity
Main St / I-805 NB Ramps	AM	Capacity	Capacity
	PM	Capacity	Capacity

4.1.7 COST & FINANCING PROJECT TRAFFIC IMPROVEMENTS

A. STREET IMPROVEMENTS

Table 4.1.7 summarizes the various traffic improvements and cost of improvements either assumed to constructed by others, recommended as direct Project mitigation measures, or are TDIF-eligible roadways required for Project access or frontage requirements. These facilities are included in Chula Vista's Eastern Territory Transportation Development Impact Fee (TDIF) program, except for Santa Victoria Road and Village Pathway Pedestrian/Bike Bridge.

TABLE 4.1.7-- ESTIMATED COST OF ROAD IMPROVEMENTS

Facility	Improvement Description	Estimated Cost[1]
La Media Road[2]	Construct from present terminus to Main Street as 6-lane Major	$3,500,000
Santa Victoria Road [3]	Construct from La Media Rd. to Heritage Rd. in Village 2	$4,200,000
Heritage Road	Construct from Olympic Parkway to Main Street as a 6 lane prime	$23,595,000
Heritage Road[4]	Construct from Main Street to Avenida de las Vistas as 6-lane prime, including replacement of Otay River bridge	$22,600,000
Main Street[5]	Construct from La Media Road to Street "A", including SR-125 overcrossing	$20,500,000
Main Street[5]	Construct from Street "A" to Eastlake Parkway, as a 6-lane Gateway	$3,600,000
Main Street[6]	Construct from Heritage Road to La Media Road as a 6-lane Prime	$33,840,000
SR 125 at Main Street	Construct northbound and southbound interchanges ramps	$6,000,000
Village Pathway Pedestrian/Bike Bridge[7]	Construct between Village 9 neighborhood park site (Planning Area L) and Village 8 East	$2,700,000
Otay Valley Road[8]	Construct from Street "I" to Street "B" as a 4-lane Major	$1,960,000
Otay Valley Road[8]	Construct from Main Street to Street "I" as a 4-lane Major, including SR-125 overcrossing	$18,240,000
Total		**$137,035,000**

Notes to Table 4.1.7:

[1] The amounts shown are merely estimates for illustrative purposes only and does not have any effect on the requirement to build the improvements, If necessary, for the continued issuance of building permits for the Project, the developer may be required to build the improvements irrespective of the actual costs being higher or lower than the estimated cost given. All costs, except for Santa Victoria Road are derived from the 2005 Eastern Territory TDIF report.

[2.] Estimated by prorating (between the limits of the Project's obligation) the estimated cost of La Media Rd. from Birch Rd. to Rock Mtn. Rd in TDIF program (Facility 52).

[3.] Estimated cost from Village 2 PFFP. Santa Victoria is not a TDIF-eligible street

[4] The section of Heritage Road from the Chula Vista City limit to Avenida de las Vistas is not within the TDIF program; TDIF credits are not available for a facility outside the City limit unless the facility is within the existing TDIF program. Cost estimate based on cost per lineal foot of a 6-lane prime, including soft costs and right-of-way.

[5.] Based the estimated cost of "Rock Mountain Road" in TDIF (Facilities 60A & 60B)

[6.] Cost estimate based on cost per lineal foot of a 6-lane prime, including soft costs and right-of-way.

[7.] Cost estimate based on 300' long by 15' wide bridge at $600 per square foot, including engineering and environmental review. The Project is specifically obligated to pay for 50% of the cost of the bridge through payment of pedestrian bridge impact fee. The total cost is given in the event the developer is required to construct the bridge pursuant to condition of approval, in which case the developer may be eligible for a fee credit.

[8.] Based on estimated cost per lineal foot of Otay Valley Rd (TDIF Facility 56c), realigned from Main Street in Village 8 West to Street "B" in the Project.

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 4.1.7 are required to be constructed or bonded pursuant to the identified thresholds. A requirement to construct the facilities cannot be satisfied by paying the TDIF. The developer's total fee obligation is based on the TDIF rates in effect at the time of issuance of building permits. Eligible construction costs in excess of the TDIF obligation may be credited against the developer's future TDIF obligations pursuant to an audit. Table 4.1.8 below presents the current TDIF fee schedule. The fee schedule may change from time-to-time as the City updates the TDIF program, or approves cost escalation factors as provided in the program.

TABLE 4.1.8 --TRANSPORTATION IMPACT FEE SCHEDULE

Land Use Classification	Typical Land Use Density	TDIF Rate	
Residential (Low) (per DU)	0-6 dwelling units per gross acre	$12,480	per DU
Residential (Med.) (0.8 EDU/DU)	6.1-18 dwelling units per gross acre	$9,984	per DU
Residential (High) (0.6 EDU/DU)	>18.1 dwelling units per gross acre	$7,488	per DU
Senior housing (0.4 EDU/DU)	>18 dwelling units per gross acre	$4,992	per DU
Residential mixed use (0.4 EDU/DU)	>18 dwelling units per gross acre	$4,992	per DU
Commercial mixed use (per 20 ksf)	16 EDU/20 ksf	$199,680	per 20 ksf
General commercial (per gross acre)	< 5 stories in height (16 EDU/acre)	$199,680	per acre
Regional commercial (per gross acre)	> 60 acres or 800 ksf (11 EDU/acre)	$137,280	per acre
High rise commercial (per gross acre)	> 5 stories in height (28 EDU/acre)	$349,440	per acre
Office (per acre)	< 5 stories in height (9 EDU/acre)	$112,320	per acre
Industrial (per gross acre)	8 EDU/acre	$99,848	per acre
18-hole golf course (per acre)	70.0 EDU/course	$873,600	per course
Medical center (per gross acre)	65 EDU/acre	$811,200	per acre

Table 4.1.9 summarizes the estimated TDIF revenues based on the Project's proposed development phasing assumed in the TIA. The table is provided to give a rough estimate of the revenues that may be expected from the Project for the TDIF program. The fee revenues may change depending upon the actual number dwelling units, the actual acreage for commercial and office land uses and the TDIF rates in effect at issuance of building permits, which is subject to change on an annual basis to reflect construction cost indices and from program revisions resulting from the five-year updates. Final fee calculations will be known at the time building permits are applied for. In addition, Table 4.1.9 presents the total number of estimated dwelling units, and the estimated acreages of commercial and office development in Otay Ranch Village 9.

TABLE 4.1.9 - ESTIMATED TDIF FEE REVENUES

Development Type and Density of Residential	TDIF Rate	Unit	Number of Units	Fee
EUC Residential 28-60 du/ac	$7,488	per DU	1912	$14,317,056
Town Center Residential 18-45 du/ac	$4,992	per DU	780	$5,840,640
Medium High Density Residential 11-18 du/ac	$9,984	per DU	1042	$10,403,328
Medium Density Residential Attached/Detached 6-11 du/ac	$9,984	per DU	161	$1,607,424
Low Medium Density Residential Village 3-6 du/ac	$12,480	per DU	105	$1,310,400
Commercial Retail (< 5 stories, 16 EDU per 20,000 sq.ft.)	$199,680	per 20 KSF	15	$14,976,000
			TOTAL	**$48,454,848**

Estimated TDIF is based on Development Checklist (Form 5509) revised 9/24/12 and subject to adjustment.

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 total traffic signal fee is shown in Table 4.1.10 and is calculated based on the current fee of $33.45 (per the Development Checklist dated September, 24 2012) per vehicle trip generated per day for various land use categories. The fee rate in effect at the time that building permits are issued will be the rate that is charged. The total fee may change depending upon the actual number dwelling units, commercial land uses, and the fee rate in effect, which is subject to change due to program updates based on the changes in planned signal improvements and cost data for actual signal improvements. Final calculations will be known at time building permits are applied for.

TABLE 4.1.10 - ESTIMATED TRAFFIC SIGNAL FEE REVENUE

	Village 9 Gross Trips[1]	Traffic Signal Fee @ $33.45/trip
TOTAL	53,732	$1,797,319

[1]Not reduced by internal capture or transit trips
Estimated Fees are based on Development Checklist (Form 5509) revised 9/24/2012 and subject to adjustment from time-to-time.

All internal intersections will be constructed with signal conduits so that traffic signals can be constructed at a later date if warranted.

D. NON-TDIF STREETS AND SIGNALS

Signals located at the intersection of two non-TDIF public streets are not eligible for development impact fee credit and, pursuant to City policy, will be funded by the development. Installation of traffic signals located at the intersection of a non-TDIF street and a TDIF street are eligible for a partial Signal Fee credit of up to 50 % of the cost of the signal system. The partial fee credit would apply to traffic signals at the following Project intersections:

- Otay Valley Road and Street "A"
- Otay Valley Road and Street "B"
- Otay Valley Road and Street "I"
- Main Street and Street "A"
- Main Street and Street "B"

E. CREDIT FOR TDIF STREETS

Construction of La Media Road, Otay Valley Road and Main Street are eligible to receive a TDIF credit in accordance with City policy.

4.2 POLICE

4.2.1 THRESHOLD STANDARD

1) **Emergency Response:** properly equipped and staffed police units shall respond to 81% of "Priority One" Emergency calls throughout the city within 7 minutes and shall maintain an average response time to all "Priority One" emergency calls of 5.5 minutes or less (measured annually).

2) **Urgent Response:** Properly equipped and staffed police units shall respond to 57% of "Priority Two" Urgent calls throughout the city within 7 minutes and maintain an average response time to all "Priority Two" calls of 7.5 minutes or less (measured annually).

Proposed Revised Threshold Standard

As part of the Growth Management Oversight Committee's "Top-to-Bottom" review the above adopted threshold standards for emergency and urgent response are being reconsidered. Modified thresholds standards have been presented to the GMOC and will be brought to the City Council for approval in later this year. Further discussion on the modified thresholds is included below in Section 4.2.5.

4.2.2 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 and equipment 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.

4.2.3 PROJECT PROCESSING REQUIREMENTS

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

- Services reviewed must be consistent with the proposed phasing of the project.
- Able to demonstrate conformance with *A Master Plan for the Chula Vista Civic Center* dated May 8, 1989, as amended unless stated otherwise in a development agreement.

4.2.4 EXISTING CONDITIONS

The Chula Vista Police Department (CVPD) provides law enforcement services to the area encompassing the project. The CVPD is located in its headquarters building at the corner 4th Avenue and F Street in Chula Vista. This new facility is expected to be adequate through the build-out of Chula Vista. The Otay Ranch Village 9 SPA Project (the "Project") is within Police Patrol Beat 32 that is served by at least one beat officer per shift.

POLICE FACILITY INVENTORY

- Police Headquarters at 4th Avenue and F Street.

4.2.5 ADEQUACY ANALYSIS

According to the Growth Management Oversight Commission (GMOC) April 25, 2013 Annual Report the response thresholds for "Priority One" Calls for Service (CFS) were not met during the threshold review period 7/1/11 to 6/30/12 (see Table 4.2.1) for the first time since 2004-05. The department fell short of the "Priority One" calls for service in 2.6% of the calls which were not responded to within 7:00 minutes. The thresholds for "Priority Two" calls for service during the same period were also not met. The Priority Two thresholds have not been met for 15 consecutive years (see Table 4.2.2).

According to the GMOC report, police response time is just one measure of how these services are keeping pace with growth. The city has implemented measures to improve police response times. These measures range from better education and communication within the Police Department regarding the GMOC threshold standards, as well as utilization of technological advances. Two measures that do relate to the ability of the Police Department to maintain the quality of life and are growth related are maintaining adequate staffing and reducing false alarms.

As the table below indicates, until the current threshold review period, the Police Department had made progress in reducing Priority One response times from a low of 80% in FY 2004-05. Although the Police Department has engaged in several initiatives to extend the reduction in response times, they reported to the GMOC that the drop below the threshold is due to chronic low staffing in the Community Patrol Division.

TABLE 4.2.1
HISTORIC RESPONSE TIMES
PRIORITY ONE -- EMERGENCY RESPONSE, CALLS FOR SERVICE

	Call Volume	% of Call Response within 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
FY2008-09	788 of 70,051	84.6%	4:26
FY2007-08	1,006 of 74,192	87.9%	4:19
FY2006-07	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

	Call Volume	% of Call Response within 7 Minutes	Average Response Time
FY 1999-00	1,750 of 76,738	75.9%	5:21
CY 1999	1,890 of 74,405	70.9%	5:50

Source: GMOC 2013 Annual Report for threshold review period 7/1/11 to 6/30/12

For the 15th consecutive year, the threshold standard for Priority Two-–Urgent Response has not been met. Furthermore, the average response time increased by nearly 2 minutes over the previous year, and the gap between the percentages of calls responded to within 7 minutes and the threshold increased to its widest margin since 2005-06. The Police Department attributes the increase in Priority Two response times also to low staffing in the patrol division.

The Police Department asserts that adequate staffing levels are crucial to meeting the existing Priority Two threshold standard. While additional staff is needed, the department does not anticipate having the necessary resources available for more staff in the near future due to the City's ongoing budget challenges. Although this is a potential area of concern for the associated Village 9 Fiscal Impact Analysis (See Sec 5), this PFFP addresses facility threshold issues not Police Department operations. As such, the cumulative mitigation measure for the Project's impacts on police facilities is payment of the Public Facility Development Impact Fee (PFDIF see Sec. 4.2.6). Pursuant to State law the proceeds of the PFDIF may not be used for staffing or operations. The fee revenues may, however, be applied to capital improvements that serve to enhance operations and enable efficiencies that might mitigate staffing shortfalls to some extent.

TABLE 4.2.2
HISTORIC RESPONSE TIMES
PRIORITY TWO – EMERGENCY RESPONSE, CALLS FOR SERVICE

	Call Volume	% of Call Response within 7 Minutes	Average Response Time
Threshold		**57.0%**	**7:30**
FY 2011-12	22,121 of 64,695	41.9%	11:54
FY 2010-11	21,500 of 64,695	49.8%	10:06
FY 2009-10	22,240 of 68,145	49.8%	9:55
FY2008-09	22,686 of 70,051	53.5%	9:16
FY2007-08	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, Annual Report for threshold review period 7/1/11 to 6/30/12

The GMOC's 2013 Annual Report acknowledged that the adopted current calls for service (CFS) threshold standards need to be reevaluated and discusses modifications to the standards proposed by the Police Department. The proposed modifications involve the following changes in calculating and reporting response times:

- Calculating response time from the time the call was received in the Communications Center to the time that the first unit arrived on scene, or the "received-to-arrive" time;
- Elimination of the normalization adjustments of response times for CFS from the Eastern Territory, which was used to account for geographic and land-use conditions that tend to extend response times relative to times in the older areas of the City;
- Include false burglary alarms calls for service in Priority Two calculation;
- The average response time threshold for Priority One calls for service would be increased to 6:00minutes;
- The average response time threshold for Priority Two call for service would be increased to 12:00 minutes.

The response time tables below, from GMOC 2012 Report Appendix B, summarize the CFS data based on the proposed criteria outlined above. The above criteria correspond to those commonly used by other police agencies in San Diego County.

TABLE 4.2.3
MODIFIED THRESHOLD FOR
PRIORITY ONE -- EMERGENCY RESPONSE, CALLS FOR SERVICE
"RECEIVED TO ARRIVED"

	Call Volume	% of Call Response within 7 Minutes	Average Response Time
Threshold		**N/A**	**6:00**
FY 2010-11	657 of 64,695	N/A	5:35

TABLE 4.2.4
MODIFIED THRESHOLD FOR
PRIORITY TWO – EMERGENCY RESPONSE, CALLS FOR SERVICE
"RECEIVED TO ARRIVED"

	Call Volume	% of Call Response within 7 Minutes	Average Response Time
Threshold		**N/A**	**12:00**
FY 2010-11	21,500 of 64,695	N/A	12:31

The CFS data for FY 2010-11 show that the proposed threshold standards would continue to be achieved for Priority One calls, but that the response to Priority One calls would still be deficient. The proposed threshold standards will be taken to the City Council later this year.

To further address CFS response time and other police level of service issues the Department retained the Matrix Consulting Group in February, 2012 to undertake a comprehensive analysis of the Department's staffing, workload and best practices. A Phase One report that focuses on operational and staffing issues of the Community Patrol division was completed in April, 2012; the Department is implementing the recommendations contained in the Phase One report. A first draft report of Phase Two of the study was submitted in October, 2012, it covers the Department's other divisions. One of the study's general findings is that the Department should avoid an over-emphasis on CFS response times. CFS response is strictly a measure of the Department's ability to react whereas the Department should instead focus on increasing "proactive" patrol time in the community through appropriate changes in staffing and operational practices.

The Police Department indicated in the 2012 GMOC Report that its current facilities, equipment and staff are not able to accommodate citywide forecasted growth and meet the threshold standards for the next 12 to 18 months. The Department cited the elimination of the vehicle replacement fund as a factor that would impact the Department's ability to fund other police programs. One-time funding was used to replace aging patrol vehicles and will be unavailable in the future. The Department also indicated a lack of funding for needed upgrades to its computer-aided dispatch system and an inability to fund in-car video cameras and replacements for its mobile data computing system. Currently, the Department finds that it must divert funds from policing services in order to maintain its equipment. While operational and staffing costs are not eligible uses of development impact fee revenue, capital investments in equipment, vehicles and technology are. The cost of these mission-critical elements should be fully evaluated in a future update of the Public Facilities Development Impact Fee (PFDIF).

Finally, the 2012 GMOC Report also recommends the reevaluation of a permanent Eastern Satellite Station (a police storefront was recently opened in the Otay Town Centre shopping center; however funding for the storefront is assured for only a few years). A permanent police facility in the Eastern Territory was first evaluated in 2005. There is currently no available funding source for such a facility and would require a major update to the PFDIF in order to include the facility in the impact fee program.

4.2.6 FINANCING POLICE FACILITIES

The Public Facilities Development Impact Fee (PFDIF) was updated and revised by the Chula Vista City Council on September 24, 2012 and June 28, 2013. The Public Facilities Development Impact Fee (PFDIF) is adjusted approximately every October 1st pursuant to Ordinance 3050. The Police Public Facilities DIF Fee is shown in Table 4.2.3, below. 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 $7,259,925. The final PFDIF obligation will be subject to the rates in effect at the time building permits are issued.

TABLE 4.2.5
VILLAGE 9 SPA
PUBLIC FACILITIES FEES FOR POLICE [1]

Phase	SFDU	MFDU	Commercial Acres	Police Component Fee			Total Fee
				SFDU @ $1,656/D	MFDU $1,789/DU	Commercial $7,826/Acre	
Orange	145	308	4.4	$240,120	$551,012	$34,434	$825,566
Blue	0	1,239	4	$0	$2,216,571	$31,304	$2,247,875
Yellow	121	614	7.6	$200,376	$1,098,446	$59,478	$1,129,308
Purple	0	1,573	1.8	$0	$2,814,097	$14,087	$3,057,176
TOTAL	**266**	**3,734**	**17.8**	**$440,496**	**$6,680,126**	**$139,303**	**$7,259,925**

4.2.7 THRESHOLD COMPLIANCE AND REQUIREMENTS

Police response times for "Priority One" Calls for Service (CFS) were met during the 2010-2011 GMOC threshold review period. The Department is in compliance with "Priority One" thresholds for this period. The thresholds for "Priority Two" during the same period were not met. However, response times to "Priority Two" alone are not the only indicator of the capacity of the Police Department to provide adequate services. Notwithstanding the Department's effort to reduce response times and increase proactive patrol time, the Project applicants and the Department shall comply with the following requirements:

1) Prior to the approval of each building permit unless stated otherwise in a development agreement, the Applicant(s) shall pay Public Facilities Development Impact Fees (PFDIF) for police facilities at the rate in effect the time building permits are issued.

2) The City will continue to monitor police responses to calls for service in both the Emergency (priority one) and Urgent (priority two) categories and report the results to the GMOC on an annual basis.

3) Prior to approval of each design review permit, site plans shall be reviewed by the CVPD (or their designee) to ensure the incorporation of crime prevention through environmental design (CPTED) features and other recommendations of the CVPD, including, but not limited to, controlled access points to parking lots and buildings; maximizing the visibility along building fronts, sidewalks, paseos and public parks; and providing adequate street, parking lot, and parking structure lighting.

[1] Fee based on Form 5509 dated 6/28/2013. Actual fee may be different and will be determined by the City of Chula Vista at the time of building permit.

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

4.3 FIRE AND EMERGENCY MEDICAL SERVICES

4.3.1 THRESHOLD STANDARD

The Chula Vista Growth Management Program Quality of Life Threshold Standards for Fire and Emergency Medical Services are found in CVMC Sec 19.09.040B: "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."

4.3.2 SERVICE ANALYSIS

The City of Chula Vista Fire Department (CVFD) provides Fire and Emergency Medical Services (EMS). EMS is provided on a contract basis by 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 and EMS in the City. Fire/EMS facilities are provided for in the 1997 Fire Station Master Plan, as amended unless stated otherwise in a development agreement. The Fire Station Master Plan indicates that the number and location of fire stations primarily determine response time. The 1997 Fire Station Master Plan evaluates the planning area's fire coverage needs, and recommends a nine (9) station network at build-out to maintain compliance with the threshold standard.

The CVFD has prepared a draft updated Fire Facility, Equipment, and Deployment Master Plan (FFMP) dated January 2011 but it has yet to be officially adopted. The adopted 1997 Fire Station Master Plan has been used to complete this analysis; however, if and/or when the new FFMP is approved the Project will be required to comply with its requirements. It is anticipated that the FFMP will be adopted in winter 2013 timeframe.

4.3.3 PROJECT PROCESSING REQUIREMENTS

In accordance with the approved Fire Station Master Plan, the City, at its sole discretion unless stated otherwise in a development agreement, shall determine when a new fire station is required in order to achieve threshold service levels, meet specific project guidelines or maintain general operational needs of the Fire Department. Developments shall be in accordance with the project guidelines outlined in the Fire Station Master Plan as may be amended from time to time unless stated otherwise in a development agreement.

The requirement to pay for fire station construction and related equipment shall be the sole responsibility of the developer or developers and the City may require said developer or developers to provide a guarantee mechanism to assure the availability of such funding.

The City of Chula Vista requires all SPA Plans to address Fire/EMS and the facilities needed to provide these services. Some issues that must be addressed relative to Fire/EMS facility needs are:

1) Specific siting of the needed facilities takes place in conformance with the *Fire Station Master Plan,* August 14, 1997, as amended unless stated otherwise in a development agreement;

2) Equipment needs;

3) Methods of financing equipment and facilities;

4) Timing of construction consistent with the threshold service levels. (May require a "trigger analysis" to be performed by a third-party expert to dictate and justify the timing for the requisite fire facilities.)

5) Specific project guidelines and/or general operational needs of the Fire Department.

4.3.4 EXISTING CONDITIONS

There are currently nine (9) fire stations serving the City of Chula Vista. The existing station network is listed below in Table 4.3.1 (Current & Planned Fire Station Facilities):

TABLE 4.3.1
CURRENT & PLANNED FIRE STATION FACILITIES[1]

Station	Location	Equipment	Staffing
Current		**Fire Station Facilities**	
Station 1	447 F Street Chula Vista, CA 91910	Engine 51/Truck 51 Battalion 51	Assigned: 24 On Duty: 8
Station 2	80 East J Street Chula Vista, CA 91910	Engine 52/Reserve 52	Assigned: 9 On Duty: 3
Station 3	1410 Brandywine Ave. Chula Vista, CA 91911	Urban Search and Rescue unit (USAR) 53/ USAR Tender & Trailer	Assigned: 12 On Duty: 4
Station 4	850 Paseo Ranchero Chula Vista, CA 91910	Engine 54	Assigned: 9 On Duty: 3
Station 5	391 Oxford Street Chula Vista, CA 91911	Engine 55/Reserve 53	Assigned: 9 On Duty: 3
Station 6	605 Mt. Miguel Rd. Chula Vista, CA 91914	Engine 56/Brush Engine 52	Assigned: 9 On Duty: 3
Station 7	1640 Santa Venetia Rd. Chula Vista, CA 91913	Engine 57/Ladder Truck 57 Battalion 52	Assigned: 24 On Duty: 8
Station 8	1180 Woods Drive Chula Vista, CA, 91914	Engine 58	Assigned: 9 On Duty: 3
Station 9	291 E. Oneida Street Chula Vista, CA 91911	Engine 59	Assigned: 9 On Duty: 3
Planned		**Fire Station Facilities**	
Station 10	Eastern Urban Center	EUC Engine/EUC Truck	Assigned: 21 On Duty: 7
Station 11[2]	Chula Vista Bayfront: Bay Blvd. & J Street	Bayfront Engine/Bayfront Truck	Assigned: 21 On Duty: 7

Source: CVFD Website accessed on 1/30/2013

4.3.5 ADEQUACY ANALYSIS

The City of Chula Vista Fire Department (CVFD) currently serves areas within the City's boundaries. The CVFD stations closest to the Otay Ranch Village 9 SPA Project (the "Project") site are:

[1] These planned facilities only represent those new facilities as listed within the 1997 Fire Department Master Plan.
[2] Chula Vista Bayfront Master Plan and Port Master Plan Amendment Revised Draft EIR SCH#2005081077 (Station 11).

- Fire Station #6, located at 605 Mt. Miguel Rd in San Miguel Ranch.
- Fire Station #7, located at 1640 Santa Venetia Rd. in Village 2
- Fire Station #8, located at 1180 Woods Drive in EastLake III
- A new Fire Station is planned for the Eastern Urban Center.

The Fire/EMS response time threshold was not met for the latest GMOC report dated April 25, 2013 for the threshold review period July 2011 to June 2012. The percentage of calls responded to within seven minutes has fallen to its second lowest level in 8 years and is currently at 78.4%, below the 80% threshold standard.

The Fire Department reports that its aging reserve engine fleet is beginning to hinder its performance capabilities. The older fleet has smaller engines, older suspension and smaller brakes, all of which may reduce their ability to respond adequately.

American Medical Response (AMR) currently provides emergency medical services to the Project site on a contract basis for the City of Chula Vista.

TABLE 4.3.2
FIRE/EMS - EMERGENCY RESPONSE TIMES SINCE 1999

Review Period	Call Volume	% of All Call Response Within 7:00 Minutes (GMOC Threshold: 80%)
FY 2012	11,132	78.4%
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%
FY 1999-00	6,654	79.7%

Source: GMOC 2013 Annual Report for the 7/1/2011 to 6/30/2012 reporting period

The CVFD currently does not meet the GMOC threshold of responding to 80 percent of calls within seven minutes. The CVFD expects the Project's demand for services to increase the operating costs for equipment and staffing. Fire/EMS operating costs are addressed in the Fiscal Impacts Section 5 of this PFFP.

4.3.6 FINANCING FIRE SERVICE FACILITIES

The Public Facilities Development Impact Fee (PFDIF) was last updated by the Chula Vista City Council on September 24, 2012 and June 28, 2013. The Public Facilities Development Impact Fee (PFDIF) is adjusted approximately every October 1st pursuant to Ordinance 3050. 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 $4,102,775.

TABLE 4.3.3 - VILLAGE 9 SPA
PUBLIC FACILITIES FEES FOR FIRE/EMS FACILITIES

Phase	SFDU	MFDU	Commercial Acres	Fire/EMS			Total Fee
				SFDU $1,369/DU	MFDU $984/DU	Commercial $3,616/Acre	
Orange	145	308	4.4	$198,505	$303,072	$15,910	$517,487
Blue	0	1,239	4	$0	$1,219,176	$14,464	$1,233,640
Yellow	121	614	7.6	$165,649	$604,176	$27,482	$671,355
Purple	0	1,573	1.8	$0	$1,547,832	$6,509	$1,680,293
Total	**266**	**3,734**	**17.8**	**$364,154**	**$3,674,256**	**$64,365**	**$4,102,775**

Estimates based on Form 5509 dated 6/28/13. Fees are subject to change depending on rate, dwelling units & commercial acres.

Table 4.3.3 is an estimate, 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. The final obligation for the PFDIF will be subject to the rates in effect at the time building permits are issued.

4.3.7 THRESHOLD COMPLIANCE AND RECOMMENDATIONS

1) The City will continue to monitor fire department responses to emergency fire and medical calls and report the results to the GMOC on an annual basis.

2) The Project developer shall pay public facilities fees at the rate in effect at the time building permits are issued.

3) Fire Code Compliance: Prior to the approval of each building permit and to the satisfaction of the City of Chula Vista Fire Marshal, the Project shall meet the provisions of the current city-adopted California fire code and GMOC ordinance. In meeting said provisions, the project shall meet the minimum fire flow requirements based upon construction type and square footage.

4) The Fire Marshal shall have the sole discretion to grant exceptions to the Fire Code based upon adequate alternative means and materials. Such alternatives may require third party technical review at the project permit phase.

5) City should review the PFDIF for Fire/EMS to assure that new development is funding its fair share of these facilities.

4.4 SCHOOLS

4.4.1 THRESHOLD STANDARD

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

1) Amount of current capacity now used or committed.

2) Ability to absorb forecasted growth in affected facilities.

3) Evaluation of funding and site availability for projected new facilities.

4) Other relevant information the District(s) desire(s) to communicate to the City and GMOC.

4.4.2 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 July 23, 2000, have been 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 $2.97 per square foot for new residential construction and $0.47 per square foot for new commercial and industrial construction). These fees were last adopted by the State Allocation Board at its January 27, 2010 meeting and may be increased every two years thereafter according to an inflation adjustment. This fee is shared between CVESD and SUHSD through a fee sharing agreement.

CVESD utilizes their most recent School Facilities Needs Analysis (SFNA) dated June 2011, to quantify, for the next five-year period, the impacts of new residential development on the districts 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 the residential development in Village 9, alternative fees or implementation of a Mello Roos Community Facilities District (CFD) will be necessary.

In compliance with Government Code Section 65995(c) et. Seq. the SFNA provides the determination of eligibility for and the calculation of a Level II Fee. The formula for calculating the Alternative Level II fee can be generally described as the number of unhoused students identified in the SFNA, multiplied by the per pupil grant amount, plus 50%of the sum of site acquisition and development costs, less surplus property or proceeds thereon if any, less local funds dedicated for facilities construction, divided by the projected total square footage of residential units anticipated to be constructed during the next five years. A corresponding Level III Fee can generally be described as being equal to twice the Alternative Level II Fee plus the full amount of local funds dedicated by the District to provide school facilities to accommodate students generated from new growth, including any commercial and industrial fees collected.

Sweetwater Union High School District utilizes their current "Sweetwater Union High School District Long Range Comprehensive Master Plan" dated July 20, 2004. Implementation of the SUHSD Plan is ongoing and has resulted in the upgrading of older schools and accommodating continuing growth. In recognition of the impact on school facilities from new development, the SUHSD and the development community have entered into various mitigation agreements in order to ensure the timely construction of school facilities to house students from such new development. The primary financing mechanism authorized in these mitigation agreements is the formation of community facilities districts (CFDs). For this reason, such mitigated developments have been excluded from the projections contained in the SFNA dated March 11, 2011.

4.4.3 PROJECT PROCESSING REQUIREMENTS

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

1) Identify student generation by phase of development.

2) Specific siting of proposed school facilities will take place in conformance with the *Sweetwater Union High School District Long Range Comprehensive Master Plan,* July 2004 and Chula Vista Elementary School District's Standards and Criteria.

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

4) Provide cost estimates for facilities.

5) Identify facilities consistent with proposed phasing.

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

7) Secure financing.

4.4.4 EXISTING CONDITIONS

SCHOOL FACILITIES INVENTORY, CHULA VISTA ELEMENTARY SCHOOL DISTRICT

Currently, the CVESD's inventory consists of 45 elementary schools including 6 Charter schools. Exhibit A-2 of the CVESD SFNA lists current available capacity in May 2011 as 28,268. Capacity using existing facilities is approximately 29,212. Projected enrollment for October 2010 was

27,484. Generally, there is sufficient capacity throughout the district at this time to accommodate additional students.

The proposed Village 9 project is located adjacent to mitigated development (CFD areas) where enrollment is near capacity when using state-loading standards.

SCHOOL FACILITIES INVENTORY, SWEETWATER UNION HIGH SCHOOL DISTRICT

The SUHSD currently administers one junior high, ten middle schools, twelve comprehensive high schools, one continuation high school, seven alternative education academies, and four adult education centers.

The district wide student enrollment is stable. According to the district, the Village 9 project is within the EastLake Middle School and the Olympian High School attendance areas.

4.4.5 SCHOOL SIZING AND LOCATION

The project is proposed to consist of 4,000 dwelling units at build out. At completion, the proposed project could generate approximately 1,706 students using the following Student Generation Factors:

Elementary (K-6) =
- .2091[1] students/DU of Multi-Family
- .4114 students/DU of Attached cluster & detached

Middle School (7-8) =
- .081 students/DU of Multi-Family
- .0936 students/DU of Attached, cluster & detached Single Family

High School (9-12) =
- .1171 students/DU of Multi-Family
- .1939 students/DU of Attached, cluster & Detached Single Family

By phase and school category, the high density plan is expected to generate the following students:

TABLE 4.4.1 - STUDENT GENERATION BY PHASE*

Phase	Elementary School (K-6)	Middle School (7-8)	High School (9-12)	Total Students
Orange	124	39	64	**227**
Blue	259	100	145	**504**
Yellow	178	61	95	**334**
Purple	328	127	184	**639**
Subtotal	**890**	**327**	**488**	**1,704**

*Totals of rows and columns do not match due to rounding errors

[1] Includes Apartment & Condominium units.

SCHOOL SIZE STANDARDS

- Elementary 750-1000 students
- Middle 1,200 students
- Senior High 2,400 students

Chula Vista Elementary School District

The project will generate an estimated 890 elementary school students. To fulfill the educational need of new elementary school students within Village 9, two elementary school sites have been reserved. Both of these sites may be developed as an elementary school if selected by the CVESD. Each site is large enough to accommodate approximately 750 students. Construction timing and selection of the school site will be determined by the school district. Until such time that the school is completed, students residing in Village 9 will attend schools in neighboring villages as determined by the CVESD.

The CVESD relies heavily on local funding to finance the construction of school facilities and in the last several years the District has been deemed ineligible to receive any monies from the State to construct new schools. Based on the projected development set forth in the GMOC forecast and current eligibility determinations by the Office of Public School Construction, the District does not anticipate additional state funding will be forthcoming for at least the next three-five years. With state funding in doubt plus increased costs of school construction and land acquisition the future of new school construction projects will be difficult. The developer will satisfy its obligation to mitigate the project's impact on school facilities through the payment of statutory school fees as required under State law.

Sweetwater Union High School District

The maximum capacity of a middle school is approximately 1,200 students. It is anticipated that the approximately 327 middle school students generated by the Village 9 project will likely attend the planned middle school located in Village 11 or Village 8 West. The Project will generate an estimated 488 high school students.

High school students from Village 9 will likely attend Olympian High School, located in Village 7 less than one-half mile from Village 9

4.4.6 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. The SUHSD is unable to meet the needs of this project with current school facilities and it is unable to construct new facilities to meet the impacts of this project through the provision of school fees. In recognition of this funding deficiency, it is the policy 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 prior to recordation of a final map However it should be noted that State Law

does not allow Cities to condition final maps approvals on the creation of a Mello-Roos district. The following Mello-Roos Districts have been created by each district:

TABLE 4.4.2 COMMUNITY FACILITY DISTRICT BY DEVELOPMENT

SUHSD	
CFD Number	**Location**
1	EastLake
2	Bonita Long Canyon
3	Rancho del Rey
4	Sunbow
5	Annexable
6	Otay Ranch
7	Rolling Hills Estate
8	Coral Gate (Otay Mesa)
9	Ocean View Hills
10	Remington Hills/Annexable
11	Lomas Verdes
12	Otay Ranch (Village 1 West)
13	San Miguel Ranch
14	Otay Ranch Village 11

CVESD	
CFD Number	**Location**
1	EastLake
2	Bonita Long Canyon
3	Rancho del Rey
4	Sunbow
5	Annexable
6	Otay Ranch
10	Annexable for future annexations
11	Otay Ranch (Lomas Verde)
12	Otay Ranch (Village 1, West)
13	San Miguel Ranch
14	Otay Ranch Village 11 (Brookf./Shea)
15	Otay Ranch Village 6 (ORC)

Based on data available from each district in their respective 2011 SFNA, an estimate of costs for the construction of school facilities on a per student basis is provided below. Both districts follow state standards for determining the costs and size for school construction.

ELEMENTARY SCHOOL COST

- (800 students) ($27,300/student excluding land cost) $21,800,000
- (800 students) ($36,500/student including land cost) $29,150,000

MIDDLE SCHOOL COST

- (1,500 students) ($29,900/student excluding land cost) $44,900,000
- (1,500 students) ($40,300/student including land cost) $60,485,000

HIGH SCHOOL COST

- (2,400 students) ($33,300/student excluding land cost) $79,900,000
- (2,400 students) ($46,400/student including land cost) $111,400,000

4.4.7 THRESHOLD COMPLIANCE AND RECOMMENDATIONS

1) Prior to the issuance of each building permit, the Applicant(s) shall provide the City with evidence of certification by the CVESD and SUHSD that any fee, charge, dedication, or other requirement levied by the school districts has been complied with or that the districts have determined the fee, charge, dedication or other requirement does not apply to the construction.

2) Prior to approval of a applicable final map for private development on Planning Areas G and W, of the Village 9 SPA Site Utilization Plan dated November 2013 (and including minimum lot size, grading, and any other required improvements), the applicant shall provide City-acceptable evidence from the Chula Vista Elementary School District that the site or sites have not been determined by the districts to be needed for use as a school sites. Prior to approval of the first final map for the Project the developer shall seek to determine the District's preference for the school sites.

4.5 LIBRARIES

4.5.1 THRESHOLD STANDARD

In the area east of I-805, the City shall construct, by build-out (approximately year 2030) 60,000 gross square feet (GSF) of library space beyond the city-wide June 30, 2000 GSF total. The construction of said facilities shall be phased such that the City will not fall below the GMOC threshold standard ratio of 500 GSF per 1,000 population[1]. Library facilities are to be adequately equipped and staffed.

4.5.2 SERVICE ANALYSIS

The City of Chula Vista Library Department provides library facilities.

4.5.3 PROJECT PROCESSING REQUIREMENTS

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

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

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

4.5.4 EXISTING CONDITIONS

The City provides library services through the Chula Vista Public Library at Fourth and "F" Street (Civic Center), the South Chula Vista Library in the Montgomery/Otay planning area, and the recently opened (April 14, 2012) Otay Ranch Town Center site. The Castle Park, Woodlawn and the public library operation at Eastlake High School have been closed. The current libraries are listed on Table 4.5.1.

TABLE 4.5.1
CURRENT LIBRARY FACILITIES

Current Libraries	Square Footage
Civic Center Branch	55,000
South Chula Vista Branch	37,000
Otay Ranch Town Center (opened April 14, 2012)	3,412
Total Existing Square Feet	**95,412**

[1] The GMOC threshold of 500 GSF per 1,000 population is stated in the Chula Vista Municipal Code (Sec. 19.09.04 D). Construction of library space shall be phased such that the city shall not fall below this threshold. However the Chula Vista Public Facilities Development Impact Fee program uses a "service standard" of 600 GSF/1,000, which is the target or desired standard to be achieved at build-out of the city. The proposed Library Facilities Strategic Plan recommends a range of 500 to 700 GSF.

4.5.5 ADEQUACY ANALYSIS

The *1998 Chula Vista Library Master Plan Update* addressed such topics as library siting and phasing, the impacts of new technologies on library usage, and floor space needs. The plan called for the construction of a full service regional library of approximately 30,000 square feet in the Rancho del Rey area and the construction of a second full service regional library of similar size in the Otay Ranch Eastern Urban Center (EUC). The City submitted applications for grant funding for the Rancho del Rey library in all three rounds of the highly competitive State Library Bond Act of 2000 administered by the California State Library (aka Proposition 14), but the City did not receive an award. The Rancho del Rey branch library was subsequently put on hold.

The City has prepared a draft *Library Strategic Facilities Plan* dated April 2011. The plan has not yet been adopted by City Council. According to the Plan, developing a single new destination library for east Chula Vista would be the most cost effective way to meet the threshold standard for library space in Chula Vista, from the standpoint of both capital and operating costs. The Plan indicates that a new destination library should be located convenient to SR-125, preferably on the east side of the freeway in order to best serve residents of this underserved area. In addition to sufficient capacity for the library building and parking, characteristics of a successful library site include a high profile location along a well-traveled route, close to other community amenities and accessible by public transit. A single new destination library could also be developed in phases. This would provide the ability to begin project implementation sooner, rather than waiting until funding accrues for the full project. The draft plan is being held pending completion of a Strategic Plan Element.

Table 4.5.2 highlights existing plus forecasted project demands for library space as compared to the existing and scheduled library space as well as the impact of the Otay Ranch Village 9 SPA Project (the "Project") on library facilities. The Project can be accommodated in the projected Regional Library space.

TABLE 4.5.2
FORECASTED LIBRARY SPACE DEMAND VS. SUPPLY

	Population[1]	Demand Square Footage[2]	Supply Square Footage	Above/(Below) Standard
Estimated Existing City-wide 5/1/2012	246,496	123,248	95,412	(27,836)
Future Branch Library (Phase 1)			30,000	30,000
Future Branch Library (Phase 2)			10,000	10,000
Forecasted Projects to 2016	16,568	8,284		(8,284)
Total	**263,064**	**131,532**	**135,412**	**3,880**

[1]CA DOF estimate Jan. 1, 2010

[2] Based on 500 GSF per 1,000 population

The 2013 Annual GMOC Report points out that, for the ninth consecutive year, the City has not complied with the threshold standard of providing 500 gross square feet of library facilities per 1000 people. With the closure of the Eastlake Branch in June, 2011 the FY 2010-11 gross library floor area service ratio is only 387 square feet per 1,000 residents. The ratio is projected to fall to 379 sq. ft./1,000 in FY 2012-13, and to 341 sq. ft. by 2017 if no new library space is added.

The Library Threshold Standard Implementation Measure requires that the City Council "formally adopt and fund tactics to bring the library system into conformance, and that construction, or another actual solution, shall be scheduled to commence within three years of the threshold not being satisfied (June 2007)". The deficiency of total library space is only one indicator of more pressing constraints that have been identified in GMOC reports, and draft Library Strategic Facility Plan including but not limited to the following:

- Lack of conveniently located facilities to serve the east side of Chula Vista (the most significant influencing factor on library use is proximity of the facility to the user),
- Reduction in library hours as the result of budget cutbacks;
- Adequate computer facilities, both equipment and infrastructure quality at the Civic Branch, and the number of stations, as well as speed of connection at all library facilities.

While the library system may not be experiencing significant issues due to a lack of square footage available (i.e., a failure to meet the threshold), the City's libraries are experiencing significant customer service issues directly related to location of branches, hours and equipment availability and quality.

Based on a population projection of 10,923, the Project will generate a demand for 5,462 gross square feet of additional library space, which can be accommodated in the projected planned total square footage of the proposed branch libraries.

4.5.6 FINANCING LIBRARY FACILITIES

The Public Facilities Development Impact Fee (PFDIF) was last updated by the Chula Vista City Council on June 28, 2013. The PFDIF is adjusted approximately every October 1st pursuant to Ordinance 3050. The Library Public Facilities DIF Fee for both Single Family and Multi-Family Development is $1,555/unit[2]. 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 estimated Library Fee obligation at build-out is $6,220,000.

TABLE 4.5.3
LIBRARY FEE FOR VILLAGE 9

Phase	Number of DUs	Library Fee $1,555/DU
Orange	453	$704,415
Blue	1,239	$1,926,645
Yellow	735	$1,142,925
Purple	1,573	$2,446,015
Total	**4,000**	**$6,220,000**

[2] Fee based on Form 5509 dated 6/28/2013. Actual fee at the time of building permit issuance may be different. The applicant should verify the fee prior to obtaining building permits.

The projected fee per dwelling unit illustrated in Table 4.5.3 is the current rate, and may be subject to change by action of the City Council by the time building permits are pulled. The total fee revenue is dependent on project phasing, final residential densities and density transfers.

4.5.7 THRESHOLD COMPLIANCE AND RECOMMENDATIONS

In its 2012 Annual Report dated June 7, 2012, the GMOC noted the need to update the 1998 Library Facilities Master Plan to reflect increased library needs generated by projected build-out population from the 2005 General Plan Update. A draft of the Master Plan was completed but its adoption put on hold until such time as an updated Library Strategic Plan may be completed. The Strategic Plan may not be completed for another 12 months, or more.

Based upon the analysis contained within this section, the City's current library facilities (approximately 95,412 square feet) are approximately 27,836 square feet below the threshold standard (see Table 4.5.2).

Prior to the issuance of each building permit for residential dwelling units unless stated otherwise in a development agreement, the Project Developer shall pay the Public Facilities DIF for library facilities at the rate in effect at the time of building permit issuance.

4.6 PARKS, TRAILS AND OPEN SPACE

4.6.1 PARK THRESHOLD STANDARD

Three (3) acres of neighborhood and community parkland with appropriate facilities shall be provided per 1,000 residents east of I-805 (this standard is also specified in Section 17.10.040 of the Chula Vista Municipal Code).

4.6.2 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 City Council approved the Chula Vista Parks and Recreation Master Plan in November 2002. The Plan provides guidance for planning, siting and implementation of neighborhood and community parks.

4.6.3 PROJECT PROCESSING REQUIREMENTS

- 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.
- Specific siting of the facility will take place in conformance with the Village 9 Parks, Recreation, and Open Space Master Plan as Chapter 7 of the SPA Plan.
- Provide irrevocable offer of dedication for park purposes for sites within the project.
- Compliance with the Otay Ranch Resource Management Plan

4.6.4 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 Draft Parks and Recreation Master Plan dated December, 2010.

4.6.5 PROJECT PARK REQUIREMENTS

COMPLIANCE WITH PUBLIC PARK STANDARDS

The Village 9 project (Project) generates an estimated population of 10,923[1]. To meet the City threshold requirements the amount of parkland dedicated is based on a standard of 3 acres per 1,000 population (see Table 4.6.1). The standard is based on State of California Government Code 66477, also known as the Quimby Act that allows a city to require by ordinance, the dedication of land or payment of fees for park or recreational purposes or a combination of both.

TABLE 4.6.1
QUIMBY ACT PARKLAND REQUIREMENTS

Village 9 SPA Population	Standard	Parkland Acres Required
10,923	3 acres per 1,000 population	32.8

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 parkland acquisition and development (PAD fees), 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, triplexes and apartments), Mobile Homes and Hotel/Motel Rooms. Multi-Family Housing is defined as any free-standing structure that contains two or more residential units. The Parkland Dedication Ordinance (PDO) specifies a land area to be dedicated for each unit depending on type: Single Family or Multi-family. The land area requirements are shown below on Table 4.6.2.

TABLE 4.6.2
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.

The PDO method results in a slightly different park acreage obligation than shown in Table 4.6.1. Applying the PDO standards, the Project's park obligation is approximately 32 acres (see Table 4.6.3)

[1] This population is based on the persons per household factors used by the Department of Development Services: 3.30 per single family residence, 3.1 per unit for Mixed-Use (10 to 27 units per acre), and 2.58 per multi-family.

TABLE 4.6.3 - VILLAGE 9 SPA PLAN
PRELIMINARY PARKLAND DEDICATION REQUIREMENTS
CITY ORDINANCE APPLIED TO PLANNING PREDICTION OF UNIT NUMBERS AND TYPES[2]

Dwelling Unit Type*	Number of D.U.	Parkland Required/DU	Required Acres
Single Family	266	460 sf/du	2.81
Multi-Family	3,734	341 sf/du	29.24
TOTALS	**4,000**		**32.05**

The Project phasing (Table 3.2) and Site Utilization Plan (Exhibit 3.1) identifies the park designations and acreage that are also shown in Table 4.6.4 and Exhibit 4.6.1. Table 4.6.4 also identifies the phase of development in which the parks will be constructed. The neighborhood park site will be offered for dedication at the first final map for the Project. The town square park sites will be constructed by the developer and will remain private. The Town Square Park in Planning Area C is required to be completed prior to issuance of a building permit for the 460th residential unit in Project Planning Areas A, B-1 and B-2, and the Town Square Park in Planning Area I is required to be completed prior to issuance of a building permit for the 192nd residential unit in Project Planning Areas M, N, P, and Q.

The Pedestrian/Mini Parks (located south of Otay Valley Road in the Orange and Yellow Phases) will also be constructed by the developer and are subject to dwelling unit thresholds. The Pedestrian/Mini Parks located in Planning Areas GG, HH and II shall all be completed prior to issuance of a building permit for the 719th residential unit south of H Street.

Applying a unit threshold to the neighborhood park is not practical since the development of a public park is not under the control of the developer. In this regard, the Director of Recreation shall have the discretion to modify the sequence of park delivery. The City's Parkland Dedication Ordinance requirements for the Project are outlined in Table 4.6.4.

TABLE 4.6.4
VILLAGE 9 SPA PLAN
PARK ACRES AND ELIGIBLE CREDITS

Park Identification	Net Acres[1]	Phase	Proposed Credit %	Eligible Credit Acres
Neighborhood Parks	13.4	Blue	100%	13.4
Town Square Parks	3.4	Orange &Purple	100%	3.4
Mini Parks	6.2	Orange &Yellow	100%	6.2
Total Provided	**23.0**			**23.0**
Village 9 SPA PAD Requirements				32.0
Park Acreage Deficiency				**9.0**

[1] Net Acres from SPA Plan

4.6.6 PARK ADEQUACY ANALYSIS

Table 4.6.5 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 Village 9 project. A review of

[2] This table is based on 3,734 multi-family dwelling units x 2.61 population factor and 266 single family dwelling units x 3.52 population factor *(CVMC Sec. 17.10.040*

the existing and approved park demands for Chula Vista east of I-805 including the Project indicates a projected 2016 demand of approximately 400.8 acres of Neighborhood and Community Parks. The 2016 projected supply of park acreage east of I-805, 437.24 acres, is 36.44 acres more than the projected demand.

TABLE 4.6.5
ESTIMATED PARK ACREAGE DEMAND COMPARED TO SUPPLY EAST OF INTERSTATE 805

	Population East of I-805[1]	Park Demand[2]	Existing and Future Park Acres[3]	Eligible Credit Acres	Net Acres +/-Standard
Existing	118,000	354	390.44	390.44	+36.44
Forecasted Projects 2011 to 2016	15,613[4]	46.8	46.8[5]	46.8	+0
Total	**133,613**	**400.8**	**437.24**	**473.24**	**+36.44**

[1] Projected population figures are from the 2011 GMOC Annual Report. Existing population is an estimate based on a Eastern Territory 2030 population of 176,000 less a population of approximately 58,000 attributable to the remaining residential units estimated to be permitted and built in the Eastern Territory.

[2] Based on City Threshold requirement of 3 acres of neighborhood and community parkland per 1,000 residents east of I-805.

[3] Existing park acreage in "Eastern Territory" from 2010 Draft Park and Recreation Master Plan

[4] From Table 3.1

[5] Park acreage in future projects, including Village 9, shall be delivered prior to or concurrent with demand

TABLE 4.6.6
VILLAGE 9 SPA PARK DEMAND BY PHASE

Phase	SFDU	MFDU	Demand Park Acres	Supply Net Park Acres	Net Acres +/- Standard	Project Cumulative
Orange	145	308	3.9	3.9	+0.9	+0.9
Blue	0	1,239	9.7	13.4	+3.7	+4.6
Yellow	121	614	6.1	1.7	-4.4	+0.2
Purple	0	1,573	12.3	3.1	-9.2	-9.0
Total	**266**	**3,734**	**32**	**23.0**	**-9.0**	**-9.0**

The proposed development of the Project requires approximately 32 acres of net usable park space or park "demand acres" per the City of Chula Vista Parkland Dedication Ordinance for public parkland (see Table 4.6.6). According to the Project's tentative map, Village 9 will provide 23.0 net acres of eligible parkland or "supply acres". The difference between the demand for parklands in Village 9 and the parklands supplied is a net deficit of 9.0 acres. The 23.0 acres will be provided by the Developer dedicating parkland, paying in lieu parkland development fees for the neighborhood parks, and constructing the town square and pedestrian/mini parks. The 9.0 acres remaining of the Project's total parkland requirement shall be met by a combination of additional dedications of parkland and/or payment of park acquisition and development fees, at the discretion of the Directors of Recreation and Development Services.

In Village 8 West, the other Otay Ranch SPA owned by the Project developer, a net 9.4 acre surplus of parkland is identified. The Project developer is proposing to apply the Village 8 West excess supply toward meeting the park requirements of Village 9. In effect, the developer is proposing a transfer of parkland "credit". Any transfer of this type must be approved by the Directors of Recreation and Development Services. The method by which the Project's parkland

obligation is met must consider, in addition to the dedication of acreage, the development of an additional 9.0 usable park acres, whether by payment of fees, construction of park facilities, or a combination of both, in order to meet the total Village 9 obligation.

4.6.7 PARKLAND, OPEN SPACE AND TRAILS

The Otay Ranch GDP established a four-tiered system of parks to be provided throughout the community to meet its goals and thresholds. The four tiers are: 1) park amenities in town square parks; 2) active play facilities in neighborhood parks; 3) community-level playing fields in community parks; and, 4) region-wide active and passive recreational areas in designated regional parks. Open space, community and regional parks are designated at the GDP level.

The GDP Park and Open Space Policies for Village 9 state that parks will be established at the SPA Plan level. The amount of parkland required by the local park code, Chapter 17.10 CVMC, and the amount provided are indicated in Tables 4.6.3 and 4.6.4.

A. REQUIRED PARKLAND & IMPROVEMENTS

New development is required to provide public parkland, improved to City standards, and dedicated to the City and/or provide in lieu fees, based on the City's Parkland Dedication Ordinance. The dedication requirements implement the Quimby Act 3 acre/1000 population standard. In addition to improved parkland, additional or specialized recreational facilities or payment of in-lieu fees can be provided and credited against the parkland requirement on an acreage basis. The projected dedication and/or fee requirement for the Project, based on the proposed target number of units and the assumed product types, is 32 acres as detailed in Tables 4.6.3 and 4.6.6 above. Compliance with the park dedication requirements will be monitored at each applicable final map and building permit within the Project.

B. OPEN SPACE

The Project will provide 4 acres of Open Space Preserve for conveyance into the Otay Ranch Preserve (See section D below) and 5.6 acres of Preserve edge open space (see Exhibit 4.6.1). Additional open space areas in the form of manufactured slopes will occur throughout the SPA adjacent to roadways and between planning areas.

C. PARK & OPEN SPACE IMPLEMENTATION

All of the open space and public parks will be controlled through open space easements and/or dedication to the City, or a special maintenance district established for that purpose. Maintenance of the neighborhood park will be provided by the City general fund. Maintenance of the town square parks will be funded through the establishment of a property-based business improvement district or other mechanism acceptable to the Director of Recreation. Community Facility, Open Space and/or Landscape Maintenance Districts may be established to ensure proper management, maintenance and operation of the pedestrian parks and public right-of-way improvements. Private open space areas and slopes within "common interest" residential projects will be designated common areas and maintained by homeowners' associations. Similar property owners' associations may be established for non-residential projects which include common areas requiring on-going maintenance.

The phasing of park sites will include offering parkland for dedication at the first final map and construction of park improvements. Parks are to be available for use when the corresponding number of occupied new dwelling units requiring said park acreage is sufficient enough to equal the size of one or more of the Project's planned parks. The neighborhood park is to be

constructed by the City with Developer-paid in-lieu park development fees being the source of funding for construction. Park fees are to be paid prior to issuance of residential building permits. The two town square parks and three pedestrian/mini parks are to be constructed by the Developer as a "turn key" facilities according to the unit thresholds stated in Section 4.6.5 above. Upon successful completion of these parks, as determined by the Director of Recreation, City will allow parkland development PAD fee credits. The amount of said credits is subject to the Director of Recreation approval.

D. OTAY RANCH RESOURCE MANAGEMENT PLAN (RMP)

In accordance with the Otay Ranch RMP, the development of each Otay Ranch village requires an open space (OS) contribution of 1.188 acres of habitat to the Otay Ranch Preserve for each acre of development within the village, in accordance with existing conveyance agreements. The Village 9 contribution is based on a development land area of approximately 323.1 acres less land area to be used for Community Purpose Facilities (CPF), parks, schools, arterial roads, SR-125 right-of-way, and open space totaling approximately 141.8 acres. At 1.188 acres of conveyance per developed acre, the total conveyance obligation would be approximately 219.9 acres. The Project's Preserve conveyance acreage is calculated in Table 4.6.7. The acreages are estimates only; actual acreages may be different when calculated at the time of final map.

TABLE 4.6.7
VILLAGE 9 PRESERVE CONVEYANCE OBLIGATION

Development	Acreage
Total Developable Land Uses	**323.1**
Common Uses Not Calculated as Part of Conveyance Obligation:	
Community Purpose Facility (CPF)	-5.0
Parks (gross area including pedestrian parks)	-27.5
Open Space (including Preserve and Preserve Edge)	-9.6
Right-of-Way (arterials and SR-125)	-26.1
Schools	-19.8
University Site	-50.0
Subtotal Acreage of Common Uses	*-141.8*
Total Developable Acreage (minus acreage for Common Uses)	**181.3**
Per Acre Conveyance	1.188
Estimated Total Conveyance Acreage	**219.9***

** Final conveyance acreage will be determined at the time of final map.*

Approximately 4 acres of Preserve area is provided within the SPA and will be conveyed into the Otay Ranch Preserve. The remaining open space obligation will be fulfilled in accordance with the conveyance agreement. The 5.6 acres of Preserve edge open space is not applicable to the Project's conveyance obligation.

E. TRAILS

The Project's SPA Plan provides for a Village Pathway, a segment of the Regional Trail and neighborhood trails and pedestrian linkages within and beyond Village 9 (see Exhibit 4.6.1). Within the Project, parks are accessed by the network of sidewalks and other trail amenities as follows:

1) **Village Path and Pedestrian Bridge.** The Village Path occupies a portion of the neighborhood park and the Campus Boulevard right-of-way. The Village Path begins at the Street "B" BRT transit station on the University Site. The Village Path then continues west on Campus Boulevard, past Street "G" into the Neighborhood Park to the future pedestrian bridge over SR-125. The Village Path connects Village 8 East with the future university site. Village Path and the pedestrian bridge are assumed to be constructed by the year 2030, or prior to the 3,074th EDU in the Project, whichever comes first.

2) **Regional Trail.** The Regional Trail provides a connection to the Otay Valley Regional Park. The regional trail is located within the Otay Valley Road right-of-way then proceeds southerly through the pedestrian parks and open space areas in the Project before connecting with the Otay Valley Regional Park (see Exhibit 4.6.1).

3) **Neighborhood Trails.** Neighborhood trails occur along interior slopes, connecting adjacent planning areas where steep slopes prevent direct roadway connections. The intent of these trails is to promote walkability by creating shorter travel distances between neighborhoods. They may not be appropriate for all users.

4.6.8 RECREATION

The Project's SPA Plan addresses the park, open space and trails facilities within the SPA area. The Otay Ranch Parks and Recreation Facility Implementation Plan (adopted by the City Council on October 28, 1993) identifies the park facility improvement standards for Otay Ranch. The City of Chula Vista Development Services Department conducted subsequent facilities needs assessments and proposed City-wide modifications to parks and recreation facilities. The proposed modifications for Otay Ranch area parks are included in the City of Chula Vista Draft Parks and Recreation Master Plan, dated December, 2010. The proposed types, quantities and location of the facilities provided at each park site are included in the Project's SPA Plan.

4.6.9 FINANCING PARK FACILITIES

Chapter 17.10 of the Chula Vista Municipal Code, as amended unless stated otherwise in a parks or development agreement, 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.

CVMC 17.10.070 allows the City to deem that a combination of dedication of parkland and the payment of in-lieu fees would better serve the public and the park and recreation needs of future residents of the project if, in the judgment of the City, suitable land does not exist. Furthermore CVMC states that the amount and location of the land or in-lieu fees, or combination thereof, shall bear a reasonable relationship to the use of the park and recreational facilities by the future inhabitants of the subdivision.

TABLE 4.6.8
PARK DEVELOPMENT COMPONENT (PAD) FEES
(DEVELOPMENT IN-LIEU COMPONENT ONLY)

Development Phase	SFDU	MFDU	Development Component of PAD Fee's/DU		Fees by Phase and Total
			SFDU @ $4,984	MFDU @ $3,698	
Orange	145	308	$722,680	$1,138,984	$1,861,664
Blue	0	1,239	$0	$4,581,822	$4,581,822
Yellow	121	614	$603,064	$2,270572	$2873,636
Purple	0	1,573	$0	$5,816,954	$5,816,954
Total	**266**	**3,734**	**$1,325,744**	**$13,808,332**	**$15,134,076**

Note: Actual fee obligation calculation to be based on the fees in effect at the time of payment and the implementing ordinance definition of dwelling unit type irrespective of underlying zoning district containing said dwelling unit unless stated otherwise in a separate development agreement. 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 illustrative estimates, and shall be recalculated at the time when the obligations are due as determined by chapter 17.10 of the CVMC unless stated otherwise in a separate parks or development agreement. . The current Park Acquisition and Development fees are found in the City of Chula Vista's Development Checklist for Municipal Code Requirements, Form 5509, and Revised September 24, 2012.

PAD fees and acreage obligations are subject to periodic annual increases. In the event that the Developer offers for dedication parkland acceptable to the City for use as parkland, the Developer is eligible to receive parkland acquisition fee credits at the discretion of the Director of Recreation. Table 4.6.8 identifies the fees calculated for the development component of the PAD fees while Table 4.6.9 identifies the fees calculated for the parkland acquisition component of the PAD fees. These fees are estimates only, actual fees will be based on PAD fee rates in effect at time of payment and are dependent upon the actual numbers of units filed on the final maps. Fees are also subject to change by the City Council. Multi-Family dwelling units are defined as all types of attached housing including townhouses, attached condominiums, duplexes, triplexes and apartments. The development in-lieu fees generated by the Project will be used by the City to construct the neighborhood park in Planning Area "L" and for development of park sites elsewhere to satisfy the Project's full parkland obligation.

TABLE 4.6.9
PARK ACQUISITION COMPONENT (PAD) FEES
(ACQUISITION IN-LIEU COMPONENT ONLY)

Development Phase	SFDU	MFDU	Acquisition Component of PAD Fee's/DU		Fees by Phase and Total
			SFDU @ $12,676	MFDU @ $9,408	
Orange	145	308	$1,838,020	$2,897,664	$4,735,684
Blue	0	1239	$0	$11,656,512	$11,656,512
Yellow	121	486	$1,533,796	$5,776,512	$7,310,308
Purple	0	1701	$0	$14,798,784	$14,798,784
Total	**266**	**3,734**	**$3,371,816**	**$35,129,472**	**$38,501,288**

4.6.10 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 July 23, 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. It is the responsibility of the developer to dedicate land for parks and develop all or a portion of the land as a neighborhood or community park. All parks must be designed and constructed to the City of Chula Vista regulations and to the satisfaction of the Director of Recreation and Director of Public Works. Improvements that may be required by the City include:

- Drainage Systems
- 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 separate 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. In addition to existing citywide recreational facilities, an additional 139,834 square feet of major recreation facilities will be required to meet new development growth through build-out. Since the demand for major public recreation facilities is created by residential development, facilities costs are not spread to commercial/industrial development. Table 4.6.10 provides an estimate of the Recreational PFDIF Fees for the project. These fees are estimates only, actual fees will be based on fee rates in effect at time of payment and are dependent upon the actual numbers of units filed on the Project's final maps.

TABLE 4.6.10 - VILLAGE 9 SPA
PUBLIC FACILITIES FEES FOR RECREATION[3]

Development Phase	Dwelling Units	Recreation Fee
		$1,180/DU
Orange	453	$534,540
Blue	1,239	$1,462,020
Yellow	735	$867,300
Purple	1,573	$1,856,140
Total	**4,000**	**$4,720,000**

[3] The PFDIF Fee for Recreation Facilities is subject to change as it is amended from time to time. The Recreation Fee is based upon the City of Chula Vista's Development Checklist for Municipal Code Requirements, Form 5509, and Revised September 24, 2012. The total number of dwelling units filed on the final map or for which building permits are required shall determine the actual fee amount. Unless stated otherwise in a separate parks or development agreement the applicant shall pay the PFDIF in effect at the time building permits are issued.

4.6.11 THRESHOLD COMPLIANCE AND RECOMMENDATIONS

A. Based upon the analysis contained in this section of the PFFP, the parks 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, including the dedication of parkland in Village 8 West.

B. Prior to approval of the first final map for the Project the Applicant(s) shall offer for dedication the site of the Neighborhood Park in Planning Area L and all other public parkland identified in the Project's approved SPA Plan, including the access roads needed to access said parks, free and clear of all encumbrances unless otherwise approved by the City. Privately owned park sites, such as the Town Center parks and Pedestrian/Mini Parks, identified as being required to meet the Project's overall park obligation shall be identified on the first final map for the Project and shall be accessible to the public, all as approved by the Director of Recreation.

C. Prior to the approval of each final map for the project, or, for any residential development project within Village 9 that does not require a final map, prior to building permit approval, the Applicant(s) shall pay Park Acquisition and Development in-lieu fees for the area covered by the final map(s). The payment of in-lieu fees shall be in accordance with the City's Park Acquisition and Development Fee Ordinance or as otherwise provided in a parks or development agreement.

D. 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. 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 unless otherwise approved by the City, contained in said map.

F. 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.

G. 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.

H. Prior to the approval of the first map for the Project the Project shall annex into the Otay Ranch Preserve Maintenance CFD.

I. Prior to recordation of each final "B" map, the developer shall convey or shall have conveyed at least 1.118 acres of habitat for each acre of development area within the map area as defined in the Resource Management Plan (RMP), (a total of approximately 219.9 acres) to the Otay Ranch Preserve pursuant to the Otay Ranch. RMP. Conveyance of the habitat meets the City's threshold standard for conveyance obligation of Preserve open space. The actual number of acres to be conveyed with each final map will be determined during final map review.

J. Prior to issuing a total of 192 residential building permits from either Planning Area M, N, P, or Q, or a combination thereof, (as calculated from a combined total of building permits from said planning areas or from any one of the designated planning areas, whichever

occurs first), the Town Square Park in Planning Area I shall be completed to the satisfaction of the Director of Recreation. Prior to issuing a total of 460 residential building permits from Planning Areas A, B-1 or B-2, or in a combination thereof (as calculated from a combined total of building permits from said planning areas or from any one of the designated planning areas, whichever occurs first) the Town Square Park in Planning Area C shall be completed to the satisfaction of the Director of Recreation. Prior to issuing a total of 719 residential building permits south of H Street (as calculated from a combined total of building permits from the planning areas south of H Street), the Pedestrian/Mini Parks in Planning Areas GG, HH, and II including the pedestrian trail through OS-3 connecting Planning Areas HH and II, shall all be completed to the satisfaction of the Director of Recreation.

K. 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 park sites, (which may include off-site dedication in Village 8 West), payment of PAD fees and applicable Pedestrian Bridge DIF, schedule for completion of improvements, including utilities, and streets adjacent to the park sites, all to the satisfaction of the Directors of Public Works and Recreation. 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.

L. Prior to the first final map for the Project the developer shall fund the processing of a Village Pathway Pedestrian Bridge Development Impact Fee Ordinance (which will be applied to Village 9) for the cost of constructing a village pathway pedestrian and bicycle bridge, including but not limited to: conceptual plans, environmental review, final plans, approach ramps, abutments, encroachment permits, right-of-way, grading, paving, walls, lighting and all line items necessary for the complete construction of said improvement on a pro rata basis, in order to comply with the Village 9 SPA and the Otay Ranch GDP. The applicant shall agree not to protest the amount of the fee established by said Ordinance.

M. Prior to the final map for the Project containing the 3,074th EDU in the Project the Village Path, including the pedestrian bridge, between Villages 9 and 8 East, shall have been constructed and in service. If these facilities are not constructed and in service then one of the following steps shall be taken as determined by the City Engineer:

1. Development in Village 9 shall not proceed until the Village Pathway pedestrian and bicycle bridge is constructed; or
2. City and the developer shall meet to determine whether revised timing of the facilities is appropriate. A number of factors, including the progress of development of Village 8 East and changes to the assumed land uses, may affect the timing and location of the facilities; or
3. Developer shall construct the facilities and be eligible for reimbursement from the Village Pathway Bridge Development Impact Fee for total expenditures in excess of 50% of the total cost of the facilities;
4. All to the satisfaction of the City Engineer

Notwithstanding the above, planning areas A, B-1, B-2, and C form part of the Eastern Urban Center Pedestrian Bridge Development Impact Fee benefit area and shall be excluded from the Village 9 Pathway Bridge Development Impact Fee. The Village 9

share of the cost of the improvements shall be allocated among the units in the remaining Village 9 planning areas.

N. Prior to approval of the first final map for the Project the developer shall provide the City with an Irrevocable Offer of Dedication for at least 9.0 acres of park land, acceptable to the Director of Recreation in Village 8 West or in another location acceptable to the Director of Recreation. The 9.0 acre offer of dedication for park land is for the purpose of meeting the Project's Community Park off-site dedication obligation.

O. Prior to the issuance of each residential building permit for dwelling units in planning areas A, B-1, B-2, and C of Village 9 the developer shall pay the Eastern Urban Area Pedestrian Bridge Development Impact Fee in effect at the time of issuance of the building permit in accordance with Ordinance No. 3273.

P. Prior to approval of the first final map for the Project the Applicant(s) shall offer for dedication the alignment of the Regional Trail through the Project, free and clear of all encumbrances unless otherwise approved by the City.

Q. Prior to the approval of the first final map for the Project the developer shall enter into an agreement with the City to construct the Regional Trail through the Project. The agreement shall provide for the acceptance of the trail right of way and improvements therein and a schedule for completion of improvements to the satisfaction of the Directors of Public Works and Recreation.

Parks

	Planning Area	Gross Acres	Eligible Acres
Neighborhood	L	14.8	13.4
Town Square	C, I	5.1	3.4
Pedestrian	GG, HH, II	7.6	6.2
Total Parks		**27.5**	**23.0**

Trails

- Sidewalk
- Village Pathway
- Regional Trail
- Neighborhood Trail
- Planned Transit Station
- Potential Transit Stop
- Future Pedestrian Bridge

Open Space

Classification	Planning Area	Gross Acres
Preserve (MSCP)	OS-2, OS-4	4.0
Perimeter Slopes	OS-1, OS-3	5.6+
Interior Slopes[1]	TBD	TBD

Notes:

1. Interior slopes to be determined by final grading plan
2. SR-125 ramp designs are conceptual. Final design to be determined by Caltrans

EXHIBIT 4.6.1 DESIGNATED PARKS AND OPEN SPACE

Source: Village 9 SPA Plan, November, 2013

4.7 WATER

4.7.1 THRESHOLD STANDARD

1. Developer will request and deliver to the City a service availability letter from the Water District for each project, as defined by the City.

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

   A. Water availability to the City and planning area, considering both short and long term perspectives;

   B. Amount of current capacity, including storage capacity, now used or committed;

   C. Ability of affected facilities to absorb forecasted growth;

   D. Evaluation of funding and site availability for projected new facilities;

   E. Other relevant information the District(s) desire(s) to communicate to the City and GMOC.

The growth forecast and water district response letters shall be provided to the GMOC for inclusion in its review.

4.7.2 SERVICE ANALYSIS

The Otay Water District (OWD) will provide potable and recycled water service for the Village 9 SPA Plan (Project) area. OWD has existing and planned facilities in the vicinity of the Project site. Expanding the existing system can provide water service to the Project (see Exhibits 4.7.1 and 4.7.2).

The Final Overview of Water Service for Otay Ranch Village 9, dated December 2010, by Dexter Wilson Engineering, Inc. (Wilson Water Study) and the Otay Water District Water Supply Assessment and Verification Report, (WSA&V) dated November 2010, by Robert Kennedy, P.E., Associate Civil Engineer for OWD, provide the basis for this section of this PFFP. The Wilson Water Study provides recommendations for improvements that are needed to provide potable and recycled water service to the Project. The WSA&V includes an identification of existing water supply entitlements, water rights, water service contracts, or agreements relevant to the identified water supply needs for the Project. Prior to the approval of the first final map for the Project the developer shall also prepare a potable and recycled water Subarea Water Master Plan (SAMP) and gain approval of the SAMP from OWD. The SAMP will identify all water and recycled water facilities needed to serve the Project, both on and off the Project site. The SAMP will also identify the party responsible for the funding and construction of the identified improvements. In addition, no Final Map for the Project will be approved until the needed on-site and off-site facilities have been identified, secured and/or constructed, as approved by OWD and the City. The Project will be required to provide all facilities needed to serve the Project when constructed without relying on the phased construction of adjacent projects, which are planned to provide improvements. The SAMP will be reviewed by the City of Chula Vista, the City's Fire Marshal and OWD prior to approval of

the first final map for the Project. The SAMP will provide more detailed information on the Project such as project phasing; recycled water system improvements, processing requirements and computer modeling to justify recommended pipe sizes. 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 in accordance with the *Otay Water District Water Resources Master Plan, October 2008 (revised Nov. 2010)*(WRMP) or as referenced in the Wilson Water Study. 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.

OWD prepared the WSA&V Report at the request of the City of Chula Vista (City). The WSA&V Report identifies that the water demand projections for the Project are included in the water demand and supply forecasts within the Urban Water Management Plans and other water resources planning documents of OWD, the San Diego County Water Authority (Water Authority), and the Metropolitan Water District of Southern California (MWD). Water supplies necessary to serve the demands of the Project, along with existing and other projected future users, as well as the actions necessary to develop these supplies, have been identified in the water supply planning documents of OWD, the Water Authority, and MWD. Further, the WSA&V Report demonstrates and verifies that sufficient water supplies are to be available over a 20-year planning horizon, and in single- and multiple-dry years to meet the projected demand of the Project and the existing and other planned development projects within the OWD service area.

Senate Bills 610 (Chapter 643- Statutes of 2001) and Senate Bill 221 (Chapter 642. Statutes of 2001) amended state law effective July 23, 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and SB 221 are companion measures, which seek to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large development projects. Both statutes also require this detailed information be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects. Both measures recognize local control and decision-making regarding the availability of water for projects and the approval of projects. The OWD Board of Directors' approved (on January, 6 2011) WSA&V Report for Otay Ranch Village 9 finding the WSA&V Report meets the requirements of Senate Bills 221 and 610.

4.7.3 PROJECT PROCESSING REQUIREMENTS

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

1. Identify phased demands in conformance with street improvements and in coordination with the construction of water and recycled water facilities.

2. Identify location of facilities for on-site and offsite improvements in conformance with the master plan of the water district serving the Project.

3. Provide cost estimates and proposed financing responsibilities.

4. Identify financing methods.

5. 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.) The applicant shall submit a water conservation plan along with the SPA Plan Application.

4.7.4 EXISTING CONDITIONS

Most of the water used in the San Diego County Water Authority (SDCWA) area is imported from the Metropolitan Water District (MWD). MWD receives its water supply through the State Water Project and the Colorado River Aqueduct. The SDCWA conveys water from the MWD to local purveyors within San Diego County.

The Project is within the OWD Central Service Area. Potable water is delivered to the Central Service Area via the Second San Diego Aqueduct. The Project will be served by the 624 pressure zone (PZ), the 711 PZ; and the 980 PZ the Project will need to expand the existing distribution system piping within all three pressure zones to receive potable water service. The improvements needed shall be consistent with OWD's established criteria for determining pressure zones. The criteria address minimum and maximum allowable pressures and maximum velocity thresholds within the distribution system piping under specific system operating conditions.

Pipelines in the vicinity of Project include a 20-inch (980 PZ) line in Eastlake Parkway and 16-inch lines (711 PZ) in Eastlake Parkway and Hunte Parkway. The 711 and 980 water lines will be extended to serve the Project (see Exhibits 4.7.1 and 4.7.2).

The northern portions of the Project will be served by the 980 and 711 pressure zone pipes. The OWD Master Plan identifies a 624 PZ distribution main that will be extended from Heritage Road to the west and a line from Otay Valley Road to the east that will ultimately supply the southern portion of the Project area[1]. If these OWD improvements are not constructed, or if they are affected by circulation element changes, the Overview of Water Service (Wilson) recommends that a temporary 711/624 PZ pressure reducing station be installed to supply water to the southerly 624 PZ portions of the Project until these ultimate pipelines or their functional equivalents are constructed. The off-site improvements through the Project, connecting to the 624 PZ system are needed for the Project's southern portion to develop unless the Project constructs temporary onsite improvements to meet OWD redundancy requirements subject to City and OWD approval.

Otay Ranch Village 9 SPA development will connect to an existing 711 PZ 12-inch water line in Magdalena Avenue (see Exhibit 4.7.1 for location of existing potable water lines). Based on the projected demands and system looping, on-site potable water facilities will likely range from 8 to 12 inches in diameter, pending final land use and fire flow requirements.

The Project will be required to provide all potable water improvements needed to serve the Project when constructed without relying on the phased construction of adjacent projects, which are planned to provide water distribution improvements.

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[1] The OWD Water Resources Master Plan (Nov. 2010) indicates proposed 12" 624 lines along both the Main Street and Otay Valley Road alignments between Heritage Road and Village 9 and the University Site further to the east.(see Exhibit 4.7.2 for an excerpt of the OWD Central Area CIP)

The expected demand for the Project is approximately 1.35 mgd according to the Wilson Water Study and such demand is included in the OWD Water Resources Master Plan update (November 2010). The WSA&V demonstrates and documents that sufficient water supplies are planned 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 Project, and the existing and other planned development projects within OWD, including Otay Ranch Villages 8 East and 8 West.

Additional review of water demand and availability will occur with preparation of the Subarea Master Plan (SAMP) for Otay Ranch Village 9 SPA and approved by the OWD, to assure that sufficient supplies are planned to be available as demand is generated by the Project.

Current OWD policies regarding new development require the use of recycled water where available. Consistent with the Otay Ranch GDP, it is anticipated that recycled water will be used to irrigate street parkway landscaping, the town square parks, the Community Purpose Facility (CPF) site, public parks, manufactured slopes along the westerly open space areas, and landscaped areas of mixed-use and multi-family sites. Recycled water is currently available to the Otay Ranch area from the 1.3 mgd capacity Ralph W. Chapman Water Recycling Facility located near the intersection of Singer Lane and Highway 94. Recycled water will be delivered to the northern third of the Project by extending an existing 8-inch 927 PZ line in Eastlake Parkway into the Project. The southerly portion of the Project will be served by the proposed extension of the 680 Zone recycled water system in Otay Valley Road, which is included in the OWD Master Plan.

The Project will be required to provide all recycled water improvements needed to serve the Project when constructed without relying on the phased construction of adjacent projects, which are planned to provide improvements.

4.7.5 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.

Appendix G of the Otay Ranch Village 9 SPA contains the Final Otay Ranch Village 9 Water Conservation Plan (December 2010) by Dexter Wilson Engineering, Inc.. The Water Conservation Plan provides an analysis of water usage requirements of the 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 Project, as well as defining a program to monitor compliance.

B. OTAY RANCH VILLAGE 9 SPA WATER DEMAND

Table 4.7.1 shows the potable water demands within the Project. Ultimate average potable water demand for the Project, based on current land-use planning, is approximately 1.34 million gallons per day or about 1,505 acre-feet per year. The demand rate for each land use is shown as well.

Table 4.7.1 Potable Water Demands

Land Use	Quantity	Unit Demand		Required Fire Flow (gpm)	Required Fire Flow Duration Hours	Total Demand (gpd)
Single Family (units)	266	500	gpd/unit	1,500	2	133,000
Multi-Family (units)	3,734	255	gpd/unit	2,500	2	952,170
Schools (ac)	19.8	1,428	gpd/acre	5,000	4	28,270
Commercial (ksf)	1,500	0.14	gpd/sf	3,500	3	210,000
CPF (ac)	5	714	gpd/acre	3,500	3	3,570
Parks (ac)	27.5		---[1]			14,910
TOTAL						**1,341,920**

[1] Parks will be irrigated with recycled water. Nominal potable water use anticipated drinking fountains and comfort stations; potable water demand is based on a fixture unit study See Wilson study.
Units and acreages may shift between phases as provided in the density and intensity transfer provisions of the SPA, but the total water demand shall remain the same.

The water demands are consistent with the approved SB610/221 Water Supply Assessment and Verification report presented and approved by the OWD Board in January 2011. The Technical Water Study was approved by OWD in January 2011. The total potable water demand for the Project in the Wilson Water Study is given as 1,345,070 gallons. Since the completion of the water study it was necessary to revise the Project's site utilization plan resulting in adjustments to the acreages for parks and schools. The net result is a slightly lower total demand.

Based on assumed project phasing identified in the Wilson Water Study, Table 4.7.2 summarizes the expected potable water demands for each phase of the Project.

TABLE 4.7.2 POTABLE WATER DEMANDS BY PHASE

Orange				
Land Use	**Quantity**	**Unit Demand**		**Total Demand (gpd)**
Single Family (units)	145	500	gpd/unit	72,500
Multi-Family (units)	308	255	gpd/unit	78,540
Schools (ac)	19.80	1428	gpd/acre	28,270
Commercial (ksf)	194	0.14	gpd/sf	27,000
CPF (ac)	2.7	714	gpd/acre	1,928
Parks (ac)	5.7		---	3,090
Subtotal				**211,328**
Blue				
Land Use	**Quantity**	**Unit Demand**		**Total Demand (gpd)**
Single Family (units)	0	500	gpd/unit	0
Multi-Family (units)	1,239	255	gpd/unit	315,945
Schools (ac)	0	1428	gpd/acre	0
Commercial (ksf)	494	0.14	gpd/sf	69,000
CPF (ac)	0	714	gpd/acre	0
Parks (ac)	14.8	594	---	8,024
Subtotal				**392,969**
Yellow				
Land Use	**Quantity**	**Unit Demand**		**Total Demand (gpd)**
Single Family (units)	121	500	gpd/unit	60,500
Multi-Family (units)	614	255	gpd/unit	156,570
Schools (ac)	0	1428	gpd/acre	0
Commercial (ksf)	58	0.14	gpd/sf	8,000
CPF (ac)	0	714	gpd/acre	0
Parks (ac)	3.4		---	1,843
Subtotal				**226,913**
Purple				
Land Use	**Quantity**	**Unit Demand**		**Total Demand (gpd)**
Single Family (units)	0	500	gpd/unit	0
Multi-Family (units)	1,573	255	gpd/unit	401,115
Schools (ac)	0	1428	gpd/acre	0
Commercial (ksf)	754	0.14	gpd/sf	106,000
CPF (ac)	2.3	714	gpd/acre	1,642
Parks (ac)	3.6		---	1,952
Subtotal				**510,709**
TOTAL				**1,341,920**

Units and acreages may shift between phases as provided in the density and intensity transfer provisions of the SPA, but the total water demand shall remain the same.

Sources: Village 9 SPA Site Utilization Plan dated November, 2013 and Wilson Study

RECYCLED WATER

Current land use planning for the Project results in an average day demand of 120,680 gpd for the Project. The most prevalent recycled water use within the Project will be for landscape irrigation, such as watering medians, parks, open space, and common areas. The recycled water demands are presented in Table 4.7.3.

The total recycled water demand for the Project in the Wilson Water Study is given as 116,380 gallons. Since the completion of the water study it was necessary to revise the Project's site utilization plan resulting in adjustments to the acreages for parks and schools. The net result is a higher total demand for recycled water due to increased park acreage.

TABLE 4.7.3 AVERAGE RECYCLED WATER DEMAND BY LAND USE

Land Use	Area	Percent to be	Irrigated	Recycled Water	Average Recycled
Open Space Slopes[1]	10.0	100%	10.0	2,155	21,550
Parks [2]	27.5	100%	27.5	2,155	59,260
Schools	19.8	20%	4.0	2,155	8,530
CPF	5.0	10%	0.5	2,155	1,080
Mixed Use[3]	140.4	10%	14.0	2,155	30,260
TOTAL					**120,680**

Units and acreages may shift between phases as provided in the density and intensity transfer provisions of the SPA, but the total water demand shall remain the same.

[1] *Preliminary Estimate.*

[2] *Park gross area; parks will be irrigated with recycled water. See Wilson study.*

[3] *Common area landscaping only*

Sources: Village 9 SPA Site Utilization Plan dated May 2013 and Wilson Study

4.7.6 EXISTING WATER FACILITIES

POTABLE WATER

Otay Water District will supply the potable water to Otay Ranch Village 9 SPA. The OWD currently relies solely on the San Diego County Water Authority (SDCWA) for water supply. 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. Currently, this connection supplies water to the north portion of the OWD only. The OWD has a connection to the City of San Diego's water system in Telegraph Canyon Road and has an agreement that allows them to receive water from the Lower Otay Filtration Plant.

Fire flow within the Project was evaluated as part of the Wilson Water Study. The fire flow requirements for each building within the Project will be a function of building design including height and structure type. As part of the building permit process, the City of Chula Vista Fire Department will evaluate fire flow requirements. The Applicant is required to prepare a final Subarea Master Plan (SAMP) prior to approval of the first final map. The SAMP will be approved by OWD as well as the City of Chula Vista. Among other topics, the SAMP will identify existing on-and off-site pipeline locations, size and capacity and the City of Chula Vista's fire flow requirements (flow rate, duration, hydrant spacing, etc). The Project's on-site system would meet a fire flow of between 1,500 and 5,000 gpm depending on land use per Table 4.7.1.

RECYCLED WATER

Existing recycled water distribution mains in the area may be extended to serve the Project, including an existing 8-inch main (927 PZ) to the north in Eastlake Parkway. On-site recycled water pipelines would most likely be sized at 8-inch diameter, unless otherwise directed by OWD. The proposed recycled water system layout is shown on Exhibit 4.7.5.

CITY OF SAN DIEGO WATER

Several City of San Diego water transmission lines traverse the Project including 44-inch, 54-inch, and 2 33-inch pipelines. These pipelines are generally located along an east to west alignment within the southerly Project area; the Project will not obtain water from these pipelines.

4.7.7 PROPOSED FACILITIES

A. POTABLE WATER:

Wilson determined that the projected water demands of the Project, the system looping, and on-site potable water facilities will likely range from 8 to 16-inches in diameter pending final land use and fire flow requirements. A network of looped distribution mains is planned to serve the Project. The potable water on-site distribution network is shown on Exhibit 4.7.3. The water distribution system improvements required for each phase and the planning units within each phase are listed in Table 4.7.4 and shown on Exhibit 4.7.4.

B. RECYCLED WATER

Exhibit 4.7.5 illustrates the recommended the on-site distribution network for recycled water and potential recycled water use areas within the Project.

C. CITY OF SAN DIEGO WATER LINES

Prior to the grading permit or the first final map for the Project, whichever occurs first, the developer will be required to enter into an agreement with the City of San Diego to relocate the City of San Diego's water lines to within the public streets. The agreement will contain provisions for phased relocation of the water lines, shall identify Village 9 EDU triggers for commencement and completion of relocation milestones, and identify future rights and responsibilities of the City of San Diego, the City of Chula Vista and the developer, all to the satisfaction of the Director of Development Services. If the City of San Diego water lines are not relocated, or an agreement for the relocation has not been executed prior to the approval of the 1st Final Map of the Project, the developer will be required to revise/update the SPA Plan to reflect conditions with the current alignment of the water lines.

4.7.8 FINANCING WATER FACILITIES

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

- CAPACITY FEES:

  In conjunction with its Capital Improvement Program (CIP) the Otay Water District facilitates design and construction of facilities and collects an appropriate share of the cost from developers through collection of capacity fees charged to water meter

purchases. Capital Improvement Projects typically include supply sources, pumping facilities, operational storage, terminal storage, and transmission mains.

- WATER SUPPLY FEES

  The OWD Board of Directors adopted a new Water Supply Fee effective June, 2010 to offset the cost of bringing new water supplies to the District's service areas. The fee is charged by water meter size; the fee for a typical 1" meter for a single-family home is $2,230. The current fee schedule may be found on-line in "OWD Code of Ordinances" (Code No 28.01 B2)

- EXACTION:

  The developer is required to finance, construct, and dedicate to the OWD potable water and recycled water facilities that serve only their development. The developer shall be required to finance, construct, and dedicate the relocated City of San Diego Water facilities to the City of San Diego.

TABLE 4.7.4 WATER FACILITIES BY PHASE

Phase	Planning Area	Water Improvements
Orange	G, I, J, M, N, P, Q, T, W, X, AA, DD and EE	• 711/624 Pressure Reducing Station • 12" 711 zone lines in Main street, Campus Blvd. and Streets "A" south, "B", "F", and "G" • 8" 711 zone lines in Streets "D", "E", "A" • 12" 624 zone lines in Streets "A" south, "B", "H", "I", and Otay Valley Road. • 8" 624 zone lines in Streets "J", "K", "L", and "N"
Blue	D, E-1, E-2, F, L, S, and V	• 12" 711 zone line in Main Street" • 711/624 Pressure reducing station
Yellow	R-1, R-2, U-1, U-2, Y-1, Y-2, Z-1, Z-2, BB, CC, and FF	• 711/624 Pressure reducing station • 12" 711 Zone lines in Main Street and Street "B" • 12" 624 Zone lines in Streets "A" south, "B", "H", "I", and Otay Valley Road • 8" 624 Zone lines in Streets "B" and "O"
Purple	A, B-1, B-2, C, H-1, H-2, K-1, K-2, O-1, and O-2	• 12" 980 Zone lines in Streets "A", "B", and Main Street • 12" 711 Zone line in Street "D" • 8" 711 Zone lines in Streets "C" and "E"

Source: Wilson study, Table 5-1

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.

CITY OF SAN DIEGO WATER IMPROVEMENT COSTS

The total capital cost for relocation of City of San Diego's facilities will be determined at the time the system is designed and improvements plans approved by the Cities of San Diego and Chula Vista.

4.7.9 THRESHOLD COMPLIANCE AND RECOMMENDATIONS

Pursuant to SB 2211 the developer shall request and deliver to the City written verification of water supply from the appropriate water district prior to the approval of the first final map for the Project .

This PFFP was prepared prior to the completion of the recycled and potable SAMP. Facility requirements may change based on the SAMP findings including, reservoir requirements, pipe sizes and distribution alignments.

1. Prior to approval of the first Final Map for the Project, the developer shall obtain the approval of the SAMP from the Otay Water District and the City of Chula Vista. Any on-site and/or off-site potable and recycled water improvements identified in the Subarea Master Plan required to serve a final mapped area shall be secured or and constructed on-site and/or off-site in accordance with the fees and phasing in the SAMP approved by the OWD. The Subarea Master Plan shall include, but shall not be limited to:

   A. Existing pipeline locations, size, and capacity;
   B. The proposed points of connection and system;
   C. The estimated potable and recycled water demand calculations;
   D. Governing fire department's flow requirements (flow rate, duration, hydrant spacing, etc);
   E. Water Agency Master Plan;
   F. Water Agency's planning criteria (see Sections 4.1 through 4.3 of the Water Agencies Standards);
   G. Water quality maintenance; and
   H. Size of the system and number of lots to be served.

2. Developer shall construct all facilities needed for the Project as determined by the approved SAMP including but not limited to: water facilities within the SR-125 overcrossings at Main Street and Otay Valley Road, any upsizing of or additional potable or recycled facilities above and beyond what the potable and recycled water technical reports have determined. In the event the Project planning areas that rely on the waterlines crossing SR-125 develop prior to construction of the SR-125 overcrossings, the developer shall construct alternative potable waterlines and/or other facilities necessary to serve said planning areas to the satisfaction of the OWD and the City;

3. The developer shall be responsible for construction and funding the Project improvements required by the OWD if the improvements are not covered by a funded OWD capital improvement program (CIP).

4. The developer shall be responsible for funding the City of San Diego improvements pursuant to that City's requirements. The developer shall coordinate with the City of Chula Vista and the City of San Diego for a joint use agreement regarding the placement of City of San Diego facilities within City of Chula Vista's streets or other public ways. Prior to issuance of a grading permit within any area owned or encumbered by City of San Diego easements, the developer shall obtain a letter of permission from the City of San Diego.

5. The developer shall extend recycled water mains to all parks and large open space areas as shown on SPA Exhibit 8.2

6. Prior to the approval of any intensity transfer resulting in an increase of either residential dwelling units or commercial floor area in a planning area in excess of the units or floor areas assumed in the Wilson Water Study for the Project, a revised study of the proposed internal water distribution system serving that planning area shall be submitted for review and approval by the Development Services Department to verify that the planned capacity of local water mains are available to accommodate the increased demand for those services.

7. The Project developers shall comply with the Chula Vista Landscape Water Conservation Ordinance, shall prepare and submit for approval by the Director of Development Services a Water Conservation Plan and submit landscaping plans that indicate the utilization of recycled water where appropriate to reduce water demand.

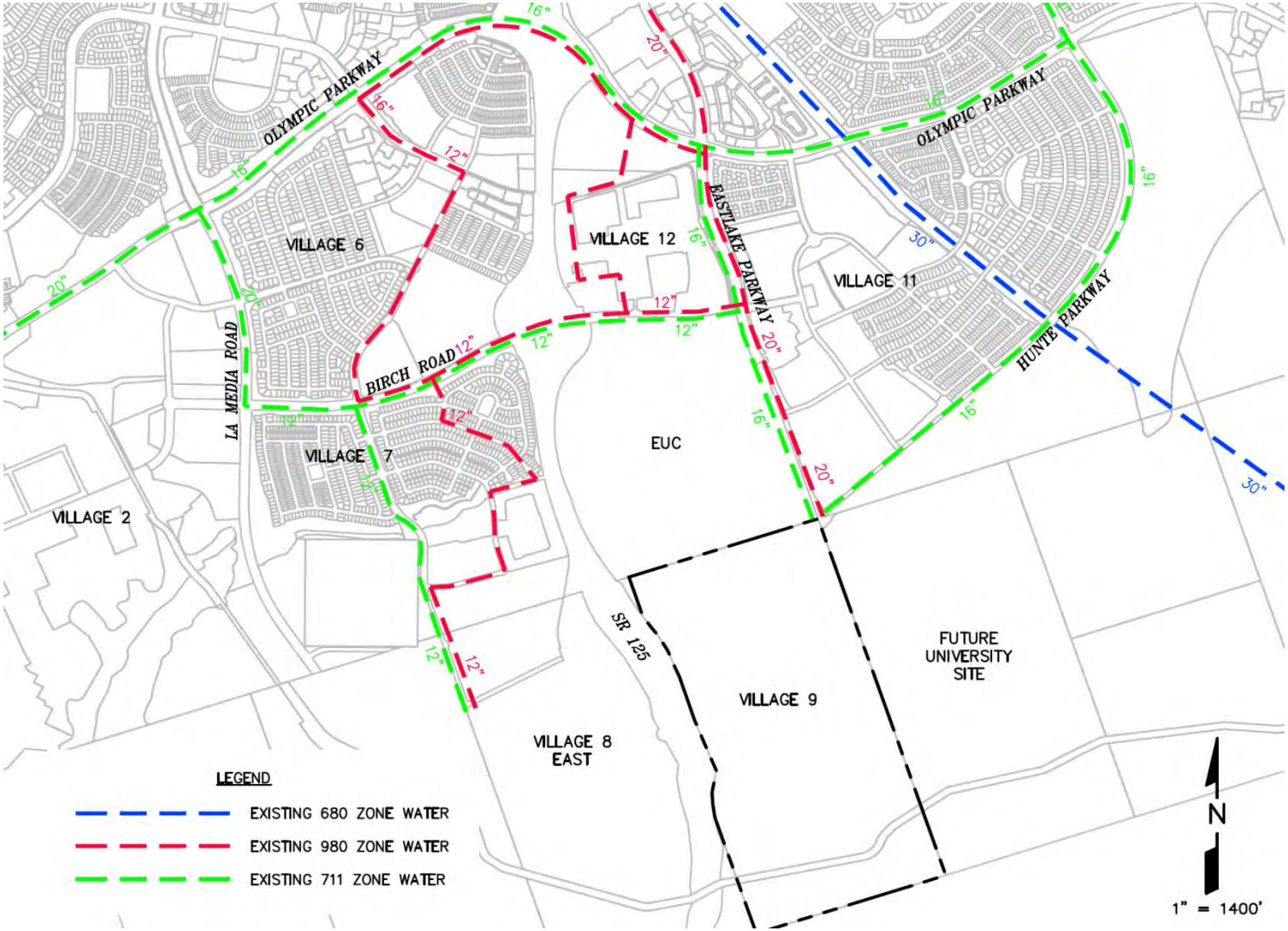


EXHIBIT 4.7.1 EXISTING OFF-SITE POTABLE WATER FACILITIES

Source: Wilson Water Study, Figure 3-1

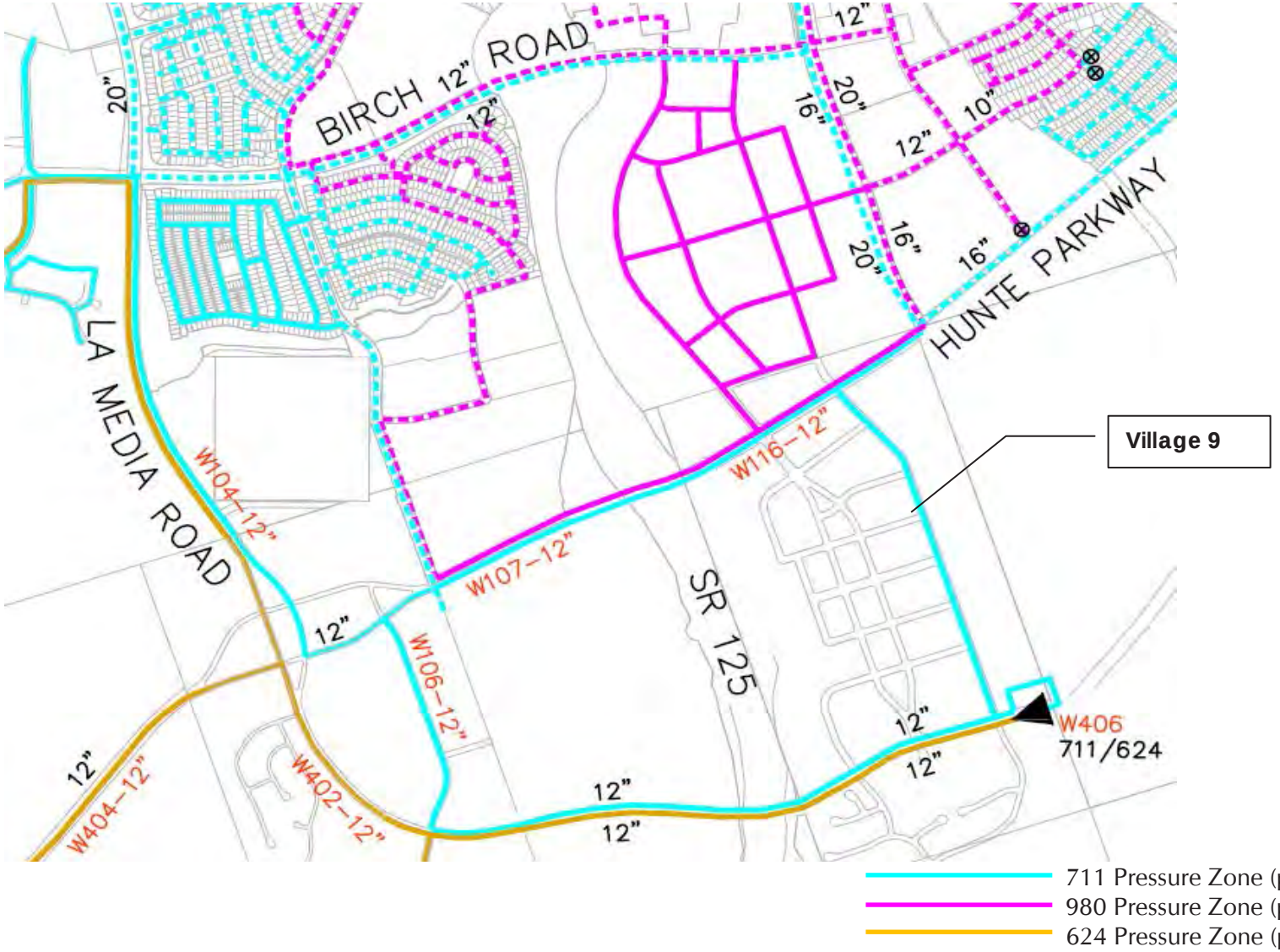


EXHIBIT 4.7.2 OTAY WATER DISTRICT-CENTRAL AREA CIP (EXCERPT)

Source: 2010 OWD WRMP Exhibit IV

EXHIBIT 4.7.3 ON-SITE POTABLE WATER FACILITIES

Source : Wilson Water Study, Figure 4-1

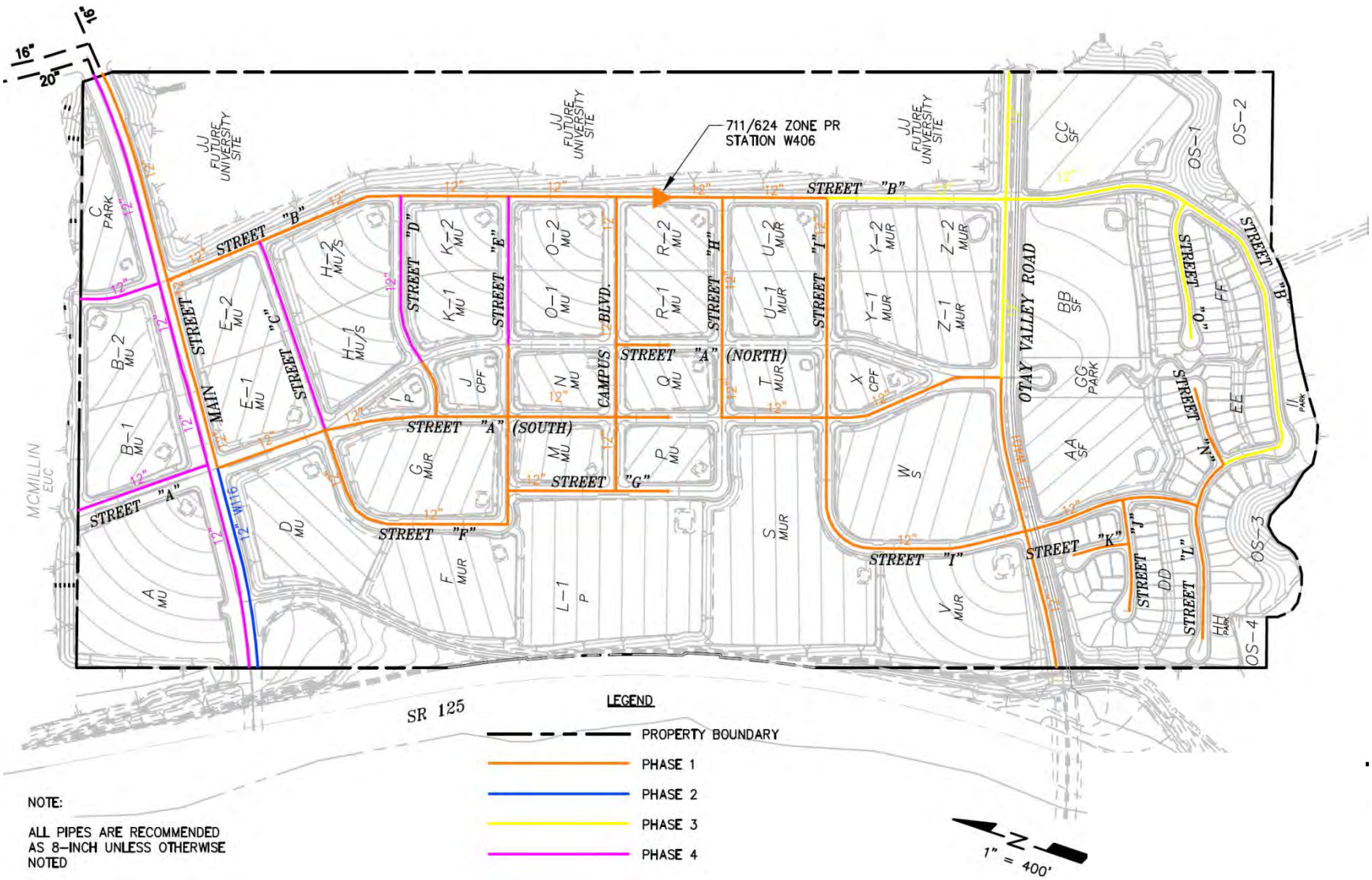


EXHIBIT 4.7.4 WATER FACILITIES PHASING PLAN

Source : Wilson Water Study, Figure 5-2

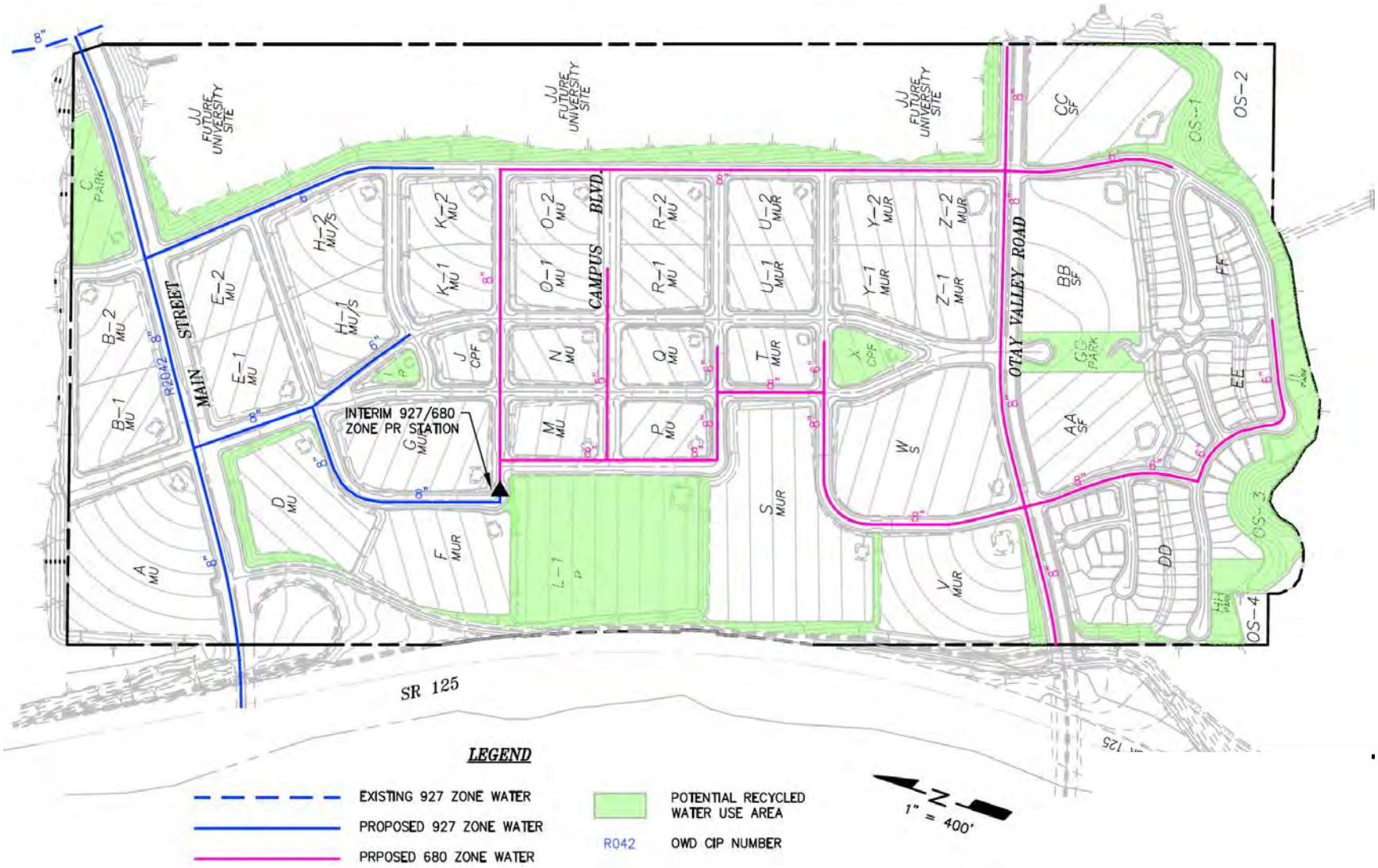


EXHIBIT 4.7.5 ON-SITE RECYCLED WATER FACILITIES

Source: Wilson Water Study, Figure 4-2

4.8 SEWER

4.8.1 THRESHOLD STANDARD

1) Sewage flows and volumes in pipes shall not exceed City Engineering Standards as set forth in the subdivision manual adopted by City Council Resolution No. 11175, as may be amended from time to time.

2) The City shall annually provide the San Diego Metropolitan Sewer Authority (METRO) 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 of Chula Vista Public Works Department staff will gather the necessary data.

   The information provided to the GMOC shall include the following:

   a. Amount of current capacity now used or committed;

   b. Ability of affected facilities to absorb forecast growth;

   c. Evaluation of funding and site availability for projected new facilities;

   d. Other relevant information.

4.8.2 SERVICE ANALYSIS

The City of Chula Vista currently purchases capacity for wastewater treatment through the City of San Diego METRO system. Chula Vista oversees the construction, maintenance and the operation of the sewer collection facilities. The City Engineer is responsible for reviewing proposed developments and ensuring that the necessary sewer facilities are provided with each development project.

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 source of information regarding the existing and recommended sewer facilities is from the *Final Overview of Sewer Service for Otay Ranch Village 9,* dated December 2010, by Dexter Wilson Engineering, Inc. This study is referred to as the Wilson Sewer Report throughout this PFFP.

Otay Land Company's approximately 323-acre project ("Project") consists of commercial and medium and high-density residential land uses, as well as several parks, two elementary school sites, and a Community Purpose Facility (CPF) site. Table 4.8.1 summarizes the various land uses for the Project. A more detailed breakdown of these land uses is provided in the Wilson Sewer Report in Table 1-1. In addition, the land uses and densities assumed for the study are consistent with those evaluated in the adopted General Plan and Otay Ranch General Development Plan amendments. However, final land uses, acreages, and location of certain land uses may vary.

TABLE 4.8.1 LAND USE SUMMARY AND SEWAGE GENERATION

Land Use	Gross Acres	Maximum Units	Unit Flow		Total Flow (gpd)
Single-Family Residential	43.3	266	265	gpd/unit	70,490
Multi-Family Residential[1]	124	3734	199	gpd/unit	743,066
Commercial[1]	17.8		2,500	gpd/acre	44,500
Community Purpose Facility Site	5		2,500	gpd/acre	12,500
Elementary School (1600 students)	19.8		15	gpd/student	24,000
Parks	27.5		500	gpd/acre	13,750
Open Space & MSCP Preserve	9.6		0		0
Right-of-Way[2]	26.1		0		0
University Site[3]	50		0		0
Total Gross Acres/Total Units	**323.1**	**4,000**	**Average Daily Sewage Flow (gals)**		**908,306**

Units and acreages may shift between phases as provided in the density and intensity transfer provisions of the SPA, but the total water demand shall remain the same

[1] The acreage split between multi-family residential and commercial in the EUC, Town Center and mixed-use planning areas is assumed based on typical floor area ratios in order to assign acreage for commercial land uses. The actual acreage composition for these planning areas will be determined when specific site plans are submitted as part of the design review process.

[2] The ROW for other street classifications are included in the gross acres for the adjacent land uses. For purposes of this analysis it is assumed the City of San Diego's waterline easements will be abandoned when the waterlines are moved to within the arterial road ROW.

[3] The Village 9 on-site sewer system will convey flows from the University Site. An analysis will be required when site plans for the University Site are submitted.

Sources: Otay Ranch Village 9 SPA Site Utilization Summary, January, 2012; Dexter Wilson Engineering, December, 2010

The total daily sewer flow the Project in the Wilson Sewer Study is given as 907,105 gallons. Since the completion of the sewer study it was necessary to revise the Project's site utilization plan resulting in adjustments to the acreages for parks and schools. The net result is a higher total sewer flow due to the increased park acreage.

4.8.3 PROJECT PROCESSING REQUIREMENTS

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

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

2. Identify location of sewer facilities for on-site and offsite improvements, in conformance with the Wilson Sewer Report.

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

4. Identify financing methods.

4.8.4 EXISTING CONDITIONS

Sanitary sewer service for the Project will be provided by the City of Chula Vista (City). The City operates and maintains its own sanitary collection system that connects to the METRO wastewater treatment system. All wastewater generated within the Project will be conveyed to the Salt Creek Sewer Interceptor that discharges into the METRO system. The wastewater is ultimately treated by the City of San Diego at the Point Loma Wastewater Treatment Facility.

SALT CREEK SEWER BASIN:

There are no existing sewer facilities within the Project area. There are existing sewer facilities in Eastlake Parkway and Hunte Parkway located to the northeast of the Project, however the Project will not connect to those sewer mains. The 30" Salt Creek Interceptor passes approximately 700 feet south of the Project. A connection will be made to the Salt Creek Interceptor to serve the entire Project area. The Salt Creek Interceptor conveys flows westerly to a point of connection with the METRO System. Exhibit 1 displays the sewer facilities existing in the vicinity of the Project.

4.8.5 ADEQUACY ANALYSIS

Sewer flows generated by the Project were estimated by the Wilson Sewer Report. The 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. WASTEWATER TREATMENT:

The METRO system provides sewer treatment services for the City of Chula Vista and 14 other participating agencies 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. The Developer shall pay capacity fees prior to building permit issuance. Development shall not occur without adequate sewer capacity as 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.

The City of Chula Vista wastewater treatment capacity rights in the METRO System are 20.865 mgd. The City currently generates an average flow of approximately 16.2 mgd; therefore, the City has reserve capacity of approximately 4.645 mgd. However, as a result of densification in the 2005 General Plan Update, the projected year 2030 average flow for the preferred General Plan alternative was increased to 26.2 mgd. Therefore, the City would need to acquire capacity rights for an additional 5.4 mgd to accommodate year 2030 flows.

PBS&J (now Atkins) prepared a study as a supporting document to the Village 8 West and Village 9 Program EIR[1], analyzing treatment plant capacity relative to land uses in the adopted 2005 General Plan Update including the increased densities of Village 8 West and Village 9. The study also served to assess the need to acquire additional treatment plant capacity. The PBS&J Study includes the potential increased flows from development of the Bayfront Redevelopment

[1] Salt Creek Interceptor Technical Sewer Study for the South Otay Ranch (Village 8 West and Village 9), October, 2010

project and indicates that the total future treatment capacity required in the cumulative condition may be as high as 32.5 mgd, leaving the City 11.7 mgd above its total 2030 allocation. However, there is regional sewer treatment capacity available. The City does not wish to buy more capacity than is actually needed. The City will either purchase capacity as needed, or suspend the issuance building permits until the needed capacity is acquired. The estimated balance of the Trunk Sewer Capital Reserve Fund (fund 413) is $39,122,200[2]. Based on the estimated rate of $21/gallon/day[3] this translates into 1.9 mgd of additional capacity that could be purchased.[4] The City is evaluating the benefits of paying the City of San Diego for treatment or providing for treatment in alternative ways.

B. WASTEWATER GENERATION:

In accordance with the City of Chula Vista's Subdivision Manual, the Wilson Sewer Report used the City sewage generation rates to estimate the total annual average wastewater flows produced from the Project. These estimated flows form the basis for design of the new sewer facilities and evaluation of existing facilities that will serve the Project. Table 4.8.2 below summarizes the criteria based on the City's Subdivision Manual.

TABLE 4.8.2 CHULA VISTA SUBDIVISION MANUAL DESIGN CRITERIA

Item	Subdivision Manual Criteria
Residential Sewage Generation	265 gpd/EDU
	SF: 1DU = 1 EDU
	MF: 1DU = 0.75 EDU
Commercial Sewage Generation	2,500 gpd/nac
Park Sewage Generation	500 gpd/nac
PVC Roughness Coefficient, n	0.012
d/D for proposed sewer pipe	0.5 for pipes <=12"
	0.75 for pipes >12"

Average wastewater generation rates at ultimate build-out are presented in Table 4.8.1 above.

On-site and offsite collection, trunk, and interceptor facilities proposed for the Project were evaluated based on this sewage flow. In addition, the City's design criteria are used for analysis

[2] Estimated balance on 6/30/2013

[3] Based on estimated price of METRO capacity of $18 per gpd given in City of Chula Vista Wastewater Master Plan Financial Analysis 2005 and annual inflation at 2%.

[4] Note Fund 413 is used: 1) to repair, replace or enlarge trunk sewer facilities ;2) to enhance efficiency of utilization and/or adequacy of capacity; or (2) to plan and/or evaluate any future proposals for area-wide sewage treatment and/or water reclamations systems and facilities. 72% of the fund may be expected to be used to fund the purchase of treatment capacity.

of the existing sewer system as well as for design and sizing of proposed improvements to accommodate the flows anticipated to be generated by the Project.

Table 4.8.3 summarizes the expected sewage generation for each phase of the Project. The facilities anticipated to serve the Project are shown on Exhibit 4.8.2 (from Wilson Sewer Report Figure 4-1) and listed by phase on Table 4.8.8 (from Wilson Table 5-1), based upon the on-site sewage generation projected as shown in Table 4.8.3. Note that this table (and Table 4.8.1 above) shows 1,200 gallons per day (5 EDU) more than the Wilson Sewer Report. This discrepancy is due to an additional 2.4 acres of parks that the revised Project Site Utilization Plan shows. This park acreage may represent pedestrian parks which may not have comfort stations and therefore would not require sewer connections.

TABLE 4.8.3 ON-SITE SEWAGE GENERATION BY PROJECT CONCEPTUAL PHASE

Phase/Land Use	Units ac/sf/students	Generation Rate gpd/unit	Average Annual Day (gpd)	EDU
Orange				
Non-residential (ac)	9.4	2,500	23,500	89
Residential - SF	145	265	38,425	145
Residential - MF	308	199	61,292	231
Parks (ac)	6	500	2,850	11
Schools	1,600	15	24,000	91
Total Orange Phase			**150,067**	**566**
Blue				
Non-residential (ac)	4.0	2,500	10,000	38
Residential - SF	0	265	0	0
Residential - MF	1,239	199	246,561	930
Parks (ac)	14.8	500	7,400	28
Total Blue Phase			**263,961**	**996**
Yellow				
Non-residential (ac)	1.8	2,500	4,500	17
Residential - SF	121	265	32,065	121
Residential - MF	614	199	122,186	461
Parks (ac)	3.4	500	1,700	6
Total Yellow Phase			**160,451**	**605**
Purple				
Non-residential (ac)	7.6	2,500	19,000	72
Residential - SF	0	0	0	0
Residential - MF	1,573	199	338,499	1,181
Parks (ac)	3.6	500	1,800	7
Total Purple Phase			***333,827***	***1,260***
All Phases Total			**908,306**	**3,428**

Units and acreages may shift between phases as provided in the density and intensity transfer provisions of the SPA, but the total water demand shall remain the same

Source: Wilson Sewer Study and PMC

C. ON-SITE SEWER COLLECTION

The Wilson Sewer Report analyzed the on-site sewer system using the maximum allowable densities to determine the desired pipe sizes and slopes to meet the City's design criteria. Detailed calculations for the on-site sewer system are provided in Wilson Sewer Report.

The on-site sewer collection system is expected to range from 8-inches to 15-inches in diameter, depending on the projected flows, available grade, and anticipated land use. The on-site sewer system was sized to accommodate density transfers as outlined in the Land Offer Agreement (Document No. 28-0218696 recorded in the County of San Diego on April 24, 2008) between Otay Land Company and the City allowing up to 15 percent of the units within a village to be transferred to another planning area within the village, provided that the total of 2,050 units allocated to the Project is not exceeded.

D. UPSTREAM OFF-SITE FLOWS:

An 8" sewer main stub is proposed to be extended easterly within Otay Valley Road to serve the future University Site. When site plans for the University Site are submitted, an analysis of impacts on the Village 9 sewer system and the Salt Creek Interceptor will then be conducted. There are no other upstream flows into the Project.

E. OFF-SITE PIPELINE CAPACITY:

As with other properties in the area, the intensity of the proposed development of the Project has increased from that proposed in the original Otay Ranch General Development Plan. The previously referenced study by PBS&J specifically analyzed the impact that the increased residential densities in Village 8 West and Village 9 and other projects would have on the Salt Creek Interceptor.[5] The PBS&J study determined that certain segments of the Salt Creek Interceptor upstream of the proposed Village 9 connection may require improvement before build-out of the Project.

4.8.6 RECOMMENDED SEWERAGE FACILITIES

The sewer facility improvements required to serve the Project include on-site and off-site gravity sewer lines to accept upstream sewage flows, and off-site sewer line to convey the flows from the Project to the Salt Creek Interceptor. Ultimately, flows in the northern portion of the Project as well as the upstream off-site flows will flow westerly along the Main Street alignment before connecting to the Salt Creek Interceptor. The off-site Main Street sewer will be constructed by others. The sizing of sewer lines in the Wilson Sewer Report are considered preliminary and shall be verified during the improvement plan preparation process when slopes and alignments for sewer lines have been better established. Exhibit 4.8.1 shows major sewer facilities located in the vicinity of the Project.

IMPROVEMENTS

The recommended on-site sewer lines internal to the Project will range from 8-inch to 15-inch gravity sewers. Exhibit 4.8.2 illustrates the recommended on-site sewer main sizing for the Project

[5] The City analyzed the Salt Creek Interceptor in its 2005 Wastewater Master Plan, which was completed before adoption of the 2005 General Plan Update. The PBS&J study therefore includes all land use changes that have occurred since completion the 2005 Master Plan, including the 2005 General Plan and Village 8 West and Village 9, including the Land Offer Agreement units from JBP..

and shows the location of the proposed interim deep sewer. The phasing of internal sewer mains is shown in Exhibit 4.8.3 and listed in Table 4.8.6

SALT CREEK SEWER BASIN

The Project lies within the Salt Creek Sewer Basin. The southern portion of the Project, and in the interim the northern portion of the Project, will sewer southerly through the Project to a 15-inch sewer pipe to be constructed off-site and connecting to the Salt Creek Sewer Interceptor.

CONNECTOR SEWER LINES

The Project's SPA identifies five (5) phases of development which may occur non-sequentially. The sewerage infrastructure needs by phase are identified Table 5-1 of the Wilson Sewer Report.

4.8.7 FINANCING SEWERAGE FACILITIES

To fund the necessary improvements to the Salt Creek Interceptor including the Main Street trunk sewer, the Salt Creek Sewer Impact Fee program was established by the City of Chula Vista. A discussion of the required fees is provided in the following subsection A and B.

A. SALT CREEK SEWER BASIN IMPACT FEES

The November 1994 Salt Creek Basin Study prepared by Wilson Engineering established a fee to fund future improvements to the Salt Creek Interceptor System. In August 2004, the City of Chula Vista updated the Salt Creek Sewer Basin Plan with the primary goal of ensuring that fees are more fairly and equitably distributed amongst the remaining properties within the Salt Creek Sewer Basin, and that sufficient funding will be available to complete the required improvements within 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 basin. Since the 2004 update, changes in land use density and distribution have altered the basin's sewer system requirements. Therefore, the developer shall participate in an update of the Salt Creek Sewer Basin Plan and the Impact Fee program by funding a fair-share portion of a study to determine the effects that the Village 9 SPA and other projects will have on the Salt Creek Interceptor's area of benefit and the equitable distribution of its costs among all contributors to the system.

City of Chula Vista Ordinance Number 2974 updated the fee to be paid for future development within the Salt Creek Basin that connects to the existing system. Table 4.8.4 and 4.8.5 summarize the fees to be paid by each land use type. The fees are collected upon issuance of building permits at the fee rates in effect at that time unless stated otherwise in a development agreement. The projected estimate of the total Salt Creek Sewer Basin Fee revenue is $2.77 million based on the maximum number of allowable EDUs and the current fee rate of $1,330 per EDU. The actual fee revenue depends upon the final number of EDU's, changes in acreages and/or fee revisions by the City Council.

TABLE 4.8.4 EDU CONVERSION

Land Use	EDU Factor
Single Family	1.00 EDU/unit
Multi-Family	0.75 EDU/unit
Commercial/CPF	9.43 EDU/ac
Elem School	0.06 EDU/student
Parks	1.89 EDU/ac

TABLE 4.8.5 SALT CREEK SEWER BASIN IMPACT FEES

Land Use	EDUs	Fee	EDUs	Fee	EDUs	Fee	EDUs	Fee
	Orange		Blue		Yellow		Purple	
Single Family	145	$192,900	0	$0	121	$160,900	0	$0
Multi-Family	231	$307,600	930	$1,237,500	461.08	$613,200	1,181,23	$1,571,000
Commercial/CPF	89	$117,900	38	$50,200	17	$22,600	72	$95,400
Elem School	91	$120,500		$0		$0		$0
Parks	11	$14,300	28	$37,100	6	$8,500	7	$9,000
Total	**566**	**$753,200**	**996**	**$1,324,800**	**605**	**$805,200**	**1356**	**$1,675,700**
Grand Total	**3,428**	**EDUs**	**x**	**$1,330 /EDU**		**=**	**$4,558,700**	

EDU's may shift between phases subject to density and intensity transfer provisions but the total sewer flow will remain the same

Fees are based on $1,330/EDU, which is subject to change by the City Council

Rounded to nearest $100.

B. SEWERAGE PARTICIPATION (TREATMENT CAPACITY) FEE

In addition, the City of Chula Vista collects a Sewerage Participation Fee to aid in the cost of processing sewage generated within the City. The fee is collected at the time of connection to the public sewer for new development. Existing buildings are subject to the fee when plumbing fixtures are added. For residential development the current fee $3,478 per EDU. Non-residential projects are prorated based on the number of Equivalent Fixture Units (EFU). Table 4.8.6 below summarizes the estimated City Sewerage Participation Fee for the residential component of the Project. The commercial component of the Project will be calculated for each specific development proposal. The Sewerage Participation Fees for all projects will be calculated prior to the issuance of building permits. The fee rate shown is as currently adopted and is subject to change by the City Council.

TABLE 4.8.6 RESIDENTIAL SEWERAGE PARTICIPATION FEE

Phase	Single Family EDUs	Single Family Fee	Multi-Family EDUs	Multi-Family Fee
Orange	145	$504,310	231	$804,429
Blue	0	$0	930	$3,235,997
Yellow	121	$420,838	461	$1,603,634
Purple	0	$0	1181	$4,108,322
Total	266	$925,148	2804	$9,752,391
Grand Total				**$10,677,539**

EDU's may shift between phases subject to density and intensity transfer provisions but the total sewer flow will remain the same

Fees are based on $3,478/EDU, which is subject to change by the City Council rounded to nearest $100.

4.8.8 THRESHOLD COMPLIANCE AND RECOMMENDATIONS

A. Facilities to accommodate sewer flows have been identified in the Wilson Sewer Report. The construction of new sewer lines must be completed before the construction of streets.

B. 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.

C. Prior to the approval of the first final map for the Project, unless stated otherwise in a development agreement, as related to any uses within the Project, and to the satisfaction of the City Engineer, the developer shall:

1. Obtain the approval for the improvement plans and any necessary environmental permits for the construction of the off-site sewer through the MSCP area to the Salt Creek Interceptor and prior to the first final "B" map, unless otherwise approved by the City Engineer;

2. Commence and complete construction of the off-site sewer connection to the Salt Creek Interceptor prior to issuance of the first building permit;

3. Enter into an agreement whereby the City will not issue building permits for units located within the Salt Creek Sewer Basin if any portion of the Salt Creek Sewer Interceptor, downstream of Otay Ranch Village 9, achieves a d/D of 0.85,;

4. Enter into an agreement whereby the City will not issue building permits for the Project if the City Engineer has determined, at his sole discretion, that there is not enough San Diego METRO treatment capacity for the Project; and,

5. The developer shall participate in an update of the Salt Creek Sewer Basin Plan and the Impact Fee program by funding a fair-share portion of a study to determine the effects the Village 9 SPA and other projects will have on the Salt Creek Basin Impact Fee's area of benefit and determine an equitable distribution of the system's costs among all its contributors.

D. The developer of the Project shall:

1. At the request of the City Engineer contribute a fair-share portion of the cost of all studies, reports and updates to current plans required to analyze the impacts of increased sewer flows to existing sewer lines.

2. Assume the capital cost of all sewer lines, connections and other improvements as may be required by the City Engineer, as identified within the Wilson Sewer Report and in any updates thereto.

3. Pay all current sewer fees required by 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.

6. Prior to the approval of any density transfer resulting in an increase of either residential dwelling units or commercial floor area in a planning area in excess of the units or floor areas assumed in the Wilson Sewer Report for the Project, a revised study of the proposed internal sewer collection system serving that planning area shall be submitted for review and approval by Development Services Department to verify that planned capacity of local sewer mains are available to accommodate the increased demand for those services.

TABLE 4.8.7 SEWER FACILITY PHASING

Phase	Planning Area	Sewer Improvements
Orange	G, I, J, M, N, P, Q, T, W, X, AA, DD, and EE	• Offsite 15" to Salt Creek Interceptor • 15" lines in Streets "B", "I", and "L" • 12" line in Street "I" • 10" line in Otay Valley Road • 10" lines in Streets "G", "H", and "I" • 8" line in Streets "A" North, "E", "F", "J", "K", "L", and "N"
Blue	D, E-1, E-2, F, L, S, and V	• Offsite 15" to Salt Creek Interceptor • 15" lines in Streets "B", "I", and "L" • 12" line in Street "I" • 10" lines in Streets "G", "H", and "I" • 8" lines in Streets "A", "A" South, "C", "E", and "F"
Yellow	R-1, R-2, U-1, U-2, Y-1, Y-2, Z-1, Z-2, BB, CC, and FF	• Offsite 15" to Salt Creek Interceptor • 8" line in Otay Valley Road • 8" lines in Streets "B" and "O"
Purple	A, B-1, B-2, C, H-1, H-2, K-1, K-2, O-1, and O-2	• Offsite 15" to Salt Creek Interceptor • 8" line in Street "B" • 15" lines in Streets "B", "I", and "L" • 12" line in Street "I" • 10" line in Streets "G", "H", and "I" • 8" lines in Streets "A", "A" South, and "E"

Source: Wilson Sewer Report Table 5-1

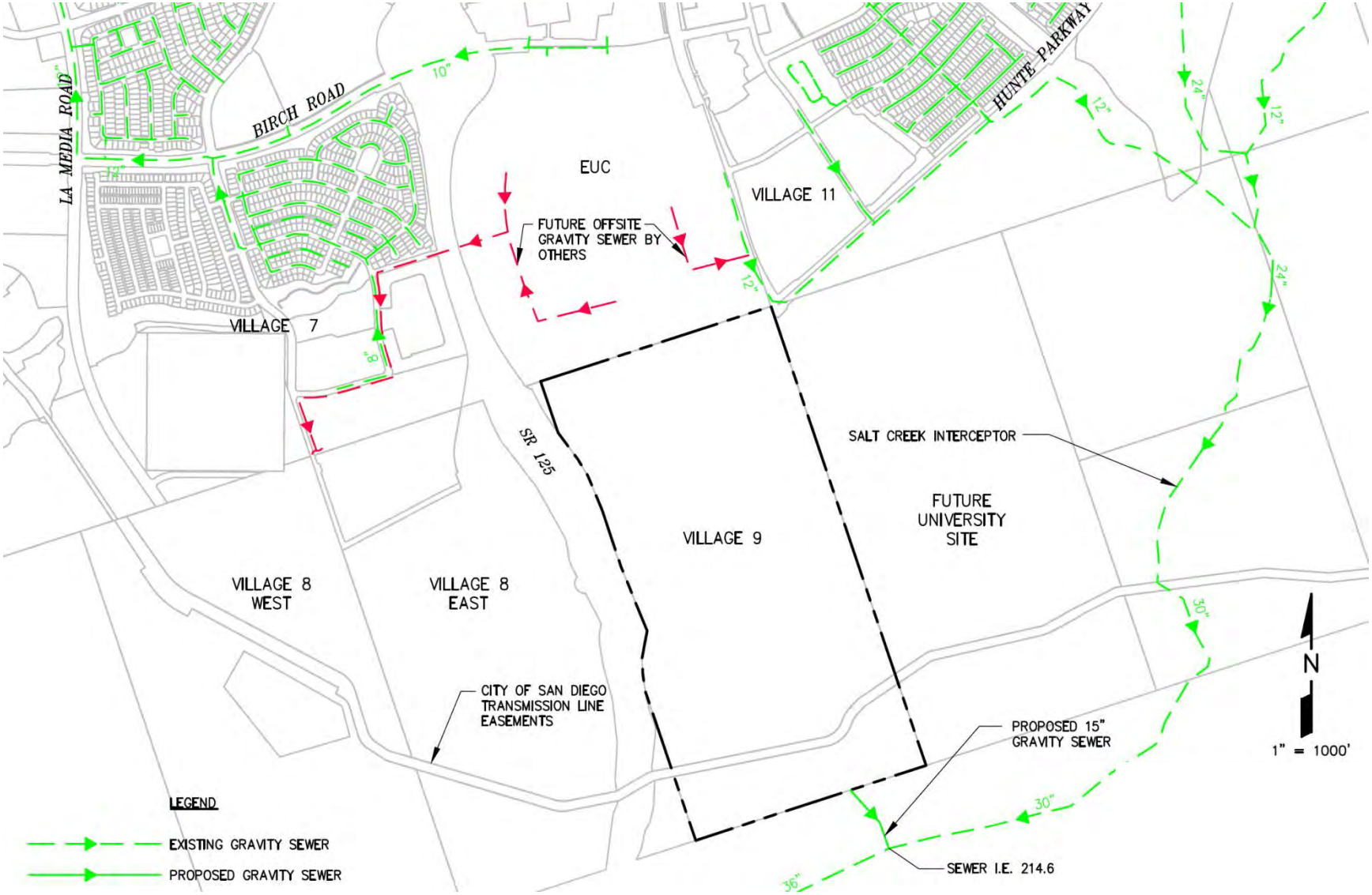


EXHIBIT 4.8.1 OFF-SITE SEWER FACILITIES

Source: Wilson Sewer Report Figure 3-1

EXHIBIT 4.8.2 ON-SITE SEWER FACILITIES

Source: Wilson Sewer Report Figure 4-1

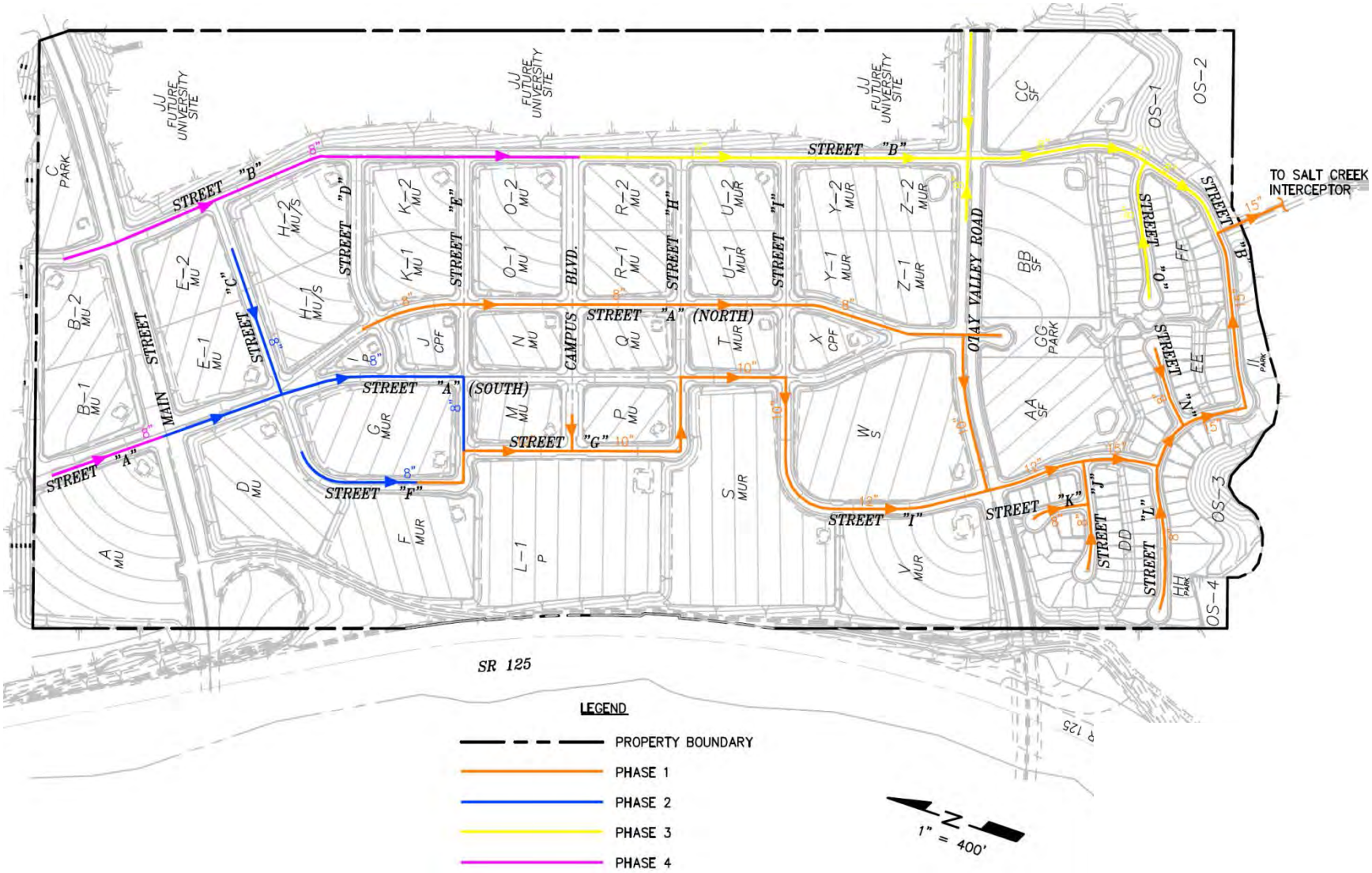


EXHIBIT 4.8.3 ON-SITE SEWER FACILITIES PHASING

Source: Wilson Sewer Report Figure 5-2

4.9 DRAINAGE

4.9.1 THRESHOLD STANDARD

1. 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.

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

4.9.2 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 Otay Ranch Village 9 SPA Plan drainage improvements are identified in the *Tentative Map Drainage Study for Otay Ranch Village 9, August 22, 2011* prepared by Hunsaker and Associates (TM Drainage Study). The TM Drainage Study was prepared to assess the existing and developed drainage conditions for the Otay Ranch Village 9 SPA project ("Project"). A schematic of the Project and its drainage system is shown in Exhibit 4.9.1.

The TM Drainage Study was prepared in support of the drainage system shown on the preliminary tentative map entitled: *"Otay Ranch Village 9 and Portion of Village 12"* dated March 8, 2011. Consistent with the criteria set forth in the *County of San Diego Hydrology Manual* (June, 2003 edition), the TM Drainage Study provides the calculations required for the design of the proposed backbone storm drain system including hydrologic models to quantify existing and developed site runoff to the Otay River.

The Tentative Map Drainage Study relied upon the following documents and studies:

1. *City of Chula Vista Subdivision Manual* revised 2011;

2. *City of Chula Vista Storm Water Manual for Development and Redevelopment, January 2011* (hereinafter referred to as the Development Storm Water Manual);

3. *Otay River Watershed Assessment Technical Report, by Aspen Environmental Group, August, 2004;*

4. *Rough Grading Hydrology Study for Otay Ranch Village 11 Phase 3*, by Hunsaker and Associates, March, 2005;

5. *Preliminary Drainage Study for McMillin Eastern Urban Center, revision* dated January 30, 2008, by Rick Engineering Company ;

6. *Drainage Report for SR-125 South Toll Road Segment 1A*, by Rick Engineering Company, May 2005; and,

7. *Hydromodification Management Plan,* prepared for the County of San Diego*, March, 2011.*

The Project is under the jurisdiction of the San Diego Regional Water Quality Control Board (SDRWQCB). The Project is 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. Storm water runoff pollution prevention and control measures for the Project are identified in the *Master Water Quality Technical Report for Otay Ranch Village 9 Tentative Map, August 10, 2011* by Hunsaker and Associates. The *Master Water Quality Technical Report* is herein referred to as the WQTR.

4.9.3 PROJECT PROCESSING REQUIREMENTS

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

- Identify phased demands for drainage improvements;
- Identify locations of facilities for on-site and off-site improvements;
- Provide cost estimates; and
- Identify financing methods.

4.9.4 EXISTING CONDITIONS

The Project area currently drains to natural watercourses and finger canyons that lead southerly to the Otay River (see Exhibit 4.9.2).

4.9.5 PROPOSED FACILITIES

A. STORM DRAINAGE

The development of the Project includes the construction of new mixed-use, commercial and residential development, community purpose facilities, parks, schools, arterial roadways and local streets.

In the pre-developed condition the Project site is divided into four natural drainage basins: Western, Central, Eastern and Hunte/Eastlake Parkway as shown on Exhibit 4.9.2. In the pre-developed condition each basin drains separately to the Otay River. In the post-developed condition the Eastern Basin and a large portion of the Western Basin are combined into the Central Basin. Nearly the entire developed Project area (approximately 90%) will be within the Central Basin, which will discharge directly to the Otay River via a proposed 84-inch storm drain. This system will be extended beyond the Project boundaries to the Otay River bottom to avoid erosion of the the river bank. The storm drain discharge outlet will be provided with a section of rip-rap designed to reduce the velocity of the discharge.

The potential for scour erosion of the outlet structure by the river's flow was addressed by a geotechnical analysis.[1] The Project's Central Drainage Basin discharges directly to the river bottom and is currently exempt from hydromodification requirements. A future exemption determination will depend on many factors including but not limited to the project being determined to have "prior lawful approval" as of the date of construction and City of Chula Vista's water quality manual and municipal permit in existence at the time of construction.

The Western and Hunte/Eastlake Parkway Basins discharge into natural drainage courses before reaching the river and therefore must be analyzed for hydromodification impacts.

Pre and post project development areas and 100 year storm event flows for each basin are summarized in Table4.9.1:

TABLE 4.9.1
PRE & POST-DEVELOPMENT STORM WATER FLOWS

		Pre-Project Condition				
		Western Basin	Central Basin (direct discharge to Otay River)	Eastern Basin (direct discharge to Otay River)	Hunte/Eastlake Parkway Basin	Total
Tributary Basins						
Area (acres)		168.7	59.9	75.4	59.6	363.6
100-Year Storm	Q (cfs)	206.2	88.3	98.6	170	563.1
	Time of concentration (min)	22.9	16.3	19.7	8.8	-
		Post-Development Condition				
Tributary Basins						
Area (acres)		24.4	278.6	-	58.6	361.6
100-Year Storm	Q (cfs)	61.6	823.0	-	172.4	1057.0
	Time of concentration (min)	10.8	11.7	-	8.9	-

Source: Tentative Map Drainage Study for Otay Ranch Village 9 by Hunsaker and Associates

Compliance with the Development Storm Water Manual requires that the Project design must incorporate Low Impact Development (LID) and Integrated Management Practices (IMPs) to address storm water quality management and flow control including Hydromodification Management, where required, in addition to storm water treatment for runoff before leaving the site.

B. STORM WATER QUALITY

1. Regulations: The Project is subject to National Pollutant Discharge Elimination System (NPDES) requirements. NPDES requirements are contained in Section 402(p) of the Federal Clean Water

[1] A scour analysis was done by the Project's geotechnical consultant determined that the velocity of the river channel during a 100-year storm would not adversely effect the proposed outfall system. *Geotechnical Opinion Letter Regarding Scour and Stability of Storm Drain Outfall from Village 9 into Otay River, Chula Vista, California, June 6, 2011, AGS, Inc*

Act, which established a framework for regulating storm water discharges from municipal, industrial, and construction activities. These requirements are implemented through permits issued by the State Water Resources Control Board (SWRCB) or the local Regional Water Quality Control Board in which the Project is located. In San Diego County the local board is the California Regional Water Quality Control Board San Diego Region, herein (SDRWQCB). Further, the requirements are implemented through the City of Chula Vista, which is the governing municipality for the Project.

The WQTR summarizes post-construction storm water quality protection requirements for the Project and the results of the hydromodification analyses of the Western and Hunte/Eastlake Parkway discharges (Section 4.6 of the WQTR).

For the purposes of post-construction storm water quality management, the Project will follow the guidelines and requirements set forth in the Development Storm Water Manual which contains the City of Chula Vista's Standard Water Mitigation Plan (SUSMP) requirements and SDRWQCB Order No. R9-2007-0001. Order No. R9-2007-0001 is a renewal of National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108758, "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority" (Order No. R9-2007-0001, or "Municipal Storm Water Permit"), adopted by the SDRWQCB on January 24, 2007.

The Development Storm Water Manual provides guidance for new development and redevelopment projects to achieve compliance with the City of Chula Vista's SUSMP. The City of Chula Vista's current SUSMP and Development Storm Water Manual requirements are based on the new Municipal Storm Water Permit adopted by the SDRWQCB, Order No. R9-2007-0001.

Order No. R9-2007-0001 includes several changes to requirements for post-construction storm water management and has resulted in the modification of the SUSMP and changes to the standards for post-construction storm water management practices. Specific changes that directly affect the design of the Project include:

- ***Low Impact Development (LID) Best Management Practices (BMP) Requirements:*** Project applicants with Priority Development Projects will be required to implement LID BMP's which will collectively minimize directly connected impervious areas and promote infiltration (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 will be required to prepare a Hydromodification Management Plan (HMP) and incorporate its requirements into their SUSMP's. 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 stream bank erosion and sedimentation, leading to habitat degradation due to loss of overhead cover and loss of in-stream habitat structures.

  The Project will incorporate requirements for LID and hydromodification design elements in effect at the time development plans for the Project are prepared. All development within the Project will be subject to the City of Chula Vista's SUSMP at the time of grading permit issuance.

2. Surrounding Villages in Otay Ranch: The Project is part of the larger Otay Ranch development. Therefore drainage from land outside the Project boundaries will be conducted through the Project's drainage system. Drainage from a portion of the EUC will enter the Project's storm drainage systems at the northern Project boundary. Flows from the north will be conducted in closed conduits within "A" and "B" Streets through the Project before discharging to the Otay River (see Exhibit 4.9.3).

A 54" diameter underground drain pipe that conducts flows from the intersection of Eastlake and Hunte Parkways, at the northeast corner of the Project, currently outlets into a finger canyon running from north to south in the University Site. The construction of the Main Street leg of this intersection will require the modification of the current outlet by extending it by approximately 70 feet to be beyond the toe of the future fill slope of Main Street. Although this flow bypasses the Project, a hydromodification analysis was required because it is conveyed within a natural channel before discharging to the Otay River. The Western Basin flows, including run-off from SR-125 and the west-facing Project slopes, also discharge into a natural canyon before reaching the Otay River. Since the post-development flows from the Western Basin are substantially reduced from the pre-developed condition the hydromodification analysis indicated that the potential erosive effects are greatly reduced due to proposed development of the Project.

3. Stormwater Pollution: Based on the Development Storm Water Manual, the Project as a whole can be expected to generate the following pollutants:

- sediment
- nutrients
- heavy metals
- organic compounds
- trash and debris
- oxygen demanding substances
- oil and grease
- bacteria and viruses
- and pesticides

The Project includes the following priority project categories listed in Table 4.9.2: "Attached Residential Development", "Commercial Development (greater than one acre), "Restaurants", "Parking Lots", and "Streets, Highways & Freeways".

The Project is located in the Otay Valley Hydrologic Area within the Otay Hydrologic Unit. The corresponding number designation is 910.20 (Region '9', Hydrologic Unit '10', and Hydrologic Area '2'). The WQTR states that the Otay River Hydrologic Unit (910.20) is not listed as sensitive to any primary pollutant of concern (WQTR Section 4.2)

TABLE 4.9.2
ANTICIPATED AND POTENTIAL POLLUTANTS GENERATED BY LAND USE TYPE

General Pollutant Categories									
Priority Project Categories	**Sediment**	**Nutrients**	**Heavy Metals**	**Organic Compounds**	**Trash & Debris**	**Oxygen Demanding Substances**	**Oil & Grease**	**Bacteria & Viruses**	**Pesticides**
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development*.	X	X			X	P(1)	P(2)	P	X
Development. of 10 Housing units or more	X	X			X	P(1)	P(2)	p	X
Commercial Development. over one acre**	P(1)	P(1)		P(2)	X	P(5)	X	P(3)	P(5)
Auto Repair Shops			X	X(4) (5)	X		X		
Restaurants					X	X	X	X	
Hillside Development. >5,000 sq. ft. (2)	X	X			X	X	X		X
Parking Lots	P(1)	P(1)	X		X	P (1)	X		P(1)
Streets, Highways & Freeways	X	P(1)	X	X(4)	X	P(5)	X		

X = anticipated P = potential
(1) A potential pollutant if landscaping exists on-site
(2) A potential pollutant if the project includes uncovered parking areas.
(3) A potential pollutant if land use involves food or animal waste products
(4) Including petroleum hydrocarbons.
(5) Including solvents

Source: City of Chula Vista "Development and Redevelopment Projects Storm Water Standards Requirements Manual, January, 2011, Table 3.1.

Note that "Attached Residential Development" is subject to be updated to "a development of 10 housing units or more based on, Order No. R9-2007-0001

*** Note that "Commercial Development >100,000 ft^2" is subject to be updated to "greater than one acre" based on Order No. R92007-0001.*

The WQTR for the Project recommends specific site design, treatment and source control BMPs for the priority project categories. For priority projects where no primary pollutants of concern exist, those pollutants identified through the use of Table 4.9.2 shall be considered secondary pollutants of concern. For the Project as a whole, this will include every pollutant that is listed on Table 4.9.2.

All individual development applications within the Project will trigger separate, or supplemental, WQTRs proposing appropriate on-site LID BMPs. Lot-specific structural BMPs for the commercial sites, attached residential development, parks, CPF sites and schools shall be implemented as

these lots are developed and shall meet the numeric sizing standards set forth in the Development Storm Water Manual.

4. Treatment Control BMP's: The Project WQTR focuses on Bio-retention Integrated Management Practices (IMP), as described in Section 5.3 of the Project's WQTR, and site design LID principles, described in Chapter 7, for post-construction storm water management throughout the Project. The IMP treatment control BMP is described as bio-retention tree wells and grass swales, normally consisting of a sand bed, ponding area, organic layer planting soil and plants. Detention and slow filtration through biologically active soil in the tree wells and swales will provide treatment as well as managing discharge rates and durations. As development plans for individual parcels are prepared, the same procedures described in the WQTR shall be followed to design LID BMP's within the parcel. All development within the Project will be subject to the City of Chula Vista's SUSMP at the time of grading permit issuance.

5. Source Control BMPs: WQTR Chapter 6 describes typical source control BMPs which will be implemented with subsequent individual priority projects within Village 9.

6. Operation and Maintenance Plans (O&M Plans): In general, O&M Plans will be prepared to identify the designated responsible parties to manage the LID BMP's. These plans will also describe training requirements, operating schedule, maintenance frequency, routine service schedule, specific maintenance activities, copies of resource agency permits (if applicable), record keeping requirements, and any other necessary activities required by the SUSMP. There may be one or more O&M Plans for the Project as needed, depending on the delegation of maintenance responsibilities. For example a separate maintenance plan would be required for BMPs located within the public right-of-way and others for BMPs within commercial areas or common interest developments. The WQTR Chapter 9 outlines maintenance responsibilities and mechanisms including the proposed establishment of Community Facilities Districts (CFD's) that will be responsible for funding and maintenance for public storm water BMP's. Chapter 9 also provides estimates of maintenance costs for the treatment control BMP such as the bio-retention IMPs. The maintenance responsibilities for all BMPs will be the subject of agreements between the City and priority project developers that shall obligate future landowners to maintain BMP through recorded covenants and easements running with land.

4.9.6 FINANCING DRAINAGE FACILITIES

A. ON-SITE 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, or secure the construction of, all on-site facilities, as well as those that have not yet been identified, through the processing of a subdivision map.

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 water quality facilities. As such, the City will enter into an agreement with the Project applicant(s) whereby maintenance of water quality 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 maintenance of public drainage facilities.

B. OFF-SITE FACILITIES

Off-site drainage facilities required for Village 9 include the following:

1. As storm drain pipe from the southerly Project site to an approved outfall at the Otay River bottom, terminating in an appropriate energy dissipater, and;

2. All facilities required by the Chula Vista SUSMP in conjunction with any off-site road construction that the developer is responsible for as mitigation of direct impacts, or roadways assumed in the Project's Traffic Impact Analysis "to be built by others" that the developer must construct in order to continue development of the Project.

4.9.7 THRESHOLD COMPLIANCE

A. The development of the Project, if conducted in accordance with proposed mitigation measures, will not adversely impact the existing natural drainage conditions.

B. Prior to issuance of any grading permit for the Project, or any land development permit, including clearing and grading, the Project Applicant(s) shall submit a Notice of Intent (NOI) and obtain coverage under the National Pollutant Discharge Elimination System (NPDES) permit for Construction Activity from the State Water Resources Control Board (SWRCB). The permit requires development of a Storm Water Pollution Prevention Plan (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 provide for implementation of construction and post-construction Best Management Practices (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. The grading plans shall note the conditions requiring a SWPPP and Monitoring Plans.

C. Prior to issuance of each grading permit, a detailed drainage system design study shall be prepared in accordance with the City of Chula Vista's standards and shall be reviewed and approved by the City Engineer.

D. Permanent treatment controls BMP's shall be included as part of the Project in accordance with Section 3c of the City of Chula Vista SUSMP, the City of Chula Vista Development Storm Water Manual, 2011, and the Project's final WQTR to the satisfaction of the City Engineer.

E. Except for individual single family lots, plans for development of individual parcels such as attached residential, retail, commercial and/or CPF, schools and parks shall include a supplemental WQTR submitted to for approval by the City Engineer. The supplemental WQTR shall: include on-site storm water management measures to be implemented with the development of each parcel, verify numeric sizing of structural control BMP's to the satisfaction of the City Engineer and reference the Project's final WQTR for information relevant to the overall Project's design concepts (e.g., downstream conditions of concern and LID BMP principles) to the satisfaction of the City Engineer. Currently a separate WQTR is not required for individual single family lots, however each lot is required to have individual storm water BMP's. For single family residential storm water management measures (such as individual bio-retention IMPs, if proposed) specific calculations for typical single family lots shall be provided with the appropriate precise

grading or design review plans for approval by the City Engineer. Notwithstanding the above all planning areas, including those comprised entirely of single family lots shall meet the Storm Water Manual's requirements at the time of issuance of a grading permit.

F. Prior to the approval of the first Grading permit for the Project, Drainage Management Areas (DMA) shall be delineated for all land uses and/or planning areas of the Project. The DMAs will include not only streets within the parcel, but also buildings, parking lots or structures, and other areas. As each DMA would either drain to a designated LID BMP(s) features, or be designed to treat and/or retain storm water within the DMA, the specific design of bio-retention IMPs, including their proximity to structures and how runoff would be collected, retained and/or discharged from them shall be subject to approval by the geotechnical engineer for the Project. The evaluation shall be conducted on a lot-by-lot basis after rough grading is completed and prior to constructing any improvements or structures. All development within the project shall be subject to the City of Chula Vista's SUSMP (Section 3 of the Development Storm Water Manual) at the time of grading permit issuance unless otherwise addressed in a development agreement.

G. Any Applicant for a development permit within the Project shall monitor and mitigate any erosion in downstream locations that may occur as a result of on-site development.

H. Any Applicant for a development permit within the Project shall comply with the City of Chula Vista Development Storm Water Manual Limitation of Grading requirements, which limit the area that can be cleared or graded and left exposed at one time to amount of acreage that the owner/contractor can adequately protect prior to a predicted rainstorm, but in no event greater than 100 acres, unless expansion of a disturbed area is specifically approved by the Director of Public Works. Soil stabilization and sediment control materials shall be maintained on-site sufficient to protect the disturbed soil areas. Under this requirement, grading shall be phased at larger sites. For example, it may be necessary to deploy and maintain soil stabilization, erosion and sediment control BMPs in areas that are not completed, but are not actively being worked, before the additional grading is done or the next phase of grading is begun.

I. As a result of the NPDES Municipal Permit, Order No. R9-2007-0001, and phasing of the Project development, the Applicant(s) shall comply with the City's Hydromodification Criteria or Hydrograph Modification Management Plan, as applicable, addressed regionally at the Project's SPA Plan level concurrent with Grading and Improvement Plans for major streets.

J. Prior to the issuance of any building permit resulting in an increase in permanent impermeable area, each Applicant proposing to develop within the Project is required to develop and implement a post-construction SUSMP and implement BMP's in accordance with the most recent regulations at the time of Grading or Building Permit issuance, unless otherwise addressed in a development agreement. In particular, Applicants are required to comply with the requirements of the NPDES Municipal Permit, Order No. R9-2007-0001, and the City of Chula Vista *Development Storm Water Manual* dated January 2011, or any re-issuances thereof. Specifically, Applicant(s) shall incorporate into the proposed project design, structural on-site design features to address Site Design and Treatment Control (BMP's) as well as LID and HMP requirements. Any of said requirements may be waived if the Applicant(s) demonstrates, to the satisfaction of the City Engineer, that regional facilities exist to address such requirements.

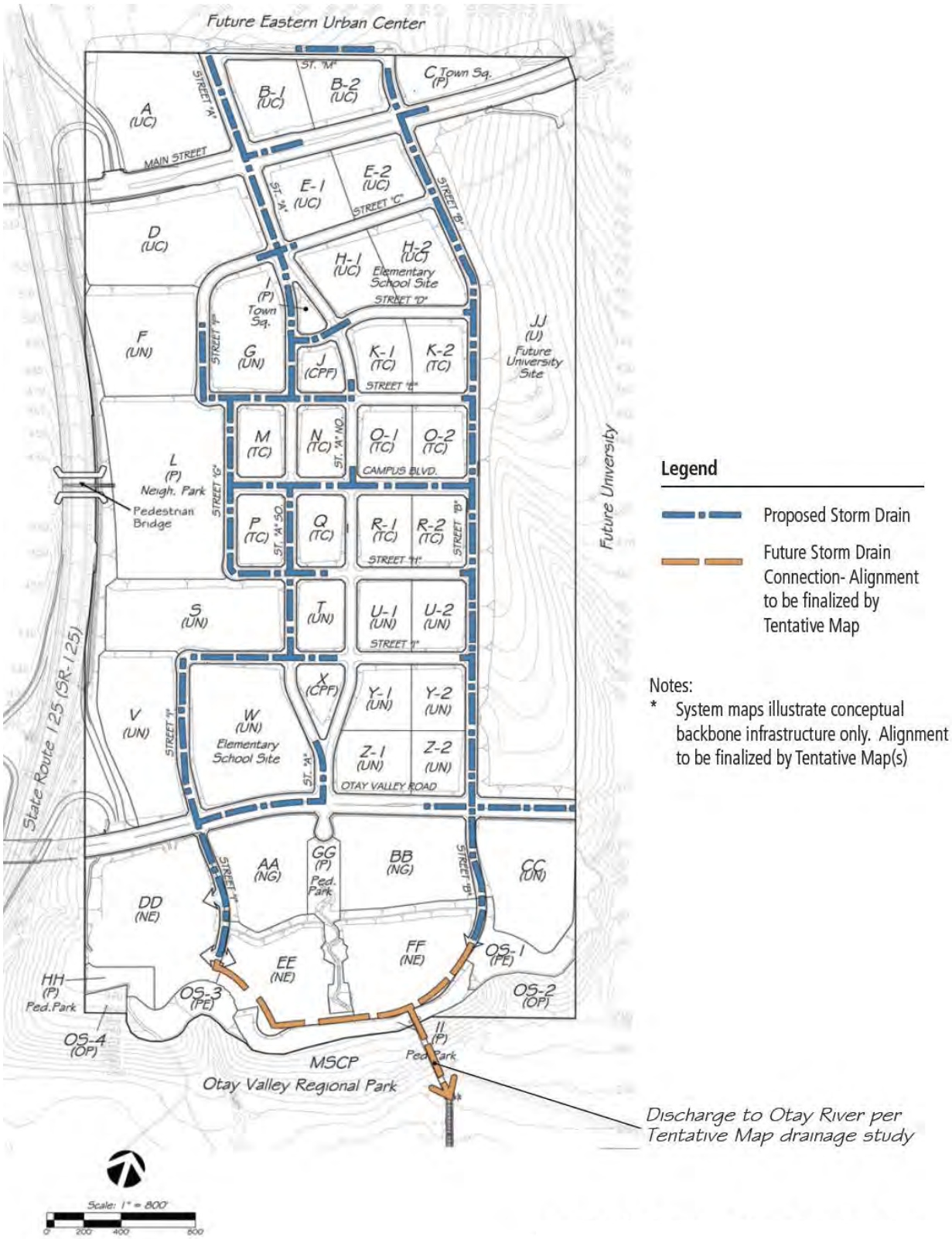


EXHIBIT 4.9.1 STORM DRAIN MASTER PLAN

(Source: Village 9 SPA Plan, November, 2013)

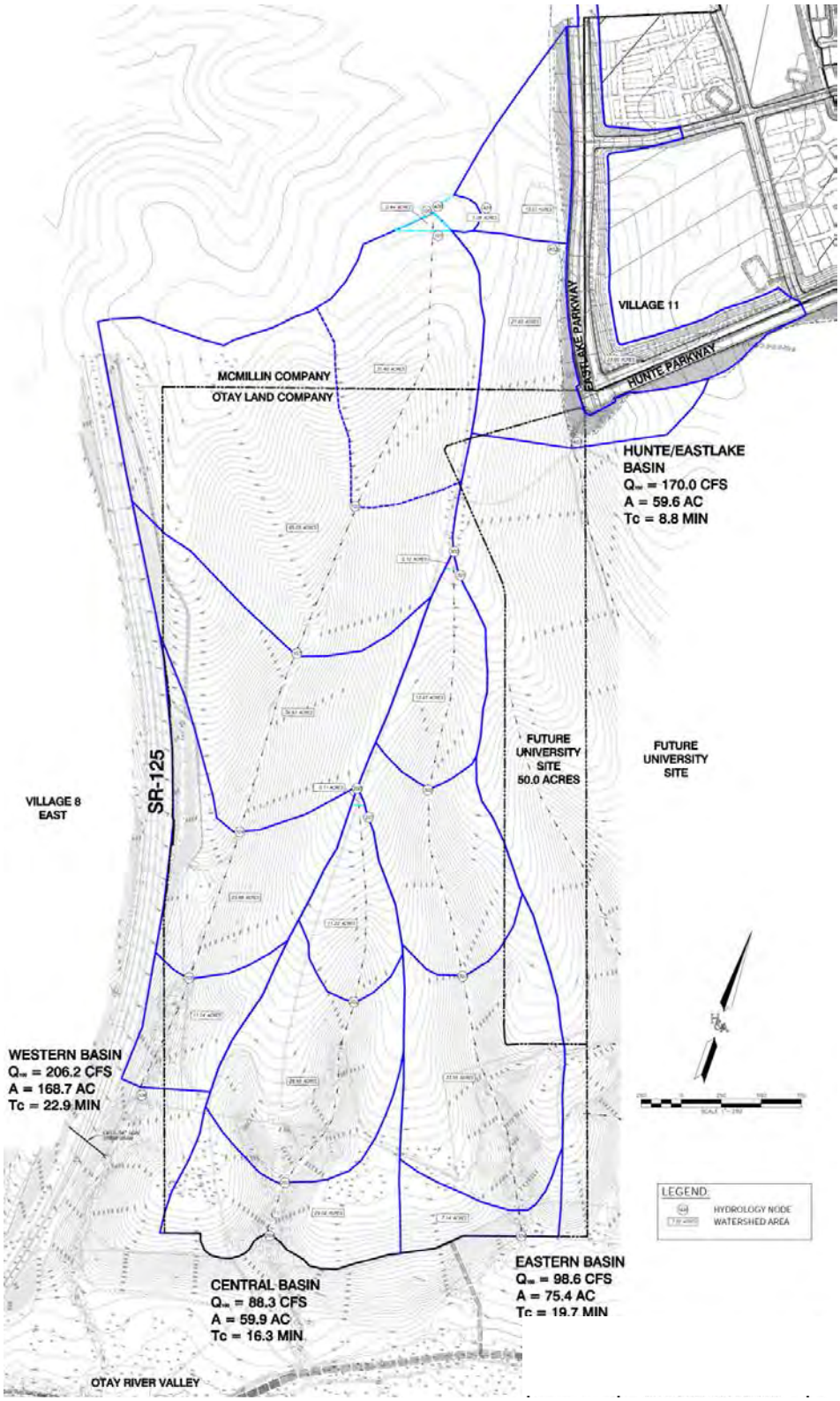


EXHIBIT 4.9.2 PRE-DEVELOPED DRAINAGE CONDITION

(Source: TM Drainage Study Exhibit 1.2, August, 2011)

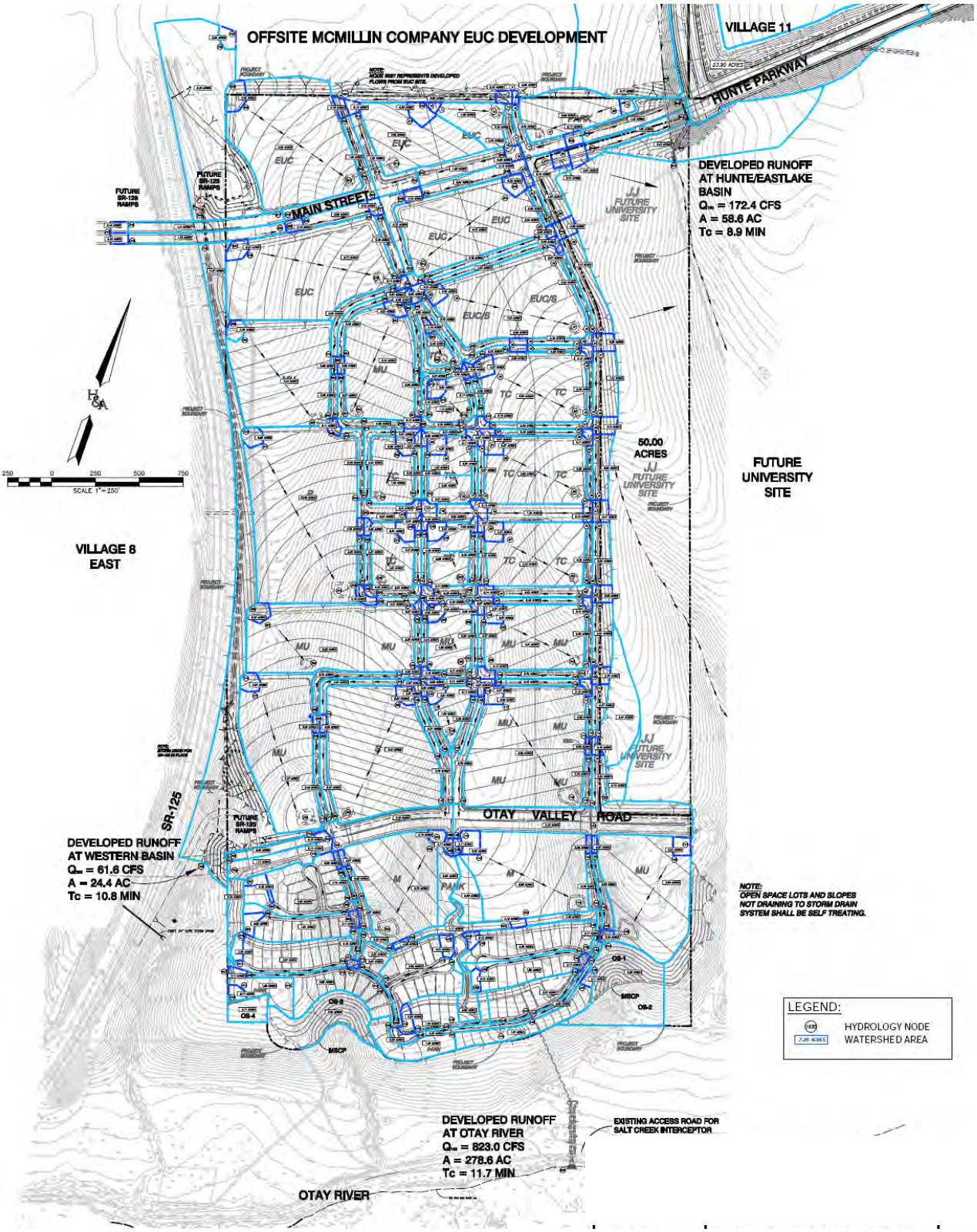


EXHIBIT 4.9.3 POST-DEVELOPED DRAINAGE CONDITION

(Source: TM Drainage Study Exhibit 1.3, August, 2011)

4.10 AIR QUALITY

4.10.1 THRESHOLD STANDARD

The Growth Management Oversight Committee (GMOC) shall be provided with an annual report which:

1. 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;

2. Identifies whether the City's development regulations, policies and procedures relate to, and/or are consistent with, current applicable federal, state and regional air quality regulations and programs;

3. Identifies non-development-specific 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 San Diego Air Pollution Control District (APCD) for review and comment. In addition, the APCD shall report on overall regional and local air quality conditions, the status of regional air quality improvement implementation efforts under the regional air quality strategy and related federal and state programs, and the effect of those efforts/programs on the city of Chula Vista and local planning and development activities.

The City also provides the APCD with an annual 12-18 month development forecast and requests an evaluation of its impact on current and future air quality management programs, along with recent air quality data. The growth forecast and APCD response letters shall be provided to the GMOC for inclusion in its annual review.

4.10.2 SERVICE ANALYSIS

AIR QUALITY IMPROVEMENT PLAN

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. Although adopted in 1989, the GME has remained current by not only requiring air pollution reduction measures identified in 1989 but also "measures developed in the future."

To implement the GME, the Chula Vista 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. 19.09.050B) 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.

The Chula Vista City Council adopted the Carbon Dioxide (C02) Reduction Plan on November 14, 2000. The plan 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 identify and evaluate the relative effectiveness and costs of applying various design and energy conservation features in new development projects.

Based on the pilot study and other data, the City has developed guidelines for AQIPs. These guidelines require that a project be evaluated using the Chula Vista CO2 INDEX Model, or an approved alternative modeling software. The City's revised AQIP Guidelines lists 16 key indicators and threshold values for each indicator that are evaluated by the CO2 INDEX Model. The INDEX model results for the Village 9 SPA Plan Project (the "Project") are included in the Project's SPA Plan AQIP in Appendix B; Table 4.10.1 is a summary of the INDEX model results for the Project.

The Project's performance in comparison with the INDEX model thresholds rests on the following aspects of the SPA Plan's design:

Land Use

- Compact Development – minimize sprawl.
- Density – intensity of land use, particularly near transit nodes and mixed-use areas.
- Diversity – mix and variety of land uses.
- Orientation toward pedestrian and bicycles.
- Orientation toward transit.

Buildings & Landscaping

- Energy efficient building construction – Reduce energy use by exceeding Title 24 building standards.
- Solar Use – Solar thermal applications and power generation.
- Vegetation – Uptakes air pollutants and greenhouse gases and provides shading to reduce temperatures.

Transportation

Important components of Transportation Action Measures include dense street networks, completeness of sidewalks and direct routes to activity nodes.

- Pedestrian Facilities – Circulation design and improvements for pedestrian use.
- Bicycle Facilities – System design and improvements to encourage bicycle use.
- Transit Facilities – Transit system design and improvements to circulation system.

Infrastructure

- Water use – Land planning that reduces water consumption (see Water Conservation Plan as Appendix G of SPA Plan for details).

Upon completion of the INDEX modeling, the consultant providing the INDEX modeling services shall provide written confirmation to the City's Director of Development Services that the project as proposed represents improvements at or beyond the City's performance threshold scores established for each of the 16 required key indicators. In the event that a project is unable to comply with all key indicator thresholds due to unique circumstances involving project design and/or pre-existing environmental/land-use conditions, the developer may request, in writing to the City's Development Services Director, a waiver to exclude those key indicators that, in the developer's opinion, are not applicable to their project. The discretion to exclude certain key indicators from project evaluation rests exclusively with the City's Development Services Director.

TABLE 4.10.1 - CO2 INDEX MODEL INDICATORS

Element	Indicator	Unit of Measure	Threshold Score	Village 9 Score
Land Use	Land Use Mix	0 to1 index	.11 or higher	.58
	Land Use Balance	0 to 1 index	.59 or higher	.86
	Neighborhood Completeness	% of key uses	60 or higher	60
Housing	School Proximity to Housing	Average walk distance to closest school	3,248 ft or less	956
	Transit Proximity to Housing	Average walk distance to closest stop	2,857 ft or less	2,278
Employment	Transit Proximity to Employment	Average walk distance to closest stop	2,550 ft or less	2,602*
Recreation	Park Proximity to Housing	Average walk distance to closest park	1,699 ft or less	1,536
Travel	Internal Street Connectivity	Ratio of street intersections to cul-de-sacs or dead –ending streets (0 to 1 index)	.70 or higher	.73
	Intersection Density	Intersections/sq. mi.	130	57*
	Pedestrian Network Coverage	Percent of streets with sidewalkso	81.1 or higher	100
	Residential Multi-Modal Access	Percent of dwelling untts with 3 or more modes within 1/8th mile	39.7 or higher	75.0
	Daily Auto Driving	Vehicle-miles/day/capita	25 or less	24.00
Climate Change	Residential Energy Use	MMBtu/yr/capita	29 or lower	18.4
	Non-residential Energy Use	MMBtu/yr/employee	19.3 or lower	15.2
	Residential Building CO^2 Emissions	lbs/capita/yr	4,788 or lower	3,008
	Non-Residential Building CO^2 Emissions	lbs/capita/yr	3,139 or lower	2,480

**Village 9 fails to meet these two indicators with the circulation assumptions under which the INDEX model was initially run. The Project AQIP points outs that if a proposed transit stop located in the EUC and the transit stops that are shown in the SPA Plan Exhibit 5.7 were included in the model the Transit Proximity to Employment indicator result would be lower. The Project AQIP also explains that if all proposed Project intersections, including entrances to multi-family developments, were counted the Intersection Density indicator would be 144intersections per square mile.*
Source: Air Quality Improvement Plan Guidelines, Attachment A, City of Chula Vista Revised August, 2011

Because the land-use mix and project design features which meet the AQIP requirements are intrinsic to the Project, air quality improvements which are associated with the design features such as lower energy use and vehicle emissions due to land-use proximity will require that the Project be developed in substantial conformance with the Project's approved SPA Plan. The City of Chula Vista shall continually review development plans at each stage of design and construction approval. These reviews will assure that the project is developed in a manner consistent with the SPA Plan and which meets the AQIP requirements.

4.10.3 THRESHOLD COMPLIANCE AND RECOMMENDATIONS

The City continues to provide a development forecast to the APCD in conformance with the threshold standard. The SPA Plan AQIP include measures to enhance air quality including but not limited to the following, refer to the Village 9 SPA Draft EIR and the AQIP for complete air quality impact mitigation measures:

1) Energy Efficiency Standards: including but not limited to compliance with the City and States' required Green Building Programs, and compliance with the State of California AB-32 legislation that will contribute to improvements to air quality and reduction in greenhouse gas impacts. The Village 9 SPA plan requires that new commercial buildings be constructed to meet Title 24, Part 6 of the California Building Standards Code; California Green Building Code Title 24, Part 11 (CALGreen); the City of Chula Vista's Green Building Standards (CVMC Chapter 15.12); and the City's energy efficiency requirements (CVMC 15.26.030).

2) New Construction Recycling Plan, including providing information and adequate space for recycling activities;

3) Reduction of particulate emissions through construction practices that control fugitive dust, minimize simultaneous operation of construction vehicles and equipment, and use low-polluting equipment to meet the AQMB (Air Quality Management Board) standards.

4) Application of Tier 2+ Blue Sky engines in equipment used in grading and heavy construction operations;

5) Use of High-Volume, Low-Pressure (HVSP) painting systems and Low VOC paints and other construction-level best management practices to reduce emissions

4.11 CIVIC CENTER

4.11.1 CITY THRESHOLD STANDARDS

There are no adopted threshold standards for Civic Center facilities; therefore no Service Analysis is required. The purpose of this section is to describe provide information on facility funding through the collection of the Public Facility DIF.

4.11.2 EXISTING CONDITIONS

Major renovations to the Civic Center Complex in accordance with a Master Plan were completed in 2008, consisting of a new City Council Chambers and City Hall, and Public Service Buildings North and South. The current Civic Center Complex was primarily funded by development fees (approximately 89%).

4.11.3 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 original Civic Center buildings were inadequate due to an overall lack of space and poor space utilization. This condition worsened as employee numbers and their workloads increased in response to demands for services generated in part by new development. Phases I and II of the Civic Center Complex expansion are complete. City Hall facilities have been renovated and now include a new state of the art Council Chambers. Other work included conversion of the former Police Station as additional office space and the complete remodeling of the Public Services Building. The Master Plan calls for further expansions in Phases III and IV, which are expected to keep pace with demand for additional work space as the City continues to grow.

4.11.4 FINANCING CIVIC CENTER FACILITIES

The Public Facilities Development Impact Fee (PFDIF) was last updated by the Chula Vista City Council on June 28, 2013. PFDIF is adjusted approximately every October 1st pursuant to Ordinance 3050, which was adopted by the City Council on November 7, 2006. The PFDIF amount is subject to change as it is amended from time to time.

The Otay Ranch Village 9 SPA Project (the "Project") is within the boundaries of the PFDIF Program and, therefore, 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 Village 9 Civic Center Fee obligation at build-out is $10,448,060. (see Table 4.11.1).

TABLE 4.11.1[1] VILLAGE 9 SPA
PUBLIC FACILITIES FEES FOR CIVIC CENTER

Phase	SFDU	MFDU	Commercial Acres	Civic Center			Total Fee
				SFDU $2,708/DU	MFDU $2,564/DU	Commercial $8,638/Acre	
Orange	145	308	4.4	$392,660	$789,712	$38,007	$1,220,379
Blue	0	1,239	4	$0	$3,176,796	$34,552	$3,211,348
Yellow	121	486	7.6	$327,668	$1,574,296	$65,649	$1,967,613
Purple	0	1,701	1.8	$0	$4,033,172	$15,548	$4,048,720
Total	**266**	**3,734**	**17.8**	**$720,328**	**$9,573,976**	**$153,756**	**$10,448,060**

1 Fee based on Form 5509 dated 6/28/2013. The PDIF Fee is subject to change as it is amended from time to time; verify with the City of Chula Vista at the time of building permit.

The above table is only an estimate; actual total fees 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.

4.11.5 THRESHOLD COMPLIANCE AND RECOMMENDATIONS

Continuing debt service for the Civic Center Complex expansion will be funded through the payment of the public facilities fees in effect at the time building permits are issued; the fees shall be paid prior to the issuance of building permits unless stated otherwise in a development agreement.

4.12 CORPORATION YARD

4.12.1 THRESHOLD STANDARDS

There is no adopted threshold standard for Corporation Yard facilities; therefore no Service Analysis is required. The purpose of this section is to provide information on facility funding through the collection of the Public Facility Development Impact Fee (PFDIF).

4.12.2 EXISTING CONDITIONS

The current Corporation Yard was previously an SDG&E equipment and repair facility. The City has renovated and added new improvements for the maintenance and repair of city-owned equipment. This facility consists of a renovated building that serves as the administration building for the Corporation Yard. Existing shop buildings have been renovated and new shops have been added as well as a new maintenance building. The Corporation Yard includes parking for employees, city vehicles and equipment. In addition, a Bus Wash/Fuel Island/CNG and associated equipment have been added.

4.12.3 ADEQUACY ANALYSIS

The need for expansion of the Corporation Yard is indirectly related to the growth in population, and the expansion of developed areas in Chula Vista. The increase in street miles, sewer mains, storm drainage systems, additional police cars and fire apparatus, new parks and public buildings all require more equipment and maintenance space as well as more space for storage and the administration of increased numbers of employees. The need for the larger Corporation Yard was specifically related to projected new development. While there are no immediate plans for further expansion of the Corporation Yard, the City has ongoing debt service obligations due to the previous expansion. A portion of the PFDIF revenues are used for the Corporation Yard debt service.

4.12.4 FINANCING CORPORATION YARD FACILITIES

The Public Facilities Development Impact Fee (PFDIF) was last updated by the Chula Vista City Council on June 28, 2013. PFDIF is adjusted approximately every October 1st.

The project is within the boundaries of the PFDIF Program and, therefore, 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 Corporate Yard Fee obligation at build-out is $1,586,349. (see Table 4.12.1).

TABLE 4.12.1 VILLAGE 9 SPA
PUBLIC FACILITIES FEES FOR CORPORATION YARD

Phase	SFDU	MFDU	Commercial Acres	Corporation Yard Component Fee			Total Fee
				SFDU @ $446/DU	MFDU $357/DU	Commercial $7,566/Acre	
Orange	145	308	4.4	$64,670	$109,956	$33,290	$207,916
Blue	0	1,239	4	$0	$442,323	$30,264	$472,587
Yellow	121	486	7.6	$53,966	$219,198	$57,502	$330,666
Purple	0	1,701	1.8	$0	$561,561	$13,619	$575,180
TOTAL	**266**	**3,734**	**17.8**	**$118,636**	**$1,333,038**	**$134,675**	**$1,586,349**

34 Fee based on Form 5509 dated 6/28/2013. The PDIF Fee is subject to change as it is amended from time to time; verify with the City of Chula Vista at the time of building permit.

The projected fee illustrated in the above table is an estimate only; the 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.

4.12.5 THRESHOLD COMPLIANCE

Corporation Yard facilities and associated debt service continue to be funded through the payment of the PDIF; the fees shall be paid prior to the issuance of building permits unless stated otherwise in a development agreement, at the rate in effect at of building permit issuance.

4.13 OTHER PUBLIC FACILITIES

4.13.1 THRESHOLD STANDARD

Other public facilities which are part of the Public Facilities Development Impact Fee Program (PFDIF) include GIS, Computer Systems, Telecommunications, Records Management System and PFDIF program administration. There is no adopted threshold standard for these facilities. The information regarding these capital items is being provided in this section of the PFFP to aid the City and the Developer in calculating the PFDIF fees to be paid by the Village 9 Project.

4.13.2 SERVICE ANALYSIS

The public facilities identified above are described in the *Public Facilities Development Impact Fee, March 2006 Update* report.

4.13.3 EXISTING CONDITIONS

The City continues to collect funds from building permit issuance through the PFDIF program for deposit to an account associated with Administration costs. The administration costs are associated with the PFDIF program itself and the costs associated with the Growth Management Oversight Committee process. The PFDIF is not currently collected for records management, telecommunications, computer systems and GIS. Funding of capital improvements in these areas needed to serve new development are currently incorporated into the PFDIF fee components of the various services that would use the specific improvements, such as Civic Center, Police and Fire Suppression.

4.13.4 FINANCING ADMINISTRATION FACILITIES

The PFDIF was updated by the Chula Vista City Council on November 19, 2005 by adoption of Ordinance 2887. The Public Facilities Development Impact Fee (PFDIF) is adjusted approximately every October 1st and was most recently updated on September 24, 2012. The PFDIF amount is subject to change as it is amended from time to time.

TABLE 4.13.1 VILLAGE 9 SPA
PUBLIC FACILITIES FEES FOR PROGRAM ADMINISTRATION

Phase	SFDU	MFDU	Commercial, Retail and Office Acres	Other Component Fees			Total Fee
				SFDU @ $596/DU	MFDU $563/DU	Commercial $1,900/Acre	
Orange	145	194	4.4	$86,420	$173,404	$8,360	$268,184
Blue	0	494	4	$0	$697,557	$7,600	$705,157
Yellow	121	58	7.8	$72,116	$345,682	$14,440	$432,238
Purple	0	754	1.8	$0	$885,599	$3,420	$889,019
TOTAL	**266**	**3,734**	**17.8**	**$158,536**	**$2,102,242**	**$33,820**	**$2,294,598**

Fees based on Form 5509 dated 6/28/2013. The PDIF Fee is subject to change as it is amended from time to time. Actual fees may be different, verify with the City of Chula Vista at the time of building permit.

The Village 9 SPA project is within the boundaries of the PFDIF Program and, therefore, 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 Administration Fee obligation at build-out is approximately $2,294,598. Table 4.13.1, is only an estimate. Actual fees may be different. Changes in the number of multi-family dwelling units or commercial acreage may affect the estimated fee. Public Facilities DIF Fees are subject to change depending upon City Council actions and or Developer actions that change the number of residential units, residential densities, industrial acreage or commercial acreages.

4.13.5 THRESHOLD COMPLIANCE AND RECOMMENDATIONS

PFDIF program administration costs and GMOC costs will be funded through the payment of public facility fees; the fees shall be paid prior to the issuance of building permits unless stated otherwise in a development agreement, at the rate in effect at the time of building permit.

4.14 PUBLIC FACILITY FINANCE

4.14.1 OVERVIEW

The City will ensure the appropriate public facilities financing mechanisms are utilized to fund the acquisition, construction and maintenance of public facilities required to support the planned development of the Otay Ranch Village 9 SPA project (Project) in compliance with the City's Growth Management Program.

Public facilities are generally provided or financed in one of the following three ways:

1. Subdivision Exaction: Developer constructed and financed as a condition of project approval.

2. Development Impact Fee: Funded through the collection of an impact fee. Facilities are constructed by the public agency or developer constructed with a reimbursement or credit against specific fees.

3. Debt Financing: Funded using one of several debt finance mechanisms. Facilities are constructed by the public agency or developer.

It is anticipated that all three methods will be utilized for the Project to construct and finance public facilities.

4.14.2 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, park and recreation improvements. The use of subdivision conditions and exactions, where appropriate, will ensure 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.

4.14.3 DEVELOPMENT IMPACT FEE PROGRAMS

Development Impact Fees are imposed by various governmental agencies, consistent with State law, to contribute to the financing of capital facilities improvements within the City of Chula Vista. The distinguishing factor between a fee and a subdivision exaction is that exactions are requested of a specific developer for a specific project whereas fees are levied on all development projects throughout the City or benefit area pursuant to an established formula and in compliance with State law.

The Project, through policy decisions of the City of Chula Vista and other governing agencies, is subject to fees established to help defray the cost of facilities that benefit the project and areas beyond this specific project. These fees may include but not be limited to:

1. Eastern Chula Vista TDIF — established to provide financing for circulation element road projects of regional significance in the area east of I-805.

2. Traffic Signal Fee — the City adopted a traffic signal installation program for participation by private developers. In accordance with CVMC Chapter 15.51 developers shall install required traffic signals associated with circulation element streets or pay the traffic signal fees.

3. Public Facilities Development Impact Fee — Public Facilities DIF established to collect funds for Civic Center Facilities, Police Facilities, Corporation Yard, Libraries, and Fire Suppression System..

4. Park Acquisition and Development Fee — PAD Fees have been established to pay for the acquisition and development of park facilities in accordance with CVMC Chapter 17.10.

5. Salt Creek Basin Development Impact Fee — to pay for constructing sewer improvements within the Salt Creek basin.

6. Otay Water District Fees — It should be noted that the Water District may require the formation of or annexation to an existing improvement district or creation of some other finance mechanism which may result in specific fees being waived.

7. Sweetwater Unified High School District and the Chula Vista Elementary School — The State of California legislates school fees and authorizes school districts to impose facility mitigation exactions on new development as a way to address increasing enrollment caused by that development.

4.14.4 DEBT FINANCE PROGRAMS

The city preferred land-based debt finance program is the Community Facilities District or CFD's. Both school districts have implemented Mello-Roos Community Facilities Districts to finance school facilities.

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:

1. Local park, recreation, or parkway facilities;

2. Elementary and secondary school sites and structures;

3. Libraries;

4. Any other governmental facilities that legislative bodies are authorized to construct, own or operate including certain improvements to private property.

4.14.5 OTHER METHODS USED TO FINANCE FACILITIES

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.

STATE AND FEDERAL FUNDING

Although 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.

DEDICATIONS

Dedication of sites by developers for public capital facilities is a common financing tool used by many cities. In the case of the project, the following public sites are proposed to be dedicated:

1. Roads (if public)
2. Public parks
3. Open space and public trail systems

HOMEOWNERS ASSOCIATIONS

While not a public facility financing method per se, one or more Community Homeowner Associations may be established by the developer or successor owners to manage, operate and maintain private facilities and common areas within the project.

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.

SPECIAL AGREEMENTS/DEVELOPMENT AGREEMENT

This category includes special development programs for financing construction of special public facilities. It also includes any other special arrangements between the City and the developer such as credits against fees, waiver of fees, timing for payment 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.

4.14.6 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.

1. Prior to receiving final approval, developers shall demonstrate and guarantee that compliance is maintained with the City's adopted threshold standards.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

4.14.7 CUMULATIVE DEBT

The City of Chula Vista has an established policy limiting the maximum debt (that may be financed by a special tax or assessment) 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 of the valuation of for-sale residential property. As a result, the City makes an effort to coordinate its debt finance programs with the other special districts (school 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.

The total land-secured debt capacity for Village 9 is shown in Table 4.14.1, it is found by: 1) totaling the assessed value of residential, commercial and office property; 2) estimating land value based on the assumption that the land value at the time of appraisal prior to formation of the district is approximately 20% of the build-out valuation; 3) then applying a 4:1 value-to-loan ratio, which is also City policy for land-secured financing. The maximum bonded debt for Village 9 is therefore approximately $74 million. Table 4.14.1 also calculates the maximum annual debt service for-sale residential due to the 2% cap by subtracting from 2% the effective property tax rate as determined by the County Tax Collector for the tax rate area (1.08133%). The maximum annual debt service that the for-sale residential property may take on is approximately $8.5 million. This analysis assumes that 75% of the multi-family is for-sale (this same assumption was made in the Fiscal Impact Analysis, Section 5 of the PFFP). Assuming that 63% of the bonded debt total is applicable to for-sale residential (based on the proportion of total assessed valuation) the annual debt service that would apply to for-sale residential, under various interest rate and bond term scenarios, is presented in Table 4.14.2. Since the annual debt service under the least favorable scenario is well below the maximum allowable debt service under the 2% cap rule, the limiting factor to the total bond capacity is the land value itself (note that school facilities financing using via a Mello-Roos district must also be considered). The actual bond amount is therefore highly dependent on the land value prior to formation of the district and issuance of bonds. However, the 20% assumption above is conservative given that the land component is typically 30% or more of the value of real estate with improvements and appraisals for land-based financing usually assume super-pads with roads and utilities in and sold as ready for fine-grading.

Table 4.14.3 identifies approximately $103 million as the estimated cost of facilities that may qualify for debt financing. This amount is about 60% more than what may be financed as shown on Table 4.14.2. Therefore, there is insufficient revenue capacity available to finance all of the improvements listed in Table 4.14.3, and the City will likely need to prioritize which projects may be financed by community facilities districts.

The Development Services Department generally requires the preparation of a financing district feasibility plan for the build-out of a master planned community prior to initiation of the first district in order to determine the debt capacity limits and benefit zones related to using public financing to fund infrastructure improvements.

TABLE 4.14.1 ESTIMATED REVENUE AVAILABLE FOR DEBT SERVICE ON LAND SECURED FINANCINGS

Units or Acres	Assessed Value/Unit or square foot[1]	Total Assessed Value[2]
266 Single Family Units	$488,600	$129,967,600
3,734 Multi-Family Units	$284,700	$1,063,069,800
1,200,000 square feet of commercial & office	$178	$213,600,000
300,000 square feet of retail	$232	$69,000,000
Total Assessed Value		**$1,476,237,400**
20% Land Value at Appraisal (assumed)		**$295,247,480**
Maximum Loan Amount (LTV ratio: 1:4)		**$73,811,870**
2.0% Tax Rate Cap on for sale residential units by City Policy[3]		$18,545,399
1.08133% Tax Rate Utilized		$10,026,848
Annual revenue available from residential to pay debt service (2.00% - 1.08133%)		**$8,518,551**

1 Valuation assumptions are based on market research data from Village 9 Fiscal Impact Analysis, Section 5 of the PFFP.

2 Assessed value does not account for appreciation or economic inflation at build out.

3 The 2% tax rate cap for financing districts applies only to the sale price of individual units of residential. For this analysis 75% of the multi-family units are assumed to be for sale.

Source: PMC

TABLE 4.14.2-NET BOND PROCEEDS ANNUAL DEBT SERVICE

Maximum Loan Amount		**$73,811,870**	
Net Bond Proceeds @ 85%[1]		**$62,740,090**	
Interest Rate	**Term (yrs.)**	**Annual Debt Service on Maximum Loan**	**63% of Annual Debt Service applied to for-sale residential[2]**
5.00%	30	$3,137,005	$1,976,313
5.50%	30	$3,450,705	$2,173,944
6.50%	30	$4,078,106	$2,569,207
7.00%	30	$4,391,806	$2,766,838
7.50%	30	$4,705,507	$2,964,469

[1] 15% estimated for bond financing costs and fees
[2] The ratio of for-sale residential property assessed value to the total assessed value is approximately 0.63.

TABLE 4.14.3 PRELIMINARY ESTIMATE OF FACILITY COST POTENTIALLY FUNDED FROM DEBT SERVICE

Facilities	Cost
On-site TDIF Traffic Improvements	
Otay Valley Road	$7,800,000
Main Street	$8,100,000
Other Arterial Roads	
Santa Victoria Street	$4,200,000
Street "A"	$6,300,000
Street "B"	$6,300,000
Park Acquisition and Development Fee (community park obligation)	$18,000,000
Public Facilities Development Impact Fee	$36,093,533
Backbone Water Improvements[1]	$1,500,000
Backbone Sewer Improvements	$2,000,000
Total	**$103,094,000**

[1]The Otay Water District may establish a separate CFD to fund on-site water improvements

4.14.8 MAINTENANCE DISTRICTS

According to the City's Growth Management Policy the limit on annual special tax and assessment debt service of 2% of the assessed valuation of the property (described in the first paragraph of 4.14.7 above) applies only to residential property and does not count special taxes or assessments used for the purpose of maintaining public facilities, or providing public services. Therefore, in accordance with the City's policy, the bond proceeds analysis above does not account for special taxes or assessments for maintenance. In reality, the levying of taxes or assessments for maintenance of public facilities is an encumbrance against property that is superior to bonded debt and therefore must be disclosed in any issuance of bonds for financing of facilities such as those listed in Table 4.14.3 above. The resulting effect of such an

encumbrance, which places an added burden on the homeowners' ability to meet their debt obligations may lead to an increase in the cost of bonded debt through higher interest rates, which in turn will reduce the net bond proceeds. The Village 9 Project may be conditioned to form, or be annexed into one or more maintenance districts for parks, open space, and storm water management or other purposes. In which case, the bond debt proceeds as described above may need to be re-evaluated.

4.14.9 LIFECYCLE COST ANALYSIS

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

The following material presents information on the general aspects of life cycle cost analysis as well as its specific application to the City of Chula Vista operations. The discussion regarding the general benefits and process of LCC is meant to provide a common base of understanding upon which further analysis can take place.

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:

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

2. 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.

3. 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.

4. 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.

In addition to these existing processes, the City should require the use of LCC analysis prior to or concurrent with the design of public facilities required by new development. Such a requirement will assist in the determination of the most cost effective selection of public facilities.

5.1 THRESHOLD STANDARD

1) 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.

2) The GMOC shall be provided with an annual "economic monitoring report" which provides an analysis of development impact fees collected and expended over the previous 12-month period.

5.2 FISCAL IMPACT ANALYSIS INTRODUCTION

The City of Chula Vista does not currently have a "Master Plan" that addresses fiscal issues. However, the City has adopted a standard approach to modeling fiscal impacts due to proposed land use changes to the General Plan. The *SPA Fiscal Impact Analysis Framework* report (FIA Framework), completed *by Economic Research Associates* (now AECOM) in February 2008, presents the basic methodology and a consistent approach to the evaluation of SPA proposals in the City of Chula Vista. The FIA Framework is a tool intended to provide a consistent evaluation of fiscal impacts. This consistency is achieved by a procedural combination of the following factors, which are common to every fiscal impact analysis (FIA):

- Land use variables– use, density, population, employment
- Market variables– real estate values and market competitiveness
- The City's current cost and revenue patterns–net city costs and discretionary revenues

The inputs to a FIA for a specific project will require adjustments of these variables to adapt the framework model to that specific project and to incorporate current data. This FIA analysis for the Village 9 SPA is based on the FIA Framework model updated and adapted by PMC for Village 9. This FIA identifies the estimated fiscal impact that the Village 9 project will have on the operation and maintenance budgets of the City of Chula Vista (General Fund). The data and inputs used in this FIA fiscal analysis section of this PFFP are derived from the following sources:

- Village 9 Site Utilization Summary of land-uses (draft dated November, 2013)
- City-wide land use data current as of February 2011
- Departmental cost allocation factors by land-use developed by the City using budget data of fiscal years between 2005 and 2009.
- Cost allocation factors have not been adjusted for inflation since the 2008-09 fiscal year.

Additional supporting fiscal data is presented in the FIA tables in Appendix A.

5.3 PROJECT PROCESSING REQUIREMENTS

The City of Chula Vista Growth Management Program requires the SPA Plan and the PFFP to prepare a phased fiscal/economic report comparing expected annual revenues derived from the project to expected annual costs of providing public services to the SPA, including maintenance and operations of associated public facilities.

5.4 FISCAL ANALYSIS OF PROJECT

Village 9 is proposed as a mixed-use development with a range of residential densities from 3 units per acre to 60 units per acre and up to 4,000 total dwelling units (266 single family and 3,734 multi-family units). The SPA Site Utilization Plan is summarized in Table 5.1 and shows that the project also proposes up to 1.5 million square feet of office and retail space. Other land uses include an elementary school, 5 acres for community purpose facilities and 28 acres of parklands (including 2 town square parks, a neighborhood park and pedestrian parks). Table 5.2 describes the development program and the projected absorption schedule. Table 5.2 provides absorption of the project in terms of:

- Land use types (as per Table 5.1)
- Residential units by type (single or multi-family)
- Incremental population growth
- Incremental employment growth

The absorption schedule is expected to extend for a 20-year period and is based on Village 9 Traffic Impact Analysis.

5.5 METHODOLOGY

Village 9 SPA FIA generally follows the methodology found in the FIA Framework in order to provide a consistent method for evaluating of the fiscal impacts of Chula Vista's specific plans. The FIA Framework and the Village 9 SPA FIA rely on the City of Chula Vista's budget to identify and allocate variable revenues and costs that grow proportionally with incremental development. Revenues such as property taxes, Vehicle License Fees (VLF), and sales tax receipts grow with development. The costs associated with development, which include but are not limited to public safety, facility maintenance, administration, library and park operations, also increase along with development growth. The project report for the FIA Framework outlines the methods to calculate and apply the revenue, cost and inflationary factors used in fiscal analysis of specific plans.

The original FIA Framework was built using the City of Chula Vista's Adopted Fiscal Year 2007-08 Budget and has been updated with the 2008-09 budget data.

MODELING STEPS

The fiscal impact modeling steps outlined in the FIA Framework are as follows:

Step 1 – Create a project absorption matrix by land use type (acres and square foot), dwelling units, population and employment;

Step 2 – Derive annual fiscal costs using the incremental per unit cost factors developed initially for the SPA FIA Framework and updated by inflation factors and budget trends;

Step 3 – Derive public safety costs with density coefficient adjustments;

Step 4 – Derive annual fiscal costs as a summation of Step 2 and Step 3;

Step 5 – Create an updated assessed valuation (AV) absorption matrix for the project using the existing AV calculation methodology in the FIA Framework or project specific assumptions;

Step 6 – Use special revenue models to calculate;

1. Property Taxes;
2. Property Transfer Taxes;
3. Vehicle license fees (VLF) and Motor vehicle in lieu fees (MVLF);
4. Sales taxes;

Step 7 – Derive other revenues by using the revenue matrix

Step 8 – Derive annual fiscal revenues as a summation of Step 6 and Step 7

Step 9 – Derive net fiscal impacts as a difference between Step 8 and Step 4 results

TABLE 5.1
VILLAGE 9 SPA, SITE UTILIZATION SUMMARY

Planning Area	Commercial and Residential Acres	Target Residential Units		Office and Retail (1,000 sq. ft.)
		Multi-family	Single Family	
Eastern Urban Center 28-60 du/ac				
Subtotal	48.3	1,912		1,190
Town Center 18-45 du/ac				
Subtotal	36.1	894		278
Mixed Use 10-45 du/ac				
Subtotal	8.2	136		
Mixed Use 10-27 du/ac				
Subtotal	49.2	792		32
Medium Density Residential Attached/Detached 6-11 du/ac				
Subtotal	15.2		161	0
Low Medium Density Residential Village 3-6 du/ac				
Subtotal	28.1		105	0
Total	**185.1**	**3,734**	**266**	**1,500**
		Total Dwelling Units:	**4,000**	

TABLE 5.2
PROJECT ABSORPTION –VILLAGE 9 SECTIONAL PLANNING AREA

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
Non Residential Uses																					
Retail (ksf)	0	0	0	0	0	60	60	60	60	60	0	0	0	0	0	0	0	0	0	0	**300**
Cumulative (ksf)	0	0	0	0	0	60	120	180	240	300	300	300	300	300	300	300	300	300	300	300	
Cumulative (acres)	0	0	0	0	0	5	9	14	19	24	24	24	24	24	24	24	24	24	24	24	
Office (ksf)	50	50	50	50	50	65	65	65	65	65	125	125	125	125	125	0	0	0	0	0	**1,200**
Cumulative (ksf)	50	100	150	200	250	315	380	445	510	575	700	825	950	1,075	1,200	1,200	1,200	1,200	1,200	1,200	
Cumulative (acres)	2	4	6	8	10	13	15	18	21	23	28	33	38	43	48	48	48	48	48	48	
Parks (acres)	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	**28**
Cumulative	3	6	9	12	15	17	20	22	25	28	28	28	28	28	28	28	28	28	28	28	
Residential Uses																					
Units																					
Single Family	23	23	23	23	23	26	26	26	26	26	4	4	4	4	4	0	0	0	0	0	**266**
Cumulative	23	46	68	91	114	140	166	193	219	245	249	253	258	262	266	266	266	266	266	266	
Multi Family	327	327	327	327	327	375	375	375	375	375	45	45	45	45	45	0	0	0	0	0	**3,734**
Cumulative	327	654	980	1,307	1,634	2,009	2,385	2,760	3,136	3,511	3,556	3,600	3,645	3,689	3,734	3,734	3,734	3,734	3,734	3,734	
Total Units	350	699	1,049	1,398	1,748	2,150	2,551	2,953	3,354	3,756	3,805	3,854	3,902	3,951	4,000	4,000	4,000	4,000	4,000	4,000	**4,000**
Community Purpose Facility																					
CPF (acres)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	**5**
Cumulative	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	
Population																					
Single Family @ 3.33 pph	76	76	76	76	76	87	87	87	87	87	14	14	14	14	14	0	0	0	0	0	**886**
Cumulative	76	152	228	304	380	467	554	641	729	816	830	844	858	872	886	886	886	886	886	886	
Multi Family @ 2.58 pph	843	843	843	843	843	969	969	969	969	969	115	115	115	115	115	0	0	0	0	0	**9,634**
Cumulative	843	1,686	2,529	3,373	4,216	5,184	6,153	7,121	8,090	9,058	9,173	9,289	9,404	9,519	9,634	9,634	9,634	9,634	9,634	9,634	
Cumulative Population	919	1,838	2,757	3,676	4,595	5,651	6,707	7,763	8,818	9,874	10,003	10,132	10,261	10,390	10,520	10,520	10,520	10,520	10,520	10,520	**10,520**
Employment [2]																					
Retail	0	0	0	0	0	94	94	94	94	94	0	0	0	0	0	0	0	0	0	0	**469**
Cumulative	0	0	0	0	0	94	188	282	375	469	469	469	469	469	469	469	469	469	469	469	
Office	141	141	141	141	141	183	183	183	183	183	352	352	352	352	352	0	0	0	0	0	**3,379**
Cumulative	141	282	422	563	704	887	1,070	1,253	1,436	1,619	1,971	2,323	2,675	3,027	3,379	3,379	3,379	3,379	3,379	3,379	
Cumulative Employment	141	282	422	563	704	981	1,258	1,535	1,812	2,089	2,441	2,793	3,145	3,497	3,849	3,849	3,849	3,849	3,849	3,849	**3,849**

[1] Non-Residential Square footage and land use distribution from Otay Ranch Village 9 PFFP, Table 4.1.2

[2] Employment is a function of floor area based on employment density calculations that take in account building efficiency and occupancy rate. Retail employment density is assumed at 1 employee per 450 sq. ft.; Office at 1 employee per 250 sq. ft.

Source: Otay Ranch Village 9 PFFP, Draft August, 2013

5.6 FISCAL IMPACT ANALYSIS FRAMEWORK MODIFICATIONS FOR VILLAGE 9

As described in the City of Chula Vista's SPA FIA Framework, specific fiscal analyses may call for additional adjustments and customization to best reflect the differences of each unique SPA or project. For Village 9 SPA, the FIA Framework was modified to better account for (1) development program units (2) public safety costs, (3) property tax, and (4) sales tax.

DEVELOPMENT PROGRAM UNITS

The SPA Fiscal Impact Framework analysis for non-residential land uses is based on the estimated acres in each land use. The Village 9 SPA Site Utilization Plan is currently presented with a range of total dwelling units, acreage and commercial floor area (see Table 5.1). The FIA focuses on the high end of the range (4,000 residential units, 300,000 sq. ft. of retail and 1,200,000 sq. ft. of office) to analyze the fiscal impacts from full build-out. The square footage of retail and office space is converted to acreage using a floor area ratio (FAR).

PUBLIC SAFETY COSTS – POLICE SERVICES

Public safety costs in the SPA Fiscal Impact Framework are calculated proportionally based on land use acreage for commercial uses, while residential uses are calculated proportionally based on dwelling units and people-density (persons per acre).

Police service costs are calculated based on City of Chula Vista standard factors with no adjustment for density (the analysis uses the city-wide cost per dwelling unit factor in 2010 dollars throughout the build-out period). The FIA Framework applies a person per acre density factor to adjust the public safety costs per dwelling unit. The density adjustment was not made for the Village 9 SPA Plan. There is also no adjustment made for mixed-use planning areas: the commercial and residential police service cost components of the mixed-use parcels are effectively added together.

PUBLIC SAFETY COSTS – FIRE SERVICES

In the FIA Framework, fire costs are also adjusted to directly increase with residential persons per acre density. However, as for Police Services, the cost factor per dwelling unit for Fire was not adjusted in the Village 9 analysis.

PROPERTY TAX

Property tax revenues, as shown in the city adopted budgets, have continued to decrease over the past few years even after the end of the 2007-09 recession. But total assessed valuation is beginning to stabilize and should resume positive growth in the coming year. The negative effects of the severe downturn in the housing market during the recession continue to adversely influence property tax revenues, especially from residential property. These include mortgage loan foreclosures, lower property values, and lower property transfers. Lease rates, which also declined for retail and office space, have been slow to recover according to data obtained from commercial real estate firms. Finally, although the economic recovery has been underway 4 years now, household incomes have not grown significantly, a factor which affects home sales and the prices families may pay for homes.

While the Village 9 FIA generally follows the original FIA framework for property tax calculations, the real estate market factors used in the FIA reflect recent values for both residential and non-

residential properties in the Otay Ranch area. There is a lag, however, between construction of new homes and non-residential space and when the new property values are reflected in assessed valuations and property tax revenue. A one-year lag between completion of construction and collection of property taxes has been built into the FIA model; this has the effect of reducing revenues during the development absorption period.

ESTIMATES OF ASSESSED PROPERTY VALUES

The FIA makes certain assumptions for the initial sales price of for-sale units (primarily single family homes and condominiums) and the market value of rental and lease properties (apartments and commercial space). These prices and market values are the assessed values used in the FIA to estimate property tax revenues. The assessed values are presented in Table 8 in the Appendix. Commercial property is given as assessed value per acre, while residential property is in AV per dwelling unit.

The estimate of the initial sales price and market value is critical since these numbers are inflated each successive year to estimate total assessed value. The projected average sales price for new single family homes in the Project is given in Appendix Table 7 as $488,600 per unit. For sale condominiums are given a sales price of $284,700. Renter occupied units are assigned an initial market value of $214,000.

Price and valuation data for residential property in the Southeast Chula Vista market from different sources were researched to derive these initial values. For example, Zillow.com indicated the value index for the average single family home in the entire Otay Ranch area to be $431,600 in March, 2013, an increase of 14% from March, 2012. The average price in Otay Ranch Village 5, an original phase of the Otay Ranch, was somewhat lower at $406,900. The average single family home value index for all of Chula Vista was $378,600. For comparison, the DataQuick/Union Tribune Zip Code website reported the median new home price (single family and condominium combined) in the Eastlake/Otay Ranch area to be $388,000 in March, 2013. The single family and condominium resale medians in March, 2013 were $432,950 and $205,000, respectively. The Zillow home value index for condominium units in Otay Ranch was $234,900 in March, 2013.

Derivation of New Home Prices

To arrive at the assessed values for new single family and for-sale attached units used in the FIA model, an analysis was conducted on the current listings data for these units in the Otay Ranch area. The data was obtained from the Yahoo Homes website and consists of 135 single family and 44 attached listings. The single family listings included 3, 4, 5 and 6 bedroom homes ranging in size from 1,400 to 4,300 sq. ft. with prices ranging from $225,000 to $750,000. The attached listings for 2, 3 and 4 units ranged from 1,000 to 2,075 sq. ft. with prices from $155,000 to $330,000. As would be expected, the analysis of the listings data shows a strong correlation between home size and price, particularly in the single family market. Least squares formulas were derived for both types of units that give the expected sales prices for units given their square footage (see Figures 1 and 2). To estimate the projected sales price of new units, a new home premium of $63,000 was added to the sales price predicted by the least squares formula. The new home premium of $63,000 comes from national sales data representing the difference in median prices between existing and new homes[1] Table 5.3 summarizes the calculations that result in the

[1] The Commerce Department reported the median new home sales price to be $247,000 in March, 2013, the National Association of Realtors reported the median resale price to be $184,300.

average beginning assessed valuations of $488,600 and $284,700 for single family and attached units, respectively. The calculations below assume the Project will offer a certain mix of units in each bedroom number and average square footage category. The unit number assumptions are based on the Otay Ranch listing data. The actual product mix of bedroom number and size of unit will likely vary in response to market demand, but the Otay Ranch listings should be representative of the local market going forward.

TABLE 5.3 FOR-SALE UNITS VALUATION CALCULATION SUMMARIES

Single Family Units

Bedrooms	3	4	5	6	
Average square feet[1]	1900	2500	2900	3500	
Resale home prices predicted by least squares formula (see Figure 1)	$344,132	$423,241	$475,980	$555,089	
New home premium	$63,000	$63,000	$63,000	$63,000	
Formula plus premium	$407,132	$486,241	$538,980	$618,089	
Projected units[1]	156.4	271.4	147.2	46	621
Total & Weighted Average	$63,675,434	$131,965,743	$79,337,853	$28,432,085	**$488,584**

Condominium Units

Bedrooms	2	3	4	
Average square feet[1]	1200	1400	2000	
Resale home prices predicted by least squares formula (see Figure 2)	$206,939	$230,927	$302,891	
New home premium	$63,000	$63,000	$63,000	
Formula plus premium	$269,939	$293,927	$365,891	
Projected units[1]	560	463	49	1072
Total & Weighted Average	$151,264,011	$136,061,488	$17,828,871	**$284,659**

[1] "Average square feet" and "Projected units" in the tables are based on the Yahoo Home listing data for Otay Ranch. The average square feet per bedroom category is the same as the average in the data. The projected units in each bedroom category are proportional to the bedroom per unit count in the listings data.

FIGURE 1 – SINGLE FAMILY LIST PRICE DATA AND REGRESSION STATISTICS

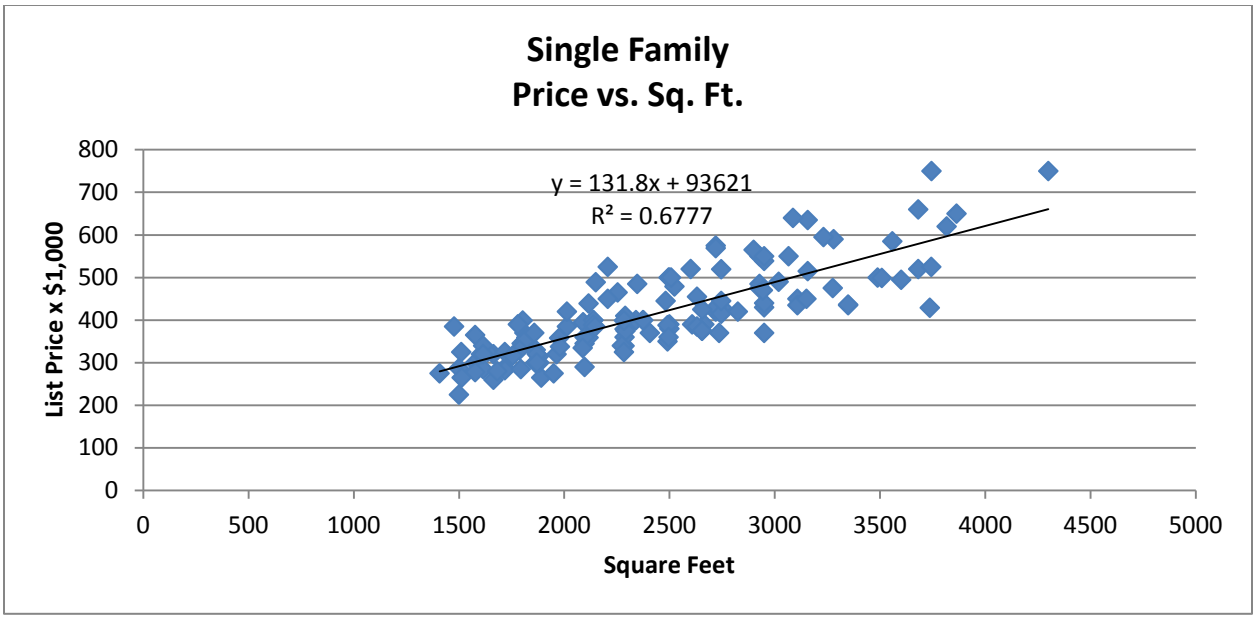
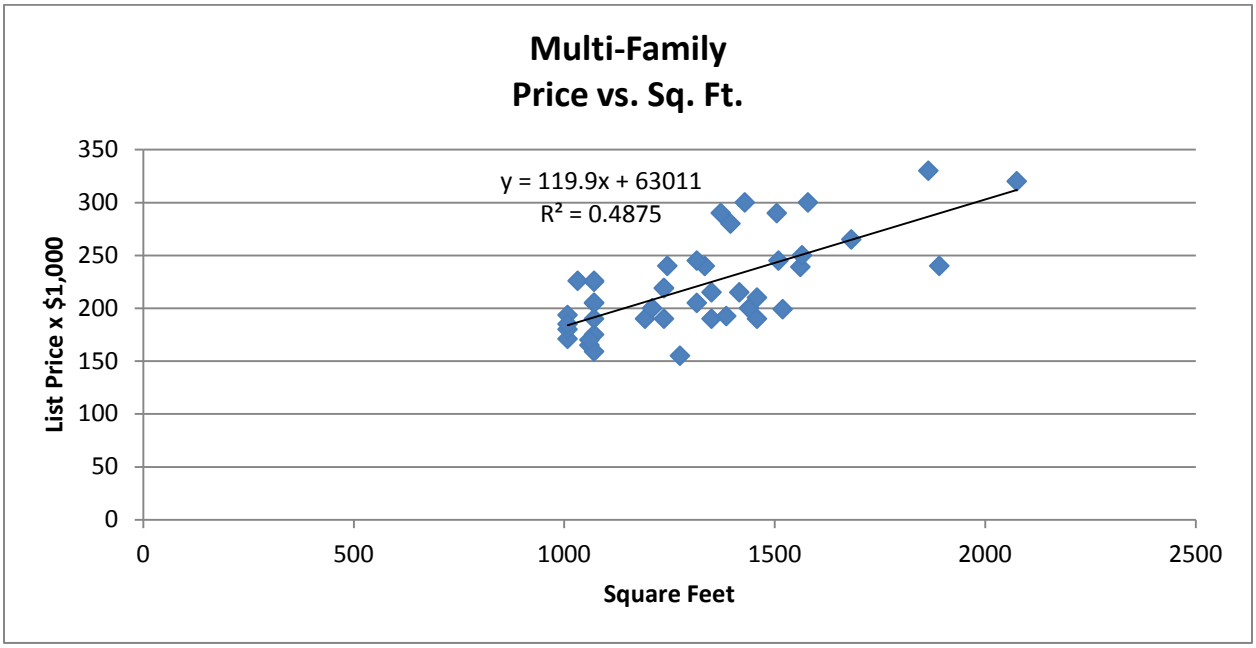


FIGURE 2 – MULTI-FAMILY LIST PRICE DATA AND REGRESSION STATISTICS



Rental and Non-Residential valuations

The beginning assessed value of renter–occupied units is estimated at $214,000 per unit and is determined by a market valuation based on applying a capitalization rate of 5.25%[2] to a rental rate of $1.90[3] per sq. ft. assuming an average unit size of 800 sq. ft. and a 95% occupancy rate.

Commercial market values were derived by applying capitalization rates of 6.5% and 7.25% to retail and office, respectively, to the net annual income per acre of $188,500 and $320,900 for retail and office, respectively.[4]

SALES TAX

The retail development planned for Village 9 ranges from neighborhood level shopping located in the Mixed-Use planning areas to community commercial in the Town Centers and regional commercial in the Urban Center planning areas of the Project. Neighborhood retail will primarily serve the Project area and the adjacent villages and is not "regional-serving" in nature and therefore not likely to draw on a larger market area. The community commercial in the Town Center areas may attract a larger percentage of regional shoppers than the neighborhood centers. The Urban Center planning area is adjacent to the Eastern Urban Center and will feature commercial uses compatible with those planned for that project including regional commercial that will attract a percentage of sales from outside the City limits and reduce sales leakage to commercial centers beyond the city limits.

For purposes of this FIA, on-site retail revenues were evaluated on the basis of the amount of total sales expected by retail floor area.

While it is anticipated that retail development in Village 9 will help recapture leakage of dollars outside of Chula Vista, an adjustment of was made to account for sales transfers between retail space already existing in Chula Vista and Village 9 retail. An adjustment of 10 percent was made for on-site neighborhood centers, 25 percent for community centers, and 30 percent for regional centers (Table A-12). These adjustments account for the transfer of retail sales from existing retailers in Chula Vista to the new Village 9 retailers. The off-site retail sales captured by new residents of Village 9 are also modeled given that sales tax impacts include all retail sales that can be attributed to the project within the city, and not just retail sales that occur within the project boundaries (Table A-13).

5.7 NET FISCAL IMPACT

Table 5.4 presents the net fiscal impacts of the Village 9 SPA on the City of Chula Vista under the assumption that revenues rise with expenditures so that there is no net real inflation in service

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[2] Capitalization rate based on stabilized Class "B" multi-family housing for San Diego, CBRE Multihousing Group CapRate Survey 2nd half of 2012.

[3] Average data from Rentbit.com March, 2013

[4] Retail rent ($2.10/sq. ft./mon.) and cap. rate are based on the second half 2012 data for South San Diego County from Cassidy Turley BRE Commercial Retail Market Report. Office rent ($1.80/sq. ft./mon.) is based on the first quarter, 2010 data for Chula Vista from VOIT Real Estate Services. Office Cap. rate from second quarter 2010 data from CBRE. Annual income per acre is net of occupancy, building efficiency and operating cost factors. Floor area ratios of 0.29 and 0.57 for retail and office, respectively, are used to convert floor area to acres.

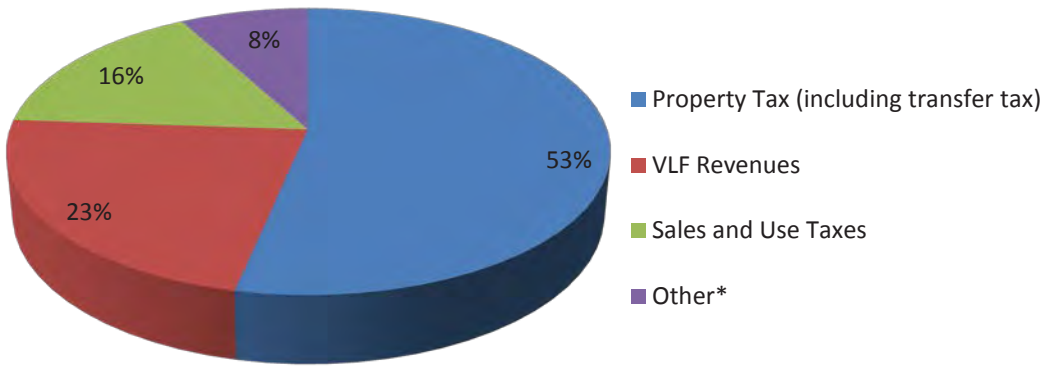
costs (conversely, no net inflation assumes that expenditures may only rise in concert with available revenues).

Table 5.4 shows a net fiscal deficit in year 1 of $176,400 which grows to a maximum annual net fiscal deficit of $320,100 by year 5 (2020). The deficit diminishes until a net surplus of approximately $195,000 is attained in year 11 (2026). The net surplus is projected to increase to $727,500 by Project build-out. Residential units are constructed during the first 14 years of the Project (residential units are fully absorbed by 2030) with non-residential development beginning in 2016. The declining deficit is associated with increased development of office space beginning in 2021, which generates additional property tax. Full build-out of residential units reduces the annual increases in service costs by 2030. Under the cost assumptions of this model (no net real inflation in service costs), Table 5.4 and Figure 5 below show that the net surplus continues to increase after build-out.

At Build-out, property taxes are the greatest source of revenue generated by Village 9. Property tax and property transfer taxes make up approximately 53 percent of revenues, followed by vehicle license fees (VLF) (approximately 23 percent of revenues) and sales and use tax receipts (approximately 16 percent of revenues). Other revenues including franchise fees and utility users' tax comprise the remaining revenues.

Figure 3 shows the proportion of revenue sources at build-out of Village 9.

FIGURE 3 REVENUE ALLOCATION

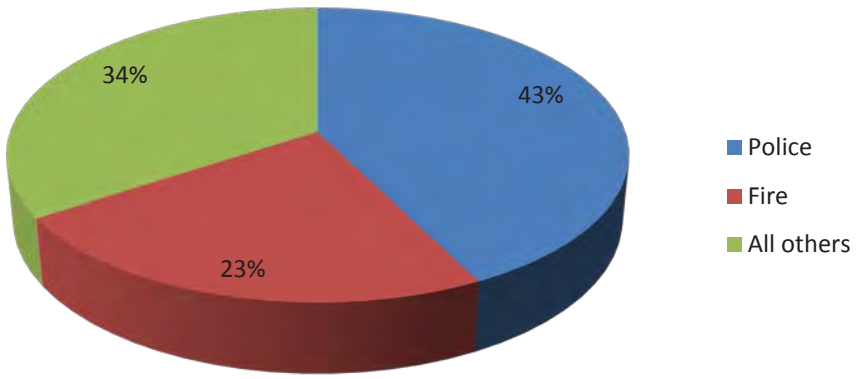


* other includes unitary and unsecured property taxes, franchise fees and business license tax

It should be noted that revenues do not follow a completely straight linear growth path because property transfer taxes are one-time revenue. Thus, revenue generated in Village 9 jumps in the year after development comes on-line, but this new revenue is reduced due to a smaller share of property transfer taxes.

Public safety—police and fire—service requirements due to new developments are expected to comprise nearly two-thirds of public service costs generated by Village 9.

FIGURE 4 COST ALLOCATION



Both police and fire costs are allocated to Village 9 proportionally based on developed residential units and commercial acreage. .

At build-out of the Project, police service costs make up approximately 43 percent of total public service costs. Fire service costs are anticipated to comprise approximately 23 percent of total costs (see Figure 2).

5.8 SENSITIVITY ANALYSIS

In addition to the base case, a sensitivity analysis of fiscal costs was performed to evaluate two scenarios in which public service costs increase at a higher rate than revenues. The fiscal impact of Village 9 SPA was calculated with real expenditure inflation rates of 1 percent and of 2 percent. The revenues vs. costs for each scenario are shown graphically in Figure 3 below.

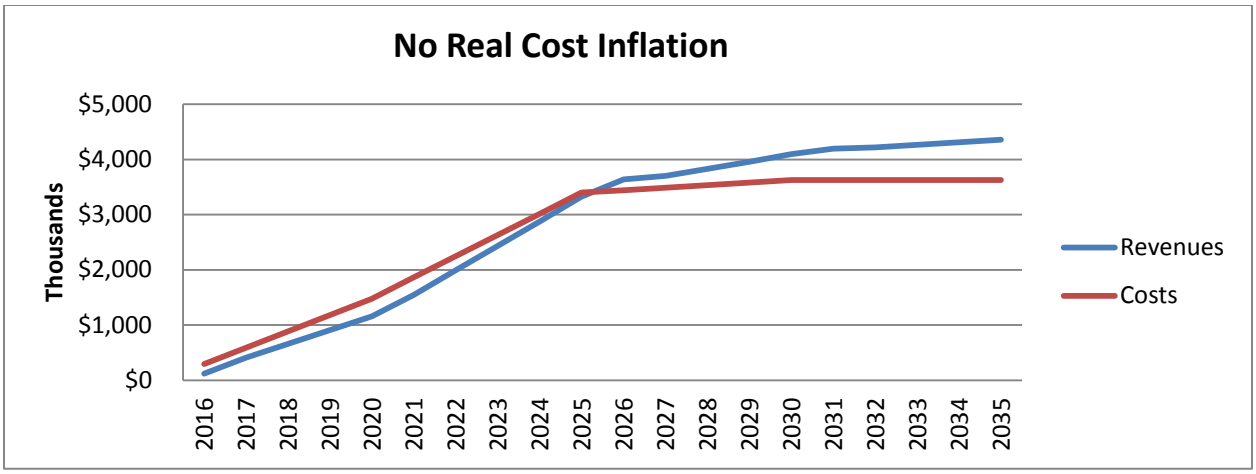
ONE PERCENT EXPENDITURE REAL INFLATION

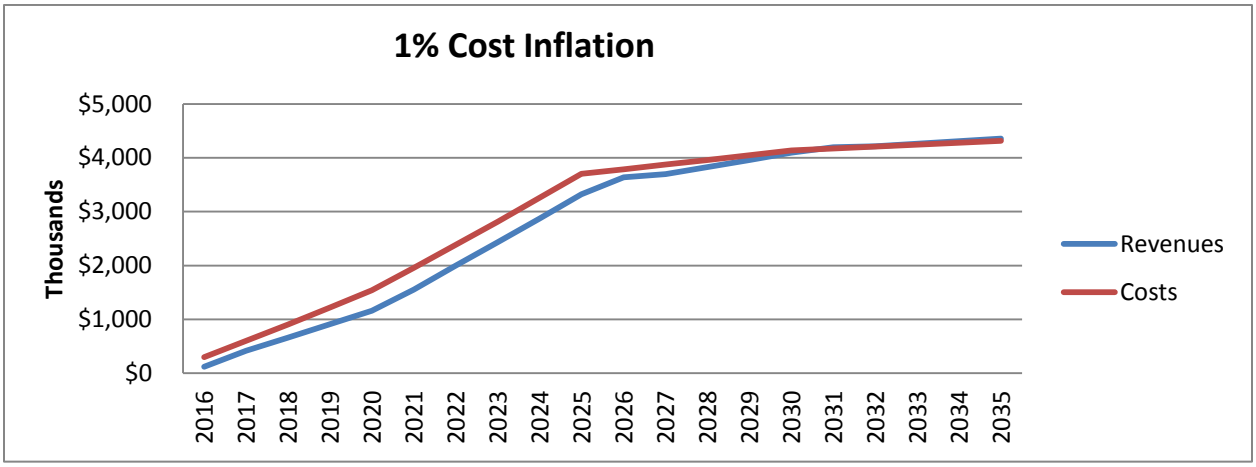
Table 5.5 presents the net fiscal impacts generated by Village 9 with an expenditure inflation factor of 1 percent. In this case, the first year net fiscal deficit is the same as the zero inflation scenario of $176,400. The annual net fiscal deficit increases to a maximum of $407,100 by year 6 (Year 2021). The deficit begins to decline in the following year 7 until a surplus is attained in year 16. At build-out, the net fiscal surplus is approximately $38,100 and is increasing.

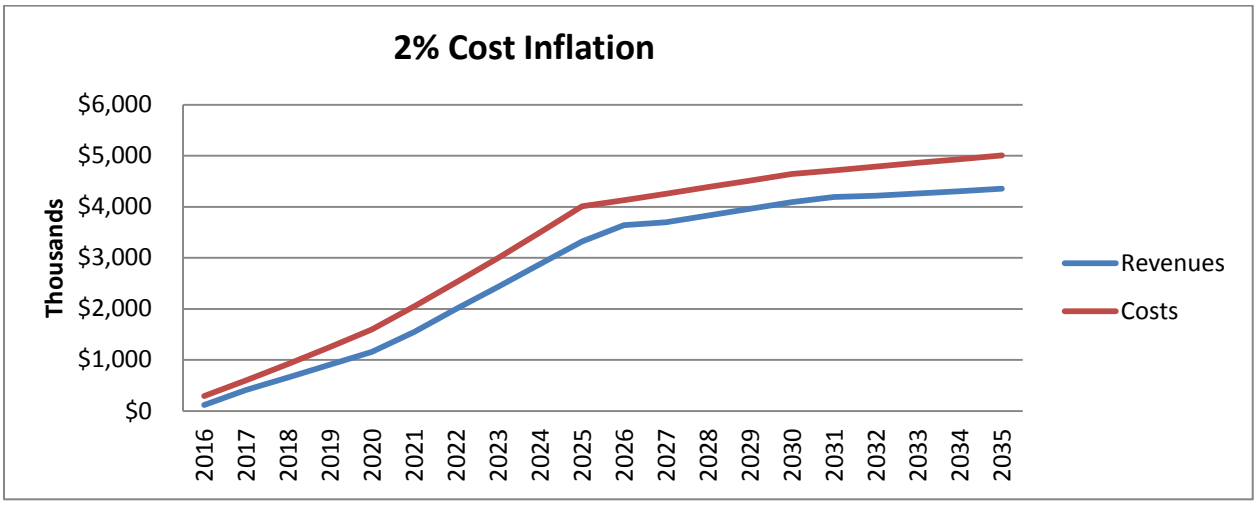
TWO PERCENT EXPENDITURE REAL INFLATION

Table 5.6 presents the net fiscal impacts generated by Village 9 with an expenditure inflation factor of 2 percent. As in the first two scenarios, the first year net fiscal deficit is $176,400 and grows to $687,000 in year 10. The deficit is reduced the following year before increasing again through the remainder of the build-out period. At build-out, the net fiscal deficit is approximately $651,300 and is increasing slightly.

FIGURE 5 VILLAGE 9 REVENUES VS. COSTS







5.9 POTENTIAL RISKS

The absorption of development units are based on the Village 9 SPA traffic analysis and actual absorption may vary, depending on the pace of recovery from the last economic recession.

According to the National Bureau of Economic Research's business cycle dating committee, the recent recession ended in June 2009, 18 months after it began in December 2007. Despite this announcement, the length and breadth of the recovery has been slow particularly in the construction sector. Growth in this sector has begun to pick-up recently and will continue to grow at a moderate pace for at least the remainder of 2013. Retail and office development is driven in part by employment growth, and business and customer demand, which are all dependent on overall economic growth. Actual absorption of the Project's non-residential space could be pushed back relative to the projected absorption in this analysis. The pace of new residential construction is affected by several factors including the supply of homes for sale, interest rates, household income growth, and availability of skilled labor in the construction trades. The recent trend of reductions in home mortgage foreclosures in the region, the diminishing supply of housing product, as well as historically low mortgage interest rates are factors that support an increase in construction activity. Shifts by households from ownership to rental units, or vice versa, or to smaller homes could also impact the phasing and the type of residential development. General population growth and expected increases in household incomes as the economy continues to improve in California will help to reinitiate strong residential development.

In the case that commercial developments get pushed back further than residential developments, the city may face higher public services costs associated with residential service demands while additional commercial revenues sources, such as sales tax and additional property tax, will be delayed until the commercial is developed.

5.10 FISCAL IMPACT MITIGATION

This fiscal impact analysis identifies negative fiscal impacts to the City during the build-out period of the Project. As mitigation for the fiscal impacts prior to the first final map, the project applicant will enter into an agreement to provide funding for periods where project expenditures exceed projected revenues in compliance with CVMC 19.09.060(J).

TABLE 5.4
VILLAGE 9 NET FISCAL IMPACT (IN $000'S)
(EXPENDITURE REAL INFLATION RATE OF 0%)

Year	1	2	3	4	5	6	7	8	9	10
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenues										
Property Taxes	$0.0	$116.8	$238.3	$368.4	$495.9	$632.2	$808.9	$992.3	$1,182.8	$1,380.5
Property Transfer Taxes	$0.0	$59.3	$64.1	$69.1	$74.3	$79.7	$103.0	$110.0	$117.1	$124.6
VLF Revenues	$81.8	$162.7	$242.8	$322.2	$400.7	$499.5	$597.1	$693.5	$788.7	$882.7
Sales and Use Taxes	$13.2	$26.5	$39.7	$53.0	$66.2	$181.4	$296.5	$411.7	$526.8	$642.0
Other Revenue	$24.5	$49.0	$73.4	$97.9	$122.4	$156.5	$190.6	$224.7	$258.8	$293.0
Subtotal Revenues	**$119.5**	**$414.2**	**$658.4**	**$910.5**	**$1,159.5**	**$1,549.3**	**$1,996.1**	**$2,432.2**	**$2,874.3**	**$3,322.7**
Expenditures										
Police Costs	$126.5	$253.0	$379.5	$506.0	$632.4	$794.9	$957.3	$1,119.7	$1,282.1	$1,444.6
Fire costs	$69.6	$139.1	$208.7	$278.3	$347.8	$435.7	$523.6	$611.5	$699.4	$787.3
Other Expenditures	$99.9	$199.7	$299.6	$399.4	$499.3	$632.7	$766.1	$899.5	$1,032.9	$1,166.3
Subtotal Expenditures	**$295.9**	**$591.8**	**$887.7**	**$1,183.6**	**$1,479.5**	**$1,863.3**	**$2,247.0**	**$2,630.7**	**$3,014.4**	**$3,398.1**
Net Fiscal Impact	**($176.4)**	**($177.6)**	**($229.3)**	**($273.1)**	**($320.1)**	**($314.0)**	**($250.9)**	**($198.5)**	**($140.1)**	**($75.4)**
	11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Revenues										
Property Taxes	$1,648.5	$1,730.4	$1,815.5	$1,903.8	$1,996.2	$2,092.4	$2,136.0	$2,180.6	$2,226.1	$2,272.5
Property Transfer Taxes	$132.2	$70.8	$73.2	$75.5	$78.3	$80.9	$58.8	$60.0	$61.2	$62.4
VLF Revenues	$905.5	$928.3	$951.0	$973.6	$996.1	$996.1	$996.1	$996.1	$996.1	$996.1
Sales and Use Taxes	$646.7	$651.5	$656.2	$660.9	$665.6	$665.6	$665.6	$665.6	$665.6	$665.6
Other Revenue	$306.2	$319.5	$332.7	$346.0	$359.2	$359.2	$359.2	$359.2	$359.2	$359.2
Subtotal Revenues	**$3,639.2**	**$3,700.4**	**$3,828.6**	**$3,959.8**	**$4,095.5**	**$4,194.3**	**$4,215.9**	**$4,261.6**	**$4,308.3**	**$4,355.9**
Expenditures	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Police Costs	$1,464.2	$1,483.8	$1,503.4	$1,523.0	$1,542.6	$1,542.6	$1,542.6	$1,542.6	$1,542.6	$1,542.6
Fire costs	$798.1	$809.0	$819.9	$830.7	$841.6	$841.6	$841.6	$841.6	$841.6	$841.6
Other Expenditures	$1,181.9	$1,197.5	$1,213.1	$1,228.7	$1,244.3	$1,244.3	$1,244.3	$1,244.3	$1,244.3	$1,244.3
Subtotal Expenditures	**$3,444.2**	**$3,490.2**	**$3,536.3**	**$3,582.4**	**$3,628.5**	**$3,628.5**	**$3,628.5**	**$3,628.5**	**$3,628.5**	**$3,628.5**
Net Fiscal Impact	**$195.0**	**$210.2**	**$292.3**	**$377.4**	**$467.1**	**$565.9**	**$587.4**	**$633.1**	**$679.8**	**$727.5**

TABLE 5.5
VILLAGE 9 NET FISCAL IMPACT (IN $000'S)
(EXPENDITURE REAL INFLATION RATE OF 1%)

Year	1	2	3	4	5	6	7	8	9	10
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenues										
Property Taxes	$0.0	$116.8	$238.3	$368.4	$495.9	$632.2	$808.9	$992.3	$1,182.8	$1,380.5
Property Transfer Taxes	$0.0	$59.3	$64.1	$69.1	$74.3	$79.7	$103.0	$110.0	$117.1	$124.6
VLF Revenues	$81.8	$162.7	$242.8	$322.2	$400.7	$499.5	$597.1	$693.5	$788.7	$882.7
Sales and Use Taxes	$13.2	$26.5	$39.7	$53.0	$66.2	$181.4	$296.5	$411.7	$526.8	$642.0
Other Revenue	$24.5	$49.0	$73.4	$97.9	$122.4	$156.5	$190.6	$224.7	$258.8	$293.0
Subtotal Revenues	**$119.5**	**$414.2**	**$658.4**	**$910.5**	**$1,159.5**	**$1,549.3**	**$1,996.1**	**$2,432.2**	**$2,874.3**	**$3,322.7**
Expenditures										
Police Costs	$126.5	$255.5	$387.1	$521.1	$657.7	$834.6	$1,014.7	$1,198.1	$1,384.7	$1,574.6
Fire costs	$69.6	$140.5	$212.9	$286.6	$361.7	$457.5	$555.0	$654.3	$755.3	$858.1
Other Expenditures	$99.9	$201.7	$305.6	$411.4	$519.2	$664.3	$812.0	$962.4	$1,115.5	$1,271.2
Subtotal Expenditures	**$295.9**	**$597.7**	**$905.5**	**$1,219.1**	**$1,538.7**	**$1,956.4**	**$2,381.8**	**$2,814.8**	**$3,255.5**	**$3,703.9**
Net Fiscal Impact	**($176.4)**	**($183.5)**	**($247.1)**	**($308.6)**	**($379.2)**	**($407.1)**	**($385.7)**	**($382.7)**	**($381.3)**	**($381.2)**

	11	12	13	14	15	16	17	18	19	20
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Revenues										
Property Taxes	$1,648.5	$1,730.4	$1,815.5	$1,903.8	$1,996.2	$2,092.4	$2,136.0	$2,180.6	$2,226.1	$2,272.5
Property Transfer Taxes	$132.2	$70.8	$73.2	$75.5	$78.3	$80.9	$58.8	$60.0	$61.2	$62.4
VLF Revenues	$905.5	$928.3	$951.0	$973.6	$996.1	$996.1	$996.1	$996.1	$996.1	$996.1
Sales and Use Taxes	$646.7	$651.5	$656.2	$660.9	$665.6	$665.6	$665.6	$665.6	$665.6	$665.6
Other Revenue	$306.2	$319.5	$332.7	$346.0	$359.2	$359.2	$359.2	$359.2	$359.2	$359.2
Subtotal Revenues	**$3,639.2**	**$3,700.4**	**$3,828.6**	**$3,959.8**	**$4,095.5**	**$4,194.3**	**$4,215.9**	**$4,261.6**	**$4,308.3**	**$4,355.9**
Expenditures										
Police Costs	$1,610.6	$1,647.0	$1,683.8	$1,721.0	$1,758.6	$1,774.0	$1,789.4	$1,804.9	$1,820.3	$1,835.7
Fire costs	$877.9	$898.0	$918.2	$938.7	$959.4	$967.8	$976.2	$984.6	$993.1	$1,001.5
Other Expenditures	$1,300.0	$1,329.2	$1,358.6	$1,388.4	$1,418.5	$1,430.9	$1,443.4	$1,455.8	$1,468.2	$1,480.7
Subtotal Expenditures	**$3,788.6**	**$3,874.2**	**$3,960.7**	**$4,048.1**	**$4,136.4**	**$4,172.7**	**$4,209.0**	**$4,245.3**	**$4,281.6**	**$4,317.9**
Net Fiscal Impact	**($149.4)**	**($173.8)**	**($132.1)**	**($88.3)**	**($40.9)**	**$21.6**	**$6.9**	**$16.3**	**$26.7**	**$38.1**

TABLE 5.6
VILLAGE 9 NET FISCAL IMPACT (IN $000'S)
(EXPENDITURE REAL INFLATION RATE OF 2%)

Year	1	2	3	4	5	6	7	8	9	10
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Revenues										
Property Taxes	$0.0	$116.8	$238.3	$368.4	$495.9	$632.2	$808.9	$992.3	$1,182.8	$1,380.5
Property Transfer Taxes	$0.0	$59.3	$64.1	$69.1	$74.3	$79.7	$103.0	$110.0	$117.1	$124.6
VLF Revenues	$81.8	$162.7	$242.8	$322.2	$400.7	$499.5	$597.1	$693.5	$788.7	$882.7
Sales and Use Taxes	$13.2	$26.5	$39.7	$53.0	$66.2	$181.4	$296.5	$411.7	$526.8	$642.0
Other Revenue	$24.5	$49.0	$73.4	$97.9	$122.4	$156.5	$190.6	$224.7	$258.8	$293.0
Subtotal Revenues	**$119.5**	**$414.2**	**$658.4**	**$910.5**	**$1,159.5**	**$1,549.3**	**$1,996.1**	**$2,432.2**	**$2,874.3**	**$3,322.7**
Expenditures										
Police Costs	$126.5	$258.0	$394.6	$536.3	$683.0	$874.4	$1,072.2	$1,276.5	$1,487.3	$1,704.6
Fire costs	$69.6	$141.9	$217.0	$295.0	$375.7	$479.3	$586.4	$697.1	$811.3	$929.0
Other Expenditures	$99.9	$203.7	$311.5	$423.4	$539.2	$695.9	$858.0	$1,025.4	$1,198.1	$1,376.2
Subtotal Expenditures	**$295.9**	**$603.7**	**$923.2**	**$1,254.7**	**$1,597.9**	**$2,049.6**	**$2,516.6**	**$2,999.0**	**$3,496.7**	**$4,009.8**
Net Fiscal Impact	**($176.4)**	**($189.4)**	**($264.8)**	**($344.1)**	**($438.4)**	**($500.3)**	**($520.5)**	**($566.8)**	**($622.4)**	**($687.0)**
	11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Revenues	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Property Taxes	$1,648.5	$1,730.4	$1,815.5	$1,903.8	$1,996.2	$2,092.4	$2,136.0	$2,180.6	$2,226.1	$2,272.5
Property Transfer Taxes	$132.2	$70.8	$73.2	$75.5	$78.3	$80.9	$58.8	$60.0	$61.2	$62.4
VLF Revenues	$905.5	$928.3	$951.0	$973.6	$996.1	$996.1	$996.1	$996.1	$996.1	$996.1
Sales and Use Taxes	$646.7	$651.5	$656.2	$660.9	$665.6	$665.6	$665.6	$665.6	$665.6	$665.6
Other Revenue	$306.2	$319.5	$332.7	$346.0	$359.2	$359.2	$359.2	$359.2	$359.2	$359.2
Subtotal Revenues	**$3,639.2**	**$3,700.4**	**$3,828.6**	**$3,959.8**	**$4,095.5**	**$4,194.3**	**$4,215.9**	**$4,261.6**	**$4,308.3**	**$4,355.9**
Expenditures										
Police Costs	$1,757.0	$1,810.2	$1,864.2	$1,919.0	$1,974.5	$2,005.4	$2,036.2	$2,067.1	$2,098.0	$2,128.8
Fire costs	$957.8	$987.0	$1,016.6	$1,046.7	$1,077.2	$1,094.1	$1,110.9	$1,127.7	$1,144.5	$1,161.4
Other Expenditures	$1,418.2	$1,460.9	$1,504.2	$1,548.1	$1,592.7	$1,617.6	$1,642.4	$1,667.3	$1,692.2	$1,717.1
Subtotal Expenditures	**$4,133.0**	**$4,258.1**	**$4,385.0**	**$4,513.8**	**$4,644.4**	**$4,717.0**	**$4,789.6**	**$4,862.1**	**$4,934.7**	**$5,007.3**
Net Fiscal Impact	**($493.8)**	**($557.7)**	**($556.5)**	**($554.0)**	**($548.9)**	**($522.7)**	**($573.7)**	**($600.5)**	**($626.4)**	**($651.3)**

Source: PMC

APPENDIX A

FISCAL IMPACT ANALYSIS TABLES

APPENDIX TABLE 1
EXISTING DEVELOPED LAND USE DISTRIBUTION (2010)

LAND USE	Total Acres
Non Residential Uses	
Retail (acres)[1]	1,001.6
Office (acres)	259.3
Hotel (acres)[2]	29.0
General Industrial (acres)	54.4
Research/Limited Industrial (acres)[3]	787.4
Parks (acres)[4]	510.0
Public/Quasi Public (acres)	1,262.1
Open Space/ROWs/Other (acres)[5]	5,399.3
Special Land Uses	
Conference Center	-
Waterpark and Amphitheatre	66.0
Golf Courses[6]	692.6
University	-
Pow er Plant	75.2
Residential Uses	
Acreage	
Single Family	7,505.5
Multi Family	1,746.3
Mobile Homes	313.0
Total Acres	**19,701.7**
Units	
Single Family	42,027
Multi Family	33,026
Mobile Homes	3,562
Total Units	**78,615**

Note: All areas in Net Acres

(1) Includes retail land under visitor commercial and resort related uses

(2) Includes hotels and motels only (including hotel/motel components of resort facilities)

(3) Includes research/limited industrial, w arehousing, public storage, and extractive industry

(4) Includes public parks

(5) Includes open space & agriculture designated areas, rights of w ay, easements and other misc., undevelopable areas

(6) Includes both public and private golf courses

* Estimates Land Use figures based on the assumption of the current land development are subject to change and refinement

Source: City of Chula Vista and PMC

APPENDIX TABLE 2
EXISTING POPULATION HOUSING ESTIMATES (2012)

Estimated Dwelling Units (DU s)[1]	
Single Family Units	52,912
Multi-Family Units	24,274
Mobile Homes	4,065
Total Dwelling Units	81,251
Occupied DU[2] (Households)	
Single Family Units[3]	50,313
Multi-Family Units	23,082
Mobile Homes	3,865
Total Occupied Units	77,260
Estimated Persons per Household (Occupied DU)[4]	
Single Family Units	3.61
Multi-Family Units	2.54
Mobile Homes	2.51
Average Occupancy Rate	3.26
Estimated Existing HH Population in Housing Type[5]	
Single Family Units	181,630
Multi-Family Units	58,630
Mobile Homes	9,700
Total Estimated HH Population[1]	249,952
Estimated Non HH Population[1]	1,661
Total Estimated Existing Population	**251,613**

[1] California Department of Finance, Table E-5, 1/1/2013

[2] Applying average vacancy rate of 4.9% as reported by the California Department of Finance

[3]'Single Family' includes both attached and detached units

[4] Based on American Community Survey 2010 3yr. Estimates Housing Occupancy data for Chula Vista

[5] Occupied units times occupancy rate rounded to nearest hundred.

Source: City of Chula Vista, US Census ACS 2010, California Dept. of Finance, and PMC

APPENDIX TABLE 3

EMPLOYMENT AND EMPLOYMENT DENSITY FACTORS

Land Uses	FAR[1] Estimate	Sq. Ft	Employment Factor (sq.ft./Empl.)	Bldg. Efficiency	Occupancy	Occupied Sq. Ft.	Employees	Empl/Acre	Acres
Retail	0.50	300,000	450	80%	88%	211,200	469	34.1	14
Office	6.50	1,200,000	250	80%	88%	844,800	3379	797.3	4

[1]FAR is the Citywide Floor Area Ratio defined as the ratio of land area to net usable building floor area (this is a measure of building density)

Source: City of Chula Vista, PMC

APPENDIX TABLE 4
INCREMENTAL PER UNIT COST FACTORS

Citywide Cost Factors by Function/Department		Land Uses							
	Population (per person)[1]	Retail (per acre)	Office (per acre)	Industrial (per acre)	Public Park (per acre)	Public Use (per acre)	Open Space (per acre)	Other (per acre)	Residential (per DU)
LEGISLATIVE AND ADMINISTRATION									
City Council	$2.00								
Boards & Commissions									
City Clerk	$1.37								
City Attorney		$80.11	$86.52	$21.13					$12.11
Administration	$0.29								$0.35
Management and Information Services	$4.60								
Human Resources									
Finance									
DEVELOPMENT AND MAINTENANCE SERVICES									
Economic Development Function		$301.43	$325.55	$79.51					
Planning and Building Services		$203.44	$219.57	$55.00				$31.70	$30.69
Engineering		$274.44	$145.29	$27.44	$15.53			$16.85	$3.07
Public Works		$5,914.17	$3,131.00	$591.42	$69.58	$347.89		$347.89	$68.43
General Services									
PUBLIC SAFETY (population and non-residential only, see Table A6)									
Police	$11.01	$6,836.27	$6,836.27	$1,006.09	$2,202.49	$2,202.49		$2,202.49	
Fire	$1.05	$2,917.22	$2,917.22	$396.88	$160.46	$160.46	$160.46	$160.46	
CULTURE AND LEISURE									
Parks and Recreation	$18.90								
Library	$37.32								
Total Unit Cost	**$76.54**	**$16,527.08**	**$13,661.42**	**$2,177.47**	**$2,448.06**	**$2,710.84**	**$160.46**	**$2,759.39**	**$114.65**

[1] Except for Culture and Leisure, this column shows functional (indirect) departmental costs which are allocated to population.

Note: All cost factors are derived from a budget analysis conducted in the period FY 2004-05 to FY 2008-09

Source: City of Chula Vista

APPENDIX TABLE 5
RESIDENTIAL DENSITY COEFFICIENT ADJUSTMENT FOR PUBLIC SAFETY COSTS

		1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	7 2022	8 2023	9 2024	10 2025
Residential Uses											
Units											
Single Family		23	23	23	23	23	26	26	26	26	26
Cumulative		23	46	68	91	114	140	166	193	219	245
Multi Family		327	327	327	327	327	375	375	375	375	375
Cumulative		327	654	980	1,307	1,634	2,009	2,385	2,760	3,136	3,511
Total Units		**350**	**699**	**1,049**	**1,398**	**1,748**	**2,150**	**2,551**	**2,953**	**3,354**	**3,756**
Population											
Single Family Persons/DU@	3.62	83	83	83	83	83	95	95	95	95	95
Cumulative		83	165	248	330	413	508	602	697	792	887
Multi Family Persons/DU@	2.53	827	827	827	827	827	950	950	950	950	950
Cumulative		827	1,654	2,480	3,307	4,134	5,084	6,034	6,983	7,933	8,883
Cumulative Population		909	1,819	2,728	3,637	4,547	5,591	6,636	7,681	8,725	9,770
Acres [1]		15	29	44	59	73	90	107	124	140	157
Public Safety Costs per Dwelling Unit											
Police		$310.98	$310.98	$310.98	$310.98	$310.98	$310.98	$310.98	$310.98	$310.98	$310.98
Fire		$193.41	$193.41	$193.41	$193.41	$193.41	$193.41	$193.41	$193.41	$193.41	$193.41
Annual Public Safety Costs (Allocated to DUs)											
Police ($000s)		$108.72	$217.44	$326.15	$434.87	$543.59	$668.48	$793.37	$918.25	$1,043.14	$1,168.03
Fire ($000s)		$67.62	$135.23	$202.85	$270.47	$338.09	$415.76	$493.44	$571.11	$648.79	$726.46
Total ($000s)		**176.34**	**352.67**	**529.01**	**705.34**	**881.68**	**1,084.24**	**1,286.80**	**1,489.37**	**1,691.93**	**1,894.49**

Notes: [1]Project Residential Acreage is estimated by dividing the cumulative annual housing units by the residential gross acres (2,050 units divided by 179 acres
Source: City of Chula Vista; Bureau of Labor Statistics; PMC

APPENDIX TABLE 5 (CONTINUED)
RESIDENTIAL DENSITY COEFFICIENT ADJUSTMENT FOR PUBLIC SAFETY COSTS

		11	12	13	14	15	16	17	18	19	20
		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Residential Uses											
Units											
Single Family		4	4	4	4	4	0	0	0	0	0
Cumulative		249	253	258	262	266	266	266	266	266	266
Multi Family		45	45	45	45	45	0	0	0	0	0
Cumulative		3,556	3,600	3,645	3,689	3,734	3,734	3,734	3,734	3,734	3,734
Total Units		**3,805**	**3,854**	**3,902**	**3,951**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**	**4,000**
Population											
Single Family Persons/DU@	3.62	15	15	15	15	15	0	0	0	0	0
Cumulative		902	917	933	948	963	963	963	963	963	963
Multi Family Persons/DU@	2.53	113	113	113	113	113	0	0	0	0	0
Cumulative		8,996	9,109	9,221	9,334	9,447	9,447	9,447	9,447	9,447	9,447
Cumulative Population		9,898	10,026	10,154	10,282	10,410	10,410	10,410	10,410	10,410	10,410
Acres [1]		159	161	163	165	167	167	167	167	167	167
Public Safety Costs per Dwelling Unit											
Police		$310.98	$310.98	$310.98	$310.98	$310.98	$310.98	$310.98	$310.98	$310.98	$310.98
Fire		$193.41	$193.41	$193.41	$193.41	$193.41	$193.41	$193.41	$193.41	$193.41	$193.41
Annual Public Safety Costs (Allocated to DUs)											
Police ($000s)		$1,183.21	$1,198.38	$1,213.56	$1,228.73	$1,243.91	$1,243.91	$1,243.91	$1,243.91	$1,243.91	$1,243.91
Fire ($000s)		$735.90	$745.34	$754.78	$764.22	$773.65	$773.65	$773.65	$773.65	$773.65	$773.65
Total ($000s)		**$1,919.11**	**$1,943.72**	**$1,968.34**	**$1,992.95**	**$2,017.56**	**$2,017.56**	**$2,017.56**	**$2,017.56**	**$2,017.56**	**$2,017.56**

Notes: [1]Project Residential Acreage is estimated by dividing the cumulative annual housing units by the residential gross acres (2,050 units divided by 179 acres
Source: City of Chula Vista; Bureau of Labor Statistics; PMC

APPENDIX TABLE 6
ANNUAL FISCAL COST SUMMARY

ZERO REAL GROWTH IN UNIT COSTS

Expense Drivers (Expenses in $000s)	Unit Cost	1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	7 2022	8 2023	9 2024	10 2025	11 2026	12 2027	13 2028	14 2029	15 2030	16 2031	17 2032	18 2033	19 2034	20 2035	Total
Real Growth	0%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Retail (acre)	$16,527	$0	$0	$0	$0	$0	$46	$91	$137	$182	$228	$228	$228	$228	$228	$228	$228	$228	$228	$228	$228	$2,959
Office (acre)	$13,661	$2	$5	$7	$10	$12	$15	$18	$21	$25	$28	$34	$40	$46	$52	$58	$58	$58	$58	$58	$58	$662
Parks (acres)	$2,448	$7	$14	$22	$29	$36	$42	$49	$55	$61	$67	$67	$67	$67	$67	$67	$67	$67	$67	$67	$67	$1,056
Dwelling Units	$115	$40	$80	$120	$160	$200	$246	$292	$339	$385	$431	$436	$442	$447	$453	$459	$459	$459	$459	$459	$459	$6,824
Population (persons)[1]	$77	$70	$139	$209	$278	$348	$428	$508	$588	$668	$748	$758	$767	$777	$787	$797	$797	$797	$797	$797	$797	$11,853
Public Safety Costs Allocated to Dwelling Units	$504	$176	$353	$529	$705	$882	$1,084	$1,287	$1,489	$1,692	$1,894	$1,919	$1,944	$1,968	$1,993	$2,018	$2,018	$2,018	$2,018	$2,018	$2,018	$30,021
		$296	**$591**	**$887**	**$1,183**	**$1,478**	**$1,862**	**$2,245**	**$2,629**	**$3,012**	**$3,396**	**$3,442**	**$3,488**	**$3,534**	**$3,580**	**$3,626**	**$3,626**	**$3,626**	**$3,626**	**$3,626**	**$3,626**	**$53,376**

1% REAL ANNUAL GROWTH IN UNIT COSTS

Expense Drivers (Expenses in $000s)	Unit Cost	1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	7 2022	8 2023	9 2024	10 2025	11 2026	12 2027	13 2028	14 2029	15 2030	16 2031	17 2032	18 2033	19 2034	20 2035	Total
Real Growth	1%	1.00	1.01	1.02	1.03	1.04	1.05	1.06	1.07	1.08	1.09	1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	
Retail (acre)	$16,527	$0	$0	$0	$0	$0	$48	$97	$146	$197	$248	$250	$253	$255	$257	$260	$262	$264	$266	$269	$271	$3,342
Office (acre)	$13,661	$2	$5	$7	$10	$13	$16	$19	$23	$27	$30	$37	$44	$51	$59	$66	$67	$67	$68	$68	$69	$748
Parks (acres)	$2,448	$7	$15	$22	$30	$38	$45	$52	$59	$66	$73	$74	$75	$75	$76	$77	$77	$78	$79	$79	$80	$1,177
Dwelling Units	$115	$40	$81	$123	$165	$208	$259	$310	$362	$415	$469	$480	$490	$501	$512	$523	$527	$532	$537	$541	$546	$7,622
Population (persons)	$77	$70	$141	$213	$287	$362	$449	$538	$629	$721	$815	$833	$852	$870	$889	$908	$916	$924	$932	$940	$948	$13,239
Public Safety Costs Allocated to Dwelling Units	$504	$176	$356	$540	$727	$917	$1,138	$1,364	$1,594	$1,827	$2,065	$2,111	$2,158	$2,205	$2,252	$2,300	$2,320	$2,340	$2,361	$2,381	$2,401	$33,532
		$296	**$597**	**$905**	**$1,218**	**$1,538**	**$1,955**	**$2,380**	**$2,813**	**$3,253**	**$3,701**	**$3,786**	**$3,871**	**$3,958**	**$4,045**	**$4,133**	**$4,170**	**$4,206**	**$4,242**	**$4,278**	**$4,315**	**$59,660**

2% REAL ANNUAL GROWTH IN UNIT COSTS

Expense Drivers (Expenses in $000s)	Unit Cost	1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	7 2022	8 2023	9 2024	10 2025	11 2026	12 2027	13 2028	14 2029	15 2030	16 2031	17 2032	18 2033	19 2034	20 2035	Total
Real Growth	2%	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20	1.22	1.24	1.26	1.28	1.30	1.32	1.34	1.36	1.38	
Retail (acre)	$16,527	$0	$0	$0	$0	$0	$50	$102	$156	$211	$269	$273	$278	$282	$287	$291	$296	$300	$305	$310	$314	$3,724
Office (acre)	$13,661	$2	$5	$8	$10	$13	$17	$21	$24	$29	$33	$41	$49	$57	$65	$74	$75	$76	$78	$79	$80	$834
Parks (acres)	$2,448	$7	$15	$23	$31	$39	$47	$55	$63	$71	$79	$81	$82	$83	$85	$86	$88	$89	$90	$92	$93	$1,297
Dwelling Units	$115	$40	$82	$125	$170	$216	$271	$328	$386	$446	$508	$523	$539	$555	$571	$587	$596	$605	$615	$624	$633	$8,420
Population (persons)	$77	$70	$142	$217	$295	$376	$471	$569	$670	$775	$882	$909	$936	$964	$992	$1,020	$1,036	$1,052	$1,068	$1,084	$1,100	$14,625
Public Safety Costs Allocated to Dwelling Units	$504	$176	$360	$550	$748	$952	$1,193	$1,441	$1,698	$1,963	$2,236	$2,303	$2,371	$2,441	$2,511	$2,582	$2,623	$2,663	$2,704	$2,744	$2,784	$37,042
		$296	**$603**	**$923**	**$1,254**	**$1,597**	**$2,048**	**$2,515**	**$2,997**	**$3,494**	**$4,007**	**$4,130**	**$4,255**	**$4,382**	**$4,511**	**$4,641**	**$4,714**	**$4,786**	**$4,859**	**$4,931**	**$5,004**	**$65,943**

[1] Allocation factor for indirect departmental costs only, except for Culture and Leisure

APPENDIX TABLE 7
ESTIMATED ASSESSED VALUATION BY LAND USE TYPE

Land Uses									
Non-Residential Uses	**Density Factor**		**Units/Acre**	**Rent per sq. ft./mo.**	**Building Efficiency**	**Occupancy Rate**	**Net Income/acre[6]**	**Capitalization Rate**	**Assessed Value per Acre**
Retail[2]	0.50	FAR[1]	21,780 sq. ft.	$2.10	80%	88%	$328,435	6.5%	$5,052,853
Office[3]	6.50	FAR[1]	283,140 sq. ft.	$1.80	80%	88%	$3,659,709	7.25%	$50,478,746
Residential Uses				**Rent per sq. ft./mo.**	**Average Unit Size**	**Occupancy Rate**	**Net Annual Income/Unit**	**Cap. Rate**	**Assessed Value per Dwelling Unit**
Single Family[4]									$488,600
Multi Family (owner occupied)[4]									$284,700
Multi Family (renter occupied)[5]				$1.90	800 sq. ft.	95%	$11,263	5.25%	$214,542

1 FAR is Floor Area Ratio defined as the ratio of land area to building floor area (this is a measure of building density)

2 Retail rent based on San Diego Retail Market Snapshot 2nd half 2012 South County from Cassidy Turley. Cap Rate based on CBRE Cap Rate Survey for 2nd half 2012

3 Office rent is based on 1st Quarter, 2012 data for Chula Vista from VOIT Real Estate Services. Cap rate from CBRE Cap Rate Survey for 2nd half 2012.

4 Based on an analysis of current listings (May, 2013) in the Otay Ranch area.

5 Rents based on current market comparables for 2-bedroom apartments reported by rentbits.com. Unit size based on SPA FIA Framework. Cap. Rate based on Class "B" stabilized projects, San Diego suburban multi-housing report from CBRE Cap Rate Survey 2nd half 2012.

6 Net Income per acre & per unit includes adjustments of 15% and 35%, respectively, for operating costs, based on assumptions in the SPA FIA Framework.

Note: The above estimates are for future development and include land and improvement values.

Source: City of Chula Vista, Cassidy Turley BRE Commercial, VOIT Real Estate Services, CBRE, and PMC.

APPENDIX TABLE 8
ASSESSED VALUE ABSORPTION

	1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	7 2022	8 2023	9 2024	10 2025
Income Producing Products ($000's)										
Retail (sq. ft.)	$0	$0	$0	$0	$0	$13,920	$13,920	$13,920	$13,920	$13,920
Cumulative	$0	$0	$0	$0	$0	$13,920	$27,839	$41,759	$55,679	$69,599
Office (sq. ft.)	$8,914	$8,914	$8,914	$8,914	$8,914	$11,588	$11,588	$11,588	$11,588	$11,588
Cumulative	$8,914	$17,828	$26,742	$35,656	$44,570	$56,159	$67,747	$79,335	$90,924	$102,512
Gross Non-Resi. Income Producing AV (Annual)	$8,914	$8,914	$8,914	$8,914	$8,914	$25,508	$25,508	$25,508	$25,508	$25,508
Gross Non-Resi. Income Producing AV (Cumul.)	$8,914	$17,828	$26,742	$35,656	$44,570	$70,079	$95,587	$121,095	$146,603	$172,111
Less Existing AV [1]	$1,337	$1,337	$1,337	$1,337	$1,337	$3,826	$3,826	$3,826	$3,826	$3,826
Net New Non-Resi. Income Producing AV (Annual)	$7,577	$7,577	$7,577	$7,577	$7,577	$21,682	$21,682	$21,682	$21,682	$21,682
Net New Non-Resi. Income Producing AV (Cumul.)	$7,577	$15,154	$22,731	$30,308	$37,885	$59,567	$81,249	$102,930	$124,612	$146,294
Multi Family (rental) [2]	$17,528	$17,528	$17,528	$17,528	$17,528	$20,135	$20,135	$20,135	$20,135	$20,135
Cumulative	$17,528	$35,056	$52,584	$70,112	$87,640	$107,775	$127,910	$148,044	$168,179	$188,314
Less Existing AV [1]	$67	$67	$67	$67	$67	$77	$77	$77	$77	$77
Net New Resi. Income Producing AV (Annual)	$17,461	$17,461	$17,461	$17,461	$17,461	$20,058	$20,058	$20,058	$20,058	$20,058
Net New Resi. Income Producing AV (Cumul.)	$17,461	$34,923	$52,384	$69,846	$87,307	$107,365	$127,423	$147,482	$167,540	$187,598
For-Sale Products ($000's)										
Single Family	$11,140	$11,140	$11,140	$11,140	$11,140	$12,801	$12,801	$12,801	$12,801	$12,801
Cumulative	$11,140	$22,280	$33,420	$44,560	$55,700	$68,502	$81,303	$94,104	$106,906	$119,707
Multi Family (Ownership) [2]	$69,780	$69,780	$69,780	$69,780	$69,780	$80,157	$80,157	$80,157	$80,157	$80,157
Cumulative	$69,780	$139,560	$209,340	$279,120	$348,900	$429,057	$509,214	$589,372	$669,529	$749,686
Gross For Sale AV (Annual)	$80,920	$80,920	$80,920	$80,920	$80,920	$92,959	$92,959	$92,959	$92,959	$92,959
Gross For Sale AV (Cumul.)	$80,920	$161,840	$242,760	$323,680	$404,600	$497,559	$590,517	$683,476	$776,435	$869,393
Less Existing AV [1]	$308	$308	$308	$308	$308	$353	$353	$353	$353	$353
Net New For Sale AV (Annual)	$80,612	$80,612	$80,612	$80,612	$80,612	$92,605	$92,605	$92,605	$92,605	$92,605
Net New For Sale AV (Cumul.)	$80,612	$161,225	$241,837	$322,449	$403,062	$495,667	$588,272	$680,877	$773,482	$866,088
Total Net New AV (Annual)	$105,651	$105,651	$105,651	$105,651	$105,651	$134,345	$134,345	$134,345	$134,345	$134,345
Total Net New AV (Cumul.)	$105,651	$211,302	$316,952	$422,603	$528,254	$662,599	$796,944	$931,289	$1,065,634	$1,199,980

[1] Percentage of new AV, based on assumption made for Otay Ranch EUC SPA FIA.
[2] Multi Family assumes 25% of total units are rental units, and 75% are ownership units, based on SPA FIA Framework, Table 11.

APPENDIX TABLE 8, CONTINUED
ASSESSED VALUE ABSORPTION

	11 2026	12 2027	13 2028	14 2029	15 2030	16 2031	17 2032	18 2033	19 2034	20 2035	Total
Income Producing Products ($000's)											
Retail (sq. ft.)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$69,599
Cumulative	$69,599	$69,599	$69,599	$69,599	$69,599	$69,599	$69,599	$69,599	$69,599	$69,599	
Office (sq. ft.)	$22,285	$22,285	$22,285	$22,285	$22,285	$0	$0	$0	$0	$0	$213,938
Cumulative	$124,797	$147,083	$169,368	$191,653	$213,938	$213,938	$213,938	$213,938	$213,938	$213,938	
Gross Non-Resi. Income Producing AV (Annual)	$22,285	$22,285	$22,285	$22,285	$22,285	$0	$0	$0	$0	$0	$283,537
Gross Non-Resi. Income Producing AV (Cumul.)	$194,396	$216,681	$238,966	$261,252	$283,537	$283,537	$283,537	$283,537	$283,537	$283,537	
Less Existing AV 1	$3,343	$3,343	$3,343	$3,343	$3,343	$0	$0	$0	$0	$0	$42,531
Net New Non-Resi. Income Producing AV (Annual)	$18,942	$18,942	$18,942	$18,942	$18,942	$0	$0	$0	$0	$0	$241,006
Net New Non-Resi. Income Producing AV (Cumul.)	$165,236	$184,179	$203,121	$222,064	$241,006	$241,006	$241,006	$241,006	$241,006	$241,006	
Multi Family (rental) 2	$2,392	$2,392	$2,392	$2,392	$2,392	$0	$0	$0	$0	$0	$200,275
Cumulative	$190,706	$193,098	$195,490	$197,883	$200,275	$200,275	$200,275	$200,275	$200,275	$200,275	
Less Existing AV 1	$9	$9	$9	$9	$9	$0	$0	$0	$0	$0	$762
Net New Resi. Income Producing AV (Annual)	$2,383	$2,383	$2,383	$2,383	$2,383	$0	$0	$0	$0	$0	$199,513
Net New Resi. Income Producing AV (Cumul.)	$189,981	$192,364	$194,747	$197,130	$199,513	$199,513	$199,513	$199,513	$199,513	$199,513	
For-Sale Products ($000's)											
Single Family	$2,052	$2,052	$2,052	$2,052	$2,052	$0	$0	$0	$0	$0	$129,968
Cumulative	$121,759	$123,811	$125,863	$127,915	$129,968	$129,968	$129,968	$129,968	$129,968	$129,968	
Multi Family (Ownership) 2	$9,523	$9,523	$9,523	$9,523	$9,523	$0	$0	$0	$0	$0	$797,302
Cumulative	$759,209	$768,733	$778,256	$787,779	$797,302	$797,302	$797,302	$797,302	$797,302	$797,302	
Gross For Sale AV (Annual)	$11,575	$11,575	$11,575	$11,575	$11,575	$0	$0	$0	$0	$0	$927,270
Gross For Sale AV (Cumul.)	$880,969	$892,544	$904,119	$915,695	$927,270	$927,270	$927,270	$927,270	$927,270	$927,270	
Less Existing AV 1	$44	$44	$44	$44	$44	$0	$0	$0	$0	$0	$3,526
Net New For Sale AV (Annual)	$11,531	$11,531	$11,531	$11,531	$11,531	$0	$0	$0	$0	$0	$923,744
Net New For Sale AV (Cumul.)	$877,619	$889,150	$900,682	$912,213	$923,744	$923,744	$923,744	$923,744	$923,744	$923,744	
Total Net New AV (Annual)	$32,857	$32,857	$32,857	$32,857	$32,857	$0	$0	$0	$0	$0	$1,364,264
Total Net New AV (Cumul.)	$1,232,836	$1,265,693	$1,298,550	$1,331,407	$1,364,264	$1,364,264	$1,364,264	$1,364,264	$1,364,264	$1,364,264	

[1] Percentage of new AV, based on assumption made for Otay Ranch EUC SPA FIA.

[2] Multi Family assumes 25% of total units are rental units, and 75% are ownership units, based on SPA FIA Framework, Table 11.

Source: EUC SPA FIA, PMC

APPENDIX TABLE 9
PROPERTY TAX REVENUE ESTIMATES

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Annual For Sale Products AV Increment ($000's in 2016 dollars)		$80,612	$80,612	$80,612	$80,612	$80,612	$92,605	$92,605	$92,605	$92,605	$92,605	$11,531	$11,531	$11,531	$11,531	$11,531	$0	$0	$0	$0	$0
Annual Income Producing Products AV ($000's)		$25,038	$25,038	$25,038	$25,038	$25,038	$41,740	$41,740	$41,740	$41,740	$41,740	$21,325	$21,325	$21,325	$21,325	$21,325	$0	$0	$0	$0	$0
Total		$105,651	$105,651	$105,651	$105,651	$105,651	$134,345	$134,345	$134,345	$134,345	$134,345	$32,857	$32,857	$32,857	$32,857	$32,857	$0	$0	$0	$0	$0
APPRECIATION FACTOR:																					
Year After Property First Sold	*Annual Rate*	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	Year 18	Year 19	Year 20
Real Appreciation Rate Factor (compounded @ 2%)	2.0%	102.0%	104.0%	106.1%	108.2%	110.4%	112.6%	114.9%	117.2%	119.5%	121.9%	124.3%	126.8%	129.4%	131.9%	134.6%	137.3%	140.0%	142.8%	145.7%	148.6%
Inflation Rate @ 0%	0.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Proposition 13 AV Limitation Factor (compounded @ 2%	2.0%	102.0%	104.0%	106.1%	108.2%	110.4%	112.6%	114.9%	117.2%	119.5%	121.9%	124.3%	126.8%	129.4%	131.9%	134.6%	137.3%	140.0%	142.8%	145.7%	148.6%
Income Products Annual Turnover Rate	3.0%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
For-Sale Products Annual Turnover Rate	7.0%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
For Sale Products																					
YEAR PROPERTY FIRST SOLD:																					
Year 1		$82,225	$83,869	$89,003	$87,257	$89,003	$90,783	$92,598	$94,450	$96,339	$98,266	$100,231	$102,236	$104,281	$106,366	$108,494	$110,664	$112,877	$115,134	$117,437	$119,786
Year 2			$83,869	$85,546	$87,257	$89,003	$90,783	$92,598	$94,450	$96,339	$98,266	$100,231	$102,236	$104,281	$106,366	$108,494	$110,664	$112,877	$115,134	$117,437	$119,786
Year 3				$85,546	$87,257	$89,003	$90,783	$92,598	$94,450	$96,339	$98,266	$100,231	$102,236	$104,281	$106,366	$108,494	$110,664	$112,877	$115,134	$117,437	$119,786
Year 4					$87,257	$89,003	$90,783	$92,598	$94,450	$96,339	$98,266	$100,231	$102,236	$104,281	$106,366	$108,494	$110,664	$112,877	$115,134	$117,437	$119,786
Year 5						$89,003	$90,783	$92,598	$94,450	$96,339	$98,266	$100,231	$102,236	$104,281	$106,366	$108,494	$110,664	$112,877	$115,134	$117,437	$119,786
Year 6							$104,288	$106,374	$108,502	$110,672	$112,885	$115,143	$117,446	$119,795	$122,191	$124,634	$127,127	$129,670	$132,263	$134,908	$137,606
Year 7								$106,374	$108,502	$110,672	$112,885	$115,143	$117,446	$119,795	$122,191	$124,634	$127,127	$129,670	$132,263	$134,908	$137,606
Year 8									$108,502	$110,672	$112,885	$115,143	$117,446	$119,795	$122,191	$124,634	$127,127	$129,670	$132,263	$134,908	$137,606
Year 9										$110,672	$112,885	$115,143	$117,446	$119,795	$122,191	$124,634	$127,127	$129,670	$132,263	$134,908	$137,606
Year 10											$112,885	$115,143	$117,446	$119,795	$122,191	$124,634	$127,127	$129,670	$132,263	$134,908	$137,606
Year 11												$14,338	$14,625	$14,917	$15,215	$15,520	$15,830	$16,147	$16,470	$16,799	$17,135
Year 12													$14,625	$14,917	$15,215	$15,520	$15,830	$16,147	$16,470	$16,799	$17,135
Year 13														$14,917	$15,215	$15,520	$15,830	$16,147	$16,470	$16,799	$17,135
Year 14															$15,215	$15,520	$15,830	$16,147	$16,470	$16,799	$17,135
Year 15																$15,520	$15,830	$16,147	$16,470	$16,799	$17,135
Year 16																	$0	$0	$0	$0	$0
Year 17																		$0	$0	$0	$0
Year 18																			-	$0	$0
Year 19																				-	$0
Year 20																					-
FOR SALE PRODUCTS ASSESSED VALUE (in $000's)		$82,225	$167,738	$260,096	$349,030	$445,013	$558,202	$675,740	$797,756	$924,383	$1,055,756	$1,091,209	$1,127,657	$1,165,128	$1,203,646	$1,243,238	$1,268,103	$1,293,465	$1,319,334	$1,345,721	$1,372,635

[1] Reflects 1-year lag in Property Tax receipts

Source: PMC

APPENDIX TABLE 9, CONTINUED
PROPERTY TAX REVENUE ESTIMATES

Income Products		Year 1 2016	Year 2 2017	Year 3 2018	Year 4 2019	Year 5 2020	Year 6 2021	Year 7 2022	Year 8 2023	Year 9 2024	Year 10 2025	Year 11 2026	Year 12 2027	Year 13 2028	Year 14 2029	Year 15 2030	Year 16 2031	Year 17 2032	Year 18 2033	Year 19 2034	Year 20 2035
YEAR PROPERTY FIRST SOLD:																					
Year 1		$25,539	$26,050	$26,571	$27,102	$27,644	$28,197	$28,761	$29,336	$29,923	$30,522	$31,132	$31,755	$32,390	$33,038	$33,698	$34,372	$35,060	$35,761	$36,476	$37,206
Year 2			$26,050	$26,571	$27,102	$27,644	$28,197	$28,761	$29,336	$29,923	$30,522	$31,132	$31,755	$32,390	$33,038	$33,698	$34,372	$35,060	$35,761	$36,476	$37,206
Year 3				$26,571	$27,102	$27,644	$28,197	$28,761	$29,336	$29,923	$30,522	$31,132	$31,755	$32,390	$33,038	$33,698	$34,372	$35,060	$35,761	$36,476	$37,206
Year 4					$27,102	$27,644	$28,197	$28,761	$29,336	$29,923	$30,522	$31,132	$31,755	$32,390	$33,038	$33,698	$34,372	$35,060	$35,761	$36,476	$37,206
Year 5						$27,644	$28,197	$28,761	$29,336	$29,923	$30,522	$31,132	$31,755	$32,390	$33,038	$33,698	$34,372	$35,060	$35,761	$36,476	$37,206
Year 6							$47,006	$47,946	$48,905	$49,883	$50,881	$51,898	$52,936	$53,995	$55,075	$56,177	$57,300	$58,446	$59,615	$60,807	$62,023
Year 7								$47,946	$48,905	$49,883	$50,881	$51,898	$52,936	$53,995	$55,075	$56,177	$57,300	$58,446	$59,615	$60,807	$62,023
Year 8									$48,905	$49,883	$50,881	$51,898	$52,936	$53,995	$55,075	$56,177	$57,300	$58,446	$59,615	$60,807	$62,023
Year 9										$49,883	$50,881	$51,898	$52,936	$53,995	$55,075	$56,177	$57,300	$58,446	$59,615	$60,807	$62,023
Year 10											$50,881	$51,898	$52,936	$53,995	$55,075	$56,177	$57,300	$58,446	$59,615	$60,807	$62,023
Year 11												$26,516	$27,046	$27,587	$28,139	$28,701	$29,275	$29,861	$30,458	$31,067	$31,689
Year 12													$27,046	$27,587	$28,139	$28,701	$29,275	$29,861	$30,458	$31,067	$31,689
Year 13														$27,587	$28,139	$28,701	$29,275	$29,861	$30,458	$31,067	$31,689
Year 14															$28,139	$28,701	$29,275	$29,861	$30,458	$31,067	$31,689
Year 15																$28,701	$29,275	$29,861	$30,458	$31,067	$31,689
Year 16																	$0	$0	$0	$0	$0
Year 17																		$0	$0	$0	$0
Year 18																			$0	$0	$0
Year 19																				$0	$0
Year 20																					$0
INCOME PRODUCTS ASSESSED VALUE (in $000's)		$25,539	$52,100	$79,713	$108,409	$138,222	$187,992	$239,698	$293,398	$349,149	$407,012	$441,668	$477,548	$514,685	$553,118	$592,881	$604,739	$616,834	$629,170	$641,754	$654,589
TOTAL ASSESSED VALUE (in $000's)																					
Residential and Commercial		$107,764	$219,838	$339,808	$457,439	$583,235	$746,194	$915,438	$1,091,154	$1,273,532	$1,462,768	$1,532,877	$1,605,205	$1,679,813	$1,756,763	$1,836,119	$1,872,842	$1,910,298	$1,948,504	$1,987,475	$2,027,224
TOTAL PROPERTY TAXES COLLECTED[1] ($000s) @ 1%	1.00%		$1,078	$2,198	$3,398	$4,574	$5,832	$7,462	$9,154	$10,912	$12,735	$14,628	$15,329	$16,052	$16,798	$17,568	$18,361	$18,728	$19,103	$19,485	$19,875
ANNUAL INCREMENTAL PROPERTY TAXES TO THE CITY																					
Potential Share to Chula Vista Gen. Fund @ 10.84%	10.84%	$0	$116,816	$238,304	$368,352	$495,864	$632,227	$808,874	$992,335	$1,182,811	$1,380,508	$1,585,641	$1,661,639	$1,740,042	$1,820,917	$1,904,331	$1,990,353	$2,030,160	$2,070,764	$2,112,179	$2,154,422

[1] Reflects 1-year lag in Property Tax receipts

Source: PMC

APPENDIX TABLE 10
PROPERTY TRANSFER TAX

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Annual For Sale Products AV Increment ($000's)		$80,612	$80,612	$80,612	$80,612	$80,612	$92,605	$92,605	$92,605	$92,605	$92,605	$11,531	$11,531	$11,531	$11,531	$11,531	$0	$0	$0	$0	$0
Annual Income Producing Products AV ($000's)		$25,038	$25,038	$25,038	$25,038	$25,038	$41,740	$41,740	$41,740	$41,740	$41,740	$21,325	$21,325	$21,325	$21,325	$21,325	$0	$0	$0	$0	$0
APPRECIATION FACTOR:																					
Real Appreciation Rate Factor compounded @2%	2.00%	102.0%	104.0%	106.1%	108.2%	110.4%	112.6%	114.9%	117.2%	119.5%	121.9%	124.3%	126.8%	129.4%	131.9%	134.6%	137.3%	140.0%	142.8%	145.7%	148.6%
Inflation Rate @ 0%	0.00%																				
Income Producing Products Turnover	3.00%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
For Sale Products Turnover	7.00%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Transfer Tax Rate ($0.55 per $1,000 AV) [1]	$0.55																				
Real Property Transfer Tax Revenues[1] (including annual turnovers)																					
For Sale Products		**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
YEAR PROPERTY FIRST SOLD:																					
Year 1		$45,224	$3,229	$3,294	$3,359	$3,427	$3,495	$3,565	$3,636	$3,709	$3,783	$3,859	$3,936	$4,015	$4,095	$4,177	$4,261	$4,346	$4,433	$4,521	$4,612
Year 2			$46,128	$3,294	$3,359	$3,427	$3,495	$3,565	$3,636	$3,709	$3,783	$3,859	$3,936	$4,015	$4,095	$4,177	$4,261	$4,346	$4,433	$4,521	$4,612
Year 3				$47,051	$3,359	$3,427	$3,495	$3,565	$3,636	$3,709	$3,783	$3,859	$3,936	$4,015	$4,095	$4,177	$4,261	$4,346	$4,433	$4,521	$4,612
Year 4					$47,992	$3,427	$3,495	$3,565	$3,636	$3,709	$3,783	$3,859	$3,936	$4,015	$4,095	$4,177	$4,261	$4,346	$4,433	$4,521	$4,612
Year 5						$48,951	$3,495	$3,565	$3,636	$3,709	$3,783	$3,859	$3,936	$4,015	$4,095	$4,177	$4,261	$4,346	$4,433	$4,521	$4,612
Year 6							$57,359	$4,095	$4,177	$4,261	$4,346	$4,433	$4,522	$4,612	$4,704	$4,798	$4,894	$4,992	$5,092	$5,194	$5,298
Year 7								$58,506	$4,177	$4,261	$4,346	$4,433	$4,522	$4,612	$4,704	$4,798	$4,894	$4,992	$5,092	$5,194	$5,298
Year 8									$59,676	$4,261	$4,346	$4,433	$4,522	$4,612	$4,704	$4,798	$4,894	$4,992	$5,092	$5,194	$5,298
Year 9										$60,869	$4,346	$4,433	$4,522	$4,612	$4,704	$4,798	$4,894	$4,992	$5,092	$5,194	$5,298
Year 10											$62,087	$4,433	$4,522	$4,612	$4,704	$4,798	$4,894	$4,992	$5,092	$5,194	$5,298
Year 11												$7,886	$563	$574	$586	$598	$609	$622	$634	$647	$660
Year 12													$8,043	$574	$586	$598	$609	$622	$634	$647	$660
Year 13														$8,043	$586	$598	$609	$622	$634	$647	$660
Year 14															$8,368	$598	$609	$622	$634	$647	$660
Year 15																$8,536	$609	$622	$634	$647	$660
Year 16																	$0	$0	$0	$0	$0
Year 17																		$0	$0	$0	$0
Year 18																			$0	$0	$0
Year 19																				$0	$0
Year 20																					$0
For Sale Products		$45,224	$49,357	$53,638	$58,070	$62,658	$74,834	$80,426	$86,212	$92,197	$98,387	$49,345	$50,895	$52,327	$54,123	$55,803	$48,822	$49,798	$50,794	$51,810	$52,846
For Sale Products Property Transfer Tax (with lag period) [2]			$45,224	$49,357	$53,638	$58,070	$62,658	$74,834	$80,426	$86,212	$92,197	$98,387	$49,345	$50,895	$52,327	$54,123	$55,803	$48,822	$49,798	$50,794	$51,810

[1] $0.55 for every $1,000 of real property sale value

[2] One year time lag

Source: PMC

APPENDIX TABLE 10, CONTINUED
PROPERTY TRANSFER TAX

Income Products	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
YEAR PROPERTY FIRST SOLD:																				
Year 1	$14,047	$430	$438	$447	$456	$465	$475	$484	$494	$504	$514	$524	$534	$545	$556	$567	$578	$590	$602	$614
Year 2		$14,327	$438	$447	$456	$465	$475	$484	$494	$504	$514	$524	$534	$545	$556	$567	$578	$590	$602	$614
Year 3			$14,614	$447	$456	$465	$475	$484	$494	$504	$514	$524	$534	$545	$556	$567	$578	$590	$602	$614
Year 4				$14,906	$456	$465	$475	$484	$494	$504	$514	$524	$534	$545	$556	$567	$578	$590	$602	$614
Year 5					$15,204	$465	$475	$484	$494	$504	$514	$524	$534	$545	$556	$567	$578	$590	$602	$614
Year 6						$25,853	$791	$807	$823	$840	$856	$873	$891	$909	$927	$945	$964	$984	$1,003	$1,023
Year 7							$26,370	$807	$823	$840	$856	$873	$891	$909	$927	$945	$964	$984	$1,003	$1,023
Year 8								$26,898	$823	$840	$856	$873	$891	$909	$927	$945	$964	$984	$1,003	$1,023
Year 9									$27,436	$840	$856	$873	$891	$909	$927	$945	$964	$984	$1,003	$1,023
Year 10										$27,984	$856	$873	$891	$909	$927	$945	$964	$984	$1,003	$1,023
Year 11											$14,584	$446	$455	$464	$474	$483	$493	$503	$513	$523
Year 12												$14,875	$455	$464	$474	$483	$493	$503	$513	$523
Year 13													$15,173	$464	$474	$483	$493	$503	$513	$523
Year 14														$15,476	$474	$483	$493	$503	$513	$523
Year 15															$15,786	$483	$493	$503	$513	$523
Year 16																$0	$0	$0	$0	$0
Year 17																	$0	$0	$0	$0
Year 18																		$0	$0	$0
Year 19																			$0	$0
Year 20																				$0
Income Products	$14,047	$14,757	$15,491	$16,248	$17,029	$28,180	$29,534	$30,932	$32,374	$33,861	$21,434	$22,309	$23,210	$24,138	$25,095	$9,978	$10,178	$10,381	$10,589	$10,801
Income Products Property Transfer Tax (with Lag)[2]		$14,047	$14,757	$15,491	$16,248	$17,029	$28,180	$29,534	$30,932	$32,374	$33,861	$21,434	$22,309	$23,210	$24,138	$25,095	$9,978	$10,178	$10,381	$10,589
TOTAL ANNUAL PROPERTY TRANSFER TAX	**$0**	**$59,270**	**$64,114**	**$69,129**	**$74,318**	**$79,687**	**$103,014**	**$109,961**	**$117,144**	**$124,571**	**$132,248**	**$70,779**	**$73,204**	**$75,536**	**$78,261**	**$80,898**	**$58,800**	**$59,976**	**$61,176**	**$62,399**

[1] $0.55 for every $1,000 of real property sale value

[2] One year time lag

Source: PMC

APPENDIX TABLE 11
MOTOR VEHICLE FEE REVENUES

VLF Revenues										
Current City Population[1]	251,613									
Current Allocation of 0.65% VLF =	$0									
Per Capita VLF Allocation[2] =	$0.00									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
	2016	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
SPA Population Growth	912	1,825	2,737	3,650	4,562	5,610	6,658	7,706	8,754	9,802
VLF Revenues Attributed to SPA	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Property Tax In-lieu of Motor Vehicle In Lieu Fees (MVLF) Adjustment[3]										
Base Year (6/30/2013) Assessed Valuation of the City ($000) =	$20,942,797									
Base Year (Actual 2011-2012) Property Tax In Lieu of MVLF ($000) =	$16,288									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Cumulative Net AV of New Developments ($000s)	$105,651	$211,302	$316,952	$422,603	$528,254	$662,599	$796,944	$931,289	$1,065,634	$1,199,980
Cumulative Citywide AV Growth ($000s)	$21,048,448	$21,154,099	$21,259,749	$21,365,400	$21,471,051	$21,605,396	$21,739,741	$21,874,086	$22,008,431	$22,142,777
Percent Increase in AV	0.502%	0.999%	1.491%	1.978%	2.460%	3.067%	3.666%	4.258%	4.842%	5.419%
Cumulative Citywide In-lieu[3] ($000s)	$16,370	$16,451	$16,531	$16,610	$16,689	$16,788	$16,885	$16,981	$17,077	$17,171
Annual Property Tax in Lieu Adjustment Attributed To SPA	**$81,756**	**$162,696**	**$242,831**	**$322,173**	**$400,735**	**$499,524**	**$597,092**	**$693,462**	**$788,655**	**$882,693**
TOTAL ANNUAL VLF REVENUES	**$81,756**	**$162,696**	**$242,831**	**$322,173**	**$400,735**	**$499,524**	**$597,092**	**$693,462**	**$788,655**	**$882,693**

[1] Estimates based on updated dwelling unit inventory provided by City and persons per household assumptions from SPA FIA Framework.

[2] The per capita VLF allocation to cities was eliminated by SB89 effective July, 2011

[3] Applying the Citywide assessed value growth rate (includes AV growth from the project) to MVLF.

Source: SPA FIA Framework, City of Chula Vista, California Local Government Finance Almanac, PMC

APPENDIX TABLE 11, CONTINUED
MOTOR VEHICLE FEE REVENUES

VLF Revenues										
Current City Population[1]	251,613									
Current Allocation of 0.65% VLF =	$0									
Per Capita VLF Allocation [2] =	$0.00									
	11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
SPA Population Growth	9,931	10,059	10,188	10,316	10,445	10,445	10,445	10,445	10,445	10,445
VLF Revenues Attributed to SPA	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Property Tax In-lieu of Motor Vehicle In Lieu Fees (MVLF) Adjustment3										
Base Year (6/30/2013) Assessed Valuation of the City ($000) =	$20,942,797									
Base Year (Actual 2011-2012) Property Tax In Lieu of MVLF ($000) =	$16,288									
	11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Cumulative Net AV of New Developments ($000s)	$1,232,836	$1,265,693	$1,298,550	$1,331,407	$1,364,264	$1,364,264	$1,364,264	$1,364,264	$1,364,264	$1,364,264
Cumulative Citywide AV Growth ($000s)	$22,175,633	$22,208,490	$22,241,347	$22,274,204	$22,307,061	$22,307,061	$22,307,061	$22,307,061	$22,307,061	$22,307,061
Percent Increase in AV	5.559%	5.699%	5.838%	5.977%	6.116%	6.116%	6.116%	6.116%	6.116%	6.116%
Cumulative Citywide In-lieu 3 ($000s)	$17,194	$17,216	$17,239	$17,262	$17,284	$17,284	$17,284	$17,284	$17,284	$17,284
Annual Property Tax in Lieu Adjustment Attributed To SPA	**$905,518**	**$928,276**	**$950,967**	**$973,591**	**$996,148**	**$996,148**	**$996,148**	**$996,148**	**$996,148**	**$996,148**
TOTAL ANNUAL VLF REVENUES	**$905,518**	**$928,276**	**$950,967**	**$973,591**	**$996,148**	**$996,148**	**$996,148**	**$996,148**	**$996,148**	**$996,148**

[1] Estimates based on updated dwelling unit inventory provided by City and persons per household assumptions from SPA FIA Framework.

[2] The per capita VLF allocation to cities was eliminated by SB89 effective July, 2011

[3] Applying the Citywide assessed value growth rate (includes AV growth from the project) to MVLF.

Source: SPA FIA Framework, City of Chula Vista, California Local Government Finance Almanac, PMC

APPENDIX TABLE 12
ESTIMATED ON-SITE RETAIL SALES TAXES

		1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	7 2022	8 2023	9 2024	10 2025
Retail SF (ksf)		0	0	0	0	0	60	120	180	240	300
Retail by Type	**Percent of Type**										
Neighborhood Center	50%	-	-	-	-	-	30	60	90	120	150
Community Center	25%	-	-	-	-	-	15	30	45	60	75
Regional Center	25%	-	-	-	-	-	15	30	45	60	75
Super Regional Center	0%	-	-	-	-	-	-	-	-	-	-
Other Centers	0%	-	-	-	-	-	-	-	-	-	-
On-Site Sales ($000's)	**Sales per sq. ft.**										
Neighborhood Center	$300	$0	$0	$0	$0	$0	$9,000	$18,000	$27,000	$36,000	$45,000
Community Center	$250	$0	$0	$0	$0	$0	$3,750	$7,500	$11,250	$15,000	$18,750
Regional Center	$250	$0	$0	$0	$0	$0	$3,750	$7,500	$11,250	$15,000	$18,750
Super Regional Center	$300	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Centers	$275	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
On-Site Sales Adjusted for Transfers ($000's)	**Transfer Adjustment**										
Neighborhood Center	90%	$0	$0	$0	$0	$0	$8,100	$16,200	$24,300	$32,400	$40,500
Community Center	75%	$0	$0	$0	$0	$0	$2,813	$5,625	$8,438	$11,250	$14,063
Regional Center	70%	$0	$0	$0	$0	$0	$2,625	$5,250	$7,875	$10,500	$13,125
Super Regional Center	75%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Centers	75%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Taxable Retail Sales ($000s)											
	Percent of Sales Taxable										
Neighborhood Center	64%	$0	$0	$0	$0	$0	$5,184	$10,368	$15,552	$20,736	$25,920
Community Center	77%	$0	$0	$0	$0	$0	$2,166	$4,331	$6,497	$8,663	$10,828
Regional Center	97%	$0	$0	$0	$0	$0	$2,546	$5,093	$7,639	$10,185	$12,731
Super Regional Center	100%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Centers	97%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Taxable Retail Sales ($000s)		$0	$0	$0	$0	$0	$9,896	$19,792	$29,688	$39,584	$49,479
Annual Sales Taxes to the City @	**1%**	**$0**	**$0**	**$0**	**$0**	**$0**	**$98,959**	**$197,918**	**$296,876**	**$395,835**	**$494,794**

Source: PMC, SPA FIA Framework

APPENDIX TABLE 12, CONTINUED
ESTIMATED ON-SITE RETAIL SALES TAXES

	11 2026	12 2027	13 2028	14 2029	15 2030	16 2031	17 2032	18 2033	19 2034	20 2035
Retail SF (ksf)	300	300	300	300	300	300	300	300	300	300
Retail by Type										
Neighborhood Center	150	150	150	150	150	150	150	150	150	150
Community Center	75	75	75	75	75	75	75	75	75	75
Regional Center	75	75	75	75	75	75	75	75	75	75
Super Regional Center	-	-	-	-	-	-	-	-	-	-
Other Centers	-	-	-	-	-	-	-	-	-	-
On-Site Sales ($000's)										
Neighborhood Center	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000
Community Center	$18,750	$18,750	$18,750	$18,750	$18,750	$18,750	$18,750	$18,750	$18,750	$18,750
Regional Center	$18,750	$18,750	$18,750	$18,750	$18,750	$18,750	$18,750	$18,750	$18,750	$18,750
Super Regional Center	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Centers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
On-Site Sales Adjusted for Transfers ($000's)										
Neighborhood Center	$40,500	$40,500	$40,500	$40,500	$40,500	$40,500	$40,500	$40,500	$40,500	$40,500
Community Center	$14,063	$14,063	$14,063	$14,063	$14,063	$14,063	$14,063	$14,063	$14,063	$14,063
Regional Center	$13,125	$13,125	$13,125	$13,125	$13,125	$13,125	$13,125	$13,125	$13,125	$13,125
Super Regional Center	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Centers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Taxable Retail Sales ($000s)										
Neighborhood Center	$25,920	$25,920	$25,920	$25,920	$25,920	$25,920	$25,920	$25,920	$25,920	$25,920
Community Center	$10,828	$10,828	$10,828	$10,828	$10,828	$10,828	$10,828	$10,828	$10,828	$10,828
Regional Center	$12,731	$12,731	$12,731	$12,731	$12,731	$12,731	$12,731	$12,731	$12,731	$12,731
Super Regional Center	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Centers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Taxable Retail Sales ($000s)	$49,479	$49,479	$49,479	$49,479	$49,479	$49,479	$49,479	$49,479	$49,479	$49,479
Annual Sales Taxes to the City @	**$494,794**	**$494,794**	**$494,794**	**$494,794**	**$494,794**	**$494,794**	**$494,794**	**$494,794**	**$494,794**	**$494,794**

Source: PMC, SPA FIA Framework

APPENDIX TABLE 13
ESTIMATED OFF-SITE RETAIL SALES TAXES

Average HH Incomes [1]	
Single Family	$105,561
Multi Family	
Ownership	$65,624
Rental	$47,880

		1	2	3	4	5	6	7	8	9	10
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Households											
Single Family		23	46	68	91	114	140	166	193	219	245
Multi Family		327	654	980	1,307	1,634	2,009	2,385	2,760	3,136	3,511
-- Ownership	75%	245	490	735	980	1,226	1,507	1,789	2,070	2,352	2,633
-- Rental	25%	82	163	245	327	409	502	596	690	784	878
Total Units		350	699	1,049	1,398	1,748	2,150	2,551	2,953	3,354	3,756
Total Employees		141	282	422	563	704	981	1,258	1,535	1,812	2,089
Aggregate Incomes ($000's)		$22,403	$44,806	$67,209	$89,612	$112,015	$137,750	$163,486	$189,221	$214,957	$240,693
Countywide Income/HH		$74,000									
Countywide Retail Exp/HH		$30,000									
Retail Expenditure/HH Adj. Factor for SPA, Single Family		142.7%	$42,000								
Retail Expenditure/HH Adj. Factor for SPA, Multifam. Owner		88.7%	$26,000								
Retail Expenditure/HH Adj. Factor for SPA, Multifam. Rental		64.7%	$19,000								
Gross Retail Sales from SPA Residents ($000s)											
Neighborhood Center	33%	$2,931	$5,862	$8,794	$11,725	$14,656	$18,023	$21,391	$24,758	$28,125	$31,492
Community Center	20%	$1,777	$3,553	$5,330	$7,106	$8,883	$10,923	$12,964	$15,005	$17,046	$19,086
Regional Center	4%	$355	$711	$1,066	$1,421	$1,777	$2,185	$2,593	$3,001	$3,409	$3,817
Super Regional Center	7%	$622	$1,244	$1,865	$2,487	$3,109	$3,823	$4,537	$5,252	$5,966	$6,680
Other Centers	36%	$3,198	$6,395	$9,593	$12,791	$15,989	$19,662	$23,335	$27,009	$30,682	$34,355
Chula Vista (off-site)[2] Capture ($000s)											
Neighborhood Center	10%	$293	$586	$879	$1,172	$1,466	$1,802	$2,139	$2,476	$2,813	$3,149
Community Center	20%	$355	$711	$1,066	$1,421	$1,777	$2,185	$2,593	$3,001	$3,409	$3,817
Regional Center	35%	$124	$249	$373	$497	$622	$765	$907	$1,050	$1,193	$1,336
Super Regional Center	50%	$311	$622	$933	$1,244	$1,554	$1,912	$2,269	$2,626	$2,983	$3,340
Other Centers	10%	$320	$640	$959	$1,279	$1,599	$1,966	$2,334	$2,701	$3,068	$3,436
Gross Retail Sales from SPA Employees ($000s)											
Annual Expenditure/Employee [3]	$1,175										
Neighborhood Center	60%	$99	$199	$298	$397	$496	$692	$887	$1,082	$1,277	$1,472
Community Center	20%	$33	$66	$99	$132	$165	$231	$296	$361	$426	$491
Regional Center	20%	$33	$66	$99	$132	$165	$231	$296	$361	$426	$491
Super Regional Center	0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Centers	0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Taxable Retail Sales ($000s)											
	% Taxable										
Neighborhood Center	64%	$251	$502	$753	$1,005	$1,256	$1,596	$1,937	$2,277	$2,617	$2,958
Community Center	77%	$299	$598	$897	$1,196	$1,495	$1,860	$2,224	$2,588	$2,953	$3,317
Regional Center	97%	$153	$305	$458	$611	$764	$965	$1,167	$1,369	$1,570	$1,772
Super Regional Center	100%	$311	$622	$933	$1,244	$1,554	$1,912	$2,269	$2,626	$2,983	$3,340
Other Centers	97%	$310	$620	$931	$1,241	$1,551	$1,907	$2,264	$2,620	$2,976	$3,332
Total Taxable Retail Sales ($000s)		$1,324	$2,648	$3,972	$5,296	$6,620	$8,240	$9,860	$11,480	$13,100	$14,720
Annual Sales Taxes to the City @	**1%**	**$13,240**	**$26,479**	**$39,719**	**$52,959**	**$66,199**	**$82,398**	**$98,598**	**$114,798**	**$130,997**	**$147,197**

[1] Household incomes based on income requirements per Table A-17

[2] Assumes spending of $5.00 per employee per day for 235 work days, per the SPA FIA Framework.

Source: SPA FIA Framework, EUC SPA FIA, State Franchise Tax Board, PMC

APPENDIX TABLE 13, CONTINUED
ESTIMATED OFF-SITE RETAIL SALES TAXES

	11	12	13	14	15	16	17	18	19	20
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Households										
Single Family	249	253	258	262	266	266	266	266	266	266
Multi Family	3,556	3,600	3,645	3,689	3,734	3,734	3,734	3,734	3,734	3,734
-- Ownership	2,667	2,700	2,734	2,767	2,801	2,801	2,801	2,801	2,801	2,801
-- Rental	889	900	911	922	934	934	934	934	934	934
Total Units	3,805	3,854	3,902	3,951	4,000	4,000	4,000	4,000	4,000	4,000
Total Employees	2,441	2,793	3,145	3,497	3,849	3,849	3,849	3,849	3,849	3,849
Aggregate Incomes ($000's)	$243,865	$247,037	$250,210	$253,382	$256,554	$256,554	$256,554	$256,554	$256,554	$256,554
Countywide Income/HH										
Countywide Retail Exp/HH										
Retail Expenditure/HH Adj. Factor for SPA, Single Family										
Retail Expenditure/HH Adj. Factor for SPA, Multifam. Owner										
Retail Expenditure/HH Adj. Factor for SPA, Multifam. Rental										
Gross Retail Sales from SPA Residents ($000s)										
Neighborhood Center	$31,908	$32,323	$32,738	$33,153	$33,568	$33,568	$33,568	$33,568	$33,568	$33,568
Community Center	$19,338	$19,590	$19,841	$20,093	$20,344	$20,344	$20,344	$20,344	$20,344	$20,344
Regional Center	$3,868	$3,918	$3,968	$4,019	$4,069	$4,069	$4,069	$4,069	$4,069	$4,069
Super Regional Center	$6,768	$6,856	$6,944	$7,032	$7,121	$7,121	$7,121	$7,121	$7,121	$7,121
Other Centers	$34,808	$35,261	$35,714	$36,167	$36,620	$36,620	$36,620	$36,620	$36,620	$36,620
Chula Vista (off-site)2 Capture ($000s)										
Neighborhood Center	$3,191	$3,232	$3,274	$3,315	$3,357	$3,357	$3,357	$3,357	$3,357	$3,357
Community Center	$3,868	$3,918	$3,968	$4,019	$4,069	$4,069	$4,069	$4,069	$4,069	$4,069
Regional Center	$1,354	$1,371	$1,389	$1,406	$1,424	$1,424	$1,424	$1,424	$1,424	$1,424
Super Regional Center	$3,384	$3,428	$3,472	$3,516	$3,560	$3,560	$3,560	$3,560	$3,560	$3,560
Other Centers	$3,481	$3,526	$3,571	$3,617	$3,662	$3,662	$3,662	$3,662	$3,662	$3,662
Gross Retail Sales from SPA Employees ($000s)										
Annual Expenditure/Employee 3										
Neighborhood Center	$1,721	$1,969	$2,217	$2,465	$2,713	$2,713	$2,713	$2,713	$2,713	$2,713
Community Center	$574	$656	$739	$822	$904	$904	$904	$904	$904	$904
Regional Center	$574	$656	$739	$822	$904	$904	$904	$904	$904	$904
Super Regional Center	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Centers	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Taxable Retail Sales ($000s)										
Neighborhood Center	$3,143	$3,329	$3,514	$3,699	$3,885	$3,885	$3,885	$3,885	$3,885	$3,885
Community Center	$3,420	$3,522	$3,625	$3,727	$3,829	$3,829	$3,829	$3,829	$3,829	$3,829
Regional Center	$1,869	$1,967	$2,064	$2,161	$2,259	$2,259	$2,259	$2,259	$2,259	$2,259
Super Regional Center	$3,384	$3,428	$3,472	$3,516	$3,560	$3,560	$3,560	$3,560	$3,560	$3,560
Other Centers	$3,376	$3,420	$3,464	$3,508	$3,552	$3,552	$3,552	$3,552	$3,552	$3,552
Total Taxable Retail Sales ($000s)	$15,193	$15,666	$16,139	$16,612	$17,085	$17,085	$17,085	$17,085	$17,085	$17,085
Annual Sales Taxes to the City @	**$151,928**	**$156,659**	**$161,390**	**$166,121**	**$170,852**	**$170,852**	**$170,852**	**$170,852**	**$170,852**	**$170,852**

[1] Household incomes based on income requirements per Table A-17.

[2] Assumes spending of $5.00 per employee per day for 235 work days, per the SPA FIA Framework.

Source: SPA FIA Framework, EUC SPA FIA, State Franchise Tax Board, PMC

APPENDIX TABLE 14
OTHER DISCRETIONARY REVENUE ALLOCATION FACTORS

Current Citywide Conditions	
Population	251,613
Dwelling Units	81,251
Employees	41,711

Land Uses	Developed Acres	Employees [1] (estimated)	AV Share [2]
Retail	1,002	18,175	19%
Office	259	4,705	6%
Industrial	842	16,002	8%
Residential	9,565		67%
Subtotal Taxable	11,668	38,882	
Other (Parks, Public/Quasi-Public, O. S.)	8,005	2,829	
Total	19,673	41,711	

Incremental Revenue Factors by Development Unit

Revenue Category	Assumed Revenues (FY 2010-11 Actual)	Allocation Method	Share	Allocation	Units
Property Taxes					
Current Taxes - Secured	$24,712,000	Calculated Separately		-	
State Secured - Unitary	$493,425	Retail AV	19%	$91.28	Acre
		Office AV	6%	$123.16	Acre
		Industrial AV	8%	$46.89	Acre
		Residential AV	67%	$34.56	Acre
Current Taxes - Unsecured	$930,000	Retail AV	19%	$172.04	Acre
		Office AV	6%	$232.13	Acre
		Industrial AV	8%	$88.38	Acre
		Residential AV	67%	$65.14	Acre
Delinquent Taxes	$840,000	Retail AV	19%	$155.39	Acre
		Office AV	6%	$209.67	Acre
		Industrial AV	8%	$79.83	Acre
		Residential AV	67%	$58.84	Acre
Other Local Taxes					
Sales and Use Taxes	$26,702,000	Calculated Separately			
Franchise Fees	$8,260,000	Retail Land	5%	$427.85	Acre
		Office Land	2%	$577.28	Acre
		Industrial Land	3%	$294.36	Acre
		Residential Land	90%	$777.22	Acre
Utility Taxes [3]	$2,270,560	Retail Land	7%	$151.21	Acre
		Office Land	2%	$204.03	Acre
		Industrial Land	4%	$107.89	Acre
		Residential Land	87%	$206.53	Acre
Business License Tax	$1,085,247	Employees (Non-Public)		$27.91	Employee
Real Property Transfer Tax	$777,016	Calculated Separately		-	
Revenues from other Agencies					
Sales Tax: Public Safety Augment	$690,717	People		$2.75	Person
State Homeowners Property Tax Relief	$255,000	Dwelling Units		$3.14	DU
State Motor Vehicle Licenses	$20,942,797	Calculated Separately see Table A-11			
TOTAL CITYWIDE BUDGETED DISCRETIONARY REVENUES PERTINENT TO PROJECT AREA	**$87,958,762**				

[1] Employees estimated based on proportion of developed acres and employment derived for SPA FIA Framework.
[2] Assessed Value shares from EUC SPA Plan.

Source: City of Chula Vista FY 2012-13 Budget, PMC

APPENDIX TABLE 15
INCREMENTAL REVENUE SUMMARY IN 2013 DOLLARS

Revenue Drivers		1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	7 2022	8 2023	9 2024	10 2025
Population (Persons)		909	1,819	2,728	3,637	4,547	5,591	6,636	7,681	8,725	9,770
Private Employment (Employees)		141	282	422	563	704	981	1,258	1,535	1,812	2,089
Dwelling Units		350	699	1,049	1,398	1,748	2,150	2,551	2,953	3,354	3,756
Retail Land (acres) [1]		0	0	0	0	0	3	6	8	11	14
Office Land (acres) [1]		0	0	1	1	1	1	1	2	2	2
Residential Land (acres) [2]		15	29	44	59	73	90	107	124	140	157
Annual Revenues ($000's)	*Revenue Factors*										
Population (Persons)	$2.77	$2.5	$5.0	$7.6	$10.1	$12.6	$15.5	$18.4	$21.3	$24.2	$27.1
Private Employment (Employees)	$27.91	$3.9	$7.9	$11.8	$15.7	$19.6	$27.4	$35.1	$42.8	$50.6	$58.3
Dwelling Units	$3.17	$1.1	$2.2	$3.3	$4.4	$5.5	$6.8	$8.1	$9.4	$10.6	$11.9
Retail Land (Acres)	$998	$0.0	$0.0	$0.0	$0.0	$0.0	$2.7	$5.5	$8.2	$11.0	$13.7
Office Land (Acres)	$1,346	$0.2	$0.5	$0.7	$1.0	$1.2	$1.5	$1.8	$2.1	$2.4	$2.7
Residential Land (Acres)	$1,142	$16.7	$33.4	$50.1	$66.8	$83.5	$102.7	$121.9	$141.1	$160.3	$179.5
Property Taxes		$0.0	$116.8	$238.3	$368.4	$495.9	$632.2	$808.9	$992.3	$1,182.8	$1,380.5
Property Transfer Taxes		$0.0	$59.3	$64.1	$69.1	$74.3	$79.7	$103.0	$110.0	$117.1	$124.6
VLF Revenues		$79.6	$158.2	$235.7	$312.1	$387.6	$482.2	$575.2	$666.7	$756.7	$845.3
Sales and Use Taxes		$13.2	$26.5	$39.7	$53.0	$66.2	$181.4	$296.5	$411.7	$526.8	$642.0
Total Revenues ($000s)		**$117.4**	**$409.7**	**$651.3**	**$900.6**	**$1,146.5**	**$1,532.1**	**$1,974.4**	**$2,405.6**	**$2,842.6**	**$3,285.6**

[1] Retail and Office square footage is converted to acres using the FARs found in the Employment Density Factor Table A-3.

[2] Residential units are converted to acres based on phasing of housing units as a proportion of total units, and then multiplying by total acres.

Source: PMC

APPENDIX TABLE 15, CONTINUED
INCREMENTAL REVENUE SUMMARY IN 2013 DOLLARS

Revenue Drivers	11 2026	12 2027	13 2028	14 2029	15 2030	16 2031	17 2032	18 2033	19 2034	20 2035
Population (Persons)	9,898	10,026	10,154	10,282	10,410	10,410	10,410	10,410	10,410	10,410
Private Employment (Employees)	2,441	2,793	3,145	3,497	3,849	3,849	3,849	3,849	3,849	3,849
Dwelling Units	3,805	3,854	3,902	3,951	4,000	4,000	4,000	4,000	4,000	4,000
Retail Land (acres) [1]	14	14	14	14	14	14	14	14	14	14
Office Land (acres) [1]	2	3	3	4	4	4	4	4	4	4
Residential Land (acres) [2]	159	161	163	165	167	167	167	167	167	167
Annual Revenues ($000's)										
Population (Persons)	$27.4	$27.8	$28.1	$28.5	$28.8	$28.8	$28.8	$28.8	$28.8	$28.8
Private Employment (Employees)	$68.1	$77.9	$87.8	$97.6	$107.4	$107.4	$107.4	$107.4	$107.4	$107.4
Dwelling Units	$12.1	$12.2	$12.4	$12.5	$12.7	$12.7	$12.7	$12.7	$12.7	$12.7
Retail Land (Acres)	$13.7	$13.7	$13.7	$13.7	$13.7	$13.7	$13.7	$13.7	$13.7	$13.7
Office Land (Acres)	$3.3	$3.9	$4.5	$5.1	$5.7	$5.7	$5.7	$5.7	$5.7	$5.7
Residential Land (Acres)	$181.8	$184.1	$186.5	$188.8	$191.1	$191.1	$191.1	$191.1	$191.1	$191.1
Property Taxes	$1,648.5	$1,730.4	$1,815.5	$1,903.8	$1,996.2	$2,092.4	$2,136.0	$2,180.6	$2,226.1	$2,272.5
Property Transfer Taxes	$132.2	$70.8	$73.2	$75.5	$78.3	$80.9	$58.8	$60.0	$61.2	$62.4
VLF Revenues	$866.8	$888.1	$909.4	$930.6	$951.7	$951.7	$951.7	$951.7	$951.7	$951.7
Sales and Use Taxes	$646.7	$651.5	$656.2	$660.9	$665.6	$665.6	$665.6	$665.6	$665.6	$665.6
Total Revenues ($000s)	**$3,600.7**	**$3,660.6**	**$3,787.3**	**$3,917.1**	**$4,051.4**	**$4,150.2**	**$4,171.8**	**$4,217.5**	**$4,264.2**	**$4,311.8**

APPENDIX TABLE 16
NET FISCAL IMPACT IN 2013 DOLLARS (NO REAL INFLATION)

Year	1	2	3	4	5	6	7	8	9	10
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Total Expenditures ($000s)	$295.91	$591.82	$887.73	$1,183.64	$1,479.55	$1,863.26	$2,246.97	$2,630.68	$3,014.39	$3,398.10
Total Revenues ($000s)	$119.47	$414.21	$658.40	$910.52	$1,159.49	$1,549.29	$1,996.10	$2,432.16	$2,874.28	$3,322.72
Net Fiscal Impacts ($000s)	**($176.44)**	**($177.61)**	**($229.33)**	**($273.12)**	**($320.05)**	**($313.97)**	**($250.86)**	**($198.52)**	**($140.11)**	**($75.39)**
Net Fiscal Impacts per Capita	**($193.38)**	**($97.33)**	**($83.79)**	**($74.84)**	**($70.16)**	**($55.97)**	**($37.68)**	**($25.76)**	**($16.00)**	**($7.69)**

Year	11	12	13	14	15	16	17	18	19	20
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Expenditures ($000s)	$3,444	$3,490	$3,536	$3,582	$3,628	$3,628	$3,628	$3,628	$3,628	$3,628
Total Revenues ($000s)	$3,639	$3,700	$3,829	$3,960	$4,096	$4,194	$4,216	$4,262	$4,308	$4,356
Net Fiscal Impacts ($000s)	**$195.03**	**$210.17**	**$292.26**	**$377.43**	**$467.05**	**$565.88**	**$587.42**	**$633.14**	**$679.82**	**$727.47**
Net Fiscal Impacts per Capita	**$19.64**	**$20.89**	**$28.69**	**$36.59**	**$44.72**	**$54.18**	**$56.24**	**$60.62**	**$65.09**	**$69.65**

	Years 1-5	Years 6-10	Years 11-15	Years 16-20
	2012-2016	2017-2021	2022-2026	2027-2031
Total Expenditures ($000s)	$4,438.64	$13,153.40	$17,681.59	$18,142.31
Total Revenues ($000s)	$3,262.09	$12,174.55	$19,223.53	$21,336.04
Net Fiscal Impacts	**($1,176.55)**	**($978.86)**	**$1,541.94**	**$3,193.73**

Source: PMC

APPENDIX TABLE 17
MINIMUM INCOME ASSUMPTIONS

Qualifying Income for Home Purchase

Assumptions	Single Family Detached	Attached Condominium
Sales Price	$488,600	$284,700
Min. down payment	5%	5%
Max. Mortgage Payment to Effective Income ratio[1]	31%	31%
Mortgage Interest	4%	4%
No. of Payments	360	360
Mortgage Insurance Premium	1.30%	1.30%
Principal	$464,170	$270,465
Monthly Payment	$2,216.02	$1,291.24
PMI	$28.81	$16.79
Property Tax (monthly)	$407.17	$237.25
HOA Dues (monthly)	$75.00	$150.00
Total per month	$2,726.99	$1,695.28
Annual total of payments	$32,723.92	$20,343.33
Minimum annual income required for loan	**$105,561.04**	**$65,623.64**

[1]http://www.fha.com/fha_requirements_debt

Minimum Income for Rentals

Annual average rent	$18,240
5% Utility Allowance	$912.00
	$19,152.00
Assumed Rent & Household Payments to Income ratio	40%
Minimum Income for rentals	**$47,880.00**

Appendix B

Air Quality Improvement Plan

Air Quality Improvement Plan (AQIP)

Otay Land Company Village 9

June 3, 2014

Project Sponsor / Applicant
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1. EXECUTIVE SUMMARY

Purpose
The purpose of this AQIP is to provide an analysis of air pollution impacts that would result from development of Village 9 and to demonstrate how the design for Village 9 reduces vehicle trips, maintains or improves traffic flow, reduces vehicle miles traveled, and reduces direct or indirect greenhouse gas (GHG) emissions. This AQIP also demonstrates how Village 9 has been designed consistent with the City's Green Building and Increased Energy Efficiency Standards, (CVMC 15.12 and 15.26.030) and represents the best available design in terms of improving energy efficiency and reducing GHG emissions. Greenhouse gas emissions include gases such as Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_20). They occur both naturally, and are produced by human activities, such as by automobile emissions and emissions from production of electricity to provide power to homes and businesses. These gases prevent heat from escaping the earth's atmosphere, while allowing in sunlight, which has the affect of warming the air temperature. Applicable action measures contained in the City's Carbon Dioxide Reduction Plan are also addressed.

Plan Design
Otay Ranch is a 23,000-acre master-planned community and includes a mix of land uses within 20 villages and/or planning areas. Village 9 is located at the southerly edge of the Otay Valley Parcel of Otay Ranch just east of State Route (SR-125) near the intersection of Eastlake Parkway and Hunte Parkway. Key aspects that influenced the design of Village 9 relative to pedestrian, transit, and automobile circulation, and urban design, include the future University and Regional Technology Park (RTP) located to the east and the Eastern Urban Center (EUC) planned to the north. The heart of the Village is the Town Center. It is envisioned that this core area provide for the needs of the community by featuring a blend of shopping, restaurant, civic, institutional, educational, recreational, entertainment, personal service, and residential opportunities. The Town Center will provide a viable and intensified mixture of uses that will draw university students and faculty, residents, business owners, RTP employees, and visitors. Intensified residential densities and commercial uses at the heart of the community enhance and support transit use, promote walkability, and create vibrant commercial and public spaces that promote social interaction and create a strong community identity.

The Village 9 SPA plan includes 323.1 gross acres and a range of allowable uses. The following land uses represent the maximum allowed per the Village 9 SPA plan:

- Up to 4,000 residential dwelling units,
- 1,200,000 square feet of commercial office,
- 300,000 square feet of retail,
- 27.5 acres of park,
- 9.6 acres of open space,
- Two elementary schools, and
- 5 acres of community purpose facilities.

The overall plan is organized such that development intensity decreases from the EUC and Main Street, south toward the Town Center, and finally south toward Otay Valley Road and Otay River Valley. Village 9 includes community commercial uses and multi-family opportunities for affordable and new generational housing in the intensified Town Center, the opportunity for additional high density affordable housing and neighborhood commercial uses south and east of the Town Center, and attached and detached single family housing south of Otay Valley Road. This broad spectrum of housing and commercial opportunities is intended to meet the anticipated demands of students, faculty, and professionals associated with the adjacent University and RTP as well as the general population.

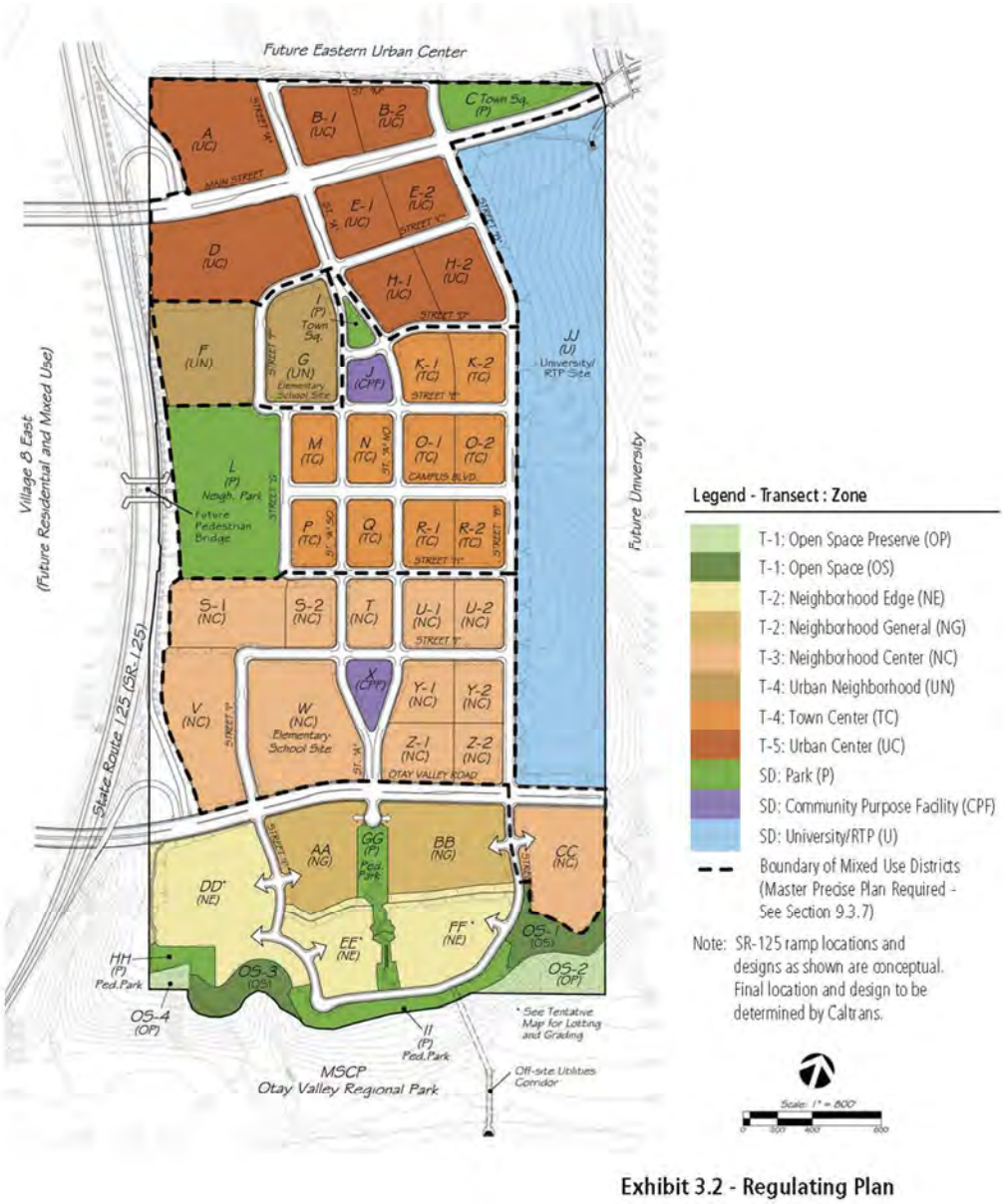

Figure 1: SPA Regulating Plan

Class II bicycle facilities are planned along all circulation element roadways through Village 9 except on Street B. Sidewalks will be provided throughout Village 9. Except for Main Street, Otay Valley Road, and B Street, all roadways internal to the Village are designed to local street standards with speed limits of 25 to 35 mph. Slow traffic speeds are conducive to both walking and bicycling and provide the necessary linkage to the regional bicycle circulation network.

Sidewalks will be provided through Village 9 along with bulb-outs at key locations to reduce pedestrian crossing distances. In addition, the land uses designated in the Town Center (adjacent to the couplet) are intended to be pedestrian and bicycle friendly. With design travel speeds of 35 mph along Street "A" through the couplet, the roadways are designed to provide a comfortable walking environment. On-street parking will be provided on many of the internal streets to help reduce traffic speeds and buffer the pedestrian from traffic flow.

A pedestrian and bicyclist bridge will be constructed over SR-125 that will improve the pedestrian and bicycle linkages between Village 8 East and Village 9. The bridge is located approximately midway between Otay Valley Road and Main Street and will connect in Village 9 at the proposed community park located along the western boundary of the Village. This bridge is intended to reduce the reliance on passenger vehicle trips and encourage walking and bicycling between the two communities and throughout the ranch.

Village 9 is transit ready. In conformance with General Plan policy, public transportation is an integral part of Otay Ranch. The Village 9 plan provides for potential transit services with options available depending on what future transit service program is implemented. A public transit line and stops are integrated into the plan and are located within or in close proximity to the highest intensity neighborhoods and the future University campus.

The current regional transit plan includes transit lines on East "H" Street, East Palomar Street, La Media Road, and Eastlake Parkway. Transit stops are planned to be located approximately five to six miles apart with the Village 9 stop planned near the intersection of Campus Boulevard and Street B. In conformance with the General Plan, a future transit line also is planned on Main Street. The actual transit plan will be developed in conjunction with the San Diego Association of Governments (SANDAG). Specific access points as well as the internal circulation for bicycle riders and pedestrians and exact roadway configurations will be approved during the Tentative Tract Map (TM) process.

An additional means to reduce GHG emissions is the use of Low Speed Vehicles (LSVs). LSVs are envisioned as alternative modes of travel within and between the Otay Ranch villages. In Village 9, LSVs may travel on all village streets with a maximum travel speed of 35 mph. Except for Main Street and Otay Valley Road, all village streets are planned for maximum travel speeds of 25 to 35 mph.

Vehicle trip generation is based on the project traffic study, which was prepared by RBF Consulting (2013). The projected Average Daily Trips (ADT) rate for the Village 9 is 34,067 trips. The projected ADT accounts for internal capture from mixed-use development and the reduction in vehicle trips compared to similar developments that do not provide access to transit. Potential

bus stops are proposed in Village 9 in the Town Center and along Otay Valley Road. The projected ADT also takes into account the Transportation Demand Management (TDM) program included in the Village 9 SPA Plan. The TDM includes strategies to reduce vehicle trips and miles traveled and to design a multi-modal transportation system, and establishes a Transportation Management Association to provide transportation services in a particular area to reduce vehicle miles and implement other TDM strategies.

According to the Otay Ranch Village 9 Air Quality Technical Report dated May 2013 prepared by Atkins, the project trip generation rates account for the approximately 40 percent reduction in vehicle trips that would occur as a result of the mixed-use areas, transit use, and availability of pedestrian and bicycle facilities proposed as part of the SPA plan. In addition, future vehicular emissions may be lower than estimated due to increasingly stringent California fuel efficiency requirements. As determined by SANDAG as part of the GPA/GDPA EIR process, the average daily trip length for the Village 9 will be 5.08 miles (less than the regional average trip length of 5.8 miles).

The Village 9 SPA Plan incorporates several additional features into the site design that promote alternative transportation use, reduce traffic congestion, encourage energy efficiency, and reduce area source pollutants. These measures include the following:

1. Provide shower and locker facilities at offices with more than ten occupants to encourage bicycle use.
2. Design parking lots to promote use of mass transit and car pools.
3. Synchronize the traffic lights included as part of an individual development project with previously installed traffic lights in order to reduce traffic congestion.
4. Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
5. Enhance energy efficiency in building designs and landscaping plans.
6. Identify an environmental coordinator to be responsible for education and disseminating information on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.
7. Install only electric or natural gas fireplaces in new development. No wood burning fireplaces are permitted.
8. When siting sensitive land uses such as residences, schools, day care centers, playgrounds and medical facilities the recommendations set forth in Table 1-1 of California Air Resources Board's (CARB) Land Use and Air Quality Handbook (CARB 2004) will be use as a guideline. Specifically, new sensitive uses would not be located within 50 feet of any typical-sized gas station (one that has a throughput of less than 3.6 million gallons per year). No gas stations with a throughput of 3.6 million gallons per year or greater shall be developed within Village 9.

Air pollutant emission sources during project construction include exhaust and particulate emissions generated from construction equipment; fugitive dust from site preparation, grading, and excavation activities; and volatile compounds that evaporate during site paving and painting of structures. Village 9 is approximately 273 acres; however, only 263.5 acres of the site would

be disturbed during construction. The remaining area consists of areas designated for open space. A total of 6.7 acres would be disturbed off-site for the construction of the sewer and storm drain corridor and access road (1.1 acres) and grading required due to topography, fuel modification, and drainage requirements (5.6 acres). The total disturbance area would be 270.2 acres.

Implementation of mitigation measures would reduce significant emissions of Nitrous Oxides (NO_x), Particulate Matter (PM_{10}, and $PM_{2.5}$), during grading and surface improvements, but not to a less than significant level resulting in potentially significant impacts. Actual emissions may be less than calculated by the URBEMIS model (a software model designed to estimate air emissions from land use development projects) since this model does not take into account additional standards adopted by California Air Resources Board (CARB) after 2007 and assumed a worst-case scenario.

In conclusion, there are construction and operation air quality impacts anticipated during either the construction or operation phases of the project after all mitigation measures have been utilized. Village 9 will be consistent with the City's General Plan, as amended. However, the growth projections for the Regional Air Quality Strategy (RAQS) were based on the 2005 General Plan. Even though the proposed project would be consistent with all the applicable transportation and area source control measures proposed in the RAQS to reduce emissions in the region, the project exceeds the growth projections in the RAQS and would exceed the significant thresholds for ozone precursors and particulate matter during construction and operation for the San Diego Air Basin.

2. INTRODUCTION

The purpose of this AQIP is to provide an analysis of air pollution impacts that would result from development of Village 9 and to demonstrate how the design for Village 9 reduces vehicle trips, maintains or improves traffic flow, reduces vehicle miles traveled, and reduces direct or indirect Greenhouse Gas (GHG) emissions. This AQIP also demonstrates how Village 9 has been designed consistent with the City's Green Building and Increased Energy Efficiency Standards, (CVMC 15.12 and 15.26.030) and represents the best available design in terms of improving energy efficiency and reducing GHG emissions. Greenhouse gas emissions include gases such as Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_20). They occur both naturally, and are produced by human activities, such as by automobile emissions and emissions from production of electricity to provide power to homes and businesses. These gases prevent heat from escaping the earth's atmosphere, while allowing in sunlight, which has the affect of warming the air temperature. Applicable action measures contained in the City's Carbon Dioxide (CO_2) Reduction Plan are also addressed.

As the result of rapid development not keeping pace with the demand for facilities and improvements, the City Council adopted Growth Management policy measures that would

prohibit new development to occur unless adequate public facilities, improvements and environmental quality of life standards were put in place. The purpose of the City of Chula Vista's Growth Management Ordinance (CVMC Chapter 19.09) is to provide the following:

1. Provide quality housing opportunities for all economic sections of the community;
2. Provide a balanced community with adequate commercial, industrial, recreational and open space areas to support the residential areas of the City;
3. Provide that public facilities, services and improvements meeting City standards exist or become available concurrent with the need created by new development;
4. Balance the housing needs of the region against the public service needs of Chula Vista residents and available fiscal and environmental resources;
5. Provide that all development is consistent with the Chula Vista general plan;
6. Prevent growth unless adequate public facilities and improvements are provided in a phased and logical fashion as required by the general plan;
7. Control the timing and location of development by tying the pace of development to the provision of public facilities and improvements to conform to the City's threshold standards and to meet the goals and objectives of the growth management program;
8. Provide that the air quality of the City of Chula Vista improves from existing conditions;
9. Provide that the City of Chula Vista conserves water so that an adequate supply be maintained to serve the needs of current and future residents.

The objective of this AQIP is to fulfill the City of Chula Vista's Growth Management policy to provide that the air quality of the City of Chula Vista improves from existing conditions. This AQIP is provided in accordance with CVMC 19.09.950B. The Growth Management Ordinance requires that no application for a SPA Plan or Tentative Map shall be deemed complete or accepted for review unless an AQIP is provided and approved as part of the approval of the SPA Plan or Tentative Map by the City. The AQIP has been prepared based on the best available design practices and also serves to implement several of the key aspects of the City's CO_2 Reduction Plan, the Green Building Standards (CVMC Chapter 15.12) and the energy efficiency requirements (CVMC 15.26.030).

3. PURPOSE & GOALS

There are a number of actions that federal, state, and local jurisdictions have taken to improve air quality, increase energy efficiency, and reduce GHG emissions. This section summarizes those actions.

Federal, State, and Local Rules and Regulations Related to Air Quality

Air quality is defined by ambient air concentrations of specific pollutants determined by the Environmental Protection Agency (EPA) to be of concern with respect to the health and welfare of the public. The subject pollutants monitored by the EPA include the following:

- Carbon Monoxide (CO),
- Sulfur Dioxide (SO_2),
- Nitrogen Dioxide (NO_2),
- Ozone (O_3),

- Respirable 10- and 2.5-micron particulate matter (PM_{10}, $PM_{2.5}$),
- Volatile Organic Compounds (VOC),
- Reactive Organic Gasses (ROG),
- Hydrogen Sulfide (H_2S),
- Sulfates,
- Lead, and
- Visibility reducing particles (VRP).

The EPA has established ambient air quality standards for these pollutants. These standards are called the National Ambient Air Quality Standards (NAAQS). The California Air Resources Board (CARB) subsequently established the more stringent California Ambient Air Quality Standards (CAAQS). Both sets of standards are shown in Figure 2 on the following page. Areas in California where ambient air concentrations of pollutants are higher than the state standard are considered to be in “non-attainment” status for that pollutant.

Regulation of air emissions from non-mobile sources within San Diego County has been delegated to the San Diego County Air Pollution Control District (APCD). As part of its air quality permitting process, the APCD has established thresholds for the preparation of Air Quality Impact Assessments (AQIAs) and/or Air Quality Conformity Assessments (AQCAs). APCD has also established an “emissions budget” or Regional Air Quality Strategy (RAQS) for the San Diego Air Basin. This budget takes into account existing conditions, planned growth based on general plans for cities within the region, and air quality control measures implemented by the APCD.

The applicable standards are shown in Figure 3 on page 9.

Pollutant	Averaging Time	California Standards [1]	Federal Standards [2]	
		Concentration[3]	Primary [3, 4]	Secondary [3, 5]
Ozone (O_3)	1-hour	0.09 ppm (180 μg/m^3)	--	Same as Primary Standards
	8-hour	0.070 ppm (137 μg/m^3)	0.075 ppm (147 μg/m^3)	
Respirable Particulate Matter (PM_{10})	24 Hour	50 μg/m^3	150 μg/m^3	Same as Primary Standards
	Annual Arithmetic Mean	20 μg/m	--	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	35 μg/m^3	Same as Primary Standards
	Annual Arithmetic Mean	12 μg/m^3	15 μg/m^3	
Carbon Monoxide (CO)	8-hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	None
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 μg/m^3)	53 ppm (100 μg/m^3)[6]	Same as Primary Standard
	1-hour	0.18 ppm (470 mg/m^3)	100 ppb (188 μg/m^3)[6]	None
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm (105 μg/m^3)	--	--
	3 Hour	--	--	0.5 ppm (1300 μg/m^3)[7]
	1-hour	0.25 ppm (655 μg/m^3)	75 ppb (196 μg/m^3)[7]	--
Lead[8]	30 Day Average	1.5 μg/m^3	--	--
	Calendar Quarter	--	1.5 μg/m^3	Same as Primary Standard
	Rolling 3-Month Average[9]	--	0.15 μg/m^3	
Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more due to particles.	No Federal Standards	
Sulfates	24 Hour	25 μg/m^3	No Federal Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 μg/m^3)	No Federal Standards	
Vinyl Chloride[8]	24 Hour	0.01 ppm (26 μg/m^3)	No Federal Standards	

(1) California standards for ozone, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride standards are not to be equaled or exceeded.
(2) National standards, other than 1-hour ozone, 8-hour ozone, 24-hour PM_{10}, 24-hour $PM_{2.5}$, and those based on annual averages, are not to be exceeded more than once a year. The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the annual fourth-highest daily maximum 8-hour concentrations is below 0.08 ppm. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile 24-hour concentrations is below 150 μg/m^3. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of the 98th percentile 24-hour concentrations is below 65 μg/m^3.
(3) Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based on a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar). All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury; parts per million (ppm) in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
(4) National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
(5) National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
(6) To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010). Note that the EPA standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
(7) On June 2, 2010, the U.S. EPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. EPA also proposed a new automated Federal Reference Method (FRM) using ultraviolet technology, but will retain the older pararosaniline methods until the new FRM have adequately permeated State monitoring networks. The EPA also revoked both the existing 24-hour SO2 standard of 0.14 ppm and the annual primary SO2 standard of 0.030 ppm, effective August 23, 2010. The secondary SO2 standard was not revised at that time; however, the secondary standard is undergoing a separate review by EPA. Note that the new standard is in units of parts per billion (ppb). California standards are in units of ppm. To directly compare the new primary national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
(8) The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
(9) National lead standard, rolling 3-month average: final rule signed October 15, 2008.
Source: ARB 2010a.

Figure 2: Ambient Air Quality Standards Matrix

Pollutant	Construction Emissions (pounds/day)	Operation Emissions (pounds/day)
Carbon Monoxide (CO)	550	550
Reactive organic gases (ROG)(1)	75	55
Nitrogen Oxides (NO_x)	100	55
Sulfur Oxides (SO_x)	150	150
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Reactive organic gases are also sometimes referred to as volatile organic compounds. Source: SCAQMD 2010		

Figure 3: Thresholds of Significance for Air Quality Impacts

Summary of Energy Efficiency Standards

Title 24, Part 6 of the California Building Standards Code regulates energy uses including space heating and cooling, hot water heating, and ventilation. The energy code allows new buildings to meet a "performance" standard that allows a builder to choose the most cost effective energy saving measures to meet the standard. These choices may include the following:

- Added insulation,
- Radiant barriers,
- Cool roofs,
- Improved HVAC systems,
- Alternative heating and cooling systems,
- More efficient water heating systems, and
- More efficient light systems.

The energy code was updated in 2008 to continue to reduce the amount of energy needed for new buildings. This update reduced the electricity needed to operate central air conditioning for residential uses between 19.7% and 22.7% and the natural gas needed to operate gas water heaters between 7% and 10%. For non-residential buildings, the most recent update reduced the electricity needed to operate heating equipment 37.2%, cooling equipment 8.3% and interior lighting 5.9%. The non-residential natural gas need for heating was reduced 15.9%.[1]

The City of Chula Vista has adopted Green Building Standards (CVMC Chapter 15.12) and Energy Efficiency standards (CVMC Section 15.26.030) that requires increased energy efficiency 15% beyond 2008 Title 24 Part 6 Energy Code levels. For residential uses, this requirement represents a .75-1.35% reduction in electricity use and an 11.85%-12.45% reduction in natural gas usage. For commercial uses, this represents a 4.35% reduction in electricity use and a 9.9% reduction in natural gas usage.[2]

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[1] *Quantifying Greenhouse Gas Mitigation Measures*; California Air Pollution Control Officers Association (CAPCOA), August 2010, Tables D-1 and D-2

[2] *Quantifying Greenhouse Gas Mitigation Measures*; California Air Pollution Control Officers Association (CAPCOA), August 2010, Tables BE-1.1 and BE-1.2

Water-related energy use consumes 19 percent of California's electricity, 30 percent of its natural gas, and 88 billion gallons of diesel fuel every year. The water-related energy use includes water and wastewater treatment as well as the energy needed to transport the water from it source (either northern California or the Colorado River). California Green Building Code Title 24, Part 11 (CALGreen) requires that indoor water use be reduced a minimum of 20%. The City has also reduced the demand for outdoor water use through the adoption of the Landscape Water Conservation requirements (CVMC 20.12).

CALGreen also requires that a minimum of 50% all new construction waste generated at the site be diverted to recycle or salvage. Additionally, the state has set per capita disposal rates of 5.3 pounds per person per day for the City of Chula Vista. The City requires new construction to divert 90% of the inert waste and not less than 50% of the remaining waste generated during construction (CVMC 8.25.095).

Summary of Carbon Dioxide (CO_2), Reductions

CO_2 is produced by both natural and anthropogenic (human) sources. CO_2 will be emitted by Village 9 permitted uses through the combustion of fossil fuels in vehicles, from electricity generation and natural gas consumption, and from solid waste disposal. As directed by Assembly Bill (AB) 32, the Climate Change Scoping Plan (December 2008 prepared by CARB) includes measures to reduce statewide CO_2 to 1990 levels by 2020 from forecasted business-as-usual (BAU) 2020 emissions. The majority of the reduction strategies are to come from the two sectors that generate the most CO_2 emissions statewide: transportation and electricity generation. The majority of the reduction in transportation-related and energy-related CO_2 emissions are to be achieved through statewide regulatory mandates affecting vehicle emissions and types of fuel the vehicles use, public transit, and public utilities. The remaining reductions are to be achieved through direct regulation and price incentive measures affecting oil and gas extraction industries and forestry practices (including increased tree planting programs).

To address emissions from vehicles, CARB is proposing a comprehensive three-prong strategy: reduce GHG emissions from vehicles, reduce the carbon content of the fuel these vehicles burn, and reduce the miles these vehicles travel.

AB 1493 (Pavley) required CARB to develop and adopt regulations to reduce GHG emissions from passenger motor vehicles, beginning with the 2009 model year. The Pavley regulations establish specific GHG emissions levels for both passenger cars and light-duty trucks. The standards become more stringent each year through 2016. The GHG emission reductions to be achieved by the Pavley regulations are substantial. It is expected that the Pavley regulations will reduce GHG emissions from California passenger cars by 22% in 2012 and 30% in 2016 (www.arb.ca.gov/cc/ccms/ccms.htm).

CARB has also adopted a Low Carbon Fuel Standard (LCFS) that sets carbon reduction standards for the types of fuels that can be sold in California, particularly renewable fuels. This will reduce the GHG emissions even if total fuel consumption is not reduced.

Finally, CARB is to set regional targets for reducing passenger vehicle emissions. SB 375 requires Metropolitan Planning Organizations (MPOs) in California to update their Regional Transportation Plans to adopt a Sustainable Communities Strategy (SCS) that prescribes land use allocations that promote smart growth development. SANDAG is the San Diego region's MPO. According to the San Diego SCS plan, the CARB target of a 7 percent per capita reduction in 2020 and a 15 percent per capita reduction by 2035 would be met with the SCS implementation.

The three most applicable measures to land use planning and development within the City of Chula Vista's control include the regional transportation-related GHG targets, support for the Million Solar Roofs program, and energy efficiency measures. Since the early 1990s, the City has been engaged in multiple climate change forums including the United Nations Framework Convention on Climate Change (UNFCCC), the Cities for Climate Protection campaign, and the U.S. Conference of Mayor's Climate Protection Agreement. The key plans and ordinances that the City has adopted and implemented to achieve citywide GHG emissions reductions are summarized below.

Each participant in the International Council of Environmental Initiatives (ICLEI) was to create local policy measures to ensure multiple benefits in the City and, at the same time, identify a carbon reduction goal through the implementation of those measures. In its CO_2 Reduction Plan developed in 1995 and officially adopted in 2000, Chula Vista committed to lowering its CO_2 emissions by diversifying its transportation system and using energy more efficiently in all sectors. To focus efforts in this direction, the City adopted the CO_2reduction goal of 20% below 1990 levels by 2010. In order to achieve this goal, seven actions were identified (see page 31), which when fully implemented, were anticipated to save 100,000 tons of CO_2each year.

The 2008 GHG Emissions Inventory has noted that compared to 1990, Chula Vista's citywide GHG emissions have increased by 29%, however, per capita and per housing unit levels are approximately 25% and 17% below 1990 levels, respectively. The Climate Change Working Group (CCWG) has helped develop recommendations to reduce the community's GHGs in order to meet the City's 2010 GHG emissions reduction targets.

The CCWG ultimately chose seven measures that were adopted by the City Council and the horizon date was delayed until 2012 instead of 2010. The measures that relate to new development include the following:

- A minimum energy efficiency of 15% above the 2005 Title 24, and
- Implementation of smart growth principles.

4. PROJECT DESCRIPTION

Otay Ranch is a 23,000-acre master-planned community and includes a mix of land uses within 20 villages and/or planning areas. Village 9 is located at the southerly edge of the Otay Valley Parcel of Otay Ranch just east of State Route (SR-125) near the intersection of Eastlake Parkway and Hunte Parkway. Key aspects that influenced the design of Village 9 relative to pedestrian, transit, and automobile circulation, and urban design, include the future University and Regional Technology Park (RTP) located to the east and the EUC planned to the north. The heart of the Village is the Town Center. It is envisioned that this core area provide for the needs of the community by featuring a blend of shopping, restaurant, civic, institutional, educational, recreational, entertainment, personal service, and residential opportunities. The Town Center will provide a viable and intensified mixture of uses that will draw university students and faculty, residents, business owners, RTP employees, and visitors. Intensified residential densities and commercial uses at the heart of the community enhance and support transit use, promote walkability, and create vibrant commercial and public spaces that promote social interaction and create a strong community identity.

The Village 9 SPA plan includes 323.1 gross acres and a range of allowable uses. The following land uses represent the maximum allowed per the Village 9 SPA plan:

- Up to 4,000 residential dwelling units,
- 1,200,000 square feet of commercial office,
- 300,000 square feet of retail,
- 27.5 acres of park,
- 9.6 acres of open space,
- Two elementary schools, and
- 5 acres of community purpose facilities.

The overall plan is organized such that development intensity decreases from the EUC and Main Street, south toward the Town Center, and finally south toward Otay Valley Road and Otay River Valley. Village 9 includes community commercial uses and multi-family opportunities for affordable and new generational housing in the intensified Town Center, the opportunity for additional high density affordable housing and neighborhood commercial uses south and east of the Town Center, and attached and detached single family housing south of Otay Valley Road. This broad spectrum of housing and commercial opportunities is intended to meet the anticipated demands of students, faculty, and professionals associated with the adjacent University and RTP as well as the general population.

Figure 4: SPA Site Utilization Plan and Figure 5: SPA Site Utilization Summary implement the land uses contemplated by the General Plan and the Otay Ranch General Development Plan. The site utilization plan and site utilization summary work together and assign a general utilization to each transect within the SPA. In addition to defining each transect's utilization, individual planning areas are also assigned a targeted number of dwelling units and commercial square feet. The range of units and commercial square feet shown in Figure 5 are only estimates. Units and commercial uses may be transferred between planning areas provided that uses being transferred are consistent with the site utilization of the receiving planning area, that the overall

density of each transect remains consistent with the density ranges (du/ac) specified for each transect, and that the transfer meets all of the requirements specified in §9.3.2 of the SPA.

The Village 9 SPA Plan strives to create a new mixed-use community centered around a university-oriented Town Center. This Town Center is organized to create a series of focal points that emulate a traditional "downtown," within a system of "blocks" or planning areas. Block sizes have been carefully defined to maximize walkability and promote a vibrant and active town center area. Uses are envisioned to include retail, residential, and services that support student and faculty life. Such uses might include restaurants, coffee shops, bookstores, and opportunities for shopping and entertainment. These interchangeable mixed-use components are centered on Campus Boulevard and an urban couplet located between a Neighborhood Park and the future proposed University.

A key aspect of the plan is synergy and adaptability with the future University. This synergy is emphasized through Campus Boulevard, an east-west street and urban plaza that serves as a transitional space for the community. The design of the street makes this space suitable for community events such as art fairs, farmer's markets, and festivals. Additional east-west grid streets run parallel to Campus Boulevard and are envisioned to penetrate as walking and visual corridors into the planned University, creating a strong pedestrian linkage and adjacency.

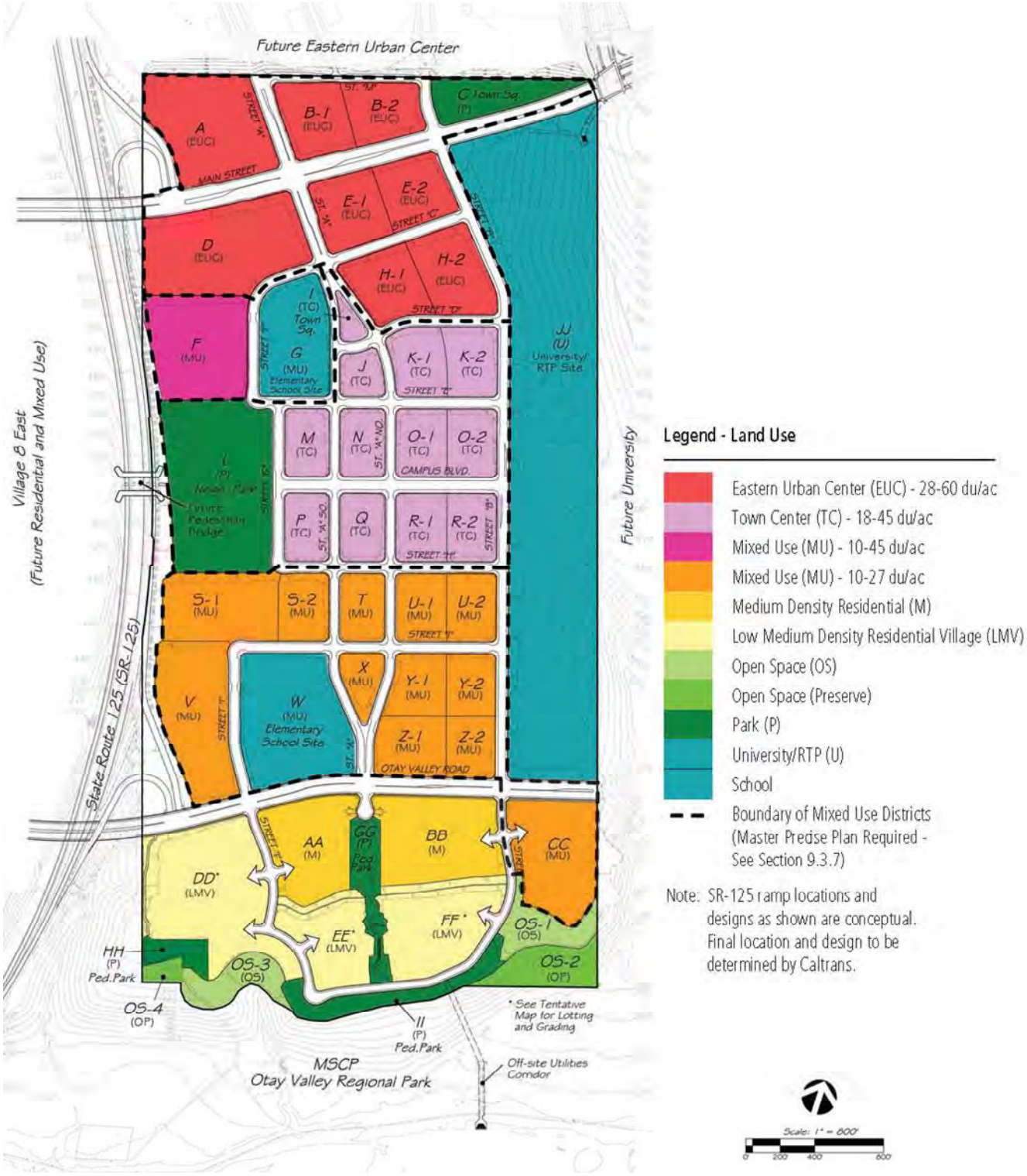

Figure 4: SPA Site Utilization Plan

Commercial and Residential Land Use

Planning Area	Gross Acres	Transect[1]	Target D.U.[2]	Target Range C'ml Sq.Ft. (K)[2][6]
Eastern Urban Center (EUC) - 28- 60 du/ac				
A	9.5	T-5: UC	380	78-235
B-1	4.6	T-5: UC	183	38-115
B-2	3.9	T-5: UC	136	34-101
D	11.2	T-5: UC	448	94-278
E-1	4.6	T-5: UC	183	40-115
E-2	4.2	T-5: UC	168	34-101
H-1	4.7	T-5: UC	188	38-115
H-2	5.6	T-5: UC	226	44-130
Subtotal	**48.3**		**1,912**	**400-1,190**
Town Center (TC) - 18-45 du/ac				
Planning Area	**Gross Acres**	**Transect[1]**	**Target D.U.[2]**	**Target Range C'ml Sq.Ft. (K)[2][7]**
K-1	3.7	T-4: TC	148	0
K-2	3.8	T-4: TC	152	0
M	3.6	T-4: TC	80	10-29
N	3.5	T-4: TC	57	20-52
O-1	3.6	T-4: TC	80	10-29
O-2	3.6	T-4: TC	80	10-29
P	3.6	T-4: TC	80	10-29
Q	3.5	T-4: TC	57	20-52
R-1	3.6	T-4: TC	80	10-29
R-2	3.6	T-4: TC	80	10-29
Subtotal	**36.1**		**894**	**100-278**
Mixed Use (MU) - 10-45 du/ac				
Planning Area	**Gross Acres**	**Transect[1]**	**Target D.U.[2]**	**Target Range C'ml Sq.Ft. (K)[2]**
F	8.2	T-4: UN	136	0
G[2]	--	T-4: UN	0	0
Subtotal	**8.2**		**136**	**0**
Mixed Use (MU) - 10-27 du/ac				
Planning Area	**Gross Acres**	**Transect[1]**	**Target D.U.[2]**	**Target Range C'ml Sq.Ft. (K)[2][8]**
S-1	6.3	T-3: NC	104	0
S-2	3.5	T-3: NC	58	0
T	3.4	T-3: NC	34	0-32
U-1	3.5	T-3: NC	58	0
U-2	3.5	T-3: NC	58	0
V	8.6	TT-3: NC	142	0
W[2]	--	T-3: NC	0	0
Y-1	3.3	T-3: NC	54	0
Y-2	3.0	T-3: NC	50	0
Z-1	3.7	T-3: NC	61	0
Z-2	2.7	T-3: NC	45	0
CC	7.7	T-3: NC	128	0
Subtotal	**49.2**		**792**	**0-32**
Medium Density Residential (M) - 6-11 du.ac				
Planning Area	**Gross Acres**	**Transect[1]**	**Target D.U.[2]**	
AA	6.8	T-2: NG	72	
BB	8.4	T-2: NG	89	
Subtotal	**15.2**		**161**	
Low Medium Density Residential Village (LMV) - 3-6 du.ac				
Planning Area	**Gross Acres**	**Transect[1]**	**Target D.U.[2]**	
DD	12.2	T-2: NE	47	
EE	7.1	T-2: NE	26	
FF	8.8	T-2: NE	32	
Subtotal	**28.1**		**105**	
TOTAL	**185.1 Acres**		**4,000**	**500K - 1,500 K[3]**

Public, Quasi Public, and Other Uses

Planning Area	Land Use	Gross Acres	Transect[1]	Description
Community Purpose Facility (CPF)[3]				
J	TC	2.3	SD: CPF	CPF
X	MU	2.7	SD: CPF	CPF
Subtotal		**5.0**		
Potential School (S) Sites[4]				
Planning Area	**Land Use**	**Gross Acres**	**Transect[1]**	**Description**
G	MU	7.9	T-4: UN	Elementary
W	MU	11.9	T-3: NC	Elementary
Subtotal		**19.8**		
Parks (P)				
Planning Area	**Land Use**	**Gross Acres**	**Transect[1]**	**Description**
C	P	3.6	SD: P	Town Square
I	TC	1.5	SD: P	Town Square
L	P	14.8	SD: P	Neighborhood
GG	P	2.9	SD: P	Pedestrian
HH	P	1.3	SD: P	Pedestrian
II	P	3.4	SD: P	Pedestrian
Subtotal		**27.5**		
Open Space (OS)				
Planning Area	**Land Use**	**Gross Acres**	**Transect[1]**	**Description**
OS-1	OS	2.8	T-1: OS	Open Space
OS-2	CVOSP[5]	3.3	T-1: OP	Preserve
OS-3	OS	2.8	T-1: OS	Open Space
OS-4	CVOSP[5]	0.7	T-1: OP	Preserve
Subtotal		**9.6**		
Other				
Planning Area	**Land Use**	**Gross Acres**	**Transect[1]**	**Description**
JJ	U	50.0	SD: U	University/RTP
Arterials		17.9		Right-of-Way
SR-125		8.2		Right-of-Way
Subtotal		**76.1**		
TOTAL		**138.0 Acres**		

Notes:

(1) Transects are defined in Chapter 3.
(2) See Chapter 9 regarding Intensity Transfers and minimum retail/commercial square footage requirement.
(3) As defined by CVMC Chapter 19.48.
(4) School sites will revert to mixed use if sites are not accepted by the school district.
(5) Chula Vista Open Space Preserve.
(6) 390,000 square feet of office and 10,000 square feet of retail for the low range; 1,140,000 square feet of office and 50,000 square feet of retail for the high range; excludes live/work.
(7) 10,000 square feet of office and 90,000 square feet of retail for the low range; 10,000 square feet of office and 268,000 square feet of retail for the high range; excludes live/work.
(8) 32,000 square feet of retail for the high range.

SPA Total Area: 323.1 Gross Acres

Figure 5: SPA Site Utilization Summary

The strong urban form in the Town Center, Urban Center, and Urban Neighborhoods requires the following:

- Buildings to be oriented toward public streets, parks, and pedestrian spaces;
- Continuous facades that are placed near or at the back of sidewalk; and
- Uses that support pedestrian activity such as dining, retail, entertainment, patios, plazas, and public art.

The Urban Center serves as a transition from the Town Center to the EUC to the north. The Urban Center will include high to mid-rise buildings with a mix of uses including retail, hospitality, office, and multifamily residential opportunities that support the Regional Technology Park and the EUC. The Town Center provides mix-use development that supports adjacent residential neighborhoods and fosters walkability. Uses within the Town Center include a mix of retail sales and services with high density attached homes. The Urban Neighborhoods will be a residential extension of the Town Center. While commercial uses are permitted in the Urban Neighborhoods, this Transect is envisioned to be predominately residential in character, with the retail focus remaining in the Town Center Transect. Residential neighborhoods south of Otay Valley Road provide an alternative living environment that is more single family in nature with large private yards and building setbacks. This environment provides a quiet, less urban lifestyle while establishing an appropriate relationship to the natural habitat in the adjacent Preserve area.

Class II bicycle facilities are planned along all circulation element roadways through Village 9 except Street B. Sidewalks will be provided throughout Village 9. Except for Main Street, Otay Valley Road, and Street B, all roadways internal to the Village are designed to local street standards with speed limits of 25 to 35 mph. Slow traffic speeds are conducive to both walking and bicycling and provide the necessary linkage to the regional bicycle circulation network.

Sidewalks will be provided through Village 9 along with bulb-outs at key locations to reduce pedestrian crossing distances. In addition, the land uses designated in the Urban and Town Centers are intended to be pedestrian and bicycle friendly. With design travel speeds of 35 mph along Street “A” through the couplet, the roadways are designed to provide a comfortable walking environment. On-street parking will be provided on many of the internal streets to help reduce traffic speeds and buffer the pedestrian from traffic flow.

A pedestrian and bicyclist bridge will be constructed over SR-125 that will improve the pedestrian and bicycle linkages between Village 8 East and Village 9. The bridge is located approximately midway between Otay Valley Road and Main Street and will connect in Village 9 at the proposed community park located along the western boundary of the Village. This bridge is intended to reduce the reliance on passenger vehicle trips and encourage walking and bicycling between the two communities and throughout the ranch.

Village 9 is transit ready. In conformance with General Plan policy, public transportation is an integral part of Otay Ranch. The Village 9 plan provides for potential transit services with options available depending on what future transit service program is implemented. A public transit line and stops are integrated into the plan and are located within or in close proximity to the highest intensity neighborhoods and the future University campus uses.

The current regional transit plan includes transit lines on East "H" Street, East Palomar Street, La Media Road, and Eastlake Parkway. Transit stops are planned to be located approximately five to six miles apart with the Village 9 stop planned near the intersection of Campus Boulevard and Street B. In conformance with the General Plan, a future transit line also is planned on Main Street. The actual transit plan will be developed in conjunction with the San Diego Association of Governments (SANDAG). Specific access points as well as the internal circulation for bicycle riders and pedestrians and exact roadway configurations will be approved during the Tentative Tract Map (TM) process.

An additional means to reduce GHG emissions is the use of LSVs. LSVs are envisioned as alternative modes of travel within and between the Otay Ranch villages. In Village 9, LSVs may travel on all village streets with a maximum travel speed of 35 mph. Except for Main Street and Otay Valley Road, all village streets are planned for maximum travel speeds of 25 to 35 mph.

Vehicle trip generation is based on the project traffic study, which was prepared by RBF Consulting (2013). The projected Average Daily Trips (ADT) rate for the Village 9 is 34,067 trips. The projected ADT accounts for internal capture from mixed-use development and the reduction in vehicle trips compared to similar developments that do not provide access to transit. Potential bust stops are proposed in Village 9 in the Town Center and along Otay Valley Road. The projected ADT also takes into account the Transportation Demand Management (TDM) program included in the Village 9 SPA Plan. The TDM includes strategies to reduce vehicle trips and miles traveled and to design a multi-modal transportation system, and establishes a Transportation Management Association to provide transportation services in a particular area to reduce vehicle miles and implement other TDM strategies.

According to the Otay Ranch Village 9 Air Quality Technical Report dated May 2013 prepared by Atkins, the project trip generation rates account for the approximately 40 percent reduction in vehicle trips that would occur as a result of the mixed-use areas, transit use, and availability of pedestrian and bicycle facilities proposed as part of the SPA plan. In addition, future vehicular emissions may be lower than estimated due to increasingly stringent California fuel efficiency requirements. As determined by SANDAG as part of the GPA/GDPA EIR process, the average daily trip length for the Village 9 will be 5.08 miles (less than the regional average trip length of 5.8 miles).

The Village 9 SPA Plan incorporates several additional features into the site design that promote alternative transportation use, reduce traffic congestion, encourage energy efficiency, and reduce area source pollutants. These measures include the following:

1. Provide shower and locker facilities at offices with more than ten occupants to encourage bicycle use.
2. Design parking lots to promote use of mass transit and car pools.
3. Synchronize the traffic lights included as part of an individual development project with previously installed traffic lights in order to reduce traffic congestion.

4. Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
5. Enhance energy efficiency in building designs and landscaping plans.
6. Identify an environmental coordinator to be responsible for education and disseminating information on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.
7. Install only electric or natural gas fireplaces in new development. No wood burning fireplaces are permitted.
8. When siting sensitive land uses such as residences, schools, day care centers, playgrounds and medical facilities the recommendations set forth in Table 1-1 of California Air Resources Board's (CARB) Land Use and Air Quality Handbook (CARB 2004) will be use as a guideline. Specifically, new sensitive uses would not be located within 50 feet of any typical-sized gas station (one that has a throughput of less than 3.6 million gallons per year). No gas stations with a throughput of 3.6 million gallons per year or greater shall be developed within Village 9.

5. EFFECT OF PROJECT ON LOCAL/REGIONAL AIR QUALITY

This section includes a generalized discussion of Village 9's short-term and long-term effects on local and regional air quality including its contribution to global climate change.

Utilizing all the federal, state, and local strategies for reducing GHGs, Village 9 is projected to reduce GHG emissions a total of 34% from business-as-usual (BAU) through the incorporation of smart growth vehicle circulation patterns, lower-emitting vehicles, and the advanced energy efficiency and water conservation design requirements that reduce GHG emissions. The advanced energy efficiency and water conservation design requirements include both the California Title 24 requirements for energy as well as the CALGreen requirements which are then furthered through the City of Chula Vista's green building and energy requirements.

Construction Related Emissions

Air pollutant emission sources during project construction include exhaust and particulate emissions generated from construction equipment; fugitive dust from site preparation, grading, and excavation activities; and volatile compounds that evaporate during site paving and painting of structures. Village 9 is approximately 273 acres; however, only 263.5 acres of the site would be disturbed during construction. The remaining area consists of areas designated for open space. A total of 6.7 acres would be disturbed off-site for the construction of the sewer and storm drain corridor and access road (1.1 acres) and grading required due to topography, fuel modification, and drainage requirements (5.6 acres). The total disturbance area would be 270.2 acres.

The following construction-related mitigation measures will be implemented in Village 9:

GDP EIR-1

5.4-1 Short-term Air Quality Violations Reduction Measures.

The following techniques to reduce construction emissions shall be implemented during all construction activities:

1. Minimize simultaneous operation of multiple construction equipment units (i.e., phase construction to minimize impacts).
2. Use low pollutant-emitting construction equipment.
3. Use electrical construction equipment as practical.
4. Use catalytic reduction for gasoline-powered equipment.
5. Use injection-timing retard for diesel-powered equipment.
6. Water the construction area twice daily to minimize fugitive dust.
7. Stabilize (for example hydroseed) graded areas as quickly as possible to minimize fugitive dust.
8. Pave permanent roads as quickly as possible to minimize dust.

GPA/GDPA SEIR 5.11-1

5.4-2 **Dust Control Measures.**

Mitigation of PM_{10} impacts requires active dust control during construction. As a matter of standard practice, the City shall require the following standard construction measures be included on all grading plans to the satisfaction of the City Engineer, and shall be implemented during construction to the extent applicable:

1. All unpaved construction areas shall be sprinkled with water or other acceptable San Diego APCD dust control agents twice daily during dust-generating activities to reduce dust emissions. Additional watering or acceptable APCD dust control agents shall be applied during dry weather or on windy days until dust emissions are not visible.
2. Trucks hauling dirt and debris shall be properly covered to reduce windblown dust and spills.
3. A 20-mile-per-hour speed limit on unpaved surfaces shall be enforced.
4. On dry days, dirt and debris spilled onto paved surfaces shall be swept up immediately to reduce re-suspension of particulate matter caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather.
5. On-site stockpiles of excavated material shall be covered or watered.
6. Disturbed areas shall be hydroseeded, landscaped, or developed as quickly as possible and as directed by the City and/or APCD to reduce dust generation.
7. To the maximum extent feasible:
   i. Heavy-duty construction equipment with modified combustion/fuel injection systems for emissions control shall be utilized during grading and construction activities.
   ii. Catalytic reduction for gasoline-powered equipment shall be used.
8. Equip construction equipment with pre-chamber diesel engines (or equivalent) together with proper maintenance and operation to reduce emissions of NOx, to the extent available and feasible.

9. Electrical construction equipment shall be used to the extent feasible.
10. The simultaneous operations of multiple construction equipment units shall be minimized (i.e., phase construction to minimize impacts).

V9 Air-1 Construction Best Management Practices
During all construction activities for the proposed project, the project applicant shall ensure implementation of the following BMPs to reduce the emissions of NO_x and fugitive dust (PM10 to PM2.5). Prior to issuance of a grading permit, the City Engineer shall verify that these practices are specified on the grading plan.

1. All construction equipment shall use aqueous diesel fuel and be outfitted with best available control technology devices certified by CARB. A copy of each unit's best available control technology documentation shall be provided at the time of mobilization of each applicable unit of equipment.
2. Approach routes to the site shall be cleaned daily of construction-related dirt.
3. Apply chemical stabilizer or pave the last 100 feet of internal travel path within the construction site prior to public road entry.
4. Install wheel washers or rumble plates adjacent to a paved apron prior to any vehicle entry on public roads.
5. Remove any visible track-out into traveled public streets within 30 minutes of occurrence.
6. Wet wash the construction access point at the end of each workday if any vehicle travel on unpaved surfaces has occurred.
7. Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads.
8. General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues should turn their engines off when not in use to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and shall be discontinued during second stage smog alerts.
9. During construction, site grading activities within 500 feet of a school in operation 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 15 miles per hour in the direction of the school.

Project related construction emissions are shown in Figure 6. Project related emissions would be below the significant thresholds during underground utility construction, building construction, and coating activities. Grading activities would exceed the significant threshold for Nitrous Oxides (NO_x), Particulate Matter (PM_{10}, and $PM_{2.5}$), and surface improvements (paving) would exceed the NO_x thresholds, resulting in potentially significant impacts. Actual emissions may be less than calculated by the URBEMIS model (a software model designed to estimate air emissions from land use development projects) since this model does not take into account additional standards adopted by California Air Resources Board (CARB) after 2007 and assumed a worst-case scenario. Mitigation measures implemented during grading activities would reduce NO_x, PM_{10}, and $PM_{2.5}$ emissions but not to a less than significant level, resulting in significant and unavoidable impacts, as shown in Figure 6.

Figure 6: Mitigated Construction Maximum Daily Emissions by Activity (pounds/day) (Atkins May 2013)

Construction Activity	Pollutant Emissions (pounds/day)					
	CO	VOC	NOx	SO_X	PM_{10}	$PM_{2.5}$
Unmitigated Emissions						
Mass Grading[1]	162	41	**353**	0	**4,344**	**917**
Trenching[2]	16	5	41	0	2	1
Surface Improvements (paving)[3]	52	15	**121**	0	5	4
Building Construction and Coating Phases[4]	192	37	96	0	5	4
Combined Daily Total for all Construction Activities (unmitigated)	422	**98**	**611**	0	**4,356**	**926**
Mitigated Emissions[5]						
Mass Grading[1]	162	41	**300**	0	**2,453**	**515**
Trenching[2]	18	5	35	0	1	1
Surface Improvements (paving)[3]	52	15	**103**	0	1	1
Building Construction and Coating Phases[4]	192	37	87	0	5	4
Combined Daily Total for all Construction Activities (mitigated)	424	**98**	**525**	0	**2,460**	**521**
Significance Threshold	550	75	100	150	150	55
Significant Impact?	No	**Yes**	**Yes**	No	**Yes**	**Yes**

Bold = Exceeds significance threshold
CO = carbon monoxide; VOC = reactive organic gases; NO_x = nitrogen oxides;
SO_x = sulfur oxides; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Modeling assumptions: Emissions are based on assumptions for the Purple development phase. Worst-case construction activities for the Purple development phase were assumed to occur during 2013-2015. No blasting for construction would be required.

(1) Assumes a three-month period and a maximum land disturbance of 20 acres per day. A total of approximately 274.3 acres would be disturbed over four development phases. A total of 6.7 million cubic yards would be graded and replaced within the disturbance area, or 1.68 million cubic yards in each phase. All cut material would be used on site and no hauling of material off site would be required. Equipment list for grading includes an excavator, two graders, four heavy duty trucks, five dozers, 12 scrapers, and two water trucks.

(2) Assumes a two-month period. Equipment list includes two excavators, two dump trucks, a dozer, two backhoes, and a water truck.

(3) Assumes a two-month period. Paving and surface improvements would be required for approximately 12 percent of the SPA area (32 acres), or eight acres per phase. Assumes an additional 1.1 acres for off-site improvements. Equipment list includes a grader, a paver, a roller, and 27 dump trucks and concrete trucks.

(4) Assumes a two-year period and architectural coating activities would occur simultaneously with the building construction activities. Assumes building construction would require a total of 11 dump trucks and concrete trucks, an excavator, a backhoe, and a water truck. Calculations are based on the Purple phase, which includes development of 1,573 multi-family units, a town square, and 754,000 square feet of commercial land use. Assumes the model defaults low VOC coating emissions (250 grams of VOC per liter or less).

(5) Assumes use of diesel particulate filters and diesel oxidation catalysts for all equipment. Due to a calculation error in the URBEMIS 2007 model, the total reduction in PM_{10} and $PM_{2.5}$ emissions that would occur as result of watering exposed surfaces, applying chemical stabilizers, and replacing ground cover cannot be calculated because the URBEMIS 2007 model overestimates the reduction in emissions. SCAQMD recommends application of the single highest control measure. Watering twice daily was applied for the proposed project. Additionally, emission reductions estimates are not available for all of the BMPs. Emissions would likely be reduced compared to these estimates, but not to a less than significant level.

Source: URBEMIS 2007. See Appendix C1 for data sheets.

Operational Related Emissions

The major source of emissions related to the day-to-day operations of full build-out of the Village 8 are produced by project-generated vehicle trips, a shown in Figure 7. Secondary sources of emissions include burning natural gas for space and water heating, fireplaces, landscape maintenance equipment, consumer products, and periodic repainting of interior and exterior surfaces. These sources also emit significant volatile organic compounds (VOCs) There are no feasible mitigation measures available at the project level to reduce vehicular emissions other than reducing vehicle trips.

The Otay Ranch GDP Final Program EIR includes land use policies, siting/design policies, and transportation-related management actions to mitigate operational emissions (Ogden 1992). All applicable measures have already been incorporated into the SPA plan, such as provision of bike lanes, providing services near residences, and providing transit support facilities such as bus stops. There are no other feasible mitigation measures available at the project level to reduce vehicular emissions other than reducing vehicle trips.

The project trip generation rates account for the approximately 40 percent reduction in vehicle trips that would occur as a result of the mixed-use areas, transit use, and availability of pedestrian and bicycle facilities proposed as part of the SPA plan. In addition, future vehicular emissions may be lower than estimated due to increasingly stringent California fuel efficiency requirements. Some measures cannot be implemented at the SPA level, such as providing video-conference facilities in work places or requiring flexible work schedules. Additionally, there are no feasible mitigation measures currently available to reduce area sources of emissions without regulating the purchases of individual consumers. Operation emissions of VOCs, NO_x, and PM_{10} would be significant and unavoidable as shown in Figure 7.

Figure 7: Operational Emissions (Atkins May 2013)

Emissions Source	Pollutant Emissions (pounds/ day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Vehicular Sources [1]	**59**	43	537	2	**285**	**56**
Area Sources						
Natural Gas[2]	4	54	31	0	0	0
Hearth[3]	0	3	1	0	0	0
Landscape	3	0	23	0	0	0
Consumer Products	**205**	0	0	0	0	0
Architectural Coatings[4]	20	0	0	0	0	0
Total Emissions	**291**	**100**	**592**	**2**	**285**	**56**
Significance Thresholds	55	55	550	150	150	55
Significant Impact?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Bold = exceeds significance threshold
CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compounds; SO_x = sulfur oxides
PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Source: URBEMIS 2007. See Appendix A for data sheets.
Modeling assumptions: Calculations assume the full development of project at buildout (2030). Output is for summer emissions, with the exception of hearth emissions, where winter emissions were added to the daily emissions for a worst-case condition. Other assumptions include:

(1) Based on an ADT of 34,067 trips and an estimated vehicle trip length of 5.08 miles, which accounts for internal capture from mixed-use development, the reduction in vehicle trips compared to similar developments that do not provide access to transit, and the TDM program in the SPA Plan. A four percent vehicular emission reduction for VOC, NOx, CO, and PM_{10} emissions was applied for traffic light synchronization based on the SCAQMD CEQA Air Quality Handbook (1993).

(2) Assumes buildings comply with 15% above 2005 Title 24 standards.

(3) Assumes 15 percent of homes would have fireplaces, consistent with assumptions of the GPA/GDPA. No wood burning fireplaces would be allowed.

(4) Includes the use of model defaults for low VOC coatings emissions (250 grams of VOC per liter or less).

In conclusion, there are construction and operation air quality impacts anticipated during either the construction or operation phases of the project after all mitigation measures have been utilized. Village 9 will be consistent with the City's General Plan, as amended. However, the growth projections for the Regional Air Quality Strategy (RAQS) were based on the 2005 General Plan. Even though the proposed project would be consistent with all the applicable transportation and area source control measures proposed in the RAQS to reduce emissions in the region, the project exceeds the growth projections in the RAQS and would exceed the significant thresholds for ozone precursors and particulate matter during construction and operation for the San Diego Air Basin.

6. QUANTITATIVE PROJECT DESIGN EVALUATION

Criterion Planners Inc. has performed a quantitative analysis for Village 9 using the INDEX PlanBuilder (INDEX) model developed specifically for the City. INDEX is an interactive GIS-based planning tool designed to evaluate proposed community/site designs against a set of performance standards. Village 9 has been compared against a set of "key indicators" that measure the performance characteristics of the project in relation to required minimum baseline scores. The key indicators, minimum scores, and compliance status are listed below in Figure 8 Chula Vista CO_2 INDEX Model for Village 9.

Figure 8: Chula Vista CO_2 INDEX Model for Village 9 dated Sept 16, 2010 (from Criterion)

Element	Indicator	Definition	Threshold Score	Village 9 Score	Compliance Status (Y/N)
Land Use	Use Mix	Proportion of mixed or dissimilar developed land-uses among a grid of cells of user-defined size, expressed on a scale of 0-1. Includes vertical dissimilarity in mixed-use cells.	0.11	0.58	Yes
	Use Balance	Proportional balance of developed land-use, by land area, expressed on a scale of 0 (low) to 1 (high).	0.59	0.86	Yes
	Neighborhood Completeness	Percent of the following key uses present inside the SPA: 1)fire/police station, 2)library, 3)park, 4)school, and 5)general retail opportunities.	60	60	Yes
Housing	School Proximity to Housing	Average walk distance from all dwellings to closest designated school (measured in feet).	3,248	956	Yes
	Transit Proximity to Housing	Average walk distances from all dwellings to closest designated transit stop (measured in feet).	2,857	2,278	Yes
Employ-ment	Transit Proximity to Employment	Average walk distances from all businesses to closest designated transit stop (measured in feet).	2.550	2,602	No
Recre-ation	Park Proximity to Housing	Average walk distance from all dwellings to closest public or private park (measured in feet).	1,699	1,536	Yes
Travel	Internal Street Connectivity	Ratio of street intersections versus intersections and cul-de-sacs or dead-ending streets.	0.70	0.73	Yes
	Intersection Density	The number of street intersection per square mile including intersections between two or more local, collector, and/or arterial streets, and primary auto entrances to multi-family residential and non-residential parcels. Trails and cul-de-sac ends are not counted.	130	57	No
	Pedestrian Network Coverage	Percent of total street frontage with improved sidewalks on both sides.	81.1	100	Yes
	Residential Multi-Modal Access	Percent of dwellings within 1/8 mile of three or more travel modes (bike, car, transit, or walk).	39.7	75.9	Yes
	Daily Auto Driving (3Ds Methodology	Average daily vehicle miles traveled per capita. Threshold value is used as the baseline score; proposed SPA plan value calculated from 3D Methodology indicator elasticities.	25.0	24.00	Yes
Climate Change	Residential Building Energy Use	Annual MMBtu per capita from residential structural energy use. Units in MMBtu/year/capita.	29.0	18.4	Yes
	Non-residential Building Energy Use	Annual MMBtu per employee for retail, office, and general commercial building operations energy use. Units in MMBtu/year/employee.	19.3	15.2	Yes
	Residential Building CO_2	CO_2 pollution emitted from residential buildings, including operations and embodied CO_2. Units in lbs/capita/year.	4,778	3,008	Yes
	Non-residential Building CO	CO_2 pollution emitted from retail, office, and general commercial buildings, including operations and embodies CO_2. Units in lbs/capita/year.	3,139	2,480	Yes

Compliance with Modeling Thresholds
Village 9 is consistent with the City's adopted strategies for improving air quality and energy conservation, since its performance threshold scores for each key indicator shown on Figure 8 except for two areas: Transit proximity to employment and intersection density. These exceptions can be justified because of the unique circumstances described below.

Transit proximity is the measurement of the average walk distances from all businesses to the closest designated transit stop. The Chula Vista INDEX model included only Village 9 data and demonstrates the average walk distance from all businesses to the closest designated transit stop. Village 9 exceeds the threshold by only 52 feet. According to the Chula Vista General Plan, proposed transit stops are located approximately 0.5-1 mile apart, with one stop located in Village 9 and one stop located in the EUC to the north. Refer to Figure 9: General Plan Proposed Transit Routes and Stops. The businesses located in the northern area of Village 9, especially those businesses north of Main Street, are much closer to the transit stop located in the EUC. If the EUC transit stop was included in the INDEX model, the walk distance between businesses and transit stops would be more lower. In addition, four additional potential transit stops have been included in the SPA plan. Refer to Figure 10: SPA Transit Plan. If these factors were included in the INDEX modeling, Village 9 most likely would exceed the thresholds.

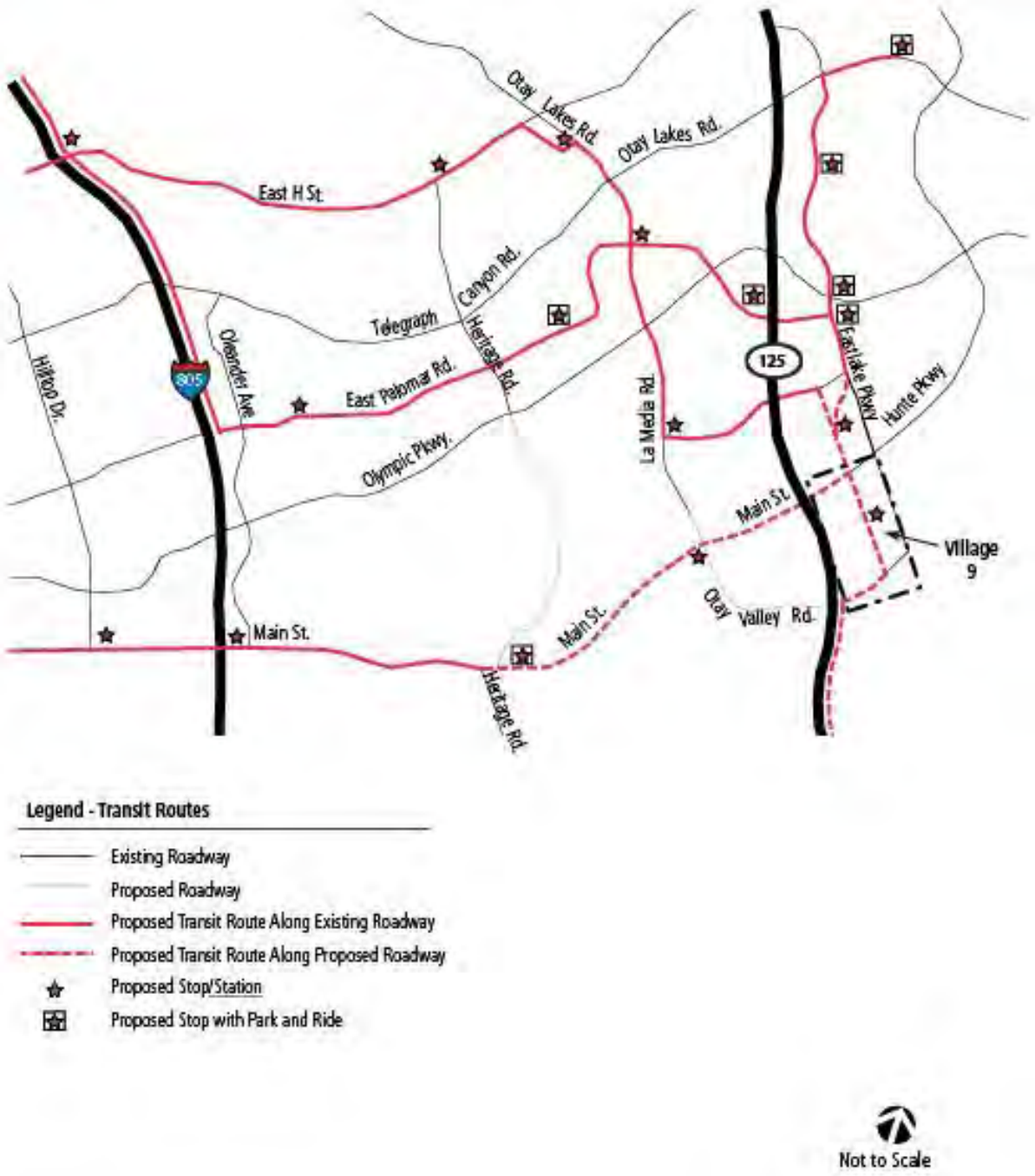

Figure 9: Chula Vista General Plan Proposed Transit Routes and Transit Stops

Figure 10: SPA Transit Plan

Intersection density measures the number of street intersection per square mile including intersections between two or more local, collector, and/or arterial streets, and primary auto entrances to multi-family residential and non-residential parcels. The INDEX model did not include intersections right at the boundary of the Village or just outside the boundary (indicated with a red square below). Due to the location of existing and planned intersections and physical barriers such as SR-125 and the MSCP, the number of potential intersections is limited. When all the primary auto entrances to multi-family residential and non-residential parcels are included, the intersection density exceeds 144 intersections per square mile. Refer to Figure 11: Intersection Density.

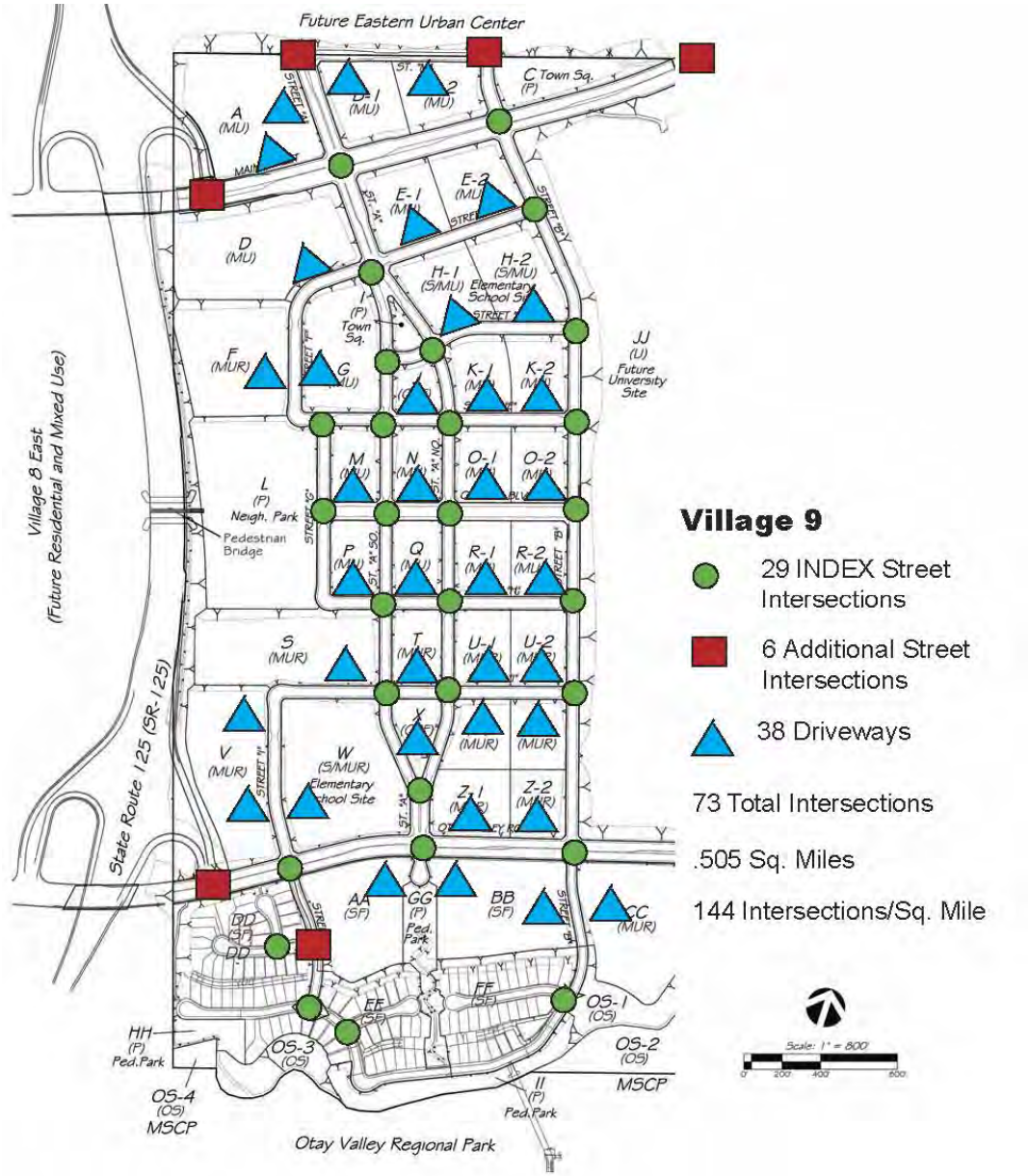

Figure 11: Intersection Density

7 COMMUNITY DESIGN AND SITE PLANNING FEATURES

This section describes the specific strategies that have been integrated in the project to create a sustainable community, including those project attributes designed to reduce air quality impacts by promoting walking and alternative travel modes, reducing vehicle miles traveled, and improving energy conservation.

Figure 12: Village 9 Community Design and Site Plan Features includes the list of specific measures that have been included in the Village 9 plan.

Figure 12: Village 9 Community Design and Site Plan Features

	Transportation Related Measures
1	An integrated circulation system provides residents of the Urban Center (UC), Town Center (TC) and the adjacent neighborhoods non-automobile related circulation options that include walking, bicycling, LSV, and transit.
2	The mix of proposed residential, commercial, and community uses provide a complementary, mixed-use environment with a focus on promoting a walkable and bikeable community that promotes pedestrian activity.
3	Higher density uses will be provided along the Town Center couplet. The couplet provides improved safety for bicycle and pedestrian crossings, increased roadway capacity, less turn restrictions, reduced disruptions to traffic flow from curb parking/loading needs which leads to reduced GHG emissions from vehicles.
4	Direct pedestrian links extend from surrounding neighborhoods directly to the UC and TC.
5	Class II bicycle facilities are planned along all Transportation Element roadways.
6	Except for Main Street, Otay Valley Road, and B Street, all roadways internal to the Village are designed to local street standards with speed limits of 25 to 35 mph. Slow traffic speeds are conducive to walking and bicycling and provide the necessary linkage to the regional bicycle circulation network.
7	Land uses designated in the Town Center (adjacent to the couplet) are intended to be pedestrian and bicycle friendly. All roadways internal in the Town Center are designed to local street standards with speed limits of 25 to 35 mph.
8	The Urban and Town Centers provide the opportunity for employee services to be located within walking distance of employer-based businesses.
9	Live/work and shopkeeping opportunities are provided in the Town Center and the Urban Center
10	LSVs may travel on all village streets with a maximum travel speed of 35 miles per hour.
11	The current regional transit plan includes transit lines on East “H” Street, East Palomar Street, La Media Road, and Eastlake Parkway. Transit stops are planned to be located approximately five to six miles apart with the Village 9 station located near the intersection of Campus Boulevard and Street B.
12	A future transit line is planned on Main St. and there are potential transit stops at Street A and Main St.
13	The actual transit plan will be developed in conjunction with the San Diego Association of Governments (SANDAG). Specific access points as well as the internal circulation for bicycle riders and pedestrians and exact roadway configurations will be identified at that time.
14	Provide shower and locker facilities at offices with more than ten occupants to encourage bicycle use.
15	Design parking lots to promote use of mass transit and car pools.
16	Synchronize the traffic lights included as part of an individual development project with previously installed traffic lights in order to reduce traffic congestion.
17	Identify an environmental coordinator to be responsible for education and disseminating information

	on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.
	Energy Conservation Related Measures
1	Approximately 90% of the residential dwelling units will be small single family and multi-family residences that use less energy for heating and cooling when compared to larger single-family detached homes.
2	The Village 9 is oriented primarily on a north/south and east/west axis to take advantage of solar orientation. It has been demonstrated that passive solar design including the orientation of buildings can take advantage of the suns warmth in winter to assist with heating as well as minimize heat gain in summer months to assist with cooling.
3	California Green Building Code Title 24, Part 11 (CALGreen) requires that a minimum of 50% all new construction waste generated at the site be diverted to recycle or salvage. Additionally, the State has set per capita disposal rates of 5.3 pounds per person per day for the City of Chula Vista. Reducing waste could reduce the amount of vehicle trips transporting materials to and from the site.
4	CVMC 8.25.095 requires all new construction and demolition projects to divert 90% of inert waste (asphalt, concrete, bricks, tile, trees, stumps, rocks and associated vegetation and soils resulting from land clearing from landfill disposal); and 50% of all remaining waste generated. Contractors will be required to put up a performance deposit and prepare a Waste Management Report form to ensure that all materials are responsibly handled. Upon verification that the diversion goals have been met the performance deposit will be refunded.
5	Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
6	Enhance energy efficiency in building designs and landscaping plans.
	Other Measures to Improve Air Quality
1	Install only electric or natural gas fireplaces in new development. No wood burning fireplaces are permitted.
2	When siting sensitive land uses such as residences, schools, day care centers, playgrounds and medical facilities the recommendations set forth in Table 1-1 of California Air Resources Board's (CARB) Land Use and Air Quality Handbook (CARB 2004) will be use as a guideline. Specifically, new sensitive uses would not be located within 50 feet of any typical-sized gas station (one that has a throughput of less than 3.6 million gallons per year). No gas stations with a throughput of 3.6 million gallons per year or greater shall be developed within Village 9.

8. CHULA VISTA CO_2 REDUCTION PLAN

This section provides a comparative evaluation between the community /site design features and the energy efficiency emission reduction action measures contained in the City's Carbon Dioxide ($CO_{2)}$ Reduction Plan Appendix C.

The City of Chula Vista original CO_2 Reduction Plan adopted in November 2000 was intended to reduce greenhouse gas emissions by 20% below 1990 levels. The CO_2 Reduction Plan outlined steps for Chula Vista to reduce energy consumption, promote alternative transportation and design transit-friendly, walkable communities. The City staff conducted a GHG emissions inventory for 2005 to evaluate the City's progress in reaching its emissions goals. The 2005 inventory indicated that Chula Vista's annual citywide GHG levels had increased by 35% since 1990 due primarily to residential growth. During the same period, the City did make significant progress in reducing annual per capita emissions by 17% and avoiding nearly 200,00 tons of

GHG emissions annually. In addition, GHG emissions from municipal sources decreased by 18% mainly due to traffic signal energy-efficiency improvements. As a result of the 2005 Greenhouse Gas Emissions Inventory Report, in 2008, the City Council directed the re-evaluated of the program and convened a Climate Change Working Group (CCWG) to develop recommendations to reduce the community's greenhouse gas emissions or "carbon footprint" in order to meet the City's 2010 greenhouse gas emissions reduction targets. The CCWG (comprised of residential, business and community-group representatives) selected seven measures which the City Council adopted on July 10, 2008. These implementation measures include the following:

1. Clean Vehicle Replacement Policy for City Fleet
When City fleet vehicles are retired, they are replaced through the purchase or lease of alternative fuel or hybrid substitutes. In addition, the City fleet has begun installing new fuel tanks to allow heavy-duty vehicles to convert to biodiesel fuel immediately.

2. Clean Vehicle Replacement Policy for City-Contracted Fleets
As contracts for City-contracted fleet services (such as transit buses, trash haulers, and street sweeper trucks) are renewed, the City encourages contractors to replace their vehicles with alternative fuel or hybrid substitutes through the contract bid process.

3. Business Energy Assessments
Although not mandatory, businesses are encouraged to participate in a no cost energy assessment of their facilities to help identify opportunities for them to reduce monthly energy costs. The business assessment will be integrated into the existing business licensing process and codified through a new municipal ordinance.

4. Green Building Standard
This strategy stated that Chula Vista would implement a citywide, mandatory green building standard for new construction and major renovations. The new standard would have 3 main components: (1) a minimum energy efficiency (carbon equivalent) requirement of 15% above Title 24 - 2005, (2) the early adoption of the new California Green Building Codes for all residential and commercial projects and (3) a Carbon Offset Fee available for projects not meeting the 15% above Title 24 threshold. As identified in the following paragraphs, in November 2009, the City adopted a Green Building Standards ordinance (and in January 2010, an Increase Energy Efficiency Standards ordinance). Together these two ordinances implement the City's Green Building strategy identified in 2009.

5. Solar & Energy Efficiency Conversion Program
In accordance with this strategy, the City has created a community program to provide residents and businesses a streamlined, cost-effective opportunity to implement energy efficiency improvements and to install solar/renewable energy systems on their properties. To help stimulate the private-sector renewable market and lower the cost for installing renewable energy systems on new homes, the City will require all new residential buildings to include pre-wiring and pre-plumbing for solar photovoltaic and solar hot water systems, respectively.

6. Smart Growth Around Trolley Stations
The City has continued to implement "Smart Growth" design principles, which promote mixed-use and walkable and transit-friendly development, particularly in and around the E, H, and Palomar trolley stations. These principles were emphasized in the revised Chula Vista General Plan and the Urban Core Specific Plan. In addition, the City has initiated site planning, design studies and Specific Area Plan development to further support "Smart Growth" development that complements greenhouse gas reductions.

7. Turf Lawn Conversion Program
The City has created a community program to provide residents and businesses a streamlined, cost-effective opportunity to replace their turf lawns with water-saving landscaping and irrigation systems. Some municipal turf lawn areas (such as medians, fire stations and non-recreational park areas) have been and will continue to be converted to act as public demonstration sites and to reduce monthly water costs. The City has also established the model for water-wise landscaping for new development through an update of its Municipal Landscape Ordinance and Water Conservation Plan Guidelines.

Below is the summary as requested in the AQIP guidelines (October 2009).

Figure 13: Summary of Village 9 Consistency with CO_2 Reduction Action Measures

Action Measure	Project/Community Design Features	Describe how project design will Implement CO_2 Reduction Action Measures
Measure 6 (Enhanced Pedestrian Connections to Transit): Installation of walkways and crossings between bus stops and surrounding land uses.	The SPA provides a detailed Circulation Network (*Section 5.5.2*) that links with the potential transit stops. In addition *Section 5.8* provides traffic calming measures that promote pedestrian safety near the potential transit stops.	Reduces vehicle-miles traveled that in turn reduces the GHG emissions.
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.	The site utilization summary identifies densities of 18-45 du/ac adjacent to the potential transit stops.	Reduces vehicle-miles traveled that in turn reduces the GHG emissions.
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.	*Section 4.3.2 Urban Center Design Fundamentals and Section 4.4.2 Town Center Design Fundamentals* list the characteristics for mixed-use design: the primary emphasis of the public street elevation should be building entries and common areas while parking is to be located to the side and rear of buildings.	Promotes bicycling that can reduce vehicle-miles traveled that in turn reduces the GHG emissions.
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.	The Urban Center (UC) and Town Center (TC) zones permit a mix of residential, offices, and retail uses that allows shared parking facilities.	Reduces vehicle-miles traveled that in turn reduces the GHG emissions.

Measure 10 (Reduced Commercial Parking Requirements): Lower parking space requirements; allowance for shared lots and shared parking; allowance for on-street spaces.	Section 3.4.10 of the SPA provides for a process to create a City-approved parking agreement or district in the Urban or Town Centers. Also on-street parking is permitted on all streets except Main Street, Otay Valley Road, and Street B.	Promotes alternatives to vehicle use thereby reducing vehicle-miles traveled that in turn reduces the GHG emissions.
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.	*Section 4.3.2 Urban Center Design Fundamentals and Section 4.4.2 Town Center Design Fundamentals* list the characteristics for mixed-use design: building and site design anticipates and accommodates pedestrian and vehicle circulation to reduce traffic impacts on neighboring streets allowing joint optimization by pedestrians and vehicles. Buildings are oriented toward sidewalks. Bike parking is required for all uses. Street furniture is required to enhance the pedestrian environment.	Promotes bicycling and walking thereby reducing vehicle-miles traveled that in turn reduces the GHG emissions.
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.	The SPA requires 1 secure space for 3 units + 10% of the vehicle parking required for each commercial use. CALGreen requires nonresidential buildings anticipated to generate visitor traffic to provide short-term bicycle racks within 200 feet of the visitors' entrance. For buildings with over 10 tenant-occupants changing/shower facilities shall be provided per CALGreen.	Promotes bicycling that can reduce vehicle-miles traveled that in turn reduces the GHG emissions.
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.	The SPA implements the City's bicycle master plan. The Village Pathway has been extended through the SPA with connections to Village 8 East and the Regional Technology Park and University. This 10-foot wide, paved trail runs parallel to the public roadway. Class II bikes lanes have also been provided. Some park pathways may be designed to accommodate bicycles subject to the City approval.	Promotes bicycling that can reduce vehicle-miles traveled that in turn reduces the GHG emissions.
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 CO_2.	Residential public streets will include an eight-foot parkway that includes shade trees as provided in *Section 5.6.13 Residential Streets.*	Reduces energy consumption that reduces GHG emissions.
Measure 15 (Solar Pool Heating): Mandatory building code requirements for solar heating of new pools or optional motorized insulated pool cover.	▪ Compliance with CVMC 20.04.040 that requires solar water heater preplumbing in all new residential units. ▪ Compliance with CVMC 20.04.040 that requires solar photovoltaic prewiring in all new residential units.	Reduces energy consumption that reduces GHG emissions.
Measure 16 (Traffic Signal & System Upgrades): Provide high-efficiency LED lamps or similar as approved by the City Engineer.	Chula Vista Public Works Department is testing the use of induction/LED lighting for public streets in a pilot program. If it is determined that one of these lighting systems is feasible on a citywide basis, the applicable lighting system will be used in Village 9.	Reduces energy consumption that reduces GHG emissions.
Measure 18 (Energy Efficient Building Recognition	▪ Compliance with the updated 2008 Title	Reduces energy consumption

Program): Reducing CO_2 emissions by applying building standards that exceed current Title 24 Energy Code requirements.	24, part 6 energy standards. ▪ Compliance with CVMC Chapter 15.12 and Section 15.26.030 that requires energy efficiency standard of 15% above 2008 Title 24 Part 6 energy levels. ▪ Installation of the following water saving devices: • Hot Water Pipe Insulation • Pressure Reducing Valves • Water Efficient Dishwashers (residential only) • Dual Flush Toilets • Water Efficient Landscape ▪ Installation of a recycled water system where feasible. ▪ Installation of energy efficient appliances such Energy Star dishwashers and Energy Star ceiling fans in each home. ▪ For nonresidential uses, installation an Energy Star refrigerators in grocery stores. ▪ Compliance with CVMC 8.25.050 that requires all generators of recyclables to separate them from refuse. ▪ Compliance with the Recycling and Solid Waste Planning Manual to provide for adequate space allocated to recycling and solid waste within individual projects. ▪ Compliance with CVMC 8.25.095 that all new construction and demolition projects divert from landfill disposal 90% of inert waste and 50% of all remaining waste generated.	that reduces GHG emissions.
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.	The Urban and Town Centers allow for a mix of land uses that include employment-generating land uses near the potential transit stops.	Reduces vehicle-miles traveled that in turn reduces the GHG emissions

9. CREDIT TOWARDS INCREASED MINIMUM ENERGY EFFICIENCY STANDARDS

Note: Detailed provisions related to the calculation and application of credits are currently under development and subject to subsequent review and approval of City Council.
CVMC 15.26.030E provides the following:

> E. Compliance Credit Option for Buildings within Sectional Planning Area (SPA) Plan Projects. For building construction within sectional planning area (SPA) plan project areas whose SPA is approved subsequent to the effective date of the ordinance codified in this section, the developer may meet a portion of the requirements set forth under subsection (C) of this section [15% over Title 24], provided the SPA plan has met the qualifying energy savings thresholds for community design and site planning features pursuant to the requirements as set forth in the SPA's approved air quality improvement plan (AQIP). If the approved AQIP has met the qualifying thresholds, the applicant may request and receive an energy savings credit towards a portion of the requirements specified in subsection (C) of this section subject to approval by the Director of Development Services, provided the project fully complies with the 2008 Building Energy Efficiency Standards (Title 24, Part 6) which are in effect at the time of permitting, and conforms to applicable guidelines in effect at the time of the request for credit.

10. Compliance Monitoring

This section includes a written description and a checklist (Figure 14) summarizing the project design features and mitigation measures that have been identified to reduce Village 9's effects on air quality and improve energy efficiency.

Figure 14: Village 9 Air Quality Improvement Plan Compliance Checklist

	Method of Verification[1]	Timing of Verification	Responsible Party[2]	Project Consistency & Compliance Documentation[3]
PLANNING				
AQIP Project Design Features/Principles (See Figure 12 for an expanded list)				
Integrated circulation system in the Urban and Town Centers (including the Village Pathway)	Plan Review	Precise Plan	City of Chula Vista	
Mix of uses in the Urban and Town Centers	Plan Review	Precise Plan	City of Chula Vista	
Higher density in the Urban and Town Centers	Plan Review	Precise Plan	City of Chula Vista	
Class II Bicycle facilities	Plan Check	Tentative Tract Final Map, Improvement Plans	City of Chula Vista	
Opportunity for employee services to be located near employers	Plan Review	Precise Plan	City of Chula Vista	

Village circulation pattern w/less than 35mph	Plan Review	Tentative Tract Final Map, Improvement Plans	City of Chula Vista	
Transit Plan	Transit Review	Per SANDAG	SANDAG/City	
Air Quality Mitigation Measures				
Construction related emissions	Permit Review	Grading Permit	City of Chula Vista	
Siting of sensitive land uses	Permit Review	Building Permit	City of Chula Vista	
BUILDING				
Green Building Standards				
New Construction Recycling Plan	Waste Management Report Review	Construction or demolition permit	City of Chula Vista	
Space of recycling in projects	Plan Check	Tentative Tract OR Building Permit	City of Chula Vista	
Energy Efficiency Standards				
Size of dwellings units	Plan Check	Building Permit	City of Chula Vista	
Orientation of Urban and Town Centers	Plan Check	Tentative Tract Final Map, Improvement Plans	City of Chula Vista	
Building comply with 15% above 2008 Title 24 Part 6 energy levels.	Plan Check	Building Permit/ Title 24 Energy Report	City of Chula Vista	
Installation of energy efficient appliances	Plan Check	Building Permit	City of Chula Vista	
Indoor water fixture requirements: ▪ Hot Water Pipe Insulation ▪ Water Efficient Dishwashers (residential only) ▪ Dual Flush Toilets	Plan Check	Plumbing Permit	City of Chula Vista	
Installation of Pressure Reducing Valves	Plan Check	Plumbing Permit	Otay Water District	
Landscape Water Conservation	Plan Check	Landscape Plan	City of Chula Vista	
Installation of Recycled Water for street parkway landscape, parks, manufactured slopes and landscape common areas of commercial and multi-family residential sites.	Plan Check	Tentative Tract Final Map, Improvement Plans	Otay Water District/ 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.

Appendix C

Nonrenewable Energy Conservation Plan

NON-RENEWABLE ENERGY CONSERVATION PLAN

Otay Land Company Village 9

June 3, 2014

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I. INTRODUCTION

The Otay Ranch General Development Plan (GDP) requires the preparation of a Non-Renewable Energy Conservation Plan that identifies feasible methods to reduce the consumption of non-renewable energy resources. Categories identified in this Plan where reductions may occur include, but are not limited to, Transportation, Building Design & Use, Lighting, Recycling, and Land Use.

The Chula Vista region's current reliance on fossil fuels provides the majority of non-renewable energy consumption. Fossil fuels are directly consumed in the form of gasoline, diesel fuel and natural gas, and indirectly as electricity generated from these fuels. The goals, objectives and policies of the GDP require that any new project identify a plan that assists in a long-range strategy that will increase the conservation of and decrease the consumption of non-renewable energy resources.

II. NON-RENEWABLE ENERGY CONSERVATION PLAN

Opportunities for energy conservation in Village 9 are characterized by the following:

A. Transportation

Transportation design features that encourage energy conservation in Village 9 include:

- **Reduced Vehicle-trip Miles**
  On the regional level, Village 9 is designed to accommodate Bus Rapid Transit as well as Rapid Bus Service. Within Otay Ranch, Village 9 also will be served by a local circulator service. In addition, the project will provide sidewalks and bike lanes on all Transportation Element roadways and a Village Pathway on Campus Boulevard that connect the University and transit stops to the Neighborhood Park and the future SR-125 Pedestrian/Bicycle Bridge. By design, higher density uses will be provided in the UC and TC Zones. This intensified land use is intended to help reduce the dependence on the passenger vehicle and encourage the use of transit, walking and biking.

- Additional measures to promoted alternative transportation use or reduce traffic congestions include: Provision of shower and locker facilities at offices with more than ten occupants to encourage bicycle use; Parking lot design to promote use of mass transit and car pools; Synchronization of the traffic lights as part of an

individual development project with previously installed traffic lights in order to reduce traffic congestion; identification of an environmental coordinator to be responsible for education and disseminating information on ridesharing and/or mass transit opportunities, recycling, energy conservation programs, etc.

Trip reductions were based on the internal trip capture methodology outlined in the ITE Trip Generation Handbook. Using this methodology, traffic reductions ranging from, 27% to 50% were applied. As determined by San Diego Association of Governments (SANDAG), the average daily trip length for the Village 9 is 5.08 miles. This is less than the regional average trip length of 5.8 miles.

- **Alternative Travel Modes**
  Low speed vehicles (LSVs) are envisioned as an alternative mode of travel within and between the Otay Ranch villages. In Village 9, LSVs may travel on all village streets with a maximum travel speed of 35 miles per hour. This will include all village streets except for Main Street and Otay Valley Road.

- **Increase Use of Transit**
  Village 9 concentrates its highest density housing, retail / commercial uses as well as school and park uses in or adjacent to the UC and TC Zones. The resulting land use plan features an integrated circulation system that provides residents of these zones and adjacent neighborhoods non-automobile related circulation options that include walking, bicycling and transit. The current regional transit plan includes transit lines on East "H" Street, East Palomar Street, La Media Road, and Eastlake Parkway. Transit stations are planned to be located approximately five to six miles apart Within Village 9, planned transit routes include Street B and Otay Valley Road with a transit station located at the intersection of Street B and Campus Boulevard. In conformance with the General Plan, a potential transit route is also provided on Main Street with potential stops located at the intersection of Street B. Potential stops are also identified at the intersection Otay Valley Road and Street A. The actual transit plan will be developed in conjunction with the SANDAG. Public transit lines and stops are integrated into the plan and are located within or in close proximity to the higher intensity neighborhoods.

- **Roadway Pavement Widths and Street Trees**
  It has been demonstrated that narrow street widths and the resulting reduction in pavement area reduces the heat island effect and thus the demand for air conditioning. A strong street tree program also provides shade that enhances the reduction of heat from roadways. Both of these design concepts would be implemented by the Village 9 plan.

B. Building Design & Use

Building design & use features that encourage energy conservation in Village 9 include:

- **Housing Efficiency**
  Projections for Village 9 indicate that approximately ninety percent (90%) of the residential dwelling units will be small single family and multi-family residences. It has been demonstrated that these smaller detached and attached building designs use less energy for heating and cooling when compared to larger single-family detached homes.

- **Solar Orientation**
  It has been demonstrated that passive solar design, including the orientation of buildings, can take advantage of the sun's warmth in winter to assist with heating as well as minimize heat gain in summer months to assist with cooling. The Village 9 UC, TC and UN Zones are oriented primarily on a north – south and east – west axis to take advantage of solar orientation.

- **Use of Better-insulated Buildings Efficiency**
  Title 24, Part 6 of the California Building Standards Code regulates energy uses including space heating and cooling, hot water heating, and ventilation. The energy code allows new buildings to meet a "performance" standard that allows a builder to choose the most cost effective energy saving measures to meet the standard. These choices include:

  - Added insulation,
  - Radiant barriers,
  - Cool roofs,
  - Improved HVAC systems,
  - Alternative heating and cooling systems,
  - More efficient water heating systems, and
  - More efficient light systems.

The energy code was updated in 2008 to continue to reduce the amount of energy needed for new buildings. This update reduced the electricity needed to operate central air conditioning for residential uses between 19.7% and 22.7% and the natural gas needed for gas water heaters between 7% and 10%. For non-residential buildings, the most recent update reduced the electricity needed to operate heating equipment 37.2%, cooling equipment 8.3%, and interior lighting 5.9%. The non-residential natural gas need for heating was reduced 15.9%.[1]

The City of Chula Vista has adopted Green Building Standards (CVMC Chapter 15.12) and an Energy Efficiency Ordinance (CVMC Section 15.26.030) that requires an increased energy efficiency standard of 15% beyond 2008 Title 24 Part 6 Energy Code levels. For residential uses, this requirement represents a .75-1.35% reduction in electricity use and an 11.85%-12.45% reduction in natural gas usage. For commercial uses this represents a 4.35% reduction in electricity use and a 9.9% reduction in natural gas usage.[2]

- **Water Conservation**
  Water-related energy use consumes 19 percent of California's electricity, 30 percent of its natural gas, and 88 billion gallons of diesel fuel every year. The water-related energy use includes water and wastewater treatment as well as the energy needed to transport the water from its source (either northern California or the Colorado River).

  All residential units will be required to have:
  - Hot Water Pipe Insulation
  - Pressure Reducing Valves
  - Water Efficient Dishwashers
  - Dual Flush Toilets
  - Water Efficient Landscape

[1] *Quantifying Greenhouse Gas Mitigation Measures*; California Air Pollution Control Officers Association (CAPCOA), August 2010, Tables D-1 and D-2
[2] *Quantifying Greenhouse Gas Mitigation Measures*; California Air Pollution Control Officers Association (CAPCOA), August 2010, Tables BE-1.1 and BE-1.2

All non-residential units will be required to have:

- Hot Water Pipe Insulation
- Pressure Reducing Valves
- Dual Flush Toilets
- Water Efficient Landscape

- **Use of Energy Efficient Appliances**
  For residential uses, energy efficient appliances can reduce electricity use an additional .12-.14% if Energy Star dishwashers are installed and .66-1.21% if one Energy Star ceiling fan is installed in each home. For nonresidential uses, an Energy Star refrigerator in grocery stores can reduce electricity usage by 21%.

- **Improved Construction Standards**
  Residential and commercial construction within Village 9 is required to adhere to the Increased Energy Efficiency Standards of the City of Chula Vista Municipal Code Section 15.26.030 as well as the Building and Energy Efficiency Standards in Title 24 Part 6 of the California Code of Building Regulations. In addition, the developer of Village 9 has participated in the Chula Vista Research Project conducted by the Gas Technology Institute. Many of the appropriate measures from that study will become part of the choices that builders make to meet the Chula Vista and Title 24 Part 6 requirements.

- **Use of Solar Energy Systems**
  Chula Vista Municipal Code Section 20.04.040 requires all new residential units to include plumbing specifically designed to allow later installation of a system that utilizes solar energy as the primary means of heating domestic potable water.

  New buildings will be designed to be photovoltaic (PV) ready. This includes providing space on the roof surface for the PV system and electrical conduit from the electrical service equipment to the future PV system. Planting of trees on southern exposures to buildings will be carefully monitored to ensure that solar energy systems will not be impacted.

C. Lighting

Lighting features that encourage energy conservation in Village 9 include:

- **Energy Efficient Public Lighting**
  Standards for Village 9 encourage the use of energy efficient lighting for all streetlights as well as park and other public space illumination.

  The City of Chula Vista Public Works Department is implementing a pilot program testing the use of induction/l.e.d lighting for public streets that use 1/3 the electricity without reducing lighting levels and impacting public safety. If it is determined that one of these lighting systems is feasible on a citywide basis, the applicable lighting system will be used in Village 9.

- **Energy Efficient Public Lighting**
  Builders also are encouraged to use energy efficient lighting in all residential and commercial development.

D. Recycling

Recycling programs in Village 9 include:

- **Residential and Commercial Recycling**
  Chula Vista Municipal Code Sections 8.23-25 requires all commercial and industrial establishments that recycle with a third party recycler to submit recycling tonnage documentation on an annual basis to the City's conservation coordinator, due on or before January 31st, for the previous year. This requirement promotes recycling of materials. Those establishments recycling with a franchised hauler do not need to report because the hauler does the reporting to the City.

  The City of Chula Vista's Recycling and Solid Waste Planning Manual, adopted by City Council, provides information for adequate space allocated to recycling and solid waste within individual projects, based upon the type of project and collection service needed.

  Additionally, the City of Chula Vista encourages the use of compost materials to be incorporated into the soil of all new construction projects to improve soil health, water retention, less water run off, and filtration of water run-off prior to entering storm drains and creeks on the way to San Diego Bay. The yard trimmings collected

in Chula Vista are composted at the Otay Landfill and may be available for purchase.

- **New Construction Waste Reduction**
  California Green Building Code Title 24, Part 11 (CALGreen) requires that a minimum of 50% all new construction waste generated at the site be diverted to recycle or salvage. Additionally, the State has set per capita disposal rates of 5.3 pounds per person per day for the City of Chula Vista. To maintain these targets the following programs must be implemented per Chula Vista Municipal Code Sections 8.23 Solid Waste and Recycling Contract or Franchise; 8.24 Solid Waste and Litter; 8.25 Recycling and 19.58.340 Trash Enclosures:

    All new construction and demolition projects in the City are required to divert from landfill disposal 90% of inert waste to include asphalt, concrete, bricks, tile, trees, stumps, rocks and associated vegetation and soils resulting from land clearing; and 50% of all remaining waste generated. Contractors will be required to put up a performance deposit and prepare a Waste Management Report form to ensure that all materials are responsibly handled. Upon verification that the diversion goals have been met, the performance deposit will be refunded (CVMC 8.25.095).

E. Land Use

Land use patterns and project features that conserve non-renewable energy resources and reduce the reliance on the automobile within Village 9 include:

- **Reduce the Reliance on the Automobile**
  The vision for Village 9 is to develop a cohesive community with inter-connected uses and densities. The mix of proposed residential, commercial and community uses are intended to provide a complementary, mixed-use environment with a focus on promoting a walkable and bikeable community. Direct pedestrian links extend from the surrounding neighborhoods directly to the town center. Class II bicycle facilities are planned along all Transportation Element roadways. The Village pathway provides pedestrian and bike connections from the town center to the University, transit stops at Campus Blvd. and Street B, the Neighborhood Park, and the Pedestrian/Bike Bridge that links to Village 8 East. Roadways internal to the Village are designed to standards with speed limits of 25 to 35 mph. Slow traffic speeds are conducive to bicycling and provide the necessary linkage to the regional bicycle circulation network. Sidewalks will be provided

throughout Village 9. In addition, the land uses designated for the UC and TC Zones are specifically intended to be pedestrian and bicycle friendly. Except for Main Street and Otay Valley Road, all streets are planned for travel speeds of 25 to 35 mph and are designed to provide a comfortable walking environment. The UC and TC Zones also provide the opportunity for employee services to be located within walking distance of employer-based businesses.

- **Regional Mass Transit Facilities**

  Otay Ranch and Village 9 are designed and ready to accommodate public transportation and alternative travel modes to reduce energy consumption. Village 9 is public transportation ready. In conformance with General Plan policy, public transportation is an integral part of Otay Ranch. The Village 9 plan has responded by providing for potential transit services with options available depending on what future program is implemented.

  The current regional transit plan includes transit lines on East "H" Street, East Palomar Road, La Media Road, Eastlake Parkway and the existing segment of Main Street. Transit stops are planned to be located approximately five to six miles apart. In conformance with the General Plan, future transit stops are planned for the EUC and at the intersection of Campus Boulevard and Street B. There are additional transit stops possible at the intersection of Main Street and Street A as well as at the intersection of Otay Valley Road and Street A. The actual transit plan will be developed in conjunction with the San Diego Association of Governments (SANDAG). Specific access points as well as the internal circulation for bicycle riders and pedestrians and exact roadway crossings will be approved during the Tentative Tract Map (TM) process.

Appendix D

Preserve Edge Plan

Preserve Edge Plan

06/03/14

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7 Restrict Access..... 9

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 (Preserve). In accordance with Policy 7.2 of the Otay Ranch Resource Management Plan (RMP), a Preserve Edge Plan is to be developed for all Sectional Planning Area (SPA) Plans that contain areas adjacent to the Preserve. The Village 9 SPA Plan will border the Preserve on its southerly boundary. The Preserve Edge area is a public or privately owned 100-foot wide strip of land adjacent to the Preserve. No structures other than those listed in SPA Plan Section 7.3.3.A shall be constructed within the 100-foot Preserve Edge. Any improvement or structures shall be designed to minimize visual impacts to the Preserve and Otay Valley Regional Park (OVRP). To provide further guidance relating to the content of the Preserve Edge Plan, the Chula Vista Multiple Species Conservation Program (MSCP) Subarea Plan contains policies related to land use adjacency. RMP and MSCP policies are summarized and evaluated below. This plan has been reviewed by a qualified biologist (Dr. Patrick Mock, URS Corp.).

B. COMPLIANCE WITH RMP/MSCP SUBAREA PLAN POLICIES

The following discussion provides a description of the policies identified in the Chula Vista MSCP Subarea Plan, which were developed in consideration of the requirements of RMP, as well as compliance measures to be carried out by the various components of the SPA Plan.

1. Drainage

MSCP Policy:
ñAll 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, vegetated/infiltration 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.ò

Compliance:
Development of the site would reduce natural erosion and sedimentation potential through the increase in impervious surfaces and stabilized slopes. However, erosion potential may exist at the locations where runoff is ultimately released from the project. To avoid erosion impacts, the project has been designed to

include energy dissipation and infiltration structures to reduce runoff and flow velocities to below erosive velocity limits.

Post-construction Best Management Practices (BMPs) are included in the design of the Village 9 SPA Plan and associated Tentative Map (TM). The Post-construction BMPs are detailed in the Village 9 Water Quality Technical Report (WQTR).

As further described in the WQTR for Village 9, all stormwater runoff will be treated prior to entering the projects storm drain system which ultimately convey flows to the Otay River. Flow-based BMPs are provided in the WQTR for Village 9.

The BMPs will incorporate Low Impact Development (LID) techniques to assure water quality is being preserved, prior to discharge offsite. LID techniques will also be incorporated to treat dry weather flows and ófirst flushô criteria as set forth by the Regional Water Quality Control Board (RWQCB). These methods will protect the open space Preserve adjacent to Village 9. Dry weather flows typically include landscape overwatering, washing driveways and automobiles. LID techniques to reduce dry weather flows include low water use landscaping and public education regarding washing vehicles and driveways. First flush flows take into account the initial runoff from rain events which may contain higher levels of pollutants than at the end of a rain event. BMPs will be implemented to reduce first flush pollutants and are detailed in the WQTR. The RWQCB will require a Storm Water Pollution Prevention Plan (SWPPP) to address water quality impacts associated with construction and operation of the project. To mitigate impacts from ñfirst flushò runoff and dry weather flow, BMPs will be identified in the SWPPP and the appropriate BMPs will be implemented. The SWPPP will be consistent with the requirements of the Federal Clean Water Act. BMPs identified in the SWPPP will include, but are not limited to the following.

Construction-Related Measures:

- Existing vegetation will be retained where possible. To the extent feasible, grading activities will be limited to the immediate area required for construction.
- Temporary erosion control measures will be installed in disturbed areas. These control areas may include but are not limited to silt fencing, straw waddles, jute netting, or hydroseeding. The temporary erosion control measures will be detailed in the WQTR and the SWPPP.
- Disturbed surfaces will not be left without erosion control measures in place from October 1 through April 1, or when there is a potential for a rain event.
- Landscaping will be installed as soon as practical to reduce erosion potential.

Design/Post-Construction Measures:

- Sediment will be retained on-site by a system of sediment basins, traps, or other appropriate measures.
- Where deemed necessary, storm drains will be equipped with silt and oil traps to remove oils, debris, and other pollutants. Storm drain inlets shall be labeled ñNO Dumping-Drains to Ocean.ò Storm drain inlets shall be regularly maintained to ensure their effectiveness.
- The parking lots will be designed when possible to allow storm water runoff to be directed to vegetative filter strips and/or oil ï water separators to control sediment, oil, and other contaminants.
- Permanent energy dissipation structures will be installed for each drainage outfall to a natural watercourse.
- The project area drainage basins will be designed to provide effective water quality control measures, as outlined in the WQTR. Design and operational features of the drainage basins will include design features to provide maximum infiltration, maximum detention time for settling of fine particles; maximize the distance between basin inlets and outlets to reduce velocities; and establish maintenance schedules for periodic removal of sedimentation, excessive vegetation and debris.

In addition to the permanent drainage facilities, temporary desiltation basins to control construction related water quality impacts shall be constructed within the Plan area with each grading phase to control sedimentation during construction. The interim desiltation basins shall be designed to be consistent with RWQCB and National Pollutant Discharge Elimination System (NPDES) Certification / permitting requirements. Sediment from the project grading operations that drains into the natural drainage channels would incorporate water quality control features to maximize water quality. The exact size, location and component elements of these interim basins shall be identified on the grading plans.

2. Toxic Substances

MSCP Policy:
ñAll 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).ò

Compliance:
Current agricultural activities on the site consist of dry-farming. The Village 9 SPA Plan area would phase out on-going agricultural uses adjacent to the Preserve consistent with the Village 9 SPA Plan Agricultural Plan.

3. Lighting

MSCP Policy:
ñLighting 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.ò

Compliance:
Village 9 SPA Plan has been designed to locate park open space and rear yards of single-family residential housing adjacent to the Preserve. In order to reduce night lighting in and adjacent to the preserve, low pressure sodium lighting and/or shielding will be required on streets or parking lots adjoining the Preserve. Trails, Parks and access roads within the Preserve and Preserve Edge will not be lighted.

Prior to the approval of any improvement plans containing light standards adjacent to the Preserve, the developer shall prepare a lighting plan and photometric analysis, to the satisfaction of the Development Services Director, confirming the location and type of proposed lighting standards (including shielding measures if required) to minimize spill over light into the Preserve. Lighting shall not be permitted within the Preserve Edge,

4. Noise

MSCP Policy:
ñUses 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 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 Bellôs vireo during the breeding season from March 15 to September 15, noise levels should not exceed 60 dBA Leq-h. However, on a case by case basis, if warranted, a more restrictive standard may be used. If an occupied Bellôs 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 dBA Leq-h.

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.ò

Compliance:
Prior to issuance of any land development permits (including clearing and grubbing or grading permits), the project Applicant will be required to retain a qualified biologist to conduct pre-construction surveys for sensitive avian species including Chula Vista Covered species, raptors and/or any migratory birds protected under the MBTA . Based on those surveys and locations of nesting birds during construction, if it is determined that the noise impact thresholds established in the Chula Vista Subarea Plan would be exceeded, the applicant would be required to reduce the impact below 60 dBA Leq-h standard through either modification of construction activities mitigation using sound barriers such as temporary walls or berms, or avoiding clearing, grubbing, grading or construction activities within 500 feet of an active nest site from March 15 to September 15, during the breeding season.
The Village 9 SPA Plan design has located typically low noise generating uses adjacent to the preserve. These uses include single-family residential development, hiking trails, park open space, and low speed (25 MPH) narrow residential streets. Native landscaping that requires a minimal amount of maintenance will be installed within areas adjacent to the Preserve. To the extent practicable, non-emergency brush management in Zone 3 (the area closest to the Preserve) will be undertaken outside the bird breeding seasons (April 1 ï June 30) in areas where breeding and/or nesting may occur.

5. Invasives

MSCP Policy:
ñNo 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 ñWildland / Urban Interface: Fuel Modification Standards,ò 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.ò

Compliance:

Landscaping within 100 feet of the Preserve will not contain any invasive or undesirable plant species, as determined by the City of Chula Vista. A list of invasive and/or undesirable species is provided in Appendix A attached. A list of plant species that may be planted on manufactured slopes and open space park areas adjacent to the Preserve is provided in the attached Appendix B, entitled ñApproved Plant List for the Village 9 Preserve Edge.ò These plant lists have been developed consistent with Table 3-5 (Appendix A) of the Cityôs MSCP Subarea Plan and shall be incorporated into the Village 9 Landscape Master Plan. The Approved Plant List for the Village 9 Preserve Edge (Appendix B of the Edge Plan) also meets the requirements outlined in the Fire Protection Plan (FPPA-A) as these manufactured slopes are also within the 150ô Brush Management Zone required by the MSCP Subarea Plan. Any changes to the approved plant list must be approved by the Director of Planning and Building and Development Services Director. The area may be planted with container stock (liners) or a hydroseed mix.

6. Buffers

MSCP Policy:
ñThere 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.ò

Compliance:
Fuel modification zones have been incorporated into the proposed development areas of the SPA Plan pursuant to the requirements of the Subarea Plan. Fuel modification zones are allowed within the 100 foot Preserve Edge pursuant to RMP Policy 7.2 (Adjacent Land Uses). Where appropriate, graded landscaped slope areas will be maintained pursuant to Fire Department requirements and will be outside of the Preserve. A Fire Protection Plan for Village 9 has been prepared that provides specific fuel modification requirements for the entire SPA area. Consistent with the Chula Vista MSCP requirements, a 150ô Brush Management Zone has been established adjacent to the MSCP. A description of the Brush Management Zones is provided in the Fire Protection Plan.

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 the 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).

To adhere to these MSCP guidelines, excessive runoff into the Preserve from adjacent irrigated slopes shall be minimized. The linear park incorporates grading techniques that direct flows away from preserve edge to an inlet located in the central portion of the park. In addition, 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 heads shall be directed away from the Preserve. Irrigation schedules for the slopes adjacent to the open space Preserve should be evaluated and tested in the field to determine the appropriate water duration and adjusted, as necessary, to prevent runoff. Once landscaping is mature and irrigation is no longer necessary, the temporary irrigation system in Zone 2 and Zone 3 will be removed.

In addition, a manual weeding program shall be prepared and implemented to the satisfaction of the Development Services Director within areas adjacent to the Preserve to control the spread of invasive species. The manual weeding program shall be prepared in conjunction with the Landscape Master Plan, and shall describe at a minimum, the entity responsible for controlling invasive species, the maintenance activities and methods required to control invasives, and a maintenance/monitoring schedule. A qualified biological monitor shall check the irrigated slopes during plant establishment to verify that excessive runoff does not occur and that 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:

Policy 6.5 of the Otay Ranch Resource Management Plan states the following:

ñIdentify restricted use areas within the Preserve.ò

> ***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:
ñThe public access to finger canyons will be limited through subdivision design, fencing to other appropriate barriers, and signage.ò

ñInstall barriers (fencing, rocks/boulders, appropriate vegetation) and/or signage in new communities where necessary to direct public access to appropriate locations.ò

Compliance:
Pursuant to the requirements of the MSCP Subarea and RMP, Village 9 land plans have been designed to limit access to the adjacent Preserve area. Public access to the on-site trail system within the Preserve Edge is illustrated in Exhibit 1. Signage will be installed at trailheads or junction points to restrict public access outside the designated trails. Maintenance access will also be provided via the trail access points. The trail system within the preserve edge will be constructed during the adjacent single-family development phase. Access will be restricted using gates, fences, and signs until the trails are completed.

Access shall be restricted south of Village 9 until the Otay Valley Regional Park (OVRP) East/West Connector Trail is established. Otay Land Company will contribute to the cost of a future trail connection to OVRP south of the Village 9 boundary; however, the future off-site trail is not a part of the proposed Village 9 SPA Plan will be subject to additional siting criteria and environmental review.

Perimeter fencing will be installed along the rear yards of the Village 9 to restrict unauthorized access into the Preserve. In addition, a lodge pole railing, post

markers with signage or equal shall be installed along the MSCP limit or along the Village 9 boundary as depicted on Exhibit 1. The location and type of access controls (i.e., gates, fencing, post markers and signage) shall be incorporated into the Village 9 Landscape Master Plan to the satisfaction of the Development Services Director.

APPENDIX "A"

UNDESIRABLE PLANT LIST

The following species are highly flammable and should be avoided when planting within the first 50 feet adjacent to a structure. The plants listed below are more susceptible to burning, due to rough or peeling bark, production of large amounts of litter, vegetation that contains oils, resin, wax, or pitch, large amounts of dead material in the plant, or plantings with a high dead to live fuel ratio. Many of these species, if existing on the property and adequately maintained (pruning, thinning, irrigation, litter removal, and weeding), may remain as long as the potential for spreading a fire has been reduced or eliminated.

BOTANICAL NAME	COMMON NAME
Abies species	Fir Trees
Acacia species	Acacia (trees, shrubs, groundcovers)
*Adenostoma sparsifolium***	Red Shanks
*Adenostoma fasciculatum***	Chamise
Agonis juniperina	Juniper Myrtle
Araucaria species	Monkey Puzzle, Norfolk Island Pine
*Artemesia californica***	California Sagebrush
Bambusa species	Bamboo
Cedrus species	Cedar
Chamaecyparis species	False Cypress
Coprosma pumila	Prostrate Coprosma
Cryptomeria japonica	Japanese Cryptomeria
Cupressocyparis leylandii	Leylandii Cypress
*Cupressus forbesii***	Tecate Cypress
Cupressus glabra	Arizona Cypress
Cupressus sempervirens	Italian Cypress
Dodonea viscosa	Hopseed Bush
*Eriogonum fasciculatum***	Common Buckwheat
Eucalyptus species	Eucalyptus
*Heterotheca grandiflora***	Telegraph Plant
Juniperus species	Junipers
Larix species	Larch
Lonicera japonica	Japanese Honeysuckle
Miscanthus species	Eulalia Grass
*Muehlenbergia species***	Deer Grass
Palmae species	Palms
Picea species	Spruce Trees
*Pickeringia Montana***	Chaparral Pea
Pinus species	Pines
Podocarpus species	Fern Pine
Pseudotsuga menziesii	Douglas Fir
Rosmarinus species	Rosemary
*Salvia mellifera***	Black Sage
Taxodium species	Cypress
Taxus species	Yew
Thuja species	Arborvitae
Tsuga species	Hemlock
*Urtica urens***	Burning Nettle

APPENDIX "A"

** San Diego County native species

References: Gordon, H. White, T.C. 1994. Ecological Guide to Southern California Chaparral Plant Series. Cleveland National Forest.

Willis, E. 1997. San Diego County Fire Chief's Association. Wildland/Urban Interface Development Standards

City of Oceanside, California. 1995. Vegetation Management. Landscape Development Manual. Community Services Department, Engineering Division.

City of Vista, California 1997. Undesirable Plants. Section 18.56.999. Landscaping Design, Development and Maintenance Standards.

www.bewaterwise.com. 2004. Fire-resistant California Friendly Plants.

www.ucfpl.ucop.edu. 2004. University of California, Berkeley, Forest Products Laboratory, College of Natural Resources. Defensible Space Landscaping in the Urban/Wildland Interface. A Compilation of Fire Performance Ratings of Residential Landscape Plants.

County of Los Angeles Fire Department. 1998. Fuel Modification Plan Guidelines. Appendix I, Undesirable Plant List, and Appendix II, Undesirable Plant List.

APPENDIX "A"

The California Exotic Pest Plant Council

List A-1: Most Invasive Wildland Pest Plants; Widespread

Latin Name[1]	Common Name	Habitats of Concern and Other Comments	Distribution[2]
Ammophila arenaria	European beach grass	Coastal dunes	SCo,CCo,NCo
Arundo donax	giant reed, arundo	Riparian areas	cSNF,CCo,SCo,SnGb,D,GV
Bromus tectorum	cheat grass, downy brome	Sagebrush, pinyon-juniper, other desert communities; increases fire frequency	GB,D
Carpobrotus edulis	iceplant, sea fig	Many coastal communities, esp. dunes	SCo,CCo,NCo,SnFrB
Centaurea solstitialis[C]	yellow starthistle	Grasslands	CA-FP (uncommon in SoCal)
Cortaderia jubata	Andean pampas grass, jubatagrass	Horticultural; many coastal habitats, esp. disturbed or exposed sites incl. logged areas	NCo,NCoRO,SnFrB, CCo,WTR,SCo
Cortaderia selloana	pampas grass	Horticultural; coastal dunes, coastal scrub, Monterey pine forest, riparian, grasslands; wetlands in ScV; also on serpentine	SnFrB,SCo,CCo,ScV
Cynara cardunculus[B]	artichoke thistle	Coastal grasslands	CA-FP, esp. CCo,SCo
Cytisus scoparius[C]	Scotch broom	Horticultural; coastal scrub, oak woodlands, Sierra foothills	NW,CaRF,SNF,GV, SCo,CW
Eucalyptus globulus	Tasmanian blue gum	Riparian areas, grasslands, moist slopes	NCoRO,GV,SnFrB, CCo,SCoRO,SCo,nChl
Foeniculum vulgare	wild fennel	Grasslands; esp. SoCal, Channel Is.; the cultivated garden herb is not invasive	CA-FP
Genista monspessulana[C]	French broom	Horticultural; coastal scrub, oak woodlands, grasslands	NCoRO,NCoRI,SnFrB, CCo,SCoRO,sChl,WTR,PR
Lepidium latifolium[B]	perennial peppenweed, tall whitetop	Coastal, inland marshes, riparian areas, wetlands, grasslands; potential to invade montane wetlands	CA (except KR,D)
Myriophyllum spicatum	Eurasian watermilfoil	Horticultural; lakes, ponds, streams, aquaculture	SnFrB,SnJV,SNH(?); prob. CA
Pennisetum setaceum	fountain grass	Horticultural; grasslands, dunes, desert canyons; roadsides	Deltaic GV,CCo,SCo, SnFrB
Rubus discolor	Himalayan blackberry	Riparian areas, marshes, oak woodlands	CA-FP
Senecio mikanioides (=*Delairea odorata*)	Cape ivy, German ivy	Coastal, riparian areas, also SoCal (south side San Gabriel Mtns.)	SCo,CCo,NCo,SnFrB,SW
Taeniatherum caput-medusae[C]	medusa-head	Grasslands, particularly alkaline and poorly drained areas	NCoR,CaR,SNF,GV,SCo
Tamarix chinensis, T. gallica, T. parviflora & T. ramosissima	tamarisk, salt cedar	Desert washes, riparian areas, seeps and springs	SCo,D,SnFrB,GV,sNCoR, sSNF,Teh,SCoRI,SNE, WTR
Ulex europaeus[B]	gorse	North, central coastal scrub, grasslands	NCo,NCoRO,CaRF, n&cSNF,SnFrB,CCo

Noxious Weed Ratings

F: Federal Noxious Weed, as designated by the USDA; targeted for federally-funded prevention, eradication or containment efforts.

A: CA Dept. of Food & Agriculture, on "A" list of Noxious Weeds; agency policies call for eradication, containment or entry refusal.

B: CA Dept. of Food & Agriculture, on "B" list of Noxious Weeds; includes species that are more widespread, and therefore more difficult to contain; agency allows county Agricultural Commissioners to decide if local eradication or containment is warranted.

C: CA Dept. of Food & Agriculture, on "C" list of Noxious Weeds; includes weeds that are so widespread that the agency does not endorse state or county-funded eradication or containment efforts except in nurseries or seed lots.

Q: CA Dept. of Food & Agriculture's designation for temporary "A" rating pending determination of a permanent rating.

For most species nomenclature follows *The Jepson Manual: Higher Plants of California* (Hickman, J., Ed., 1993).

APPENDIX "B"

Approved Plant List for the Village 9 Preserve Edge

Existing Natives On Site*	Approved Village 2 Species**	BOTANICAL NAME - Common Name
		TREES:
		QUERCUS AGRIFOLIA - Coast Live Oak
		QUERCUS ENGELMANNII - Engelmann Oak
		PLATANUS RACEMOSA - California Sycamore
		LARGE SHRUBS:
	▲	HETEROMELES ARBUTIFOLIA - Toyon
◆	▲	ISOMERIS ARBOREA - Bladder Pod
◆	▲	RHAMNUS CROCEA - Redberry
◆	▲	SIMMONDSIA CHINENSIS - Jojoba
◆		YUCCA SCHIDIGERA - Mojave Yucca
		SUBSHRUBS / PERENNIALS / SUCCULENTS:
◆		BACCHARIS PILULARIS - Coyote Brush
◆	▲	CYLINDROPUNTIA CALIFORNICA - Snake Cholla
◆	▲	DEINANDRA (HEMIZONIA) FASCICULATA - Fascicled Tarplant
◆	▲	DISTICHLIS SPICATA - Spiked Salt Grass
◆		IVA HAYESIANA - San Diego Marsh-elder
◆	▲	LUPINUS SUCCULENTUS - Arroyo Lupine
◆		MALACHOTHAMNUS FASCICULATUS - Chaparrel Bushmallow
◆	▲	NASSELLA PULCHRA - Purple Needlegrass
◆	▲	OPUNTIA LITTORALIS - Coastal Prickly Pear
◆		SALVIA APIANA - White Sage
◆	▲	SISYRINCHIUM BELLUM - Blue-eyed Grass
◆	▲	VIGUIERA LACINIATA - San Diego Sunflower
		SEEDED PLANTS:
◆		BLOOMERIA CROCEA - Common Goldstar
◆	▲	DEINANDRA (HEMIZONIA) FASCICULATA - Fascicled Tarplant
◆		HAZARDIA SQUARROSA - Sawtooth Goldenfields
◆	▲	LUPINUS SUCCULENTUS - Arroyo Lupine
◆		PLANTAGO ERECTA - Dot-seed Plantain
◆	▲	SISYRINCHIUM BELLUM - Blue-eyed Grass

NOTES:
All listed species are suitable for fuel modification zones

* Existing species on site per Biological Resources Report by URS, July 26, 2010
** Approved for Villages 2, 3, & portions of 4

OTAY VALLEY ROAD

OTAY VALLEY ROAD

STREET "K"

STREET "J"

ST. "I"

SF

PARK

SF

STREET "B"

SF

PERIMETER FENCING

STREET "L"

STREET "N"

STREET "O"

MSCP

MSCP

MSCP

D.G. TRAIL

STREET "B"

PROJECT BOUNDARY

PROJECT BOUNDARY

PERIMETER VIEW FENCING

PROJECT BOUNDARY

D.G. TRAIL

MSCP

PROPOSED SEWER AND STORM DRAIN (SEE TM FOR DETAILS)

SEWER AND STORM DRAIN ACCESS ROAD

LEGEND

100' PRESERVE EDGE ZONE

MAINTENANCE ACCESS POINTS, SIGNAGE, AND ACCESS CONTROL BOLLARDS

LODGE POLE RAILING OR EQUIVALENT ALONG MSCP LINE

0 200 400 600

SCALE 1"=200'

EXHIBIT 1

PREPARED BY:

HUNSAKER & ASSOCIATES SAN DIEGO, INC

PRESERVE EDGE PLAN

OTAY RANCH PARCEL C

CITY OF CHULA VISTA, CALIFORNIA

SHEET 1 OF 1

Appendix E

Agricultural Plan

AGRICULTURE PLAN
Otay Land Company Village 9
Otay Ranch, Chula Vista, California

June 3, 2014

Project Sponsor/Applicant
OTAY LAND COMPANY, LLC
1903 Wright Place, Suite 220Carlsbad, CA 92008-6528
(760) 918-8200
Contact: Jeff O'Connor

INTRODUCTION

The 1993 Otay Ranch Program Environmental Impact Report (PEIR) requires the preparation of an agriculture plan concurrent with the processing and approval of a Sectional Planning Area (SPA) plan where existing or future onsite agricultural uses may affect contemplated development. The Findings of Fact require that the agricultural plan indicate the type of agriculture activity allowed as an interim use and that it include guidelines designed to minimize land use interface impacts related to noise, odors, dust, insects, rodents, and chemicals that may be produced or used by agricultural activities or operations.

Historical agricultural uses within Village 9 included farming as well as cattle and sheep ranching. Crop production was limited to the "dry farming" of hay and grains due to the lack of water.

CURRENT AGRICULTURAL USE

The portion of Village 9 outside of the Preserve is currently dry farmed. Each winter, the site is tilled in preparation for the seeding of small grains. This tilling also controls invasive vegetation which otherwise may become a safety or access issue. There are no cattle grazing activities on site.

Because there is no farming or ranching activity within the Preserve, there is no administration associated with the Resource Management Plan (RMP). Because there is no grazing on site, there is no need to manage the site in conformance with the Range Management Plan.

PERMITTED AGRICULTURAL USES

The Development Code for Village 9 permits crop farming, tree farming and nursery production as permitted interim uses in any zone, provided the area in which the use will occur has not been subdivided or plotted into any parcels less than one acre in size. Any associated buildings including but not limited to farm buildings, packing sheds, and nursery greenhouses shall be subject to a conditional use permit. Cattle grazing activities are not permitted in Village 9.

All agricultural uses will be incrementally phased out during the course of development.

PHASED ELIMINATION OF AGRICULTURAL USES

The Otay Ranch General Development Plan (GDP) and the Village 9 SPA provide for interim agricultural uses as noted above and their phased elimination. The following agricultural standards will be employed during the interim period:

- A minimum 200-foot buffer shall be maintained between developed property and any ongoing agricultural operation. Use of pesticides shall comply with federal, state and local regulations.

- In areas where agricultural related pesticides will be applied, vegetation shall be utilized to shield adjacent urban development (within 400 feet) from these agricultural activities.
- The responsible farmer or land owner shall notify adjacent property owners (those within 400 feet) of pending pesticide application through advertisements in newspapers of general circulation or other approved manner such as by mail.
- To ensure the safety of area residents, appropriate fencing shall be utilized where necessary.

Appendix F

Fire Protection Plan

FIRE PROTECTION PLAN
FOR
OTAY RANCH, VILLAGE 9/EUC

PREPARED FOR:

City of Chula Vista
Development Services Department
276 Fourth Ave
Chula Vista, CA 91910

&

Otay Land Company, LLC
1903 Wright Place, Suite 220
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1.0 INTRODUCTION

Village 9 has historically been referred to as Otay Land Company's Parcel C. The site includes portions of Otay Ranch Village 9 as well as a portion of Planning Area 12 which also is referred to as the Eastern Urban Center (EUC). The Village encompasses approximately 323 acres and is located in the southwest quadrant of Otay Ranch. The balance of the EUC lies to the north, the future planned university site is to the east, the Otay River Valley and a portion of MSCP Preserve is to the south and SR-125 is to the west.

The Village is proposed to be composed of mixed-use dwelling units, single-family residential, multi-family dwelling units, retail/commercial, a potential school site, parks, two community purpose facilities, and open space (Figure 1-Tentative Map, Map Pocket). The project is proposed to be built in several phases. Fire protection is provided to the project area by the City of Chula Vista Fire Department. The project will incorporate several of the Firewise Community design features. Details of the Firewise Community design features can be found on the Firewise website at Firewise.org/USA.

1.1 Purpose of the Fire Protection Plan

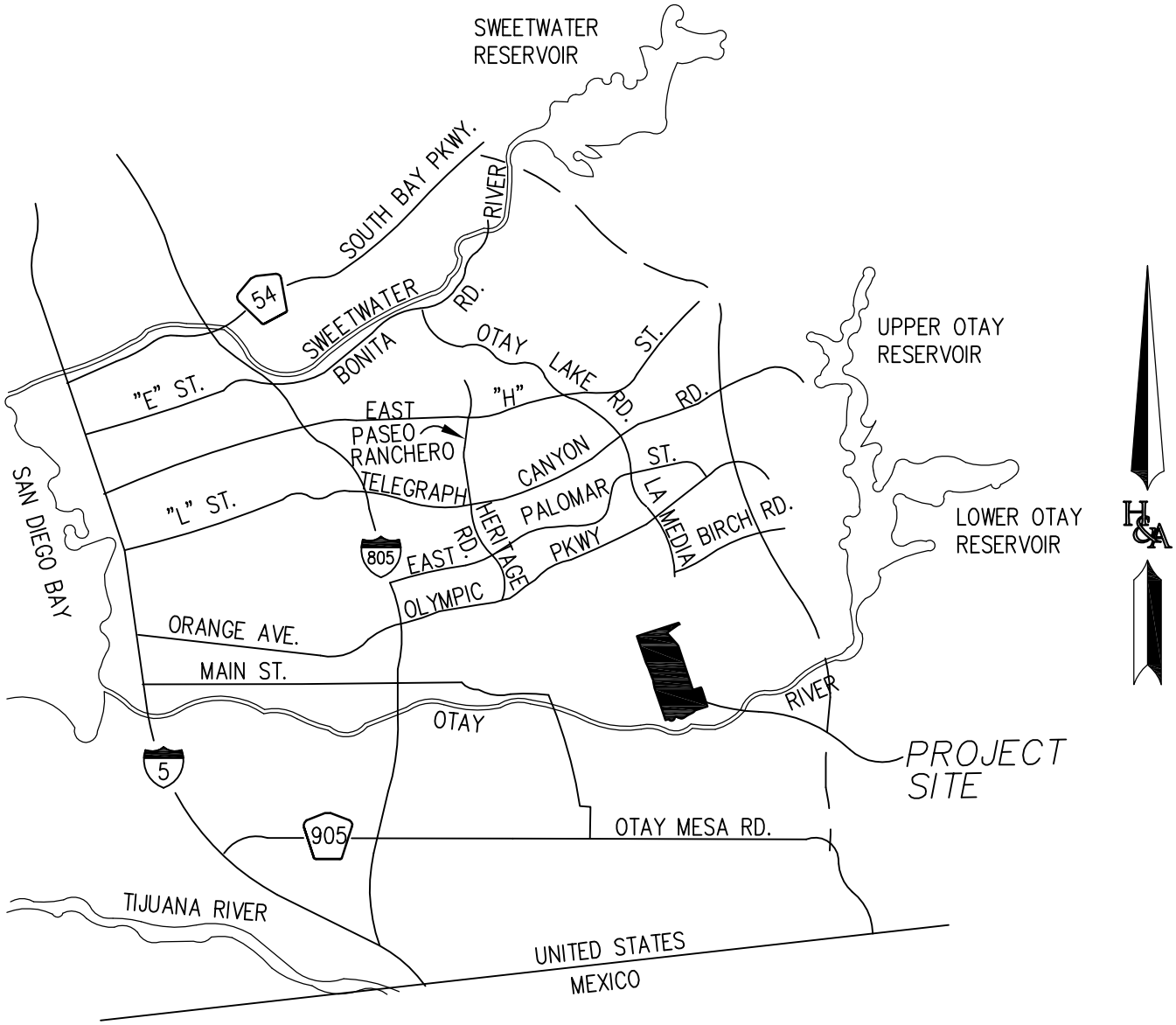
The purpose of this Fire Protection Plan (FPP) is to address fire safety and compliance with applicable codes, ordinances, and regulations for Village 9. The primary focus of this plan is the southwestern perimeter of the site which contains native vegetation that is being placed in open space. Additionally, this vegetation is contiguous with native vegetation offsite to the south. The plan references current codes and regulations at the time it is being written. However, the codes and regulations adopted at the time of development shall apply.

1.2 Project Location

The Village 9 project hereinafter referred to as the project, is located in the City of Chula Vista. The project is located just north of the Otay River and encompasses a portion of the EUC (Figure 2). The balance of the EUC lies to the north, the future planned university site is to the east, the Otay River Valley and a portion of the MSCP Preserve to the south and SR-125 to the west. The project is located in an area of existing development, proposed development, agriculture and undeveloped lands (Figure 3).

1.3 Land Uses

The development plan for Village 9 calls for the implementation of 3734 mixed-use (MU) and multifamily (MF) dwelling units, 1,135,000 square feet of office-commercial, 365,000 square feet of retail-commercial uses; 266 single family (SF) dwelling units; potential school sites; several park sites; two community purpose facility (CPF) sites; as well as open space and utility and roadway easements-rights of way (Figure 1). The estimated 24-hour population of Village 9 is 12,144.



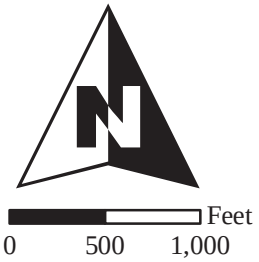
VICINITY MAP

NTS

RC Biological Consulting, Inc.	Vicinity Map (not to scale)	Figure 2

Source: TerraServer 1/1/2008

Figure 3
Aerial Photograph
Otay Ranch Village 9 and Portion of Village 12



1.4 Open Space

There is an open space lot proposed in the southwestern corner of the project (Figure 1). The open space is required as a result of that portion of the project being located within an area designated as 100% Conservation Area – Habitat Preserve (Preserve) within the City's Multiple Species Conservation Program (MSCP) Subarea Plan. No development or fuel modification, other than an underground storm drain and sewer and access road, will occur within this lot.

2.0 ACCESS

Future road access to Village 9 will be provided by existing Eastlake Parkway from the north, Hunte Parkway from the east, SR-125 and future Otay Valley Road from the southwest and SR-125 and future Main Street from the west.

Main Street serves as a primary east west access road in the northern portion of the property. Main Street is proposed to have three eleven foot travel lanes.

Otay Valley Road provides a primary access along the southern portion of the project. It is proposed as a four lane major road with two eleven-foot travel lanes and a transit lane in each direction. Additional circulation is provided by "Street A" a town core street with two travel lanes, eleven feet in width and a right turn lane. The Parkway Residential streets propose one travel lane ten feet in width in each direction.

The project shall comply with the City of Chula Vista Construction Site Policy for Compliance with Fire Safety Provisions. The project phasing and road construction shall be such that required numbers of access points are provided in conformance with the City of Chula Vista Subdivision Manual Section 3-403.2 (7) (2002). Specific requirements under this Section are:

- For a street ending in a cul-de-sac, the maximum is 30 single-family lots
- Single-family development shall not exceed 120 lots unless two points of access are provided
- Single-family development shall not exceed 200 lots unless three points of access are provided
- "Points of access" means streets with no driveway access consisting of two or more lanes. Emergency access-only connections are not considered points of access.

These requirements do not apply to condominium or multi-family development.

Firefighter foot access locations shall be placed at intervals of no greater than 1000 feet along the southern project interface with Multiple Species Conservation Program Preserve Boundary. In particular, if the western side of the cul de sac for Street L is fenced, a firefighter foot access gate must be installed.

3.0 ADDRESSES

All buildings are required to be separately addressed. Unit numbers shall be placed at appropriate locations and be plainly visible and legible from the street fronting the property from either direction of approach. Residential buildings shall have that contrast with their background and shall meet the following minimum size standards: 4" high with a ⅜" stroke. Table 1, below, identifies the requirements for commercial development. Additional numbers shall be required where deemed necessary by the fire code official, such as rear access doors, building corners and entrances to commercial centers. The fire code official may establish different minimum sizes for numbers for various categories of projects. In addition, geographical directories will be required at entrances to multiple building developments on a parcel. The City of Chula Vista has prepared Premise Identification Guidelines for reference.

The following table identifies the requirements for commercial development.

Table 1
Commercial Premise Identification

Distance from Building to Face of Curb	Minimum Number Height	Minimum Stroke
0-50 feet	6 inches	1 inch
51-150 feet	10 inches	1.5 inches
➢ 150 feet	16 inches	2 inches

4.0 WATER SUPPLY

The Otay Water District (OWD) will provide potable water services. The City of Chula Vista utilizes the California Fire Code for determining required fire flows and durations for new development. The fire code utilizes a number of factors to determine the required fire flow for a building. These factors include building footprint, building construction materials, and whether or not the building has sprinklers. Since this level of detail is not known at the planning stage, this report uses the fire flow requirements utilized by the Otay Water District in master planning storage, transmission, and distribution facilities throughout their District. The fire flow requirement will be a minimum of 1,500 gpm and may be increased for individual sites based on the factors described above.

Hydrants shall be placed along road ways and fire access paths a maximum of 300 feet apart in multi-family and commercial areas. Hydrant spacing shall be placed along roadways a maximum of 500 feet in single-family residential areas (Ordinance 3093 §1, 2007). Spacing maybe increased to a minimum of 1000 feet where no structures are proposed adjacent to the road. The Chula Vista Fire Department will review proposed fire hydrants throughout this development and provide overall approval.

4.1 Fire Sprinklers

Fire sprinklers will be installed in conformance with Section 903 of the California Fire Code. All single family residences and duplexes will be required to have fire sprinklers in conformance with the California Residential Code (CRC).

4.2 Fire Monitoring Systems

Fire monitoring systems shall be installed in conformance with Section 907 of the California Fire Code (2007).

5.0 FIRE SERVICES

The City of Chula Vista is in the process of updating their Fire Master Plan. Currently there is no requirement to locate a new fire station within Village 9.

The nearest fire station is Station 7, located at 1640 Santa Venetia Road, within Village 2. Station 7 has 24 assigned staff with eight on duty at any given time, including the Battalion Chief. Another station is proposed within the East Urban Center. The anticipated date for completion and location of this station is unknown at this time (See Eastern Urban Center Trigger Analysis).

Station 7 is approximately 3.29 miles from the farthest proposed residential lots on the southern boundary of the project (Figure 4). The travel time from Station 7 to this portion of the project is estimated to be 5.8 minutes based on an average speed of 35 mph north of Otay Valley Road and 25 mph south of Otay Valley Road.

The proposed fire station (Fire Station 10) in the East Urban Center will be approximately 1.77 miles from the southernmost lots of the proposed development based on an average speed of 35 mph north of Otay Valley Road and 25 mph south of Otay Valley Road (Figure 4). Once operable the estimated travel time is approximately 3.9 minutes (234 seconds).

The City of Chula Vista Growth Management Ordinance states properly equipped and staffed fire and medical units shall respond to calls throughout the city within seven minutes in 80 percent of the cases (City Municipal Code Section 19.09.040). All portions of the porject can be reached with the required response time within the Growth Management Ordinance, as a result the project has adequate fire and emergency medical services.

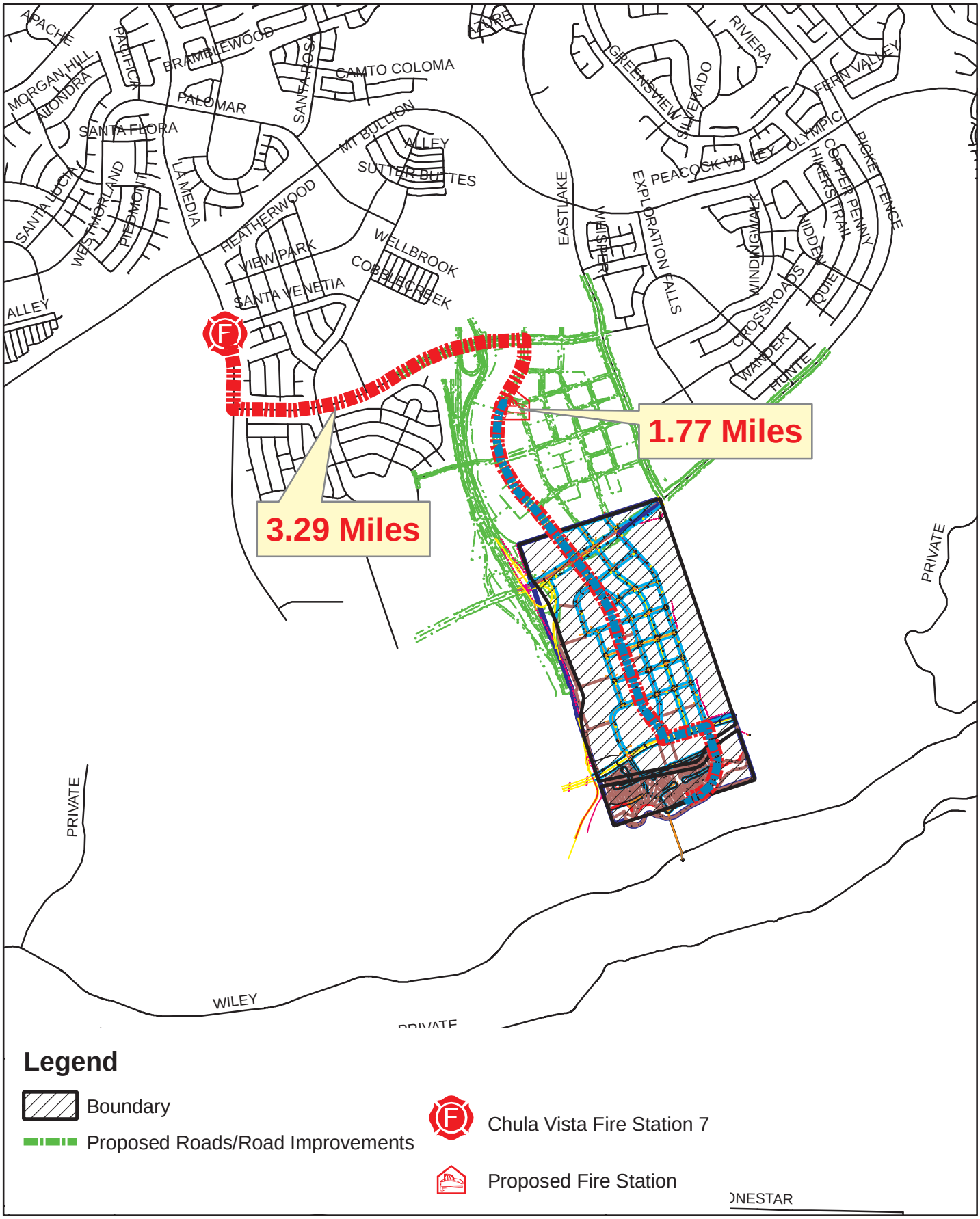


Figure 4
Fire Response

6.0 SETTING AND FIRE HISTORY

The California Department of Forestry and Fire Protection have developed recommended maps of "Very High Fire Hazard Zones" for local responsibility areas. The City of Chula Vista has adopted the map (Ordinance 3113§ 1, 2008). The project is not located in an area identified as a "Very High Fire Hazard Zone" as recommended by the California Department of Forestry and Fire Protection (Figure 5). The following sections discuss the surrounding land use, topography, vegetation, climate, and fire history.

6.1 Surrounding Land Use and Topography

The project site is primarily surrounded by undeveloped lands, primarily dry farming. (Figure 3). SR-125 Toll Road is west of the project site, and Otay River is to the south (Figure 6). The proposed development area spans the project site with a limited amount of open space in the southern corners. The site is gently sloping to the south with steeper slopes to the southwest and southeast. The elevations onsite range from approximately 275 feet to 621 feet above mean sea level (AMSL).

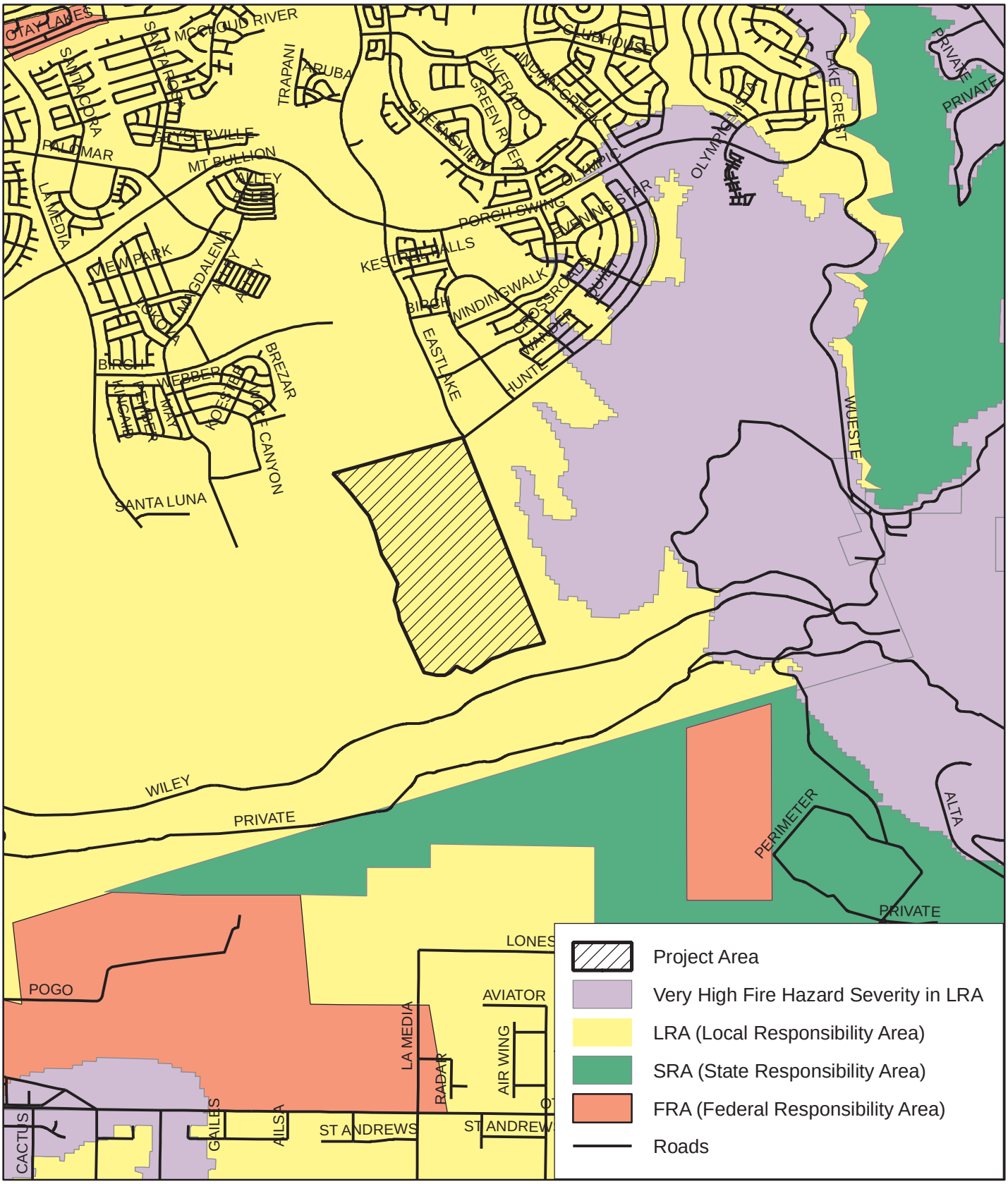
6.2 Vegetation

Plant communities on and off-site were mapped by URS and included as Figure 7. Three plant communities within the on-site open space and adjacent to the project site were considered for fuel load: Diegan coastal sage scrub, chaparral, and non-native grassland. The coastal sage scrub would also represent the maritime succulent scrub, a limited amount of which occurs adjacent to the project site to the south. The fuel loading for non-native grassland is considered a conservative representative of the agriculture and disturbed habitat adjacent to the site. Developed land also occurs adjacent to the project site. The proposed open space is composed primarily of coastal sage scrub, succulent scrub, and some non-native grassland. Photograph 1 illustrates the chaparral habitat offsite to the south. Photograph 2 illustrates the coastal sage scrub habitat proposed to be preserved within the on-site open space. Photograph 3 represents the dry farmed areas on and adjacent to the site.

Photograph 1. Chaparral offsite near the southern boundary

Photograph 2. Coastal Sage Scrub offsite near the southern boundary

Photograph 3. Dry Farmed Land along the northern boundary.



Source: http://frap.cdf.ca.gov/

Figure 5
Fire Hazard Map
Otay Ranch Village 9 and Portion of Village 12

N

Feet
0 2,000 4,000

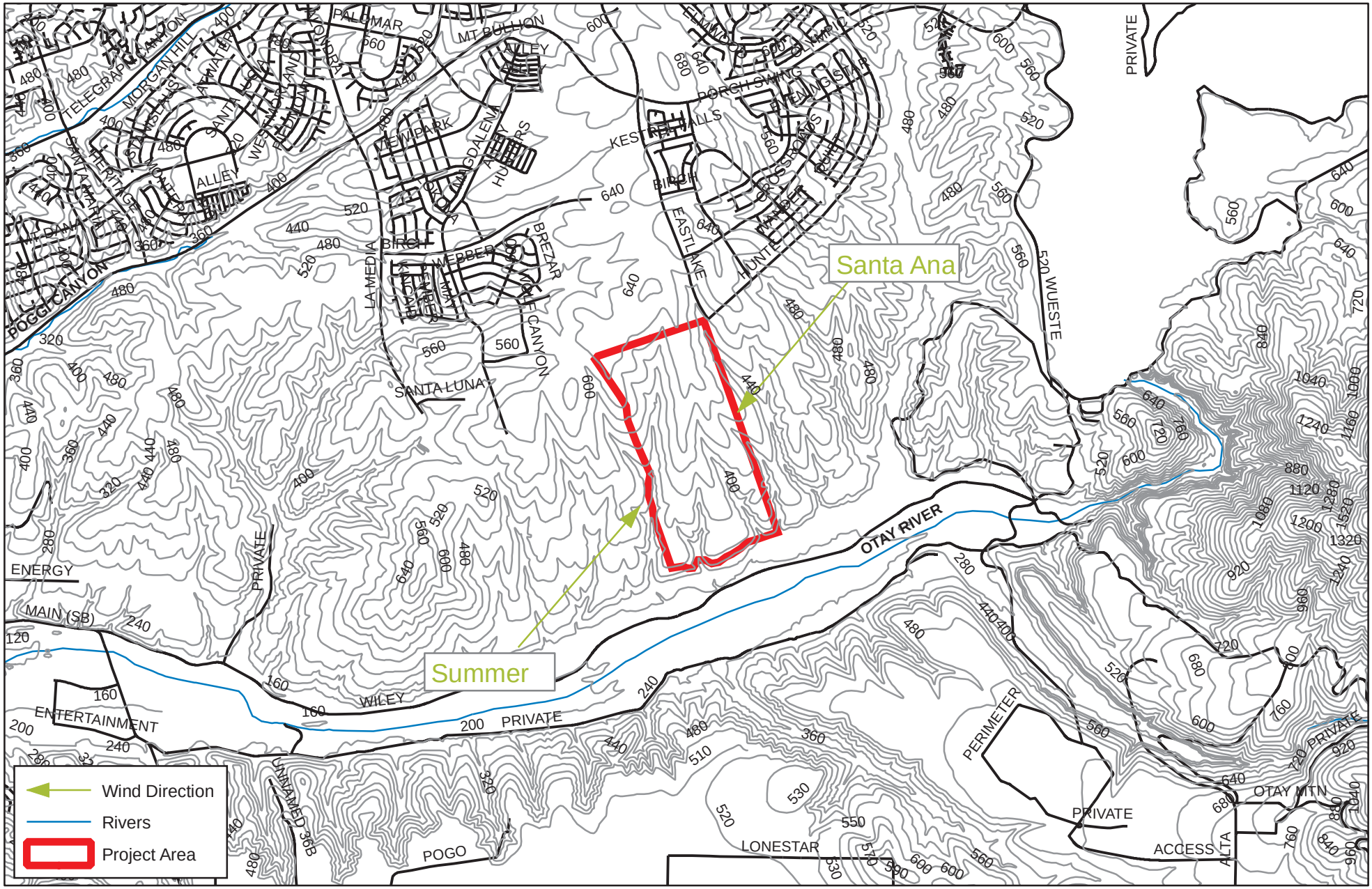
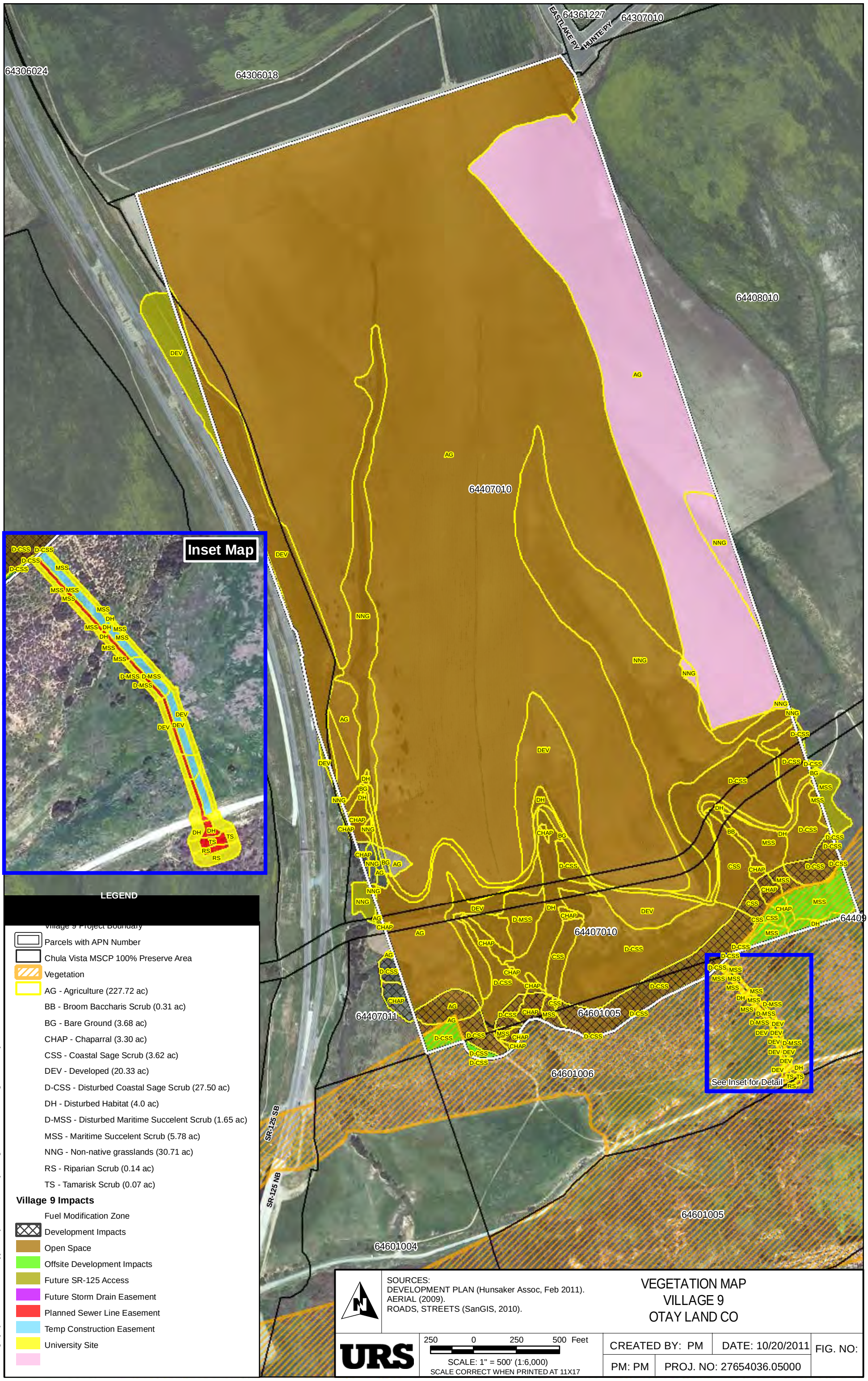


Figure 6
Contour Map



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6.3 Climate

As defined by the National Weather Service, San Diego has four climate zones: coastal, inland, mountain, and desert climate. These climate zones are determined by several factors: proximity to the ocean, terrain, elevation, and latitude. Using the Koppen system, the metropolitan areas of Southern California have a Mediterranean climate, characterized by mild, sometimes wet winters and warm, very dry summers. The Mediterranean climate includes all coastal areas, valleys and foothills. Annual precipitation amounts increase gradually from the coast to the mountain crests, then drop dramatically into the deserts. Most precipitation comes from winter storms between November and March. The site is located within the coastal climate zone (Figure 8). Average rainfall is 11 inches per year (Western Regional Climate Center).

6.4 Fire History

The fire history of the site and surrounding area (approximately 2.5 mile diameter) was reviewed (Figure 9). The source of the fire history information is the California Department of Forestry Fire and Resource Assessment Data from 2007. The Otay Fire #4 occurred in the southeastern portion of the site in October 1994 (Table 1). One additional fire burned within the 2.5 miles surrounding area between 1910 and 2007, an unnamed fire in 1979 (Table 2). For those fires within the figure itself with known dates of origin, the majority of them occurred during the summer and fall months of June through November.

Table 2. Burn History of the Site and Vicinity

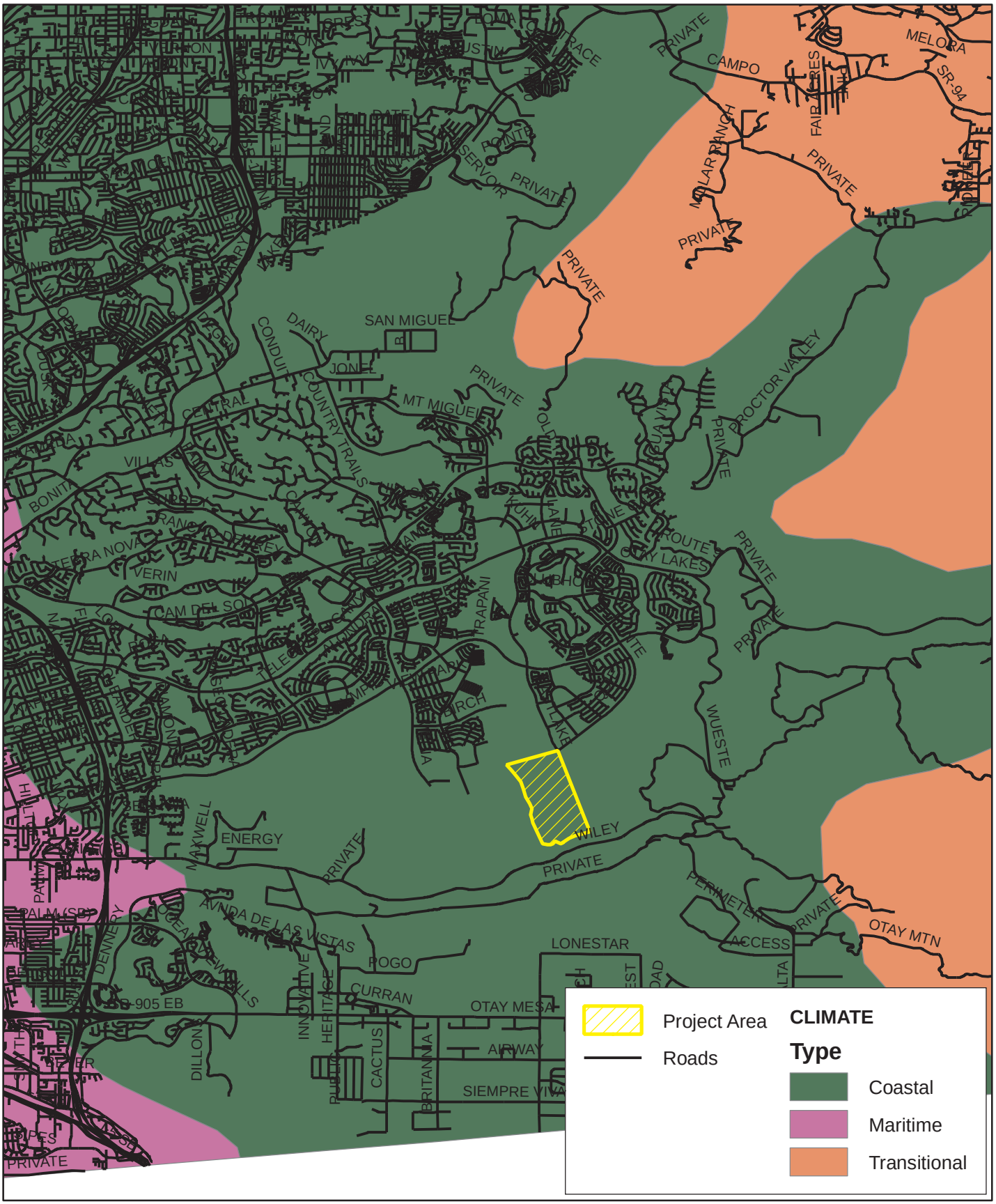
Name	Year	Month	Day	Acres	Cause	Agency
None	1979	Unknown	Unknown	211	Miscellaneous	USF
Otay # 4	1994	10	10	2983	Campfire	CDF

7.0 RISK ASSESSMENT – WILDLAND FIRE

The area does not have a significant history of burning from wildland fires as discussed in Section 6.4 – Fire History. The site is proposed to be developed in several phases. The remaining on-site vegetation threat would primarily be a small amount of coastal sage scrub that is proposed to be preserved within open space. Coastal sage scrub occurs offsite to the west and to the south of the project site. Dry farmed land or grasslands primarily occur to the east of the project. Fire modeling indicates a spotting distance of 1.9 miles, which encompasses the entire project.

7.1 Fuel Modeling

Fire modeling was performed using Behave Plus 4.0 for two types of weather conditions, a Santa Ana condition (Fall), including gusts, and a normal weather condition (Summer). RAWS (Remote Automated Weather Station) data was not available. Weather data are



Source: SanGIS

Figure 8
Climate Map
Otay Ranch Village 9 and Portion of Village 12

N

Feet
0 4,000 8,000

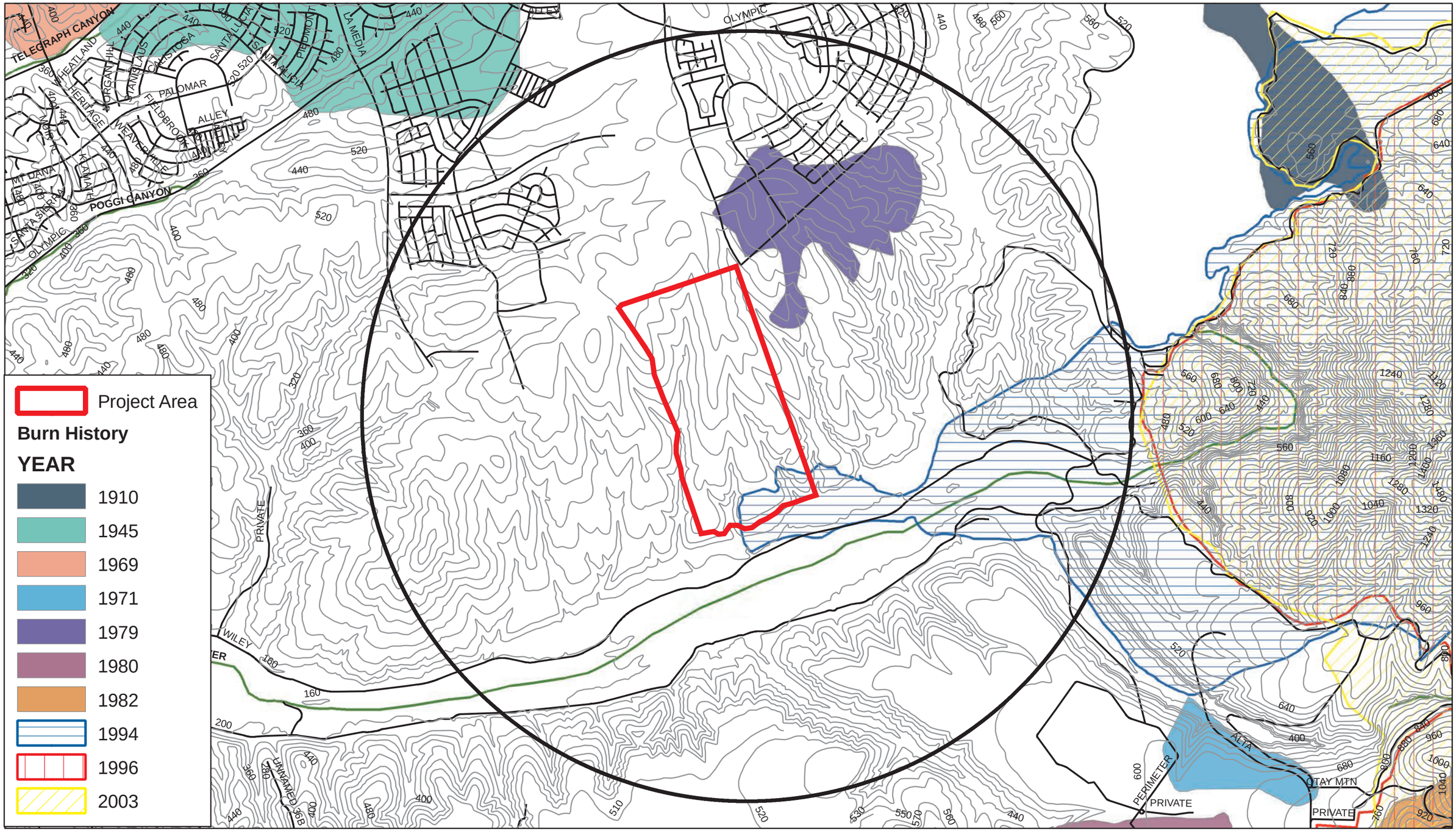


Figure 9
Burn History

from the Western Regional Climate Center (WRCC) Brown's Field, which is approximately two miles to the south. Weather data are included in Appendix A.

The results of the modeling are summarized here and included in Appendix B. The adjacent topography is varied. The offsite threat is primarily from dry farmed land on the west, north and east. A conservative slope of 20% and GR4 were used to model this habitat. Southern California fuel model SCAL 18 (sage/buckwheat) was used to represent the coastal sage scrub within the open space on the south of the property on and off-site. The coastal sage scrub onsite is associated with a slope of 16%. A conservative slope of 20% was used to model this habitat. Table 3 identifies the weather inputs for each of the conditions: Santa Ana, peak and summer.

Table 3. Weather Inputs

Period	Temperature (Fahrenheit)	Relative Humidity	Sustained Wind Speed (mph)
Peak (Gusts)	90°	0-4%	32
Santa Ana	90°	0-4%	25
Summer	90°	10-14%	5

Modeling was performed for coastal sage scrub and agricultural lands found within and adjacent to the proposed development. Table 4 identifies the habitats and fuel models used to represent the habitat.

Table 4. Habitats and Fuel Models

Habitat	Fuel Model	Description*
Dry Climate Grasslands	GR4	The primary carrier of fire in this model is continuous, dry-climate grasses. The typical depth is two feet. This is a conservative model of for non-native grassland present onsite and to the east. This model allows that the grasslands may not always be mown.
Coastal Sage Scrub	SCAL 18	This fuel model has been developed for a common southern California habitat, coastal sage scrub.
Chaparral	SH7	The primary carrier of fire in this fuel model is woody shrubs and shrub litter. The typical depth is 4-6 feet. This is an appropriate model for southern mixed chaparral which typically has very little herbaceous composition and has leaf litter.
Chaparral	4	Fire intensity and fast-spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary overstory. Stands of mature shrubs, 6

Table 4. Habitats and Fuel Models		
Habitat	**Fuel Model**	**Description***
		or more feet tall, such as California mixed chaparral, is typical. Besides flammable foliage, dead woody material in the stands significantly contributes to the fire intensity. Height of stands qualifying for this model depends on local conditions. A deep litter layer may also hamper suppression. This model is an ultra-conservative model for the habitat to the south of the site. The habitat to the south is much more open.

* The complete model parameters are included as Appendix C.

The full results of the modeling are included in Appendix B and summarized below for each weather period

7.1.1 Santa Ana Condition

A Santa Ana weather condition is potentially the worst weather for fire. Santa Ana's typically occur from September to May. The fall Santa Ana can create extremely dangerous fire conditions because they are associated with high temperatures, high winds coming from the north/northeast and low humidity. They also occur after long periods of no rain when the vegetation is in a drought stress condition. The soft shrubs that compose habitats such as coastal sage scrub are semi-drought deciduous and have typically lost the majority of their foliage by the end of summer.

Fire Behavior

Santa Ana winds result in a wind-driven fire. These winds typically come from the northeast. Santa Ana winds are Foehn winds, which are warm, dry winds that result from air spilling over high elevations and moving downhill. These are gravity winds that typically follow the ground. When gravity winds hit an obstacle they can either split around the obstacle and continue, or follow the object to the top, launch over the top, and result in an area behind the obstacle with normal wind conditions.

The site is generally the southern facing slope of an east/west trending valley containing the Otay River. A Santa Ana wind would drive the fire to the west along the river valley with topography leading it up the slopes to the project site. There is a large area of undeveloped land within the river valley that would result in a potential fire being able to move north toward the site.

Fire Modeling

Modeling was performed using the Santa Ana weather conditions identified in Table 3 and the fuel model identified in Table 4.

Table 5. Results for a Santa Ana Fire				
	Coastal Sage Scrub	**Grassland/ Agriculture**	**Shrub 7**	**Fuel Model 4**
Flame Length	26’	17’	25’	42’
Rate of Spread	103 ch/h	352 ch/h	134 ch/h	327 ch/h
Probability of Ignition	89%	89%	89%	89%
Spotting Distance	1.1 mi	0.8 mi	1.0 mi	1.5 mi

7.1.2 Peak Conditions

Peak conditions are the extreme conditions during a Santa Ana event. The peak winds represent the gusts that occur during a Santa Ana.

Fire Behavior

The fire behavior would be essentially the same as during a Santa Ana; however, the gusts could significantly increase the rate of spread and the distance that fire brands travel during the time that they are occurring.

Fire Modeling

Modeling was performed using the peak weather conditions identified in Table 3 and the fuel model identified in Table 4.

Table 6. Results for Peak Conditions				
	Coastal Sage Scrub	**Grassland/ Agriculture**	**Shrub 7**	**Fuel Model 4**
Flame Length	31’	22’	29’	50’
Rate of Spread	131 ch/h	508 ch/h	177 ch/h	467 ch/h
Probability of Ignition	89%	89%	89%	89%
Spotting Distance	1.4 mi	1.1 mi	1.3	1.9

7.1.3 Normal Weather Condition

Normal weather conditions consist of an onshore flow from the southwest. This condition has a lower temperature and higher humidity than a Santa Ana condition.

Fire Behavior

A fire under normal conditions is typically a fuel-driven fire; however, wind will also contribute to the rate of spread. A fire that started offsite to the south would also be influenced by topography, with the project being at higher elevations than the undeveloped land offsite.

Fuel Modeling

Modeling was performed using the summer weather conditions identified in Table 3 and the fuel model identified in Table 4.

Table 7. Results for a Summer Fire				
	Coastal Sage Scrub	**Grassland/ Agriculture**	**Shrub 7**	**Fuel Model 4**
Flame Length	15’	7.5’	12’	17’
Rate of Spread	28 ch/h	45 ch/h	25 ch/h	45 ch/h
Probability of Ignition	89%	89%	89%	89%
Spotting Distance	0.2 mi	0.1 mi	0.2 mi	0.3 mi

Based on the modeling, the greatest anticipated flame length is from the chaparral burning during a Peak Santa Ana fire. The resulting flame length is 50 feet. The remaining flame lengths are less than 31 feet.

The model is an estimate of the flame lengths that can be anticipated. Actual fire behavior can be more or less intensive.

8.0 FIRE RESISTIVE CONSTRUCTION

As a result of the project being located within the UWI, and all of the residential structures being located within the potential spotting distance of 1.9 miles, all residential structures shall implement fire resistive construction. Construction methods shall follow Chapter 7A of the California Building Code, “Materials and Construction Methods for Exterior Wildfire Exposure” (http://www.fire.ca.gov/fire_prevention/downloads/ICC_2009_Ch7A_2007_rev_1Jan09_Supplement.pdf) (Appendix D) or more stringent building code requirements if adopted by the City of Chula Vista.

9.0 FUEL MANAGEMENT AND FIRE PROTECTION PLANNING AREAS

As this project is a unique combination of risks and mixed use, Village 9 has been divided into three Fire Protection Planning Areas (FPPA) to differentiate the proposed fuel management procedures. The majority of the project consists of graded, relatively flat developed areas with hardscape or landscaping. These areas present more of an urban fire risk than an Urban Wildland Interface (UWI) risk. The area adjacent to the Multiple Species Conservation Program (MSCP) Subarea Conservation Area – Habitat Preserve (Preserve) to the south is the primary fuel threat. This area will be described as FPPA A (Figure 10 – Map Pocket).

FPPA B is composed of the remainder of the perimeter slopes that have steep manufactured slopes of 2:1 and an elevation change of 10 feet or greater. FPPA B is not adjacent to the MSCP.

FPPA C is composed of the remainder of the interior slopes that have steep manufactured slopes of 2:1 and an elevation change of 10 feet or greater.

The purpose of the fuel management zone (FMZ) is to provide the necessary defensible space for fire suppression and to reduce the radiant heat and convective heat that would result from a fire. Overall onsite fuel management shall be funded through the Community Facilities District (CFD) and/or Landscape Maintenance District and administered by the City of Chula Vista. This will ensure long-term maintenance of these areas. Private landowners are prohibited from conducting any fuel/brush management activities outside of their private property. No combustible construction is permitted by the homeowners, HOA, or developer, or their agents, within the Fuel Management Zones without written authorization from the Chula Vista Fire Department. No brush management shall occur within the MSCP. Fire-resistive construction is that construction designed to prevent or slow the spread of fire using materials and assemblies tested for their fire-resistive properties.

9.1 Fire Protection Planning Area A

The project will provide a minimum of 150 feet of fuel management adjacent to the Preserve, as required by the City of Chula Vista Final MSCP Subarea Plan, Section 7.4.7.1, Brush Management in the Otay Ranch PMA (2003). Property adjacent to the Multiple Species Conservation Program (MSCP) Subarea Conservation Area – Habitat Preserve (Preserve) will have 150 feet of fuel management divided into three 50 foot wide zones. Zone 1 is adjacent to the structures and 50 feet in width. Zone 1 may contain some area in the backyards of Lots 42 and 67. A structure restricted easement shall be placed on the portion of the lots that encroach into Zone 1.

Zone 2 will be the next 50 feet followed by Zone 3, which is adjacent to the MSCP (Figure 10). No structures (as defined in this document) shall be built within the fuel management zones. The plant palette will consist of those plants identified in Appendix E.

No plants shall be allowed from Appendix F which includes:

- City of Chula Vista Final MSCP Subarea Plan (2002), Appendix N, List of Invasive Species
- City of Chula Vista Final MSCP Subarea Plan (2002), Appendix K, List of Undesirable Plants included with the “San Diego County Fire Chief’s Association Fuel Modification Zone Plant List (2008)”

9.1.1 Zones

Zone 1

Zone 1 is the area closest to the structure and is 50 feet in width. For the purposes of fuel management, the term "structure" is defined as: "any building greater than 144 square feet in size".

- Decks, sheds, gazebos, freestanding open-sided shade covers, and similar accessory structures less than 144 square feet and 30 feet or more from a dwelling, and fences more than 5 feet from a dwelling, are not considered structures for the establishment of a fuel modification zone.
- Zone 1 will be will be composed of landscaped low-fuel native plants and/or hardscape. Plants must be low growing (less than 18 inches), including groundcover and vines. Exceptions to this maximum height limitation are:

  - Trees are allowed provided:
    - No tree canopies are lower than 13' 6" over roadways.
    - No trees or limbs are permitted within 10 feet of a structure.
    - Trees must be spaced 20' apart between mature canopies, 40' if on slopes equal to or greater than 2:1. These distances are measured on a horizontal plane and not along the slope.
    - No flammable manufactured items are permitted.
    - Trees must be limbed up to three times the height of the understory for mature trees, or ten feet, whichever is greater.

- Fuel management within this zone shall consist of landscape plantings that are maintained to not create fire hazards near structures.

Zone 2

Zone 2 extends 50 feet beyond Zone 1, and requires that vegetation be limited to two to three feet high. The critical brush management activity in Zone 2 is the clearing of dead underbrush. Portions of Zone 2 may be cleared as a result of grading for the project and as a result some of the following requirements will not apply.

- Thinning shall be performed such that any native vegetation retained is composed of small patches with spacing in-between. Thinning shall prioritize the removal of the plants on the Undesirable Plant List (Appendix F).
- The only vegetation allowed is that found in the Approved Plant List (Appendix E). Native shrubs allowed to remain can be pruned and thinned to reduce fuel load and be aesthetically pleasing. Shrubs clusters will not exceed 400 sq. feet.
- Shrub cluster density shall be reduced to a distance of no less than the width of the largest shrub's mature spread between each cluster or 20 feet, whichever is greater.
- Vegetation within Zone 2 shall be limited in maximum height to 36". Randomly placed CVFD-approved succulent type plant materials may exceed the height

limitation provided they are spaced in groups of no larger than three plants and a minimum of five feet away from described "clear access routes."

- Brush management shall be accomplished through hand clearing.
- No hedges are allowed.
- Trees are allowed as stated under Zone 1, with restrictions stated herein.
- All plants listed on the City of Chula Vista Final MSCP Subarea Plan (2002), Appendix N, Lists of Invasive Species shall be removed and City of Chula Vista Final MSCP Subarea Plan (2002), Appendix K, List of Undesirable Plants included with the "San Diego County Fire Chief's Association Fuel Modification Zone Plant List (2008)"
- Zone 2 may have temporary irrigation installed as required to ensure adequate vegetative cover for slope stability and removed after plant establishment.
- Zone 2 areas adjacent to the Preserve shall have non-emergency brush management undertaken, to the maximum extent practicable, outside the bird breeding season (April 1 through June 31) in areas where breeding and/or nesting may occur.

Zone 3

Zone 3 is the 50 foot wide area adjacent to the MSCP. This area shall be planted with fire resistive vegetation. Plants will be limited to 36" in height. Randomly placed CVFD-approved succulent type plant materials may exceed the height limitation provided they are spaced in groups of no larger than three plants and a minimum of five feet away from described "clear access routes." Shrub cluster density shall be reduced to a distance of no less than the width of the largest shrub's mature spread or 20 feet, whichever is greater.

9.2 Fire Protection Planning Area B (FPPA B)

This area is shown on Figure 10. FPPA B varies in width depending on the location. FPPA area B will include the plant palette outlined in Appendix E. FPPA B will follow the installation, spacing and maintenance requirements for FPPA Zones 1 and 2 unless specified by the City of Chula Vista Fire Marshal.

9.3 Fire Protection Planning Area C

Fire Protection Planning Area C is composed of the interior slopes that have steep manufactured slopes of 2:1 and an elevation change of 10 feet or greater. This zone varies in width. Types and spacing of plants, trees and shrubs are outlined on the Landscape Master Plan. These areas may include privately maintained slopes or slopes maintained by the C.F.D.

9.4 Offsite Fuel Management

An offsite easement for fuel management will be required for 100 feet adjacent to Neighborhood DD (Lots 18, 40) and Area CC. The offsite easement will be located

within FPPA area B. Requirements are discussed in Section 9.2. This easement may be vacated or reduced at the discretion of the Chula Vista Fire Department and Development Services Department, City of Chula Vista, based on subsequent development.

- Other plant species may be used upon the approval of the Fire Marshal and Assistant City Manager/Development Services.

9.5 Maintenance For All Fire Protection Planning Areas

All zones shall be maintained in accordance with Sections 9.1, 9.2, and 9.3.

Zone 1

- Conduct annual, or more frequent if necessary, maintenance to reduce fuel volumes, remove dead and detached material, and maintain in healthy succulent condition. Some private landowners have fuel management Zone 1 occurring on their property and are responsible for maintenance of this area within their lot lines. The covenants, conditions and restrictions (CC&Rs) for the parcels with Zone 1 on their property shall reflect free and full access for City of Chula Vista Fire Department and Public Works Department to monitor and enforce brush abatement. Gates shall not prevent the access of these personnel to conduct these inspections. Fuel management within the individual boundaries of these lots is the responsibility of the lot owner. During initial implementation and before these lots are sold the lots will be maintained by the developer. Maintain irrigation in a working condition (if applicable);
- Mature trees greater than 18’ shall be limbed up to a minimum of 6’ above the ground or 3 times the height of the groundcover, whichever is greater;
- No tree limbs within 10’ of chimneys or dead limbs overhanging structures;
- Trees adjacent to or overhanging roadways, driveways, or other emergency access paths shall be maintained with a minimum height clearance of 13’ 6”.

Zone 2 and 3

- Conduct annual, or more frequent if necessary, maintenance to reduce fuel volumes, remove dead and detached material, and maintain in healthy succulent condition;
- Conduct annual removal of plants on the invasive plant list that may have become established. (FPPA A only)

Vegetation maintenance shall be the responsibility of the Landscape Maintenance District, it successors or assignees, or owner. Overall onsite fuel management shall be funded through the Community Facilities District (CFD) and/Landscape Maintenance District and administered by the City of Chula Vista. This will ensure long-term maintenance of these areas.

9.6 Fuel Management During Construction/Phase Implementation

During phase implementation fuel management shall be implemented. Fuel management zones required for a particular parcel shall be installed and maintained prior to flammable material being brought onto the parcel. This applies even if fuel management has to occur on adjacent parcels.

Lots that are vacant will not be required to have brush management until construction begins, except those portions within 100 feet of any structure under construction or existing, then normal fuel management zones apply.

9.7 Fuel Management for Parks and Community Open Space

This section applies only to parks and community open space within the development. This section specifically does not apply to the MSCP preserve area in the southeastern portion of the project site. Parks and community open space shall be maintained in a fire safe manner. Types and spacing of plants, trees and shrubs will be as identified on the Landscape Master Plan.

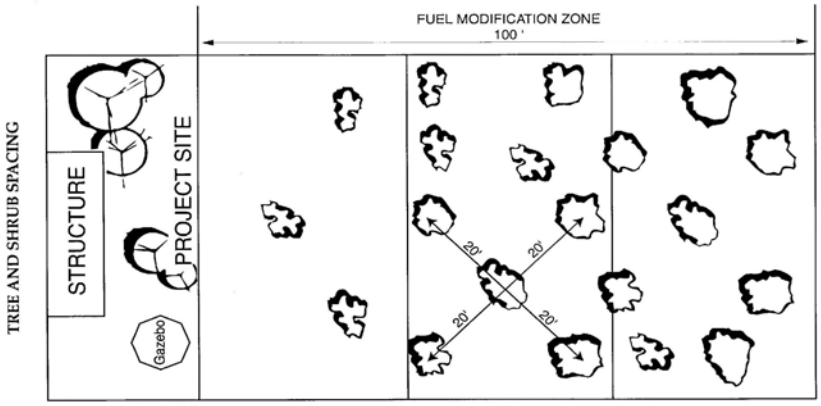
9.8 Emergency Brush Management

In the event that the City Fire Marshal determines an emergency situation exists, minimal additional brush management may be undertaken under the direction of the Fire Marshal. In such an emergency situation, the Fire Marshal will adhere to the Memorandum of Understanding between the Wildlife Agencies, California Department of Forestry, the San Diego County Fire Chief's Association, and the Fire District's Association of San Diego County dated February 26, 1997

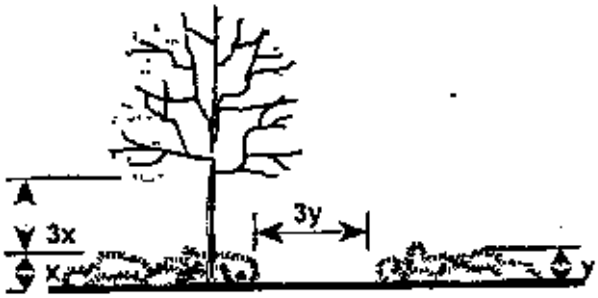
10.0 GUIDELINES FOR PLANTING IN FUEL MODIFICATION ZONES

Planting in fuel modification areas shall be in accordance with the following guidelines:

1. Limit planting in large unbroken masses, especially trees and large shrubs, while simultaneously trying to achieve the desired screening. Groups should be two (2) or three (3) maximum, with mature foliage of any group separated horizontally by at least twenty (20) feet.



2. Avoid massing of shrubs at bases of trees or larger shrubs; adhere to the plant spacing illustrated below:



3. Avoid massing of vegetation adjacent to structures, especially under eaves, overhangs, decks, etc.
4. Limit the use of plants that have the following characteristics:
   - Dry or deciduous foliage during part of the year.
   - Deciduous or shaggy bark.
   - Dry or dead undergrowth.
5. Avoid topping trees as this causes excessive branching, which can increase fire danger.

11.0 REFERENCES

California Fire Code 2007. California Code of Regulations, Title 24, Part 9. International Code Council.

Cal-IPC. 2006. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, CA. Available: www.cal-ipc.org.

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Chula Vista 2002. Subdivision Manual. Development Services Department. Chula Vista, CA. Revised 7/1/2010.

Chula Vista 2002. Ordinance 2879§1. Adoption of the International Code Council Urban – Wildland Interface Code.

Chula Vista 2003. City of Chula Vista Final MSCP Subarea Plan.

Chula Vista 2007. Ordinance 3093. Ordinance of the City of Chula Vista amending Chapter 15.36 of the Chula Vista Municipal Code Adopting the California Fire Code. December 2007.

Chula Vista 2008. Ordinance 3113§ 1, Adoption of map titled "Very High Severity Hazard Zones (VHFHSZ)-Local Responsibility Areas (LRA).

International Urban Wildland Interface Code 2000. International Code Council.

National Fire Protection Agency 2010. NFPA 1710 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, 2010 Edition.

Office of the State Fire Marshal. Chapter 7A of the California Building Code, "Materials and Construction Methods for Exterior Wildfire Exposure" (http://www.fire.ca.gov/fire_prevention/downloads/ICC_2009_Ch7A_2007_rev_1Jan09_Supplement.pdf)

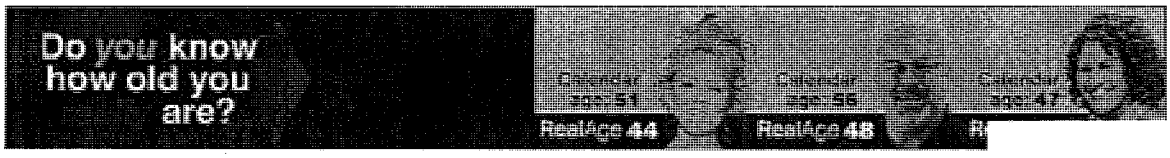
Western Regional Climate Center. http://www.wrcc.dri.edu/

12.0 ERRORS AND OMISSIONS

RC Biological Consulting, Inc. disclaims liability for any personal injury, property or other damages of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on this document by the project, or any regulatory or permitting agency.

APPENDIX A

WEATHER CONDITIONS

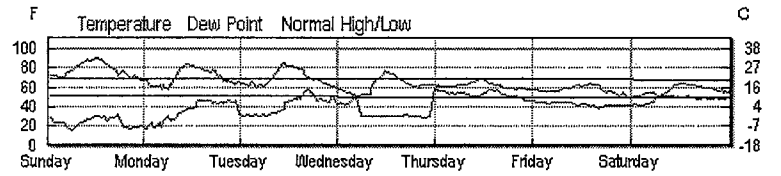


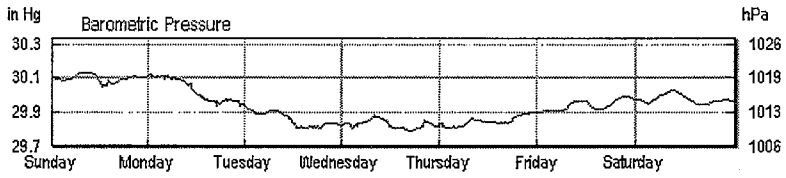
History for San Diego Brown, CA

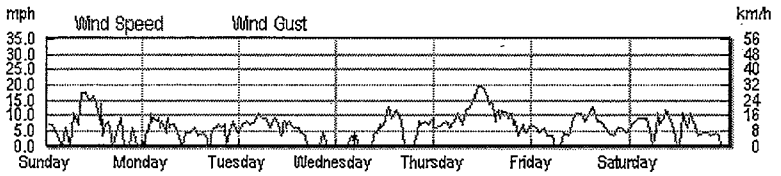
Week of October 26, 2003 through November 1, 2003

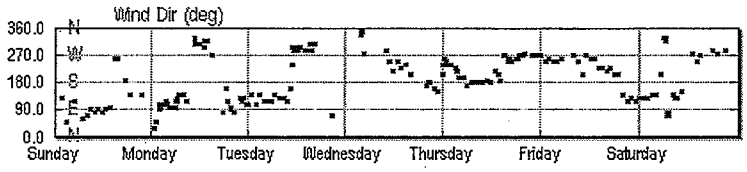
Weekly Summary

	Max:	Avg:	Min:	Sum:
Temperature:				
Max Temperature	91 °F	77 °F	64 °F	
Mean Temperature	80 °F	66 °F	57 °F	
Min Temperature	64 °F	55 °F	50 °F	
Degree Days:				
Heating Degree Days (base 65)	8	3	0	20
Cooling Degree Days (base 65)	15	4	0	29
Growing Degree Days (base 50)	30	16	7	115
Dew Point:				
Dew Point	59 °F	41 °F	16 °F	
Precipitation:				
Precipitation	0.06 in	0.01 in	0.00 in	0.06 in
Snowdepth	-	-	-	-
Wind:				
Wind	20 mph	5 mph	0 mph	
Gust Wind	25 mph	22 mph	20 mph	
Sea Level Pressure:				
Sea Level Pressure	30.13 in	29.95 in	29.79 in	









Daily Observations

2003	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Visibility (mi)			Wind (mph)		Gust Speed (mph)	Precip (in)	Events
October	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	

26	91	80	64	34	25	16	24	14	10	30.13	30.09	30.05	-	8	2	17	7	25	0.00	
27	84	70	57	47	30	17	52	25	13	30.12	30.11	29.94	-	3	1	10	3	-	0.00	
28	86	72	59	58	45	31	70	38	18	29.92	29.89	29.81	-	3	2	10	7	-	0.00	
29	77	64	50	59	40	28	100	44	19	29.88	29.82	29.79	-	4	0	13	0	-	0.00	
30	70	64	57	58	57	46	88	73	53	29.90	29.83	29.81	-	10	10	20	6	24	0.00	Rain
31	64	57	50	45	44	39	74	57	41	29.99	29.92	29.90	-	10	9	13	5	-	0.00	

2003	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Visibility (mi)			Wind (mph)		Gust Speed (mph)	Precip (in)	Events
November	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	64	58	51	52	47	42	100	76	58	30.03	29.97	29.95	-	9	2	12	7	-	0.06	Rain

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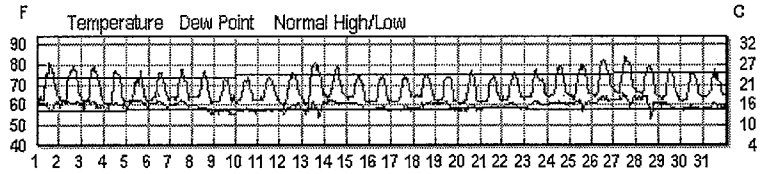
Shock Absorbers for Your Sole. BIRKENSTOCK

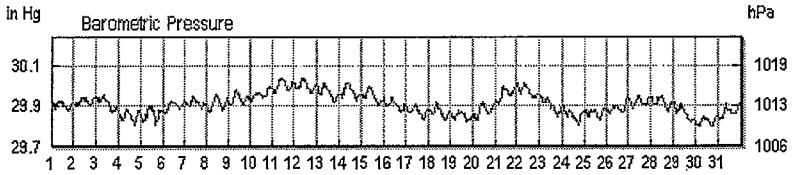
History for San Diego Brown, CA

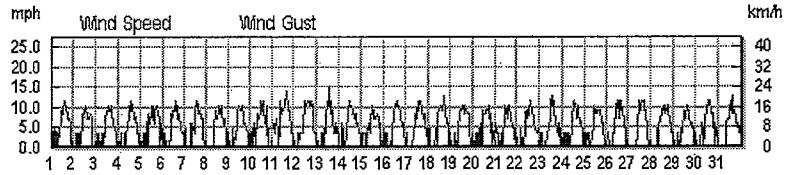
Month of July, 2007

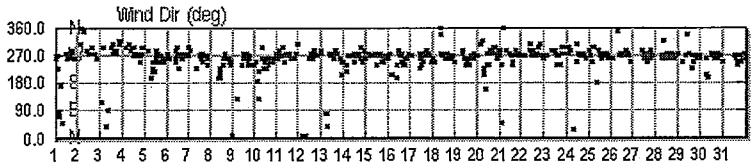
Monthly Summary

	Max:	Avg:	Min:	Sum:
Temperature:				
Max Temperature	84 °F	78 °F	74 °F	
Mean Temperature	75 °F	70 °F	67 °F	
Min Temperature	65 °F	62 °F	59 °F	
Degree Days:				
Heating Degree Days (base 65)	0	0	0	0
Cooling Degree Days (base 65)	10	5	2	168
Growing Degree Days (base 50)	25	19	16	604
Dew Point:				
Dew Point	66 °F	59 °F	53 °F	
Precipitation:				
Precipitation	0.00 in	0.00 in	0.00 in	0.00 in
Snowdepth	-	-	-	-
Wind:				
Wind	16 mph	5 mph	0 mph	
Gust Wind	21 mph	16 mph	16 mph	
Sea Level Pressure:				
Sea Level Pressure	30.04 in	29.91 in	29.80 in	









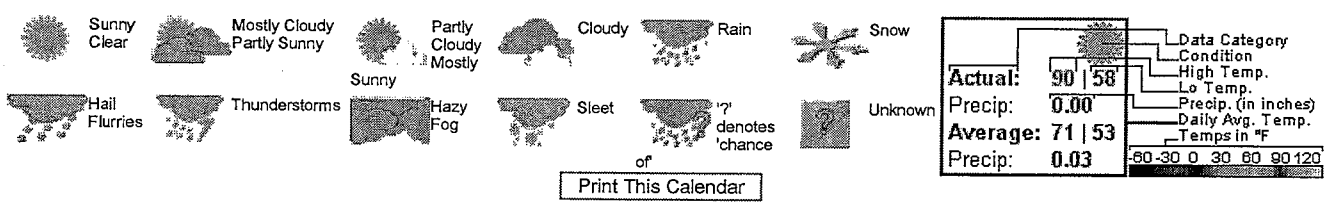
Monthly Calendar Overview

« Previous Month « 2006 July 2007 2008 » Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Actual: 82 | 62 Precip: 0.00 Average: 74 | 57 Precip: -	2 Actual: 79 | 62 Precip: 0.00 Average: 74 | 57 Precip: -	3 Actual: 80 | 59 Precip: 0.00 Average: 74 | 57 Precip: -	4 Actual: 78 | 59 Precip: 0.00 Average: 74 | 57 Precip: -	5 Actual: 77 | 61 Precip: 0.00 Average: 74 | 58 Precip: -	6 Actual: 77 | 62 Precip: 0.00 Average: 74 | 58 Precip: -	7 Actual: 80 | 63 Precip: 0.00 Average: 74 | 58 Precip: -
8 Actual: 78 | 64 Precip: 0.00 Average: 74 | 58 Precip: -	9 Actual: 74 | 61 Precip: 0.00 Average: 74 | 58 Precip: -	10 Actual: 74 | 60 Precip: 0.00 Average: 75 | 58 Precip: -	11 Actual: 75 | 63 Precip: 0.00 Average: 75 | 58 Precip: -	12 Actual: 76 | 59 Precip: 0.00 Average: 75 | 58 Precip: -	13 Actual: 82 | 59 Precip: 0.00 Average: 75 | 58 Precip: -	14 Actual: 79 | 62 Precip: 0.00 Average: 75 | 58 Precip: -
15 Actual: 76 | 63 Precip: 0.00 Average: 75 | 58 Precip: -	16 Actual: 76 | 62 Precip: 0.00 Average: 75 | 58 Precip: -	17 Actual: 77 | 61 Precip: 0.00 Average: 75 | 58 Precip: -	18 Actual: 76 | 64 Precip: 0.00 Average: 75 | 58 Precip: -	19 Actual: 76 | 61 Precip: 0.00 Average: 75 | 58 Precip: -	20 Actual: 78 | 60 Precip: 0.00 Average: 75 | 59 Precip: -	21 Actual: 76 | 61 Precip: 0.00 Average: 75 | 59 Precip: -
22 Actual: 77 | 62 Precip: 0.00 Average: 75 | 59 Precip: -	23 Actual: 79 | 63 Precip: 0.00 Average: 75 | 58 Precip: -	24 Actual: 81 | 64 Precip: 0.00 Average: 75 | 58 Precip: -	25 Actual: 82 | 63 Precip: 0.00 Average: 75 | 58 Precip: -	26 Actual: 84 | 64 Precip: 0.00 Average: 75 | 58 Precip: -	27 Actual: 84 | 65 Precip: 0.00 Average: 76 | 58 Precip: -	28 Actual: 81 | 65 Precip: 0.00 Average: 76 | 58 Precip: -
29 Actual: 79 | 62 Precip: 0.00 Average: 76 | 58 Precip: -	30 Actual: 77 | 61 Precip: 0.00 Average: 76 | 58 Precip: -	31 Actual: 78 | 63 Precip: 0.00 Average: 76 | 58 Precip: -				

« Previous Month « 2006 2008 » Next Month »

Calendar Key:



Print This Calendar

Daily Observations

2007	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Visibility (mi)			Wind (mph)		Gust Speed (mph)	Precip (in)	Events
July	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	82	72	62	63	61	57	100	73	45	29.93	29.92	29.88	10	5	0	12	5	15	0.00	Fog
2	79	71	62	63	60	59	100	77	54	29.94	29.91	29.90	10	5	0	13	4	16	0.00	Fog
3	80	70	59	63	61	57	100	77	54	29.96	29.95	29.87	10	4	0	13	4	16	0.00	Fog
4	78	69	59	61	58	57	100	78	56	29.89	29.86	29.81	10	5	0	12	4	16	0.00	Fog
5	77	69	61	63	59	59	100	80	60	29.90	29.83	29.81	10	5	0	12	4	16	0.00	Fog
6	77	70	62	63	60	59	93	77	60	29.93	29.88	29.86	10	6	2	12	5	16	0.00	
7	80	72	63	63	60	59	93	76	58	29.95	29.91	29.89	10	7	2	13	5	16	0.00	
8	78	71	64	60	60	55	87	71	54	29.96	29.90	29.87	10	8	5	14	4	17	0.00	
9	74	68	61	58	56	56	84	71	57	29.98	29.94	29.91	10	9	5	13	5	17	0.00	
10	74	67	60	59	57	56	90	74	57	30.00	29.94	29.93	10	10	9	15	6	18	0.00	
11	75	69	63	58	57	57	84	71	57	30.04	29.99	29.97	10	10	9	15	7	21	0.00	

12	76	68	59	61	57	55	90	75	60	30.04	30.00	29.97	10	10	8	14	5	18	0.00	
13	82	71	59	62	57	54	96	71	45	30.01	29.97	29.92	10	8	0	16	5	18	0.00	Fog
14	79	71	62	63	62	60	93	74	54	30.01	29.95	29.93	10	9	6	13	5	15	0.00	
15	76	70	63	61	61	58	93	77	60	30.00	29.95	29.90	10	8	4	13	5	18	0.00	
16	76	69	62	60	57	57	90	74	58	29.94	29.92	29.87	10	8	4	14	5	18	0.00	
17	77	69	61	60	58	57	84	71	57	29.91	29.88	29.83	10	9	5	14	5	17	0.00	
18	76	70	64	62	59	59	87	74	60	29.92	29.88	29.83	10	9	6	14	5	17	0.00	
19	76	69	61	62	60	57	93	78	62	29.88	29.86	29.82	10	7	2	13	5	17	0.00	
20	78	69	60	60	58	57	96	76	56	29.92	29.86	29.83	10	6	2	12	4	17	0.00	
21	76	69	61	60	57	57	90	75	60	30.01	29.95	29.91	10	8	4	13	5	17	0.00	
22	77	70	62	61	59	58	93	77	60	30.01	29.99	29.94	10	8	5	13	4	16	0.00	
23	79	71	63	62	59	59	87	73	58	29.94	29.94	29.85	10	9	6	14	5	17	0.00	
24	81	73	64	62	60	60	87	71	54	29.90	29.88	29.81	10	9	8	14	5	16	0.00	
25	82	73	63	63	61	57	93	69	45	29.89	29.87	29.83	10	9	7	13	5	15	0.00	
26	84	74	64	64	61	61	87	69	51	29.94	29.88	29.86	10	9	7	15	5	17	0.00	
27	84	75	65	66	63	58	87	69	51	29.95	29.91	29.89	10	9	6	14	5	17	0.00	
28	81	73	65	64	63	53	93	68	42	29.95	29.92	29.87	10	6	1	13	5	16	0.00	
29	79	71	62	61	61	58	93	74	54	29.92	29.90	29.82	10	8	4	14	4	18	0.00	
30	77	69	61	60	58	57	90	74	58	29.85	29.81	29.80	10	9	6	14	5	18	0.00	
31	78	71	63	61	58	57	84	69	54	29.91	29.86	29.83	10	9	6	15	4	18	0.00	

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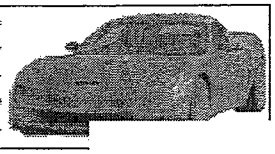
K&N AIR INTAKES
GUARANTEED HORSEPOWER
FIND YOUR HP GAIN HERE!
2008-2009 Honda Accord 3.5L +10.23 HP
2004-2008 Ford F-150 5.4L +15.47 HP
2006-2009 Chevy Corvette Z06 7L +27.22 HP
2008-2009 Pontiac G8 6.0L +11.88 HP
2006-2009 Honda Civic Si 2.0L + 7.01 HP

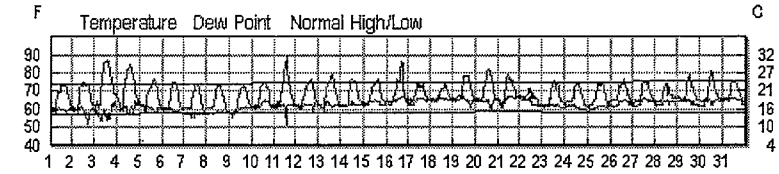


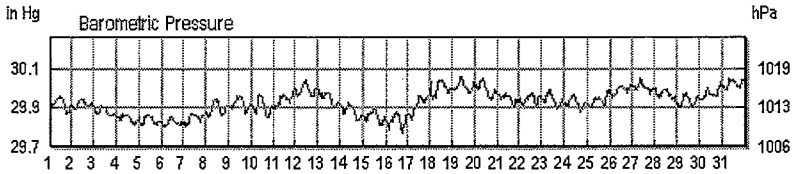
History for San Diego Brown, CA

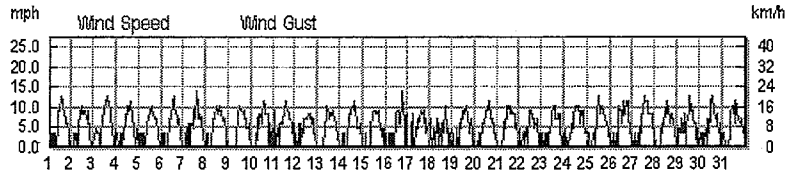
Month of July, 2003

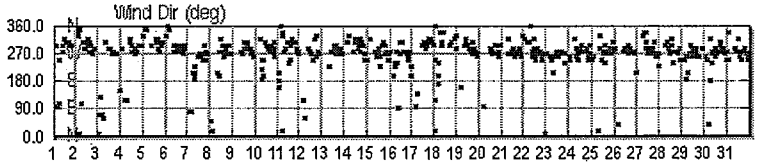
Monthly Summary

	Max:	Avg:	Min:	Sum:
Temperature:				
Max Temperature	90 °F	79 °F	73 °F	
Mean Temperature	76 °F	69 °F	65 °F	
Min Temperature	64 °F	61 °F	55 °F	
Degree Days:				
Heating Degree Days (base 65)	0	0	0	0
Cooling Degree Days (base 65)	11	4	0	131
Growing Degree Days (base 50)	26	19	15	601
Dew Point:				
Dew Point	67 °F	62 °F	51 °F	
Precipitation:				
Precipitation	0.01 in	0.00 in	0.00 in	0.03 in
Snowdepth	-	-	-	-
Wind:				
Wind	14 mph	1 mph	0 mph	
Gust Wind	17 mph	16 mph	16 mph	
Sea Level Pressure:				
Sea Level Pressure	30.06 in	29.92 in	29.77 in	









Monthly Calendar Overview

« Previous Month « 2002 **July 2003** 2004 » Next Month »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 **Actual:** 75 | 55 Precip: 0.00 **Average:** 74 | 57 Precip: -	2 **Actual:** 77 | 57 Precip: 0.00 **Average:** 74 | 57 Precip: -	3 **Actual:** 88 | 59 Precip: 0.00 **Average:** 74 | 57 Precip: -	4 **Actual:** 84 | 57 Precip: 0.00 **Average:** 74 | 57 Precip: -	5 **Actual:** 78 | 59 Precip: 0.00 **Average:** 74 | 58 Precip: -
6 **Actual:** 77 | 59 Precip: 0.00 **Average:** 74 | 58 Precip: -	7 **Actual:** 75 | 59 Precip: 0.00 **Average:** 74 | 58 Precip: -	8 **Actual:** 75 | 57 Precip: 0.00 **Average:** 74 | 58 Precip: -	9 **Actual:** 75 | 57 Precip: 0.00 **Average:** 74 | 58 Precip: -	10 **Actual:** 75 | 60 Precip: 0.00 **Average:** 75 | 58 Precip: -	11 **Actual:** 90 | 62 Precip: 0.00 **Average:** 75 | 58 Precip: -	12 **Actual:** 78 | 59 Precip: 0.00 **Average:** 75 | 58 Precip: -
13 **Actual:** 79 | 60 Precip: 0.00 **Average:** 75 | 58 Precip: -	14 **Actual:** 78 | 61 Precip: 0.01 **Average:** 75 | 58 Precip: -	15 **Actual:** 78 | 63 Precip: 0.00 **Average:** 75 | 58 Precip: -	16 **Actual:** 88 | 62 Precip: 0.00 **Average:** 75 | 58 Precip: -	17 **Actual:** 75 | 63 Precip: 0.00 **Average:** 75 | 58 Precip: -	18 **Actual:** 77 | 64 Precip: 0.00 **Average:** 75 | 58 Precip: -	19 **Actual:** 80 | 64 Precip: 0.01 **Average:** 75 | 58 Precip: -
20 **Actual:** 82 | 64 Precip: 0.00 **Average:** 75 | 59 Precip: -	21 **Actual:** 80 | 62 Precip: 0.00 **Average:** 75 | 59 Precip: -	22 **Actual:** 73 | 62 Precip: 0.00 **Average:** 75 | 59 Precip: -	23 **Actual:** 77 | 61 Precip: 0.00 **Average:** 75 | 58 Precip: -	24 **Actual:** 75 | 61 Precip: 0.00 **Average:** 75 | 58 Precip: -	25 **Actual:** 75 | 61 Precip: 0.00 **Average:** 75 | 58 Precip: -	26 **Actual:** 77 | 63 Precip: 0.00 **Average:** 75 | 58 Precip: -
27 **Actual:** 77 | 62 Precip: 0.00 **Average:** 76 | 58 Precip: -	28 **Actual:** 77 | 62 Precip: 0.01 **Average:** 76 | 58 Precip: -	29 **Actual:** 80 | 64 Precip: 0.00 **Average:** 76 | 58 Precip: -	30 **Actual:** 82 | 63 Precip: 0.00 **Average:** 76 | 58 Precip: -	31 **Actual:** 77 | 64 Precip: 0.00 **Average:** 76 | 58 Precip: -		

« Previous Month « 2002 2004 » Next Month »

Calendar Key:

Sunny Clear · Mostly Cloudy Partly Sunny · Partly Sunny Cloudy Mostly · Cloudy · Rain · Snow · Hail Flurries · Thunderstorms · Hazy Fog · Sleet · '?' denotes 'chance of' · Unknown

Print This Calendar

Actual: 90 | 58
Precip: 0.00
Average: 71 | 53
Precip: 0.03

Data Category · Condition · High Temp. · Lo Temp. · Precip. (in inches) · Daily Avg. Temp. · Temps in °F

-60 -30 0 30 60 90 120

Daily Observations

2003	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Pressure (in)			Visibility (mi)			Wind (mph)		Gust Speed (mph)	Precip (in)	Events
July	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1	75	65	55	61	60	57	100	81	59	29.96	29.91	29.87	-	6	0	13	1	-	0.00	Fog
2	77	66	57	62	60	52	100	79	46	29.94	29.91	29.89	-	6	0	10	0	-	0.00	Fog
3	88	74	59	64	57	54	90	62	32	29.91	29.88	29.86	-	9	6	13	4	-	0.00	
4	84	72	57	64	60	57	100	76	40	29.87	29.85	29.81	-	8	2	12	1	-	0.00	
5	78	68	59	63	63	58	100	86	54	29.86	29.83	29.81	-	5	0	10	2	-	0.00	Fog
6	77	67	59	61	60	58	100	88	57	29.85	29.82	29.80	-	4	0	13	2	-	0.00	Fog
7	75	66	59	58	57	56	93	80	55	29.87	29.82	29.80	-	7	3	14	0	16	0.00	
8	75	66	57	59	57	57	96	81	57	29.94	29.88	29.85	-	8	0	10	0	17	0.00	
9	75	65	57	62	57	55	100	86	66	29.96	29.90	29.87	-	5	1	10	0	-	0.00	
10	75	68	60	65	60	60	100	86	69	29.97	29.91	29.85	-	4	0	12	0	-	0.00	Fog
11	90	76	62	63	62	51	100	83	26	30.00	29.89	29.89	-	6	2	12	3	-	0.00	

12	78	69	59	64	62	59	100	84	61	30.04	29.98	29.96	-	6	2	8	1	-	0.00	
13	79	70	60	64	62	59	100	86	56	29.99	29.98	29.90	-	6	0	10	0	-	0.00	Fog
14	78	70	61	64	62	62	100	86	62	29.93	29.90	29.84	-	6	0	12	0	-	0.01	Fog
15	78	70	63	65	63	62	100	89	64	29.89	29.85	29.81	-	5	1	9	0	-	0.00	
16	88	74	62	67	64	63	100	86	53	29.88	29.81	29.77	-	5	1	14	0	-	0.00	
17	75	70	63	66	64	63	100	87	73	29.97	29.90	29.84	-	5	2	9	2	-	0.00	
18	77	70	64	66	64	64	100	92	73	30.04	29.97	29.94	-	5	2	10	5	-	0.00	
19	80	71	64	67	64	61	100	87	62	30.06	30.00	29.98	-	6	2	10	3	-	0.01	Rain
20	82	73	64	66	64	60	100	88	52	30.05	30.02	29.94	-	5	0	12	0	-	0.00	Fog
21	80	70	62	67	64	61	100	88	66	29.98	29.96	29.90	-	6	1	10	0	-	0.00	
22	73	66	62	67	66	62	100	90	81	29.98	29.94	29.91	-	7	4	9	2	-	0.00	
23	77	68	61	63	62	61	100	88	62	29.99	29.94	29.89	-	5	1	10	1	-	0.00	
24	75	68	61	63	61	59	97	84	64	29.97	29.92	29.88	-	8	5	10	2	-	0.00	
25	75	68	61	63	60	59	100	82	64	29.99	29.91	29.90	-	9	6	13	3	-	0.00	
26	77	70	63	65	63	61	97	83	66	30.02	29.97	29.95	-	9	6	12	3	-	0.00	
27	77	69	62	66	62	62	97	85	71	30.05	30.00	29.97	-	8	4	13	1	-	0.00	
28	77	68	62	65	62	62	97	90	71	30.00	29.97	29.92	-	8	6	12	0	-	0.01	Rain
29	80	72	64	65	64	62	100	85	62	29.98	29.93	29.90	-	8	3	13	2	-	0.00	
30	82	72	63	66	62	62	100	86	54	30.03	29.95	29.94	-	8	4	13	2	-	0.00	Rain
31	77	70	64	66	64	63	96	85	71	30.05	30.01	29.99	-	8	3	12	2	16	0.00	

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APPENDIX B

FUEL MODELING

Inputs: SURFACE, SPOT, IGNITE

Description		Otay Village Parcel C - Summer grass,css
Fuel/Vegetation, Surface/Understory		
Fuel Model		gr4, SCAL18
Fuel/Vegetation, Overstory		
Canopy Height	ft	3
Fuel Moisture		
Moisture Scenario		d111
Weather		
20-ft Wind Speed	mi/h	5
Wind Adjustment Factor		0.4
Wind Direction (from north)	deg	225,270
Air Temperature	oF	90
Fuel Shading from the Sun	%	0
Terrain		
Slope Steepness	%	20
Aspect	deg	180
Ridge-to-Valley Elevation Difference	ft	0
Ridge-to-Valley Horizontal Distance	mi	0
Spotting Source Location		RT

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Spot Dist from a Wind Driven Surface Fire (mi) [SPOT]

Probability of Ignition from a Firebrand (%) [IGNITE]

(continued on next page)

Otay Village Parcel C - Summer grass,css

Surface Rate of Spread (maximum) (ch/h)

Fuel Model	Wind Direction (from north) deg	
	225	270
gr4	44.3	39.3
SCAL18	27.2	25.4

Otay Village Parcel C - Summer grass,css

Flame Length (ft)

Fuel Model	Wind Direction (from north) deg	
	225	270
gr4	7.2	6.8
SCAL18	14.9	14.5

Otay Village Parcel C - Summer grass,css

Spot Dist from a Wind Driven Surface Fire (mi)

Fuel Model	Wind Direction (from north) deg	
	225	270
gr4	0.1	0.1
SCAL18	0.2	0.2

Otay Village Parcel C - Summer grass,css

Probability of Ignition from a Firebrand (%)

Fuel Model	Wind Direction (from north) deg	
	225	270
gr4	89	89
SCAL18	89	89

Discrete Variable Codes Used
Otay Village Parcel C - Summer grass,css

Fuel Model

gr4	Moderate load, dry climate grass (D) (104)
SCAL18	Sage / Buckwheat

Moisture Scenario

d1l1	D1L1 - Very low dead, fully cured herb (3,4,5,30,60)

Peak

Inputs: SURFACE, SPOT, IGNITE

Description		Otay Village Parcel C - Santa Ana
Fuel/Vegetation, Surface/Understory		
Fuel Model		4, sh7
Fuel/Vegetation, Overstory		
Canopy Height	ft	6
Fuel Moisture		
Moisture Scenario		d111
Weather		
20-ft Wind Speed	mi/h	32
Wind Adjustment Factor		0.4
Wind Direction (from north)	deg	90,135
Air Temperature	oF	90
Fuel Shading from the Sun	%	0
Terrain		
Slope Steepness	%	20
Aspect	deg	180
Ridge-to-Valley Elevation Difference	ft	0
Ridge-to-Valley Horizontal Distance	mi	0
Spotting Source Location		RT

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Spot Dist from a Wind Driven Surface Fire (mi) [SPOT]

Probability of Ignition from a Firebrand (%) [IGNITE]

(continued on next page)

Otay Village Parcel C - Santa Ana

Surface Rate of Spread (maximum) (ch/h)

Fuel Model	Wind Direction (from north) deg	
	90	135
4	460.9	466.4
sh7	174.5	176.8

Otay Village Parcel C - Santa Ana

Flame Length (ft)

Fuel Model	Wind Direction (from north) deg	
	90	135
4	49.1	49.3
sh7	28.3	28.5

Otay Village Parcel C - Santa Ana

Spot Dist from a Wind Driven Surface Fire (mi)

Fuel Model	Wind Direction (from north) deg	
	90	135
4	1.9	1.9
sh7	1.3	1.3

Otay Village Parcel C - Santa Ana

Probability of Ignition from a Firebrand (%)

Fuel Model	Wind Direction (from north) deg	
	90	135
4	89	89
sh7	89	89

Discrete Variable Codes Used
Otay Village Parcel C - Santa Ana

Fuel Model

4	Chaparral (S)
sh7	Very high load, dry climate shrub (S) (147)

Moisture Scenario

d1l1	D1L1 - Very low dead, fully cured herb (3,4,5,30,60)

Inputs: SURFACE, SPOT, IGNITE

Description		Otay Village Parcel C - Santa Ana, chapparal
Fuel/Vegetation, Surface/Understory		
Fuel Model		4, sh7
Fuel/Vegetation, Overstory		
Canopy Height	ft	6
Fuel Moisture		
Moisture Scenario		d111
Weather		
20-ft Wind Speed	mi/h	25
Wind Adjustment Factor		0.4
Wind Direction (from north)	deg	90,135
Air Temperature	oF	90
Fuel Shading from the Sun	%	0
Terrain		
Slope Steepness	%	20
Aspect	deg	180
Ridge-to-Valley Elevation Difference	ft	0
Ridge-to-Valley Horizontal Distance	mi	0
Spotting Source Location		RT

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Spot Dist from a Wind Driven Surface Fire (mi) [SPOT]

Probability of Ignition from a Firebrand (%) [IGNITE]

(continued on next page)

Otay Village Parcel C - Santa Ana, chapparal

Surface Rate of Spread (maximum) (ch/h)

Fuel Model	Wind Direction (from north) deg	
	90	135
4	326.7	332.2
sh7	131.2	133.5

Otay Village Parcel C - Santa Ana, chapparal

Flame Length (ft)

Fuel Model	Wind Direction (from north) deg	
	90	135
4	41.9	42.2
sh7	24.8	25.0

Otay Village Parcel C - Santa Ana, chapparal

Spot Dist from a Wind Driven Surface Fire (mi)

Fuel Model	Wind Direction (from north) deg	
	90	135
4	1.5	1.5
sh7	1.0	1.0

Otay Village Parcel C - Santa Ana, chapparal

Probability of Ignition from a Firebrand (%)

Fuel Model	Wind Direction (from north) deg	
	90	135
4	89	89
sh7	89	89

Discrete Variable Codes Used
Otay Village Parcel C - Santa Ana, chapparal

Fuel Model

4	Chaparral (S)
sh7	Very high load, dry climate shrub (S) (147)

Moisture Scenario

d1l1	D1L1 - Very low dead, fully cured herb (3,4,5,30,60)

Peak

Inputs: SURFACE, SPOT, IGNITE

Description		Otay Village Parcel C - Santa Ana
Fuel/Vegetation, Surface/Understory		
Fuel Model		gr4, SCAL18
Fuel/Vegetation, Overstory		
Canopy Height	ft	3
Fuel Moisture		
Moisture Scenario		d111
Weather		
20-ft Wind Speed	mi/h	32
Wind Adjustment Factor		0.4
Wind Direction (from north)	deg	90,135
Air Temperature	oF	90
Fuel Shading from the Sun	%	0
Terrain		
Slope Steepness	%	20
Aspect	deg	180
Ridge-to-Valley Elevation Difference	ft	0
Ridge-to-Valley Horizontal Distance	mi	0
Spotting Source Location		RT

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Spot Dist from a Wind Driven Surface Fire (mi) [SPOT]

Probability of Ignition from a Firebrand (%) [IGNITE]

(continued on next page)

Otay Village Parcel C - Santa Ana

Surface Rate of Spread (maximum) (ch/h)

Fuel Model	Wind Direction (from north) deg	
	90	135
gr4	502.0	507.4
SCAL18	128.7	130.5

Otay Village Parcel C - Santa Ana

Flame Length (ft)

Fuel Model	Wind Direction (from north) deg	
	90	135
gr4	21.9	22.0
SCAL18	30.5	30.7

Otay Village Parcel C - Santa Ana

Spot Dist from a Wind Driven Surface Fire (mi)

Fuel Model	Wind Direction (from north) deg	
	90	135
gr4	1.1	1.1
SCAL18	1.4	1.4

Otay Village Parcel C - Santa Ana

Probability of Ignition from a Firebrand (%)

Fuel Model	Wind Direction (from north) deg	
	90	135
gr4	89	89
SCAL18	89	89

Discrete Variable Codes Used
Otay Village Parcel C - Santa Ana

Fuel Model

gr4	Moderate load, dry climate grass (D) (104)
SCAL18	Sage / Buckwheat

Moisture Scenario

d1l1	D1L1 - Very low dead, fully cured herb (3,4,5,30,60)

Inputs: SURFACE, SPOT, IGNITE

Description		Otay Village Parcel C - Santa Ana-grass/css
Fuel/Vegetation, Surface/Understory		
Fuel Model		gr4, SCAL18
Fuel/Vegetation, Overstory		
Canopy Height	ft	3
Fuel Moisture		
Moisture Scenario		d111
Weather		
20-ft Wind Speed	mi/h	25
Wind Adjustment Factor		0.4
Wind Direction (from north)	deg	90,135
Air Temperature	oF	90
Fuel Shading from the Sun	%	0
Terrain		
Slope Steepness	%	20
Aspect	deg	180
Ridge-to-Valley Elevation Difference	ft	0
Ridge-to-Valley Horizontal Distance	mi	0
Spotting Source Location		RT

Run Option Notes

Maximum reliable effective wind speed limit IS imposed [SURFACE].

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations [SURFACE].

Wind and spread directions are degrees clockwise from north [SURFACE].

Wind direction is the direction from which the wind is blowing [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Spot Dist from a Wind Driven Surface Fire (mi) [SPOT]

Probability of Ignition from a Firebrand (%) [IGNITE]

(continued on next page)

Otay Village Parcel C - Santa Ana-grass/css

Surface Rate of Spread (maximum) (ch/h)

Fuel Model	Wind Direction (from north) deg	
	90	135
gr4	351.9	357.4
SCAL18	102.9	104.8

Otay Village Parcel C - Santa Ana-grass/css

Flame Length (ft)

Fuel Model	Wind Direction (from north) deg	
	90	135
gr4	18.6	18.7
SCAL18	27.6	27.8

Otay Village Parcel C - Santa Ana-grass/css

Spot Dist from a Wind Driven Surface Fire (mi)

Fuel Model	Wind Direction (from north) deg	
	90	135
gr4	0.8	0.8
SCAL18	1.1	1.1

Otay Village Parcel C - Santa Ana-grass/css

Probability of Ignition from a Firebrand (%)

Fuel Model	Wind Direction (from north) deg	
	90	135
gr4	89	89
SCAL18	89	89

Discrete Variable Codes Used
Otay Village Parcel C - Santa Ana-grass/css

Fuel Model

gr4	Moderate load, dry climate grass (D) (104)
SCAL18	Sage / Buckwheat

Moisture Scenario

d1l1	D1L1 - Very low dead, fully cured herb (3,4,5,30,60)

APPENDIX C

FUEL PARAMETERS

Fuel Model gr4

Fuel Model Number	104
Fuel Model Name	gr4
Fuel Model Type	Dynamic
Description	Moderate load, dry climate grass (D)
1-h Fuel Load	0.25 tons/ac
10-h Fuel Load	0 tons/ac
100-h Fuel Load	0 tons/ac
Live Herbaceous Fuel Load	1.9 tons/ac
Live Woody Fuel Load	0 tons/ac
1-h Surface Area/Vol Ratio	2000 ft2/ft3
Live Herbaceous Surface Area/Vol Ratio	1800 ft2/ft3
Live Woody Surface Area/Vol Ratio	1500 ft2/ft3
Fuel Bed Depth	2 feet
Dead Fuel Moisture of Extinction	15 percent
Dead Fuel Heat Content	8000 Btu/lb
Live Fuel Heat Content	8000 Btu/lb

Fuel Model SCAL18

Fuel Model Number	0
Fuel Model Name	SCAL18
Fuel Model Type	Static
Description	Sage / Buckwheat
1-h Fuel Load	5.5 tons/ac
10-h Fuel Load	0.8 tons/ac
100-h Fuel Load	0.1 tons/ac
Live Herbaceous Fuel Load	0.75 tons/ac
Live Woody Fuel Load	2.5 tons/ac
1-h Surface Area/Vol Ratio	640 ft2/ft3
Live Herbaceous Surface Area/Vol Ratio	1500 ft2/ft3
Live Woody Surface Area/Vol Ratio	640 ft2/ft3
Fuel Bed Depth	3 feet
Dead Fuel Moisture of Extinction	25 percent
Dead Fuel Heat Content	9200 Btu/lb
Live Fuel Heat Content	9200 Btu/lb

APPENDIX D

Chapter 7A of the California Building Code, “Materials and Construction Methods for Exterior Wildfire Exposure”

CHAPTER 7A [SFM]

MATERIALS AND CONSTRUCTION METHODS FOR EXTERIOR WILDFIRE EXPOSURE

SECTION 701A
SCOPE, PURPOSE AND APPLICATION

701A.1 Scope. *This chapter applies to building materials, systems and/or assemblies used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area as defined in Section 702A.*

701A.2 Purpose. *The purpose of this chapter is to establish minimum standards for the protection of life and property by increasing the ability of a building located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area to resist the intrusion of flames or burning embers projected by a vegetation fire and contributes to a systematic reduction in conflagration losses.*

701A.3 Application. *New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted on or after December 1, 2005, shall comply with the following sections:*

1. ***704A.1—Roofing***
2. ***704A.2—Attic Ventilation***

701A.3.1 Alternates for materials, design, tests, and methods of construction. *The enforcing agency is permitted to modify the provisions of this chapter for site-specific conditions in accordance with Appendix Chapter 1, Section 104.10. When required by the enforcing agency for the purposes of granting modifications, a fire protection plan shall be submitted in accordance with the California Fire Code, Chapter 47.*

701A.3.2 New buildings located in any fire hazard severity zone. *New buildings located in any Fire Hazard Severity Zone shall comply with one of the following:*

1. ***State Responsibility Areas.*** *New building located in any Fire Hazard Severity Zone within State Responsibility Areas, for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.*
2. ***Local Agency Very-High Fire Hazard Severity Zone.*** *New buildings located in any Local Agency Very-High Fire Hazard Severity Zone for which an application for a building permit is submitted on or after July 1, 2008, shall comply with all sections of this chapter.*
3. ***Wildland-Urban Interface Fire Area designated by the enforcing agency.*** *New buildings located in any Wildlan d-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.*

701A.3.2.1 Inspection and certification. *Building permit applications and final completion approvals for buildings within the scope and application of this chapter shall comply with the following:*

701A.3.2.2 *The local building official shall, prior to construction, provide the owner or applicant a certification that the building as proposed to be built complies with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this chapter.*

701A.3.2.3 *The local building official shall, upon completion of construction, provide the owner or applicant with a copy of the final inspection report that demonstrates the building was constructed in compliance with all applicable state and local building standards, including those for materials and construction methods for wildlife exposure as described in this chapter.*

701A.3.2.4 *Prior to building permit final approval the property shall be in compliance with the vegetation clearance requirements prescribed in California Public Resources Code 4291 California Government Code Section 51182.*

SECTION 702A
DEFINITIONS

For the purposes of this chapter, certain terms are defined below:

CDF DIRECTOR *means the Director of the California Department of Forestry and Fire Protection.*

FIRE PROTECTION PLAN *is a document prepared for a specific project or development proposed for a Wildland Urban Interface Fire Area. It describes ways to minimize and mitigate potential for loss from wildfire exposure.*

The Fire Protection Plan shall be in accordance with this chapter and the California Fire Code, Chapter 47. When required by the enforcing agency for the purposes of granting modifications, a fire protection plan shall be submitted. Only locally adopted ordinances that have been filed with the California Building Standards Commission or the Department of Housing and Community Development in accordance with Section 101.8 shall apply.

FIRE HAZARD SEVERITY ZONES *are geographical areas designated pursuant to California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code, Sections 51175 through 51189. See California Fire Code Article 86.*

The California Code of Regulations, Title 14, Section 1280, entitles the maps of these geographical areas as "Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California."

***IGNITION-RESISTANT MATERIAL** is any product which, when tested in accordance with ASTM E 84 for a period of 30 minutes, shall have a flame spread of not over 25 and show no evidence of progressive combustion. In addition, the flame front shall not progress more than 10½ feet (3200 mm) beyond the centerline of the burner at any time during the test.*

Materials shall pass the accelerated weathering test and be identified as exterior type, in accordance with ASTM D 2898 and ASTM D 3201. All materials shall bear identification showing the fire performance rating thereof. That identification shall be issued by ICC-ES or a testing facility recognized by the State Fire Marshal having a service for inspection of materials at the factory.

Fire-Retardant-Treated Wood or noncombustible materials as defined in Section 202 shall satisfy the intent of this section.

The enforcing agency may use other definitions of ignition-resistant material that reflect wildfire exposure to building materials and/or their materials, performance in resisting ignition.

***LOCAL AGENCY VERY HIGH FIRE HAZARD SEVERITY ZONE** means an area designated by a local agency upon the recommendation of the CDF Director pursuant to Government Code Sections 51177(c), 51178 and 5118 that is not a state responsibility area and where a local agency, city, county, city and county, or district is responsible for fire protection.*

***STATE RESPONSIBILITY AREA** means lands that are classified by the Board of Forestry pursuant to Public Resources Code Section 4125 where the financial responsibility of preventing and suppressing forest fires is primarily the responsibility of the state.*

***WILDFIRE** is any uncontrolled fire spreading through vegetative fuels that threatens to destroy life, property, or resources as defined in Public Resources Code Sections 4103 and 4104.*

***WILDFIRE EXPOSURE** is one or a combination of radiant heat, convective heat, direct flame contact and burning embers being projected by vegetation fire to a structure and its immediate environment.*

***WILDLAND-URBAN INTERFACE FIRE AREA** is a geographical area identified by the state as a "Fire Hazard Severity Zone" in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires.*

SECTION 703A
STANDARDS OF QUALITY

***703A.1 General.** Material, systems, and methods of construction used shall be in accordance with this Chapter.*

***703A.2 Qualification by testing.** Material and material assemblies tested in accordance with the requirements of Section 703A shall be accepted for use when the results and conditions of those tests are met. Testing shall be performed by a testing agency approved by the State Fire Marshal or identified by an ICC-ES report.*

***703A.3 Standards of quality.** The State Fire Marshal standards listed below and as referenced in this chapter are located in the California Referenced Standards Code, Part 12 and Chapter 35 of this code.*

***SFM 12-7A-1,** Exterior Wall Siding and Sheathing.*

***SFM 12-7A-2,** Exterior Window.*

***SFM 12-7A-3,** Under Eave.*

***SFM 12-7A-4,** Decking.*

SECTION 704A
MATERIALS, SYSTEMS AND METHODS OF CONSTRUCTION

704A.1 Roofing.

***704A.1.1 General.** Roofs shall comply with the requirements of Chapter 7A and Chapter 15. Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions.*

***704A.1.2 Roof coverings.** Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be firestopped with approved materials or have one layer of 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 installed over the combustible decking.*

***704A.1.3 Roof valleys.** When provided, valley flashings shall be not less than 0.019-inch (0.48 mm) (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide (914 mm) underlayment consisting of one layer of 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 running the full length of the valley.*

***704A.1.4** Reserved.*

***704A.1.5 Roof gutters.** Roof gutters shall be provided with the means to prevent the accumulation of leaves and debris in the gutter.*

704A.2 Attic ventilation.

***704A.2.1 General.** When required by Chapter 15, roof and attic vents shall resist the intrusion of flame and embers into the attic area of the structure, or shall be protected by corrosion-resistant, noncombustible wire mesh with openings a minimum of $^1/_8$-inch (3.2 mm) and shall not exceed $^1/_4$-inch (6 mm) or its equivalent.*

***704A.2.2 Eave or cornice vents.** Vents shall not be installed in eaves and cornices.*

***Exception:** Eave and cornice vents may be used provided they resist the intrusion of flame and burning embers into the attic area of the structure.*

***704A.2.3 Eave protection.** Eaves and soffits shall meet the requirements of SFM 12-7A-3 or shall be protected by ignition-resistant materials or noncombustible construction on the exposed underside.*

704A.3 Exterior walls.

704A.3.1 General. *Exterior walls shall be approved noncombustible or ignition-resistant material, heavy timber, or log wall construction or shall provide protection from the intrusion of flames and embers in accordance with standard SFM 12-7A-1.*

704A.3.1.1 Exterior wall coverings. *Exterior wall coverings shall extend from the top of the foundation to the roof, and terminate at 2-inch (50.8 mm) nominal solid wood blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.*

704A.3.2 Exterior wall openings. *Exterior wall openings shall be in accordance with this section.*

704A.3.2.1 Exterior wall vents. *Unless otherwise prohibited by other provisions of this code, vent openings in exterior walls shall resist the intrusion of flame and embers into the structure or vents shall be screened with a corrosion-resistant, noncombustible wire mesh with $^1/_4$- inch (6 mm) openings or its equivalent.*

704A.3.2.2 Exterior glazing and window walls. *Exterior windows, window walls, glazed doors, and glazed openings within exterior doors shall be insulating-glass units with a minimum of one tempered pane, or glass block units, or have a fire-resistance rating of not less than 20 minutes, when tested according to NFPA 257, or in accordance with Section 715, or conform to the performance requirements of SFM 12-7A-2.*

704A.3.2.3 Exterior door assemblies. *Exterior door assemblies shall conform to the performance requirements of standard SFM 12-7A-1 or shall be of approved noncombustible construction, or solid core wood having stiles and rails not less than $1^3/_8$ inches thick with interior field panel thickness no less than $1^1/_4$ inches thick, or shall have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 252, or in accordance with Section 715.*

Exception: *Noncombustible or exterior fire-retardant treated wood vehicle access doors are not required to comply with this chapter.*

704A.4 Decking, floors and underfloor protection.

704A.4.1 Decking.

704A.4.1.1 Decking surfaces. *Decking, surfaces, stair treads, risers, and landings of decks, porches, and balconies where any portion of such surface is within 10 feet (3048 mm) of the primary structure shall comply with one of the following methods:*

1. *Shall be constructed of ignition-resistant materials and pass the performance requirements of SFM 12-7A-4, Parts A and B.*
2. *Shall be constructed with heavy timber, exterior fire-retardant-treated wood or approved noncombustible materials.*
3. *Shall pass the performance requirements of SFM 12-7A-4, Part A, 12-7A-4.7.5.1 only with a net peak heat release rate of 25kW/sq-ft for a 40-minute observation period and:*
   a. *Decking surface material shall pass the accelerated weathering test and be identified as exterior type, in accordance with ASTM D 2898 and ASTM D 3201 and;*
   b. *The exterior wall covering to which it the deck is attached and within 10 (3048 mm) feet of the deck shall be constructed of approved noncombustible or ignition resistant material.*

   Exception: *Walls are not required to comply with this subsection if the decking surface material conforms to ASTM E-84 Class B flame spread.*

The use of paints, coatings, stains, or other surface treatments are not an approved method of protection as required in this chapter.

704A.4.2 Underfloor and appendages protection.

704A.4.2.1 Underside of appendages and floor projections. *The underside of cantilevered and overhanging appendages and floor projections shall maintain the ignition-resistant integrity of exterior walls, or the projection shall be enclosed to the grade.*

704A.4.2.2 Unenclosed underfloor protection. *Buildings shall have all underfloor areas enclosed to the grade with exterior walls in accordance with Section 704A.3.*

Exception: *The complete enclosure of under floor areas may be omitted where the underside of all exposed floors, exposed structural columns, beams and supporting walls are protected as required with exterior ignition-resistant material construction or be heavy timber.*

704A.5 Ancillary buildings and structures.

704A.5.1 Ancillary buildings and structures. *When required by the enforcing agency, ancillary buildings and structures and detached accessory structures shall comply with the provisions of this chapter.*

APPENDIX E

ACCEPTABLE PLANTS

Village 9 - Fire Protection Planning Area A
MSCP Buffer Zone
Fuel Modification Plant Palette

October 18, 2010

Existing Natives On Site*	Approved Village 2 Species**	BOTANICAL NAME - Common Name
		TREES:
		QUERCUS AGRIFOLIA - Coast Live Oak
		QUERCUS ENGELMANNII - Engelmann Oak
		PLATANUS RACEMOSA - California Sycamore
		LARGE SHRUBS:
	▲	HETEROMELES ARBUTIFOLIA - Toyon
◆	▲	ISOMERIS ARBOREA - Bladder Pod
◆	▲	RHAMNUS CROCEA - Redberry
◆	▲	SIMMONDSIA CHINENSIS - Jojoba
◆		YUCCA SCHIDIGERA - Mojave Yucca
		SUBSHRUBS / PERENNIALS / SUCCULENTS:
◆		BACCHARIS PILULARIS - Coyote Brush
◆	▲	CYLINDROPUNTIA CALIFORNICA - Snake Cholla
◆	▲	DEINANDRA (HEMIZONIA) FASCICULATA - Fascicled Tarplant
◆	▲	DISTICHLIS SPICATA - Spiked Salt Grass
◆		IVA HAYESIANA - San Diego Marsh-elder
◆	▲	LUPINUS SUCCULENTUS - Arroyo Lupine
◆		MALACHOTHAMNUS FASCICULATUS - Chaparrel Bushmallow
◆	▲	NASSELLA PULCHRA - Purple Needlegrass
◆	▲	OPUNTIA LITTORALIS - Coastal Prickly Pear
◆		SALVIA APIANA - White Sage
◆	▲	SISYRINCHIUM BELLUM - Blue-eyed Grass
◆	▲	VIGUIERA LACINIATA - San Diego Sunflower
		SEEDED PLANTS:
◆		BLOOMERIA CROCEA - Common Goldstar
◆	▲	DEINANDRA (HEMIZONIA) FASCICULATA - Fascicled Tarplant
◆		HAZARDIA SQUARROSA - Sawtooth Goldenfields
◆	▲	LUPINUS SUCCULENTUS - Arroyo Lupine
◆		PLANTAGO ERECTA - Dot-seed Plantain
◆	▲	SISYRINCHIUM BELLUM - Blue-eyed Grass

NOTES:
All listed species are suitable for fuel modification zones

* Existing species on site per Biological Resources Report by URS, July 26, 2010
** Approved for Villages 2, 3, & portions of 4

VILLAGE 9 - Fire Protection Planning Area 'B'

Fuel Modification Plant Palette

October 18, 2010

BOTANICAL NAME / COMMON NAME

Trees:

QUERCUS AGRIFOLIA - Coast Live Oak
QUERCUS ENGELMANNII - Engelmann Oak
PLATANUS RACEMOSA - California Sycamore

Shrubs

COMAROSTAPHYLIS D. 'DIVERSIFOLIA' - Summer Holly
DODONAEA VISCOSA - Hop Bush
GALVEZIA SPECIOSA - Bush Snapdragon
HETEROMELES ARBUTIFOLIA - Toyon
LYCIUM ANDERSONI - Water Jacket
PRUNUS ILICIFOLIA SP. ILICIFOLIA - Hollyleaf Cherry
RHAMNUS CROCEA - Redberry
RHUS INTEGRIFOLIA - Lemonade Berry

Perennials

AGAVE SPECIES - Agave
ENCELIA CALIFORNICA - Coastal Sunflower
ENCELIA FARINOSA - Brittlebush
SALVIA APIANA - White Sage

Ground covers

BACCHARIS P. 'PIGEON POINT'
IVA HAYESIANA - San Diego Poverty Weed

Seeded Plants

CAMISSONIA CHEIRANTHIFOLIA - Beach Evening Primrose
DEINANDRA (HEMIZONIA) FASCICULATA - Common Tarplant
ENCELIA CALIFORNICA - Bush Sunflower
ERIOPHYLLUM CONFERTIFLORUM - Golden Yarrow
ESCHSCHOLZIA CALIFORNICA - California Poppy
GNAPHALIUM BICOLOR - Bicolor Cudweed
ISOCOMA MENZIESII - Coast Goldenbush
IVA HAYESIANA - San Diego Poverty Weed
LASTHENIA CALIFORNICA - Dwarf Goldfields
LAYIA PLATYGLOSSA - Common Tidy-Tips
LUPINUS BICOLOR - Minature Lupine
NASSELLA PULCHRA - Purple Needlegrass
PHACELIA CAMPANULARIA - California Blue Bells
SISYRINCHIUM BELLUM - Blue Eyed Grass
VIGUIERA LACINIATA - San Diego Sunflower

APPENDIX F

UNDESIREABLE PLANTS

List A-1: Most Invasive Wildland Pest Plants; Widespread

Latin Name[1]	Common Name	Habitats of Concern and Other Comments	Distribution[2]
Ammophila arenaria	European beach grass	Coastal dunes	SCo,CCo,NCo
Arundo donax	giant reed, arundo	Riparian areas	cSNF,CCo,SCo,SnGb,D,GV
Bromus tectorum	cheat grass, downy brome	Sagebrush, pinyon-juniper, other desert communities; increases fire frequency	GB,D
Carpobrotus edulis	iceplant, sea fig	Many coastal communities, esp. dunes	SCo,CCo,NCo,SnFrB
Centaurea solstitialis[C]	yellow starthistle	Grasslands	CA-FP (uncommon in SoCal)
Cortaderia jubata	Andean pampas grass, jubatagrass	Horticultural; many coastal habitats, esp. disturbed or exposed sites incl. logged areas	NCo,NCoRO,SnFrB, CCo,WTR,SCo
Cortaderia selloana	pampas grass	Horticultural; coastal dunes, coastal scrub, Monterey pine forest, riparian, grasslands; wetlands in ScV; also on serpentine	SnFrB,SCo,CCo,ScV
Cynara cardunculus[B]	artichoke thistle	Coastal grasslands	CA-FP, esp. CCo,SCo
Cytisus scoparius[C]	Scotch broom	Horticultural; coastal scrub, oak woodlands, Sierra foothills	NW,CaRF,SNF,GV, SCo,CW
Eucalyptus globulus	Tasmanian blue gum	Riparian areas, grasslands, moist slopes	NCoRO,GV,SnFrB, CCo,SCoRO,SCo,nChI
Foeniculum vulgare	wild fennel	Grasslands; esp. SoCal, Channel Is.; the cultivated garden herb is not invasive	CA-FP
Genista monspessulana[C]	French broom	Horticultural; coastal scrub, oak woodlands, grasslands	NCoRO,NCoRI,SnFrB, CCo,SCoRO,sChI,WTR,PR
Lepidium latifolium[B]	perennial pepperweed, tall whitetop	Coastal, inland marshes, riparian areas, wetlands, grasslands; potential to invade montane wetlands	CA (except KR,D)
Myriophyllum spicatum	Eurasian watermilfoil	Horticultural; lakes, ponds, streams, aquaculture	SnFrB,SnJV,SNH(?); prob. CA
Pennisetum setaceum	fountain grass	Horticultural; grasslands, dunes, desert canyons; roadsides	Deltaic GV,CCo,SCo, SnFrB
Rubus discolor	Himalayan blackberry	Riparian areas, marshes, oak woodlands	CA-FP
Senecio mikanioides (=*Delairea odorata*)	Cape ivy, German ivy	Coastal, riparian areas, also SoCal (south side San Gabriel Mtns.)	SCo,CCo,NCo,SnFrB,SW
Taeniatherum caput-medusae[C]	medusa-head	Grasslands, particularly alkaline and poorly drained areas	NCoR,CaR,SNF,GV,SCo
Tamarix chinensis, T. gallica, T. parviflora & T. ramosissima	tamarisk, salt cedar	Desert washes, riparian areas, seeps and springs	SCo,D,SnFrB,GV,sNCoR, sSNF,Teh,SCoRI,SNE, WTR
Ulex europaeus[B]	gorse	North, central coastal scrub, grasslands	NCo,NCoRO,CaRF, n&cSNF,SnFrB,CCo

[1]Noxious Weed Ratings

F: Federal Noxious Weed, as designated by the USDA; targeted for federally-funded prevention, eradication or containment efforts.

A: CA Dept. of Food & Agriculture, on "A" list of Noxious Weeds; agency policies call for eradication, containment or entry refusal.

B: CA Dept. of Food & Agriculture, on "B" list of Noxious Weeds; includes species that are more widespread, and therefore more difficult to contain; agency allows county Agricultural Commissioners to decide if local eradication or containment is warranted.

C: CA Dept. of Food & Agriculture, on "C" list of Noxious Weeds; includes weeds that are so widespread that the agency does not endorse state or county-funded eradication or containment efforts except in nurseries or seed lots.

Q: CA Dept. of Food & Agriculture's designation for temporary "A" rating pending determination of a permanent rating.

For most species nomenclature follows *The Jepson Manual: Higher Plants of California* (Hickman, J., Ed., 1993).

UNDESIRABLE PLANT LIST

The following species are highly flammable and should be avoided when planting within the first 50 feet adjacent to a structure. The plants listed below are more susceptible to burning, due to rough or peeling bark, production of large amounts of litter, vegetation that contains oils, resin, wax, or pitch, large amounts of dead material in the plant, or plantings with a high dead to live fuel ratio. Many of these species, if existing on the property and adequately maintained (pruning, thinning, irrigation, litter removal, and weeding), may remain as long as the potential for spreading a fire has been reduced or eliminated.

BOTANICAL NAME	COMMON NAME
Abies species	Fir Trees
Acacia species	Acacia (trees, shrubs, groundcovers)
*Adenostoma sparsifolium***	Red Shanks
*Adenostoma fasciculatum***	Chamise
Agonis juniperina	Juniper Myrtle
Araucaria species	Monkey Puzzle, Norfolk Island Pine
*Artemesia californica***	California Sagebrush
Bambusa species	Bamboo
Cedrus species	Cedar
Chamaecyparis species	False Cypress
Coprosma pumila	Prostrate Coprosma
Cryptomeria japonica	Japanese Cryptomeria
Cupressocyparis leylandii	Leylandii Cypress
*Cupressus forbesii***	Tecate Cypress
Cupressus glabra	Arizona Cypress
Cupressus sempervirens	Italian Cypress
Dodonea viscosa	Hopseed Bush
*Eriogonum fasciculatum***	Common Buckwheat
Eucalyptus species	Eucalyptus
*Heterotheca grandiflora***	Telegraph Plant
Juniperus species	Junipers
Larix species	Larch
Lonicera japonica	Japanese Honeysuckle
Miscanthus species	Eulalia Grass
*Muehlenbergia species***	Deer Grass
Palmae species	Palms
Picea species	Spruce Trees
*Pickeringia Montana***	Chaparral Pea
Pinus species	Pines
Podocarpus species	Fern Pine
Pseudotsuga menziesii	Douglas Fir
Rosmarinus species	Rosemary
*Salvia mellifera***	Black Sage
Taxodium species	Cypress
Taxus species	Yew
Thuja species	Arborvitae
Tsuga species	Hemlock
*Urtica urens***	Burning Nettle

** San Diego County native species

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Appendix G

Water Conservation Plan

FINAL
OTAY RANCH VILLAGE 9
II.8 WATER CONSERVATION PLAN

June 3, 2014

Prepared By:

Dexter Wilson Engineering, Inc.
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Job Number 646-371

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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 that all development projects with 50 dwelling units or greater prepare a Water Conservation Plan at the time of the Sectional Planning Area plan preparation. This 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 Otay Ranch Village 9, including the requirements outlined in the Landscape Water Conservation Ordinance. The project includes Otay Ranch Village 9.

Proposed development within the Village 9 project includes 4,000 mixed density residential dwelling units, two schools, commercial, parks, and open space. The residential development proposes 266 single family residential units and 3,734 multi-family units and will be planned as a university oriented urban village.

The Otay Water District is the local water agency that will supply potable water and recycled water to Village 9. The total estimated average potable and recycled water use for the project is 1.35 mgd and 0.12 mgd, respectively.

The State and local government have mandated 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 evapotranspiration controllers and dual flush toilets in the single family residential units and utilize water efficient irrigation systems and evapotranspiration controllers for the non-residential sites. The project will be designed in compliance with the 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 220,030 gallons per day for the project.

II-8.2 INTRODUCTION

In recent years, the subject of water conservation has been given increased attention. The growing awareness of the need and value of water conservation has been 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 that 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 do much to 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 Landscaping Water Conservation Ordinance 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 requires that on or before January 1, 2010 a local agency shall adopt a water efficient landscape ordinance that is at least as effective in conserving water as the updated model ordinance or adopt the model ordinance. If a local agency does not adopt a water efficient landscape ordinance by the deadline, the updated model ordinance shall apply within the local agency's jurisdiction and shall be enforced by the local agency.

The City of 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 Village 9 project is within 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 reduct 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 City, in partnership with the Otay Water District and the development community 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 that all major development projects (50 dwelling units or greater) prepare a Water Conservation Plan at the time of Sectional Planning Area Plan preparation. The City has adopted guidelines for the preparation and implementation of required water conservation plans.

This report will present 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 reduce 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 9 boundary includes 4,000 mixed density residential dwelling units, two schools, commercial, parks, and open space. The residential development proposes 266 single family residential units and 3,734 multi-family units. Figure 1 provides the proposed land use plan for the project and Table 1 provides a land use summary.

TABLE 1
VILLAGE 9 SITE UTILIZATION SUMMARY

Planning Area	Gross Acres	Maximum Residential Units	Maximum Commercial Square Footage
Mixed Use Eastern Urban Center			
A	11.0	515	350,000
B-1	4.6	160	145,000
B-2	3.9	140	115,000
D	7.8	345	290,000
E-1	4.6	180	145,000
E-2	4.2	160	145,000
Subtotal	**36.1**	**1,500**	**1,190,000**
Mixed Use Town Center			
K-1	3.7	148	0
K-2	3.8	152	0
M	3.6	80	29,000
N	3.5	57	52,000
O-1	3.6	80	29,000
O-2	3.6	80	29,000
P	3.6	80	29,000
Q	3.5	57	52,000
R-1	3.6	80	29,000
R-2	3.6	80	29,000
Subtotal	**36.1**	**894**	**278,000**
Mixed Use Residential			
F	6.7	135	0
G	7.9	160	0
S	14.4	285	0
T	3.4	48	32,000
U-1	3.5	70	0
U-2	3.5	70	0

TABLE 1
VILLAGE 9 SITE UTILIZATION SUMMARY

Planning Area	Gross Acres	Maximum Residential Units	Maximum Commercial Square Footage
V	8.4	165	0
Y-1	3.3	65	0
Y-2	3.0	60	0
Z-1	3.7	75	0
Z-2	2.7	55	0
CC	7.7	152	0
Subtotal	**68.2**	**1,340**	**32,000**
Single Family Residential			
AA	6.8	72	0
BB	8.4	89	0
DD	12.2	47	0
EE	7.1	26	0
FF	8.8	32	0
Subtotal	**43.3**	**266**	**0**
Community Purpose Facility			
J	2.3	---	---
X	2.7	---	---
Subtotal	**5.0**	**---**	**---**
Schools			
H-1/H-2	10.3	---	---
W	11.7	---	---
Subtotal	**22.0**	**---**	**---**
Parks			
C	3.6	---	---
I	1.4	---	---
L	12.5	---	---
GG	2.9	---	---
HH	1.3	---	---
II	3.4	---	---
Subtotal	**25.1**	**---**	**---**
Open Space/Other			
OS-1	2.8	---	---
OS-2	3.3	---	---
OS-3	2.8	---	---
OS-4	0.7	---	---

TABLE 1 VILLAGE 9 SITE UTILIZATION SUMMARY			
Planning Area	**Gross Acres**	**Maximum Residential Units**	**Maximum Commercial Square Footage**
JJ	50.0	---	---
Arterials	17.7	---	---
SR-125	10.0	---	---
Subtotal	**87.3**	**---**	**---**
TOTAL	**323.1**	**4,000**	**1,500,000**

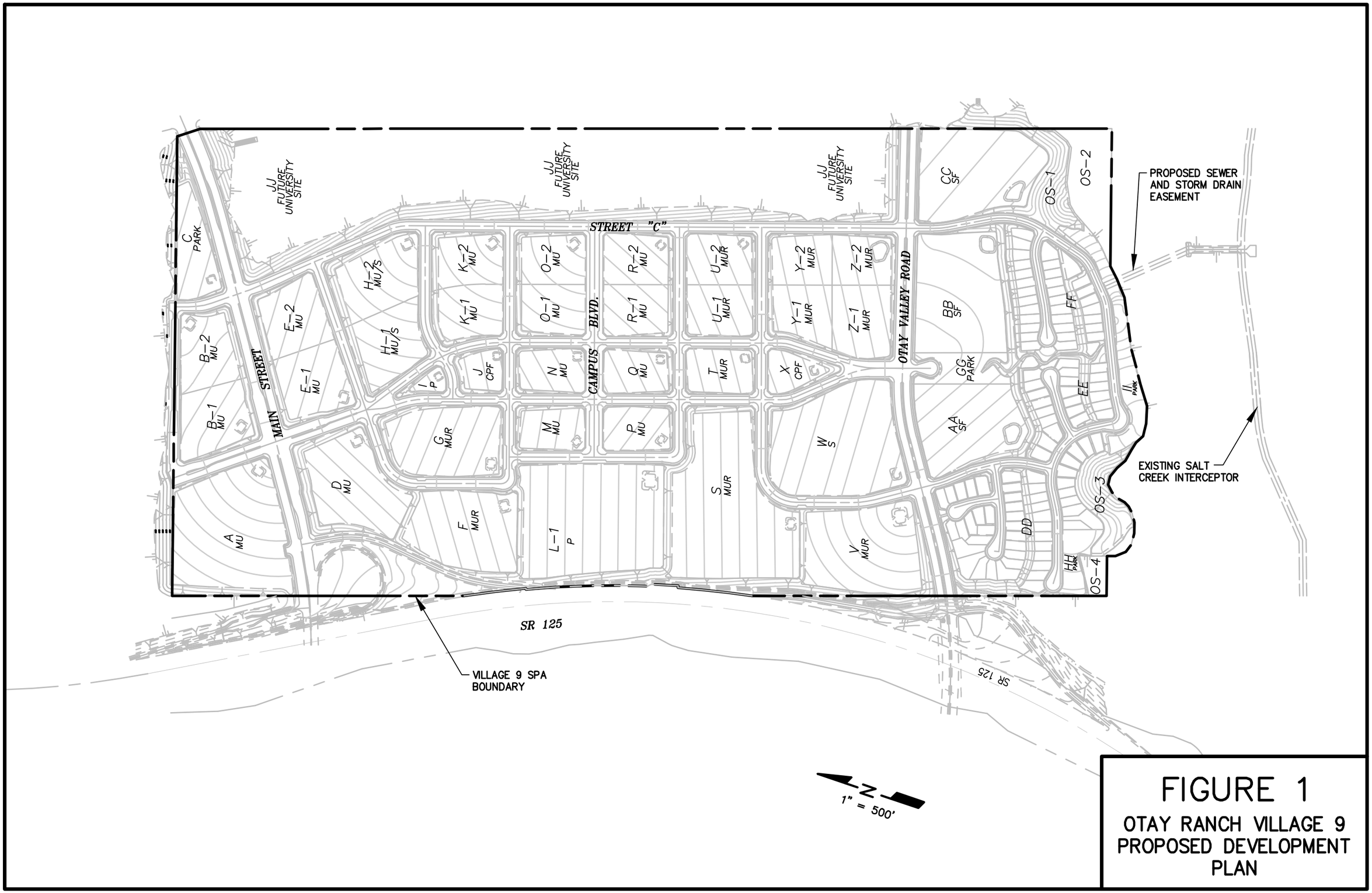

FIGURE 1

OTAY RANCH VILLAGE 9 PROPOSED DEVELOPMENT PLAN

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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 9. 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 in effect 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 9. The total estimated potable water use is 1.35 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 October 2008 Otay Water District Water Resources Master Plan.

TABLE 2
PROJECTED POTABLE WATER DEMANDS
FOR OTAY RANCH VILLAGE 9

Land Use	Quantity	Unit Demand	Average Day Demands, gpd
Single-Family Residential	266 units	500 gpd/unit	133,000
Multiple-Family Residential	3,734 units	255 gpd/unit	952,170
Commercial/Retail	1,500,000 SF	0.14 gpd/SF	210,000
School	22.0 ac	1,428 gpd/ac	31,420
CPF	5.0 ac	714 gpd/ac	3,570
Parks	25.1 ac	---[1]	14,910
Total			**1,345,070**

[1]Parks to be irrigated with recycled water, but include some potable demand per project water study.

II-8.6b Recycled Water Demand

In accordance with Section 26 of the Otay Water District Code of Ordinances, Village 9 will utilize recycled water for the irrigation of open space slopes, parks, parkway and median landscaping, and the common areas of schools, commercial, and multi-family residential sites. Figure 2 identifies the potential recycled water use areas and Table 3 provides the estimated recycled water demand. The total estimated recycled water demand is 0.12 mgd.

TABLE 3
PROJECTED RECYCLED WATER DEMANDS FOR OTAY RANCH VILLAGE 9

Land Use	Area, Acres	Percentage to be Irrigated	Irrigated Acreage	Recycled Water Irrigation Factor, gpd/ac	Average Recycled Water Demand, gpd
Open Space Slopes, Parkways	10[1]	100	10.0	2,155	21,550
Parks	25.1	100	25.1	2,155	54,090
Mixed Use	140.4	10	14.0	2,155	30,170
Schools	22.0	20	4.4	2,155	9,490
CPF	5.0	10	0.5	2,155	1,080
TOTAL					**116,380**

[1] Preliminary Estimate

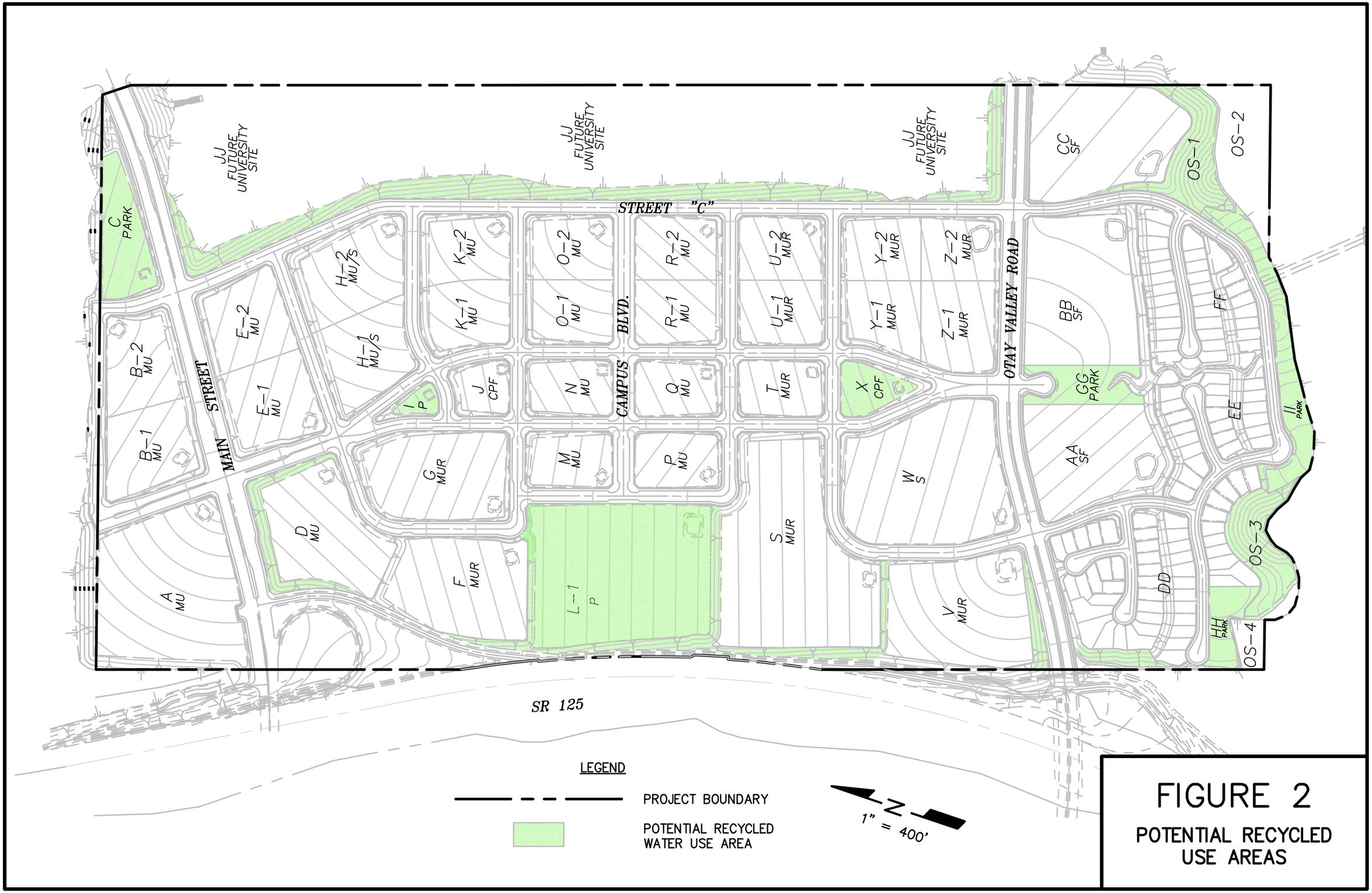

FIGURE 2

POTENTIAL RECYCLED USE AREAS

\\PACIFIC\DWG\646371\WC PLAN\FIGURE 2.DWG 12-06-10 15:03:01 LAYOUT: 2

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 currently mandated by the State of California and also provides the requirements if the Draft 2010 California Green Building Standards Code is implemented.

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.

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 9 based on the proposed required measures and non-mandatory measures described above.

TABLE 5 VILLAGE 9 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	2.2	24,570
Pressure Reducing Valves	Indoor	1,800	4.93	1.6	18,410
Water Efficient Dishwashers	Indoor	650	1.78	0.6	6,650
Dual Flush Toilets	Indoor	4,000	10.96	3.6	40,920
Water Efficient Landscaping	Outdoor	---[3]	---	---	—[3]
TOTAL			**24.25**	**8.1**	**90,550**

[1] Based on 300 gpd/unit average usage.
[2] Based on 3,734 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 9 SINGLE-FAMILY RESIDENTIAL 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	1.3	1,750
Pressure Reducing Valves	Indoor0	1,800	4.93	1.0	1,310
Water Efficient Dishwashers	Indoor	650	1.78	0.4	470
Dual Flush Toilets	Indoor	4,000	10.96	2.2	2,920
Water Efficient Landscaping	Outdoor	9,125	25.0	5.0	6,650
TOTAL		**17,975**	**49.25**	**9.9**	**13,100**

[1] Based on 500 gpd/unit total average usage with 250 gpd used outdoors..
[2] Based on 266 Single Family Residential Units.

Water Conservation Summary

As detailed in this report, the Village 9 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 220,030 gpd, or 15.1 percent.

As evidenced by the information contained in this study, the objectives of the Otay Ranch GPD 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). 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 9 WATER CONSERVATION SUMMARY

Description	Average Use, gpd
Total Water Use	
Potable Water Use (Table 2)	1,345,070
Recycled Water Use (Table 3)	116,380
TOTAL BASELINE WATER USE	**1,461,450**
Water Conservation Savings	
Recycled Water (Table 3)	116,380
Multi Family Measures (table 5)	90,550
Single Family Measures (Table 6)	13,100
TOTAL CONSERVATION SAVINGS	**220,030**
Net Potable Water Usage[1]	1,241,420
Reduction from Baseline Usage	**15.1**

[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 to be included in the residential component of the Village 9 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 Village 9 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 9 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

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 Village 9, November 2010, Dexter Wilson Engineering, Inc.

5. Otay Water District Water Resources Master Plan, October 2008, PBS&J.

6. San Diego County Water Authority Annual Report, 1989.

7. California Green Building Standards Code, Draft 2010.

Appendix H

Affordable Housing Plan

OTAY LAND COMPANY
Affordable Housing Program
Implementation Plan - Village 9

June 3, 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 Cityôs 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 Governmentôs (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 Cityôs 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 Cityôs 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 Cityôs 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 regionôs rate of 54 percent.
- The median housing cost (resale) in 2011 of $305,000 is $15,000 less than the regionôs 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 Cityôs 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 Cityôs 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 Cityôs 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 9 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 9 affordable housing unit obligation is based on the Village 9 SPA entitlement authorization of 4,000 units within the Village. The affordable units required for Village 9 are 200 low income and 200 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 9 will be met through a combination of housing types including rental and ñfor-saleò 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 ñfor-saleò 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 ñfor-saleò 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 9 are designated as multifamily and/or mixed use development sites and are located within or adjacent to the Village Core, as depicted in Exhibit A: Potential Affordable Housing Sites. 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 9 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 City's 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 9 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 9 SPA Plan and Public Facilities Finance Plan (PFFP) permits non-sequential phasing by imposing specific facilities requirements for each phase to ensure that Village 9 is adequately served and City threshold standards are met.

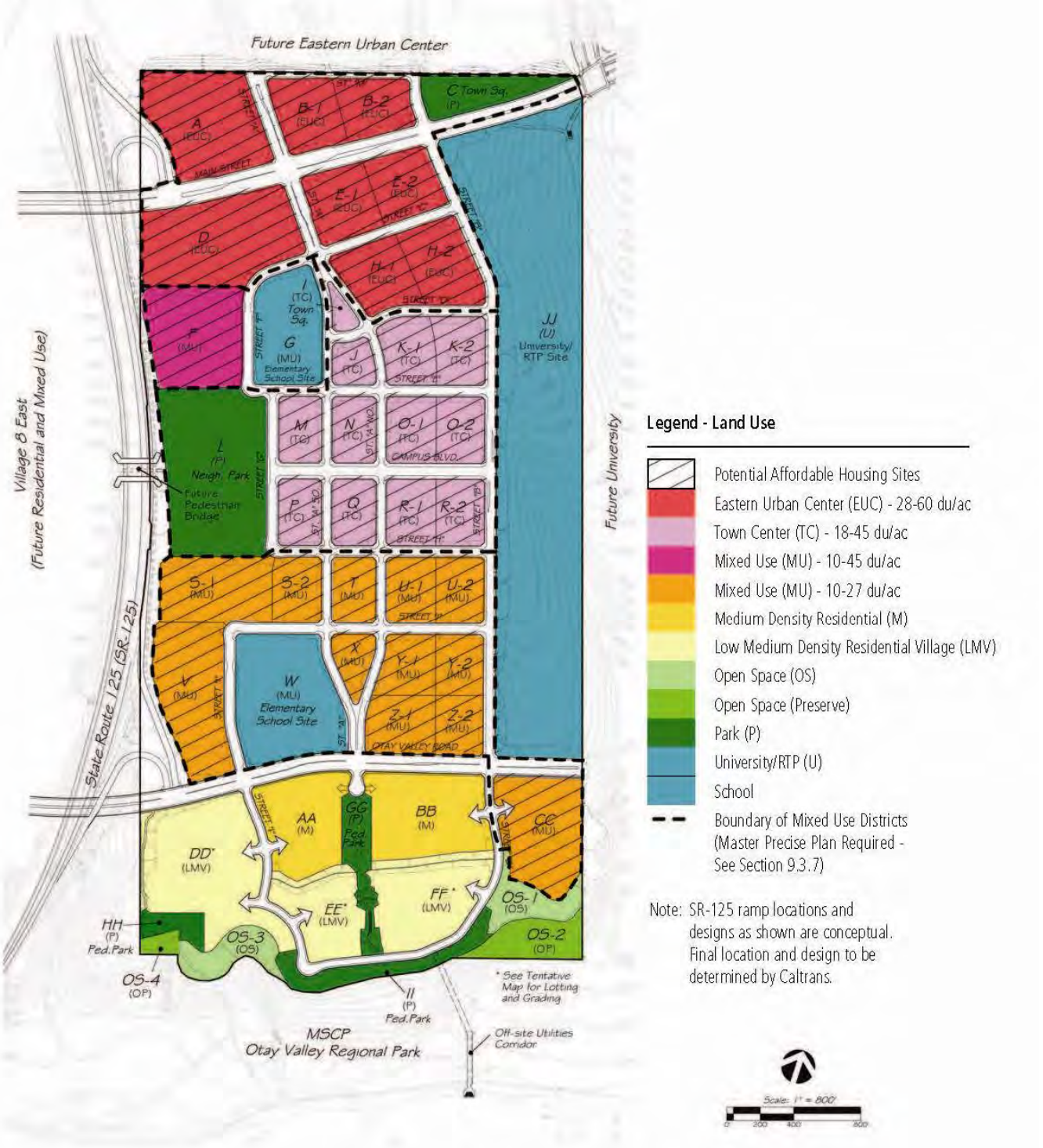

Exhibit A: Potential Affordable Housing Sites

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 9. Phasing of the low and moderate income units in Village 9 is designed to link progress toward the production of such housing to the continued entitlement and development process for the Village 9 SPA Area. The first or ñInitial Phaseò for construction of the low and moderate-income housing units shall be comprised of 50% 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 1,600th production building permit within Village 9 ("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 3,000th 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 Cityôs 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.

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 ñAllowable housing expenseò 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 (ñFront End Ratioò).
- Total debt payments no more than 45 percent of household income (ñBack End Ratioò).
- No ñteaserò 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 Cityôs 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 ñResale Provisions of Owner Occupied Housing.ò

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 Cityôs 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 9. 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 ñCost Reducing Mechanismsò).

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 9. 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 Cityôs 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) ï statewide competition;
- Housing Bonds ï State;
- Housing Bonds ï City of Chula Vista;
- HOME ï City of Chula Vista and County of San Diego;
- Community Development Block Grants ï City of Chula Vista; and,
- Other Public Financing ï State and Federal.

Appendix I

Glossary

Appendix I - Glossary

INTRODUCTION

For the purpose of carrying out the intent of the Village 9 SPA plan; words, phrases, and terms shall be deemed to have the meaning ascribed to them in this appendix. Words, phrases, and terms not specifically defined by this appendix shall be defined by the Chula Vista Municipal Code (CVMC §19.04 Definitions). In construing the provisions of this SPA plan, specific provisions shall supersede general provisions relating to the same subject.

The word "City Council" shall mean the City of Chula Vista City Council, which is the governing body of the City.

The word "City" shall mean the City of Chula Vista.

The words "Commission" or "Planning Commission" shall mean the City of Chula Vista Planning Commission.

The word "Director" shall mean the Director of the identified City of Chula Vista department, division or agency acting in person or through a subordinate to whom the authority to act has been delegated.

The word "shall" is mandatory; the word "may" or "should" is permissive.

The word "state" shall mean the State of California.

The words "Zoning Code" or "Code" shall mean the City of Chula Vista Municipal Code, Title 19, Zoning and Specific Plan.

A

Alley: See "Lane"

Alternative energy sources: Energy derived from sources that do not use up natural resources or harm the environment.

Alternative modes of transportation: Any form of transportation other than a private car including, but not limited to, bicycling, walking, low speed electric vehicles, vanpooling, carpooling, and riding public transit. The intent of such modes is to reduce traffic congestion and air pollution, providing benefits to individuals and the community.

Americans with Disabilities Act (ADA): Federal legislation that outlines the technical requirements that are to be applied during the design, construction, and alteration of buildings and facilities to provide full accessibility to buildings and facilities by individuals with disabilities.

Annexation: A change in existing community boundaries resulting from the incorporation of additional land.

Apartment: See "dwelling, multi-family."

Architectural features: Towers, gables, spires, chimneys, flagpoles, and other architectural elements that are not habitable structures.

Arterial: A moderate or high-capacity roadway which is immediately below a highway level of service.

Attached buildings and structures: Two or more buildings or structures that are physically connected with a wall, roof, deck, floor, bearing or support structures, trellises, architectural features or any other structure, fixture or device that exceeds 30 inches in height above the finished grade.

Attenuation of noise: An act of reducing in force, value, amount, or degree of undesirable noise level.

B

Balanced land uses: A practice of adequate distribution of land use decision that can ensure long-term economic stability.

Berm: A mound or wall of earth used for screening or sound attenuation purposes.

Building: A structure having a roof supported by columns or walls.

Building Configuration: The specific form or type of building determined by its relationship to adjacent units (attached or detached), the general use of the building (residential, commercial, or mixed use), and the location of garage and pedestrian entries (alley, street, courtyard, motorcourt, etc.)

Building height: The vertical distance measured from the ground level at finish pad grade, to the highest roof ridge not including architectural features.

Building line: An imaginary line on a building site specifying the closest point from an ultimate right-of-way line or a property line where a main building may be located.

Building parcel area: The total area, measured horizontally as a level plane, of the land within the boundaries of a building parcel, not including any public street, right-of-way or pedestrian or vehicular easement and not including any portion that does not meet applicable County regulations when a building site is divided by such an easement.

Bus Rapid Transit (BRT): A form of public transit that provides bus service at a higher speed than traditional bus service. This is achieved through improved infrastructure (i.e. dedicated lanes, priority at signals, etc.), more efficient scheduling, and improved vehicles.

C

Carport: A roofed structure, or a portion of a building that is open on two or more sides, for the parking of automobiles belonging to occupants of the property.

CEQA: California Environmental Quality Act. Enacted in 1970 and amended through 1983, established state policy to require that all private and public projects be reviewed prior to approval for their potential adverse effects upon the environment.

Collector: Intermediate roadways designed to handle traffic between arterial streets and local streets.

Commercial: Businesses operated or conducted on a frequent basis for the purpose of financial gain.

Commercial mixed-use: See "Mixed-use, commercial."

Common Usable Open Space: Open space areas (including pocket parks), provided in addition to required parkland, that is provided as an amenity to the surrounding community. Common usable open space shall meet following criteria:

- Within 1/4 mile of the residences to be served
- Consists of large, meaningful areas that are not fragmented by unrelated uses or improvements
- Developed with recreational uses, including both passive (landscaping) and active amenities (tot lots, picnic areas, etc)
- No dimension less than 10 ft
- Generally level (< 5 % grade)

Community purpose facility (CPF): A non-commercial use established primarily for the benefit or enjoyment of the population of the community including but not limited to schools, churches, community clubs, shared recreation facilities, parks, and trails. As defined by "Chapter 19.48" of the *CVMC*.

Conditional Use Permit (CUP): A discretionary permit that approves, through a public hearing process, special uses within a zone that are not allowed permitted by right within that zone.

Condominium: An estate consisting of an undivided interest in common in a parcel of real property together with a separate interest in space in a residential, industrial, or commercial building on such real property, such as an office, store, or multi-family dwelling. A condominium may also include a separate interest in other portions of such real property.

Corner lots: A lot located with frontage on two or more streets.

Corridors: Major pathways through neighborhoods and districts.

Couplet: A pair of one-way roadways (one in each direction), separated by one block length. The combination of these roadways carry the same volume of traffic as a two-way street but at lower speeds;

however, traffic efficiency is improved due to shorter wait times at stop lights and safer, easier turning movements. This improved efficiency and reduced roadway width makes streets safer and more attractive for pedestrians and allows a better mix of vehicles, pedestrians, bicyclists, and public transit.

Cut and fill slopes: System of bench construction on hill slopes to produce road rights-of-way and landings whereby convex slopes are excavated and concave slopes (gullies) are filled; also, excavation of the upslope side of the right-of-way, and fill on the down slope side.

D

Demand Side Management (DSM): A broad range of activities and programs designed to encourage end users to conserve water, energy, and other resources through efficient and reduced use at peak hours.

Density: The average number of families, persons, or housing units per unit of land.

a. Gross density: The number of dwelling units per gross acre (see definition of "gross acres").
b. Net density: The number of dwelling units per net acre (see definition of "net acres").

Detached buildings and structures: Two or more buildings or structures that are each structurally independent and freestanding.

Development: Improvements to land including but not limited to grading, utility installation, paving, landscaping, and construction of structures.

Development regulations: A detailed set of standards controlling how buildings are constructed but not limited to setback, height, building coverage, and other requirements typically found in a zoning code.

Driveway: The privately owned, paved area that provides access from a street to a garage door for the exclusive use of each dwelling unit or to a private parking area.

Dormers: A structural element of a building that protrudes from the plane of a sloping roof surface. Dormers are used to increase usable space in the roof of a building by adding headroom and to provide access to light through windows.

Drought tolerant landscape: Landscape feature that will survive in the typical or somewhat less than typical amount of rainfall in a given region.

Dwelling, multi-family: Two or more dwelling units on the same building site.

Dwelling, single-family: One dwelling unit per building site.

Dwelling unit: One or more rooms in a structure, including a kitchen of any size, designed for occupancy by one family for living and sleeping purposes.

E

Easement: A less-than-fee interest that includes selected rights or grants the holder the right to prevent certain land uses. A property owner retains ownership and the property rights other than those expressly limited by the easement. Easements may be granted for a number of reasons, including but not limited to access, public utilities, conservation, open-space, and scenic purposes.

Environmental conservation: Land set aside to protect sensitive habitat.

Environmental mitigation: Step taken to avoid, minimize, or offset negative environmental impacts.

F

Facade: The face or front elevation of building.

Flood: A general and temporary condition of partial or complete inundation of normally dry land areas.

Floodplain: A nearly flat plain along the course of a stream or river that is naturally subject to flooding.

Floodway: A channel or adjacent shore for an overflow of water caused by flooding.

Focal point: The center of attention or interest.

Frontage: A building's relationship to the street. Common frontages include common yard, porch, stoop, storefront, and arcade.

G

Garage: A building, or a portion of a building, used primarily for the parking of motor vehicles.

General Plan: A document containing a statement of development policies for a jurisdiction including a diagram and text setting forth the objectives of the plan. The general plan must include certain state mandated elements related to land use, circulation, housing, conservation, open-space, noise, and safety.

General Utility and Access Utility Easement: Dedication of land to accommodate underground utility conduits and access to such utilities.

Gross residential acres: The total acreage of a particular parcel of land including, but not limited to, parks and recreation, open space and agriculture, roads, community infrastructure, and non-residential uses.

Gross residential density: The number of dwelling units per gross residential acre.

Principle: Philosophy that guides a particular practice or operation.

H

Heat Island effect: The tendency of large areas of roofs, asphalt, concrete, and paved surfaces to absorb the heat, making urban areas considerably hotter than nearby rural areas.

Homeowner's Association (HOA): An organization of homeowners residing within a particular development whose major purpose is to maintain and provide community facilities and services for the common enjoyment of the residents.

HVAC: Heating, ventilation, and air conditioning.

Home Occupation: A business that is operated from inside a residential unit. Home occupations are not permitted by right and require a permit from the City of Chula Vista.

I

Impact fee: A fee that is implemented by a local government on a new or proposed development to help assist or pay for a portion of the costs to provide public services to the new development.

Infrastructure: A substructure or underlying foundation; especially the basic installations and facilities on which the continuance and growth of a community.

Intensity: The degree to which land is used.

L

Landscaping: The planting of trees, shrubs, grass, and/or groundcover to improve the appearance of an area.

Lane: A public or private access way permanently reserved as a secondary means of access to abutting property and used to serve as garage access and for trash collection purposes. Also called an alley.

Light pollution: Illumination of the night sky by electric lights, which can interfere with astronomical observation.

Liquefaction: The process by which sediment that is very wet starts to behave like a liquid. Liquefaction occurs because of the increased pore pressure and reduced effective stress between solid particles generated by the presence of liquid. It is often caused by severe shaking, especially that associated with earthquakes.

Lot: Any area identified as a lot or parcel on a recorded final map, parcel map, or record of survey recorded pursuant to an approved division of land, certificate of compliance, or lot line adjustment. A lot is not necessarily a building site.

Lot coverage: The area of the land within the perimeter of all structures located on the building site (not including the area under unenclosed eaves and unenclosed post-supported overhangs, patios, courtyards, arcades and swimming pools) and including covered off-street parking facilities divided by building site area.

Live/Work: A unit that combines work space and living space within the same unit. In live/work units, the operation of business is permitted by right. Live/work units appear residential in nature.

M

Major arterial: Roadways that are designed to carry high volumes of traffic and allow for efficient movement of vehicles through major intersections.

Master Developer: The entity responsible for managing the development and physical character of a particular development area from initiation to final build out, The Master Developer oversees master planning and infrastructure development and finances and manages assets associates with the development. The Master Developer may or may not participate in the construction of the project and may sell all or portions of the development area to neighborhood builders while still maintaining some level of design control over

the development.

Median: The area between vehicular travel lanes of opposing direction. May be striped, raised, and/or landscaped.

Mezzanine: An intermediate floor between main floors of a building that is no greater than one-third the square footage of the floor it is associated with. Mezzanines are not counted among the overall floors of a building. Mezzanines are typically projected in the form of a balcony and may have low ceilings

Minor arterial: Roadways that are designed to carry high volumes of traffic and allow for efficient movement of vehicles through minor intersections.

Mitigation: Process of minimizing, replacing, or offsetting lost or degraded resources, or negative impacts resulting from development.

Mixed-use: Zoning area that allows a combination of residential and non-residential development.

Multi-generational: Of or relating to several generations.

Multiple-family dwelling: A residential structure wherein the number of permitted dwelling units per building site is three or more and may include a variety of types of ownership including rental units.

Multi-family, Duplex: Two attached multi-family dwellings.

N

National Pollutant Discharge Elimination System (NPDES) Program: A federally regulated permit program that controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

Native: Plants or animals indigenous to the region and readily available locally.

Non-native: Plants or animals that are not indigenous to the region.

Neighborhood: Groups of buildings with similar character and intensity, defined by roadways, open space, and other physical boundaries.

Neighborhood Builder: An entity or individual who purchases a portion of a particular area from a Master Developer and is responsible for the physical development of the purchased area. The Neighborhood Builder is required to comply with already approved master plans and the requirements of the Master Developer.

Nested story or floor: An upper story or floor that is located or "nested" within the roof structure. Window are typically provided as dormers or skylights

Net residential density: The number of dwelling units per net acre (see definition of "net residential acres").

Net acres: The number of acres remaining after subtracting the acres of major roads, community infrastructure, open space, parks, and other undeveloped land from the gross acres.

Net residential area: The area of land remaining on a parcel, measured in acres or square feet, after deduction of the area contained in a public and private street and highway rights-of-way, schools, parks, flood control works, off-street parking areas and any other use, easement, or encumbrance that prevents the surface use of the parcel for a building site or construction of structure.

O

Orientation: Refers to the placement of buildings on lots, in respect to streets and the environment. For example, in general buildings are perpendicular or radian on the street, regardless of the shape of the lot.

Open space: Any parcel or area of land or water that is essentially unimproved and devoted to an open space use such as recreation, preserving natural resources, agriculture, providing relief in the urban structure of the environment, and setting aside potentially dangerous areas.

Outdoor Living Space: Any private space associated with a building that promotes a formal outdoor area for the enjoyment of building occupants. Examples include porches, courtyards, and verandas.

P

Parking accessway: A vehicular passageway that provides access and circulation from a street access point into and through a parking lot to parking aisles and between parking areas.

Parking space, compact: An accessible and usable space reduced in size and designated for parking a compact motor vehicle.

Parking space, regular: An accessible and usable space designated for parking a motor vehicle.

Parking space, handicap: An accessible and usable space designated for parking a motor vehicle for accommodating the handicapped. Each handicap parking space shall be delineated by blue painted curbs and lines, and shall be clearly labeled in blue paint with the standard handicap symbol or clearly labeled "for handicapped only" in accordance with ADA and state standards and regulations.

Parking lot: A large area, intended for parking motor vehicles consisting of five or more spaces.

Paseo: A walkway or promenade.

Pathways: A trail or way designed for and used by equestrians, pedestrians, cyclists, and other non-motorized vehicles.

Pervious paving: A paving system that allows water to infiltrate into layers of crushed rock placed below the paving and then into soil and groundwater below. May also include those flows routed to subsurface drains in addition to those that flow into groundwater.

Place-making: Designing a building or area to make it more identifiable to people who use it.

Private drive: Roadways designed as primary access to more than four dwelling units.

Private Usable Open Space: Adequate usable outdoor areas for normal family activities, such as areas for children to play off-street, areas for outdoor gathering and dining, and areas for landscaping and gardening that meet the following requirements:

- Porches and balconies with minimum dimension of 6 ft. and minimum area of 60 sq. ft.
- Private fenced yards with no dimension less than 10 ft. (Side yard, rear yard, or front courtyard locations permitted)
- Generally level (< 5 % grade)
- Landscaped front yards
- Yard areas with min. dimensions less than 6 ft., driveways and pedestrian paths do not qualify

Potable water: Water of sufficient quality to serve as drinking water.

Preserve: A designated area that is protected from injury, destruction, or decay; typically limits human access.

Projections: A design element that extends outward beyond a prevailing line or surface

Project Applicant: An individual or entity who submits and application to the City of Chula Vista for a permit or development entitlement.

Q

Quasi Public, land use: A land use that in some manner or to some degree is related to public use but is owned and operated by an entity other than a public agency.

Quimby Act: California legislation that requires a developer to help mitigate the impacts of property improvements. The act gives authority for passage of land dedication ordinances only to cities and counties. Special districts must work with cities and/or counties to receive parkland dedication and/or in-lieu fees. The fees must be paid and land conveyed directly to the local public agencies that provide park and recreation services community-wide.

R

Rear loaded: Residential dwelling units with automobile access via lanes; Primary entries, and walkways facing the street.

Reciprocal Use Easement (RUE): An easements or pair of easement granted to neighboring properties who (a) share a common property line that is either a zero lot line or zipper ("Z") lot line and/or (b) use a portion of each other's property for yard space or access. RUE's grant one or both property owner's the right to use the other's property for drainage, private yard space, access, and/or maintenance of building walls, foundations, drainage facilities, etc. as specified in the recorded easement.

Recycled water: Wastewater that has been treated to remove suspended solids and other impurities, for reuse in irrigation and custodial applications, subject to water quality regulations.

Residential villages: Distinctive areas defined by the *Otay Ranch GDP.*

Retail: The selling of goods, wares, merchandise, or services directly to the ultimate consumer.

Retaining wall: A structure that is employed to restrain a vertical-faced or near-vertical-faced mass of earth.

Right-of-way: An area or strip of land, either public or private, on which an irrevocable right of passage has been recorded for the use of vehicles, pedestrians, or both.

Runoff: Rainfall not absorbed by soil.

S

Semi-attached: A series of buildings, such as row houses or townhomes, that appear to be attached but are actually separate, stand-alone structures with minimal separation between units. For purposes of this SPA, the term "attached" and "semi-attached" are interchangeable.

Solar access: A buildings ability to receive sun's natural heat and light.

Streetscape: The space between the buildings on either side of a street that defines the street's character.

Structures: Anything constructed or erected that requires location on or in the ground including swimming pools but excluding driveways, uncovered patios, or uncovered parking spaces.

Student generation rate: A critical component of facility planning. Analytical methodology that analyzes the impact of development where the data is used to determine if and when a new school facility will be needed.

Sustainability: Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Shopkeeper: A building that combines work space and living space within the same building. Shopkeepers typically include a primary commercial unit on the ground floor and a secondary living unit in the rear or on the upper floors. Although both units maintain the same ownership, the living and work space each have their own entrance. Shopkeepers appear more commercial than residential.

T

Title-24: Part of the State of California's Building Code, which regulates the building energy efficiency practices.

Tot lot: A playground for very young children.

Traditional Neighborhood Development (TND): Pattern of land planning and development that emulates the towns and suburbs built in the early to mid-20th century more than the automobile-dominated suburbs of the 1960s and beyond. While the typical suburbs and planned communities built since the 1960s have stressed a separation of uses and great emphasis on the automobile, TND stresses a walkable scale, an integration of different housing types and commercial uses, and the creation of a discernible center.

Transect: (a) A district with similar qualities that may contain multiple zones and provides a transition to adjacent Transects. (b) A group of districts that range from low intensity to high intensity development and provide a gradual transition from natural, open space areas to urban centers.

Transit shelter: Prefabricated structure which affords protection from the weather to persons who are waiting to board a publicly owned or franchised transit vehicle.

Town Square: A small park in an urban setting, typically less than a 1/2 acre in size, that is intended to provide relief from the urban fabric

U

Utilization: The purpose for which land or buildings are occupied, arranged, designed, or intended or for which either land or buildings are or may be occupied or maintained.

Urban Couplet: See "Couplet"

V

Vehicular accessway: A private, non-exclusive vehicular easement affording access to abutting properties.

View corridor: An area with a maximized view premium (mountain, river plain, green belt, lake, park), that may be used to guide the orientation of the development pattern.

View Sheds: The natural environment that is visible from one or more view points.

Visual anchors: Visual interests or objects that serve to hold public attention.

Z

Zero Lot Line: The construction of a structure on any of the boundary lines of a lot, i.e. zero setback.

Zone: An area within a transect with specific development standards.

Zoning Administrator: The City official responsible for determining whether a proposed project complies with the requirements and intent of the applicable zoning ordinance, specific plan, or form based code. The Zoning Administrator has the authority to approve, approve with conditions or modifications, or deny various discretionary application which are not significant enough to require review by the Planning Commission due to their scale or location.

Zipper or "Z" lots: Two lots that are paired along a common lot line that is configured in a "Z" alignment. Zipper lots provide an alternative to zero lot line configurations by allowing standard setbacks from the property line, thereby reducing construction costs, while still achieving similar densities. Zero lot lines are accompanied by a reciprocal use easement.

Appendix J

Monitoring Tables

Updated as Of _____ **Zoning Adminstrators Signature _____**

	Planning Area (From Site Utilization	Target Res. Units	Permitted Desnity Range (du/ac)	Actual Res. Units (Design Review Approcval)	Approved within Site Util. Plan Range (yes/no)	Res. Unit Transfers		Notes
						In	Out	
UC	A	380	28-60	0	Yes	0	0	
	B-1	183		0	Yes	0	0	
	B-2	136		0	Yes	0	0	
	D	448		0	Yes	0	0	
	E-1	183		0	Yes	0	0	
	E-2	168		0	Yes	0	0	
	H-1	188		0	Yes	0	0	
	H-2	226		0	Yes	0	0	
TC	K-1	148	18-45	0	Yes	0	0	
	K-2	152		0	Yes	0	0	
	M	80		0	Yes	0	0	
	N	57		0	Yes	0	0	
	O-1	80		0	Yes	0	0	
	O-2	80		0	Yes	0	0	
	P	80		0	Yes	0	0	
	Q	57		0	Yes	0	0	
	R-1	80		0	Yes	0	0	
	R-2	80		0	Yes	0	0	
UN	F	136	10-45	0	Yes	0	0	
	G	0		0	Yes	0	0	
NC	S-1	104	10-27	0	Yes	0	0	
	S-2	58		0	Yes	0	0	
	T	34		0	Yes	0	0	
	U-1	58		0	Yes	0	0	
	U-2	58		0	Yes	0	0	
	V	142		0	Yes	0	0	
	W	0		0	Yes	0	0	
	Y-1	54		0	Yes	0	0	
	Y-2	50		0	Yes	0	0	
	Z-1	61		0	Yes	0	0	
	Z-2	45		0	Yes	0	0	
	CC	128		0	Yes	0	0	
NG	AA	72	6-11	0	Yes	0	0	
	BB	89		0	Yes	0	0	
NE	DD	47	3-6	0	Yes	0	0	
	EE	26		0	Yes	0	0	
	FF	32		0	Yes	0	0	
Target Total		**4000**		**0**				

Updated as Of _____ Zoning Adminstrators Signature _____

	Planning Area (From Site Utilization Plan)	Target C'ml Sq.Ft. (K)	Actual C'ml Sq.Ft. (K) (Design Review Approval)	Approved within Site Util. Plan Range (yes/no)	Sq.Ft. Transfers		Notes
					In	Out	
UC	A	235	0	Yes	0	0	
	B-1	115	0	Yes	0	0	
	B-2	101	0	Yes	0	0	
	D	278	0	Yes	0	0	
	E-1	115	0	Yes	0	0	
	E-2	101	0	Yes	0	0	
	H-1	115	0	Yes	0	0	
	H-2	130	0	Yes	0	0	
TC	K-1	0	0	Yes	0	0	
	K-2	0	0	Yes	0	0	
	M	29	0	Yes	0	0	
	N	52	0	Yes	0	0	
	O-1	29	0	Yes	0	0	
	O-2	29	0	Yes	0	0	
	P	29	0	Yes	0	0	
	Q	52	0	Yes	0	0	
	R-1	29	0	Yes	0	0	
	R-2	29	0	Yes	0	0	
UN	F	0	0	Yes	0	0	
	G	0	0	Yes	0	0	
NC	S-1	0	0	Yes	0	0	
	S-2	0	0	Yes	0	0	
	T	32	0	Yes	0	0	
	U-1	0	0	Yes	0	0	
	U-2	0	0	Yes	0	0	
	V	0	0	Yes	0	0	
	W	0	0	Yes	0	0	
	Y-1	0	0	Yes	0	0	
	Y-2	0	0	Yes	0	0	
	Z-1	0	0	Yes	0	0	
	Z-2	0	0	Yes	0	0	
	CC	0	0	Yes	0	0	
Target Total		**1500**	**0**				

Updated as Of _____ **Zoning Adminstrators Signature _____**

Site Utilization	Target Res. Units	Required Park (sq.ft./unit)	Estimated Park Area Required		Actual Approved Res. Units (Design Review)	Actual Park Area Required	
			sq.ft.	acres		sq.ft.	acres
EUC	1912	341	651,992	14.97	0	0	0
TC	894	341	304,854	7.00	0	0	0
MU (10-45)	136	341	46,376	1.06	0	0	0
MU (10-27)	792	341	270,072	6.20	0	0	0
M	161	460	74,060	1.70	0	0	0
LMV	105	460	48,300	1.11	0	0	0
Total	**4000**		**1,395,654**	**32.04**	**0**	**0**	**0**