Freeway Commercial South Portion
Otay Ranch Town Center
Air Quality Improvement Plan
(AQIP)

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1. EXECUTIVE SUMMARY

The Final Environmental Impact Report for the Otay Ranch Freeway Commercial Sectional Planning Area Plan Planning Area 12 ("FEIR") (identified by the City of Chula Vista as EIR 02-04) contains a comprehensive disclosure and analysis of potential environmental effects associated with implementation of the Sectional Planning Area ("SPA") Plan and Freeway Commercial ("FC") 1 and 2 site in the City of Chula Vista ("City") (City of Chula Vista 2003). The SPA Plan was developed to refine and implement the land use plans, goals, and objectives of the Otay Ranch General Development Plan ("GDP") for the development of Planning Area (PA) 12.

In 2004, as part of the FEIR, the City approved the development of 1,215,000 square feet of commercial uses within the SPA Plan area, including administrative and professional office services, general commercial uses, and public and semipublic uses. The approved project also included a light rail alignment or transit way and a station site for the San Diego Trolley, accompanied by a park-and-ride facility. In May 2015, the City approved the General Plan and Otay Ranch GDP Amendments, as well as entitlements, for the proposed modifications to rezone the northerly FC 2 portion from Commercial to Mixed-Use Residential to add 600 residential units through approval of the First Addendum to the FEIR. In September 2016, a Second Addendum to the FEIR was prepared for the SPA Plan Amendments and a Tentative Map that implements the General Plan and Otay Ranch GDP. In May 2019, a Third Addendum to the FEIR was approved to add 300 residential units to Freeway Commercial North (FC 2). The FEIR, First Addendum, Second Addendum, and Third Addendum are collectively referred to herein as the "FEIR."

The current project addresses proposed modifications (involving the General Plan, GDP, and SPA Amendment) to the southerly FC 1 (Project Site) only (specifically, Assessor's Parcel Numbers 643-061-02, -04, -05, -08, and -11).

A. Intent of AQIP

This Air Quality Improvement Plan ("AQIP") has been prepared in conjunction with the Otay Ranch FC South Portion (Otay Ranch Town Center) SPA Plan amendment, required for the proposed project. The Otay Ranch FC SPA plan covers both Freeway Commercial South (FC 1) site, which was developed as Otay Ranch Town Center mall in 2006, and Freeway Commercial North (FC 2) site. The two parcels correspond to two major ownerships of the property. Because of the independent ownerships, project plans have been designed and structured to allow the two parcels develop separately but in a coordinated manner.

The purpose of the AQIP is to provide an analysis of air pollution impacts that would result from the proposed project in FC 1 and to demonstrate how the site design reduces vehicle trips, maintains, or improves traffic flow, reduces vehicle miles traveled, and reduces direct or indirect greenhouse gas ("GHG") emissions. This AQIP also demonstrates how the project has been designed consistent with the City's Green Building Standards, Chula Vista Municipal Code ("CVMC") Chapter 15.26 and Energy Code 15.12, and represents the best available design in terms of improving energy efficiency and reducing GHG emissions.

GHG emissions primarily include but are not limited to Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Dioxide (N_20). They occur both naturally, and are produced by human activities, such as by automobile emissions and emissions from production of electricity to provide power to homes and businesses. These gases prevent heat from escaping the earth's atmosphere, while allowing in sunlight, which has the effect of warming the air temperature. Applicable action measures contained in the City's Carbon Dioxide (CO_2) Reduction Plan are also addressed.

B. Community Site Design Goals

Otay Ranch is a 23,000-acre master-planned community and includes a mix of land uses within 20 villages and/or planning areas. The proposed project includes modifications (involving General Plan, GDP, and SPA Amendments) to the FC 1 (Project Site) only. The proposed project would allow development of up to 840 residential units (including 42 low-income and 42 moderate-income) while reducing the allowed commercial square footage from 960,000 square feet to 816,000 square feet. Development of the up to 840 residential units would be centered within the northwest portion of the FC 1 site and would have a density range of 18 to 56 units per acre. Three buildings are proposed: two residential buildings and one mixed-use/residential building. Proposed residential uses would range in square footage from approximately 600 square feet to 1,400 square feet, ranging in height from two to six stories. Proposed amendments also include 3.05 acres of public plaza/park space. The project is located east of north of Birch Road, south of FC 2, east of State Route 125 ("SR-125"), and west of Eastlake Parkway.

The proposed project establishes a unified walkable mixed-use plan for the site. It is intended to enhance living, working, shopping, and transit options in the area. It creates a walkable neighborhood that offers urban-style, smaller-scale living accommodations within walking distance to the already established local shops, services, schools, entertainment, and dining, as well as a regional system of trails and open spaces.

The vision for this community is to develop a cohesive neighborhood with inter-connected uses and densities. The mix of proposed residential, commercial, and community uses is intended to provide a mixed-use environment that serves the needs of residents and employees. The residential units will provide additional ridership opportunities for the regional Bus Rapid Transit ("BRT") and local bus system increasing the viability of transit and reducing automobile dependence. The densities and design patterns envisioned for the Otay Ranch Town Center focus on promoting a walkable and bikeable community with less emphasis on automobile trips.

C. Planning Features

The project includes the following planning features to achieve the community site design goals:

Land Use features:

1) Integrated Circulation System

   - Project residents and visitors are afforded non-automobile related circulation options that include walking, bicycling, and transit. Main Street – the main roadway from Eastlake Parkway – will include one new building featuring ground-floor commercial with residential above and restricted vehicle access in the middle segment – as well as interior streets – are designed to provide a comfortable walking environment.

2) Mixed-Uses

   - The project will mix residences, shops, restaurants, a park, and pedestrian plaza. This type of development makes it easy for residents, visitors, and employees to walk or bike to destinations, helping to efficiently connect the city's neighborhoods through sustainable mobility.

3) Residential Density

   - The multi-family portion of the project is intended to promote walking and biking as a feasible alternative to driving due to reduced distances and the resulting proximity of various services and destinations.

4) Street Widths, Pavement and Street Trees

   - Otay Ranch street sections are narrower than typical standards which reduces asphalt pavement and the "urban heat-island effect" by limiting the amount of reflective surfaces. Street trees provide shade which further reduces heat-gain. Widened landscape medians and parkways to reduce paving, thereby reducing heat gain and the demand for air conditioning. Street trees within the parkways and medians provide shade to further reduce ambient air temperatures.

5) Public Transportation

   - The design plan for the development is transit ready. In conformance with General Plan policy, public transportation is an integral part of Otay Ranch. Public transit lines and stops are integrated into the plan and are adjacent to the project. This is intended to help reduce the dependence on the passenger

vehicle and encourage walking, biking, and transit trips. BRT service extends easterly over SR-125 along the northern boundary of the project area then southerly on the west side of Eastlake Parkway through to the Employment center to the south of Birch Road. In addition, Local Bus routes 709, 707, and 635 serve the project, with a Park and Ride and transit stop on the northwest corner of Main Street and Eastlake Parkway.

6) Alternative Travel Modes

   - The Otay Ranch Town Center is connected to the regional trail network and will feature sharrow lanes through the project. Sidewalks will be provided throughout the project site. All internal roadways are designed to local street standards with speed limits of 25 to 30-mph. Slow traffic speeds are conducive to both walking and bicycling and provide the necessary linkage to the regional bicycle circulation network.

Building and Design Element Features:

1) Use of low-VOC paints as required under San Diego County Air Pollution Control District (SDAPCD) Rule 67.
2) Project-wide recycling as required under the County's recycling Ordinance (SDCMC Section 66.0701)
3) Energy efficiency as required under the latest California Energy Code and CalGreen (Currently 2022).
4) Indoor residential appliances that carry the Environmental Protection Agency's (EPA) ENERGYSTAR® certification, as applicable and feasible.
5) Inclusion of all residential units in the local utility demand response program to limit peak energy usage for cooling.
6) Indoor residential plumbing products that carry the EPA's WaterSense certification.
7) Passive solar design and building orientation principles to take advantage of the sun in the winter for heating and reduce heat gain and cooling needs during summer.
8) Energy efficient lighting for streets, parks, and other public spaces as well as for private development projects.
9) Installation of solar water heater pre-plumbing.
10) Installation of solar photovoltaic prewiring.
11) Installation of residential graywater stub-out.

Landscape Features:

1) Watering three times daily to control fugitive dust to meet the requirements of the SDAPCD.
2) High-efficiency irrigation equipment, such as evapotranspiration controllers, soil moisture controllers and drip emitters for all projects that install irrigation water meters, per the City of Chula Vista Landscape Water Conservation Ordinance of

the CVMC Chapter 20, Section 12.

3) Water efficient vegetation, including native species, planted in public and private landscape areas.
4) Natural turf in residential development limited to no more than 30% of the outdoor open space.
5) Vertical landscape elements, such as trees, large shrubs, and climbing vines, shall be installed in order to shade southern and western building facades to reduce energy needs for heating and cooling.
6) Compliance with the City's Shade Tree Policy for parking lot design to achieve 50-percent shade cover in five to fifteen years through tree canopies, shade structures, or light colored "cool" paving.

D. Modeled Effectiveness of Community Design

With implementation of the proposed site design features, the project is consistent with the City of Chula Vista INDEX CO2 model requirements, as shown in Tables ES1 and ES2 which describe the LEED-ND equivalency analysis ("LEA") prepared for the project.

2. INTRODUCTION

A. AQIP as Tool for Implementation of Ordinances

This AQIP has been prepared based on the best available design practices and serves to implement key aspects of the City's CO2 Reduction Plan, the Green Building Standards (CVMC Chapter 15.12) and the City's Energy Code (CVMC 15.26). It should be noted, a more detailed discussion on project compliance with such design practices is provided within subsequent sections of the report.

2a. PURPOSE & GOALS

A. Purpose of AQIP

The purpose of the AQIP is to provide an analysis of air pollution impacts that would result from development of the Otay Ranch Town Center and to demonstrate how the project design reduces vehicle trips, maintains, or improves traffic flow, reduces vehicle miles traveled, and reduces direct or indirect GHG emissions. This AQIP also demonstrates how the project has been designed consistent with the City's Green Building Standards, (CVMC 15.12) and Energy Code (15.26) and represents the best available design in terms of improving energy efficiency and reducing GHG emissions. GHG emissions include gases such as CO2, Methane (CH4), and NO2. They both 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 are also addressed.

B. Regulatory Framework Related to Air Quality

There are a number of actions that Federal, State, and Local jurisdictions have taken to improve air quality, increase energy efficiency, and reduce GHG emissions. This section summarizes those actions.

Air quality is defined by ambient air concentrations of specific pollutants determined by the Environmental Protection Agency (EPA) to be of concern with respect to the health and welfare of the public. The subject pollutants monitored by the EPA include the following:

- Carbon Monoxide (CO),
- Sulfur Dioxide (SO_2),
- Nitrogen Dioxide (NO_2),
- Nitrogen Oxides (NO_x)
- Ozone (O_3),
- Respirable 10- and 2.5-micron particulate matter (PM_{10} and $PM_{2.5}$),
- Volatile Organic Compounds (VOC),
- Reactive Organic Gasses (ROG),
- Hydrogen Sulfide (H_2S),
- 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 Figure 1 on the following page. Areas in California where ambient air concentrations of pollutants are higher than the state standard are considered to be in "non-attainment" status for that pollutant.

Regulation of air emissions from non-mobile sources within San Diego County has been delegated to the SDAPCD. As part of its air quality permitting process, the SDAPCD has established thresholds for the preparation of Air Quality Impact Assessments (AQIAs) and/or Air Quality Conformity Assessments (AQCAs).

SDAPCD is the government agency which regulates sources of air pollution within the county and established an "emissions budget" or Regional Air Quality Strategy (RAQS) to provide control measures to try to achieve attainment status for state ozone standards with control measures focused on Volatile Organic Compounds (VOCs) and oxides of nitrogen (NOX).

Currently, San Diego is in "non-attainment" status for federal and state O3 and state PM10 and PM2.5. An attainment plan is available for O3. The RAQS was adopted in

1992 and has been updated as recently as 2016 which was the latest update incorporating minor changes to prior updates. It should be noted that the County is currently updating the RAQS, with adoption anticipated in 2023.

Figure 1: 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 (PM10)[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 (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

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

California Air Resources Board (5/4/16)

https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf

The City of Chula Vista has opted to adopt thresholds from the South Coast Air Quality Management District (SCAQMD) to address the significance of air quality impacts resulting from projects subject to CEQA environmental review. A project would result in a substantial contribution to an existing air quality violation of the National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS) for O3, which is a nonattainment pollutant, if the project's construction emissions would exceed SCAQMD's VOC or NOx significance thresholds shown in Figure 2:

Figure 2: Screening Level Thresholds for Criteria Pollutants (SCAQMD)

Pollutant	Total Emissions (Pounds per Day)
Construction Emissions	
Particulate Matter (PM_{10} and $PM_{2.5}$)	150 / 55
Nitrogen Oxide (NO_x)	100
Sulfur Oxide (SO_x)	150
Carbon Monoxide (CO)	550
Volatile Organic Compounds (VOCs)	75
Reactive Organic Gases (ROG)	75
Operational Emissions	
Particulate Matter (PM_{10} and $PM_{2.5}$)	150 / 55
Nitrogen Oxide (NO_x)	55
Sulfur Oxide (SO_x)	150
Carbon Monoxide (CO)	550
Reactive Organic Gases (ROG)	55
Volatile Organic Compounds (VOCs)	55
Source: (SCAQMD, 2015)	

Summary of Energy Efficiency Standards

Title 24, Part 6 of the California Building Standards Code regulates energy use including space heating and cooling, hot water heating, and ventilation. The energy code allows new buildings to meet a "performance" standard that allows a builder to choose the most cost-effective energy saving measures to meet the standard from a variety of measures. These choices may include the following:

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

The California Energy Commission's (CEC) 2019 Building Energy Efficiency Standards focus on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant efficiency improvements to the residential standards include the introduction of photovoltaics into the prescriptive package, improvements for attics, walls, water heating, and lighting. The most significant efficiency improvements to the non-residential standards include alignment with the ASHRAE 90.1 2017 national standards. https://www.energy.ca.gov/sites/default/files/2021-06/CEC-400-2018-020-CME_0.pdf

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

Water-related energy use consumes 19-percent of California's electricity, 32-percent of its natural gas, and 88-billion gallons of diesel fuel every year. The water-related energy use includes water and wastewater treatment as well as the energy needed to transport the water from it source (either northern California or the Colorado River). California Green Building Code Title 24, Part 11 (CALGreen) requires that indoor water use be reduced through stringent new water fixture flow rates. The City has also reduced the demand for outdoor water use through the adoption of the Landscape Water Conservation requirements (CVMC 20.12). The City of Chula Vista recently adopted a residential graywater sub-out requirement to allow the future installation of a clothes washer graywater irrigation system (CVMC 15.28.020).

CALGreen also requires that a minimum of 50-percent all new construction waste generated at the site be diverted to recycle or salvage. Additionally, the State has set per capita disposal rates of 5.3-pounds per person per day for the City of Chula Vista. The City requires new construction to divert 100-percent of the inert waste and not less than 50-percent of the remaining waste generated during construction (CVMC 8.25.020).

Summary of Greenhouse Gas (GHG) Reduction

GHGs include but are not limited to CO_2, CH_4, and N_2O. These gases allow solar radiation (sunlight) into the Earth's atmosphere but prevent radiative heat from escaping, thus warming the earth's atmosphere. GHGs are emitted by both natural processes and human activities. As directed by Assembly Bill (AB) 32, the Climate Change Scoping Plan (December 2008 prepared by CARB) includes measures to reduce statewide GHGs to 1990 levels by 2020 from forecasted business-as-usual (BAU) 2020 emissions. Recent guidance in the draft AB32 2017 Scoping Plan has identified a local government per capita GHG emission goal of 6 MT CO_2e by 2030 and 2 MT CO_2e by 2050.

The majority of the reduction strategies are to come from the two sectors that generate the most CO_2 emissions statewide: transportation and electricity generation. The majority of the reduction in transportation-related and energy-related CO_2 emissions are

to be achieved through statewide regulatory mandates affecting vehicle emissions and types of fuel the vehicles use, public transit, and public utilities. The remaining reductions are to be achieved through direct regulation and price incentive measures affecting oil and gas extraction industries and forestry practices (including increased tree planting programs).

BAU is defined as the emissions that would have occurred in the absence of reductions mandated under AB32, including CHG reductions from the following:

- Implementation of Pavley 1 and Pavley 2 motor vehicle standards. Pavley regulations establish specific GHG emissions levels for both passenger cars and light-duty trucks. The standards become more stringent each year through 2016.
- Implementation of the Low Carbon Fuel Standard (LCFS). CARB has also adopted a LCFS that sets carbon reduction standards for the types of fuels that can be sold in California, particularly renewable fuels. This will reduce the GHG emissions even if total fuel consumption is not reduced. Implementation of the Renewable Portfolio Standard (RPS). RPS requires investor-owned utilities, electric service providers, and community choice aggregators to increase renewable energy resources to 33-percent by 2020.
- Increased energy efficiency measures codified in Title 24 as of 2016. BAU uses the energy efficiency standards codified in Title 24 as of 2005.
- Implementation of Federal Corporate Average Fuel Economy (CAFE) standards. The CAFE standards determine the fuel efficiency of certain vehicle classes.

The three most applicable measures to land use planning and development within the City of Chula Vista's control include the Regional Transportation-related GHG targets, support for the Million Solar Roofs program, and energy efficiency measures. Since the early 1990s, the City has been engaged in multiple climate change forums including the United Nations Framework Convention on Climate Change (UNFCCC), the Cities for Climate Protection campaign and the U.S. Conference of Mayor's Climate Protection Agreement. The key plans and ordinances that the City has adopted and implemented to achieve citywide GHG emissions reductions are summarized below.

Each participant in the International Council of Environmental Initiatives (ICLEI) was to create local policy measures to ensure multiple benefits in the City and at the same time identify a carbon reduction goal through the implementation of those measures. In its CO_2 Reduction Plan developed in 1995 and officially adopted in 2000, Chula Vista committed to lowering its CO_2 emissions by diversifying its transportation system and using energy more efficiently in all sectors. To focus efforts in this direction, the City adopted the CO_2 reduction goal of 20-percent below 1990 levels by 2010. In order to achieve this goal, specific actions were identified, which when fully implemented, were anticipated to save 100,000 tons of CO_2 each year.

The 2008 GHG Emissions Inventory noted that compared to 1990, Chula Vista's city-wide GHG emissions have increased by 29-percent, however, per capita and per housing unit levels are approximately 25-percent and 17-percent below 1990 levels, respectively. The Climate Change Working Group (CCWG) helped develop recommendations to reduce the community's GHGs in order to meet the City's 2010 GHG emissions reduction targets. The CCWG ultimately chose seven measures that were adopted by the City Council and the horizon date was delayed until 2012 instead of 2010.

During 2014, a CCWG reconvened to help update the City's Climate Action Plan (CAP). Specifically, the CCWG developed recommendations, through an open and transparent public process, for new greenhouse gas reduction strategies to assist Chula Vista in reaching its carbon reduction goals.

The most recent and current plan is the 2017 CAP which was adopted by City Council on September 26, 2017. New guidance, including the 2017 draft AB 32 Scoping Plan Update, lists a local government per capita, or person, reduction goal of 6 MT CO2e by 2030 and 2MT CO2e by 2050.

The latest GHG inventory for 2020 was prepared in June 2022 and is still Draft form. The 2020 inventory indicates that Chula Vista's annual citywide GHG levels are 1,098,000 MT CO2e. Compared to 2005, Chula Vista's citywide GHG emissions have decreased by 17% and per capita emissions have decreased by 37-percent. While these reductions are good and allowed the City to reach its 2020 GHG reduction goal, the largest reduction came from the transportation sector, which decreased 13-percent below 2018. Emissions are expected to increase again as Covid-19 travel patterns return back to more of a pre-COVID 19 operational setting.

The Chula Vista City Council adopted 2030 community emissions reduction goal of 57-percent below 2018 emission levels; the City will have to reduce its GHG emissions by more than 605,220 MT CO2e or about 55-percent. All remaining emissions will either need to be eliminated or offset to reach the net zero emission goal by 2045. The City has not updated or adopted a new CAP to address these reduction goals.

The 2022 ARB scoping plan is in draft form and has not been adopted at the time this AQIP was written. The new plan identifies a technologically feasible, cost-effective, and equity-focused path to achieve carbon neutrality by 2045, or earlier, while also assessing the progress the state is making toward reducing its greenhouse gas (GHG) emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan. The new plan's focus on Carbon neutrality takes California one step further by expanding actions to capture and store carbon including through natural and working lands and mechanical technologies, while reducing anthropogenic sources of carbon pollution at the same time. Specifically, the 2022 scoping plan:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 or earlier.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as a driving principle throughout the document.
- Incorporates the contribution of natural and working lands to the state's GHG emissions, as well as its role in achieving carbon neutrality.
- Relies on the most up to date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration as well a direct air capture.
- Evaluates multiple options for achieving our GHG and carbon neutrality targets, as well as the public health benefits and economic impacts associated with each.

https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp.pdf

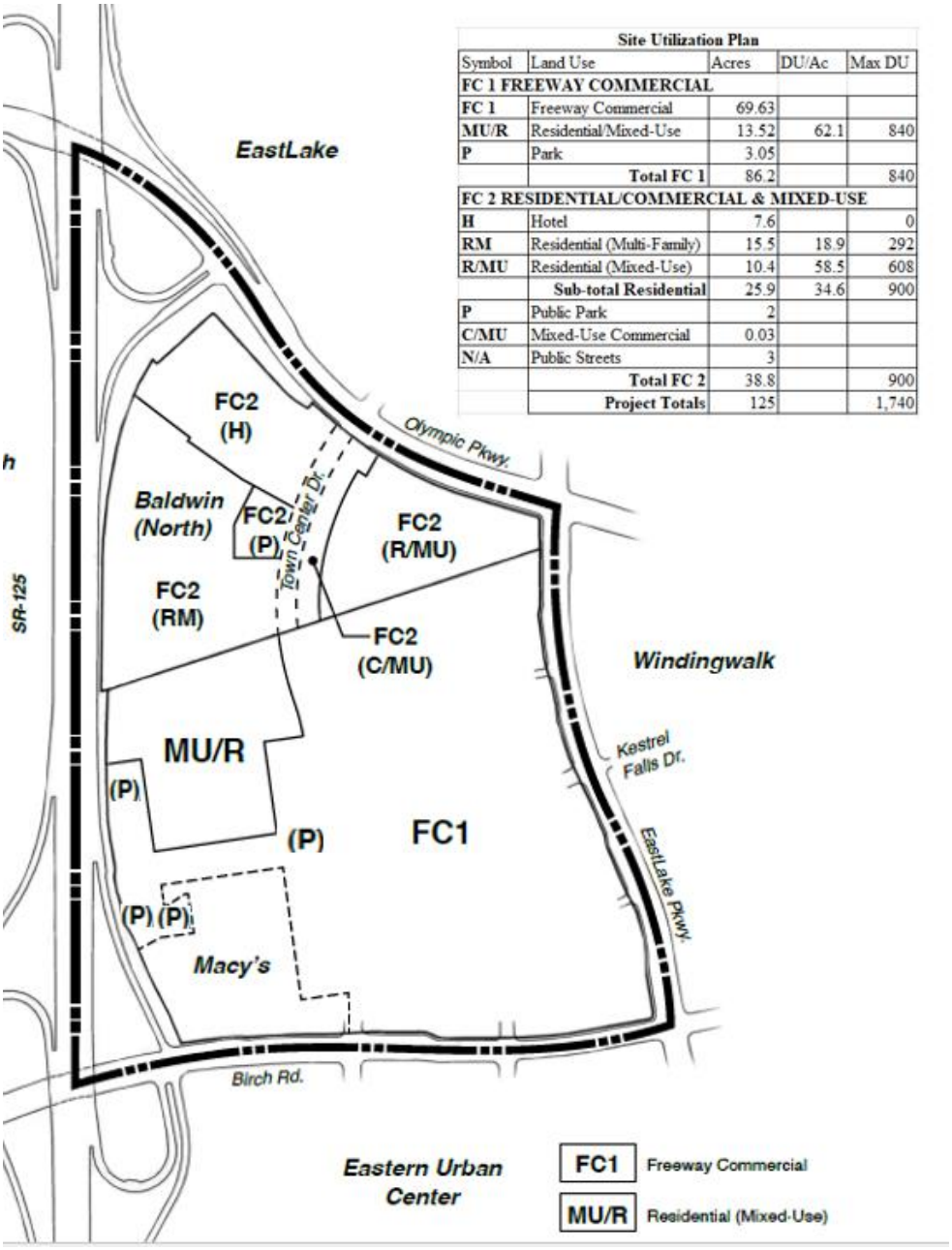
3. PROJECT DESCRIPTION

The existing FC 1 (Otay Ranch Town Center) portion of the FC SPA is entitled for 960,000 square-feet of commercial space, as shown on Figures 3 and 4. The proposed project would amend the FC SPA Plan to allow up to 816,000 square feet of commercial space, up to 840 residential units, and 2.73-acres of public plaza/park space.

The approximately 16.57-acres of the northwest quadrant of the Otay Ranch Town Center will be rezoned from Commercial to Mixed-Use/Residential. Town Center Drive will be extended south from FC 2 to the northern limit of the existing commercial center. The existing Town Center would continue to operate, but demolition of 37,200 square feet of existing commercial space is proposed, to be replaced with a ground-floor commercial area within the Mixed-Use/Residential (MU/R) building. The commercial area to be demolished is located along the northwestern portion of Main Street/Kestrel Falls Road. This would allow for the construction of one of three proposed residential buildings. The other two buildings, which would be strictly residential, would be north of the Mixed-Use/Residential (MU/R) building on the portion of the site that is currently vacant/parking lot.

The 2.73-acres of public plaza/park space will serve both residents of the project as well as visitors to the commercial spaces. The spaces are intended for general use and open to the public. These spaces will encourage pedestrian-scale activity and allow residents park and open space areas to enjoy the temperate climate of Otay Ranch.

Town Center Drive will, generally, bisect the northern portion of FC 1 in a north to south direction. The extension of Town Center Drive would promote a walkable, safe, and visually appealing roadway for residents of FC 1 and FC 2, as well as visitors to the entire SPA. The roadway would have a narrower street to encourage slower travel and multimodal travel, angled parking, a landscaped median, landscaped buffers along the edges, and wide pedestrian sidewalks.



Site Utilization Plan

Symbol	Land Use	Acres	DU/Ac	Max DU
FC 1 FREEWAY COMMERCIAL				
FC 1	Freeway Commercial	69.63		
MU/R	Residential/Mixed-Use	13.52	62.1	840
P	Park	3.05		
	Total FC 1	86.2		840
FC 2 RESIDENTIAL/COMMERCIAL & MIXED-USE				
H	Hotel	7.6		0
RM	Residential (Multi-Family)	15.5	18.9	292
R/MU	Residential (Mixed-Use)	10.4	58.5	608
	Sub-total Residential	25.9	34.6	900
P	Public Park	2		
C/MU	Mixed-Use Commercial	0.03		
N/A	Public Streets	3		
	Total FC 2	38.8		900
	Project Totals	125		1,740

Figure 3: Proposed SPA Land Use Plan

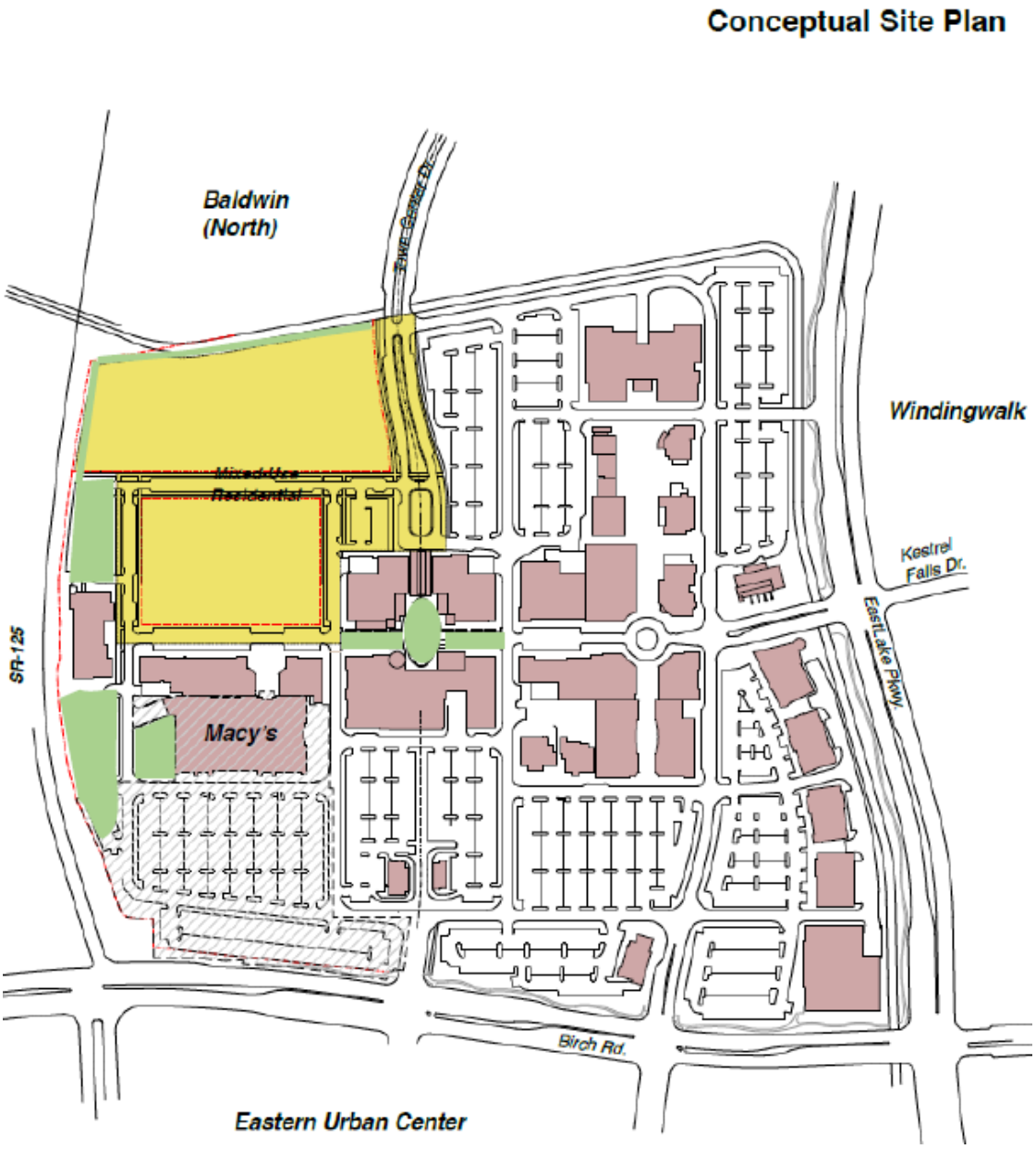


Figure 4: Proposed Site Plan Illustration

4. EFFECT OF PROJECT ON LOCAL/REGIONAL AIR QUALITY

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

The project site is currently served by three Metropolitan Transit Service (MTS) Routes. The project is served BRT and local bus routes. The northwest corner of Main Street and Eastlake Parkway includes a Park & Ride as well as a Transit Stop.

Construction Related Emissions

Air pollutant emission sources during project construction include exhaust and particulate emissions generated from construction equipment; fugitive dust from site preparation, grading, and excavation activities; and volatile compounds that evaporate during site paving and painting of structures. Because of their temporary nature, construction activity impacts have often been considered as having a less-than-significant air quality impact. However, the cumulative impact from all simultaneous construction in the basin is a contributor to the overall pollution burden.

Impacts to air quality are addressed in Section 5.4 of the FEIR. The FEIR found that impacts associated with air quality standard violations would be significant and unavoidable. The FEIR found that volatile organic compound (VOC) and oxides of nitrogen (NO_x) emissions would exceed thresholds during construction, and that carbon monoxide (CO), VOC, NO_x, and particulate matter less than 10 microns in diameter (PM_{10}) emissions would exceed thresholds during operation. Given the air quality–related impacts identified in the FEIR, Mitigation Measures 5.4-1 through 5.4-4 were incorporated in project design to address emissions of VOCs, NO_x, CO, sulfur oxides (SO_x), PM_{10}, and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) during construction and operation. The proposed project would comply with the mitigation measures to the extent they are applicable.

As indicated in the Air Quality and GHG Technical Report prepared for this project (Dudek 2022) construction would not exceed SCAQMD's daily thresholds. Therefore, construction impacts associated with criteria air pollutant emissions would be less than significant. When compared to construction emissions from the original FEIR, emissions of CO and PM_{10} from the project modifications would slightly exceed original project emissions estimates. However, consistent with the findings of the original FEIR, neither CO nor PM_{10} would exceed the applicable daily significance thresholds.

Further, it should be noted that this development is subject to SDAPCD Rule 55 - Fugitive Dust Control that requires restrictions of visible emissions of fugitive dust beyond the property line. Construction fugitive dust will be reduced by implementing the following dust control measures:

- Watering active grading sites and unpaved roads three times daily to control fugitive dust to meet the requirements of SDAPCD Rule 55.
- Use of low-VOC as required under SPAPCD Rule 67.0.
- Replacement of ground cover as quickly as possible.
- Reducing speeds on unpaved roads to 15 miles per hour or less.
- Reduce dust during loading and unloading operations.

Air Quality

Operational Air Quality impacts associated with the FC 1 project would include impacts associated with vehicular traffic, as well as area sources such as energy use, consumer products use, and architectural coatings use for maintenance purposes. Emissions associated with project operations were estimated in the Air Quality and GHG Technical Report (Dudek 2022) using the CalEEMod Model. As determined therein, operational impacts would not exceed SCAQMD's significance thresholds during operations, except for VOC. The FEIR previously found that all criteria pollutant emissions would exceed thresholds during operation, including CO, VOC, NO_x, and PM_{10}. The proposed modifications would result in reduced impacts compared to the FEIR; however, the VOC impact would continue to be significant, but reduced when compared to VOC emissions from the FEIR.

The San Diego Air Basin has been designated as a federal nonattainment area for O_3 and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions associated with construction generally result in near-field impacts. The nonattainment status is the result of cumulative emissions from all sources of these air pollutants and their precursors within the San Diego Air Basin. As indicated in Tables 2 and 3, project-generated construction and operational emissions would not exceed SCAQMD's emissions-based significance thresholds for NO_x, CO, SO_2, PM_{10}, or $PM_{2.5}$. The proposed project would generate operational emissions that would exceed SCAQMD's VOC thresholds, and the FEIR also found that VOC emissions during operation would exceed thresholds.

The FEIR estimated that operation of the project would exceed VOC thresholds by 264 pounds per day. The proposed project would exceed VOC thresholds by an estimated 7.24 pounds per day, a significant decrease. Therefore, VOC emissions would be significant, but not more severe than determined in the FEIR. No new substantially significant sources of operational air emissions beyond those identified in the FEIR would occur with implementation of the proposed project and Mitigation Measures 5.4-1 through 5.4-4 from the FEIR.

Global Climate Change

Operational and Construction GHG impacts were disclosed within the Air Quality and GHG Technical Report (Dudek 2022) which also relied upon the same CalEEMod Model as the Air Quality report. As determined therein, the GHG emissions generated by the Project would not conflict with the goals and policies of the Chula Vista Climate Action Plan, the CARB Scoping Plan, and the Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS). Project impacts relative to greenhouse gas emissions/global climate change were determined to be less than significant; the implementation of mitigation measures is not required. Refer to the Air Quality and GHG Technical Report (Dudek 2022) for additional discussion.

Consistency with Air Quality Plans

The FEIR found that the original project would exceed air quality thresholds, but concluded that as the Otay Ranch GDP project had been planned for many years and included in regional transportation and air quality planning, it would not conflict with or obstruct implementation of the RAQS or SIP.

The most recent Regional Housing Needs Assessment from the San Diego Association of Governments (SANDAG) stated that the City needs to build 11,105 housing units from 2021 through 2029 (SANDAG 2019). The project is expected to bring 840 units to market from 2026 to 2030 as each phase completes, which would be within SANDAG's growth projection for housing during the 6th Cycle planning horizon. Therefore, the project would not conflict with SANDAG's regional growth forecast for the City.

In addition, the project as proposed would not result in a significant amount of new mobile trips above what was proposed in the FEIR. As indicated in the Traffic Analysis (LLG 2022), the proposed project would generate fewer trips than the amount to which the Otay Ranch Town Center is entitled, and a vehicle miles traveled analysis was not required. Therefore, the project's VMT and associated mobile source emissions are within what was previously evaluated in the FEIR. The increase in the housing units and associated vehicle source emissions is not anticipated to result in air quality impacts that were not envisioned in the F projections and Regional Air Quality Strategy, and the minor increase in residential units in the region would not obstruct or impede implementation of local air quality plans.

Health Risk Assessment

Due to the project's proximity to SR-125, a Health Risk Assessment was prepared for the proposed modifications by LDN Consulting Inc. (2022). A Health Risk Assessment was not prepared as part of the FEIR.

New residential units have tighter building envelopes and better heating and ventilation systems that are compatible with energy-efficient designs. All proposed residential units would have mechanical heating and ventilation systems consistent with the latest building codes, such as Title 24. Typical indoor air filtration systems used within current heating and ventilation systems in California have a Minimum Efficiency Reporting Value ("MERV") of 13. The MERV rating is used to describe how well a particular filtration media removes particles from the air. The U.S. Environmental Protection Agency found that MERV 13 filtration on a supply ventilation system reduced particulates of 1 to 3 microns by 85%, and particles less than 10 microns (PM_{10}) by 90% relative to outdoor ambient air (EPA 2022).

It was determined that, based on the worst-case scenario for outdoor receptors, cancer risks would not exceed the applicable significance threshold of 10 per 1 million exposed with the use of MERV 13 heating and ventilation systems. As indicated in the Health Risk Assessment, the maximum risk exposure is 7.06 after 70 years of exposure.

5. QUANTITATIVE PROJECT DESIGN EVALUATION

Criterion Planners Inc. has performed a quantitative analysis for FC 1 project using Option (2): Alternative Modeling Programs, specifically Leadership in Energy and Environmental Design – Neighborhood Development (LEED-ND) equivalency analysis (LEA). This analysis only pertains to the FC 1 site and represents implementation of the 2003 full FC SPA AQIP which acknowledged that detailed FC 1 site planning had not yet occurred. With that planning now complete, sufficient data is available to support an LEA and fulfill the SPA AQIP requirements for FC 1.

- LEED-ND criteria are proposed as being more appropriate than INDEX indicators for FC 1 for four reasons:
- INDEX indicators and thresholds were originally developed using residential pilot projects in contrast to the mixed uses of FC 1 and FC 2. This difference was acknowledged in the 2004 full SPA AQIP, Section II.7.3.
- INDEX indicators are primarily internal-focused, whereas FC 1 is an infill project whose AQIP value derives in large part from surrounding uses that will interact with FC 1 uses. 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 2014, and amended in 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.

Based on the amended FC 1 site development plan, the LEA finds that the amended FC 1 plan results in minor ND criteria changes (residential density, residential share of total floor area, diversity of residential units), but the changes are so small as to not alter the original SPA plan ND score of 56 points (see following amended scorecard table). Based on Criterion's original development of the INDEX indicator thresholds for the City, and the firm's experience certifying over 100 LEED-ND projects nationally, they have concluded that a base ND certification of 40 points is the functional equivalent of the INDEX thresholds, and a score of 56 points therefore represents a notable exceedance of the thresholds, and clear AQIP compliance.

Table ES1 identifies the INDEX indicators which correspond to each of the LEED ND credits achieved by Otay Ranch Town Center. Each INDEX indicator has at least one corresponding ND credit, and on average each indicator has four corresponding ND credits. Where it matters the most for GHG emissions, auto driving and building energy, the ND coverage jumps to 10 and 8 credits, respectively. The ND approach is able to double or triple the depth and extent of measurements in relation to INDEX indicators.

Table ES1
Otay Ranch FC-1 SPA Amendment - LEED-ND v2009 Equivalency Scorecard

LEED-ND v2009 Prerequisites and Credits		Options	*Amended* FC North Prerequisite Compliance and Equivalency Points	*Amended* FC North Notes
SLLp1	Smart Location	Transit served	Yes	50-percent of dwellings and business within 1/2-mile walk of 179 weekday transit trips and 46 weekend daily trips (inclusive of BRT)
SLLc1	Preferred Locations	1. Location type	3	Infill site, not previously developed
		2. Connectivity	1	200 intersections/sq mi
SLLc3	Reduced Auto Dependence	1. Transit served	3	Weighted allocation of points based on 179 weekday trips and 46 weekend daily trips (inclusive of BRT)
SLLc4	Bike Network	Bicycle network	1	Existing bicycle network of at least 5-miles within 1/4-mile bicycling distance of project boundary
SLLc5	Housing/Jobs Proximity	1. Affordable residential infill	3	71-percent residential share of total floor area, and geographic center of project within 1/2-mile walk distance of more than 900 jobs
SLLc6	Steep Slopes	1. No slope over 15%	1	No substantive slopes over 15-percent
SLLc7	Habitat Site Design	1. No habitat	1	No significant habitat
LEED-ND v2009 Prerequisites and Credits		**Options**	***Amended* FC North Prerequisite Compliance and Equivalency Points**	***Amended* FC North Notes**
NPDp1	Walkable Streets		Yes	90-percent of public-space facing building frontages with entries connected to sidewalks; 15-percent of street frontages with a building height to street width ratio of 1:3; 90-percent of streets with sidewalks on both sides; and less than 20=percent of street frontages devoted to garage or service bay openings
NPDp2	Compact Development		Yes	Residential density of 33.7 DU/acre, and non-residential density of 1.5 Floor Area Ratio (FAR) (weighted between retail and
NPDp3	Connected and Open		Yes	Internal connectivity of 200 intersections/sq mi, and perimeter through-connections at least every 800-feet, except where physically-infeasible
NPDc1	Walkable Streets	a. 25-feet setback	8	80-percent of street facing building façades no more than 25-feet from the property line
		d. Entries every 75-feet		Functional entries to buildings occur at an average of 75-feet or less
		f. Ground-level glass facades		Ground-level retail/service spaces with clear-glass on 60-percent of façade
		g. No blank walls		Blank walls along sidewalks of no more than 50-feet or 40-percent of façade length
		h. Unshuttered retail windows		Ground-level retail/service spaces remain un-shuttered at night

		i. On-street parking		On-street parking allowed on internal streets
		j. Sidewalks		All streets have sidewalks on both sides
		k. Ground floor dwellings above grade		Ground-floor dwellings at least 24 inches above grade
		n. 20-mph residential streets		20-mph residential streets
		o. 25-mph non-re/mixed-use streets		25-mph non-residential/mixed-use streets
		p. Driveways limited		Driveway widths are no more than 10-percent of total street length
NPDc 2	Compact Development	Compact development	3	Residential density of 33.7 DU/acre, and non-residential density of 1.5 Floor Area Ratio (weighted between retail and hotels)
NPDc 3	Mixed Use Centers	Mixed use centers	4	Over 19 diverse uses within 1/4-mile walk of 50-percent of dwellings
NPDc4	Mixed Income	1. Diverse housing types	2	Site Development Index (SDI) of 0.67
		2. Affordable housing	2	10-percent of units up to 60-percent of AMI
		3. Mixed Income Diverse Communities	1	Options 1 and 2 bonus point
NPDc	Transit Facilities	Transit stop facilities	1	Transit stop planning/ongoing coordination
NPDc 9	Access to Civic Spaces	Access to civic spaces	1	90-percent of dwelling units within 1/4-mile walk distance of civic space
NPDc1 0	Access to Recreation	Active rec space outdoors/indoors	1	90-percent of dwelling units within 1/2-mile walk distance of recreational facilities
NPDc1 1	Visitability and Universal Design	1. Residential units	1	100-percent of Dwelling Unit (DU) compliant
LEED-ND v2009 Prerequisites and Credits		**Options**	***Amended* FC North Prerequisite Compliance and Equivalency Points**	***Amended* FC North Notes**
NPDc1 2	Community Outreach	1. Community outreach	1	Consultation with stakeholders throughout and communications Ongoing
NPDc1	Local Food	1. Neighborhood gardens	1	Neighborhood garden planned
		3. Farmers market		Farmers market at Town Center
NPDc1 4	Tree-Lined/Shaded Streets	1. Tree-lined streets	1	60-percent of streets with shade trees at least every 40-feet.
		2. shaded streets	1	40-percent of sidewalks shaded
NPDc1 5	School Proximity	School proximity	1	62-percent residential share of total floor area, and 50-percent of dwelling units within 1/2-mile walk distance of elementary and high schools (with BRT crossing)
GIBp1	Certified Green Building	Certified green building	Yes	One building assumed, consistent with regional certification rates
GIBp2	Minimum Building Energy	Minimum building energy efficiency	Yes	California energy code exceeds LEED-ND 2009 minimum
GIBp3	Minimum Building Water Efficiency	Minimum building water efficiency	Yes	California plumbing code exceeds LEED-ND 2009 minimum
GIBp4	Construction Pollution Prevention	Construction pollution prevention	Yes	California pollution prevention code exceeds LEED-ND 2009 minimum

GIBc2	Energy Efficient Buildings	Energy efficient buildings	1	California energy code equates to LEED-ND 2009 one-point level of energy savings
GIBc3	Water Efficient Buildings	Water efficient buildings	1	California plumbing code equates to LEED-ND 2009 one-point level of water savings
GIBc4	Water Efficient Landscaping	Water efficient landscaping	1	California water code exceeds LEED- ND 2009 minimum
GIBc9	Heat Island Reduction	3. Mix of roof and non-roof measures	1	Mix of roof and non-roof measures on 75-percent of qualifying areas
GIB c13	Infrastructure Energy Efficiency	Energy efficient infrastructure	1	15-percent efficiency gain assumed
IDPc1	Innovation	Exemplary performance	1	30+ diverse uses
IDPc2	Innovation	Exemplary performance	1	Outdoor irrigation efficiency
IDPc3	Innovation	Innovation	1	Achievement of SLLc5 Option 3 - non-residential infill
IDPc4	Innovation	Innovation	1	Environmentally-responsible landscape maintenance program assumed
IDPc2	LEED Accredited Professional	LEED AP on team	1	LEED AP assumed
RPc1	Regional Priorities	Regional priorities	4	Building water efficiency, walkable streets, shaded streets, mixed use neighborhoods
		Total equivalent points	**56**	***Total Corresponding LEED-ND Measurements***
		Equivalent certification level	***Silver***	

6 COMMUNITY DESIGN AND SITE PLANNING FEATURES

This section describes the specific strategies that have been integrated into the project to create a sustainable community, including those project attributes designed to reduce air quality impacts by promoting walking and alternative travel modes, reducing vehicle miles traveled, and improving energy conservation. Figure 5: Community Design and Site Plan Features, includes the list of specific measures that have been included in the project.

Figure 5: Community Design and Site Plan Features

Transportation Related Measures
Otay Ranch Town Center provides a complementary, mixed-use environment with a focus on promoting a walkable and bikeable community that promotes pedestrian activity and non-automobile trips. Higher density uses support walking as distances are reduced, which results in lower GHG emissions from vehicles.
Otay Ranch Town Center provides an integrated circulation system which enhances the Project mixed use design enabling more non-automobile related circulation options.

Otay Ranch Town Center design includes a pedestrian bridge over the SR-125 which extends from the surrounding neighborhoods directly to the project site. This will have the benefit of reducing automobile trips into the Otay Ranch Town center from adjacent residential land uses as well as connectivity to transit stops.
Bike lanes and bike racks will be provided throughout the Otay Ranch Town Center development footprint.
All internal roadways within the Otay Ranch Town Center were designed to local street standards with speed limits of 25 to 30-mph. Slow traffic speeds are conducive to walking and bicycling and provide the necessary linkage to the regional bicycle circulation network.
Low speed vehicles (LSVs) may travel on all internal streets with a maximum travel speed of 20-30-miles per hour.
The Project is consistent with the regional transit plan and South Bay Bus Rapid Transit (BRT) plans by extending East Palomar Street along the southern boundary of the project.
The Project will add a local transit stop at the southeast intersection of Olympic Parkway and Town Center Drive, closest to the hotels and mixed-use commercial uses. This transit stop promotes the use of local transportation and reduces vehicle traffic from the Project which would directly reduce air quality and greenhouse emissions.
The Project would synchronize traffic lights which will improve level of service in the area. This improved level of service will reduce the time vehicles are at intersections near the project and would reduce air quality emissions by reducing traffic congestion.
Energy Conservation Related Measures
The residential uses will be limited to multi-family uses at the highest density allowed under the proposed land use. Since multi-family units have a reduced energy footprint compared to single family uses, a reduced energy footprint per capita would be expected. This would indirectly reduce air and greenhouse gas emissions.
CVMC 8.25.095 requires all new construction and demolition projects to divert 100 percent of inert waste (asphalt, concrete, bricks, tile, trees, stumps, rocks and associated vegetation and soils resulting from land clearing from landfill disposal); and 50 percent of all remaining waste generated. Contractors working on Otay Ranch Town Center will be required to put up a performance deposit and prepare a Waste Management Report form to ensure that all materials are responsibly handled. Upon verification that the diversion goals have been met the performance deposit will be refunded.
Utilize solar heating technology as practical. Generally, solar panels can be cost-effectively used to heat water for domestic use and for swimming pools. Advances in solar technology in the future may make other applications appropriate.
The Project will utilize the latest building code to include Title 24 at the time a building permit is requested. At the time of this AQIP, Title 24 (2022) would be utilized. Incorporating energy reduction measures of Title 24 will reduce energy requirements which will reduce air quality and greenhouse gas emissions.
The Project would install solar water heater pre-plumbing for all residential units in the Otay Ranch Town Center development.

The Project will provide prewiring for any future photovoltaic systems to be installed by future residents within all residential units of the Otay Ranch Town Center development.
The Project would install grey water stub outs at residential units.
Other Measures to Improve Air Quality
Install only electric or natural gas fireplaces in new development. Wood burning fireplaces will be prohibited which will reduce particulate matter from being deposited into the air.
When siting sensitive land uses such as residences, schools, day care centers, playgrounds, and medical facilities the recommendations set forth in Table 1-1 of California Air Resources Board's (CARB) Land Use and Air Quality Handbook (CARB 2004) will be used as a guideline. Specifically, new sensitive uses would not be located within 50-feet of any typical-sized gas station (one that has a throughput of less than 3.6-million gallons per year). No gas stations with a throughput of 3.6-million gallons per year or greater shall be developed within the project. These efforts will ensure residential uses are not exposed to excessive air quality emissions which will limit chronic and acute health risks. Also, the Project will install air filtration having a Minimum Efficiency Reporting Values (MERV) of 13 at all residential unit areas adjacent to SR 125.
The Project will ensure shade trees are planted to meet or exceed the City's Shade Tree Policy. Parking lot design will all achieve at least a 50-percent shade cover in 5 to 15 years through tree canopies, shade structures and or light colored "cool" paving surfaces.
The Project will use Architectural coatings consistent with San Diego Air Pollution Control Districts Rule 67. This will limit the VOCs entering the ambient air.

7. CHULA VISTA CO_2 REDUCTION PLAN

This section provides a comparative evaluation between the community/site design features specific to Otay Ranch Town Center and the energy efficiency emission reduction action measures contained in the City's CO_2 Reduction Plan.

Figure 6: Summary of Otay Ranch Town Center SPA CO_2 Reduction Action Measures

Action Measure	**Project/Community Design Features**	**Describe how project design will Implement CO_2 Reduction Action Measures**
Measure 6 (Enhanced Pedestrian Connections to Transit): Installation of walkways and crossings between bus stops and surrounding land uses.	The Project will add a local transit stop at the southeast intersection of Olympic Parkway and Town Center Drive, closest to the hotels and mixed-use commercial uses. Otay Ranch Town Center SPA provides a complementary, mixed-use environment with a focus on promoting a walkable and bikeable community that promotes pedestrian activity and non-automobile trips.	This transit stop along with the walkable design promotes the use of local transportation and reduces vehicle traffic generation from the Project which results in lower GHG emissions from vehicles.
Measure 7 (Increased Housing Density near Transit): General increase in land use and zoning designations to reach an	Otay Ranch Town Center SPA provides as dense mixed-use development with 840 residential units on a 15.46 acre area	This design dense design has access to transit areas which provides an opportunity to reduce vehicle traffic generation from the Project which

Action Measure	**Project/Community Design Features**	**Describe how project design will Implement CO_2 Reduction Action Measures**
average of at least 14-18 dwelling units per net acre within ¼ mile of major transit facilities.	(54 units/acre) and includes a transit stop location.	results in lower GHG emissions from vehicles.
Measure 8 (Site Design with Transit Orientation): Placement of buildings and circulation routes to emphasize transit rather than auto access; also includes bus turn-outs and other transit stop amenities.	The Project is consistent with the regional transit plan and South Bay Bus Rapid Transit (BRT) plans by extending East Palomar Street along the southern boundary of the project.	The Site Design has been developed with focus on transit and includes circulation routs conducive to non-automobile transportation opportunities which reduces vehicular travel resulting in lower GHG emissions.
Measure 9 (Increased Land Use Mix): Provide a greater dispersion/variety of land uses such as siting of neighborhood commercial uses in residential areas and inclusion of housing in commercial and light industrial areas.	The Otay Ranch Town Center SPA converts commercial uses to high density residential uses to enhance the overall mixed-use design.	The greater variety of land uses provided by the Otay Ranch Town Center SPA which reduces vehicular travel resulting in lower GHG emissions.
Measure 10 (Reduced Commercial Parking Requirements): Lower parking space requirements; allowance for shared lots and shared parking; allowance for on-street spaces.	The SPA converts a portion of Main Street from parking lot and drive isle into a park plaza, which activates the heart of the Shopping Center by creating a pedestrian-friendly environment and amenity. In addition, the Project would allow for on-street parking which reduces the need for large parking lots	The proposed SPA vehicular travel reduces the parking lot areas and increases pedestrian access providing for an environment conducive to reducing vehicular travel resulting in lower GHG emissions.
Measure 11 (Site Design with Pedestrian/Bicycle Orientation): Placement of buildings and circulation routes to emphasize pedestrian and bicycle access without excluding autos; includes pedestrian benches, bike paths, and bike racks.	The Site design has been adjusted to increase pedestrian access through pedestrian friendly amenities. The Project would install multiple bike access paths, bike racks and storage. The Project would be consistent with Cal Green requirements for nonresidential buildings.	The redesign promotes pedestrian and bicycle access which reduces vehicular travel which will reduce GHG emissions. The Project design will be consistent with CalGreen and local regulations which established benchmarks for bicycle rack placement, storage placement and showers as needed to be successful under Measure 11.
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.	As noted in Measure 11 Design Features, the site design has been adjusted to increase pedestrian access through pedestrian friendly amenities. The Project would install multiple bike access paths, bike racks and storage. The Project would be consistent with Cal Green requirements for nonresidential buildings.	The redesign promotes pedestrian and bicycle access which reduces vehicular travel which will reduce GHG emissions. The Project design will be consistent with CalGreen which established benchmarks for bicycle rack placement, storage placement and

Action Measure	Project/Community Design Features	Describe how project design will Implement CO_2 Reduction Action Measures
		showers as needed to be successful under Measure 12.
Measure 13 (Bike Lanes, paths, and Routes): Continued implementation of the City's bicycle master plan. Emphasis is to be given to separate bike paths as opposed to striping bike lanes on streets.	The SPA would provide specific bike paths within the Otay Ranch Town Center development	The Project will provide specific bike paths as noted in Measure 11 and 12 which would reduce vehicular traffic and reduce GHGs.
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.	The Otay Ranch SPA has been designed to increase density which in turn reduces landscaping and would also install shade trees throughout the development.	The Otay Ranch SPA has been designed to increase density which in turn reduces landscaping. The SPA would limit the uses of grasses and high-water dependent landscaping features. The Project would Plant Trees and encourage drought tolerant native plants. The Project would encourage mulch usage to reduce water evaporation. Reducing water requirements and increasing shade trees reduces energy consumption directly and indirectly through reduced energy and water demand which reduces GHG emissions.
Measure 16 (Traffic Signal & System Upgrades): Provide high-efficiency LED lamps or similar as approved by the City Engineer.	The City of Chula Vista's traffic intersections are being upgraded with smart traffic controls as part of a master plan adopted by the City Council in 2017. In addition, the City's lights can be updated with LED. The Project would install the latest intersections where applicable.	Traffic Signal improvement is achieved through better controls and synchronization which limits idling time at controlled intersections. LED lights reduce energy. The combined effort to improve controls and synchronization and the improvement to the lighting technologies would reduce GHG emissions.

Action Measure	Project/Community Design Features	Describe how project design will Implement CO_2 Reduction Action Measures
Measure 18 (Energy Efficient Building Recognition Program): Reducing CO2 emissions by applying building standards that exceed current Title 24 Energy Code requirements.	Project will meet code.	The latest Title 24 building code is 2022 at the time of this report. The Project buildout would be over multiple years and would be required to implement the latest code requirement at the time building permits are submitted. Because of this, GHG emission reductions from building code enhancements will be achieved for the Otay Ranch Town Center development.
Measure 20 (Increased Employment Density Near Transit): General increase in land-use and zoning designations to focus employment-generating land-uses within ¼ mile of major transit stops throughout the City.	The Project will add a local transit stop at the southeast intersection of Olympic Parkway and Town Center Drive, closest to the hotels and mixed-use commercial uses. Otay Ranch Town Center SPA provides a complementary, mixed-use environment with a focus on promoting a walkable and bikeable community that promotes pedestrian activity and non-automobile trips.	Overall, the Project increases the transit activities to the hotels and mixed use commercial areas which has a combined effect of increasing the usage of transit. The Otay Ranch Town Center development would reduce GHG emissions through this SPA.

8. CREDIT TOWARDS INCREASED MINIMUM ENERGY EFFICIENCY STANDARDS

The Otay Ranch Town Center SPA will ensure that all development complies with the latest building codes including maximizing consistency with energy codes and would comply with Chapter 15.12 (Green Building Standards) and Chapter 15.26 (Energy Code) of Chula Vista's Municipal Code.

9. COMPLIANCE MONITORING

This section includes a written description and a checklist (Figure 7) summarizing the project design features and mitigation measures that have been identified to reduce the development's effects on air quality and improve energy efficiency.

Figure 7: Air Quality Improvement Plan Compliance Monitoring Checklist

	Method of Verification[1]	**Timing of Verification**	**Responsible Party[2]**	**Project Consistency & Compliance Documentation[3]**
PLANNING				
AQIP Project Design Features/Principles				
Pedestrian oriented development	Plan Review	Tentative Map (TM)	City of Chula Vista	
Widened landscape medians and parkways with street trees	Plan Review	TM	City of Chula Vista	
Integrated circulation system	Plan Review	TM	City of Chula Vista	
Mix of uses	Plan Review	TM	City of Chula Vista	
Higher density (54 units/acre)	Plan Review	TM	City of Chula Vista	
Local Bus Stop	Transit Review	TM	SANDAG/City	
Class II Bicycle facilities	Plan Check	TM	City of Chula Vista	
Opportunity for employee services to be located near employers	Plan Review	TM	City of Chula Vista	
Circulation pattern for internal roads are between 20 and 30 miles per hour	Plan Review	TM	City of Chula Vista	
Available public transportation	Plan Review	TM	City of Chula Vista	
Transit Plan	Transit Review	TM	SANDAG/MTS/ City	
Compliance with the City's Shade Tree Policy for parking lots	Plan Review	Precise Plan, Construction Plans	City of Chula Vista	
Air Quality Mitigation Measures				
Construction related emissions	Permit Review	Pre-Construction	City of Chula Vista	
Use of low-VOC paints - Rule 67	Permit Review	Pre-Construction	City of Chula Vista	https://www.sdapcd.org/content/dam/sdapcd/documents/rules/rule-archive/2021/Rule-67.0.1.pdf
Siting of sensitive land uses	Permit Review	TM	City of Chula Vista	

MERV 13 filtration installed at all residential units adjacent to SR-125.	Permit Review	Pre-Construction	City of Chula Vista	https://www.epa.gov/indoor-air-quality-iaq/what-merv-rating
BUILDING				
Green Building Standards				
New Construction Recycling Plan	Waste Management Report Review	Pre-Construction	City of Chula Vista	https://calrecycle.ca.gov/lgcentral/library/canddmodel/instruction/newstructures/
Project wide recycling	Plan Check	TM	San Diego County	
Energy Efficiency				
Compliance with 2022 California Energy Code or latest code per date of request for building Permit	Plan Check	Pre-Construction	City of Chula Vista	https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards
Participation in a Utility Demand Response program	Plan Check	Pre-Construction	City of Chula Vista	https://www.sdge.com/businesses/savings-center/energy-management-programs/demand-response
Compliance with 2022 CalGreen Indoor Water Use requirements	Plan Check	Pre-Construction	City of Chula Vista	https://www.dgs.ca.gov/BSC/CALGreen
Compliance with EPA's WaterSense certification	Plan Check	Pre-Construction	City of Chula Vista	https://www.epa.gov/watersense
Compliance with EPA's Energystar certification for indoor residential appliances	Plan Check	Pre-Construction	City of Chula Vista	https://www.energystar.gov/products
Efficient irrigation equipment	Plan Check	Pre-Construction	City of Chula Vista	
Water efficient / native landscaping will be provided	Plan Check	TM	City of Chula Vista	
Turf limited to 30-percent in residential areas	Plan Check	TM	City of Chula Vista	
Solar access - use passive solar design and building orientation	Plan Check	Pre-Construction	City of Chula Vista	
Solar access - Use of vertical landscape elements to reduce heating/cooling loads	Plan Check	Pre-Construction	City of Chula Vista	
Energy efficient LED lighting / for all streets, parks, and public spaces	Plan Check	Pre-Construction	City of Chula Vista	
Installation of solar water heater pre-plumbing	Plan Check	Pre-Construction	City of Chula Vista	

Installation of solar photovoltaic prewiring – (Solar Ready)	Plan Check	Pre-Construction	City of Chula Vista	https://www.nrel.gov/state-local-tribal/blog/posts/solar-ready-building-design-a-summary-of-technical-considerations.html
Installation of residential graywater stub-out	Plan Check	Pre-Construction	City of Chula Vista	

Notes:

1. Method of verification may include, but is not limited to, plan check, permit review, site inspection.
2. Identify the party responsible for ensuring compliance (City of Chula Vista, San Diego APCD, Other)
3. This column shall include all pertinent information necessary to confirm compliance including document type, date of completion, plan/permit number, special notes/comments, and contact information.