

**AIR QUALITY IMPROVEMENT PLAN (AQIP)
FOR OTAY RANCH, PORTION OF
VILLAGE FOUR
City of Chula Vista, California
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Project Application:

Otay Valley Quarry, LLC
6591 Collins Drive, Suite E-11
Moorpark, California 93021
Contact: Chuck Miller

Project Sponsor:

Atlantis Group
2488 Historic Decatur Road, Suite 220
San Diego, California 92106
619.523.1930
Contact: Marcela Escobar-Eck

Prepared By:

Atlantis Group
2488 Historic Decatur Road, Suite 220
San Diego, California 92106
619.523.1930
Contact: Marcela Escobar-Eck

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1. EXECUTIVE SUMMARY

A. Intent of AQIP

This Air Quality Improvement Plan (AQIP) has been prepared in conjunction with the Otay Ranch Portion of Village Four Sectional Planning Area (SPA) Plan. Village Four is defined by Wolf Canyon to the west and north, the rock quarry to the south, and the recently approved Village Eight West to the East. Proposed development within Village Four includes 350 mixed-density residential dwelling units, community purpose facilities, open space, and preserve lands.

The purpose of the AQIP is to provide an analysis of air pollution impacts that would result from the proposed development in Village Four and to demonstrate how the site design 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 Four has been designed consistent with the City's Green Building Standards, (CVMC 15.26) and Energy Code (15.12) and represents the best available design in terms of improving energy efficiency and reducing GHG emissions. GHG emissions include gases such as Carbon Dioxide (CO₂), Methane (CH₄), and Nitrous Dioxide (N₂O). 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 effect of warming the air temperature. Applicable action measures contained in the City's Carbon Dioxide (CO₂) Reduction Plan are also addressed.

B. Community Site Design Goals

Otay Ranch is a 23,000-acre master-planned community and includes a mix of land uses within 20 villages and/or planning areas whose development is to be guided by the Otay Ranch General Development Plan (GDP). A central component of the Otay Ranch GDP is the "village" concept. Each village is approximately 1-square mile and is defined by a village core. Village cores consist of facilities and services needed to serve the everyday needs of its residents. Such uses include schools, shops, parks, and civic facilities. The highest density residential uses occur in and around the core in the form of mixed-use housing and retail as well as high-density attached homes. Residential densities decrease near the outer edges of each village to provide diversity in housing and serve a wide range of lifestyles and economic levels within each village. Higher residential densities at the core are intended to support commercial uses by activating the village core during all hours of the day and promote more walkable communities by providing facilities and services within a quarter mile of most homes. The village concept also promotes more efficient public transit and increased ridership by providing strong activity centers in each village and making transit close and convenient for most residents.



Village Four proposes 350 mixed-density residential dwelling units, 2.08 acres of community purpose facilities, 20.19 acres of open space, and 97.20 acres of preserve lands. The predominate land uses assigned to Village Four per the GDP include residential and preserve open space land uses with commercial, industrial, and school land uses being excluded. Therefore, Village Four relies upon the directly-adjacent Village Eight West SPA, as envisioned and approved, to serve as the non-residential core, as the Village Eight West SPA is more consistent with the land uses described and detailed in the original Otay Ranch GDP. Village Four is defined by Wolf Canyon to the west and north, the rock quarry to the south, and Village Eight West to the east.

The proposed project establishes a pedestrian-oriented village within the Planning Area designed to complement and support the neighboring Village Eight West land uses, reduce reliance on the automobile and promote multimodal transportation, including walking and the use of bicycles, buses, and regional transit. It creates walkable neighborhoods that offer a combination of urban-style, smaller-scale living accommodations and larger, single-family homes within walking distance to local shops, services, schools, entertainment and dining, as well as a regional system of trails and open spaces.

The vision for this community is to develop a mixed-density residential neighborhood to complement neighboring Village Eight West and to provide additional ridership opportunities for the regional Bus Rapid Transit and local bus system increasing the viability of transit and reducing automobile dependence. The densities and design patterns envisioned for Village Four focus on promoting a walkable and bikeable community with less emphasis on automobile trips.

C. Planning Features

The Otay Ranch Portion of Village Four SPA Plan includes the following planning features to achieve the community site design goals:

Land Use features:

- 1) Integrated Circulation System. Project residents and visitors are afforded non-automobile related circulation options that include walking, bicycling, and transit. Main Street - the main roadway connecting Village Four with Village Eight West and Village Three - as well as interior streets - are designed to provide a comfortable walking environment. Moreover, trails and trail connections to the regional trail network encourage pedestrian circulation to neighboring villages and throughout the region.
- 2) Synergy with the employment, retail, and educational activities provided by Village Eight West makes it easy for residents and visitors to walk or bike to destinations, helping to efficiently connect the city's neighborhoods through sustainable mobility.



- 3) Residential Mixed-Density. The combination of low-density single family homes nearest to the open space and high-density multi-family dwellings nearer to Main Street, is intended to promote walking and biking as a feasible alternative to driving due to reduced distances and the resulting close proximity to both the neighborhood and regional trail system and transit stops along Main Street.
- 4) Street Widths, Pavement and Street Trees. Otay Ranch street sections are narrower than typical standards which reduces asphalt pavement and the "urban heat-island effect" by limiting the amount of reflective surfaces. Street trees provide shade which further reduces heat-gain. Widened landscape medians and parkways to reduce paving, thereby reducing heat gain and the demand for air conditioning. Street trees within the parkways and medians provide shade to further reduce ambient air temperatures.
- 5) Public Transportation. The design plan for the development is transit ready and potential transit stops along Main Street are incorporated into the circulation plan. In conformance with General Plan policy, public transportation is an integral part of Otay Ranch. Public transit lines and stops are integrated into the GDP with a proposed transit route along Main Street through Village Four. This is intended to help reduce the dependence on the passenger vehicle and encourage walking, biking, and transit trips. Bus Rapid Transit service is proposed for Main Street, and, future local bus routes could serve the project with a potential stop in Village Four along Main Street.
- 6) Alternative Travel Modes. Village Four will be connected to the regional trail network and will feature Class II bike lanes along Main Street. Sidewalks will be provided throughout the project site. All internal roadways are designed to local street standards with speed limits of 25 to 30 mph. Slow traffic speeds are conducive to both walking and bicycling and provide the necessary linkage to the regional bicycle circulation network.

Building and Design Element Features:

- 1) Use of low-VOC paints as required under SDAPCD Rule 67.
- 2) Project-wide recycling as required under the County's recycling Ordinance.
- 3) Energy efficiency as required under the 2013 California Energy Code and CalGreen.
- 4) Indoor residential appliances that carry the Environmental Protection Agency's (EPA) ENERGYSTAR® certification, as applicable and feasible.
- 5) Inclusion of all residential units in the local utility demand response program to limit peak energy usage for cooling.
- 6) Indoor residential plumbing products that carry the EPA's WaterSense certification.
- 7) Passive solar design and building orientation principles to take advantage of the sun in the winter for heating and reduce heat gain and cooling needs during summer.
- 8) Energy efficient lighting for streets, parks, and other public spaces as well as for private development projects.
- 9) Installation of only electric or natural gas fireplaces in new development. No wood burning fireplaces are permitted.



- 10) Installation of solar water heater preplumbing.
- 11) Installation of solar photovoltaic rewiring.
- 12) Installation of residential graywater stub-out.

Landscape Features:

- 1) Watering three times daily to control fugitive dust to meet the requirements SDAPCD.
- 2) High-efficiency irrigation equipment, such as evapotranspiration controllers, soil moisture controllers and drip emitters for all projects that install irrigation water meters, per the City of Chula Vista Landscape Water Conservation Ordinance of the City of Chula Vista Municipal Code Chapter 20, Section 12.
- 3) Water efficient vegetation, including native species, planted in public and private landscape areas.
- 4) Natural turf in residential development limited to no more than 30% of the outdoor open space.
- 5) Vertical landscape elements, such as trees, large shrubs, and climbing vines, shall be installed to shade southern and western building facades to reduce energy needs for heating and cooling.
- 6) Compliance with the City's Shade Tree Policy for parking lot design to achieve 50% shade cover in five to fifteen years through tree canopies, shade structures, or light colored "cool" paving.

D. Modeled Effectiveness of Community Design

With implementation of the proposed site design features, the project is consistent with the City of Chula Vista INDEX CO2 model requirements, as shown in Tables 5-1 and 5-2 which describe the LEED-ND equivalency analysis (LEA) prepared for the project.



2. INTRODUCTION

A. Need for an AQIP

The objective of this AQIP is to fulfill the City of Chula Vista's Growth Management policy to improve air quality from existing conditions. 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 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.

This AQIP is provided in accordance with CVMC 19.09.050B, 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.

B. AQIP as Tool for Implementation of Ordinances

This 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 CO₂ Reduction Plan, the Green Building Standards (CVMC Chapter 15.26) and the City's Energy Code (CVMC 15.12).



2A. PURPOSE & GOALS

A. Purpose of AQIP

The purpose of the AQIP is to provide an analysis of air pollution impacts that would result from development of the Village Four site and to demonstrate how the project design 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 the project has been designed consistent with the City's Green Building Standards, (CVMC 15,26) and Energy Code (15.12) and represents the best available design in terms of improving energy efficiency and reducing GHG emissions. GHG emissions include gases such as Carbon Dioxide (CO₂), Methane (CH₄), and Nitrous Dioxide (N₂O). 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 effect of warming the air temperature. Applicable action measures contained in the City's Carbon Dioxide (CO₂) Reduction Plan are also addressed.

B. Regulatory Framework Related to Air Quality

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.

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 (SO₂)
- Nitrogen Dioxide(NO₂)
- Nitrogen Oxides(NO_x)
- Ozone (O₃)
- Respirable 10- and 2,5-micron particulate matter (PM₁₀ and PM_{2.5})
- Volatile Organic Compounds (VOC)
- Reactive Organic Gasses (ROG)
- Hydrogen Sulfide (H₂S)
- Sulfates
- Lead (Pb)
- Vinyl Chloride
- 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 1 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.



Figure 2-1: Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards ¹		National Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃) ⁸	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)		0.070 ppm (137 µg/m ³)		
Respirable Particulate Matter (PM ₁₀) ⁹	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		—		
Fine Particulate Matter (PM _{2.5}) ⁹	24 Hour	—	—	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	12.0 µg/m ³	15 µg/m ³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m ³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—	—	
Nitrogen Dioxide (NO ₂) ¹⁰	1 Hour	0.18 ppm (339 µg/m ³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m ³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)		0.053 ppm (100 µg/m ³)	Same as Primary Standard	
Sulfur Dioxide (SO ₂) ¹¹	1 Hour	0.25 ppm (655 µg/m ³)	Ultraviolet Fluorescence	75 ppb (196 µg/m ³)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)	
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ¹¹	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas) ¹¹	—	
Lead ^{12,13}	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m ³ (for certain areas) ¹²	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m ³		
Visibility Reducing Particles ¹⁴	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ¹²	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (5/4/16)



Figure 2-1: Ambient Air Quality Standards (Cont.)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above $150 \mu\text{g}/\text{m}^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from $15 \mu\text{g}/\text{m}^3$ to $12.0 \mu\text{g}/\text{m}^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at $35 \mu\text{g}/\text{m}^3$, as was the annual secondary standard of $15 \mu\text{g}/\text{m}^3$. The existing 24-hour PM10 standards (primary and secondary) of $150 \mu\text{g}/\text{m}^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour 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.
12. 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.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard ($1.5 \mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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California Air Resources Board (5/4/16)



According to a report by the California Air Pollution Control Officers' Association (CAPCOA), 2013 was the cleanest year on record for the APCD. Accordingly, in 2013, the U.S. EPA redesignated the APCD as an attainment area for the 1997 8-hour federal ozone standard. The APCD has also been designated as a marginal non-attainment area for the more health-protective 2008 8-hour federal ozone standard, and monitoring data show continued progress toward achieving this standard (marginal non-attainment requires attainment by the year 2015). The APCD also continues to meet all air quality standards for PM_{2.5}, including the tightened annual standard that the U.S. EPA promulgated in early 2013, which brings the federal standard in line with the state standard.

Figure 2-2: APCD Air Quality Emissions Budget

Pollutant	Construction	Operation
Criteria Pollutants Mass Daily Thresholds		
NO _x	100 lbs/day	55 lbs/day
ROG	75 lbs/day	55 lbs/day
PM ₁₀	150 lbs/day	150 lbs/day
PM _{2.5}	55 lbs/day	55 lbs/day
SO _x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
TAC, AHM, and Odor Thresholds		
Toxic Air Contaminants (TACs)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 Metric tons/year CO _{2e} for industrial facilities	
Ambient Air Quality for Criteria Pollutants		
NO ₂ 1-hour	0.18 ppm (state)	
NO ₂ annual	0.03 ppm (state) and 0.0534 ppm (federal)	
PM ₁₀ 24-hour	10.4 µg/m ³ (construction) and 2.5 µg/m ³ (operations)	
PM ₁₀ annual average	1.0 µg/m ³	
PM _{2.5} 24-hour	10.4 µg/m ³ (construction) and 2.5 µg/m ³ (operations)	
SO ₂ 24-hour	0.25 ppm (state) and 0.075 ppm (federal – 99 th percentile)	
SO ₂ annual average	0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m ³	
CO 1-hour average	20 ppm (state) and 35 ppm (federal)	
CO 8-hour average	9.0 ppm (state/federal)	
Lead 30-day average	1.5 µg/m ³	
Lead rolling 3-month average	0.15 µg/m ³	
Lead quarterly average	1.5 µg/m ³	

Summary of Energy Efficiency Standards

Title 24, Part 6 of the California Building Standards Code regulates energy use 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 from a variety of measures. These choices may include the following:

- Added insulation
- Improved windows
- Radiant barriers
- Cool roofs
- Improved HVAC systems
- Alternative heating and cooling systems
- More efficient water heating systems
- More efficient lighting systems.

The California Energy Commission's (CEC) 2013 Building Energy Efficiency Standards are 25% more efficient than previous standards for residential construction and 30% better for nonresidential construction. These standards took effect on July 1, 2014. On average, the standards increase the cost of constructing a new home by \$2,290 but will return more than \$6,200 in energy savings over 20 years. These new energy efficiency standards are designed toward the "Zero Net Energy" (ZNE) goal for new homes by 2020 and commercial buildings by 2030, The ZNE goal means that new buildings must use a combination of improved efficiency and distributed renewable generation to meet 100 percent of the annual energy need.

The City's Energy and Water Conservation Regulations (CVMC 20.04) require that all new residential units include the necessary plumbing to encourage the later installation of solar hot water heating. In addition, the electrical conduit necessary for installation of solar photovoltaic system is also required for all new residential units.

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). California Green Building Code Title 24, Part 11 (CALGreen) requires that indoor water use be reduced through stringent new water fixture flow rates. The City has also reduced the demand for outdoor water use through the adoption of the Landscape Water Conservation requirements (CVMC 20.12). The City of Chula Vista recently adopted a residential graywater sub-out requirement to allow the future installation of a clothes washer graywater irrigation system (CVMC 15.28.020).

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 100% of the inert waste and not less than 50% of the remaining waste generated during construction (CVMC 8.25.020).



Summary of Greenhouse Gas (GHG) Reduction

Greenhouse gasses (GHGs) include carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). These gases allow solar radiation (sunlight) into the Earth's atmosphere but prevent radiative heat from escaping, thus warming the earth's atmosphere. GHGs are emitted by both natural processes and human activities. As directed by Assembly Bill 32 (AB 32), the Climate Change Scoping Plan (December 2008 prepared by CARB) includes measures to reduce statewide GHGs 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 CO₂ emissions statewide: transportation and electricity generation. The majority of the reduction in transportation-related and energy-related CO₂ 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).

BAU is defined as the emissions that would have occurred in the absence of reductions mandated under AB 32, including CHG reductions from the following:

- Implementation of Parley 1 and Pavley 2 motor vehicle standards
Pavley regulations establish specific GHG emissions levels for both passenger cars and light-duty trucks. The standards become more stringent each year through 2016.
- Implementation of the Low Carbon Fuel Standard (LCFS)
CARB has also adopted a 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.
- Implementation of the Renewable Portfolio Standard (RPS)
RPS requires investor-owned utilities electric service providers, and community choice aggregators to increase renewable energy resources to 33% by 2020.
- Increased energy efficiency measures codified in Title 24 as of 2013
BAU uses the energy efficiency standards codified in Title 24 as of 2005.
- Implementation of Federal Corporate Average Fuel Economy (CAFE) standards
The CAFE standards determine the fuel efficiency of certain vehicle classes.

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 CO₂ Reduction Plan developed in 1995 and officially adopted in 2000, Chula Vista committed to lowering its CO₂ emissions by diversifying its transportation system and using energy more efficiently in all sectors. To focus efforts in this direction, the City adopted the CO₂ reduction goal of 20% below 1990 levels by 2010. In order to achieve this goal, seven actions were identified (see page 30), which when fully implemented, were anticipated to save 100,000 tons of CO₂ each year.

The 2008 GHG Emissions Inventory 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) 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.

During 2014, a CCWG was reconvened to help update the City's Climate Action Plan. The CCWG developed recommendations, through an open and transparent public process, for new greenhouse gas reduction strategies to assist Chula Vista in reaching its carbon reduction goals. On November 18, 2014, these recommendations were approved by the Chula Vista City Council. Since that time, City Staff and the CCWG have been working on incorporating the recommendations into the Chula Vista Climate Action Plan Update, which is anticipated to be completed during 2017.



3. PROJECT DESCRIPTION

Village Four proposes 350 mixed-density residential dwelling units, 1.95 acres for a community purpose facility, 20.24 acres of open space, and 97.20 acres of preserve lands, as shown on Figure 3-1, the Site Utilization Plan. The predominate land uses assigned to Village Four per the GDP include residential and preserve open space land uses with commercial, industrial, and school land uses being excluded. Therefore, Village Four relies upon the directly-adjacent Village Eight West SPA, as envisioned and approved, to serve as the non-residential core, as the Village Eight West SPA is more consistent with the land uses described and detailed in the original Otay Ranch GDP. Village Four is defined by Wolf Canyon to the west and north, the rock quarry to the south, and Village Eight West to the east.

The proposed project establishes a pedestrian-oriented village within the Planning Area designed to complement and support the neighboring Village Eight West land uses, reduce reliance on the automobile and promote multimodal transportation, including walking and the use of bicycles, buses, and regional transit. It creates walkable neighborhoods that offer a combination of urban-style, smaller-scale living accommodations and larger, single-family homes within walking distance to local shops, services, schools, entertainment and dining, as well as a regional system of trails and open spaces.

The Village Four landform consists of Rock Mountain and Wolf Canyon. The northern and western edges of Village Four are defined by Wolf Canyon which will be placed into the Preserve, in conjunction with acceptance of Final Map(s). The eastern edge is defined by Village Eight West which will provide the bulk of non-residential activities for residents of Village Four. The southern edge of Village Four abuts the quarry which has a Conditional Use Permit and Reclamation Plan. There are view opportunities from Village Four to adjacent open space areas, including the Wolf Canyon, and mountains to the east.

The vision for this community is to develop a mixed-density residential neighborhood to complement neighboring Village Eight West and to provide additional ridership opportunities for the regional Bus Rapid Transit and local bus system increasing the viability of transit and reducing automobile dependence. The densities and design patterns envisioned for Village Four focus on promoting a walkable and bikeable community with less emphasis on automobile trips.

The Otay Ranch Portion of Village Four SPA Plan strives to create a new community oriented toward the open space of Wolf Canyon. The community is pedestrian oriented with reduced street widths, which create a more intimate streetscape, benefiting the overall appearance and environment for all users including drivers, bicyclists, and pedestrians.



The single-family neighborhoods are defined by Rock Mountain and the views of Wolf Canyon. The setbacks within the multi-family neighborhood will be defined during the site plan approval process. The main arterial through the community, Main Street would promote a walkable, safe, and visually appealing roadway. It would be characterized by a narrower width to encourage slower travel and multimodal travel, a landscaped median, a landscaped setback that has an average minimum measurement of 20-feet, and a 10-foot wide multi-use trail connecting to the regional trail network to encourage non-vehicular transportation in the immediate area and throughout Otay Ranch.



4. EFFECT OF THE PROJECT ON LOCAL/REGIONAL AIR QUALITY

This section includes a generalized discussion of the short-term and long-term effects on local and regional air quality including its contribution to global climate change.

The project site is projected to have transit stops on Main Street. Village Eight West, directly east of Village Four is designed to accommodate Bus Rapid Transit and has transit stops within a quarter of a mile from Village Four.

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. Because of their temporary nature, construction activity impacts have often been considered as having a **less-than significant** air quality impact.

Construction emissions as estimated in the air quality technical report would be below all significance thresholds for criteria air pollutants, and would not exceed those levels identified in the project EIR. The site would be watered at least three times daily to control fugitive dust emissions, and vehicle speeds would not exceed 15 miles per hour, per EIR mitigation measure MM-AQ-1 and 2. In addition, low-VOC paints would be utilized during architectural coatings. With incorporation of these design features, construction emissions were estimated to be below construction emissions estimated in the EIR.

While the proposed project would not exceed any of the City's significance thresholds during construction, cumulative construction impacts due to potential construction activities occurring concurrently with other projects within the vicinity would be significant. Therefore, the following mitigation is required in order to reduce cumulative construction impacts:

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

- Minimize simultaneous operation of multiple construction equipment units. During construction, vehicles in loading and unloading queues shall turn their engines off when not in use to reduce vehicle emissions;
- All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications;
- All diesel-fueled on-road construction vehicles shall meet the emission standards applicable to the most current year to the greatest extent possible. To achieve this



standard, new vehicles shall be used, or older vehicles shall use post-combustion controls that reduce pollutant emissions to the greatest extent feasible;

- The effectiveness of the latest diesel emission controls is highly dependent on the sulfur content of the fuel. Therefore, diesel fuel used by on- and off-road construction equipment shall be low sulfur (less than 15 ppm) or other alternative, low-polluting diesel fuel formulation;
- The use of electrical construction equipment shall be employed where feasible;
- The use of catalytic reduction for gasoline-powered equipment shall be employed where feasible.

MM-AQ-2 Prior to approval of any grading permits, and during project construction, the project applicant or its designee shall require implementation of the City's Standard Construction Best Management Practices (BMPs) to minimize PM₁₀ and PM_{2.5} emissions, including:

- Water or utilize another acceptable SDAPCD dust control agent on, the grading areas at least twice daily to minimize fugitive dust;
- Stabilize grading areas as quickly as possible to minimize fugitive dust;
- Install wheel washers adjacent to a paved apron prior to vehicle entry on public roads;
- Wet wash the construction access point at the end of the workday if any vehicle travel on unpaved surfaces has occurred;
- Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads;
- Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling;
- Suspend all soil disturbance and travel on unpaved surfaces if winds exceed 25 miles per hour (mph);
- Cover/water on-site stockpiles of excavated material;
- Enforce a 20 mph speed limit on unpaved surfaces;
- Pave permanent roads as quickly as possible to minimize dust.

The SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations would apply construction of the project (SDAPCD 2016):

- **SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance.** Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property.
- **SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust.** Regulates fugitive dust emissions from any commercial construction or demolition activity capable of



generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site.

- **SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings.** Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

According to the Air Quality Report, (Table 6), proposed project construction emissions would not exceed the City's recommended significance thresholds for any criteria pollutant, therefore, impacts would be less than significant.

Operational Related Emissions

Following the completion of construction activities, the proposed project would generate VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5} emissions from mobile and stationary sources, including vehicular traffic and area sources (water heating and landscaping).

Vehicular Traffic

The proposed project would impact air quality through the vehicular traffic generated by project residents. CalEEMod Version 2016.3.1 was utilized to estimate daily emissions from proposed vehicular sources (refer to Appendix A). CalEEMod default data, including temperature, trip characteristics, variable start information, and emissions factors, were conservatively used for the model inputs. Project-related traffic was assumed to be comprised of a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2020 were used to estimate emissions.

Energy

In addition to estimating mobile source emissions, CalEEMod was also used to estimate emissions from the proposed project's energy use, which includes natural gas combustion. The proposed project is expected to meet the 2016 Title 24 standards, which requires that new residential development are required to achieve a 28% energy savings compared with 2013 Title 24 standards (CEC 2015).

Area Sources

In addition to estimating mobile source emissions, CalEEMod was also used to estimate emissions from the project area stationary sources, which include natural gas appliances, hearths, landscaping, and consumer products. It was assumed all residential units would be constructed with natural gas fireplaces and no wood-burning fire places would be constructed. Similar to construction-related architectural coating emission estimates, VOC emissions



generated from architectural coatings were estimated based on the number of residential dwelling units and VOC content per SDAPCD Rule 67.0 to determine the VOC emissions.

Table 4-1 presents the maximum daily emissions associated with the operation of the proposed project after all phases of construction have been completed. The values shown are the maximum summer or winter daily emissions results from CalEEMod. Complete details of the emissions calculations are provided in Appendix A of the Air Quality Technical Report.

Table 4-1: Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Emission Source	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
	Pounds Per Day					
Area Sources	11.42	6.14	31.44	0.04	0.63	0.63
Energy	0.11	0.93	0.39	0.01	0.08	0.08
Motor Vehicles	4.54	16.91	42.24	0.12	9.66	2.66
Total	16.07	23.98	74.07	0.17	10.37	3.37
<i>City of Chula Vista Threshold</i>	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: See Appendix A for detailed results.

Notes: The values shown are the maximum summer or winter daily emissions results from CalEEMod.

These estimates reflect compliance with SDAPCD Rule 67, which limits VOC content of architectural coatings, assumed no wood burning devices, adjustments to the trip generation rates and trip lengths as provided in the TIA (Fehr and Peers 2016), improving the pedestrian network, and providing traffic calming measures.

VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM₁₀ = coarse particulate matter; PM_{2.5} = fine particulate matter

As shown, daily operational emissions for all criteria pollutants would not exceed the City's significance thresholds; therefore, impacts during operation would be **less than significant**.

The project will provide housing adjacent to commercial and employment uses with access to transit and alternative modes of transportation. This purpose meets the goals of the Regional Air Quality Strategy (RAQS) and the State Implementation Plan (SIP), which include measures to encourage transit use and mixed-use developments. Accordingly, the project will meet the goals of the RAQS and SIP to reduce vehicle trips and therefore to improve air quality. The impacts associated with operations would be less than significant by the year 2025. Emissions are below the levels evaluated in the 2002 EIR, and no new air quality impacts are identified. No additional mitigation measures are required. Furthermore, the potential for health risks to residents of the project from surrounding land uses was evaluated in a screening health risk analysis. No adverse health risks would result from exposure to existing land uses. The project would therefore not result in a significant direct or cumulative impact on the ambient air quality.



5. QUANTITATIVE PROJECT DESIGN EVALUATION

A quantitative analysis for the Village Four Project (Project) was performed using Option (2): Alternative Modeling Programs, specifically LEED-ND equivalency analysis (LEA). LEED-ND criteria are proposed as being more appropriate than INDEX indicators for the Project for four reasons:

1. INDEX indicators do not take into account habitat preservation and conservation efforts, of which the Project is providing a significant amount at approximately 70% of the site.
2. LEED-ND criteria measure benefits to a greater and more accurate extent.
3. The INDEX approach uses only 16 indicators, whereas LEED-ND has 56 indicators that are able to characterize a project much more comprehensively and thoroughly, and ultimately capture more contributors to GHG emission reductions.
4. The underlying basics of the INDEX approach are nearly 15 years old, in contrast to LEED-ND's latest update in 2014. Consequently, current best practices in urban design, green infrastructure, and resilient neighborhoods are not addressed by INDEX indicators, but are covered by LEED-ND criteria.

Based on the Project site plan and surrounding conditions, the LEA finds that the Project scores the equivalent of 40 points, which would earn LEED certification under the LEED-ND rating system (see Table 5-1, Scorecard). Moreover, every INDEX indicator is addressed by at least one corresponding LEED-ND credit, and, on average, by four corresponding ND credits (see following INDEX/LEED-ND crosswalk table). Overall, the ND credits double or triple the depth and extent of measurements compared to INDEX indicators. This is particularly true for auto driving and building energy, the two most important sources of GHG emissions. The base ND certification of 40 points is the functional equivalent of INDEX indicator thresholds. Therefore, the Project has demonstrated AQIP compliance.

Table 5-2 identifies the INDEX indicators which correspond to each of the LEED ND credits achieved by the Project. Each INDEX indicator has at least one corresponding ND credit, and on average each indicator has four corresponding ND credits. Where it matters the most for GHG emissions, auto driving and building energy, the ND coverage jumps to 10 and 8 credits, respectively. Overall, the ND approach is able to double or triple the depth and extent of measurements in relation to INDEX indicators.



Table 5-1: LEED-ND v2014 Scorecard

Smart Location & Linkage		Options	Possible LEED-ND Points	Potential Project Equivalency Points	Notes
Prereq 1	Smart Location	Transit served or proximity to different diverse uses.	Y/N	Y	A Rapid Bus route is planned by SANDAG in the 2035 revenue-constrained RTP along Main Street- 1.2 mile walking distance to at least half residents. On-site a transit/bus stop is planned- 1/4 mile walking distance to at least half residents.
Prereq 2	Imperiled Species and Ecological Communities	OPTION 3. Sites with Affected Species or Ecological Community: Habitat Conservation Plan Equivalent	Y/N	Y	Yes, option #3
Prereq 3	Wetland and Water Body Conservation	OPTION 2. Sites with Wetlands, Water Bodies, Land within 50 Feet (15 meters) of Wetlands, or Land within 100 Feet (30 meters) of Water Bodies	Y/N	Y	
Prereq 4	Agricultural Land Conservation		Y/N	N/A	
Prereq 5	Floodplain Avoidance		Y/N	N/A	
Credit 1	Preferred Locations		10	0	Not infill, not previously developed, not within 1/2 mile of connectivity.
Credit 2	Brownfields/Hi Priority Areas		2	N/A	
Credit 3	Reduced Auto Dependence		7	0	planned transit, but no existing transit
Credit 4	Bike Network		1	0	No existing bike facilities within 1/4 mile.
Credit 5	Housing/Jobs Proximity		3	0	Not within 1/2 mile walking distance of full time jobs
Credit 6	Steep Slopes	OPTION 3. Sites Other than Previously Developed Sites with Slopes Over 15%	1	1	Approx. 17.2 acres of steep slopes 15% or greater would be impacted. Assumes project limits development to no more than 40% of slopes between 25% and 40% and to no more than 60% of slopes between 15% and 25%.
Credit 7	Habitat Site Design		1	0	Project mitigates, but does not avoid all wetlands and sensitive habitat.
Credit 8	Habitat Restoration		1	1	Project provides restoration
Credit 9	Conserve Habitat		1	1	Project mitigates impacts.
Neighborhood Pattern & Design		Options	Possible LEED-ND Points	Potential Project Equivalency Points	Notes
Prereq 1	Walkable Streets		Y/N	Y	
Prereq 2	Compact Development		Y/N	Y	10.15 du/acre
Prereq 3	Connected and Open Community		Y/N	Y	
Credit 1	Walkable Streets	a. 25 ft. setback b. 18 ft. setback c. 1 ft. setback d. Entries every 75 ft. e. Entries every 30 ft. f. Ground-level glass facades g. No blank walls h. Unshuttered retail windows i. On-street parking j. Sidewalks k. Ground floor dwellings above grade l. Ground floor retail in multi-stories m. Building height-street width n. 20 mph residential streets o. 25 mph non-re/mixed-use streets p. Driveways limited	12	7	a. setbacks are 18 ft. or less - yes b. setbacks are 18ft or less - yes c. community facility bldg is within 1 ft of sidewalk -yes d. functional entry at community facility bldg -yes e. 4 entries at least every 30 ft for community facility bldg f.-h. relates to retail - N/A i. no onstreet parking on Main j. sidewalks on all streets at least 5ft wide - yes k. Tyler following up l. no office or retail - N/A m. assumes at least 40% of all street frontage within the project has a minimum building-height-to-street-width ratio of 1:3 (i.e., a minimum of 1 foot or 300 millimeters of building height for every 3 feet or 900 millimeters of street width)- yes n. yes o. yes p. At-grade crossings with driveways account for no more than 10% of the length of sidewalks within the project - yes
Credit 2	Compact Development		6	1	10.15 du/acre
Credit 3	Mixed Use Centers		4	0	no diverse uses within 1/4-mile (e.g. small neighborhood grocers, coffee shops, pubs, post offices, etc.)
Credit 4	Mixed Income	affordable housing diverse housing	7	4	OPTION 3- combined proposed project provides 17.5 low-income (5% priced up to 50-80% AMI) and 17.5 moderate-income affordable units (5% up to 120% AMI).
Credit 5	Reduced Parking Footprint		1		
Credit 6	Street Network		2	1	connected streets and planned ped/bike lanes throughout.
Credit 7	Transit Facilities		1	1	A Rapid Bus route is planned by SANDAG in the 2035 revenue-constrained RTP along Main Street.
Credit 8	Transportation Demand Mgmt.	TDM Plan Transit Passes Vehicle Sharing Unbundling Parking	2	0	No TDM
Credit 9	Access to Civic Spaces		1		access to passive-use space, but not civic uses
Credit 10	Access to Recreation		1	1	90% of dwelling units within 1/2-mile walk distance of approx 1.16 acres (trails and recreational facilities - hard courts and field areas)
Credit 11	Visibility & Universal Design		1	1	Compliant with the unit layout standards
Credit 12	Community Outreach	Community Outreach Design Charette Local Endorsement Pursuant to Evaluation Program	2	1	Ongoing consultation and communication with stakeholders



Table 5-1: LEED-ND v2014 Scorecard (Continued)

Credit 13	Local Food	Neighborhood Farm CSA 1/2 mile proximity to farmers market	1		
Credit 14	Tree-Lined/Shaded Streets		2	2	
Credit 15	School Proximity		1	0	Project is not within 1/2 mile walking distance to schools
Green Infrastructure & Buildings		Options	Possible LEED-ND Points	Potential Project Equivalency Points	Notes
Prereq 1	Certified Green Buildings		Y/N	Y	
Prereq 2	Minimum Building Energy Efficiency	New buildings must demonstrate an average 10% improvement over ANSI/ASHRAE/IESNA Standard 90.1–2007	Y/N	Y	CA energy code exceeds LEED-ND 2009 minimum
Prereq 3	Minimum Building Water Efficiency		Y/N	Y	CA plumbing code exceeds to LEED-ND 2009 minimum
Prereq 4	Construction Activity Pollution Prevention		Y/N	Y	CA pollution prevention code exceeds LEED-ND 2009 minimum
Credit 1	Certified Green Buildings	Option 1: 10 or fewer habitable bldgs Option 2: All sizes	5	0	requires review by independent, impartial, third-party certifying bodies that have been accredited by an IAF-accredited body to ISO/IEC Guide 65 or, when available, ISO/IEC 17065.
Credit 2	Building Energy Efficiency	New buildings must demonstrate an average 18% (1 point) or 26% (2 points) improvement over ANSI/ASHRAE/IESNA Standard 90.1–2007,with errata	2	1	California energy code equates to LEED-ND 2009 one-point level of energy savings
Credit 3	Building Water Efficiency		1	1	California plumbing code equates to LEED-ND 2009 one-point level of water savings
Credit 4	Water Efficient Landscaping	Reduce by water usage by 50% and/or use recycled water	1	1	California water code exceeds LEED-ND 2009 minimum
Credit 5	Existing Building Reuse		1	N/A	No existing bldgs. on site
Credit 6	Historic Resource Preservation and Adaptive Reuse		1	N/A	No historic bldgs. on site
Credit 7	Minimize Site Disturbance in Design and Construction	Option 1. Dev footprint on prev disturbed Option 2. Undev portion left undisturbed	1	1	Approx 70% of site preserved in open space
Credit 8	Stormwater Management		4	2	Per SWQMP design captures 85th percentile
Credit 9	Heat Island Reduction		1	1	Trees proposed for shading along all streets
Credit 10	Solar Orientation		1	1	Passive solar design and building orientation principles to take advantage of the sun in the winter for heating and reduce heat gain and cooling needs during summer.
Credit 11	On-Site Renewable Energy Sources		3	0	Homes would be plumbed for solar, but no solar or renewable energy is proposed as part of the project.
Credit 12	District Heating and Cooling		2		
Credit 13	Infrastructure Energy Efficiency		1	1	15% annual energy reduction below an estimated baseline energy use for infrastructure is assumed.
Credit 14	Wastewater Management		2		
Credit 15	Recycled Content in Infrastructure		1		
Credit 16	Solid Waste Management Infrastructure		1	1	CALGreen requires that a minimum of 50% all new construction waste generated at the Site be diverted to recycle or salvage. Assumed recycling bins would be provided, and drop off for hazardous waste would also be provided.
Credit 17	Light Pollution Reduction		1		Strict lighting standards we should discuss. These would need to be stipulated in CC&Rs.
Innovation & Design Process		Options	Possible LEED-ND Points	Potential Project Equivalency Points	Notes
Credit 1-5	Innovation in Design: Provide Specific Title		5	3	Outdoor irrigation efficiency, passive solar orientation design, onsite walkability and trails
Credit 2	LEED Accredited Professional		1	1	A principal member of the project team must be LEED AP.
Regional Priority Credits		Options	Possible LEED-ND Points	Potential Project Equivalency Points	Notes
Credit 1-4	Regional Priority Credit: Region Defined		4	4	Walkability, affordable housing, energy efficiency, shaded streets
TOTAL:			110	40	LEED Certified



Table 5-2: Cross-Walk to Corresponding INDEX Indicators

Otay Ranch Portion of Village Four LEED-ND Credit Equivalency Achieved			Cross-Walk to Corresponding INDEX Indicators															LEED-ND Exceeds INDEX Scope		
LEED-ND v2014 Prerequisites & Credits		Options	Use Mix	Use Balance	Neigh Complete	School Proximity to Housing	Transit Proximity to Housing	Transit Proximity to Jobs	Park Proximity to Housing	Internal Street Connect	Intersect Density	Ped Network	Res Multi Modal Access	Daily Auto Driving	Res Energy Use	Nonres Energy Use	Res GHG Emissions	Nonres GHG Emissions		
SLLp1	Smart Location	Transit served																		
SLLp2	Imperiled Species and Ecological Communities	habitat conservation																		
SLLp3	Wetland and Water Body Conservation	wetland conservation																		
SLLc6	Street Slopes	1. Minimal impact to steep slopes																		
SLLc8	Habitat Restoration	project provides restoration																		
SLLc9	Conserve Habitat	project mitigates bio impacts																		
NPDp1	Walkable Streets	Walkable streets																		
NPDp2	Compact Development	Compact development																		
NPDp3	Connected & Open	Connected & Open																		
NPDc1	Walkable Streets	a. 25ft setback																		
		b. setbacks 18ft or less																		
		c. community bldg within 1 ft of sidewalk																		
		d. Entries every 75 ft																		
		e. Entries every 30 ft for community bldg																		
		j. Sidewalks																		
		m. bldg height street width																		
		n. 20mph residential streets																		
		o. 25mph non-re/mixed-use streets																		
		p. Driveways limited																		
NPDc2	Compact Development	Compact development- 10.15 du/ac																		
NPDc4	Mixed Income	2. Affordable housing																		
NPDc6	Street Network	Connected streets, planned bike/ped throughout																		
NPDc7	Transit Facilities	BRT planned along Main St, bus stop planned on site																		
NPDc10	Access to Recreation	Active rec space outdoors/indoors																		
NPDc11	Visitability & Univ Design	1. Residential units																		
NPDc12	Community Outreach	1. Community outreach																		
NPDc14	Tree-Lined/Shaded Streets	1. Tree-lined streets																		
		2. shaded streets																		
GIBp1	Certified Green Building	Certified green building																		
GIBp2	Minimum Building Energy Eff	Minimum building energy efficiency																		
GIBp3	Minimum Building Water Eff	Minimum building water efficiency																		
GIBp4	Construction Pollution Prev	Construction pollution prevention																		
GIBc2	Energy Efficient Bldgs	Energy efficient buildings																		
GIBc3	Water Efficient Bldgs	Water efficient buildings																		
GIBc4	Water Efficient Landscaping	Water efficient landscaping																		
GIBc7	Minimize Site Disturbance in Design and Construction	approx 70% of site preserved as open space																		
GIBc8	Stormwater Management	Per SWQMP design captures 85th percentile																		
GIBc9	Heat Island Reduction	Trees proposed for shading along all streets																		
GIBc10	Solar Orientation	Passive solar design and building orientation																		
GIBc13	Infrastructure Energy Eff	Energy efficient infrastructure																		
IDPc1	Innovation	Exemplary performance																		
IDPc2	Innovation	Exemplary performance																		
IDPc3	Innovation	Innovation																		
IDPc2	LEED Accredited Professional	LEED AP on team																		
RPC1	Regional Priorities	Regional priorities																		
Total corresponding ND measurements			3	3	4	0	2	2	1	3	1	6	4	8	12	N/A	14		20	



6. COMMUNITY DESIGN AND SITE PLANNING FEATURES

This section describes the specific strategies that have been integrated into 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 6: Community Design and Site Plan Features includes the list of specific measures that have been included in the Village Four project.

Figure 6-1: Community Design and Site Plan Features

Transportation Related Measures
An integrated circulation system provides residents with non-automobile related circulation options that include walking, bicycling, and transit.
Project is directly adjacent to Village Eight West with its mix of proposed residential, commercial, and community uses. Walking and biking trails with connections to the regional trail network promote the walkability and bikeability of the entire Otay Ranch Community and focus on promoting walking and biking to neighboring villages and in and around the project.
Direct pedestrian links extend from the surrounding neighborhoods directly to the project site,
Bike lanes will be provided through the project.
All internal roadways are designed to local street standards with speed limits of 25 to 30 mph, Slow traffic speeds are conducive to walking and bicycling and provide the necessary linkage to the regional bicycle circulation network.
LSVs may travel on all internal streets with a maximum travel speed of 35 miles per hour.
The current regional transit plan includes BRT transit lines with stops in Village Eight West, a quarter of a mile away from the project.
A future local transit stop is planned on Main Street.
Synchronization of the traffic lights is required as part of an individual development project with previously installed traffic lights in order to reduce traffic congestion.
Energy Conservation Related Measures
Residential units will be a mix of densities. 350 total with 277 residential units being multi-family, which use less energy for heating and cooling when compared to single-family detached homes.
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.
CVMC 8.25.095 requires all new construction and demolition projects to divert 100% 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.
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.



Enhance energy efficiency in building designs and landscaping plans.
Installation of solar water heater preplumbing.
Installation of solar photovoltaic prewiring.
Installation of residential graywater stub-out.
Other Measures to Improve Air Quality
Install only electric or natural gas fireplaces in new development. No wood burning fireplaces are permitted.
Compliance with the City's Shade Tree Policy for parking lot design to achieve 50% shade cover in five to fifteen years through tree canopies, shade structures, or light colored "cool" paving.



7. CHULA VISTA CO₂ 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 CO₂ Reduction Plan Appendix C.

The City of Chula Vista original CO₂ Reduction Plan adopted in November 2000, was intended to reduce GHG emissions by 20% below 1990 levels. The CO₂ 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 2005 GHG emissions inventory 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 made 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-evaluation 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

The City requires that 100% of the replacement vehicles purchased for the municipal fleet be high efficiency (hybrid) or alternative fuel vehicles (AFVs). However, factors such as the appropriateness for the vehicle task, fueling infrastructure, petroleum displacement, and the overall cost and environmental benefit must be considered prior to purchasing each replacement vehicle.

City vehicles will be replaced with hybrids or AFVs on an ongoing basis, as appropriate funding becomes available. By the end of Fiscal Year 2014, it is estimated that six additional alternative fuel vehicles will be purchased.

2. Clean Vehicle Replacement Policy for City-Contracted Fleets

City staff work with City-contracted fleets to influence their expanded use of alternative fuels and high efficiency/alternative fuel vehicles (AFV) including electric, biodiesel, ethanol, hybrid, hydrogen, and compressed natural gas (CNG) based on appropriateness for vehicle task, fueling infrastructure, petroleum displacement, overall cost, and environmental benefit.



The City will continue to work with contractors and community partners to promote local alternative fuel use and infrastructure, as outlined in the Chula Vista Clean Transportation Energy Roadmap. As such, staff is currently developing a Chula Vista-specific alternative fuel infrastructure map to distribute to community members and local car dealerships, who sell alternative fuel vehicles.

3. Business Energy Assessments

This measure, as revised by City Council, states that businesses with storefronts or offices need to participate in a no-cost energy and water evaluation of their premises when a new business license is issued or once every 3-5 years for a renewed business license. The measure helps businesses identify

efficiency opportunities at their facilities, access rebates and financing for efficiency improvements, and lower their monthly utility costs. Businesses are not required to implement any of the identified energy or ' water efficiency opportunities and are not required to complete evaluations for facility areas beyond their operational control (ex. whole-building systems operated and maintained by a Property Manager/Landlord)

As part of the South Bay Energy Action Collaborative (SoBEAC), Chula Vista is working with neighboring jurisdictions, SANDAG, and SDG&E to launch a new business engagement effort in 2014 to facilitate no and low-cost energy efficiency improvements. In addition, a Chula Vista-specific PACE program is expected to be available by April 2014 to help commercial property-owners finance energy efficiency, renewable energy, and water conservation upgrades.

4. Green Building Standard

The City has adopted regulations mandating new and renovated residential and non-residential projects to incorporate early the requirements of the Housing and Community Development's California Green Building Standards Code (CalGreen) and to be more energy efficient than the 2008 Building Energy Efficiency Standards (Title 24) by a specific percentage. In addition, the measure directed staff to implement a green building awareness program and update/establish design and regulatory provisions that incorporate sustainable practices at a community-scale.

City staff continues to investigate options for revising Chula Vista's Enhanced Energy Efficiency standard in July 2014, when the new statewide Title-24 code is updated. The City has determined that the cost effectiveness analysis software (which is required for proposing increased standards) has only recently become available. Therefore, staff expects to bring forward recommendations to City Council on a new Enhanced Energy Efficiency standard in early 2018.



5. Solar & Energy Efficiency Conversion Program

The "Solar & Energy Efficiency Conversion" program was recommended to help facilitate energy efficiency and renewable energy retrofits in the community and at municipal facilities. The community component, called the Home Upgrade, Carbon Downgrade program, is intended to help the average resident and small business overcome common institutional barriers, upfront capital costs, complicated application processes, and time constraints. The program also strives to promote local job creation and economic development by linking community participants with local contractors and vendors. This measure also included the implementation of a pre-wiring and pre-plumbing requirement for solar photovoltaic (PV) and solar hot water systems, respectively, in all new residential units.

6. Smart Growth Around Trolley Stations

This measure is intended to accomplish the remaining planning groundwork necessary to support realization of the "Smart Growth" development densities and intensities envisioned in both the General Plan and the Urban Core Specific Plan (UCSP). Specifically, the measure's four components are focused on the areas surrounding the E Street, H Street, and Palomar Street trolley stations.

The City continues to pursue "Smart Growth" development surrounding Chula Vista's three Trolley Stations. SANDAG's 2050 Regional Transportation Plan shows various grade separation projects for the Blue Line corridor, which includes E Street, H Street, & Palomar Street. With support through an EPA Smart Growth Technical Assistance grant and the SDG&E Local Government Partnership, the City expects to complete the development of the new "Climate Neighbor" tool which helps local developers implement sustainably designed and constructed projects using the LEED-ND framework.

7. Turf Lawn Conversion Program

Because water movement and treatment requires a large amount of energy (leading to GHG emissions), this measure helps residents and businesses replace turf lawn areas with "WaterSmart" landscaping. Specifically the program's components include: (1) Continuation and expansion of the NatureScape program to promote water conserving and nature-friendly landscaping, (2) Coupling of residential and business turf lawn replacement with the solar and energy efficiency conversion program, (3) Converting selected municipal facilities to low water use plantings and irrigation, and (4) Updating various municipal landscape regulations and guidelines to comply with new state requirements and further promote outdoor water use efficiency.

City staff continues to pursue funding sources to support turf conversions. For municipal facilities, staff continues to develop a resource reinvestment fund, in which a portion of utility savings from energy and water retrofit projects can be reinvested in similar projects. In the



community, a PACE program to help finance water conservation upgrades at homes and businesses will be formally considered by City Council.

Figure 7-1 includes a summary of the action measures identified in the CO₂ Reduction Plan and must be included in each AQIP to demonstrate how the project has been designed to help implement the action measures listed in the City's CO₂ Reduction Plan as required in the AQIP guidelines (August 2011).

Figure 7-1: Consistency with CO₂ Reduction Measures

Action Measure	Project/Community Design Features	Describe how project design will implement CO₂ Reduction Action Measures
Measure 6 (Enhanced Pedestrian connections to Transit): Installation of walkways and crossings between bus stops and surrounding land uses.	The SPA provides a detailed Circulation Network that links with the potential transit stops. The project is within walking distanced of 2 MTS bus routes.	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 residential uses in the project are both Single and Multi-Family high-density.	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.	The project encourages pedestrian and bicycle travel as an alternative to the automobile. Streets are designed to accommodate bicycle travel.	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 project encourages pedestrian and bicycle travel as an alternative to the automobile. Streets are designed to accommodate bicycle travel. Pedestrian pathways and trails accommodate pedestrian movement from the residential areas to schools, parks and commercial uses in the adjacent Village Eight West.	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.	No Commercial uses are planned for in Village Four.	N/A
Measure 11 (Site Design with Pedestrian/bicycle orientation): Placement of buildings and circulation routes to emphasize pedestrian and bicycle access without excluding	Building and site design anticipates and accommodates pedestrian and vehicle circulation to reduce traffic impacts on neighboring streets and jointly optimize pedestrians and vehicles. Pedestrian	Promotes bicycling that can reduce vehicle-miles traveled that in turn reduces the GHG emissions.



autos; includes pedestrian benches, bike paths, and bike racks.	benches, bike paths, and bike racks are featured in and around Village Four.	
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 proposes bike racks at the proposed transit stop and the Community Purpose facility.	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. Main Street will have striped Class II bike lanes, in addition to the paths and trails proposed throughout Village Four.	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 .	The land use plan includes widened landscape medians and parkways to reduce paving. Street trees will be planted to reduce heat build-up and demand for air conditioning.	Reduces energy consumption that reduces GHG emissions.
Measure 15 (Solar Pool Heating): Mandatory building code requirement for solar heating of new pools or optional motorized insulated pool cover.	Compliance with CVMC 20.04.030 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.	Energy efficient light for streets, parks, and other public spaces is required,	Reduces energy consumption that reduces GHG emissions.
Measure 18 (Energy Efficient Building Recognition Program): Reducing CO ₂ emissions by applying building standards that exceed current Title 24 Energy Code requirements.	<ul style="list-style-type: none"> • Compliance with the updated 2013 Title 24, part 6 energy standards. • Installation of energy efficient appliances such Energy Star dishwashers. • 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 100% of inert waste and 50% of all remaining waste generated. 	Reduces energy consumption that reduces GHG emissions.
Measure 20 (Increased Employment Density Near Transit): General	No employment generating uses are planned for in Village Four. However,	Reduces vehicle-miles traveled that in turn



<p>increase in land-use and zoning designations to focus employment generating land-uses within ¼ mile of major transit stops throughout the City.</p>	<p>Village Eight West with uses of that type and commercial uses is directly adjacent to the mixed-density housing in Village Four.</p>	<p>reduces the GHG emissions.</p>
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8. 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.



9. COMPLIANCE MONITORING

This section includes a written description and a checklist (Figure 9-1) summarizing the project design features and mitigation measures that have been identified to reduce the development's effects on air quality and improve energy efficiency.

**Figure 9-1: Village Four Air Quality Improvement Plan
Compliance Checklist**

	Method of Verification ⁱ	Timing of Verification	Responsible Party ⁱⁱ	Project Consistency & Compliance Documentation ⁱⁱⁱ
PLANNING				
AQIP Project Design Features/Principles				
Pedestrian oriented development	Plan Review	Precise Plan	City of Chula Vista	
Widened landscape medians and parkways with street trees	Plan Review	Precise Plan	City of Chula Vista	
Integrated circulation system	Plan Review	Precise Plan	City of Chula Vista	
Mix of densities	Plan Review	Precise Plan	City of Chula Vista	
Higher density	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	
Circulation pattern with less than 35mph	Plan Review	Tentative Tract Final Map, Improvement Plans	City of Chula Vista	
Available public transportation	Plan Review	Precise Plan	City of Chula Vista	
Transit Plan	Transit Review	Per SANDAG	SANDAG/MTS/City of Chula Vista	



Compliance with the City's Shade Tree Policy for parking lot of CPF	Plan Review	Precise Plan	City of Chula Vista	
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	
TAC Emission Compliance	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	
Project wide recycling	Plan Check	Tentative Tract OR Building Permit	San Diego County	
Energy Efficiency Standards				
Size of dwelling units	Plan Check	Building Permit	City of Chula Vista	
Compliance with 2013 California Energy Code	Plan Check	Building Permit	City of Chula Vista	
Installation of energy efficient appliances	Plan Check	Building Permit	City of Chula Vista	
Participation in a Utility Demand Response program	Plan Check	Building Permit	City of Chula Vista	
Compliance with 2013 CalGreen Indoor Water Use requirements	Plan Check	Plumbing Permit	City of Chula Vista	
Compliance with EPA's WaterSense certification	Plan Check	Plumbing Permit	City of Chula Vista	
Compliance with EPA's Energystar certification for indoor residential appliances	Plan Check	Plumbing Permit	City of Chula Vista	
Efficient irrigation equipment	Plan Check	Landscape Plan	City of Chula Vista	
Water efficient vegetation	Plan Check	Landscape Plan	City of Chula Vista	



Turf limited to 30% in residential areas	Plan Check	Landscape Plan	City of Chula Vista	
Solar access – Use of vertical landscape elements to reduce heating/cooling loads	Plan Check	Building Permit	City of Chula Vista	
Energy efficient lighting of streets, parks, and public spaces	Plan Check	Building Permit	City of Chula Vista	
Installation of solar water heater preplumbing	Plan Check	Building Permit	City of Chula Vista	
Installation of solar photovoltaic rewiring	Plan Check	Building Permit	City of Chula Vista	
Installation of residential graywater stub-out	Plan Check	Building Permit	City of Chula Vista	

ⁱ Method of verification may include, but is not limited to, plan check, permit review, site inspection.

ⁱⁱ Identify the party responsible for ensuring compliance (City of Chula Vista, San Diego APCD, Other).

ⁱⁱⁱ 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.

