

OTAY RANCH VILLAGE 8 EAST
Air Quality Improvement Plan

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1. Executive Summary

A. Intent of the Air Quality Improvement Plan (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 gas (GHG) direct or indirect emissions. This AQIP demonstrates how Village 8 East has been designed consistent with the City of Chula Vista's Energy and Water Conservation regulations (Chula Vista Municipal Code §20.04) and Landscape Water Conservation regulations (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 carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (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 8 East Sectional Planning Area (SPA) Plan Amendment ("proposed project" being evaluated herein) are addressed.

B. Community Site Design Goals

Village 8 East is part of the Otay Ranch General Development Plan (GDP). The GDP is a "general plan level" document that was jointly prepared and adopted by the County of San Diego and the City of Chula Vista. Although produced similar to a General Plan, the GDP is not part of the Chula Vista General Plan but is consistent with it.

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 are served by transit. 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 8 East complies with the "village" concept and design goals. It is composed of 570 acres and is located south of the extension of Main Street, north of the Otay River Valley, east of Village 8 West and west of State Route (SR) 125.

The proposed Village 8 East Land Use Plan would include a Village Core mixed-use area that

would accommodate multi-family residential uses, retail/commercial uses and an elementary school. The Village Core also includes a centrally located 7.3-acre neighborhood park. A future multi-modal bridge is planned in the Village Core linking Village 8 East and future Village 9. The multi-use bridge is planned to accommodate Neighborhood Electric Vehicles (NEV), bicycle and pedestrian uses.

The approved (2014) land use plan for Village Eight East would allow for the construction of a total of 3,276 residential units, including 943 detached homes, 1,893 attached homes and 440 multi-family units, 20,000 square feet of mixed-use commercial; 10.3 acres for an elementary school; a 7.3 acre neighborhood park, 51.5-acre Otay Ranch Community Park South, 4.2 acres of Community-Purpose Facilities (CPF); and 33.8 acres of open space (Figure 1). Access to the village is provided via the extension of Main Street and Otay Valley Road with emergency and pedestrian access to the community park provided along a utility corridor in the southeast portion of Village 8 East.

The Proposed Project includes 3,276 residential units, 20,000 square feet of commercial uses, a 7.3 acre neighborhood park, an 11.3-acre elementary school site, 253.6 acres of Preserve Open Space, 16.4¹ acres of manufactured slopes/basins, and the 22.6-acre active recreation site (AR-11) located east of SR-125. The 43.3-acre Otay Ranch Community Park South is located south of Village 8 East. An existing water quality basin that serves Village 8 West is located in the western portion of the community park and the proposed project includes an additional detention basin in the eastern portion of the community park to serve Village 8 East.

The amendment is seeking approval to modify the Village 8 East land use plan to reflect current market conditions and housing needs and to ensure the community relates more closely to the adjacent Village 8 West community and future Village 9 planned east of SR-125. The replanning effort also addresses the redesign of the SR-125 interchanges at Main Street and La Media Parkway.

C. Planning Features

The Village 8 East land use and circulation pattern is 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 to enhance transit use, promote walkability, and create vibrant commercial and public spaces that promote social interaction and a strong community identity. The variety of proposed residential, educational, commercial, and community uses are intended to provide a mixed-use environment that serves the needs of residents and employees.

¹ A portion of the Edge Trail and associated overlook features (approximately 1.76 acres) are included within the 8.2-acre OS-7 parcel. The Edge Trail area shall be secured with a public access easement and the 1.76 acres shall satisfy a portion of the Village 8 East park obligation. The 1.76-acre Edge Trail area is not counted toward meeting the Village 8 East open space requirement.

Village Core

Village 8 East concentrates multi-family housing, mixed-use commercial, community purpose, school and neighborhood park uses in and around a centrally located village core. A network of pedestrian and bicycle circulation routes planned throughout the village connect to the village core.

Housing Intensity

Higher density residential uses are located within Village 8 East creating opportunities for synergistic land use relationships and access to the planned public transit. The residential density being proposed in Village 8 East will increase ridership opportunities for such transit use. A transit stop may be provided along Main Street to serve village residents and visitors, enabling access to the regional transportation network.

Street Widths, Pavement and Street Trees

Otay Ranch street sections are narrower than typical standards which reduces asphalt pavement and the “urban heat-island effect” by limiting the amount of reflective surfaces. Street trees provide shade which further reduces heat-gain.

Public Transportation

Local bus service is planned along Main Street, adjacent to Village 8 East. Transit facilities are intended to reduce the public’s dependence upon the automobile to help alleviate traffic congestion. The provision of transit facilities is also an action measure of the City’s CO₂ Reduction Plan. Currently, two percent of trips are conducted on public transit in the region. An increase in transit use can be fostered through the location of higher-density housing near transit, site design with transit orientation and enhanced pedestrian access to transit. The land use and circulation plan for the SPA Plan Area incorporates transit-oriented design.

Alternative Travel Modes

In Village 8 East, the Village Pathway and Promenade Trails allow for bicycle and pedestrian use throughout the Village and connect to the City’s Regional Trail network and adjacent communities. In addition, a neighborhood electric vehicle (NEV) network is planned within Village 8 East to further encourage alternative travel modes.

Building and Design Features

Village 8 East 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 regional trail network and adjacent communities.

- Promote synergistic uses to balance activities, services and facilities with employment, housing, transit, and commercial opportunities.

The last cycle of the 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, construction within Village 8 East will be subject to the 2022 California Building Code (effective as of January 1, 2023) or future cycles effective at the time when project implementation occurs.

The 2022 Building Code has an even greater emphasis on decarbonization, requiring capabilities for electric appliances as well as provisions for photovoltaic systems, battery storage, and electric vehicles. Therefore, future construction within Village 8 East will by design, continue to work towards consistency with Chula Vista's Energy and Water Conservation regulations (CVMC §20.04) and Landscape Water Conservation regulations (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, the Leadership in Energy and Environmental Design - Neighborhood Development Version 4.0 (LEED-ND v4.0) checklist is being utilized as an analytical tool for sustainable design. The 2014 approved AQIP prepared for Village 8 East did include a CO₂ Index Model for the proposed project which is provided for reference. Please refer to Table 1: Chula Vista CO₂ Index Model Results – Village 8 East.

A LEED-ND Equivalency Analysis has been prepared to study various design features within Village 8 East for the Village 8 East SPA Amendment. Please refer to Table 10, LEED Neighborhood Development Plan Village 8 East Equivalency Analysis.

Table 1: Chula Vista CO₂ Index Model Results – Village 8 East

Element	Indicator	Units	Threshold Score	SPA Plan Score	Compliance Status (Y/N)
Land Use	Use Mix	0-1 scale	0.1	0.14	Yes
	Use Balance	0-1 scale	0.6	0.71	Yes
	Neighborhood Completeness	% of key uses	60	60	Yes
Housing	School Proximity to Housing	Average walking feet to closest	3,200	2,328	Yes
	Transit Proximity to Housing	Average walking feet to closest stop	2,900	1,096	Yes
Employment	Transit Proximity to Employment	Average walking feet to closest stop	2,600	673	Yes
Recreation	Park Proximity to Housing	Average walking feet to closest park	1,700	1,340	Yes
Travel	Internal Street Connectivity	cul-de-sac	0.7	0.79	Yes
	Intersection Density	Intersections/Square Mile	210	196	No*
	Pedestrian Network Coverage	% of streets w/sidewalks	81	86.0	Yes
	Residential Multi-Modal Access	% Dwelling Units w/3+ modes w/in 1/8mi	40	91.7	Yes
	Daily Auto Driving (3Ds Methodology)	Vehicle Miles Traveled/capita/day	22	21.72	Yes
	Daily Auto Driving Inputs				
	Density		9,692	22,609	
	Diversity		.18	0.06	
	Design		3.57	3.96	
	Street Network Density		17.57	22.50	
Pedestrian Network Coverage		96.00	86.00		
Street Route Directness		1.73	1.45		
Climate Change	Residential Building Energy Use	MMBtu/yr/capita	29	23.9	Yes
	Non-Residential Building Energy Use	1M British Thermal Units -/year /emp	19	9.2	Yes
	Residential Building CO ₂ Emissions	Pounds /capita/yr	4,800	3,932	Yes
	Non-Residential Building CO ₂ Emissions	lbs/emp/yr	2,100	1,506	Yes

*Anticipated that multi-family sites will provide internal circulation which will achieve the Threshold Score.

2. Introduction

A. Need for a Qualitative Air Quality Plan

Preparation of a project specific AQIP is required to accompany SPA Plans, pursuant to CVMC 19.92.030. The AQIP addresses compliance with the air quality standards and policies of the San Diego County Air Pollution Control District (“APCD”). The CVMC 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 CO₂ Reduction Plan as well as reflect the City’s Green Building Standards (CVMC §15.12) and Energy Code (CVMC §15.26) for the development of Village 8 East. A detailed discussion on project compliance with the City’s standards for sustainable development is provided in the following sections.

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 8 East 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 8 East has been designed consistent with the City’s requirements including the City’s CO₂ Reduction Plan, and Green Building and Energy Standards.

The goal and objectives provided in CVMC Chapter 19.92.030) include the following:

Goal: To maintain and improve the ambient air quality enjoyed by the residents of Chula Vista.

Objectives.

- In an effort to address the impacts of transportation and building-related energy use at both the regional and local level, the City shall endeavor to implement applicable air quality improvement strategies and programs that meet or exceed those established through the current adopted Regional Air Quality Strategy (“RAQS”), California Global Warming Solutions Act of 2005 (AB32), and the Chula Vista Climate Protection Program
- In an effort to maintain and improve ambient air quality, the City shall endeavor to locally mitigate any new stationary source development project’s criteria air pollutant emissions that exceed local air quality standards.

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 (NO_x)
- Ozone (O₃),
- Respirable 10- and 2.5-micron particulate matter (PM₁₀ and PM_{2.5}),
- Volatile Organic Compounds (VOC),
- Reactive Organic Gasses (ROG),
- Hydrogen Sulfide (H₂S),
- Sulfates,
- Lead (Pb),
- Vinyl Chloride, 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 (AQCA). 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 project site lies within the jurisdiction of the South Coast Air Quality Management District (SDAQMD); applicable standards are shown in Table 2: Thresholds of Significance for Air Quality Impacts.

Table 2: 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
NO _x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM ₁₀	150 lbs/day	150 lbs/day
PM _{2.5}	55 lbs/day	55 lbs/day
SO _x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

^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 Matrix 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. The 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 PM_{2.5}.

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

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 is expected to be adopted in 2023. 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 4: San Diego County Attainment Status.

Table 4: 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 Assembly Bill (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 2019 and went into effect in January 1, 2020. The newest code update will go into effect on January 1, 2023, 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. It is expected that Village 8 East will be required to comply with the 2022 code cycle which goes into effect on January 1, 2023. Part 11 of the California Building Standards Code in Title 24 of the California Code of Regulations, also known as the CalGreen Building Standards Code, is the other relevant code section that focuses on energy efficiency, water conservation, and GHG reduction.

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 (less than 20 units) and single-family homes with attached private garages, the 2022 CalGreen Code requires the garages to be EV-capable with the installation of raceways to accommodate a dedicated 208/240-volt branch circuit. The 2022 CalGreen Code is more stringent than the 2019 Code as it regards multi-family developments with more than 20 units not using private garages. For this typology, a variety of EV infrastructure from EV Ready to fully installed chargers are mandated.

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 (EO) 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 CO₂ equivalent (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 2021) 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 2022 effective January 1, 2023. The 2022 Building Energy Efficiency Standards progress from the 2019 Energy Code in that there is a greater push toward electrification. The 2019 Energy Code worked toward greater efficiency whereas the 2022 Code focuses on where the energy is sourced from. The 2022 Energy Code is likely to be applicable at the time of permit review.

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 8 East SPA Amendment Project Description

HomeFed Otay Land II, LLC (Project Applicant) is proposing land use changes to the previously approved project resulting in:

- 3,276 multi-family units (from 943 single family and 2,333 multi-family units)
- 20,000 SF of commercial/retail uses in a mixed use setting (no change)
- 7.3 acre neighborhood park (same as before)
- 11.3-acre elementary school site (from a 10.8 acre school site)
- 253.6 acres of Preserve Open Space (OSP) (no change)
- 22.6 acres of Active Recreation (AR) (no change)

Figure 1: Proposed Site Utilization Plan, and Table 5: Village 8 East Proposed Land Use Summary, implement the land uses contemplated by the Otay Ranch for Village 8 East. The site utilization plan and site utilization summary work together and assign a general utilization to each neighborhood within the SPA.

The Proposed Village 8 East Land Use Plan would include a Village Core area that would accommodate a mix of uses including multi-family residential and retail/commercial uses along with an elementary school site and a centrally located 7.3-acre neighborhood park. A future multi-modal bridge, planned to accommodate Neighborhood Electric Vehicles (NEV), bicycles and pedestrians is also planned in the Village Core linking Village 8 East and future Village 9.

The project applicant proposes to amend the Village 8 East land use plan to reflect current market conditions and housing needs, to ensure the community relates more closely to the adjacent Village 8 West community and future Village 9 and University Innovation District planned east of SR-125 and accommodates the SR-125 couplet interchange design between Main Street and Otay Valley Road.

Figure 1: Proposed Site Utilization Plan

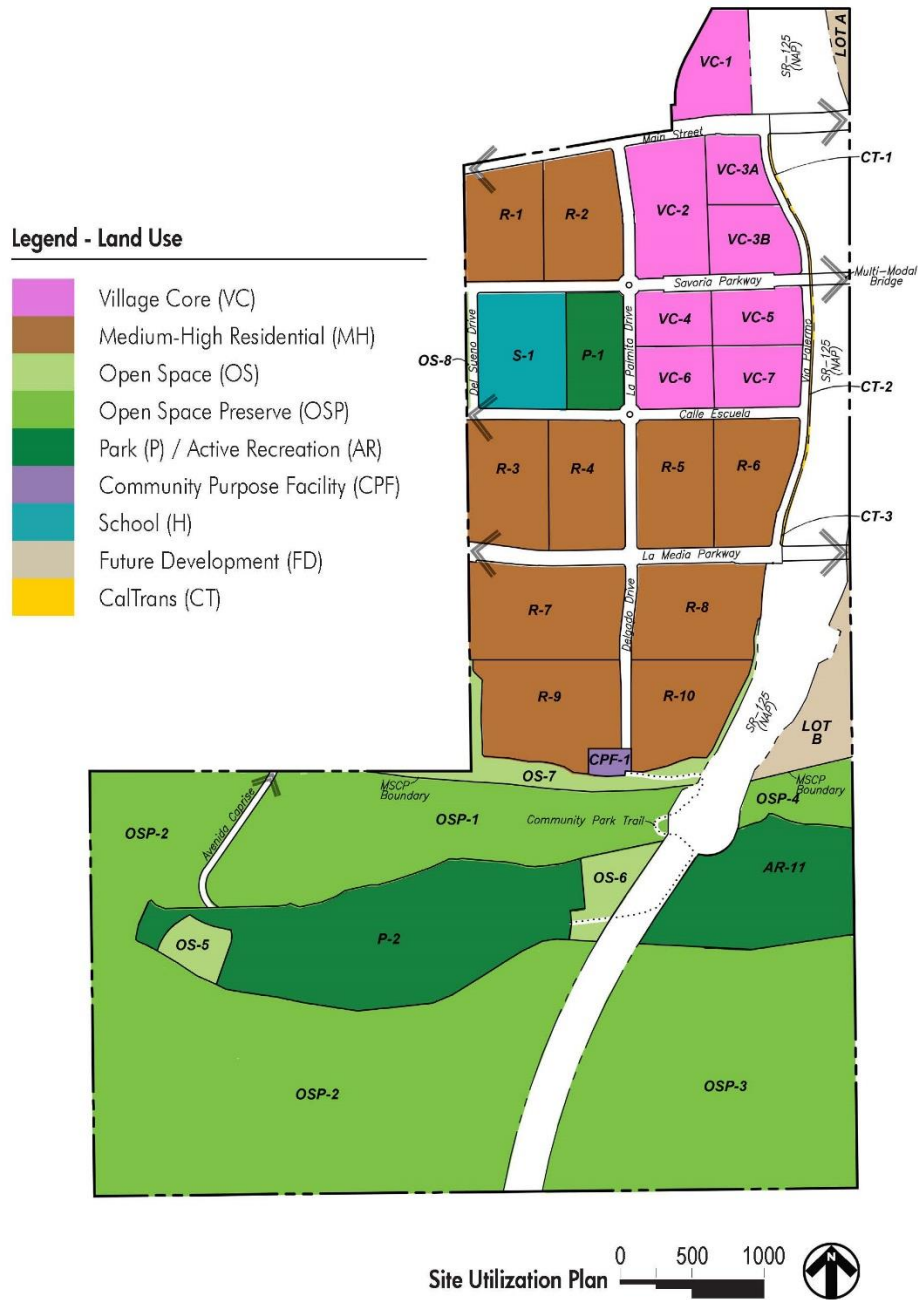


Table 5: Village 8 East Proposed Land Use Summary

Parcel	Permitted Density Range	Estimated Units ¹	Gross Acres ²	Estimated Density ³
Medium High Multi-Family Residential				
R-1	11-18 du/ac	154	9.9	15.6
R-2	11-18 du/ac	163	10.7	15.2
R-3	11-18 du/ac	162	11.4	14.2
R-4	11-18 du/ac	147	10.9	13.5
R-5	11-18 du/ac	155	11.0	14.1
R-6	11-18 du/ac	143	10.3	13.9
R-7	11-18 du/ac	226	15.8	14.3
R-8	11-18 du/ac	176	14.0	12.6
R-9	11-18 du/ac	196	15.4	12.7
R-10	11-18 du/ac	142	11.5	12.3
Total MH		1,664	120.9	13.8
Village Core⁴				
VC-1	18-45 du/ac.	275	7.6	36.2
VC-2	18-45 du/ac.	430	11.3	38.1
VC-3A	18-45 du/ac.	161	5.5	29.3
VC-3B ⁵	18-45 du/ac.	0	5.6	0.0
VC-4	18-45 du/ac.	192	4.5	42.7
VC-5 ⁵	18-45 du/ac.	0	5.7	0.0
VC-6	18-45 du/ac.	142	5.3	26.8
VC-7	18-45 du/ac.	148	6.0	24.7
Total VC		1,348	51.5	26.2
Subtotal Residential				
		3,012	172.4	
Other				
Community Purpose Facility⁶				
CPF-1			1.2	
Subtotal CPF			1.2	
Parks				
P-1 ⁷			7.3	
P-2 ¹¹			43.3	
AR-11			22.6	
Total Parks			73.2	
School				
S-1 ^{7 8}		264	11.3	

Parcel	Permitted Density Range	Estimated Units ¹	Gross Acres ²	Estimated Density ³
Open Space				
MSCP Preserve OS (Lots 1-4)			253.6	
Manufactured/Basin OS (Lots 5-8) ⁹			16.4	
Total Open Space			270.0	
Circulation				
Internal			22.5	
External			9.2	
Total Circulation			31.7	
CALTRANS LOTS (to be dedicated)				
CT-1			1.7	
CT-2			0.1	
CT-3			1.9	
Total CALTRANS Lots			3.7	
Future Development				
Lot A			1.0	
Lot B			8.4	
Total Future Development			9.4	
Subtotal Other				
			400.5	
OVERALL SPA TOTAL¹⁰		3,276	572.9	

¹ Estimated Units are provided for planning purposes only, do not represent the final unit allocation for each parcel and shall not be used to limit or restrict the final units allocated to any parcel.; The final unit allocation must remain consistent with the permitted density range applicable to the parcel. The final unit allocation shall be determined during Design Review and shall be documented in the Unit Tracking Table (Village 8 East SPA Plan, Attachment 1). Revisions to the Site Utilization Table shall not be required based on changes to the Estimated Units presented herein.

² Final acreage information to be determined during final engineering. Acreage may vary due to rounding. Residential and Village Core gross acreage includes approximately 15.3 of perimeter open space areas. pen space easements to be recorded over perimeter open space slopes to be maintained by the Master HOA or Sub-Association, as determined during final design.

³ Estimated Density calculated based on gross parcel acreage. Final density to be determined during Design Review.

⁴ 20,000 SF of commercial uses are authorized within Village 8 East. Commercial SF may be developed within a single parcel designated VC or distributed among any parcel designated VC (VC-1 through VC-7). The final distribution of commercial SF to be determined during Design Review. The “Permitted Density Range” is not applicable to VC parcels with no residential units.

⁵ VC-3B and VC-5 are anticipated to be developed with non-residential uses only, consistent with the Village Core zoning district. The “Permitted Density Range” is not applicable to VC parcels with no residential units.

⁶ Per the Land Offer Agreement (7/8/2014), the Village 8 East SPA Plan shall designate 4.0 acres of CPF land. The Applicant is proposing to meet a portion of the Village 8 East CPF obligation by designating the 1.2-acre CPF-1 site

as a private recreation facility. The remaining 2.8 acre CPF obligation shall be addressed in a separate agreement between the City of Chula Vista and the Applicant.

⁷ Both the Village 8 East SPA Plan and Tentative Map include the "Proposed" and "Alternative" configuration and acreage for the S-1 School Site and P-1 Neighborhood Park. Either the Proposed or Alternative may be implemented without the need for an amendment to the SPA Plan or TM. If the proposed configuration is implemented, the S-1 site would be 10.0 acre (net) and the P-1 park site would be 6.5 acre (net); however, if the alternative configuration is implemented, the S-1 site would be 12.0 acres (net) and the P-1 park site would be 4.6 acres (net). The final neighborhood park acreage shall be addressed in the future Village 8 East Parks Construction Agreement.

⁸ The S-1 school site has an underlying residential land use designation of High Residential. If the site is not developed as a school site, then it shall be developed as residential; however, if the site is developed as an elementary school, then the 264 units may be reallocated to another Village 8 East parcel or transferred to another village, as permitted in the Village 8 East PC District Regulations, Chapter 10, Implementation.

⁹ A portion of the Edge Trail and associated overlook features (approximately 1.76 acres) are included within the 8.2-acre OS-7 parcel. The Edge Trail area shall be secured with a public access easement and the 1.76 acres shall satisfy a portion of the Village 8 East park obligation. The 1.76-acre Edge Trail area is not counted toward meeting the Village 8 East open space requirement.

¹⁰ Village 8 East acreage adjusted from approved 2014 development area to reflect changes in SR-125 ROW and to facilitate the future SR-125 ROW Decertification process.

¹¹ The P-2 Community Park / OS-6 Alternative would be implemented only upon City approval of the Alternative Compliance Program ("ACP") Permit and Rough Grading Storm Water Quality Management Plan ("SWQMP") (See TM Sheet 6 for additional details). This would increase the P-2 Community Park parcel to 47.4 acres (gross) and 39.0 acres (net) and correspondingly decrease the OS-6 parcel to 4.8 acres (gross) and 0.7 acres (gross).

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 PM_{2.5}) emissions would primarily result from grading and site preparation activities. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles.

As stated in the Otay Ranch Village 8 East Project – Air Quality and Greenhouse Gas Update Memo (Dudek, September 2023), "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 EIR (City of Chula Vista 2014) remain applicable to this project, and no additional mitigation measures would be required."

Emissions from the construction phase of the prior project were originally estimated through the use of emission factors from the URBEMIS 2007, Version 9.2.4, land use and air emissions model (Jones & Stokes 2007). However, because the emissions, impacts and mitigation measures of the originally approved study have been determined to still be applicable, information within this discussion may contain information pertaining to other parts of the University Villages project.

Construction of the University Villages project was proposed to begin with Village 3 in 2014². Project construction would end with build out of Village 10, which was anticipated to occur in 2030. This timeline is still relevant as it pertains to the Village 8 East SPA Amendment. A detailed description of construction subphases (mass grading, fine grading, trenching, paving, building construction, and architectural coatings), as well as other assumptions made for the purposes of modeling, is provided in the University Villages Project Final Environmental Impact Report (2014). Total construction was and still is expected to take approximately 15 years. For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, 5 days per week (22 days per month), during project construction. URBEMIS model assumptions for construction equipment were used in calculating construction emissions as equipment and machinery mix would be typical of residential development. Additional project-specific assumptions regarding vehicle trips, construction schedule, soil import/export, and architectural coatings are included in Appendix A. The equipment mix is meant to represent a reasonably conservative estimate of construction activity.

The proposed project is subject to SDAPCD Rule 55 – Fugitive Dust Control. This requires that the project take steps to restrict visible emissions of fugitive dust beyond the property line. Compliance with Rule 55 would limit any fugitive dust (PM₁₀ and PM_{2.5}) that may be generated during grading and construction activities. To account for dust control measures in the calculations, it was assumed that the active sites would be watered at least two times daily, resulting in an approximately 55% reduction of particulate matter.

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

Table 6: Estimated Maximum Daily Construction Emissions shows the estimated maximum daily construction emissions associated with the construction phase of the proposed project before and after compliance with Rule 55 and Rule 67. Because the project phasing overlaps with other villages, Table 6 includes emissions for Village Three and a portion of Village Four, Village Eight East and Village Ten.

Table 6: Estimated Maximum Daily Construction Emissions (pounds/day)

Villages Three /Portion of Four, Eight East and Ten

	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
<i>Proposed Project Emissions (not compliant with SDAPCD Rules 55 and 67Unmitigated)</i>						
2014	14.99	94.29	108.02	0.10	603.75	128.74

² The original construction schedule beginning in May 2014 is analyzed for the Proposed Project; however, actual construction started at a later date. The construction scenario and schedule analyzed as part of the Proposed Project analysis is considered conservative because over time, emissions for both the construction and operational scenario would decrease due to more stringent air quality standards implemented over time, vehicle fleet turnover to more efficient engines, fuel mix, etc. As the duration of construction would not change (i.e. construction would occur over a 16-year period regardless of start date), the scenario analyzed as part of this analysis is considered conservative for the purposes of quantitatively analyzing air quality impacts.

	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2015	64.44	86.18	107.19	0.11	305.47	67.40
2016	103.46	155.79	202.89	0.20	908.02	195.04
2017	101.83	141.79	194.88	0.20	608.89	132.94
2018	91.99	80.71	145.21	0.19	304.55	67.14
2019	37.55	58.04	89.20	0.10	303.62	65.62
2020	36.83	52.86	86.18	0.10	303.34	65.46
2021	36.46	51.57	76.23	0.10	303.31	65.44
2022	36.46	51.57	76.23	0.10	303.31	65.44
2023	62.99	94.48	130.40	0.16	905.29	192.55
2024	58.65	62.29	104.74	0.16	304.29	66.17
2025	28.75	51.33	68.63	0.07	303.12	65.33
2026	28.59	50.83	64.86	0.07	303.11	65.33
2027	28.59	50.83	64.86	0.07	303.11	65.33
2028	28.59	50.83	64.86	0.07	303.11	65.33
2029	21.88	12.18	25.06	0.06	0.97	0.72
<i>Maximum Daily Emissions (Unmitigated)</i>	103.46	155.79	202.89	0.20	908.02	195.04
Proposed Project Emissions (compliant with SDAPCD Rules 55 and 67)						
2014	14.99	94.29	108.02	0.10	273.75	59.82
2015	47.65	86.18	107.19	0.11	140.47	32.94
2016	77.50	155.79	202.89	0.20	413.02	91.66
2017	75.87	141.79	194.88	0.20	278.89	64.02
2018	66.03	80.71	145.21	0.19	140.44	32.69
2019	28.38	58.04	89.20	0.10	138.62	31.26
2020	27.66	52.86	86.18	0.10	138.34	31.01
2021	27.29	51.57	76.23	0.10	138.31	30.98
2022	27.29	51.57	76.23	0.10	138.31	30.98
2023	47.22	94.48	130.40	0.16	410.29	89.17
2024	42.88	62.29	104.74	0.16	139.29	31.71
2025	22.15	51.33	68.63	0.07	138.12	30.88
2026	21.99	50.83	64.86	0.07	138.11	30.87
2027	21.99	50.83	64.86	0.07	138.11	30.87
2028	21.99	50.83	64.86	0.07	138.11	30.87
2029	15.28	12.18	25.06	0.06	0.97	0.72
<i>Maximum Daily Emissions (Mitigated)</i>	77.50	155.79	202.89	0.20	413.02	91.66
<i>City of Chula Vista Threshold</i>	75	100	550	150	150	55
Threshold Exceeded?	Yes	Yes	No	No	Yes	Yes

Source: URBEMIS 2007 Version 9.2.4. See Appendix A of 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.

¹ Construction emissions that would be generated under the Village Eight East Alternative Development Scenario would be essentially the same as construction equipment fleet, daily equipment and construction crew operations, and daily construction trips to and from the site would be

the same as those analyzed under the proposed project. A pounds/per day daily threshold is the only threshold numerically considered for criteria pollutants; therefore, the quantitative analysis under both the proposed project and alternative scenario would be essentially the same.

- ² "Unmitigated" PM₁₀ and PM_{2.5} emissions as shown do not reflect compliance with SDAPCD Rule 55, which restricts visible fugitive dust emissions beyond the property line. Similarly, "Unmitigated" VOC emissions as shown do not reflect compliance with SDAPCD Rule 67 which restricts the VOC content in architectural coatings. "Mitigated" emissions as shown, account for compliance with these rules.

As shown, daily construction emissions would not exceed the City's significance thresholds for CO and SO_x. However, the VOC, NO_x, PM₁₀ and PM_{2.5} emissions associated with project construction would exceed the City of Chula Vista's emission thresholds. Mitigation Measures AQ-1 – AQ-2 (below) would reduce construction-related NO_x emissions. Note that mitigation available for the reduction of NO_x emissions (as described in mitigation measure AQ-1) is not quantifiable; therefore, emission reductions for NO_x are not shown in Table 6.

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

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

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

- Water, or utilize another acceptable SDAPCD dust control agent on, the grading areas at least twice daily to minimize fugitive dust;
- Stabilize grading areas as quickly as possible to minimize fugitive dust;
- Apply chemical stabilizer or pave the last 100 feet of internal travel path within the construction site prior to public road entry;
- Install wheel washers adjacent to a paved apron prior to vehicle entry on public roads;
- Remove any visible track-out into traveled public streets within 30 minutes of occurrence;
- Wet wash the construction access point at the end of the workday if any vehicle travel on unpaved surfaces has occurred;
- Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads;
- Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling;
- Suspend all soil disturbance and travel on unpaved surfaces if winds exceed 25 miles per hour (mph);
- Cover/water on-site stockpiles of excavated material; and
- Enforce a 20 mph speed limit on unpaved surfaces.
- Pave permanent roads as quickly as possible to minimize dust;
- During construction, site grading activities within 500 feet of a school in operation shall be discontinued or all exposed surfaces shall be discontinued or all exposed surfaces shall be watered to minimize dust transport off site to the maximum degree feasible, when the wind velocity is greater than 15mph in the direction of the school;
- During blasting, utilize control measures to minimize fugitive dust. Control measures may include, but are not limited to, blast enclosures, vacuum blasters, drapes, water curtains or wet blasting.

MM AQ-3: Prior to approval of the building permit for any uses that are regulated for TACs by the SDAPCD, the project applicant shall demonstrate to the satisfaction of the Development Services Director (or their designee) that the use complies with established criteria (such as those

established by SDAPCD Rule 1200 and CARB). Also, gas stations shall not be located within 50 feet of a sensitive receptor, in accordance with CARB's siting recommendations.

- Per the EIR, impacts specific to TACs, including diesel particulate matter generated from traffic volumes on SR-125, would be less than significant. With respect to the development of on-site land uses, impacts arising from the emission of TACs would be potentially significant if the site is developed to accommodate any light industrial uses, gas stations, or dry cleaning facilities in close proximity to sensitive receptors. Neither the state 1-hour standard nor the 8-hour standard would be equaled or exceeded at any of the intersections studied; potential CO hotspot impacts would be less than significant." "Potentially significant impacts arising from the siting of land uses that emit TACs would be reduced to LTS with implementation of MM AQ-3.

Operational Emissions

Following the completion of construction activities, the proposed project would generate VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5} emissions from 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.

In September 2023, Chen Ryan modified their traffic analysis to address the reduction in commercial square footage from 40,000 to 20,000 square feet. The findings show that the overall trips are 3,977 less than the 2014 Traffic Analysis. Therefore, the proposed land uses would generate less trips than the previously approved land uses in Village 8 East. 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 previous EIR (the Otay Ranch Village and the University Villages Project Comprehensive SPA Plan Amendment Final Environmental Impact Report 2014).

Although it has been determined that the 2023 proposed project would generate less trips, the proposed project would still impact air quality through the vehicular traffic generated by project residents. According to the project's Traffic Impact Analysis (Chen Ryan 2014), total project-generated daily traffic is estimated to be 77,663 trips per day at full buildout (2030) which includes Village 3 and portion of Village Four, Village Eight East and Village Ten. The URBEMIS 2007 model was utilized to estimate daily emissions from proposed vehicular sources. URBEMIS 2007 default data, including temperature, trip characteristics, variable start information, emissions factors, and trip distances, were conservatively used for the model inputs. Project-related traffic was assumed to be comprised of a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2030 (full buildout) were used to estimate emissions.

In addition to estimating mobile source emissions, the URBEMIS 2007 model was also used to estimate emissions from the project area stationary sources, which include natural gas appliances, hearths, landscaping (which would not produce winter emissions), consumer products, and architectural coatings. All residential units would be constructed with natural gas fireplaces.

The present estimation of proposed operational emissions is based upon typical residential, retail, and industrial uses, and the analysis is considered a reliable estimate of the project's likely

emissions. Table 7, Estimated Daily Maximum Operational Emissions, presents the maximum daily emissions associated with the operation of the proposed project after all phases of construction have been completed. Because the project phasing overlaps with other villages, Table 7 includes emissions for Village Three North and portion of Village Four, Village Eight East and Village Ten. The values shown are the maximum summer and winter daily emissions results from URBEMIS 2007. Complete details of the emissions calculations are provided in Appendix A of the Air Quality and Global Climate Change Technical Report for the Otay Ranch University Village Project.

As shown, daily operational emissions would not exceed the City's significance thresholds for SO_x. However, the VOC, NO_x, CO, , PM₁₀, and PM_{2.5} emissions associated with operation of the project would exceed the City of Chula Vista's significance thresholds.

**Table 7: Estimated Daily Maximum Operational Emissions – 2030 (pounds/day)
Villages Three /Portion of Four, Eight East and Ten**

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

Source: URBEMIS 2007 Version 9.2.4. See Appendix A for complete results.

Note: Construction emissions shown include emissions from construction of all Villages analyzed under the proposed project, including Village Three and a Portion of Village Four, Village Eight East, and Village Ten. "Summer" emissions are representative of the conditions that may occur during the ozone season (May 1 to October 31) and "Winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30)

Project design features (refer to Section 6) would help to reduce operational emissions; however, significant reductions in VOC, NO_x, CO, PM₁₀, and PM_{2.5} emissions would be required to reduce emissions of these pollutants to less than significant, and feasible mitigation measures are not available to achieve these reductions. Therefore, even with incorporation of these design features, criteria pollutant emissions for project operations are anticipated to remain above the thresholds for VOC, NO_x, CO, PM₁₀, and PM_{2.5}.

Construction GHG Emissions

GHG emissions would be associated with the construction phase of the proposed project through use of construction equipment and vehicle trips. Emissions of CO₂ were originally estimated using the URBEMIS 2007, Version 9.2.4, land use and air emissions model (Jones & Stokes 2007). The model results were adjusted to estimate CH₄ and N₂O emissions in addition to CO₂. The CO₂ emissions from off-road equipment and vehicles and delivery trucks, which are assumed by URBEMIS 2007 to be diesel fueled, were adjusted by a factor derived from the relative CO₂, CH₄, and N₂O for diesel fuel as reported in the California Climate Action Registry's (CCAR) *General Reporting Protocol* (CCAR 2009) for transportation fuels and the global warming potential for each GHG to estimate the emissions in units of CO₂E. The CO₂ emissions associated with construction worker trips were multiplied by a factor based on the assumption that CO₂ represents 95% of the CO₂E emissions associated with passenger vehicles (EPA 2005). The results were then converted from annual tons per year to metric tons per year. Table 8: Estimated Construction GHG Emissions, shows the estimated annual GHG construction emissions associated with the proposed project. Because the project phasing overlaps with other villages, Table 8 includes emissions for Village Three and a portion of Village Four, Village Eight East and Village Ten.

**Table 8: Estimated Construction GHG Emissions (metric tons/year)
Villages Three /Portion of Four, Eight East and Ten**

Construction Year	CO ₂ E Emissions (MT/yr)
2014	1,117.58
2015	2,396.80
2016	3,867.28
2017	4,544.40
2018	3,085.30
2019	2,382.27
2020	2,391.37
2021	2,382.19
2022	2,373.07
2023	3,303.83
2024	2,753.49
2025	2,073.77
2026	2,073.80
2027	2,073.80
2028	1,773.19
2029	513.36
Total Construction Emissions	39,105.53
Amortized Annual Construction Emissions	1,303.52

Source: URBEMIS 2007 Version 9.2.4. See Appendix B for complete results.

Note: Construction emissions shown include emissions from construction of all Villages analyzed under the proposed project, including Village Three and a portion of Village Four, Village Eight East, and Village Ten.

Operational GHG Emissions

Operation of the proposed project would result in GHG emissions from vehicular traffic generated by residents, area sources (natural gas appliances, hearth combustion, and landscape maintenance), electrical generation, and water supply. Emissions associated with vehicular traffic, electrical generation, and water supply would be reduced by implementing GHG reduction measures, as indicated below.

Vehicular Traffic

Annual CO₂ 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, CH₄ and N₂O emissions were accounted for by multiplying the URBEMIS 2007 CO₂ emissions by a factor based on the assumption that CO₂ represents 95% of the CO₂e 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 San Diego County Greenhouse Gas Inventory (SDCGHGI, University of San Diego 2008).

Area Sources

Annual CO₂ emissions from natural gas combustion for space and water heating, hearth combustion, and gas-powered landscape maintenance equipment were estimated using URBEMIS 2007. The CO₂ emissions from natural gas combustion were adjusted by a factor derived from the relative CO₂, CH₄, and N₂O for natural gas as reported in the CCAR's *General Reporting Protocol* (CCAR 2009) for stationary combustion fuels and their GWPs.

The previously approved 2014 project is 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 2014 FEIR states that the proposed project would consume approximately 65,521,407 kilowatt-hours per year. The generation of electricity through combustion of fossil fuels typically results in emissions of CO₂ and to a smaller extent CH₄ and N₂O. The project as currently proposed will comply with the 2022 California Energy Code or current code cycle at time of construction.

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 2022 Title 24 code cycle which is more stringent than the code cycle that was in effect at the time of the original Village 8 East 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 2022 Title 24 Codes, energy conservation is 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, a 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 CO₂E 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 9, the GHG reduction measures would reduce GHG emissions by approximately 29%.

Such reduction measures, at the time of the University Villages FEIR approval (2014) included:

1. A low-carbon fuel standard to reduce the “carbon intensity” of California fuels.
2. Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of “do-it-yourself” automotive refrigerants.
3. Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

An additional six early action regulations, which were also considered “discrete early action GHG reduction measures,” consisted of:

1. Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology.
2. Reduction of auxiliary engine emissions of docked ships by requiring port electrification.
3. Reduction of perfluorocarbons from the semiconductor industry.
4. Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products).
5. Require that all tune-up, smog check and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency.
6. Restriction on the use of SF₆ from non-electricity sectors if viable alternatives are available.

**Table 9: Estimated Operational GHG Emissions (metric tons/year)
Villages Three /Portion of Four, Eight East and Ten**

Source	CO ₂ E Emissions	CO ₂ E 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 2014 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, 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 an estimated 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 the green building standards and energy codes of the City's Municipal Code. 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 as stated in Sections 6.0 and 7.0 of this AQIP 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

As stated above, the City of Chula Vista previously used the INDEX CO₂ model requirements. This tool is no longer used. Therefore, a quantitative analysis has been performed for Village 8 East 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 8 East 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 8 East SPA Plan scores the equivalent of 41 points under the LEED-ND rating system. Table 10: LEED Neighborhood Development Plan Village 8 East Equivalency Analysis 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 10: LEED Neighborhood Development Plan Village 8 East Equivalency Analysis

LEED-NDv4 Credit	Options	Possible Points	Village 8 Equivalency Points	Notes	
Smart Location & Linkage					
SLLp1	Smart Location	Transit Served	Y/N	Yes	1. New infrastructure will be constructed to serve Village 8 East, but will connect into existing water, recycled water and sewer infrastructure. Village 8 East will also have a Subarea Master Plan approved by Otay Water District. The intent of this prerequisite is being met as development of

LEED-NDv4 Credit		Options	Possible Points	Village 8 Equivalency Points	Notes
					<p>Village 8 East will extend existing infrastructure.</p> <p>2. 50% of dwellings and businesses within 1/2 mile walk of local bus stop which falls within the minimum weekday trips (60) and weekend trips (40). A local transit stop is planned at Main Street and Santa Marisol and a BRT station is planned adjacent to Village 8 East within the Village 8 West Town Center.</p>
SLLp2	Imperiled Species and Ecological Communities	None	Y/N	Yes	253.6 acres of MSCP designated area are within the SPA boundary, which will be permanently preserved in their natural condition.
SLLp3	Wetland and Water Body Conservation	None	Y/N	Yes	Village 8 East is implementing the MSCP Chula Vista Subarea Plan. Thus, Village 8 East meets the intent of this prerequisite by designating approximately 44% of the SPA area as preserve land which will be conveyed to public ownership for permanent preservation and management.
SLLp4	Agricultural Land Conservation	None	Y/N	Yes	<p>Village 8 East is implementing the MSCP Chula Vista Subarea Plan. Thus, it meets the intent of this prerequisite by designating approximately 44% of the SPA area as preserve land which land will be conveyed to public ownership for permanent preservation and management.</p> <p>No active agricultural land will be converted to other uses.</p>
SLLp5	Floodplain Avoidance	None	Y/N	Yes	Village 8 East is not located within a floodplain.
SLLc1		1. Location Type	10		

LEED-NDv4 Credit		Options	Possible Points	Village 8 Equivalency Points	Notes
	Preferred Locations	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.
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 steep slopes and as stated in the Village 8 East SPA §4.3– assuming the Village 8 East steep slope impacts, the Otay Ranch GDP steep slope preservation requirement is exceeded with a calculated 86% preservation.
SLLc7	Site Design for Habitat or Wetland and	Sites w/o Significant habitat or wetlands	1		

LEED-NDv4 Credit		Options	Possible Points	Village 8 Equivalency Points	Notes
	Water Body Conservation	Sites with habitat or wetlands	1		
SLLc8	Restoration of Habitat or Wetlands and Water Bodies		1	1	Village 8 East includes 253.6 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 area is a “Main Street” theme which considers special paving, landscaping and architectural treatments.
NPDp2	Compact Development		Y/N	Yes	Village 8 East has densities from 11-45 du/ac. (Refer to Table 5)
NPDp3	Connected and Open Community		Y/N	Yes	196 intersections/square mile. (Refer to Chula Vista CO2 Index Model Results (approved 2014): Intersection Density. This exceeds the pre-requisite of 140.
NPDc1	Walkable Streets	25' setback (80%)	1	1	Per the Planned Community (PC) District Regulations, no suggested front setbacks equal or are greater than 25' from the right-of-way.
		18' setback (50%)	1	1	The mixed-use retail will be designed to include pedestrian oriented features, consistent with the Otay Ranch GDP and the Village 8 East SPA Plan. All storefronts shall be accessed from sidewalks. Parking should be located on street or in the rear/side of planning areas. The Village 8

LEED-NDv4 Credit	Options	Possible Points	Village 8 Equivalency Points	Notes
				East Design Plan explains a “Main Street” village identity through the commercial and mixed use area. The intent of this credit has been achieved.
	1' setback for nonresidential (50%)	1		
	Functional entries every 75 feet	1	1	The mixed-use retail will be designed to include pedestrian oriented features, consistent with the Otay Ranch GDP and the Village 8 East SPA Plan. All storefronts shall be accessed from sidewalks. Parking should be located on street or in the rear/side of planning areas. The Village 8 East Design Plan explains a “Main Street” village identity through the commercial and mixed use area. The intent of this credit has been achieved.
	Function entries every 30 feet	1		
	Glass on 60% of facades	1	1	The Village 8 East Design Plan explains a “Main Street” village identity through the commercial and mixed use area. That includes storefronts with display windows to create interest and encourage window shopping along the pedestrian walk.
	No blank walls 40% of sidewalk	1	1	Blank walls shall not exceed 40% of the sidewalk when applicable to building use. The village area is intended to be pedestrian oriented.
	Ground-level retail, services must be unshuttered at night	1	1	Architecture will be reviewed during the Design Review process, but it is expected that ground level retail will not be shuttered at night.
	On-street parking provided both sides on 70% of streets	1	1	On-street parking is provided throughout the Village.

LEED-NDv4 Credit	Options	Possible Points	Village 8 Equivalency Points	Notes	
		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 Village Core planning areas would be accessed from the ground floor. Furthermore, all would be 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		
NPDc2	Compact Development	Density/acre	1-6	3	The SPA Amendment areas have allowed densities of the following: MH: 11 - 18 du/ac H: 18 - 27 du/ac VC 18 - 45 du/ac (Refer to Table 5)
NPDc3	Mixed-Use Neighborhoods	Uses with 1/4 mile walking distances	1-4	1	Project as proposed will provide community-serving retail/commercial, park, school, diverse housing types, preserved open space, transit stop.
NPDc4	Housing Types and Affordability	Diverse housing types	1-7		
		Affordable housing	1-3	1	328 affordable units are proposed in Village 8 East. That is 10% of the total units (328/3,276 = .10).
		Additional diverse housing types			
NPDc5	Reduced Parking Footprint	All off-street parking at side or rear	1	1	

LEED-NDv4 Credit		Options	Possible Points	Village 8 Equivalency Points	Notes
NPDC6	Connected and Open Community	Intersections/mile 300-400+	1-3		
NPDC7	Transit Facilities		1	1	Local bus facilities will be provided at the intersection of La Palmita Drive and Main Street (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			
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 are within 1/4 mile walk distance to public space. There are green spaces, parks and open spaces proposed throughout Village 8 East including play fields at the school and the park (P-1) (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		

LEED-NDv4 Credit		Options	Possible Points	Village 8 Equivalency Points	Notes
		Bedroom/Bathroom features	1		
NPDC12	Community Outreach and Involvement	Community outreach	1	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		
NPDC14	Tree-Lined and Shaded Streetscapes	Trees planted 50' on at least 60% of streets	1	1	As confirmed by the project Landscape Architect, street trees will be planted 30-40' on center.
		Shaded sidewalks on 40% of sidewalks within 10 years	1		
		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 proposed in Village 8 East (S-1). (Refer to Fig. 1).
Green Infrastructure & Buildings					
GIBp1	Certified Green Buildings		Y/N	No	
GIBp2	Minimum Building Energy Efficiency		Y/N	Yes	

LEED-NDv4 Credit		Options	Possible Points	Village 8 Equivalency Points	Notes
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		
		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 2014 project was approved. Except for toilets, the 2019 and 2022 CalGreen code is consistent with this credit requirement.
		90% of residential buildings would earn 4 points under LEED v4	1	1	CalGreen exceeded requirement at the time the original 2014 project was approved. Except for toilets, the 2019 and 2022 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. Previously approved landscape plans meet the California Model Water Efficient Landscape Ordinance (MWELO).
GIBc5	Building Reuse	N/A	1		

LEED-NDv4 Credit		Options	Possible Points	Village 8 Equivalency Points	Notes
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		
GIBc10	Solar Orientation	Block orientation	1	1	Block orientation within the planning areas will be determined during the Design Review process. However, with the stringent solar/photovoltaic code requirements (2019 and 2022), The intent of this credit has been met.
		Building orientation	1	1	Building orientation within the planning areas will be determined during the Design Review process. However, with the stringent solar/photovoltaic code requirements (2019 and 2022), The intent of this credit has been met.
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 as efficient as solar is used. 2022 Code is more stringent the 2019 Code and includes provisions for battery storage, further conserving energy.
GIBc12	District Heating and Cooling	Needs to be 80% of projects annual	2		

LEED-NDv4 Credit		Options	Possible Points	Village 8 Equivalency Points	Notes
		heating and/cooling			
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	
Regional Priority Credits					
	Regional Priority Credit: Region Defined	Rainwater Management			
	Regional Priority Credit: Region Defined	Mixed-Use Neighborhoods			

LEED-NDv4 Credit		Options	Possible Points	Village 8 Equivalency Points	Notes
	Regional Priority Credit: Region Defined	Housing Types and Affordability			
	Regional Priority Credit: Region Defined				
Total points				41	

Figure 2: Proposed Bicycle Circulation Plan

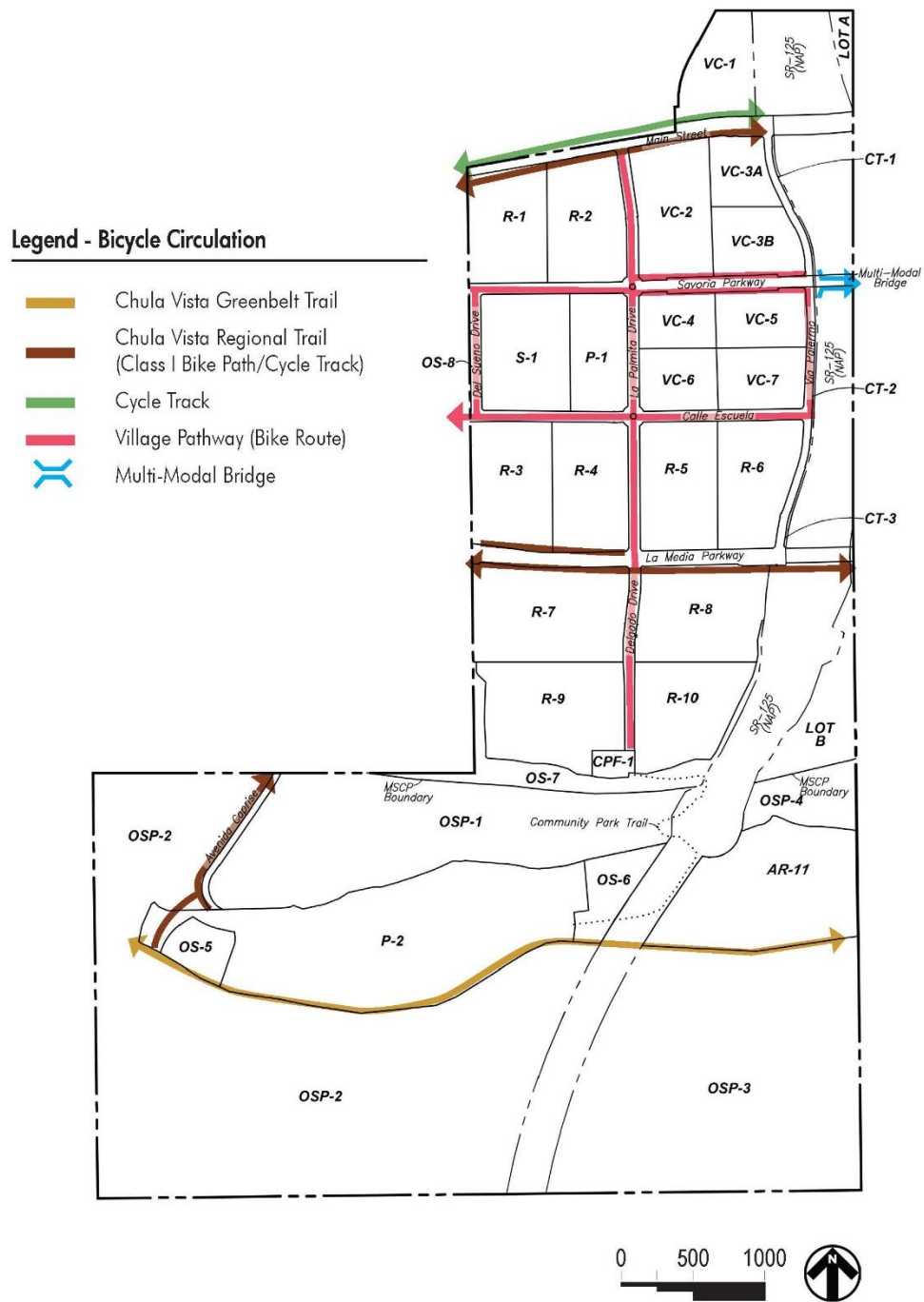


Figure 3: Proposed Transit Plan

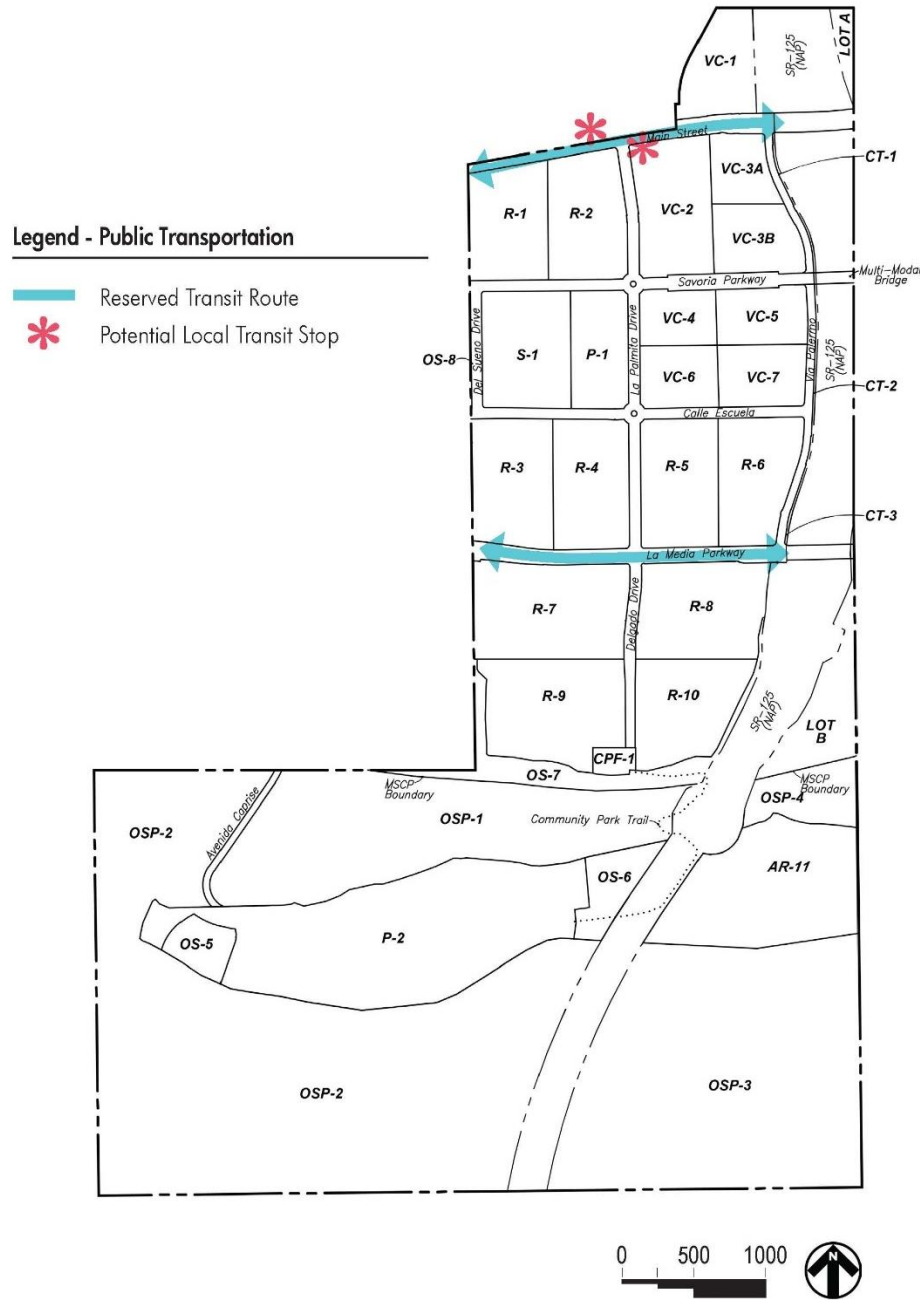


Figure 4: Proposed Pedestrian Circulation Plan

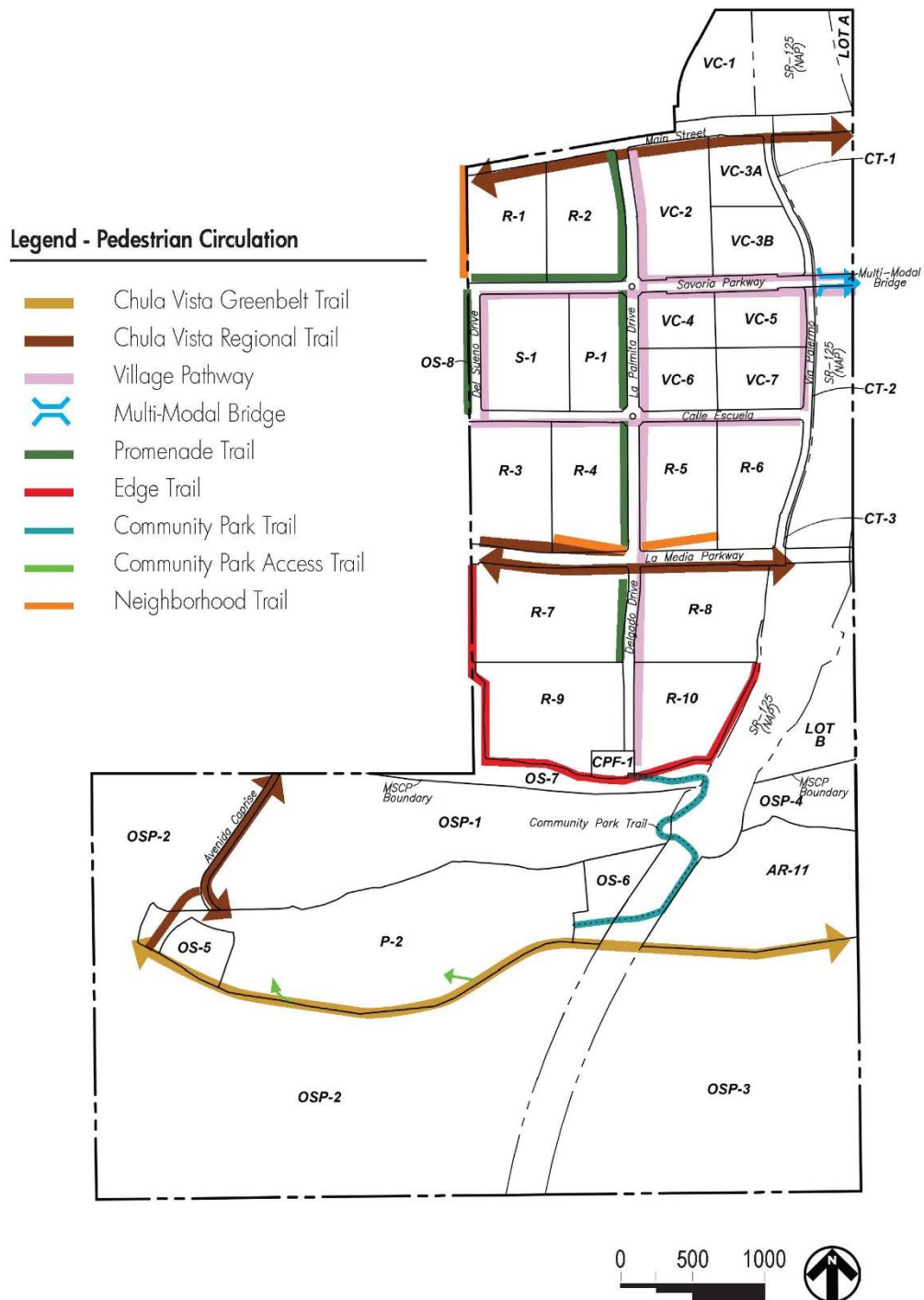


Figure 5: Steep Slopes

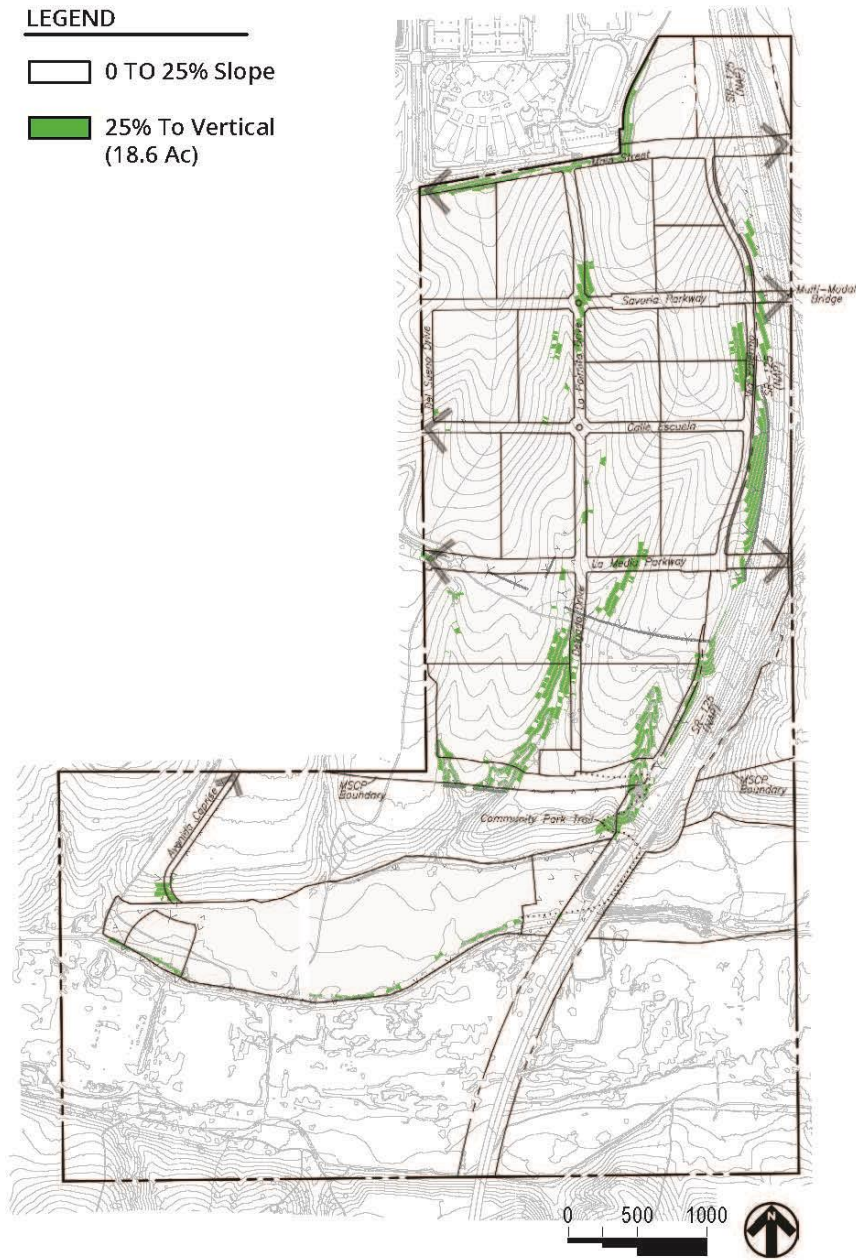


Figure 6 is provided as an example of how the development standards promote creation of a pedestrian-oriented village. Pedestrian oriented streets are encouraged on specific streets where topography and grade are not an inhibitor to walking.

Figure 6: Development Standards Example
 (Please refer to the Village 8 East PC Regulations Document)

Standard ⁽¹⁾	RM-1	RM-2	Notes
Minimum Density	11 du/ac	18 du/ac	Calculated as total dwelling units per parcel or project area; shall not be calculated on a per-product/home type basis.
Maximum Density	18 du/ac	27 du/ac	
Minimum Lot Area		N/A	Shall not apply
Maximum Lot Coverage		N/A	Shall not apply
Maximum Building Height ⁽⁴⁾	45 feet	60 feet	See section 3.H Height Exceptions
Minimum Public Street Setbacks⁽²⁾⁽³⁾			
La Palmita Drive	7.5 feet ⁽⁴⁾		All setbacks are subject to California Building Code ("CBC") and California Fire Code ("CFC") standards based on building design and fire rating; see section 3.I Permitted Building Encroachments & Projections
Main Street	5 feet from toe of slope	N/A	
Calle Escuela	5 feet ⁽⁴⁾ ; 4 feet ⁽⁴⁾ for stoop conditions		
Del Sueño Drive	N/A	5 feet ⁽⁴⁾ ; 4 feet for stoop conditions	
La Media Parkway	7.5 feet ⁽⁴⁾	N/A	
Savoria Parkway	5 feet ⁽⁴⁾ ; 4 feet ⁽⁴⁾ for stoop conditions facing street	N/A	
Delgado Drive	5 feet ⁽⁴⁾ ; 4 feet for stoop conditions facing street	N/A	
Via Palermo	5 feet ⁽⁴⁾	N/A	
From Street to porch/ patio/courtyard walls	4 feet ⁽⁴⁾		Fences permitted at back of ROW/property line
Minimum Private Drive / Private Drive Aisle Setbacks			
Building to Private Drive	4 feet ⁽⁴⁾		Measured from back of sidewalk or parkway
Garage Door to Private Drive	17 feet standard; 5 feet allowed for 35% of Private Drive non-sidewalk condition		Regulates driveway aprons
Garage Door to Private Drive Aisle	3 feet; or ≥17 feet		
Building Separations			
Private Drive Aisle Dimension	30 foot garage door to garage door; 24 foot building separation 2 nd story and above See Exhibit 3		Unless otherwise increased or decreased by CBC/CRC

Standard ⁽¹⁾	RM-1	RM-2	Notes
All Other Building Separations	Subject to CBC, California Residential Code (“CRC”) and CFC standards based on building design and fire rating		
Required Open Space⁽²⁾⁽⁵⁾			
Private Usable Open Space			
Minimum Dimension	6 feet; 60 sq. ft. to qualify	5 feet; 40 sq. ft. to qualify	
Studio/1 Bedroom/2 Bedroom Unit	80 sq. ft. per unit	200 sq. ft. of combined Private and Common Usable Open Space per unit	No dimension shall be less than 5’ to qualify
≥3 Bedroom Unit	120 sq. ft. per unit		
Common Usable Open Space ⁽²⁾⁽⁵⁾	300 sq. ft. per unit		10 foot minimum dimension; CUOS shall be within ¼ mile of the residences to be served
Required Parking⁽²⁾⁽⁵⁾			
Multi-Family Attached & Detached Residential	Per Unit Parking		See Village 8 East Planned Community District Regulations, Chapter 3 Multi-Family Zoning District and (section 3.J.4) and Chapter 8 Parking Regulations.
Studio	1.0 space per unit		
1 bed/2 bed Units:	2.0 spaces per unit, covered or garage space		
≥3 Bedroom Units	2 spaces per unit (covered or garage spaces) + 0.25 unassigned space for each additional bedroom over 3		
Guest Parking	1 space per 10 units		
Bicycle Parking	Comply with CalGreen requirements		
<p>(1) All standards are minimums unless otherwise noted.</p> <p>(2) Minor modifications to standards are permitted subject to Section 10.E Minor Administrative Modifications.</p> <p>(3) Only public street setbacks shall be regulated. Interior and rear property line setbacks shall not be regulated. Across interior property lines, building separations shall comply with State building and fire codes. Where two or more parcels are developed as a single project, setback shall not be applicable to the property line separating the two parcels; all building separations shall be regulated per building and fire codes.</p> <p>(4) Measured from back of ROW. Required setback is permitted within or to include ‘Landscape Buffer’ noted on the TM and SPA Plan.</p>			

Standard ⁽¹⁾	RM-1	RM-2	Notes
<p>(5) Parking and common usable open space will be calculated for each parcel; but may be combined and implemented as joint use facilities shared between any adjoining parcels. Requirements are permitted to be calculated in the aggregate across two adjoining parcels per section 3.C.5.</p>			

6. Community Design and Site Planning Features

Table 11: Community Design and Site Planning Features, below, provides an overview of the proposed Community Design and Site Planning Features, as well as building and landscape features, which have been integrated into the Village 8 East SPA Plan to create a sustainable community. These measures are based on California Air Pollution Control Officers Association (CAPCOA) Greenhouse Gas Mitigation Measures.

Table 11: Community Design and Site Planning Features

Transportation Related Measures
Village 8 East provides for future local bus services within close proximity of multi-family housing.
Village 8 East SPA streets will provide for a maximum travel speed which allows residential streets to be used by neighborhood electric vehicles and bicycles.
Off-street pathways and trails in Village 8 East will accommodate pedestrian and bicycle travel.
The Village 8 East provides for future local bus services, inclusive of a transit stop at the intersection of Main Street and Santa Marisol.
All Village 8 East development will comply with CalGreen standards for EV charging stations.
Energy-Conservation Related Measures
Project will be compliant with prevailing building and energy codes at the time of permit submission.
Project-wide recycling for residential, school, commercial, and retail establishments will be required as required under the County’s recycling ordinance and CalGreen.
Indoor residential appliances will carry the Environmental Protection Agency’s (EPA) ENERGYSTAR® certification, as applicable and feasible.
2019/2022 California Green Building Code Title 24, Part 11 (CalGreen) requires that 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. The Project will be in conformance with such requirements.
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 development will provide PV solar systems and battery storage as required by Title 24.
Energy efficient lighting for streets, parks, and other public spaces will be required. Private developers will use energy efficient lighting and design.

Water-Related Measures to Reduce GHGs
All landscape shall comply with CVMC § 20.12. Landscape Water Conservation requirements as well as 2022 CalGreen requirements.
Drought tolerant, low-water usage native vegetation will be planted in public landscaped areas.
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 carry the EPA's WaterSense certification and be compliant with CalGreen.

7. Chula Vista CO₂ Reduction Plan

This section provides a comparative evaluation between the proposed community/site design features and the energy efficiency emission reduction action measures contained in the City’s Carbon Dioxide CO₂ Reduction Plan. This list can be found in Attachment A of the Chula Vista AQIP Guidelines. Table 12 below provides a summary of project consistency with the City’s CO₂ reduction action measures.

Table 12: Summary of Village 8 East Consistency with City CO₂ 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.	Village Pathway on Street “A” and Street “B” connecting to internal local bus stop and Promenade Streets/Trails; Intersection neck-downs; Regional Trails on Main Street and Otay Valley Road connected to Village 8 Town Center Rapid Bus stop.	The Project will implement the design features which will enhance the pedestrian connection to transit stops located with the SPA Plan area and the planned Village 8 West Rapid Bus stop. There is a proposed Village 8 East local stop at Main Street and Santa Marisol.
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 amendment for Village 8 East proposes residential densities at a Medium-High to High density range. The densities closest to the transit stops are 11 – 18 du/ac and 18-45 du/ac. Refer to Table 5.	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.	Village 8 East SPA Transit Plan / Centrally-located local bus stop at Village Core; P.C. District Regulations – building setbacks	The Village 8 East SPA land use plan site design accommodates a centrally located mixed use and medium-high density core with a transit stop within ¼ mile of the higher density residential uses. The building setback requirements in the PC District Regulations and Village Design Plan policies will provide for pedestrian-scaled

Action Measure	Project/Community Design Features	Describe how project design will Implement CO ₂ Reduction Action Measures
		<p>building frontages to encourage walking. Refer to setback standards provided in Figure 6.</p> <p>The proposed local bus stop will be all-weather and provide seating, per City standards.</p>
<p>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.</p>	<p>Village Core that provides opportunity for a mix of uses including commercial, park, school, and residential.</p>	<p>Reduces vehicle-miles traveled that in turn reduces the GHG emissions.</p> <p>The Village Core provides a mix of uses including commercial and park uses in a residential area, consistent with Measure 9.</p>
<p>Measure 10 (Reduced Commercial Parking Requirements): Lower parking space requirements; allowance for shared lots and shared parking; allowance for on-street spaces.</p>	<p>The SPA provides for on-street parking.</p>	<p>The project includes on-street parking spaces throughout the Village Core which reduces the need for large, paved parking lots.</p>
<p>Measure 11 (Site Design with Pedestrian/Bicycle Orientation): Placement of buildings and circulation routes to emphasize pedestrian and bicycle access without excluding autos; includes pedestrian benches, bike paths, and bike racks.</p>	<p>P.C. District Regulations – building setbacks</p>	<p>Promotes bicycling and walking thereby reducing vehicle-miles traveled that in turn reduces the GHG emissions.</p> <p>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.</p> <p>Bike racks will be provided at parks, the elementary school and the mixed use commercial/retail center in the village core.</p> <p>Garages set back from the living area of homes and are discouraged in fronts of homes on multi-family and cluster units.</p> <p>Refer to Figure 6 (when available).</p>

Action Measure	Project/Community Design Features	Describe how project design will Implement CO₂ Reduction Action Measures
<p>Measure 12 (Bicycle Integration with Transit and Employment): Provide storage at major transit stops and employment areas. Encourage employers to provide showers at the place of employment near major transit nodes.</p>	<p>Bicycle storage per the P.C. District Regulations.</p> <p>CalGreen requires nonresidential buildings anticipated to generate visitor traffic to provide short-term bicycle racks within 200 feet of the visitors’ entrance.</p>	<p>Promotes bicycling that can reduce vehicle-miles traveled that in turn reduces the GHG emissions.</p> <p>The P.C. District Regulations include requirements for bicycle storage and shower/changing facilities in businesses such that future employees may bike to work, consistent with CalGreen requirements.</p>
<p>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.</p>	<p>The Circulation of the SPA details the circulation system in the Village including the off-street Village Pathway, the Promenade Streets/Trails; Regional Trail and Greenbelt Trail and all provide bike paths. (Refer to Figure 2 and Figure 4 within this AQIP).</p>	<p>Promotes bicycling that can reduce vehicle-miles traveled that in turn reduces the GHG emissions.</p>
<p>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.</p>	<p>Village 8 East 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.</p> <p>The Village 8 East street sections provide for landscaped parkways with street trees. The Water Conservation Plan identifies appropriate tree which are water efficient.</p>	<p>Reduces energy consumption that reduces GHG emissions.</p>
<p>Measure 16 (Traffic Signal & System Upgrades): Provide high-efficiency LED lamps or similar as approved by the City Engineer.</p>	<p>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 8 East.</p>	<p>Reduces energy consumption that reduces GHG emissions.</p>
<p>Measure 18 (Energy Efficient Building Recognition Program): Reducing CO₂ emissions by applying building standards that exceed current Title 24 Energy Code requirements.</p>	<p>Project will meet code.</p>	<p>The updated Title 24 Building Code requirements are continually more stringent to reduce energy consumption and emissions. Therefore, meeting code requirements will inherently work towards energy efficiency and GHG reductions.</p>

Action Measure	Project/Community Design Features	Describe how project design will Implement CO ₂ Reduction Action Measures
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.	Village Core and medium-high to high density residential close proximity to local bus stop.	Reduces vehicle-miles traveled that in turn reduces the GHG emissions. The Village 8 East SPA land use plan locates a commercial/retail and higher densities near the planned future local bus stop.

8. Credit Towards Increased Minimum Energy Efficiency Standards

Village 8 East will comply with CVMC Sections 15.12 and 15.26 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.

Detailed provisions related to the calculation and application of credits are currently under development and subject to subsequent review and approval of City Council.

9. Compliance Monitoring

This section includes a written description and a checklist (Table 13) summarizing the project design features and mitigation measures that have been identified to reduce Village 8 East effects on air quality and improve energy efficiency.

Table 13: Village 8 East Air Quality Improvement Plan Compliance Monitoring Checklist

AQIP Project Design Features/Principles	Method of Verification ¹	Timing of Verification	Responsible Party ²	Project Consistency & Compliance Documentation (Column to be Completed with Implementation) ³
PLANNING				
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	
Local Bus Stop	Transit Review	Per SANDAG	SANDAG/City	
Rapid Bus Stop	Transit Review	Per SANDAG	SANDAG/City	

AQIP Project Design Features/Principles	Method of Verification ¹	Timing of Verification	Responsible Party ²	Project Consistency & Compliance Documentation (Column to be Completed with Implementation) ³
CPF-1 (Community Purpose Facility)	Plan Review	Tentative Map	City of Chula Vista	
Private Open Spaces	Plan Review	Tentative Map	City of Chula Vista	
Village Pathway – Street A and Street B	Plan Review	Tentative Map	City of Chula Vista	
Promenade Trails	Plan Review	Tentative Map	City of Chula Vista	
Chula Vista Regional Trail – Main Street and Otay Valley Road	Plan Review	Tentative Map	City of Chula Vista	
Chula Vista Greenbelt Trail	Plan Review	Tentative Map	City of Chula Vista	
Attached 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	
Building compliance with prevailing code	Plan Check	Building Permit/ Title 24 Energy Report	City of Chula Vista	

AQIP Project Design Features/Principles	Method of Verification ¹	Timing of Verification	Responsible Party ²	Project Consistency & Compliance Documentation (Column to be Completed with Implementation) ³
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	
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.