OTAY RANCH VILLAGE 3 AND A PORTION OF VILLAGE 4

Air Quality Improvement Plan

APPENDIX G

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Table of Contents

1. Executive Summary 3
A. Intent of the AQIP 3
B. Community Site Design Goals 3
C. Planning Features 4
D. Modeled Effectiveness of Community Design 6
2. Introduction 7
A. Need for a Qualitative Air Quality Plan 7
B. Purpose and Goals 7
C. Regulatory Framework Related to Air Quality 8
1. Federal 9
2. State of California 13
3. Regional 17
4. City of Chula Vista 18
3. Village 3 SPA Amendment Project Description 20
4. Effect of Project on Local/Regional Air Quality 25
5. Quantitative Project Evaluation 28
6. Community Design and Site Planning Features 46
7.Chula Vista CO_2 Reduction Plan 48
8. Credit Towards Increased Minimum Energy Efficiency Standards 52
9. Compliance Monitoring 52

List of Figures

Figure 1: Amended Site Utilization Plan 22
Figure 2: Bicycle Circulation Plan 40
Figure 3: Transit Plan 41
Figure 4: Pedestrian Circulation Plan 42
Figure 5: Steep Slopes 43
Figure 6: Development Standards (Reference for Front Setbacks) 44
Figure 7: Illustrative Site Plan 45

List of Tables

Table 1: Thresholds of Significance for Air Quality Impacts 9
Table 2: Ambient Air Quality Standards Matrix 11
Table 3: San Diego County Attainment Status 12
Table 4: Village 3 and a Portion of Village 4 Land Use Summary 23
Table 5: Estimated Operational GHG Emissions (metric tons/year)
Villages Three /Portion of Four, Eight East and Ten 27
Table 6: LEED Neighborhood Development Plan Village 3 Equivalency Analysis 29
Table 7: Community Design and Site Planning Features 46
Table 8: Summary of Village 3 Consistency with CO_2 Reduction Action Measures 48
Table 9: Village 3 Air Quality Improvement Plan Compliance Checklist 52

1. Executive Summary

A. Intent of the AQIP

This AQIP provides an analysis of air pollution impacts which would result from the proposed development, and demonstrates the best available design to reduce vehicle trips, maintain or improve traffic flow, reduce vehicle miles traveled and reduce Greenhouse Gasses (GHG) direct or indirect emissions. This AQIP demonstrates how Village 3 has been designed consistent with the City's Energy and Water Conservation regulations (CVMC 20.04) and Landscape Water Conservation (CVMC 20.12), and represents the best available design in terms of improving energy efficiency and reducing GHG emissions. GHG emissions include gases such as CO2, CH4, and N2O. These emissions occur 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 CO2 Reduction Plan and specific measures for the Village 3 Sectional Planning Area (SPA) Plan Amendment are addressed.

B. Community Site Design Goals

A central component of the Otay Ranch GDP is the "village" concept. Each village is approximately one 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 a school, 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. Most village cores include a transit stop. 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 3 complies with the "village" concept and design goals. It is composed of 493 acres and is located at the southwestern portion of the Otay Valley Parcel of Otay Ranch, just north of the Otay River Valley. The notable intersection of Village 3 is Main Street and Heritage Road. Village 3 is located south of Village 2 and the Otay Landfill, west of existing light industrial uses in the City of Chula Vista and north of the Otay River Valley. Existing development in the vicinity of Village 3 includes Otay Ranch Village 2 to the north. Future development includes Villages 4, 8 West and 8 East to the east.

Village 3 proposes a mixed-use community including diverse housing types, commercial, open space, and educational uses. It is designed to be pedestrian oriented and multi-modal with sidewalks, trails and public transit opportunities throughout. The community is designed to attract village residents to the core for social, public service, neighborhood shopping and recreation and

community activities. A variety of residential neighborhoods are planned south of the village core connected by an internal circulation network that emphasizes pedestrian comfort and safety. This further supports the Otay Ranch GDP "village" concept and pedestrian-centric objectives. These objectives focus on reducing automobile dependence and promoting an active walkable and bikeable community with convenient neighborhood services and recreation.

C. Planning Features

Village 3 land use and circulation pattern are designed to reflect traditional town planning principles including the pedestrian and transit-oriented village concept described in the Otay Ranch GDP. This village concept intensifies residential densities and commercial uses at the heart of the community to enhance transit use, promote walkability, and create vibrant commercial and public spaces that promote social interaction and a strong community identity. The mix of proposed residential, educational, commercial, industrial and community uses are intended to provide a mixed-use environment that serves the needs of residents and employees.

Public Spaces and Amenities

Village 3 has an 8.1-acre neighborhood park located in the village core and adjacent to the elementary school and mixed-use area. The mixed use area also includes a site and facilities for a Community Purpose Facility (CPF) qualified user. Additionally, the Village also has planning areas designated CPF sites designed to provide active and passive recreation opportunities within walking distance of residences. In total, Village 3 offers 5.3 acres of private usable open space.

Open Space and Trails Network

The Open Space Preserve (OSP) Zone is intended to protect natural areas that are part of the City of Chula Vista's Multiple Species Conservation Plan (MSCP) Subarea. In Village 3, these lands consist of 192.3-acres around the southern and eastern portions of the Village. This Zone allows for habitat preserves pursuant to the regulations of the MSCP Subarea Plan, the Otay Ranch Resource Management Plan (RMP), and the Otay Valley Regional Park (OVRP) Concept Plan.

Additionally, there are trails that connect to local and regional trails systems, providing access between the village core, neighborhood park, school, open space and residential areas. The Village Pathway and Promenade Trails allow for bicycle and pedestrian use throughout the village and connect to the regional trail network and adjacent communities. The Chula Vista Regional Trail is located on Heritage Road and Main Street, connecting Village 3 to Village 2 to the north, and Villages 4 and 8 to the east. In addition, portions of the Chula Vista Greenbelt Trail system within the Otay River Valley are within the SPA Plan boundary

The vision for Village 3 is to develop a cohesive community with inter-connected uses and densities. The village concept intensifies residential densities and commercial uses to enhance transit use, reduce automotive dependency.

A variety of residential neighborhoods are planned south of the village core connected by an internal circulation network that emphasizes pedestrian comfort and safety. The City of Chula Vista Regional Trail continues south from Village 2 along Heritage Road through Village 3, ultimately connecting to the Greenbelt Trail planned in the Otay River Valley. The Regional Trail

along Main Street provides an east-west pedestrian connection between Village 3 and villages to the east. The Village Pathway connects the village core to the Regional Trail.

Higher density residential uses are located within and adjacent to the Village 3 village core and south of Main Street, creating opportunities for synergistic land use relationships and access to the planned Rapid Bus service on Main Street and Local Bus service on Heritage Road. The potential Rapid Bus service will enable access to the regional transportation network. A transit stop may be provided within the Otay Ranch Business Park to serve both the business park and village residents. Bicycle circulation is accommodated along Main Street and Heritage Road, as well as on the internal street network.

Building and Design Features

Village 3 incorporates several 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:

- Foster development patterns which promote orderly growth and prevent urban sprawl.
- Establish an urban pedestrian-oriented village with a village core designed to reduce reliance on automobiles.
- Promote multi-modal transportation, including walking and the use of bicycles, buses, and regional transit.
- Establish multi-use trail linkages to the Chula Vista Greenbelt and OVRP, consistent with the Greenbelt Master Plan and OVRP Concept Plan.
- Promote synergistic uses to balance activities, services and facilities with employment, housing, transit, and commercial opportunities.

The updated California Building Standards Code, Title 24, went into effect on January 1, 2020 (2019 Code). This includes Building, Residential, Electrical, Mechanical and Plumbing, as well as Energy and Green Building (CalGreen) Codes. However, it is important to note that the majority of the homes within Village 3 were constructed subject to the 2016 California Building Code. Future construction within Village 3 will at a minimum comply with the 2019 Code or the building code in place at the time of building permit issuance.

January 1, 2020 was the statewide effective date established by the California Building Standards Commission (CBSC) for the 2019 California Building Standards Code. In accordance with California Health and Safety Code, Section 18938.5, all applications for a building permit submitted on or after January 1, 2020 are subject to compliance with the 2019 California Building Standards Code.

The 2016 California Building Standards Code remains in effect and is applicable to all plans and specifications for, and to construction performed where the application for a building permit is received on or before December 31, 2019.

The 2019 Code updates is another step towards GHG reduction and energy efficiency increases. For example, regarding residential, the 2019 Code is 7% more efficient than 2016.

Non-residential Energy Codes are also proving to be more efficient with the 2019 update reflecting a 30% efficiency increase from 2016, whereas the 2016 Code was only 5% more efficient than 2013.

Therefore, future construction within Village 3 will by design will continue to work towards consistency with Chula Vista's Energy and Water Conservation regulations (CVMC 20.04) and Landscape Water Conservation (CVMC 20.12) and represents code compliance in terms of energy efficiency and GHG emissions reductions.

D. Modeled Effectiveness of Community Design

The City of Chula Vista previously used the INDEX CO2 model requirements. This tool is no longer used. Therefore, LEED-ND v4.0 is being utilized as an analytical tool for sustainable design.

A LEED-ND Equivalency Analysis has been prepared to study various design features within Village 3 for the Village 3 SPA Amendment. Please refer to Table 10.

2. Introduction

A. Need for a Qualitative Air Quality Plan

Pursuant to Chula Vista's Growth Management Ordinance (CVMC 19.09.050B), an Air Quality Improvement Plan (AQIP) is required to be prepared in conjunction with the Otay Ranch Village 3 and a Portion of Village 4 Sectional Planning Area (SPA) Plan Amendment. 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.

This AQIP will serve to implement several of the key aspects of the City's CO_2 Reduction Plan and Green Building and Energy Efficiency Ordinances for the continued development of Village 3.

B. Purpose and Goals

The purpose of the AQIP is to provide an analysis of air pollution impacts that would result from development of Village 3 and to demonstrate how the village's design reduces vehicle trips, maintains or improves traffic flow, reduces vehicle miles traveled, reduces direct or indirect Greenhouse Gas (GHG) emissions, and minimizes pollutant emissions during construction per regulations. This AQIP also demonstrates how Village 3 has been designed consistent with the City's requirements.

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 City of Chula Vista's Growth Management ordinance (CVMC Chapter 19.09) purpose is to provide the following:

- Provide quality housing opportunities for all economic sections of the community;
- Provide a balanced community with adequate commercial, industrial, recreational and open space areas to support the residential areas of the City;
- Provide that public facilities, services and improvements meeting City standards exist or become available concurrent with the need created by new development;
- Balance the housing needs of the region against the public service needs of Chula Vista residents and available fiscal and environmental resources;
- Provide that all development is consistent with the Chula Vista general plan;
- Prevent growth unless adequate public facilities and improvements are provided in a phased and logical fashion as required by the general plan;

- 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;

- Provide that the air quality of the City of Chula Vista improves from existing conditions;

- 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; and

- Conserve energy use consistent with the General Plan, the General Development Plan, and other City regulations including the City of Chula Vista Climate Action Plan.

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 Climate Action Plan and Municipal Code.

C. 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 (NOx)
- Ozone (O3),
- Respirable 10- and 2.5-micron particulate matter (PM10 and PM2.5),
- Volatile Organic Compounds (VOC),
- Reactive Organic Gasses (ROG),
- Hydrogen Sulfide (H2S),
- Sulfates,
- Lead (Pb),
- Vinyl Chloride, 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 Table 3: Ambient Air Quality Standards Matrix. 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 considers 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 Table 1: Thresholds of Significance for Air Quality Impacts.

Table 1: Thresholds of Significance for Air Quality Impacts

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction [b]**	**Operation [c]**
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

[a] Source: SCAQMD CEQA Handbook (SCAQMD, 1993)
[b] Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins).
[c] For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.

1. Federal

Clean Air Act (CAA)

Air quality is defined by ambient air concentrations of specific pollutants identified by the EPA to be of concern with respect to health and welfare of the general public. The EPA is responsible for enforcing the Federal CAA of 1970 and its 1977 and 1990 Amendments. The CAA required the EPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health

and welfare are anticipated. In response, the EPA established both primary and secondary standards for several criteria pollutants, which are introduced above. Table 3: Ambient Air Quality Standards shows the federal and state ambient air quality standards for these pollutants.

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. California Air Resources Board (CARB) has established the more stringent California Ambient Air Quality Standards (CAAQS) for the six criteria pollutants through the California Clean Air Act of 1988 (CCAA), and also has established CAAQS for additional pollutants, including sulfates, hydrogen sulfide (H2S), vinyl chloride, and visibility-reducing particles. Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be "nonattainment areas" for that pollutant. On April 30, 2012, the San Diego Air Basin (SDAB) was classified as a marginal nonattainment area for the 8-hour NAAQS for ozone. The SDAB is an attainment area under the NAAQS for all other criteria pollutants. The SDAB currently falls under a national "maintenance plan" for CO, following a 1998 re-designation as a CO attainment area (SDAPCD 2010). The SDAB is currently classified as a nonattainment area under the CAAQS for ozone (serious nonattainment), PM10, and PM2.5.

The U.S. Supreme Court ruled on April 2, 2007, in Massachusetts v. U.S. Environmental Protection Agency that CO2 is an air pollutant, as defined under the CAA, and that the EPA has the authority to regulate emissions of GHGs. The EPA announced that GHGs (including CO2, CH4, N2O, HFC, PFC, and SF6) threaten the public health and welfare of the American people. This action was a prerequisite to finalizing the EPA's GHG emissions standards for light-duty vehicles, which were jointly proposed by the EPA and the United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA). The standards were established on April 1, 2010, for 2012 through 2016 model year vehicles and on October 15, 2012, for 2017 through 2025 model year vehicles (EPA 2011; EPA and NHTSA 2012).

Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards

The EPA and the NHTSA have been working together on developing a national program of regulations to reduce GHG emissions and to improve fuel economy of light-duty vehicles. The EPA is finalizing the first-ever national GHG emissions standards under the CAA, and the NHTSA is finalizing Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act. On April 1, 2010, the EPA and NHTSA announced a joint Final Rulemaking that established standards for 2012 through 2016 model year vehicles. This was followed up on October 15, 2012, when the agencies issued a Final Rulemaking with standards for model years 2017 through 2025. The rules require these vehicles to meet an estimated combined average emissions level of 250 grams per mile by 2016, decreasing to an average industry fleet-wide level of 163 grams per mile in model year 2025. The 2016 standard is equivalent to 35.5 miles per gallon (mpg), and the 2025 standard is equivalent to 54.5 mpg if the levels were achieved solely through improvements in fuel efficiency. The agencies expect, however, that a portion of these improvements will be made through improvements in air conditioning leakage and the use of alternative refrigerants that would not contribute to fuel economy. These standards would cut GHG emissions by an estimated 2 billion metric tons (MT) and 4 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2017–2025). The combined EPA GHG standards and NHTSA CAFE standards resolve previously conflicting requirements under both

federal programs and the standards of the State of California and other states that have adopted the California standards (EPA 2011; EPA and NHTSA 2012).

Table 2: Ambient Air Quality Standards Matrix

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/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		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/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Source: California Air Resources Board.

San Diego Air Pollution Control District (SDAPCD) is the local agency responsible for the administration and enforcement of air quality regulations for the County. The SDAPCD and San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The County's Regional Air Quality Strategies (RAQS) was initially adopted in 1991, and is updated on a triennial basis. The most recent version of the RAQS was adopted by the SDAPCD

in 2009. The local RAQS, in combination with those from all other California nonattainment areas with serious (or worse) air quality problems, is submitted to CARB, which develops the California State Implementation Plan (SIP). The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The current federal and state attainment status for San Diego County is presented in Table 3: San Diego County Attainment Status.

Table 3: San Diego County Attainment Status

Criteria Pollutant	Federal Designation	State Designation
Ozone (8-Hour)	Nonattainment	Nonattainment
Ozone (1-Hour)	Attainment *	Nonattainment
Carbon Monoxide	Attainment	Attainment
PM10	Unclassifiable **	Nonattainment
PM2.5	Attainment	Nonattainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility	No Federal Standard	Unclassified

** The federal 1-hour standard of 12 pphm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.*

*** At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.*

Source: Air Pollution Control District (https://www.sdapcd.org), April 2015.

As stated above, the SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD:

SDAPCD Regulation IV Prohibitions; Rule 51: Prohibits the discharge from any source such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property.

SDAPCD Regulation IV: Prohibitions Rule 55: Fugitive Dust Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site.

SDAPCD Regulation IV Prohibitions; Rule 67.0: Architectural Coatings: Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

2. State of California

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are a category of air pollutants that have been shown to have an impact on human health but are not classified as criteria pollutants. Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. Air toxics are generated by a number of sources, including stationary ones such as dry cleaners, gas stations, combustion sources, and laboratories; mobile ones such as automobiles; and area sources such as farms, landfills, construction sites, and residential areas. Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) noncarcinogenic, and long-term (chronic) noncarcinogenic. Public exposure to TACs is a significant environmental health issue in California.

California's air toxics control program began in 1983 with the passage of the Toxic Air Contaminant Identification and Control Act, better known as AB 1807 or the Tanner Bill. When a compound becomes listed as a TAC under the Tanner process, the CARB normally establishes minimum statewide emission control measures to be adopted by local air pollution control districts (APCDs). Later legislative amendments (AB 2728) required the CARB to incorporate all 189 federal hazardous air pollutants (HAPs) into the state list of TACs.

Supplementing the Tanner process, AB 2588 the Air Toxics "Hot Spots" Information and Assessment Act of 1987 currently regulates over 600 air compounds, including all of the Tanner-designated TACs. Under AB 2588, specified facilities must quantify emissions of regulated air toxics and report them to the local APCD. If the APCD determines that a potentially significant public health risk is posed by a given facility, the facility is required to perform a health risk assessment (HRA) and notify the public in the affected area if the calculated risks exceed specified criteria.

On August 27, 1998, CARB formally identified PM emitted in both gaseous and particulate forms by diesel-fueled engines as a TAC. The particles emitted by diesel engines are coated with chemicals, many of which have been identified by the EPA as HAPs and by CARB as TACs. CARB's Scientific Advisory Committee has recommended a unit risk factor (URF) of 300 in 1 million over a 70-year exposure period for diesel particulate. In September 2000, the CARB approved the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Diesel Risk Reduction Plan; CARB 2000). The Diesel Risk Reduction Plan outlined a comprehensive and ambitious program that included the development of numerous new control measures over the next several years aimed at substantially reducing emissions from new and existing on-road vehicles (e.g., heavy-duty trucks and buses), off road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps), and stationary engines (e.g., stand-by power generators). These requirements are now in force on a state-wide basis.

California Greenhouse Gas Regulations

There are numerous State plans, policies, regulations, and laws related to GHGs and global climate change. Following is a discussion of some of these plans, policies, and regulations that (1) establish overall State policies and GHG reduction targets; (2) require State or local actions that result in direct or indirect GHG emission reductions for the proposed Project; and (3) require CEQA analysis of GHG emissions.

California Code of Regulations, Title 24, Part 6

California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. Energy-efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions.

The Title 24 standards are updated approximately every three years to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest update to the Title 24 standards occurred in 2016 and went into effect in January 1, 2017. The newest code update will go into effect on January 1, 2020, with subsequent iterations expected in three-year cycles that may be in-force at time of build-out. Each building that submits for permit will be required to meet the prevailing code at the time of permit submission, at the sole discretion of the authority having jurisdiction.

California Green Building Standards Code

The California Green Building Standards Code (24 California Code of Regulations [CCR], Part 11) is a code with mandatory requirements for new residential and nonresidential buildings (including buildings for retail, office, public schools and hospitals) throughout California. The current version of the code went into effect on January 1, 2020. The code is Part 11 of the California Building Standards Code in Title 24 of the California Code of Regulations and is also known as the CalGreen Building Standards Code (California Building Standards Code [CBSC] 2014a).

The development of the CalGreen Code is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

The CalGreen Code contains requirements for storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

The CalGreen Code also focuses on Electric Vehicle (EV) infrastructure. Depending on what type of use, EV requirements ranges from EV-capable to fully installed EV charging stations. As it pertains to townhomes and single-family homes with attached private garages, the 2019 CalGreen Code requires the garages to be EV-capable with the installation of raceways to accommodate a dedicated 208/240-volt branch circuit.

Executive Order S-3-05

On June 1, 2005, Executive Order (EO) S-3-05 proclaimed that California is vulnerable to climate change impacts. It declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. In an effort to avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

AB 32 – Global Warming Solution Act of 2006

The California Global Warming Solutions Act of 2006, widely known as AB 32, requires that the CARB develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Executive Order B-30-15

On April 29, 2015, EO B-30-15 established a California GHG reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG reduction targets with those of leading international governments, including the 28 nation European Union. California is on track to meet or exceed the target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in AB 32. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal established by EO S-3-05 of reducing emissions 80 percent under 1990 levels by 2050.

AB 1493 – Vehicular Emissions of Greenhouse Gases

AB 1493 (Pavley) requires that CARB develop and adopt regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State." On September 24, 2009, CARB adopted amendments to the Pavley regulations that intend to reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments bind California's enforcement of AB 1493 (starting in 2009), while providing vehicle manufacturers with new compliance flexibility. The amendments also prepare California to merge its rules with the federal CAFE rules for passenger vehicles (CARB 2013). In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single packet of standards called Advanced Clean Cars (CARB 2013).

AB 341

In 2011, the State legislature enacted AB 341 (California Public Resource Code § 42649.2), increasing the diversion target to 75 percent statewide. AB 341 also requires the provision of recycling service to commercial and residential facilities that generate four cubic yards or more of solid waste per week.

Executive Order S-01-07

This EO, signed by Governor Schwarzenegger on January 18, 2007, directs that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by the year 2020. It orders that a Low Carbon Fuel Standard (LCFS) for transportation

fuels be established for California and directs the CARB to determine whether a LCFS can be adopted as a discrete early action measure pursuant to AB 32. CARB approved the LCFS as a discrete early action item with a regulation adopted and implemented in April 2010. Although challenged in 2011, the Ninth Circuit reversed the District Court's opinion and rejected arguments that implementing LCFS violates the interstate commerce clause in September 2013. CARB is therefore continuing to implement the LCFS statewide.

Senate Bill (SB)375

SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and affordable housing allocations. Metropolitan Planning Organizations (MPOs) are required to adopt a Sustainable Communities Strategy (SCS), which allocates land uses in the MPO's Regional Transportation Plan (RTP). Qualified projects consistent with an approved SCS or Alternative Planning Strategy categorized as "transit priority projects" would receive incentives to streamline CEQA processing.

CARB: Scoping Plan

On December 11, 2008, the CARB adopted the Scoping Plan (CARB 2008) as directed by AB 32. The Scoping Plan proposes a set of actions designed to reduce overall GHG emissions in California to the levels required by AB 32. Measures applicable to development projects include those related to energy-efficiency building and appliance standards, the use of renewable sources for electricity generation, regional transportation targets, and green building strategy. Relative to transportation, the Scoping Plan includes nine measures or recommended actions related to reducing vehicle miles traveled and vehicle GHGs through fuel and efficiency measures. These measures would be implemented statewide rather than on a project by project basis.

The CARB released the First Update to the Climate Change Scoping Plan in May 2014, to provide information on the development of measure-specific regulations and to adjust projections in consideration of the economic recession (CARB 2014a). To determine the amount of GHG emission reductions needed to achieve the goal of AB 32 (i.e., 1990 levels by 2020) CARB developed a forecast of the AB 32 Baseline 2020 emissions, which is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. CARB estimated the AB 32 Baseline 2020 to be 509 million metric tons (MMT) of CO2e. The Scoping Plan's current estimate of the necessary GHG emission reductions is 78 MMT CO2e (CARB 2014b). This represents an approximately 15.32 percent reduction. The CARB is forecasting that this would be achieved through the following reductions by sector: 25 MMT CO2e for energy, 23 MMT CO2e for transportation, 5 MMT CO2e for high-GWP GHGs, and 2 MMT CO2e for waste. The remaining 23 MMT CO2e would be achieved through Cap-and-Trade Program reductions. This reduction is flexible—if CARB receives new information and changes the other sectors' reductions to be less than expected, the agency can increase the Cap-and-Trade reduction (and vice versa).

3. Regional

SANDAG Regional Plan

The Regional Plan (RP) (SANDAG 2015) is the currently approved long-range planning document developed to address the region's housing, economic, transportation, environmental, and overall quality-of-life needs. The RP establishes a planning framework and implementation actions that increase the region's sustainability and encourage "smart growth while preserving natural resources and limiting urban sprawl." The RP encourages the regions and the County to increase residential and employment concentrations in areas with the best existing and future transit connections, and to preserve important open spaces. The focus is on implementation of basic smart growth principles designed to strengthen the integration of land use and transportation. General urban form goals, policies, and objectives are summarized as follows:

- Mix compatible uses.
- Take advantage of compact building design.
- Create a range of housing opportunities and choices.
- Create walkable neighborhoods.
- Foster distinctive, attractive communities with a strong sense of place.
- Otay Ranch Preserve open space, natural beauty, and critical environmental areas.
- Strengthen and direct development towards existing communities.
- Provide a variety of transportation choices.
- Make development decisions predictable, fair, and cost-effective.
- Encourage community and stakeholder collaboration in development decisions.

As plans are ever-evolving, it is recognized that new plans may be approved in the future. SANDAG lists 12 Near-Term Actions that are intended for implementation in the next Regional Plan. Along with the strategies of the approved RP, these concepts are recognized as potential features in development going forward. The 12 Near Term Actions are as follows:

1. The Regional Transportation Improvement Program (RTIP).

2. Develop a long-term specialized transportation strategy through 2050, as part of the next biennial update of the SANDAG Coordinated Plan, to address the increasing specialized service needs of seniors and people with disabilities.

3. Promote Vehicle Miles Traveled (VMT) reduction by applying the Regional Complete Streets Policy to relevant SANDAG plans, programs, and projects.

4. Develop a Regional Mobility Hub Implementation Strategy.

5. Complete a follow-up study that details ways to reduce greenhouse gases by expanding the use of alternative fuels regionwide.

6. Incorporate regional transportation model enhancements to provide more robust data regarding bike and pedestrian travel, carpools, vanpools, carshare, and public health.

7. Expand the Integrated Corridor Management Concept and design for up to three corridors.

8. Complete the comprehensive 10-year review of the TransNet Program in accordance with the TransNet ordinance.

9. Develop innovative financing tools to self-finance near-term projects for the new border crossing at Otay Mesa East.

10. Participate in the target-setting and monitoring processes for federal performance measures and report on progress toward the achievement of these federal performance measure targets in the new System Performance Report.

11. Develop an Intraregional Tribal Transportation Strategy with tribal nations in the region.

12. Explore the development of a Regional Military Base Multimodal Access Strategy.

4. City of Chula Vista

City of Chula Vista Climate Action Plan

Since 2000, Chula Vista has been implementing a Climate Action Plan (CAP) to address the threat of climate change to the local community. The original Carbon Dioxide Reduction Plan was revised to incorporate new climate mitigation and adaptation measures to strengthen the City's climate action efforts and to facilitate the numerous community co-benefits such as utility savings, better air quality, reduced traffic congestion, local economic development, and improved quality of life. To help guide implementation of the CAP, the City regularly conducts GHG emission inventories. The City's CAP was updated in 2008, 2010 and 2017.

Municipal Codes

The Chula Vista City Council adopted the California Energy Code 2016 effective January 1, 2017. The 2016 Building Energy Efficiency Standards are more efficient than previous standards and the 2019 Standards exceed 2016 and subsequent code cycles are expected to move aggressively toward zero-energy and zero-emission buildings. The 2019 Energy Code is the current code being applied.

Per CVMC § 15.24.045, each store in a store building, each flat in a flat building, and each building used as a dwelling shall be so wired that each store, apartment, flat or dwelling shall have separate lighting and/or power distribution panels. Such panels shall not serve other portions of the building. Hotels, motels, hotel apartments and similar types of buildings may be wired from one or more distribution panels. It is expected that this ordinance may be superseded by Title 24 updates though the build-out of the SPA Plan—future buildings will comply with the more stringent of the requirements.

Per CVMC § 20.04.040, all new residential units shall include electrical conduit specifically designed to allow the later installation of a photovoltaic (PV) system which utilizes solar energy as a means to provide electricity. No building permit shall be issued unless the requirements of this section and the Chula Vista Photovoltaic Pre-Wiring Installation Requirements are

incorporated into the approved building plans. It is expected that this ordinance may be superseded by Title 24 updates though the build-out of the SPA Plan—future buildings will comply with the more stringent of the requirements.

Additionally, per CVMC § 20.04.030, all new residential units shall include plumbing specifically designed to allow the later installation of a system which utilizes solar energy as the primary means of heating domestic potable water. It is expected that this ordinance may be superseded by Title 24 updates though the build-out of the SPA Plan—future buildings will comply with the more stringent of the requirements following the prevailing approach to water heating.

Finally, per CVMC § 20.04.050, commercial businesses are required to participate in a free resource and energy evaluation of their facilities when they obtain a new business license and every five years thereafter.

The City of Chula Vista has developed a number of strategies and plans aimed at improving air quality. The City is a part of the Cities for Climate Protection Program, which is headed by the International Council of Local Environmental Initiatives (ICLEI). The original plan followed by the city to reduce fossil fuel consumption was the CO2 Reduction Plan, adopted in 2002. Currently, the City uses the Climate Action Plan (CAP) which was adopted in 2017. The Climate Action Plan references the 2002 CO2 Reduction Plan, however, the initiatives set forth in the CAP are more relevant to today's conditions.

They are as follows:

- Water Conservation and Reuse
- Waste Reduction
- Renewable and Efficient Energy
- Smart Growth and Transportation

3. Village 3 SPA Amendment 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 3 and a Portion of Village 4 encompasses 493.5 gross acres and a variety of allowable uses. Village 3 proposes a range of residential units and densities, a mix of uses that blends commercial and residential together, parks and open space, and community facilities including one school site.

The Otay Ranch Village 3 and a Portion of Village 4 Sectional Planning Area Plan and Tentative Map was originally approved in December 2014. (University Villages Project Comprehensive SPA Plan Amendment Final Environmental Impact Report (2014 FEIR). The Village 3 project was subsequently amended by the City of Chula Vista City Council in December 2016. The 2016 Village 3 (approved project) land uses consist of:

- Up to 1,597 residential units in Village 3;
    - 813 single family dwelling units
    - 179 multi family dwelling units
    - 278 dwelling units (under mixed use land use)
    - 327 unallocated dwelling units (permitted in parcels within Village 3)
- 8.3 acres of office
- 29.3 acres of industrial
- 8.3 acres of school
- 5.3 acres of Private Open Space
- 2.7 acres of Community Purpose Facility
- 25.9 acres of public parks
- 34.8 acres of open space
- 157.2 acres of MSCP preserve

HomeFed Village III Master, LLC/FlatRock Land Company, LLC (Project Applicant) is proposing land use changes to the approved project resulting in:

- 769 single-family units
- 1,088 multi-family units
- 20,000 SF of commercial/retail uses in a mixed use setting
- 2.7 acres of Community Purpose facilities
- 5.3 acres of Private Open Space

- 25.9 acres of Public Parks (8.1-acre Neighborhood Park in Village 3) and 17.8-acre Community Park in Village 4)
- 8.3-acre elementary school site
- 29.3 acres of Light Industrial
- 27.5 acres of Open Space
- 192.3 acres of MSCP Open Space

Proposed revisions consist of parcels re-designation from "Office" to "High Residential" within the Village 3 village core; converting R-6 from "Single Family" to "Medium High Residential;" expanding the boundary of the Village North SPA Plan to include the approximately 54-acre property owned by FlatRock, LLC; and changing the land use from "Industrial" to "Medium-High Residential." The Proposed Project also includes the transfer of 41 units from Village 9 to Village 3 which would increase the authorized units in Village 3 from 1,597 to 1,638 units and correspondingly reduce the authorized units in Village 9 from 4,000 to 3,959 units. Both the Village 9 SPA Plan and Tentative Map land use tables would be revised to reflect this unit reduction. The existing Village 3 units (377 DUs) and the units proposed to be transferred from Village 9 (41 DUs). These proposed changes to the land use plan of Village 3 are collectively referred to as the "proposed project".

The Village 3 proposed revisions would require amendments to the Chula Vista General Plan, Otay Ranch General Development Plan (GDP) and Village 3 and a Portion of Village 4 Sectional Planning Area (SPA). The Proposed Project also includes a rezone and a tentative map for Parcels O-1 and O-2 (R-19) and a tentative map for R-6 and R-20 (Flat Rock, LLC property) to implement the proposed land use changes. The Village 9 SPA and Tentative Map would also be amended to reduce authorized units from 4,000 to 3,959. The Proposed Project also includes a Development Agreement amendment.

Village 3 land use and circulation pattern are designed to reflect traditional town planning principles including the pedestrian and transit-oriented village concept described in the Otay Ranch GDP. This village concept intensifies residential densities and commercial uses at the heart of the community to enhance transit use, promote walkability, and create vibrant commercial and public spaces that promote social interaction and a strong community identity. The mix of proposed residential, educational, commercial, industrial and community uses are intended to provide a mixed-use environment that serves the needs of residents and employees.

Figure 1: Site Utilization Plan and Table 4: Land Use Summary implement the land uses contemplated by the Otay Ranch. The site utilization plan and site utilization summary work together and assign a general utilization to each neighborhood within the SPA.

Village 3 concentrates much of its higher density housing near the village core and transit opportunities. A school, park, mixed use commercial and industrial land uses are also located within close proximity to residential to encourage pedestrian and bicycle travel.

Figure 1: Amended Site Utilization Plan

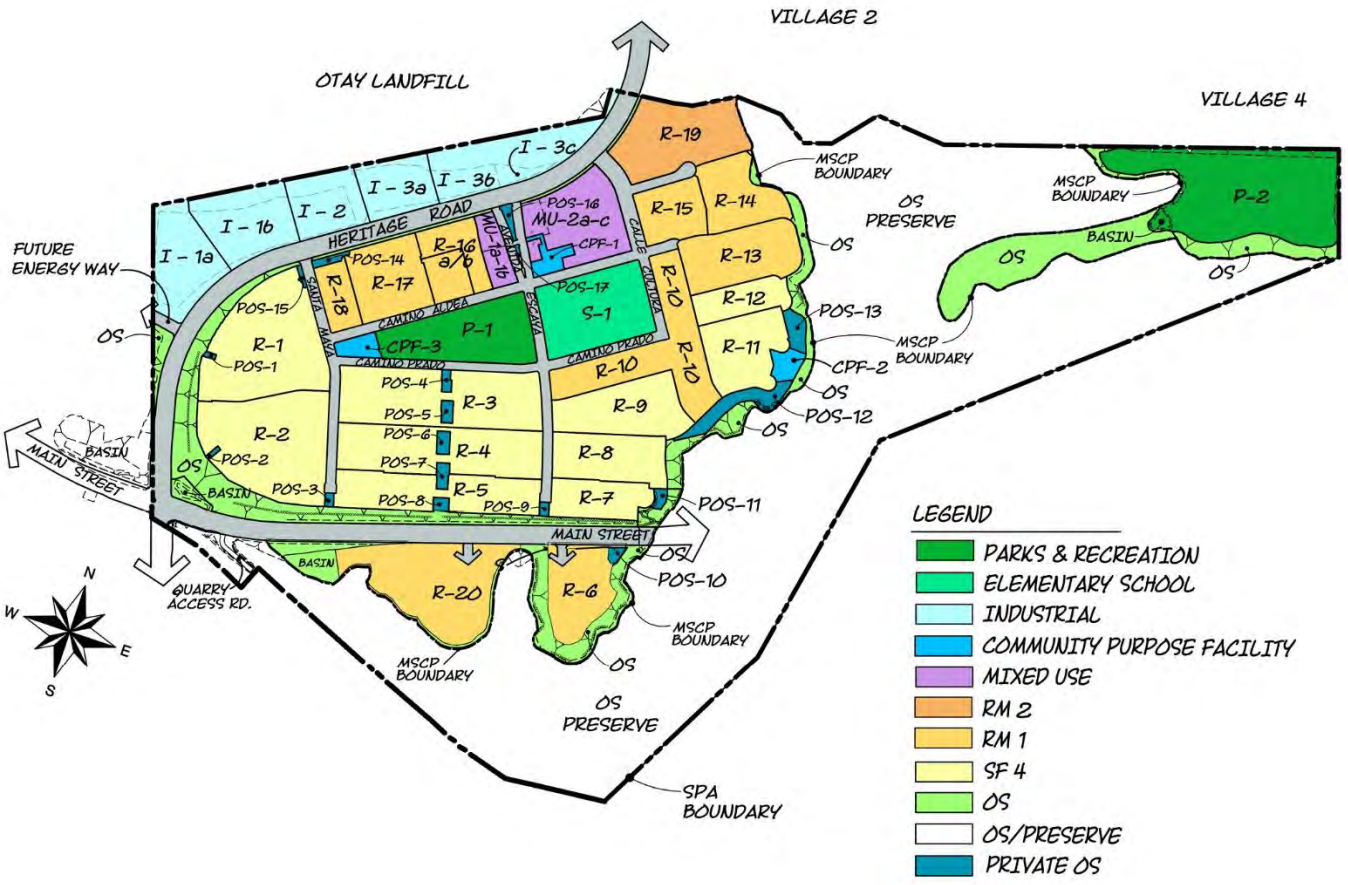


Table 4: Village 3 and a Portion of Village 4 Land Use Summary

Land Use	Land Use	Acres	Units	Target Density
VILLAGE 3				
Single Family				
R-1	SF	12.4	80	6.4
R-2	SF	12.3	65	5.2
R-3	SF	11.5	104	9.1
R-4	SF	9.5	75	7.9
R-5	SF	7.5	46	6.1
R-7	SF	3.8	22	5.8
R-8	SF	5.5	43	7.8
R-9	SF	6.7	40	6.0
R-10	SF	9.5	98	10.3
R-11	SF	5.7	37	6.5
R-12	SF	3.1	24	7.7
R-13	SF	6.6	58	8.8
R-17	SF	5.7	53	9.3
R-18	SF	2.3	24	10.4
Single Family Total		**102.1**	**769**	**7.5**
Multi Family				
R-6	MF	5.6	78	13.9
R-14	MF	5.0	71	14.2
R-15	MF	3.9	54	13.9
R-16 a/b	MF	4.6	54	11.7
R-19	MF	8.3	224	27.0
R-20	MF	10.1	116	11.5
Multi Family Total		**37.5**	**597**	**15.9**
Mixed Use				
MU-1a-d	MU	1.8	30	16.7
MU-2a-e	MU	7.2	242	33.6
Mixed Use Total		**9.0**	**272**	**30.2**
Residential Total		**148.6**	**1,638**	**11.0**
Community Purpose Facilities				
CPF-1	CPF	0.9		
CPF-2	CPF	0.9		
CPF-3	CPF	0.9		
Total CPF		**2.7**		
Private Open Space (POS 1-17)	**POS**	**5.3**		
Public Park P-1	**P**	**8.1**		

Land Use	Land Use	Acres	Units	Target Density
School	**S**	**8.3**		
Industrial				
I-1a	I	6.3		
I-1b	I	6.4		
I-2	I	4.6		
I-3a	I	4.2		
I-3b/c	I	7.8		
Total Industrial		**29.3**		
Open Space				
Open Space @ Village 3 North (OS 1, 2, 4-8, 17)	OS	19.8		
Open Space @ R-6/R-20 (OS 2-8)	OS	8.5		
Preserve @ Village 3 North (OS-12)	OS	157.2		
Preserve @ R-20 (OS-1)	OS	29.8		
Total Open Space		**215.3**		
Circulation				
External Circulation		21.0		
Internal Circulation		16.2		
Total Circulation		**37.2**		
Subtotal Village 3		**454.8**	**1,638**	
VILLAGE 4 (por)				
Public Park P-2	**P**	**17.8**		
Open Space (OS 9-11)	**OS**	**11.9**		
Subtotal Village 4 (por)		**29.7**		
TOTAL		**484.6**	**1,638**	

Notes:

(1) A minimum of 2,000 SF of commercial/retail uses are required in the MU-1/MU-2 parcels.
(2) MU-2 a-c acreage does not include the 0.9 acre CPF-1 site.
(3) The CPF-1 site is shown above as 0.9 acre site; however, the 2.6 acre obligation is met through a combination of land, site improvements and building construction, per the approved Alternative Compliance Agreement.
(4) The Project includes over 4.0 acres of CPF credit, 0.3 acres more than the CPF requirement per the Land Offer Agreement; therefore; up to 0.3 acres of the CPF-2 and/or CPF-3 sites may be used to satisfy a portion of the Common Useable Open Space requirement for Village 3 neighborhoods.

4. Effect of Project on Local/Regional Air Quality

Construction Emissions

Construction of the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts. Fugitive dust (PM10 and PM2.5) emissions would primarily result from grading and site preparation activities. NOx and CO emissions would primarily result from the use of construction equipment and motor vehicles.

As stated in the Otay Ranch Village Three Project – Air Quality and Greenhouse Gas Update Memo (Dudek, 2020), "construction emissions would remain unchanged, as no change in the construction schedule or required construction equipment is anticipated. In addition, based on our review of the proposed changes, the identified impacts and associated mitigation measures in the previous EIRs (City of Chula Vista 2006 and 2014) remain applicable to this project, and no additional mitigation measures would be required."

Operational Emissions

Following the completion of construction activities, the proposed project would generate VOC, NOx, CO, SOx, PM10, and PM2.5 emissions from project land uses, as well as mobile and stationary sources including vehicular traffic from residents, space heating and cooling, water heating, and fireplace (hearth) use.

As indicated in the *Otay Ranch Village 3 North and a Portion of Village 4 Trip Generation Review* (Chen Ryan 2020), the proposed land uses would generate approximately 20,357 daily trips, while the approved land uses would generate approximately 26,997 daily trips. The proposed land uses would therefore generate approximately 6,640 fewer trips (24.6% daily) when compared to the approved land uses. The proposed Village 3 land uses would generate fewer trips (both daily and during the peak hours) than the approved land uses, and thus adding fewer trips to the surrounding roadway network. It can be concluded that no additional traffic analysis would be required since no new or more substantially significant traffic impacts would occur beyond those analyzed in the two previous EIRs (the Otay Ranch Village Two, Three, and a portion of Village Four SPA Plan Final Second Tier Environmental Impact Report 2006 and the University Villages Project Comprehensive SPA Plan Amendment Final Environmental Impact Report 2016).

Vehicular Traffic

Annual CO_2 emissions from motor vehicle trips for full project buildout were quantified using the URBEMIS 2007 model (refer to Appendix A for additional details and model assumptions). As described earlier, CH_4 and N_2O emissions were accounted for by multiplying the URBEMIS 2007 CO_2 emissions by a factor based on the assumption that CO_2 represents 95% of the CO_2E emissions associated with passenger vehicles (EPA 2005).

Several regulatory initiatives have been passed to reduce on-road vehicle emissions. These initiatives (Pavley and EPA/NHTSA standards for light-duty vehicles and the LCFS) have been

estimated to reduce emissions from motor vehicles by approximately 32% by the year 2020, according to the SDCGHGI (University of San Diego 2008).

Area Sources

Annual CO_2 emissions from natural gas combustion for space and water heating, hearth combustion, and gas-powered landscape maintenance equipment were estimated using URBEMIS 2007. The CO_2 emissions from natural gas combustion were adjusted by a factor derived from the relative CO_2, CH_4, and N_2O for natural gas as reported in the CCAR's *General Reporting Protocol* (CCAR 2009) for stationary combustion fuels and their GWPs.

The proposed project would be required to comply with Section 15.26.030 of the City's Municipal Code, which requires that new residential projects that fall within climate zone 7 be at least 15% more energy efficient than the 2008 Energy Code. As such, building design would employ energy efficient measures beyond that required by the Energy Code, resulting in a 15% reduction in emissions generated by natural gas use.

Electrical Generation

Annual electricity use for the proposed project was based upon estimated generation rates for land uses in the San Diego Gas & Electric service area. The proposed project would consume approximately 65,521,407 kilowatt-hours per year (see Appendix B for calculations). The generation of electricity through combustion of fossil fuels typically results in emissions of CO_2 and to a smaller extent CH_4 and N_2O. The proposed project will comply with the 2019 California Energy Code at minimum.

Again, the proposed project would be required to comply with Section 15.26.030 of the City's Municipal Code, which would result in a 15% reduction in emissions generated by electricity use.

Water Supply

Water supplied to the proposed project requires the use of electricity. Accordingly, the supply, conveyance, treatment, and distribution of water would indirectly result in GHG emissions through use of electricity. Water usage rates were obtained from the Overview of Water Service completed for the proposed project (Dexter Wilson Engineering 2014). The estimated electrical usage associated with supply, conveyance, treatment, and distribution of water was obtained from a California Energy Commission report on electricity associated with water supply in California (CEC 2006).

The City's Municipal Code defers to Title 24. At minimum, the proposed project will comply with the 2019 Title 24 Code Cycle which is more stringent than the Code Cycle that was in effect at the time of the original Village 3 project approval. At that time, it was required, all new residential construction, remodels, additions, and alterations must provide a schedule of plumbing fixture fittings that will reduce the overall use of potable water by 20%, which would result in a 20% reduction in the GHG emissions from electricity generated for supply, conveyance, treatment, and distribution of water. The 20% reduction in the overall use of potable water was substantiated in the project's Water Conservation Plan; in fact, the Water Conservation Plans for Villages Three and Portion of Village Four, Village Eight East and Village Ten identify a 29.2% reduction in the overall use of potable water. A new analysis is not being conducted for the proposed amendment project. However, due to the increased stringency of the 2019 Title 24 Codes, it is believed that

energy conservation is still being enforced by implementation of the State's water and energy conservation requirements.

Summary of Operational Emissions

The estimated GHG emissions associated with vehicular traffic, area sources, electrical generation, and water supply are shown below in Table 9. Because the project phasing overlaps with other villages, Table 9 includes emissions for Village Three and portion of Village Four, Village Eight East and Village Ten. Additional detail regarding these calculations can be found in Appendix B of the Air Quality and Global Climate Change Technical Report for the Otay Ranch University Villages Project. The estimated emissions of CO_2E would be 203,688 metric tons per year without the GHG reduction measures ("business as usual"), and 144,520 metric tons per year with the GHG reduction measures. As indicated in Table 8, the GHG reduction measures would reduce GHG emissions by approximately 29%.

Table 5: Estimated Operational GHG Emissions (metric tons/year)
Villages Three /Portion of Four, Eight East and Ten

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

Source: See Appendix B of the Air Quality and Global Climate Change Technical Report for the Otay Ranch University Villages Project for complete results.
Note: Construction emissions shown include emissions from construction of all Villages analyzed under the proposed project, including Village Three and a Portion of Village Four, Village Eight East, and Village Ten.

Assessment of GHG Impacts

The City of Chula Vista has developed a number of strategies and plans aimed at improving air quality while also addressing global climate change. In November 2002, Chula Vista adopted the Carbon Dioxide Reduction Plan in order to lower the community's major greenhouse gas emissions, strengthen the local economy, and improve the global environment. In addition, as a part of its Growth Management Ordinance and Growth Management Program, the City of Chula Vista requires that an Air Quality Improvement Plan (AQIP) be prepared for all major

development projects with air quality impacts equivalent to that of a residential project of 50 or more dwelling units.

As shown in Table 9, with implementation of GHG reduction measures the proposed project would reduce GHG emissions by 29%. The proposed project would therefore exceed the target of 20% below business as usual that has been established for the purposes of assessing operational GHG emissions of projects in the City of Chula Vista, and this reduction would be consistent with the goals of AB 32. Furthermore, the proposed project would be consistent with Section 15.26.030 of the City's Municipal Code by employing energy efficient measures beyond that required by the Energy Code, resulting in a 15% reduction in emissions generated by energy use. Additionally, the proposed project would reduce the overall use of potable water by 29%, consistent with the City's Municipal Code. Lastly, the project design features would help to further reduce GHG emissions. The project would therefore have a less than significant impact on global climate change.

5. Quantitative Project Evaluation

A quantitative analysis has been performed for Village 3 using Option Two: Alternative Modeling Programs, specifically a LEED-ND equivalency analysis was conducted. LEED-ND criteria are more appropriate than INDEX indicators for the Village 3 SPA Plan for the following reasons:

- INDEX indicators do not take habitat preservation and conservation efforts into account, of which the Project is providing a significant amount.
- LEED-ND criteria measure these benefits to a greater and more accurate extent.
- 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.
- The underlying basics of the INDEX approach are nearly 15 years old in contrast to LEED-ND's latest update in July of 2018. 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.
- The California Energy Code and Green Building Standards have been updated since the INDEX approach was established.
- The INDEX model is no longer being used.

The Village 3 SPA Plan scores the equivalent of 41 points under the LEED-ND rating system. Table 9: LEED Equivalency Scorecard provides a description of the project attributes that were considered from the LEED-ND rating system. The base ND certification of 40 points is the functional equivalent of INDEX indicator thresholds. Therefore, the Project has demonstrated AQIP compliance.

Table 6: LEED Neighborhood Development Plan Village 3 Equivalency Analysis

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
Smart Location & Linkage					
SLLp1	Smart Location	Transit Served	Y/N	Yes	1. New infrastructure will be installed for Village 3, but will connect into existing waste and wastewater infrastructure. Village 3 also has a Subarea Master Plan approved by Otay Ranch Water District. The intent of this prerequisite is being met as Village 3 will be an extension of existing infrastructure. 2. 50% of dwellings and businesses within 1/2 mile walk of local bus or proposed BRT stop which is believed to comply with the minimum weekday trips (60) and weekend trips (40). Bus stops are located at Heritage Road at the Village Core and at the intersection of Main Street and Heritage Road. 3.The BRT stop in Village 3 is under the jurisdiction of MTS which also manages funding. Funding comes from various federal, state, and local sources.
SLLp2	Imperiled Species and Ecological Communities	None	Y/N	Yes	192.3 acres of MSCP designated area are within the SPA boundary.
SLLp3	Wetland and Water Body Conservation	None	Y/N	Yes	Village 3 is implementing the MSCP Chula Vista Subarea Plan. Thus, Village 3 meets the intent of this prerequisite due to the fact that a large designation of land will be conveyed to public ownership for permanent preservation and management.
SLLp4	Agricultural Land Conservation	None	Y/N	Yes	Village 3 is implementing the MSCP Chula Vista Subarea Plan. Thus, it meets the intent of this prerequisite due to the fact that a large designation of land will be conveyed to public ownership for permanent preservation and management.

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
SLLp5	Floodplain Avoidance	None	Y/N	Yes	Village 3 is not located within a floodplain.
SLLc1	Preferred Locations	1. Location Type	10		
		2. Connectivity			
		3. High Priority Locations			
SLLc2	Brownfield Remediation	Brownfield Site	1		
		High Priority Redevelopment Area	2		
SLLc3	Access to Quality Transit	Existing/Planned Transit	1-7	3	Weighted allocation of points based on 100 weekday trips and 65 weekend trips (inclusive of BRT).
SLLc4	Bicycle Facilities	Bicycle Storage	1	1	
		Bicycle Location			
		Bicycle Network	1	1	Connects to an existing bicycle network with at least 3 continuous miles (refer to Fig. 2)
SLLc5	Housing and Jobs Proximity	Affordable housing	3		
		30% of total SF residential OR # of jobs within 1/2 mile = # of housing	2		
		Infill project with nonresidential component	1		
SLLc6	Steep Slope Protection		1	1	Per the Otay Ranch GDP §10.C.3 Steep Slope Policy, there is a ranch-wide requirement to preserve 83% of steeps slopes and as stated in the Village 3 SPA §6.2.1(2) – Village 3 is consistent with the

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
					Otay Ranch GDP steep slope preservation requirement.
SLLc7	Site Design for Habitat or Wetland and Water Body Conservation	Sites w/o Significant habitat or wetlands	1		
		Sites with habitat or wetlands	1		
SLLc8	Restoration of Habitat or Wetlands and Water Bodies		1	1	Village 3 includes 192.3 acres of Preserve (MSCP) but also connects to the greater MSCP area. The steepest slopes are preserved within the RMP/MSCP Preserve areas. (Refer to Fig. 5)
SLLc9	Long-Term Conservation Management of Habitat or Wetlands and Water Bodies		1	1	The Preserve Owner/Manager is responsible for overseeing the day-to-day and long range preserve management activities within the MSCP Preserve in accordance with the Otay Ranch Resource Management Plan (RMP).
Neighborhood Pattern & Design					
NPDp1	Walkable Streets		Y/N	Yes	All streets have sidewalks and the mixed-use retail area fronts the main circulation network. (Refer to Fig. 7)
NPDp2	Compact Development		Y/N	Yes	Village 3 has densities from 5-27 du/ac. (Refer to Table 5)
NPDp3	Connected and Open Community		Y/N	Yes	233 intersections/square mile. (Refer to Chula Vista CO2 Index Model Results (approved 2016): Intersection Density. This exceeds the pre-requisite of 140.
NPDc1	Walkable Streets	25' setback (80%)	1	1	Per the PC District Regulations, no suggested front setbacks equal or are greater than 25’ from the right-of-way.

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
		18' setback (50%)	1	1	As constructed, the mixed-use retail is design is pedestrian oriented and encourages walking. All storefronts are accessed from sidewalks. Parking is located on street or in the rear/side of planning areas. The Village 3 Design Plan also states, "Design emphasis on the entries improves the street scene and helps distinguish individual shops in multi-tenant buildings." Furthermore, homes are being built at minimum setbacks to maximize square footage. Garage driveways require 17' setbacks which are still less than the required 18'. It is believed that the intent of this credit is has been achieved.
		1' setback for nonresidential (50%)	1		
		Functional entries every 75 feet	1	1	As constructed, the mixed-use retail design is pedestrian oriented and encourages walking. All storefronts are accessed from sidewalks. Parking is located on street or in the rear/side of planning areas. The Village 3 Design Plan also states, "Design emphasis on the entries improves the street scene and helps distinguish individual shops in multi-tenant buildings." It is believed that the intent of this credit is has been achieved.
		Function entries every 30 feet	1		
		Glass on 60% of facades	1	1	Per the Village 3 Design Plan: Design emphasis on the entries improves the street scene and helps distinguish individual shops in multi-tenant buildings. Storefronts should incorporate display windows to create interest and encourage window shopping along the pedestrian walk.
		No blank walls 40% of sidewalk	1	1	Mixed-use retail is constructed. Blank walls do not exceed 40% of

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
					the sidewalk. The village area is designed to be pedestrian oriented.
		Ground-level retail, services must be unshuttered at night	1		
		On-street parking provided both sides on 70% of streets	1	1	On-street parking is provided throughout the Village.
		Continuous sidewalks (10' wide on mixed-use blocks)	1		
		Ground-floor residential units at least 24" above grade	1		
		Ground floor retail in multi-stores	1	1	100% retail in the mixed-use planning area is accessed from the ground floor. Furthermore, all is accessed from the sidewalk, creating preferable street frontage.
		Building height-street width	1		
		20 mph residential streets	1		
		25 mph mixed use street	1		
		Driveways limited	1	1	Refer to Figure 7 which shows on-street parking and limited driveways.
NPDc2	Compact Development	Density/acre	1-6	3	The SPA Amendment areas have densities of the following: R-19:27.0 du/ac R-20:10.6.0 du/ac R-6: 13.9 du/ac (Refer to Table 4)

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
NPDc3	Mixed-Use Neighborhoods	Uses with 1/4 mile walking distances	1-4	1	Community-serving retail, industrial, recreation center, public park, School, Diverse housing types, preserved open space, transit stop.
NPDc4	Housing Types and Affordability	Diverse housing types	1-7		
		Affordable housing	1-3		
		Additional diverse housing types			
NPDc5	Reduced Parking Footprint	All off-street parking at side or rear	1	1	Please refer to Fig. 7.
NPDc6	Connected and Open Community	Intersections/mile 300-400+	1-3		
NPDc7	Transit Facilities		1	1	Local bus facilities will be provided. BRT station is also potential at intersection of Heritage and Main (Refer to Fig. 3).
NPDc8	Transportation Demand Management	Transit Passes	1-21 points for every 2 options		
		Developer-sponsored transit			
		Vehicle sharing			
		Unbundling of parking/fees			
		Guaranteed ride home			
		Flexible work arrangements			

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
NPDc9	Access to Civic & Public Space	90% of units and non-residential use entrances within 1/4 mile of 1 civic and passive use space	1	1	90% of dwelling units within 1/4 mile walk distance to civic and public space. There are green spaces, parks and paseos throughout Village 3 including fields at the school and park at the village core (Refer to Fig. 1).
NPDc10	Access to Recreation Facilities	1 Rec facility of 1 acre within 1/2	1	1	90% of dwelling units are within 1/2 mile walk distance to rec facilities. Individual planning areas may also include rec amenities (Refer to Fig. 1).
NPDc11	Visitability and Universal Design	20% of dwellings are a visitable unit	1		
		At least 5 Universal Design Features	1		
		Kitchen features	1		
		Bedroom/Bathroom features	1		
NPDc12	Community Outreach and Involvement	Community outreach	1		A community meeting will be held prior to project approval.
		Charrette	2		
		Endorsement Program	2		
NPDc13	Local Food Production	Neighborhood gardens	1		
		Community supported agriculture	1		
		Farmers Market within 1/2 mile walking distance	1		

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
NPDc14	Tree-Lined and Shaded Streetscapes	Trees planted 50 oc on at least 60% of streets	1	1	For the current amendment planning areas, per the landscape architect, street trees will be planted 30-40' oc.
		Shaded sidewalks on 40% of sidewalks within 10 years	1	1	For the current amendment planning areas, the landscape architect believes this requirement could be met.
		Certification from landscape architect that trees are planted properly and not invasive	1	1	
NPDc15	Neighborhood Schools	Neighborhood school within 1/2 mile	1	1	An elementary school is located in the village core. (Refer to Fig. 1).
Green Infrastructure & Buildings					
GIBp1	Certified Green Buildings		Y/N	No	
GIBp2	Minimum Building Energy Efficiency		Y/N	Yes	
GIBp3	Minimum Building Water Efficiency		Y/N	Yes	
GIBp4	Construction Activity Pollution Prevention		Y/N	Yes	
GIBc1	Certified Green Buildings	Number of buildings certified under LEED OR other green building rating system 10-20% 1 point; 20-30% 2 points; 30-40% 3 points, 40-50% 4 points; +50% 5 points	1-5		
GIBc2	Optimize Building Energy Performance	12% above ASHRAE; OR 20% ASHRAE	1-2		

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
		ASHRAE 50% Advanced Energy Design	2		
GIBc3	Indoor Water Use Reduction	Reduce water use 40% non-residential	1	1	CalGreen exceeded requirement at the time the original 2016 project was approved. Except for toilets, the 2019 CalGreen code is consistent with this credit requirement.
		90% of residential buildings would earn 4 points under LEED v4	1	1	CalGreen exceeded the requirement at the time original 2016 project was approved. Except for toilets, the 2019 CalGreen code is consistent with this credit requirement.
GIBc4	Outdoor Water Use Reduction	No irrigation	2		
		Reduced irrigation 30% 1 point; 50% 2 points	1-2	2	California Code exceeds requirements. Approved landscape plans meet California MWELO.
GIBc5	Building Reuse	N/A	1		
GIBc6	Historic Resource Preservation and Adaptive Reuse	N/A			
GIBc7	Minimized Site Disturbance		1		
GIBc8	Rainwater Management	Manage runoff on site 80th percentile 1 point; 85th 2 points; 90th 3 points; 95th 4 points	1-4	2	Stormwater management requirements in the San Diego Region require capture of the 85th percentile
GIBc9	Heat Island Reduction	Non-roof measures	1		
		High-reflectance and vegetated roofs	1		
		Mixed non-roof & roof measures	1		

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
GIBc10	Solar Orientation	Block orientation	1	1	Homes approved under the 2016 SPA and TM built to 2016 standards, homes that have yet to obtain approvals will be built at a 2019 minimum standard.
		Building orientation	1	1	Homes approved under the 2016 SPA and TM built to 2016 standards, homes that have yet to obtain approvals will be built at a 2019 minimum standard.
GIBc11	Renewable Energy Production	Renewable energy production 5% - 1 point, 12.5% -2 points; 20% -3 points	1-3	1	2019 California Energy Code requires solar installation unless alternative method that is equally efficient as solar is used.
GIBc12	District Heating and Cooling	Needs to be 80% of projects annual heating and/cooling	2		
GIBc13	Infrastructure Energy Efficiency	Infrastructure to be 15% annual energy reduction	1		
GIBc14	Wastewater Management	25% of wastewater is reused on-site 1 point; 50% 2 points	1-2		
GIBc15	Recycled and Reused Infrastructure		1		
GIBc16	Solid Waste Management		1	1	CalGreen requires that a minimum of 65% of nonhazardous construction and demolition waste be either recycled or salvaged for reuse.
GIBc17	Light Pollution Reduction		1	1	Per CalGreen requirements.
Innovation & Design Process					
IDCPc1	Innovation				
IDCPc2	LEED® Accredited Professional		1	1	

LEED-NDv4 Credit		Options	Possible Points	Village 3 Equivalency Points	Notes
Regional Priority Credits					
	Regional Priority Credit: Region Defined	Rainwater Management			
	Regional Priority Credit: Region Defined	Mixed-Use Neighborhoods			
	Regional Priority Credit: Region Defined	Housing Types and Affordability			
	Regional Priority Credit: Region Defined				
Total points				40	

Figure 2: Bicycle Circulation Plan

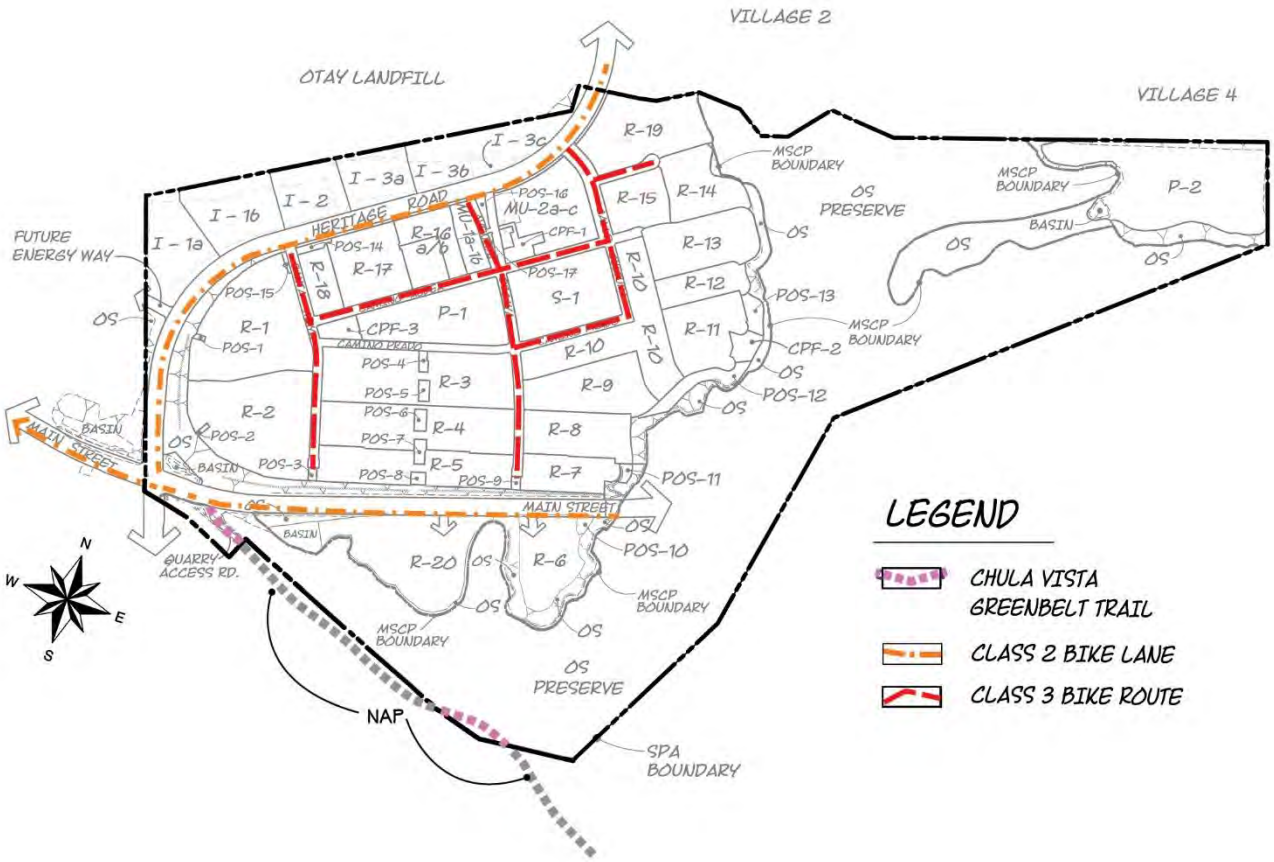


Figure 3: Transit Plan

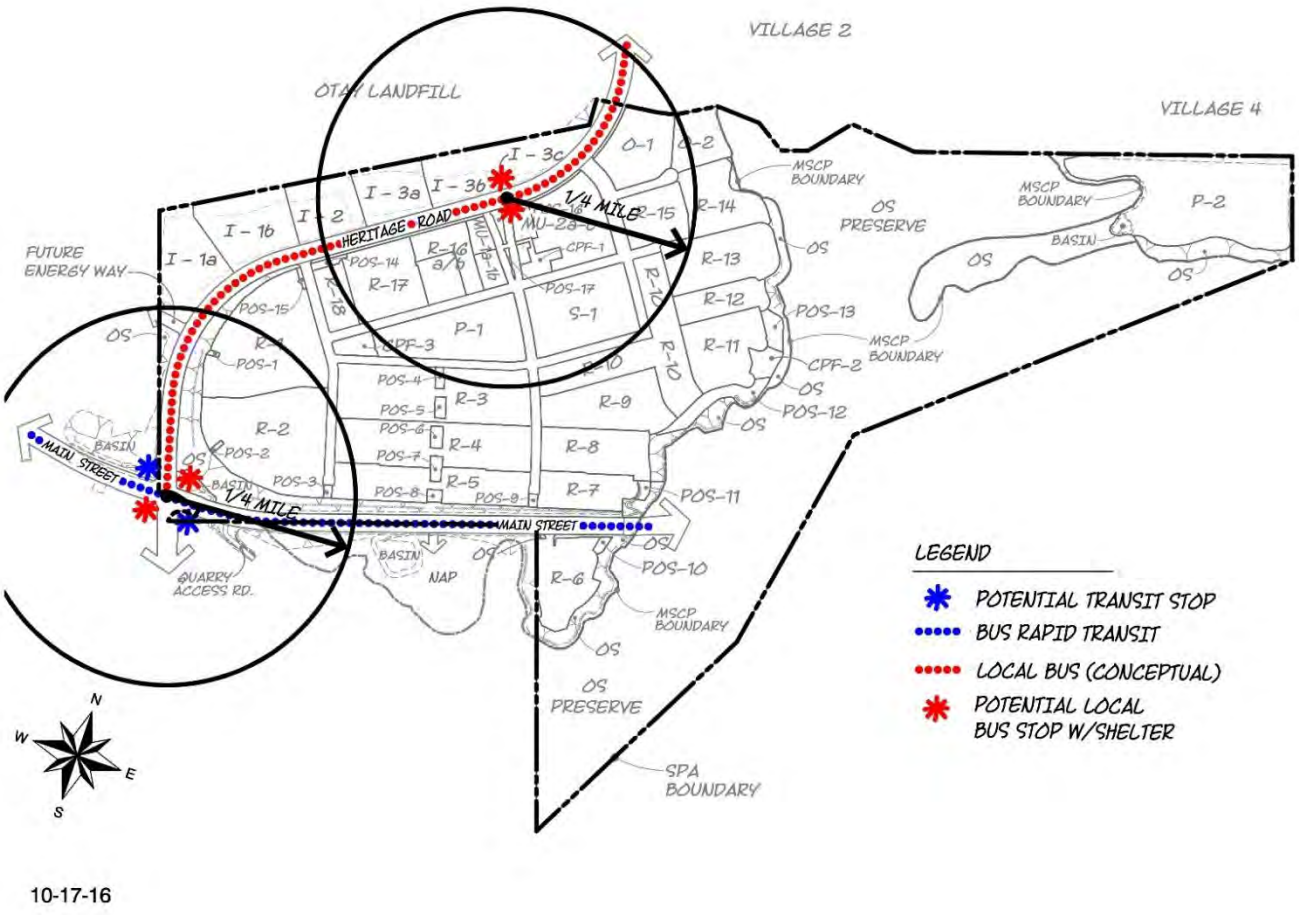


Figure 4: Pedestrian Circulation Plan

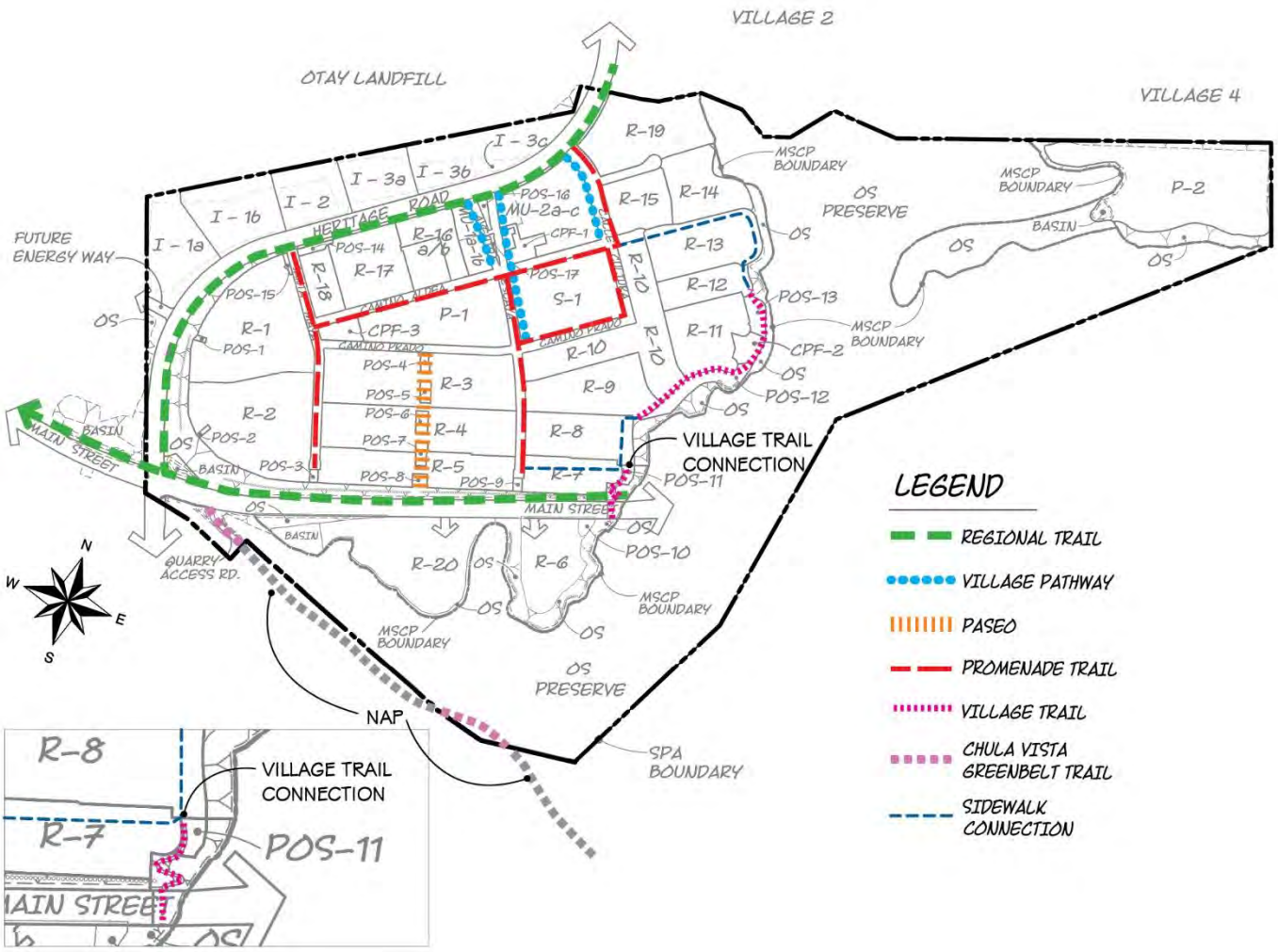
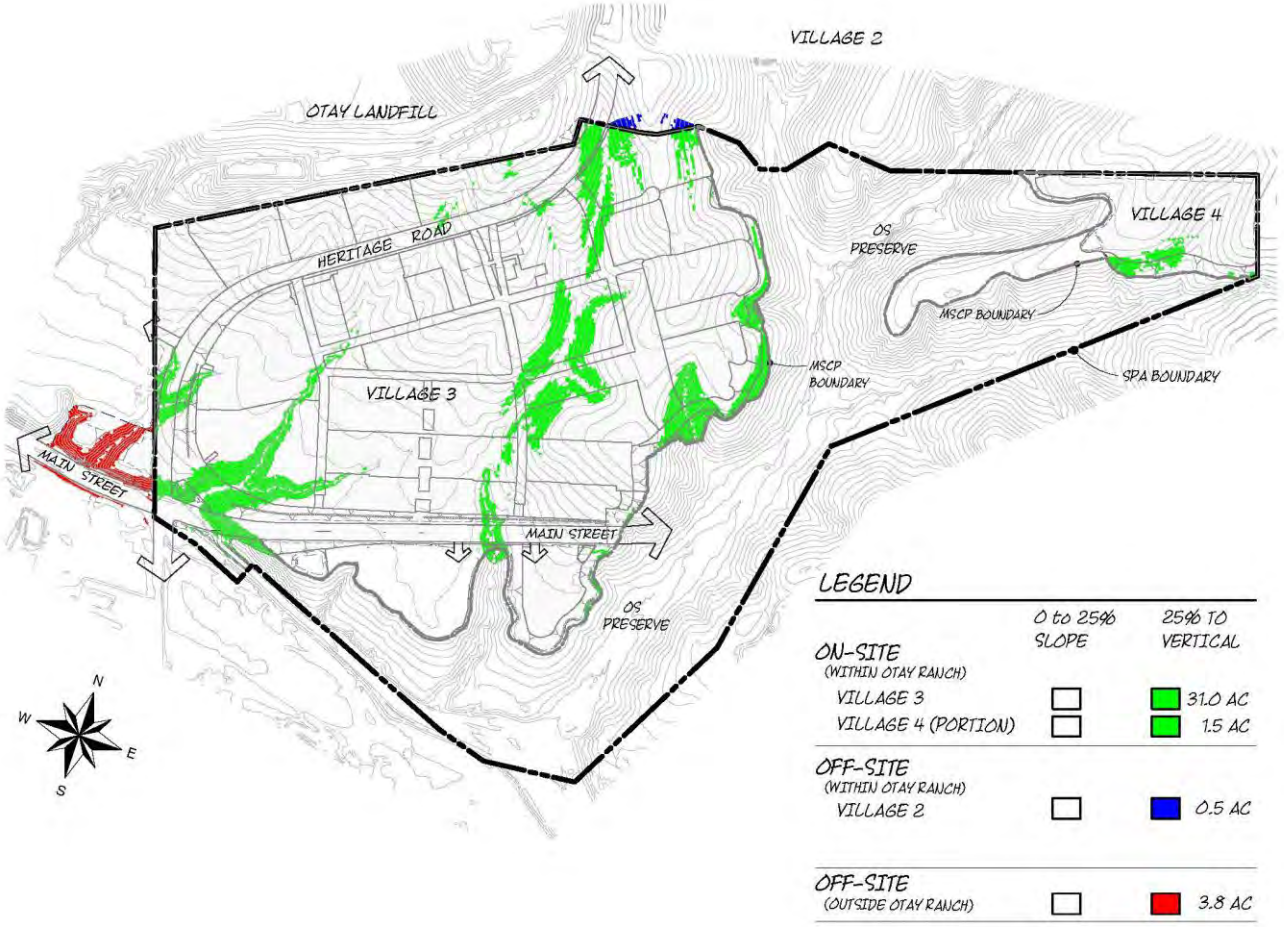


Figure 5: Steep Slopes



Note: The Project is required to convey 1.188 acres of land to the preserve for every acre of development. The steep slope preservation requirement is satisfied Otay Ranch-wide, consistent with the Otay Ranch Resource Management Plan requirements. This exhibit shows project steep-slope impacts only.

Figure 6: Development Standards (Reference for Front Setbacks)

Table 3 – Property Development Standards – Residential Districts				
	Land Use Districts			
	SF-4	RM-1	RM-2	Notes
Yards & Setbacks				
Minimum Front Yard Setback (Feet)				
To side entry (swing in) garage with or without residential above	7	DR	DR	
To main residence	7 (min)	DR	DR	
To garage	Either 7 or min 17			
To porch, patio, entry feature, or veranda	4	DR	DR	Minimum 66%, depending on number of models, shall have at least one pedestrian oriented feature (see Page 23).
To semi-private courtyard	3	DR	DR	
To front entry garage	17	DR	DR	Or minimum front yard setback must be 7' exactly

Table 9 - Property Development Standards – Industrial and Office Districts			
	Land Use District		Notes
	I	O	
Lot Criteria			
Minimum Lot Size	½ Acre	6,000 Sq. Ft.	
Front Setback (in feet)	10 Feet	10 Feet	Increased setback shall be provided for buildings over 30' in height, subject to Design Review.
Side Setback (in feet)	15 Feet	15 Feet	
Public Street Setback (in feet)	10 Feet	10 Feet	
Rear Setback (in feet)	10 Feet	10 Feet	May be reduced to zero (0) with Site Plan approval. For the purpose of this provision.
Building Height, maximum	DR	DR	Height limit for buildings to be established at Design Review.
Lot Coverage (percent, net)	70%	70%	
Floor Area Ratio	DR	.395	

E. PROPERTY DEVELOPMENT STANDARDS

The property development standards that shall apply to all land and buildings permitted in the Village Core Districts shall be those indicated on an approved Design Review application pursuant to Section 19.14.420 *et. seq.* CVMC (Site Plan and Architectural Approval Purpose – Prerequisite for Certain Uses).

Figure 7: Illustrative Site Plan

6. Community Design and Site Planning Features

Table 10: Community Design and Site Planning Features below provides an overview of the Community Design and Site Planning Features, as well as building and landscape features, which have been integrated into the Village 3 SPA Plan to create a sustainable community. These measures are based on California Air Pollution Control Officers Association (CAPCOA) Greenhouse Gas Mitigation Measures.

Table 7: Community Design and Site Planning Features

Transportation Related Measures
The Village 3 SPA land use plan locates a school, parks, and commercial land uses in proximity to residential areas to encourage pedestrian and bicycle travel as an alternative to the automobile. In addition, the Village 3 Trail and Pathway system provides alternate routes to these destinations.
Village 3 is part of the overall Otay Ranch GDP which created concentrated activity centers surrounded by supporting land uses. Village 3 includes high density multi-family in proximity to the village core and future transit stop.
The Village 3 land use plan includes narrow streets and reduced paving, which reduces heat buildup and the demand for air conditioning. Street trees are also included to provide shade and further reduce ambient air temperatures.
The Village 3 provides for future local bus services through the Village Core. In addition, there is a planned Rapid Bus transit stop in the southwestern corner of the Village 3 SPA Plan area at the intersection of Main Street and Heritage Road.
Village 3 SPA streets will provide for a maximum travel speed which allows residential streets to be also used by bicycles.
Off-street pathways and trails in Village 3 will accommodate pedestrian and bicycle travel.
R-6, R-19 and R-20 will comply with CalGreen standards for EV charging stations. Depending on the type of home, this could mean providing EV-ready garages. However, EV charging stations will be provided in the common parking area such as the recreation area parking.
Energy-Conservation Related Measures
Project will be compliant with prevailing building and energy codes at the time of permit submission.
Project-wide recycling for single-family, multi-family, school, commercial, and retail establishments will be required as required under the County's recycling ordinance and CalGreen.
For Village 3 construction that was under the 2016 approval, all private residential and commercial structures will be designed and constructed to improve energy conservation 15% above the 2008 Building Energy Efficiency Standards in Title 24 of the California Code. For Village 3 projects approved after January 1, 2020, compliance with 2019 California Energy Code is required or the code at the time of approval. The 2019 code is more stringent than the 2016 code.
Indoor residential appliances will carry the Environmental Protection Agency's (EPA) ENERGYSTAR® certification, as applicable and feasible.
California Green Building Code Title 24, Part 11 (CalGreen) requires that a minimum of 50% (2016 Code) all new construction waste generated at the site be diverted to recycle or salvage. 2019 Code will require 65% of 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.
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, unless partial or full diversion exemption is granted. 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.
Landscape and irrigation to comply with California's Model Water Efficient Landscape Ordinance (MWELO).
All residential units will be part of the local utility demand response program to limit peak energy usage for cooling.
All single family structures will be designed and constructed to facilitate the installation or retrofit of photovoltaic systems.
Energy efficient lighting for streets, parks, and other public spaces will be required. Private developers will use energy efficient lighting and design.
All single-family structures will be designed and constructed to allow for installation of solar hot water heaters.
Water-Related Measures to Reduce GHGs
All landscape shall comply with CVMC § 20.12. Landscape Water Conservation requirements.
Drought tolerant, low-water usage native vegetation will be planted in public landscaped areas.
Natural turf in residential development will be limited to no more than 30% of the outdoor open space.
High-efficiency irrigation equipment, such as evapotranspiration controllers, soil moisture sensors and drip emitters, will be required for all projects that install separate irrigation water meters.
Indoor residential plumbing products will carrythe EPA's WaterSense certification and be compliant with CalGreen.

7. 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 measure. 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.

Table 8: Summary of Village 3 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.	Section III- Circulation of the SPA provides information on the detailed circulation network. Design features to enhance a pedestrian and multi-modal community include: Village Pathway on Street "V" connecting to local bus stop and Promenade Streets/Trails; Intersection neck-downs; Regional Trails on Main Street and Heritage Road connected to Rapid Bus stop at Heritage and Main Street intersection	Reduces vehicle-miles traveled that in turn reduces the GHG emissions. The Project will also implement the design features which will enhance the pedestrian connection to transit stops located with the SPA Plan area and the planned local and Rapid Bus stops on Main Street and Heritage Road.
Measure 7 (Increased Housing Density near Transit): General increase in land use and zoning designations to reach an average of at least 14-18 dwelling units per net acre within ¼ mile of major transit facilities.	The proposed modifications to the site utilization summary and plan provide opportunity to have residential densities above 18 du/ac within a ¼ mile of the transit stop (R-19). The proposed density for R-19 is 27 du/ac. The other changes, although outside of a ¼ mile radius to the proposed transit provides densities that also exceed 14-18 du/ac with R-6 averaging 14.0 du/ac and R-20 at 10.6 du/ac.	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 II.C. Community Structure* discusses that the highest residential densities are located within and adjacent to the Village core creating opportunities for synergistic land use relationships and access to the planned Rapid Bus service on Main Street and Local Bus service on Heritage Road. Heritage Road, as well as on the internal street network. *Section III.B.2* of the Village 3 Design Plan states vehicle access should be clearly secondary to pedestrian access through street design that incorporates	These features emphasize the street and focus people toward transit stops rather than into parking lots. Visible and easy access to transit will encourage ridership. Orienting buildings toward transit and connecting stops with trails and sidewalks will provide convenience and way-finding features. The Village 3 SPA land use plan site design accommodates a centrally located mixed use core

Action Measure	**Project/Community Design Features**	**Describe how project design will Implement CO_2 Reduction Action Measures**
	narrow travel lanes and minimal driveways and curb cuts. Parking lots should be located behind buildings which front onto pedestrian-oriented streets. The Village 3 SPA transit plan also reflects that there is a centrally-located local bus stop at the village core. Building setbacks for the district regulations further encourage pedestrian/transit oriented environment.	with a transit stop which is within ¼ mile of most residents. The building setback requirements in the PC District Regulations and Village Design Plan policies provide for pedestrian-scaled building frontages to encourage walking. The local bus stop shelter will be all-weather and provide seating.
Measure 9 (Increased Land Use Mix): Provide a greater dispersion/variety of land uses such as siting of neighborhood commercial uses in residential areas and inclusion of housing in commercial and light industrial areas.	The Village Core is intended to be a mixed use environment. Further, the entire Village 3 provides for a range of uses (i.e. residential, open space, commercial/retail, school).	Reduces vehicle-miles traveled that in turn reduces the GHG emissions. The Village Core provides a mix of uses including office, commercial and park uses in a residential area, consistent with Measure 9.
Measure 10 (Reduced Commercial Parking Requirements): Lower parking space requirements; allowance for shared lots and shared parking; allowance for on-street spaces.	The SPA provides for on-street parking.	The project includes on-street parking spaces throughout the Village Core which reduces the need for large, paved parking lots.
Measure 11 (Site Design with Pedestrian/Bicycle Orientation): Placement of buildings and circulation routes to emphasize pedestrian and bicycle access without excluding autos; includes pedestrian benches, bike paths, and bike racks.	*Section II.A – Setting and Design Influences* of the Village 3 Design Plan states that Village 3 has village-serving land uses located within a grid street pattern as a basis for the pedestrian-oriented village design. The grid street pattern provides a variety of circulation routes through the village. The circulation system includes sidewalks separated from the roadway by parkways, tree-lined walkways, pedestrian-scaled lighting and other amenities. The pedestrian circulation system incorporates a network of Promenade Trails, Village Pathways and a Paseo connecting Village 3 to the City's regional trail system along Heritage Road and Main Street. *Section III.A. – Village Core Design Concept* of the Village 3 Design Plan states that there should be balance	Promotes bicycling and walking thereby reducing vehicle-miles traveled that in turn reduces the GHG emissions. The building setback requirements in the PC District Regulations and Village Design Plan policies will provide for pedestrian-scaled building frontages to encourage walking and bicycling. Bike racks will be provided at parks, the elementary school and the mixed use commercial/retail center in the village core. Garages set back from the living area of homes and are discouraged in fronts of homes on multi-family and cluster units.

Action Measure	Project/Community Design Features	Describe how project design will Implement CO_2 Reduction Action Measures
	between parking and vehicle access needs of commercial uses with the pedestrian focus within the village. *Section III.B.1 – Site Planning and Building Orientation* of the Village 3 Design Plan states that broad sidewalks should be located along pedestrian streets to allow groups to comfortably pass each other. Frequent opportunities to sit, relax and observe should be provided with the inclusion of benches, steps, planters and low walls within and adjacent to the pedestrian walk. *Section IX.A* of the Village 3 SPA notes that paths are designed with landscaped parkways between the walkways and streets, landscaping, lighting and furnishings to make the pedestrian experience pleasant and promote safety. The Village Pathway provides an off-street multi-purpose pathway for pedestrian and bicycle travel. Convenient support features, such as bus stops and bicycle racks may be provided within the core area and/or business park.	
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.	Bicycle storage per the P.C. District Regulations. CalGreen requires nonresidential buildings anticipated to generate visitor traffic to provide short-term bicycle racks within 200 feet of the visitors' entrance.	Promotes bicycling that can reduce vehicle-miles traveled that in turn reduces the GHG emissions. The P.C. District Regulations include requirements for bicycle storage and shower/changing facilities in businesses such that future employees may bike to work.
Measure 13 (Bike Lanes, paths, and Routes): Continued implementation of the City's bicycle master plan. Emphasis is to be given to separate bike paths as opposed to striping bike lanes on streets.	*Section III*-Circulation of the SPA details the circulation system in the Village. Village Pathway on Street "V", the Promenade Streets/Trails; Regional Trails on Main Street and Heritage Road all provide bike paths. *Exhibit 26 – Bicycle Circulation Plan* in the SPA reflects the Class II bike lanes on Heritage Road and Main Street as well as Class III bike routes within the Village. Village 3 also includes the Greenbelt/OVRP Trails.	Promotes bicycling that can reduce vehicle-miles traveled that in turn reduces the GHG emissions. The Village 3 SPA Circulation and Trail Plans provide for off-street bike travel on the Village Pathway, Regional Trails and within the Chula Vista Greenbelt Trail. Bike share travel lanes on Promenade Streets.

Action Measure	**Project/Community Design Features**	**Describe how project design will Implement CO_2 Reduction Action Measures**
Measure 14 (Energy Efficient Landscaping): Installation of shade trees for new single-family homes as part of an overall City-wide tree planting effort to reduce ambient temperatures, smog formation, energy use, and CO2.	*Section III.B.3 – Landscaping Design Guidelines* of the Village 3 Design Plan states Street tree planting shall comply with the City of Chula Vista Shade Tree Policy Number 576-19. The objective is to maximize shade cover to the greatest extent possible. The Village 3 street sections provide for landscaped parkways with street trees. The Water Conservation Plan identifies appropriate tree which are water efficient.	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 3.	Reduces energy consumption that reduces GHG emissions.
Measure 18 (Energy Efficient Building Recognition Program): Reducing CO2 emissions by applying building standards that exceed current Title 24 Energy Code requirements.	Project will meet code.	The updated T24 code requirements are continually more stringent to reduce energy consumption and emissions. Therefore, meeting code will inherently work towards energy efficiency and GHG reductions.
Measure 20 (Increased Employment Density Near Transit): General increase in land-use and zoning designations to focus employment-generating land-uses within ¼ mile of major transit stops throughout the City.	Mixed-use Commercial/Retail and Office adjacent to local bus stop.	Reduces vehicle-miles traveled that in turn reduces the GHG emissions The Village 3 SPA land use plan locates a commercial/retail and office center in the Village Core near the planned future local bus stop.

8. Credit Towards Increased Minimum Energy Efficiency Standards

Village 3 and the applicable portion of Village 4 will comply with CVMC Sections 15.12 and15.26 which both defer to California Code, Title 24. Title 24, Part 6 refers to the Energy Code and Part 11 refers to Green Building Standards. These code sections work toward energy efficiency in the building envelope, lighting and appliances, and landscape features.

9. Compliance Monitoring

This section includes a written description and a checklist (Table 12) summarizing the project design features and mitigation measures that have been identified to reduce Village 3 effects on air quality and improve energy efficiency.

Table 9: Village 3 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				
Mixed Use Village Core	Plan Review	Tentative Map	City of Chula Vista	
Elementary School	Plan Review	Tentative Map	City of Chula Vista	
Neighborhood Park	Plan Review	Tentative Map	City of Chula Vista	
Commercial/ Retail Center	Plan Review	Tentative Map	City of Chula Vista	
Office (O-1)	Plan Review	Tentative Map	City of Chula Vista	
Local Bus Stop	Transit Review	Per SANDAG	SANDAG/City	
Rapid Bus Stop	Transit Review	Per SANDAG	SANDAG/City	
CPF-1 & 2	Plan Review	Tentative Map	City of Chula Vista	
Private Open Spaces	Plan Review	Tentative Map	City of Chula Vista	
Village Pathway – Avenida Escaya and Paseo Cultura	Plan Review	Tentative Map	City of Chula Vista	
Promenade Trails	Plan Review	Tentative Map	City of Chula Vista	
Chula Vista Regional Trail	Plan Review	Tentative Map	City of Chula Vista	
Chula Vista Greenbelt Trail	Plan Review	Tentative Map	City of Chula Vista	
Small-Lot Single Family Homes	Plan Review	Tentative Map	City of Chula Vista	

	Method of Verification[1]	**Timing of Verification**	**Responsible Party[2]**	**Project Consistency & Compliance Documentation[3]**
Alley-loaded Single Family Homes	Plan Review	Tentative Map	City of Chula Vista	
Narrower Streets	Plan Review	Tentative Map	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	
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 Town Center	Plan Check	Tentative Tract Final Map, Improvement Plans	City of Chula Vista	
Building compliance with prevailing code	Plan Check	Building Permit/ Title 24 Energy Report	City of Chula Vista	
Installation of energy efficient appliances as code requires	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	

	Method of Verification[1]	Timing of Verification	Responsible Party[2]	Project Consistency & Compliance Documentation[3]
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, and 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.