

# AIR QUALITY ASSESSMENT

## Otay Mesa Central Village Specific Plan Update to the Otay Mesa Community Planning Area

City of San Diego, CA

*Prepared By:*

***Ldn Consulting, Inc.***

42428 Chisolm Trail  
Murrieta, CA 92562

*Prepared For:*

CoRich  
444 West Beech Street, Suite 300  
San Diego, CA 92101

*in conjunction with:*

T&B Planning, Inc.

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ATTACHMENT C: AERMOD OUTPUT FILE
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ATTACHMENT E: EMFAC BURDEN MODEL 2020
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## **LIST OF ACRONYMS**

Air Quality Impact Assessments (AQIA) Assembly  
Bill 32 (AB32)  
Best available control technology (T-BACT)  
California Air Resource Board (CARB)  
California Ambient Air Quality Standards (CAAQS)  
California Environmental Quality Act (CEQA)  
Carbon Dioxide (CO<sub>2</sub>)  
Central Village Specific Plan (CVSP)  
Cubic Yards (CY)  
Diesel Particulate Matter (DPM) Environmental  
Protection Agency (EPA)  
EPA Office of Air Quality Planning and Standards  
Environmental Impact Report (EIR)  
(OAQPS) Hazardous Air Pollutants (HAPs)  
Hydrogen Sulfide (H<sub>2</sub>S) International Residential  
Code (IRC) Level of Service (LOS)  
Low Carbon Fuel Standard (LCFS) Methane (CH<sub>4</sub>)  
National ambient air quality standards (NAAQS)  
Nitrous Oxide (N<sub>2</sub>O)  
North County Transit District (NCTD) Reactive  
Organic Gas (ROG)  
Otay Mesa Community Plan Update (OMCPU)  
Regional Air Quality Strategy (RAQS) San Diego  
Air Basin (SDAB)  
San Diego Air Pollution Control District (SDAPCD)  
South Coast Air Quality Management District (SCAQMD)  
Specific Plan Area (SPA)  
State Implementation Plan (SIP) Toxic Air  
Contaminants (TACs) Vehicle Miles Traveled (VMT)

## **EXECUTIVE SUMMARY**

The City of San Diego certified a Final Environmental Impact Report for the Otay Mesa Community Plan Update in 2014 (EIR). The EIR disclosed potential air quality impacts that would result from implementing the Otay Mesa Community Plan Update (March 2014, "OMCPU") and presented mitigation measures to address the impacts. After the application of mitigation measures, the OMCPU concluded that construction-related and operational-related air quality impacts would be significant and unavoidable. The OMCPU requires the City of San Diego to adopt a Specific Plan for the Central Village portion of the community. The purpose of this Air Quality impact analysis is to evaluate the currently proposed Central Village Specific Plan (CVSP) and determine if expected air quality impacts fall within the scope of impacts disclosed in the EIR, and whether any additional mitigation measures beyond those presented in the EIR are warranted. Future development proposals in the CVSP area would require discretionary approval and be subject to additional CEQA review.

The OMCPU and associated EIR assumed the following land uses within the Central Village portion of the OMCPU area:

- ~~5,246~~ 4,768 multi-family dwelling units
- 32.7 ksf of community commercial
- ~~32.3~~ 18.16 acres of active park space
- 1 elementary school

The CVSP is proposing to change the land uses within the Central Village area to the following:

- 425 multi-family dwelling units (<20 du/ac)
- 4,060 multi-family dwelling units (>20 du/ac)
- 139.7 ksf of community commercial
- 16.1 acres of active park space
- 1 elementary school

The land use modifications proposed by the CVSP in comparison to the mix of land uses assumed for the Central Village by the OMCPU EIR are summarized below.

- A reduction of ~~764~~ 283 Multi-family dwelling units
- An increase of 107 ksf of community commercial floor space
- A reduction of ~~46.2~~ 2.06 acres of active park space

Because the development area (229.2 acres) assumed by the OMCPU EIR and the development area (229.2 acres) proposed by the CVSP are substantially similar, it is assumed that construction activities associated with buildout of the Central Village would largely remain the same as assumed by the OMCPU EIR in the Central Village area. The EIR's analysis of construction emissions

assumed that sources of construction-related air emissions would include: a) fugitive dust from grading activities; b) construction equipment exhaust; c) construction-related trips by workers, delivery trucks, and material-hauling trucks; and d) construction-related power consumption. (RECON, 2013). Based on industry-standard construction practices, these are reasonable assumptions for sources of construction activity air emissions in the Central Village. Thus, the CVSP would not result in an increase of construction emissions as compared to what was assumed in the OMCPU EIR.

Comparing the operational air quality emissions disclosed by the OMCPU EIR to the air quality emissions expected with buildout of the CVSP project demonstrates that the proposed CVSP project would decrease emissions of criteria air pollutants by between ~~8~~ 6% and ~~14~~ 15%, primarily due to the reduction in traffic that would be generated by the CVSP in compared to the amount of traffic assumed to be generated by the Central Village by the OMCPU EIR. According to the CVSP's *Transportation Facilities Trigger Analysis* (Chen Ryan & Associates, 2017), the CVSP is calculated to generate 36,345 average daily vehicular trips (ADT), which is less traffic than was assumed for the Central Village by the OMCPU EIR, at ~~45,429~~ 41,109 ADT. The ADT calculated by CVSP's *Transportation Facilities Trigger Analysis* included an internal capture rate based on the SANDAG Select Zone Analysis to account for trips within the CVSP that will have both an origin and destination within the CVSP site, and not utilize external roadway facilities. The CVSP's 36,345 ADT includes a 9.4% internal trip capture rate, while the assumed Central Village by the OMCPU EIR's 41,109 ADT includes a 4.67% internal trip capture rate. This report concludes that although operational air emissions would be ~~8~~ 6% to ~~14~~ 15% less, impacts would still be significant and, as such, the mitigation measures presented in the OMCPU EIR with respect to air quality emissions would still be applicable to implementing development projects. Future development proposals in the CVSP area would require discretionary approval by the City and be subject to additional CEQA review.

The CVSP would not result in the emission of any increased toxic air emissions in comparison to the OMCPU. In fact, the reduction in traffic volumes that would occur under the CVSP would reduce the potential emissions of air pollutants associated with vehicle exhaust. Regarding the potential for uses in the CVSP to be exposed to toxic air contaminants, the conclusions drawn herein are consistent with those drawn by the OMCPU EIR; Policies and Design Standards incorporated into the CVSP and mitigation measures required by the OMCPU EIR would preclude the exposure of on-site sensitive receptors to carcinogenic and non-carcinogenic health risk levels that exceed significance thresholds. Nonetheless, the OMCPU EIR disclosed the potential for significant and unavoidable effects associated with the collection of residential, commercial, and industrial land uses. Policies and Design Standards provided in the CVSP address this concern.

## **1.0 INTRODUCTION**

### **1.1 Purpose of this Study**

The purpose of this Air Quality study is to determine whether the proposed Central Village Specific Plan (CVSP) project, which implements the Central Village portion of the Otay Mesa Community Plan Update (March 2014, "OMCPU"), would result in any new or more severe impacts associated with air quality emissions as compared to the impacts disclosed in the Environmental Impact Report (EIR) prepared for the OMCPU. Because the proposed CVSP implements and is fully consistent with the OMCPU, the comparative portion of the analysis in this report focuses on differences in air quality emissions and diesel particulate matter emissions disclosed by the OMCPU EIR in comparison to the quantity of construction and operational air quality and diesel particulate matter emissions calculated by Ldn Consulting for the proposed CVSP project.

### **1.2 Project Location**

The Central Village Specific Plan (CVSP) area is located in the southern portion of the City of San Diego, within Otay Mesa Community. The CVSP is situated immediately south of California State Route 905 (SR-905), approximately 2.4 miles east of Interstate 805 (I-805) and Interstate 5 (I-5), and 0.5 mile north of the United States and Mexico International Border. Specifically, the CVSP is bordered by SR-905 and Airway Road to the north, Cactus Road and Continental Road to the east, and Siempre Viva Road to the south, which terminates at its western extent at Cactus Road at the southwest corner of the CVSP boundary. A general vicinity map showing the Otay Mesa Community Plan boundaries is shown in Figure 1–A on the following page and a map showing the CVSP within the Otay Mesa Community Plan is shown in Figure 1-B.

### **1.3 Project Description**

The OMCPU and associated EIR assumed the following land uses within the Central Village portion of the OMCPU area:

- ~~5,246~~ 4,768 multi-family dwelling units
- 32.7 ksf of community commercial
- ~~32.3~~ 18.16 acres of active park space
- 1 elementary school

The CVSP is proposing to change the land uses within the Central Village area to the following:

- 425 multi-family dwelling units (<20 du/ac)
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- 1 elementary school

The land use modifications proposed by the CVSP in comparison to the mix of land uses assumed for the Central Village by the OMCPU EIR are summarized below.

- A reduction of ~~764~~ 283 Multi-family dwelling units
- An increase of 107 ksf of community commercial floor space
- A reduction of ~~16.2~~ 2.06 acres of active park space

Because the development area (229.2 acres) assumed by the OMCPU EIR and the development area (229.2 acres) proposed by the CVSP are substantially similar, it is assumed that construction activities associated with buildout of the Central Village would largely remain the same as assumed by the OMCPU EIR in the Central Village area. The EIR's analysis of construction emissions assumed that sources of construction-related air emissions would include: a) fugitive dust from grading activities; b) construction equipment exhaust; c) construction-related trips by workers, delivery trucks, and material-hauling trucks; and d) construction-related power consumption. (RECON, 2013). Based on industry-standard construction practices, these are reasonable assumptions for sources of construction activity air emissions in the Central Village.

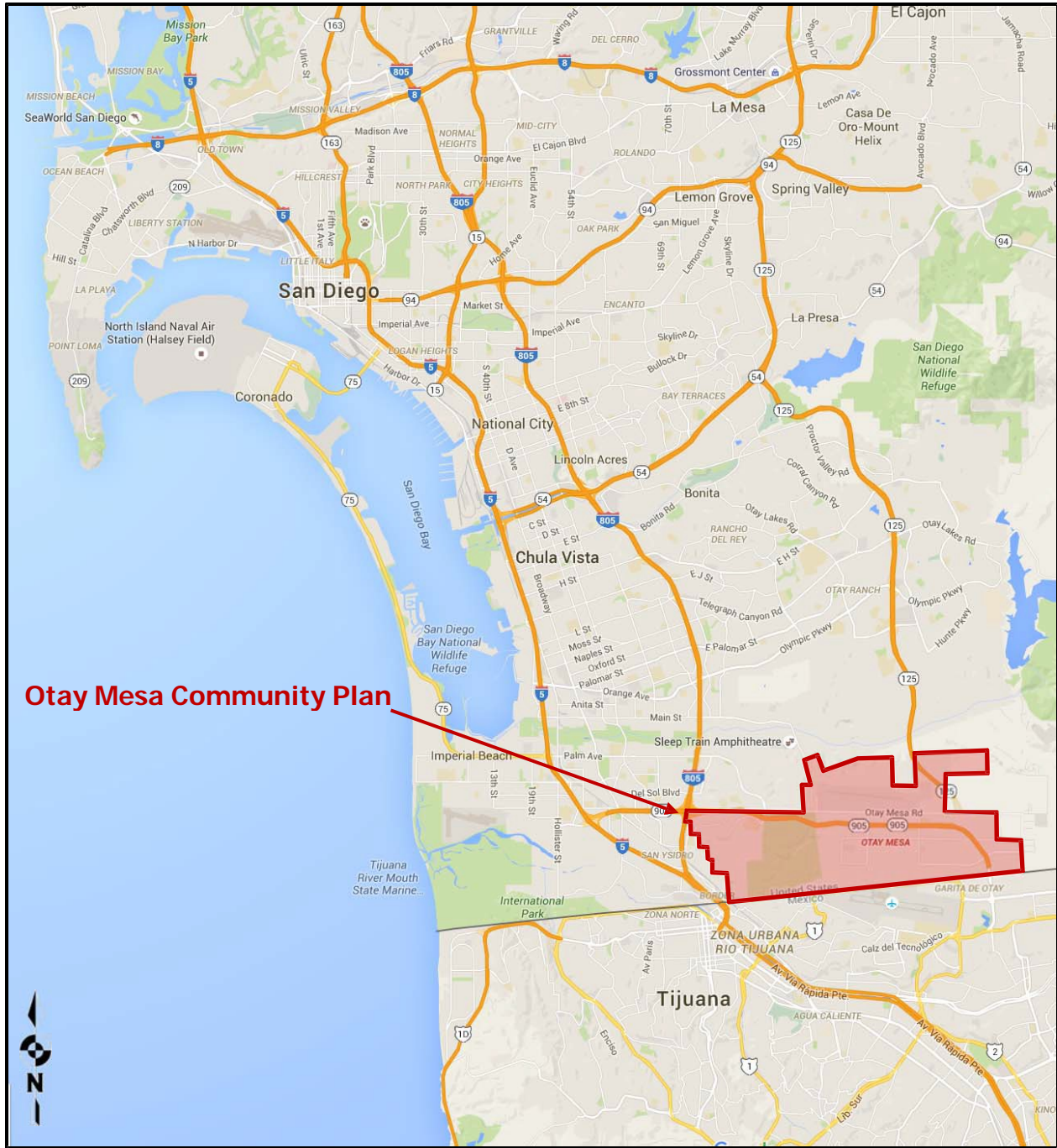
In regards to long-term operation of land uses in the CVSP, the proposed land use changes described above were analyzed in the CVSP's *Transportation Facilities Trigger Analysis* (Chen Ryan & Associates, 2017), and as stated therein, the CVSP is calculated to generate 36,345 average daily vehicular trips (ADT), which is less traffic than was assumed for the Central Village by the OMCPU EIR, at ~~45,429~~ 41,109 ADT. The ADT calculated by CVSP's *Transportation Facilities Trigger Analysis* included an internal capture rate based on the SANDAG Select Zone Analysis to account for trips within the CVSP that will have both an origin and destination within the CVSP site, and not utilize external roadway facilities. The CVSP's 36,345 ADT includes a 9.4% internal trip capture rate, while the assumed Central Village by the OMCPU EIR's 41,109 ADT includes a 4.67% internal trip capture rate. Also, the transportation analysis found that the increased commercial square footage would increase internal traffic from 4.67% to 9.4% or an additional 1,547 ADT. Given this, fewer vehicles will travel outside of the CVSP boundaries. Less external traffic means that vehicles will travel fewer miles, resulting in less vehicle miles traveled (VMT) and a lesser quantity of mobile source (vehicle tailpipe) air pollutant emissions.

The proposed CVSP's arrangement of land uses provides four times as much commercial area along the more heavily traveled Airway Road as compared to the less traveled Cactus Avenue as originally planned for by the OMCPU. Because Airway Road will carry higher traffic volumes than Cactus Road, it is expected that the CVSP would have increased pass-by trip usage. A pass-by trip means that a vehicle that is already on the road will stop to use a convenience use (to shop, get food, etc.) and reduce the need for an additional trip or longer trip for that purpose. Increased pass-by trips along Airway Road may ultimately reduce the number of trips from origin and destination points outside the CVSP boundaries. Less regional traffic means that vehicles will

travel fewer miles, resulting in a less VMT and a lesser quantity of mobile source (vehicle tailpipe) emissions.

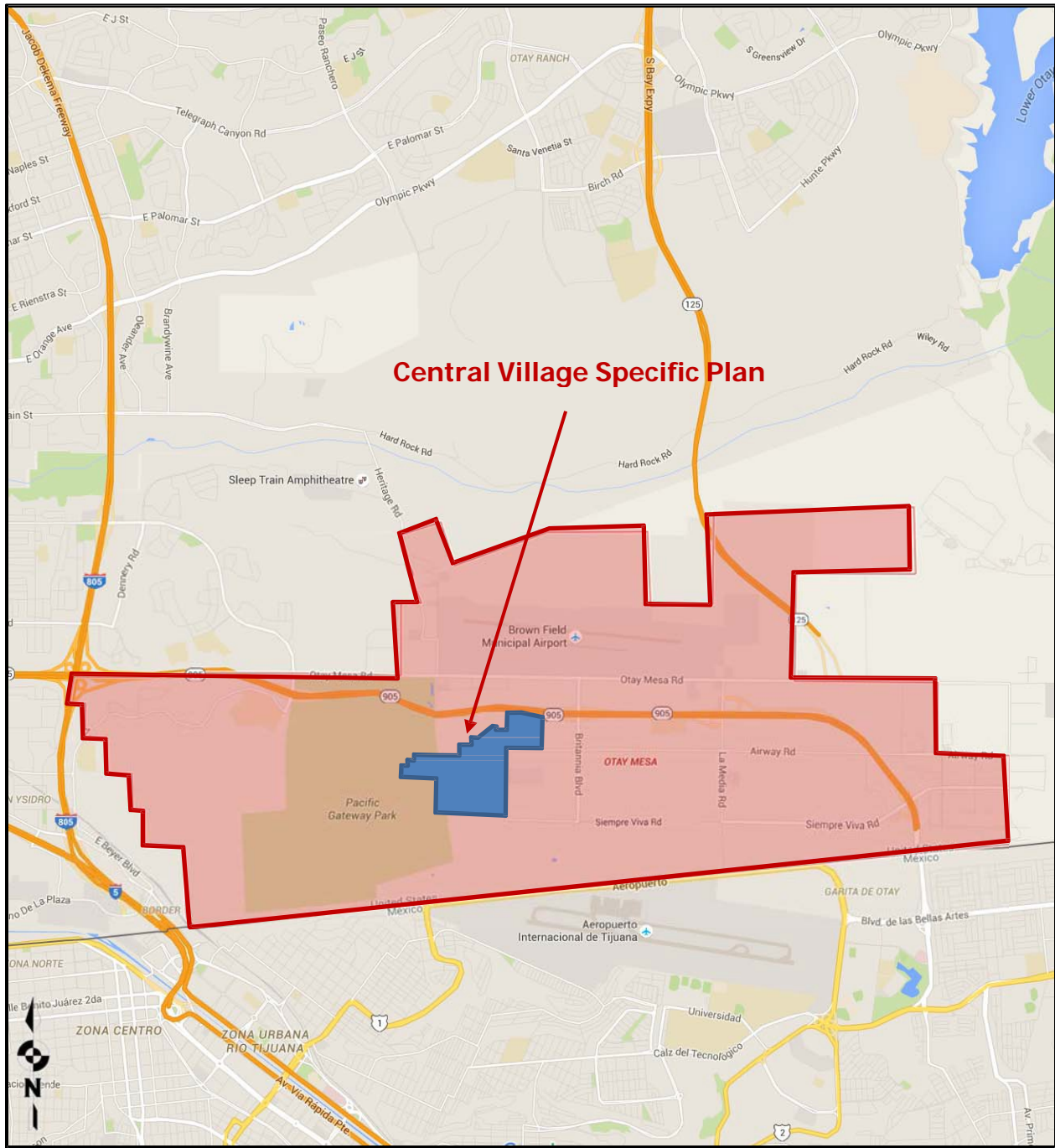
Additionally, the provision of more commercial square footage within the CVSP compared to the amount assumed under the OMCPU, the “Jobs to Housing” ratio would increase. This means that more people residing in the CVSP and OMCPU would have access to employment within the same area, reducing commute distances and potentially allowing for walking and biking to/from work. Shorter home/work commute distances and the facilitation of walking and biking trips through arrangement of land uses and site planning as recommended by CVSP policies also means that means that vehicles will travel fewer miles, resulting in a less VMT and a lesser quantity of mobile source (vehicle tailpipe) emissions.

Figure 1-A: Otay Mesa Community Plan Location



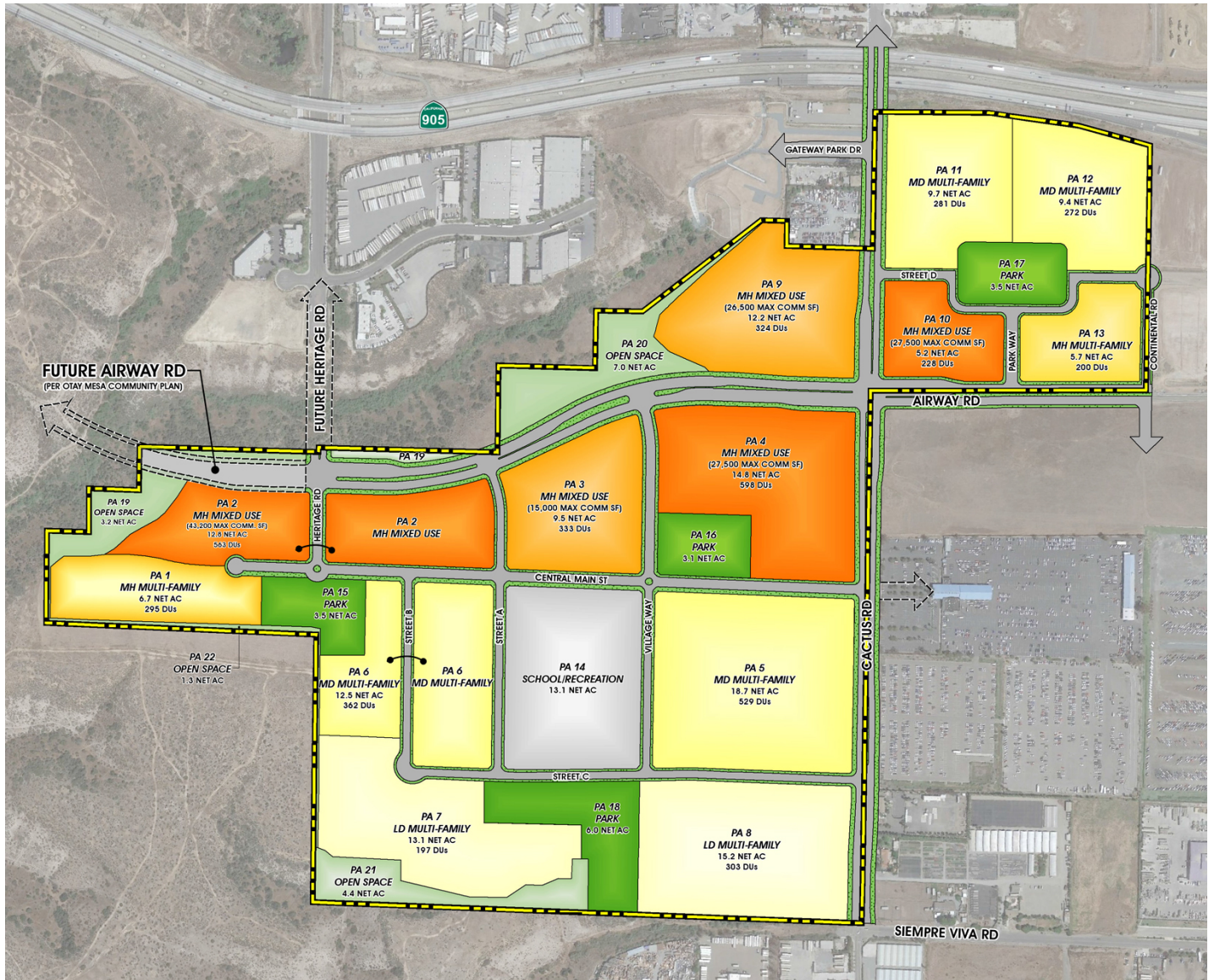
Source: (Google 2016)

**Figure 1-B: Central Village Specific Plan Location**



Source: (Google 2016)

Figure 1-C: Central Village Specific Plan



The CVSP was planned in accordance with the Otay Mesa Community Plan which identifies the vision for the Central Village Community as:

*"a medium to high density residential community centered along Airway Road, and focused around school and park uses, as well as village-scale retail"*

The proposed CVSP includes many Policies and Design Standards to encourage walking, biking, and the use of transit, which also would reduce VMT and associated mobile source air emissions. Some of these Policies and Design Standards are provided below as examples. Please refer to the CVSP for a full list.

"Design Standard 2.2-13 Drive-through commercial site design is prohibited within Central Village."

"Policy 2.3-1 If possible, include transit stops to support transit use within the Central Village."

"Policy 2.3-3 Design street corners to accommodate safe pedestrian crossings. Include ample unobstructed space at the street corner for people waiting to cross the street. Where there is demand for a pedestrian street crossing that does not align with an intersection, apply a mid-block crossing."

"Policy 2.3-4 Provide interconnected streets and pedestrian walkways. Avoid barriers to pedestrian access...."

"Policy 2.3-10 Incorporate traffic calming measures at intersections with pedestrian crossings."

"Policy 2.3-14 Design trails to include major gateways and intersections to enable trail users to connect to other segments of the on-site pedestrian network."

"Design Standard 2.3-13 Sidewalk widths shall be 8 or 10-feet wide where transit stops and shelters are proposed and shall extend for 25 feet parallel to the curb measured from the bus stop sign to provide adequate clearance to accommodate bus lifts for disabled persons."

"Design Standard 2.3-15 Bus facilities shall be developed in accordance with the standards provided in the City of San Diego Street Design Manual."

"Design Standard 2.3-16 Rapid Transit stops shall be designed to allow pedestrians to cross the street safely and within proximity to the stop."

"Design Standard 2.3-17 Rapid Transit facilities shall be developed in accordance with the standards provided in the City of San Diego Street Design Manual."

"Design Standard 2.3-18 Class I and Class II bike lanes shall be developed in locations shown on [CVSP] Figure 2.3-4, Alternative Transportation Plan...."

"Policy 2.5-1 Pedestrian plazas, either within the interior of the development or at building street corners, should be provided where possible to help activate street corners, provide a foreground to building entrances, and/or to serve adjacent uses (such as a retail space, café, or office use)."

"Policy 2.5-5 Pedestrian paseos are encouraged in all developments to provide enhanced connectivity and usable open space."

"Policy 2.5-7 Incorporate informal outdoor gathering areas and pedestrian nodes into design plans in ways that allow these spaces to function as community gathering spaces."

"Policy 2.5-14 Orient development in ways that create compact blocks and lots. A 'block' is defined as an area of development that is delineated on all sides by public streets, paseos, trails, parks, community facilities, landscaped setbacks, and/or private internal streets. Except where site-specific circumstances preclude it, blocks within the Central Village shall have a maximum of perimeter of 2,000 feet."

"Policy 2.5-16 Developments should incorporate safe pedestrian connections to adjoining residential developments, commercial projects, and open space areas."

"Policy 2.5-19 Proposed developments should provide an interconnected system of paths, sidewalks, corridors, and walkways that create a safe and pleasant pedestrian environment, connect dwelling units and common areas, are well-integrated with the surrounding neighborhood, and provide multiple pedestrian access points."

"Policy 2.5-101 The following amenities may be provided to support bicyclists and pedestrians: street furniture, public art, bike paths, multiple access points, and safe street crossing opportunities."

"Policy 2.5-169 Pedestrian scaled lighting, such as low profile bollards, should be selected from highly durable materials that contribute to the overall design theme of Central Village."

Finally, it should be noted that the street sections illustrated in the proposed CVSP for Airway Road, Cactus Road, Heritage Road, Village Entry Streets, and Green Streets, all include bike lanes and sidewalks. Sidewalks are planned along every street interior to the Central Village, except alleys. Refer to the CVSP's Vehicular Mobility Plan (CVSP Figure 2.3-1), Street Cross-Sections (CVSP Figures 2.3-2 and 2.3-3), and Alternative Transportation Plan (CVSP Figure 2.3-4).

## **2.0 EXISTING ENVIRONMENTAL SETTING**

### **2.1 Existing Setting**

Existing land uses within the Central Village area consist of undeveloped lands, agricultural operations, a few single-family residential homes, and open space. Consistent with the existing conditions reported in the OMCPU EIR, air pollutant emissions generated by these existing uses is nominal. Off-site land uses surrounding the Central Village area include a mixture of roadways, open space, undeveloped lands, agricultural uses, and light and heavy industrial uses.

### **2.2 Climate and Meteorology**

The OMCPU area (including the CVSP area) is located in the San Diego Air Basin (SDAB). Climate within the SDAB area often varies dramatically over short geographical distances due to the Air Basin's size and topography. Most of southern California is dominated by high pressure systems for much of the year, which keeps San Diego mostly sunny and warm. Typically, during the winter months, the high pressure system drops to the south and brings cooler, moister weather from the north.

It is common for inversion layers to develop within high pressure areas which mostly define pressure patterns over the SDAB. These inversions are caused when a thin layer of the atmosphere increases in temperature with height. An inversion acts like a lid preventing vertical mixing of air through convective overturning.

Daytime temperature highs within the Otay Community Plan is most like that of nearby Chula Vista. The project areas typically range between 68 °F in the winter to approximately 80 °F in the summer with the month of August usually being the hottest month. Median temperatures range from approximately 57 °F in the winter to approximately 72 °F in the summer. Chula Vista usually receives approximately 10 inches of rain per year with the month of March usually being the wettest month of the year. The average humidity is approximately 65% in the winter and about 73% in the summer (City-Data, 2016).

### **2.3 Regulatory Standards**

#### **2.3.1 Federal Standards and Definitions**

The Federal Air Quality Standards were developed per the requirements of The Federal Clean Air Act, which is a federal law that was passed in 1970 and further amended in 1990. This law provides the basis for the national air pollution control effort. An important element

of the act included the development of national ambient air quality standards (NAAQS) for major air pollutants.

The Clean Air Act established two types of air quality standards otherwise known as primary and secondary standards. **Primary Standards** set limits for the intention of protecting public health, which includes sensitive populations such as people with asthma, children and elderly. **Secondary Standards** set limits to protect public welfare to include the protection against decreased visibility, damage to animals, crops, vegetation and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for principal pollutants, which are called "criteria" pollutants. These pollutants are defined below:

1. **Carbon Monoxide (CO):** *is a colorless, odorless, and tasteless gas and is produced from the partial combustion of carbon-containing compounds, notably in internal-combustion engines. Carbon monoxide usually forms when there is a reduced availability of oxygen present during the combustion process. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen.*
2. **Lead (Pb):** *is a potent neurotoxin that accumulates in soft tissues and bone over time. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources can accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms can include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children.*
3. **Nitrogen Dioxide (NO<sub>2</sub>):** *is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is one of the nitrogen oxides emitted from high-temperature combustion, such as those occurring in trucks, cars, power plants, home heaters, and gas stoves. In the presence of other air contaminants, NO<sub>2</sub> is usually visible as a reddish-brown air layer over urban areas. NO<sub>2</sub> along with other traffic-related pollutants is associated with respiratory symptoms, respiratory illness and respiratory impairment. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO<sub>2</sub> above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO<sub>2</sub> exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.*
4. **Particulate Matter (PM<sub>10</sub> or PM<sub>2.5</sub>):** *is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of*

liquid. These particles vary in shape, size and chemical composition, and can be made up of multiple materials such as metal, soot, soil, and dust.  $PM_{10}$  particles are 10 microns ( $\mu m$ ) or less and  $PM_{2.5}$  particles are 2.5 ( $\mu m$ ) or less. These particles can contribute significantly to regional haze and reduction of visibility in California. Exposure to PM levels exceeding current air quality standards increases the risk of allergies such as asthma and respiratory illness.

5. **Ozone ( $O_3$ ):** is a highly oxidative unstable gas capable of damaging the linings of the respiratory tract. This pollutant forms in the atmosphere through reactions between chemicals directly emitted from vehicles, industrial plants, and many other sources. Exposure to ozone above ambient air quality standards can lead to human health effects such as lung inflammation, tissue damage and impaired lung functioning. Ozone can also damage materials such as rubber, fabrics and plastics.
6. **Sulfur Dioxide ( $SO_2$ ):** is a gaseous compound of sulfur and oxygen and is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road diesel equipment.  $SO_2$  is also emitted from several industrial processes, such as petroleum refining and metal processing. Effects from  $SO_2$  exposures at levels near the one-hour standard include bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, especially during exercise or physical activity. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to these symptoms. Continued exposure at elevated levels of  $SO_2$  results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality.

### 2.3.2 State Standards and Definitions

The State of California Air Resources Board (ARB) sets the laws and regulations for air quality on the state level. The California Ambient Air Quality Standards (CAAQS) are either the same as or more restrictive than the NAAQS and also set limits for four additional contaminants. Table 2.1 on Page 13 of this report identifies both the NAAQS and CAAQS. The additional contaminants as regulated by the CAAQS are defined below:

1. **Visibility Reducing Particles:** Particles in the air that obstruct the visibility.
2. **Sulfates:** are salts of Sulfuric Acid. Sulfates occur as microscopic particles (aerosols) resulting from fossil fuel and biomass combustion. They increase the acidity of the atmosphere and form acid rain.
3. **Hydrogen Sulfide ( $H_2S$ ):** is a colorless, toxic and flammable gas with a recognizable smell of rotten eggs or flatulence.  $H_2S$  occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. Usually,  $H_2S$  is formed from bacterial breakdown of organic matter. Exposure to low concentrations of hydrogen sulfide may cause irritation

*to the eyes, nose, or throat. It may also cause difficulty in breathing for some people with asthma. Brief exposures to high concentrations of hydrogen sulfide (greater than 500 ppm) can cause a loss of consciousness and possibly death.*

4. **Vinyl Chloride:** *also known as chloroethene and is a toxic, carcinogenic, colorless gas with a sweet odor. It is an industrial chemical mainly used to produce its polymer, polyvinyl chloride (PVC).*

### 2.3.3 Regional Standards

The State of California has 35 air districts, which are each responsible for ensuring that the criteria pollutants are below the NAAQS and CAAQS. Air basins that exceed either the NAAQS or the CAAQS for any criteria pollutants are designated as “non-attainment areas” for that pollutant. Currently, there are 15 non-attainment areas for the federal ozone standard and two non-attainment areas for the PM<sub>2.5</sub> standard and many areas are in non-attainment for PM<sub>10</sub> as well. The State therefore created the California State Implementation Plan (SIP), which is designed to provide control measures needed for California Air basins to attain ambient air quality standards.

The San Diego Air Pollution Control District (SDAPCD) is the government agency which regulates sources of air pollution within San Diego County. Therefore, the SDAPCD developed a Regional Air Quality Strategy (RAQS) to provide control measures designed to achieve attainment status. Currently, San Diego is in “non-attainment” status for federal and State O<sub>3</sub> standards and the State PM<sub>10</sub> and PM<sub>2.5</sub> standards; however, an attainment plan is only available for O<sub>3</sub>. The RAQS was adopted in 1992 and has been updated as recently as 2009 which was the latest update incorporating minor changes to the prior 2004 update.

The 2009 update mostly clarifies and enhances emission reductions by implementing new volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) reduction measures. The criteria pollutant standards are generally attained when each monitor within the region has had no exceedances during the previous three calendar years. A complete listing of the current attainment status with respect to both federal and state standards by pollutants for San Diego County is shown in Table 2.2 on Page 14 of this report.

The RAQS is largely based on population predictions by the San Diego Association of Governments (SANDAG). Projects that produce less growth than predicted by SANDAG would generally conform to the RAQS and projects that create more growth than projected by SANDAG may create a significant impact especially if the project produces unmitigable emission generation in excess of the regional standards. Also, the project would be considered to have a significant impact if the project produces cumulative impacts.

**Table 2.1: Ambient Air Quality Standards**

Ambient Air Quality Standards						
Pollutant	Average Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>		
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>
Ozone (O <sub>3</sub> ) <sup>8</sup>	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m <sup>3</sup> )		0.070 ppm (137 µg/m <sup>3</sup> )		
Respirable Particulate Matter (PM <sub>10</sub> ) <sup>9</sup>	24 Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		-		
Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>9</sup>	24 Hour	No Separate State Standard		35 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	12.0 µg/m <sup>3</sup>		
Carbon Monoxide (CO)	8 hour	9.0 ppm (10mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m <sup>3</sup> )	-	Non-Dispersive Infrared Photometry
	1 hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 mg/m <sup>3</sup> )		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		-		
Nitrogen Dioxide (NO <sub>2</sub> ) <sup>10</sup>	Annual Arithmetic Mean	0.030 ppm (57 µg/m <sup>3</sup> )	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m <sup>3</sup> ) <sup>8</sup>	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m <sup>3</sup> )		0.100 ppm <sup>8</sup> (188/ µg/m <sup>3</sup> )		
Sulfur Dioxide (SO <sub>2</sub> ) <sup>11</sup>	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm <sup>10</sup> (for Certain Areas)	-	Ultraviolet Fluorescence; Spectrophotometry (Pararoosaniline Method) <sup>9</sup>
	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm <sup>10</sup> (for Certain Areas) (See Footnote 9)		
	3 Hour	-		0.5 ppm (1300 µg/m <sup>3</sup> )		
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )		75 ppb (196 µg/m <sup>3</sup> )		
Lead <sup>12,13</sup>	30 Day Average	1.5 µg/m <sup>3</sup>	Atomic Absorption	-	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Calendar Quarter	-		1.5 µg/m <sup>3</sup>		
	Rolling 3-Month Average	-		0.15 µg/m <sup>3</sup>		
Visibility Reducing Particles	8 Hour	See footnote 13				
Sulfates	24 Hour	25 µg/m <sup>3</sup>	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence			
Vinyl Chloride <sup>12</sup>	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography			

- California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equalled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
- Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
- National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
- On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
- On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
- On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO<sub>2</sub> national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
- The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m<sup>3</sup> as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
- In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: (California Air Resources Board, 10/1/15)

**Table 2.2: San Diego County Air Basin Attainment Status by Pollutant**

San Diego County Air Basin Attainment Status by Pollutant			
Pollutant	Average Time	California Standards	Federal Standards
Ozone (O <sub>3</sub> )	1 Hour	Non-attainment	No Federal Standard
	8 Hour		Marginal Non-attainment
Respirable Particulate Matter (PM <sub>10</sub> )	24 Hour	Non-attainment	Unclassified <sup>1</sup>
	Annual Arithmetic Mean	No State Standard	Unclassified <sup>2</sup>
Fine Particulate Matter PM <sub>2.5</sub>	24 Hour	No State Standard	Attainment
	Annual Arithmetic Mean	Non-attainment	Attainment
Carbon Monoxide (CO)	8 hour	Attainment	Maintenance Area <sup>3</sup>
	1 hour		
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	No State Standard	Attainment
	1 Hour	Attainment	No Federal Standard
Sulfur Dioxide (SO <sub>2</sub> )	Annual Arithmetic Mean	No State Standard	Attainment
	24 Hour	Attainment	Attainment
	1 Hour	Attainment	No Federal Standard
Lead	30 Day Average	Attainment	No Federal Standard
	Calendar Quarter	No State Standard	Attainment
Visibility Reducing Particles	8 Hour (10AM to 6PM, PST)	Unclassified	No Federal Standard
Sulfates	24 Hour	Attainment	No Federal Standard
Hydrogen Sulfide	1 Hour	Unclassified	No Federal Standard

1. Data reflects status as of March 19, 2009.

2. Unclassified; indicates data are not sufficient for determining attainment or nonattainment.

3. Maintenance Area (defined by U.S. Department of Transportation) is any geographic region of the United States previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.

**2.4 SDAPCD Rule 20.2 – Air Quality Impact Assessment Screening Thresholds**

The SDAPCD has established thresholds in Rule 20.2 for new or modified stationary sources. The County's Guidelines for Determining Significance and Report Format and Content Requirements include screening level thresholds for all County-related Air Quality Impact Assessments (AQIA) and for determining CEQA air quality impacts. These screening criteria can be used to demonstrate whether a project's total emissions would result in a significant impact as defined by CEQA. Should emissions be found to exceed these thresholds, additional modeling is required to demonstrate that the project's total air quality impacts are below the state and federal ambient air quality standards. These daily screening thresholds for construction and operations are shown in Table 2.3 below.

The U.S. Environmental Protection Agency (U.S. EPA) uses the term Volatile Organic Compounds (VOC) and the California Air Resources Board's (CARB's) Emission Inventory Branch (EIB) uses the term Reactive Organic Gases (ROG) to essentially define the same thing. There are minor deviations between compounds that define each term however for

**Table 2.3: Screening Thresholds for Criteria Pollutants**

Pollutant	Total Emissions (Pounds per Day)
Construction Emissions	
Respirable Particulate Matter (PM <sub>10</sub> and PM <sub>2.5</sub> )	100 and 55
Nitrogen Oxide (NO <sub>x</sub> )	250
Sulfur Oxide (SO <sub>x</sub> )	250
Carbon Monoxide (CO)	550
Volatile Organic Compounds (VOCs)	75
Reactive Organic Gases (ROG) SCAQMD	75
Operational Emissions	
Respirable Particulate Matter (PM <sub>10</sub> and PM <sub>2.5</sub> )	100 and 55
Nitrogen Oxide (NO <sub>x</sub> )	250
Sulfur Oxide (SO <sub>x</sub> )	250
Carbon Monoxide (CO)	550
Lead and Lead Compounds	3.2
Volatile Organic Compounds (VOCs)	75
Reactive Organic Gases (ROG) SCAQMD	75

purposes of this study we will assume they are essentially the same due to the fact SCAQMD interchanges these words and because CALEEMOD 2013.2.2 directly calculates ROG in place of VOC.

## 2.5 SDAPCD Rule 1200

Non-criteria pollutants such as Hazardous Air Pollutants (HAPs) or Toxic Air Contaminants (TACs) are also regulated by the SDAPCD. Rule 1200 (Toxic Air Contaminants - New Source Review) adopted on June 12, 1996, requires evaluation of potential health risks for any new, relocated, or modified emission unit which may increase emissions of one or more toxic air contaminants. The rule requires that projects that could increase cancer risk to between 1 and 10 in one million need to implement toxics best available control technology (T-BACT) or impose the most effective emission limitation, emission control device or control technique to reduce the cancer risk. At no time shall a project increase the cancer risk to over 10 in one million or a health hazard index (chronic and acute) greater than one. Projects creating cancer risks less than one in one million are not required to implement T-BACT technology.

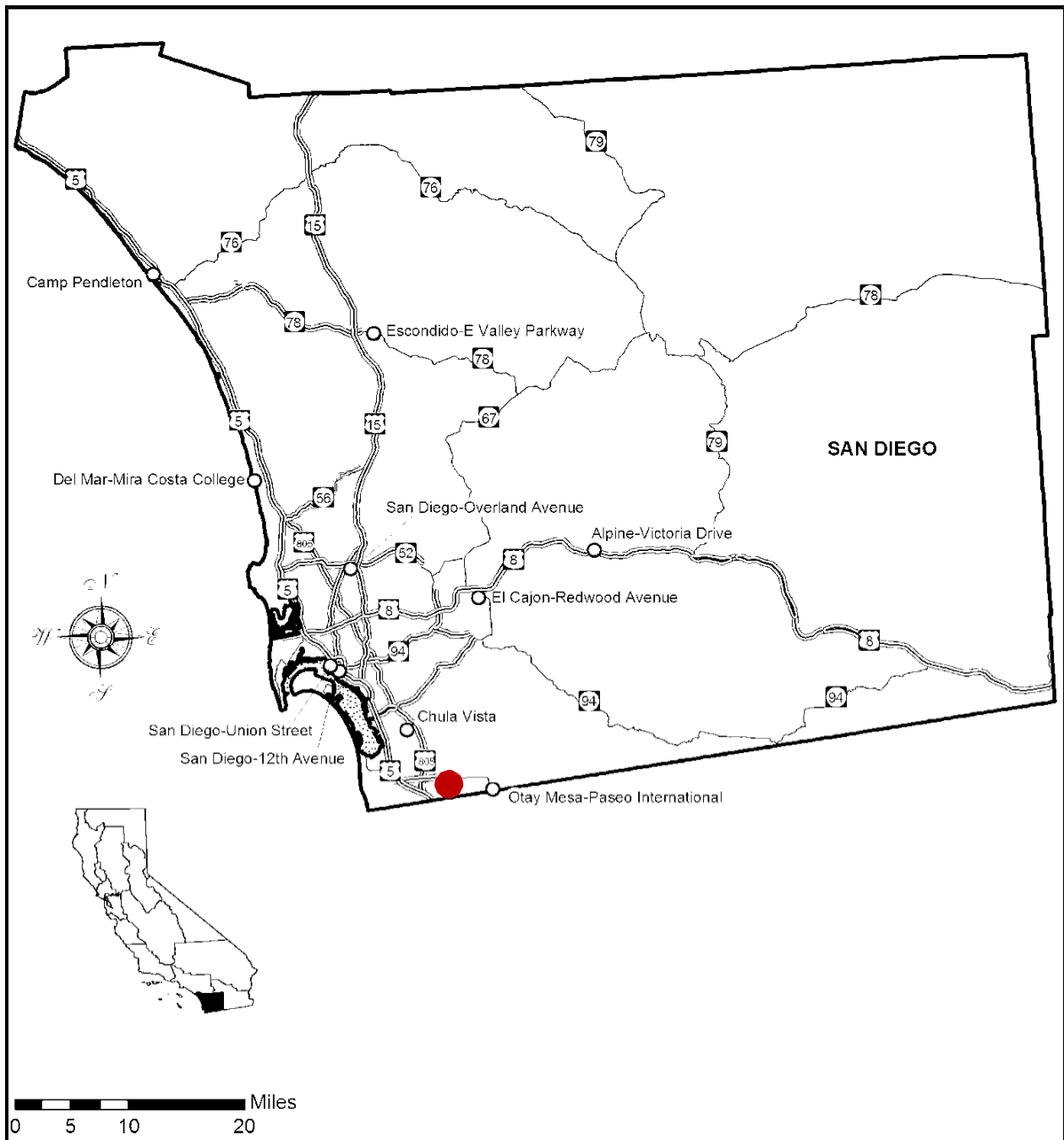
## 2.6 Local Air Quality

Criteria pollutants are measured continuously throughout the San Diego Air Basin. This data is used to track ambient air quality patterns throughout the County. As mentioned earlier, this data is also used to determine attainment status when compared to the NAAQS and CAAQS.

The SDAPCD is responsible for monitoring and reporting monitoring data. The District operates 10 monitoring sites, which collect data on criteria pollutants. Four additional sites collect meteorological data which is used by the District to assist with pollutant forecasting, data analysis and characterization of pollutant transport. Figure 2-A shows the relative locations of the monitoring sites.

SDAPCD published the five-year air quality summary for all of the monitoring stations within the San Diego basin (SDAPCD, 2015). The CVSP area is located near the Chula Vista monitoring station, roughly 12 miles away. Table 2.4 identifies the criteria pollutants monitored at the aforementioned station.

Figure 2-A: Ambient Air Quality Monitoring Stations within SDAB – CARB



Source: (California Air Resources Board, 2014)

**Table 2.4: Three-Year Ambient Air Quality Summary near the Project Site**

Pollutant	Closest Recorded Ambient Monitoring Site	Averaging Time	CAAQS	NAAQS	2012	2013	2014
O3 (ppm)	Chula Vista Monitoring Station	1 Hour	0.09 ppm	-	0.09	0.07	0.09
		8 Hour	0.070 ppm	0.075 ppm	0.08	0.06	0.07
PM10 (µg/m3)		24 Hour	50 µg/m3	150 µg/m3	37	38	38
		Annual Arithmetic Mean	20 µg/m3	-	21.5	23.7	23.4
PM2.5 (µg/m3)		24 Hour	-	35 µg/m3	34.3	21.9	26.5
		Annual Arithmetic Mean	12 µg/m3	15 µg/m3	-	9.5	9.3
NO2 (ppm)		Annual Arithmetic Mean	0.030 ppm	0.053 ppm	0.011	0.011	0.011
CO (ppm)		1 Hour	0.18 ppm	-	0.057	0.056	0.056
		8 Hour	9 ppm	9 ppm	1.6	-	-

### **3.0   METHODOLOGY**

#### **3.1   Construction Criteria Pollutant Emissions**

The mix of land uses proposed by the CVSP in comparison to the mix of land uses assumed for the Central Village by the OMCPU EIR are similar, and contain residential uses, mixed-use areas accommodating commercial uses, parks, trails, and one elementary school. The land uses changes proposed by the CVSP include:

- A reduction of ~~764~~ 283 Multi-family dwelling units
- An increase of 107 ksf of community commercial floor space
- A reduction of ~~16.2~~ 2.06 acres of active park space

Because the mix of land uses assumed by the OMCPU EIR and the land uses proposed by the CVSP are substantially similar, it is assumed that construction activities associated with buildout of the Central Village would largely remain the same as assumed by the OMCPU EIR in the Central Village area. The EIR's analysis of construction activity assumed that sources of construction-related air emissions would include: a) fugitive dust from grading activities; b) construction equipment exhaust; c) construction-related trips by workers, delivery trucks, and material-hauling trucks; and d) construction-related power consumption. (RECON, 2013). Based on industry-standard construction practices, these are reasonable assumptions for sources of construction activity air emissions in the Central Village. Thus, the CVSP would not result in an increase of construction emissions as compared to what was assumed in the OMCPU EIR. For this reason, detailed construction-related air quality modeling is not required, because the results for the Central Village would be identical to those reported in the OMCPU EIR. Because daily and total construction-related air emissions associated with the CVSP would not increase in relation to what was evaluated and disclosed in the OMCPU EIR, no new or more severe construction-related air quality impacts would result.

#### **3.2   Operational Criteria Pollutant Emissions**

The largest changes in air emission quantities associated with the land use changes proposed by the CVSP would be expected during the operational life of the CVSP project. Air emissions from daily operations would include sources such as Area, Energy, and Mobile. Area Source emissions include emissions from consumer products, landscaping maintenance equipment, and architectural coatings (such as painting) as part of regular maintenance activities in a predominately residential community. Energy sources emissions would be generated from the production and consumption of energy to operate the Central Village community, such as electricity and natural gas. Mobile (or transportation-related) source emissions would occur from motor vehicles (tailpipe emissions) generated by land uses in the Central Village, which are calculated in CalEEMod through the use of EMFAC2011. In the

EMFAC model, an emissions inventory is based on the emission rate (e.g., grams per pollutant emitted over a mile) and vehicle activity (e.g., miles driven per day). Area sources originate from daily onsite uses, which require either burning fuel to generate energy (i.e. natural gas fireplaces, gas furnaces, gas water heaters and small engines) or the evaporation of organic gases such as from paints (architectural coatings).

CalEEMod 2013.2.2 and EMFAC2011 represent the most recent model versions available at the time environmental analysis of the CVSP project commenced. The operational model outputs for operation of land uses in the Central Village under the land use assumptions of the OMCPU and the land uses proposed by the CVSP are provided in **Attachments A and B**, respectively, at the end of this report. Traffic data for the Central Village relied upon in the modeling efforts were taken from the OMCPU EIR's traffic report (Urban Systems Associates, Inc. 2012) as summarized in the CVSP's *Transportation Facilities Trigger Analysis* (Chen Ryan & Associates, 2017), and traffic data for buildout of the CVSP as disclosed in the CVSP's *Transportation Facilities Trigger Analysis*. At full buildout of the Central Village, the OMCPU EIR assumed the generation of ~~45,429~~ 41,109 daily trips. In comparison, 36,345 daily trips would be generated by land uses in the Central Village under the proposed CVSP. The ADT calculated by CVSP's *Transportation Facilities Trigger Analysis* included an internal capture rate based on the SANDAG Select Zone Analysis to account for trips within the CVSP that will have both an origin and destination within the CVSP site, and not utilize external roadway facilities. The CVSP's 36,345 ADT includes a 9.4% internal trip capture rate, while the assumed Central Village by the OMCPU EIR's 41,109 ADT includes a 4.67% internal trip capture rate. The CalEEMod 2013.2.2 air quality model was run on both scenarios to remain consistent. (The OMCPU EIR used CalEEMod 2011). The only modifications to the model run for the Central Village under the OMCPU scenario and the proposed CVSP scenario were the above-described land use changes within the Central Village as proposed by the CVSP. The differences in land use data projected changes through the model to include Mobile, Area, Energy Usage, Water and Sewer and Solid Waste usage.

### 3.3 Toxic Air Contaminant Emissions

This health risk analysis uses the California Office of Environmental Health Hazard Assessment (OEHHA) methodologies which is required as of 2015 (OEHHA, 2015) and roadway modeling methodologies outlined by the California Air Pollution Control Officers Association (CAPCOA, July 2009). Health risk impacts can exist when a project is exposed to toxic emissions. Sensitive receptors (and the facilities that house them) in proximity to sources of air pollutants that emit TACs are of particular concern. Exposure to TACs can increase the risk of contracting cancer or result in adverse non-cancer health effects. Non-cancer health risks associated with TAC exposure include birth defects and other reproductive damage, neurological disorders, and damage to the respiratory system (California Air Resources Board, 2005).

Generally, cancer risk can exist within 500-feet of a freeway or busy traffic corridor but the risk will substantially drop off with distance from a ground level pollution source. Freeways and busy traffic corridors are defined as traffic volume of over 100,000 vehicles per day in urban areas and 50,000 vehicles per day in rural areas (Education Code Section 17312). CARB studies show that air pollution levels can be substantially higher within 500 feet (150 meters) of freeways or busy traffic corridors (SCAQMD, 2005).

Projects within the SDAB are generally regulated by San Diego Air Pollution Control District (SDAPCD). Significance thresholds have been established under SDAPCDs "Hot Spots" and permitting program (SDAPCD Rule 1200 and 1210). Under this program, excess cancer risk significance threshold is set at **10 in 1 million** and acute and chronic, non-carcinogenic health effect, a hazard index of **one** must not be exceeded.

Based on reviews of the CVSP's *Transportation Facilities Trigger Analysis*, only I-905 would generate traffic in excess of 100,000 vehicles per day, however, for purposes of analysis and consistency with the OMCPU EIR, sections of both Airway Road and Heritage roads are also analyzed. For this analysis, the AERMOD (version 15181) model was utilized, which is recommended by the U.S. Environmental Protection Agency (EPA) and SDAPCD for roadway modeling that uses local meteorology. The model input/output is shown in **Attachment C** to this report.

AERMOD requires external data sources such as meteorological data, traffic data as well as vehicular emission data from EMFAC 2011. AERMOD inputs for roadways and receptors were adjusted geospatially within AERMOD using AERMAP and the latest topographical data provided by the United States Geological Survey (USGS). Vehicular traffic volumes for the CVSP were taken from the *Transportation Facilities Trigger Analysis* (Chen Ryan & Associates, 2017). The roadway emission inputs are shown in **Attachment D** to this report.

Once the dispersed concentrations of diesel particulates are estimated in the surrounding air, they are used to evaluate estimated exposure to people. Exposure is evaluated by calculating the dose in milligrams per kilogram body weight per day (mg/kg/d). Under the current OEHHA methodologies for residential exposure, the breathing rates are determined for specific age groups, so inhalation dose (Dose-air) is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. The following algorithms calculate this dose for exposure through the inhalation pathways. The worst-case cancer risk dose calculation is defined in Equation 1 below (OEHHA, February 2015).

Equation 1:

$$Dose_{air} = C_{air} * (BR/BW) * A * EF * (1 \times 10^{-6})$$

Dose <sub>air</sub>	=	Dose through inhalation (mg/kg/d)
C <sub>air</sub>	=	Concentration in air (µg/m <sup>3</sup> ) Annual average DPM concentration in µg/m <sup>3</sup>
BR/BW	=	Daily breathing rate normalized to body weight (L/kg BW-day). See Table I.2 for the daily breathing rate for each age range.
A	=	Inhalation absorption factor (assumed to be 1)
EF	=	Exposure frequency
1x10 <sup>-6</sup>	=	Milligrams to micrograms conversion (10 <sup>-3</sup> mg/µg), cubic meters to liters conversion (10 <sup>-3</sup> m <sup>3</sup> /l)

Once the dose is determined then cancer risk is calculated. The average daily inhalation dose (mg/kg-day) multiplied by the cancer potency factor (mg/kg-day)<sup>-1</sup> will give the inhalation cancer risk (unitless), which is an expression of the chemical's cancer risk during a specific duration a 70-year lifespan of exposure is the typical duration analyzed but could be 9 or 30 years too. For example, an inhalation cancer risk of 5 x 10<sup>-6</sup> is the same as stating that an individual has an estimated probability of developing cancer from their exposure of 5 chances per one million people exposed.

Cancer risk is calculated by multiplying the daily inhalation dose, by a cancer potency factor, the age sensitivity factor, the frequency of time spent at home and the exposure duration divided by averaging time, to yield the excess cancer risk. As described below, the excess cancer risk is calculated separately for each age grouping and then summed to yield cancer risk for any given location. Specific factors as modeled are shown within the project models attached to this report. The worst-case cancer risk calculation is defined in Equation 2 below (OEHHA, February 2015).

Equation 2:

$$RISK_{inh-res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH$$

RISK <sub>inh-res</sub>	=	Residential inhalation cancer risk
DOSE <sub>air</sub>	=	Daily inhalation dose (mg/kg-day)
CPF	=	Inhalation cancer potency factor (mg/kg-day) <sup>-1</sup>
ASF	=	Age sensitivity factor for a specified age group (unitless)
ED	=	Exposure duration (in years) for a specified age group
AT	=	Averaging time for lifetime cancer risk (years)
FAH	=	Fraction of time spent at home (unitless)

OEHHA recommends that exposure durations (residency time) of 30 years be used to estimate individual cancer risk for the Maximally Exposed Individual Resident (MEIR). OEHHA also recommends that the 30-year exposure duration be used as the basis for public notification and risk reduction audits and plans as a worst-case analysis. Exposure durations of 9-years and 70-years are also recommended to be evaluated for the MEIR to show the range of cancer risk based on residency periods.

### 3.4 Odors

The mix of land uses proposed by the CVSP in comparison to the mix of land uses assumed for the Central Village by the OMCPU EIR are similar, and contain residential uses, mixed-use areas accommodating commercial uses, parks, trails, and one elementary school. In comparison, the CVSP proposes ~~761~~ 283 fewer multi-family dwelling units, an additional 107 ksf of community commercial floor space, and ~~16.2~~ 2.06 fewer acres of active park space.

In relation to the potential for odor generation, the OMCPU EIR concluded that “[w]hile the CPU would allow a variety of land uses, none of the identified land uses are typically associated with the creation of objectionable odors.” Because the CVSP proposes the same types of land uses, the potential for objectionable odor creation would be similarly less than significant and a detailed analysis is not warranted.

## **4.0 SIGNIFICANCE THRESHOLDS, ANALYSIS, AND FINDINGS**

### **4.1 Significance Determination Thresholds**

The City developed and published Significance Determination Thresholds for use in California Environmental Quality Act (CEQA) determinations; these thresholds were used by the OMCPU EIR to determine the significance of air quality impacts associated with implementation of the OMCPU. Those same thresholds are used herein to evaluate potential air quality impacts associated with approval of the CVSP. Impacts would be significant if the CVSP would result in any of the following:

- A: Conflict with or obstruct implementation of the San Diego Regional Air Quality Strategy (RAQS) or applicable portions of the State Implementation Plan (SIP)?
- B: Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- C: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard (PM10, PM2.5 or exceed quantitative thresholds for O3 precursors, oxides of nitrogen [NOX] and Volatile Organic Compounds [VOCs] for the County)?
- D: Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations?
- E: Create objectionable odors affecting a substantial number of people?

### **4.2 Analysis of Compliance with the RAQS**

The two pollutants addressed in the RAQS are volatile organic compounds (VOCs) and nitrogen oxide (NOx), which are precursors to the formation of ozone. The RAQS uses available data regarding projected increases in motor vehicle usage, population, and industrial growth to address challenges in controlling emissions and to maintain and further improve air quality. Relative to the adopted OMCPU, the proposed CVSP would result in:

- A reduction of ~~764~~ 283 Multi-family dwelling units
- An increase of 107 ksf of community commercial floor space
- A reduction of ~~16.2~~ 2.06 acres of active park space

Further, according to the CVSP's *Transportation Facilities Trigger Analysis* (Chen Ryan & Associates, 2017), the CVSP is calculated to generate 36,345 average daily vehicular trips (ADT) (including a 9.67% internal trip capture rate), which is less traffic than was assumed for the

Central Village by the OMCPU EIR, at ~~45,429~~ 41,109 ADT (including a 4.67% internal trip capture rate). Thus, the reduction in traffic would reduce mobile source air pollutant emissions, including VOC and NOx. Refer to the analysis under Section 4.4 below for a comparative quantification. As the primary goal of the RAQS is to reduce ozone precursor emissions and the CVSP would result in lower emissions than would occur under the adopted OMCPU, the CVSP would not obstruct or conflict with the implementation of the San Diego RAQS or applicable portions of the State Implementation Plan (SIP).

### 4.3 Air Emissions in Comparison to Air Quality Standards – Construction

Because the mix of land uses assumed by the OMCPU EIR and the land uses proposed by the CVSP are substantially similar, it is assumed that construction activities associated with buildout of the Central Village would largely remain the same as assumed by the OMCPU EIR in the Central Village area. The EIR's analysis of construction activity assumed that sources of construction-related air emissions would include: a) fugitive dust from grading activities; b) construction equipment exhaust; c) construction-related trips by workers, delivery trucks, and material-hauling trucks; and d) construction-related power consumption. (RECON, 2013). Based on industry-standard construction practices, these are reasonable assumptions for sources of construction activity air emissions in the Central Village. Thus, the CVSP would not result in an increase of construction emissions as compared to what was assumed in the OMCPU EIR. For this reason, detailed construction-related air quality modeling is not required, because the results for the Central Village would be identical to those reported in the OMCPU EIR. Because daily and total construction-related air emissions associated with the CVSP would not increase in relation to what was evaluated and disclosed in the OMCPU EIR, no new or more severe construction-related air quality impacts would result. Nonetheless, as concluded in the OMCPU EIR, construction-related air pollutant emissions would still exceed significance thresholds. For this reason, the applicable mitigation measures presented in the Air Quality section of the OMCPU EIR would apply to construction projects that implement the CVSP.

### 4.4 Air Emissions in Comparison to Air Quality Standards - Operational

Based on the CalEEMod 2013.2.2 air quality model, which is based on assumptions utilized in the OMCPU EIR for the Central Village, buildout of the Central Village in accordance with the OMCPU would generate approximately ~~47,654~~ 41,109 ADT, which accounts for an internal trip capture rate of 4.67% with ~~129,134,582~~ 111,762,669 VMT while the proposed CVSP project would generate 36,354 ADT, which accounts for an internal trip capture rate of 9.4% with ~~121,237,271~~ 89,580,471 VMT.

The reduction in VMTs under the proposed CVSP project is largely due to the fact that the CVSP orients higher density residential and commercial land uses along Airway Road which

will have better public transit access, and better access from areas outside of the CVSP to allow pass-by usage. In addition, the CVSP would accomplish a better job to housing ratio and better internal connectivity to parks, the school site, and open space/trails than was expected in the Central Village under the adopted OMCPU, which will encourage biking and walking within the community.

The expected daily pollutant generation was calculated utilizing the product of the average daily miles traveled and the expected emissions inventory calculated by CALEEMOD utilizing emissions from EMFAC2011. Tables 4.1 below and Table 4.2 on the following page show the OMCPU and proposed CVSP seasonal emissions for the Central Village area, and indicate the differences in emissions between the CVSP project and the level of emissions disclosed in the OMCPU EIR for the Central Village.

Based on these findings, operational air quality emissions will be reduced with implementation of the proposed CVSP in comparison to the emissions disclosed for the Central Village by the OMCPU EIR. Given this, no new or more severe air quality impacts would result from implementation of the CVSP project, and no new mitigation would be required. Nonetheless, as concluded in the OMCPU EIR, operational air pollutant emissions would still exceed significance thresholds. For this reason, the applicable mitigation measures presented in the Air Quality Section of the OMCPU EIR would apply to all development projects that implement the CVSP.

**Table 4.1: Summer Operational Emissions (Approved (OMCPU) vs. Proposed (CVSP))**

	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Summer Existing Approved OMCPU Central Village Land Use Scenario</b>						
Area (Lb/Day)	<del>8,239.99</del> <u>7,476.23</u>	<del>113.95</del> <u>103.57</u>	<del>10,324.53</del> <u>9,383.80</u>	<del>3.89</del> <u>3.53</u>	<del>1,391.90</del> <u>1,265.07</u>	<del>1,391.86</del> <u>1,265.04</u>
Energy (Lb/Day)	<del>0.87</del> <u>0.79</u>	<del>7.41</del> <u>6.75</u>	<del>3.21</del> <u>2.93</u>	<del>0.05</del> <u>0.04</u>	<del>0.60</del> <u>0.54</u>	<del>0.60</del> <u>0.54</u>
Mobile (Lb/Day)	<del>140.76</del> <u>122.06</u>	<del>287.62</del> <u>249.21</u>	<del>1,400.62</del> <u>1,213.75</u>	<del>4.09</del> <u>3.54</u>	<del>280.09</del> <u>242.63</u>	<del>77.71</del> <u>67.32</u>
Total (Lb/Day)	<del>8,381.64</del> <u>7,599.07</u>	<del>408.97</del> <u>359.53</u>	<del>11,728.36</del> <u>10,600.47</u>	<del>8.02</del> <u>7.12</u>	<del>1,672.59</del> <u>1,508.25</u>	<del>1,470.17</del> <u>1,332.90</u>
<b>Summer Proposed CVSP Scenario</b>						
Area (Lb/Day)	7,034.40	97.42	8,826.85	3.32	1,189.99	1,189.95
Energy (Lb/Day)	0.75	6.42	2.82	0.04	0.52	0.52
Mobile (Lb/Day)	<del>138.57</del> <u>104.55</u>	<del>273.61</del> <u>203.61</u>	<del>1,339.27</del> <u>998.73</u>	<del>3.85</del> <u>2.85</u>	<del>263.14</del> <u>194.80</u>	<del>73.02</del> <u>54.06</u>
Total (Lb/Day)	<del>7,173.72</del> <u>7,139.70</u>	<del>377.44</del> <u>307.44</u>	<del>10,168.94</del> <u>9,828.40</u>	<del>7.21</del> <u>6.21</u>	<del>1,453.64</del> <u>1,385.30</u>	<del>1,263.49</del> <u>1,244.54</u>
<b>Difference</b>						
Area (Lb/Day)	<del>-1,205.59</del> <u>-441.83</u>	<del>-16.53</del> <u>-6.15</u>	<del>-1,497.68</del> <u>-556.95</u>	<del>-0.56</del> <u>-0.21</u>	<del>-201.91</del> <u>-75.09</u>	<del>-201.91</del> <u>-75.09</u>
Energy (Lb/Day)	<del>-0.12</del> <u>-0.04</u>	<del>-0.99</del> <u>-0.33</u>	<del>-0.39</del> <u>-0.11</u>	<del>-0.01</del> <u>0.00</u>	<del>-0.08</del> <u>-0.03</u>	<del>-0.08</del> <u>-0.03</u>
Mobile (Lb/Day)	<del>-2.19</del> <u>-17.51</u>	<del>-14.01</del> <u>-45.61</u>	<del>-61.35</del> <u>-215.01</u>	<del>-0.24</del> <u>-0.69</u>	<del>-16.96</del> <u>-47.83</u>	<del>-4.69</del> <u>-13.25</u>
Total (Lb/Day)	<del>-1,207.89</del> <u>-459.38</u>	<del>-31.53</del> <u>-52.08</u>	<del>-1,559.42</del> <u>-772.07</u>	<del>-0.81</del> <u>-0.90</u>	<del>-218.95</del> <u>-122.94</u>	<del>-206.67</del> <u>-88.36</u>
<b>Percentage Reduction in Emissions</b>	<del>-14%</del> <u>-6%</u>	<del>-8%</del> <u>-14%</u>	<del>-13%</del> <u>-7%</u>	<del>-10%</del> <u>-13%</u>	<del>-13%</del> <u>-8%</u>	<del>-14%</del> <u>-7%</u>
Daily pollutant generation assumes trip distances within CalEEMod						

**Table 4.2: Winter Operational Emissions (Approved (OMCPU) vs. Proposed (CVSP))**

	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<b>Winter Existing Approved OMCPU Central Village Land Use Scenario</b>						
Area (Lb/Day)	<del>8,239.99</del> <u>7,476.23</u>	<del>113.95</del> <u>103.57</u>	<del>10,324.53</del> <u>9,383.80</u>	<del>3.99</del> <u>3.53</u>	<del>1,391.90</del> <u>1,265.07</u>	<del>1,391.86</del> <u>1,265.04</u>
Energy (Lb/Day)	<del>0.87</del> <u>0.79</u>	<del>7.41</del> <u>6.75</u>	<del>3.21</del> <u>2.93</u>	<del>0.05</del> <u>0.04</u>	<del>0.60</del> <u>0.54</u>	<del>0.60</del> <u>0.54</u>
Mobile (Lb/Day)	<del>140.76</del> <u>129.37</u>	<del>287.62</del> <u>264.91</u>	<del>1,400.62</del> <u>1,276.76</u>	<del>4.09</del> <u>3.37</u>	<del>280.09</del> <u>242.64</u>	<del>77.71</del> <u>67.33</u>
Total (Lb/Day)	<del>8,381.61</del> <u>7,606.38</u>	<del>408.97</del> <u>375.22</u>	<del>11,728.36</del> <u>10,663.48</u>	<del>8.02</del> <u>6.94</u>	<del>1,672.59</del> <u>1,508.26</u>	<del>1,470.17</del> <u>1,332.91</u>
<b>Winter Proposed CVSP Scenario</b>						
Area (Lb/Day)	7,034.40	97.42	8,826.85	3.32	1,189.99	1,189.95
Energy (Lb/Day)	0.75	6.42	2.82	0.04	0.52	0.52
Mobile (Lb/Day)	<del>138.57</del> <u>111.09</u>	<del>273.61</del> <u>216.34</u>	<del>1,339.27</del> <u>1,060.48</u>	<del>3.85</del> <u>2.71</u>	<del>263.14</del> <u>194.81</u>	<del>73.02</del> <u>54.08</u>
Total (Lb/Day)	<del>7,173.72</del> <u>7,146.24</u>	<del>377.44</del> <u>320.18</u>	<del>10,168.94</del> <u>9,890.14</u>	<del>7.21</del> <u>6.07</u>	<del>1,453.64</del> <u>1,385.32</u>	<del>1,263.49</del> <u>1,244.55</u>
<b>Difference</b>						
Area (Lb/Day)	<del>-1,205.59</del> <u>-441.83</u>	<del>-16.53</del> <u>-6.15</u>	<del>-1,497.68</del> <u>-556.95</u>	<del>-0.56</del> <u>-0.21</u>	<del>-201.91</del> <u>-75.09</u>	<del>-201.91</del> <u>-75.09</u>
Energy (Lb/Day)	<del>-0.12</del> <u>-0.04</u>	<del>-0.99</del> <u>-0.33</u>	<del>-0.39</del> <u>-0.11</u>	<del>-0.01</del> <u>0.00</u>	<del>-0.08</del> <u>-0.03</u>	<del>-0.08</del> <u>-0.03</u>
Mobile (Lb/Day)	<del>-2.19</del> <u>-18.28</u>	<del>-14.01</del> <u>-48.57</u>	<del>-61.35</del> <u>-216.28</u>	<del>-0.24</del> <u>-0.66</u>	<del>-16.96</del> <u>-47.83</u>	<del>-4.69</del> <u>-13.25</u>
Total (Lb/Day)	<del>-1,207.89</del> <u>-460.14</u>	<del>-31.53</del> <u>-55.04</u>	<del>-1,559.42</del> <u>-773.34</u>	<del>-0.81</del> <u>-0.87</u>	<del>-218.95</del> <u>-122.94</u>	<del>-206.67</del> <u>-88.37</u>
<b>Percentage Reduction in Emissions</b>	<del>-14%</del> <u>-6%</u>	<del>-8%</del> <u>-15%</u>	<del>-13%</del> <u>-7%</u>	<del>-10%</del> <u>-12%</u>	<del>-13%</del> <u>-8%</u>	<del>-14%</del> <u>-7%</u>
Daily pollutant generation assumes trip distances within CalEEMod						

#### 4.5 Air Toxics Effects to Sensitive Receptors

The OMCPU presented an analysis of potential carcinogenic and non-carcinogenic risks to sensitive receptors from mobile sources of air emissions (vehicle tailpipes) and stationary sources. Within the Central Village area, the EIR noted potential health risks to sensitive receptor land uses in the northern portion of the Central Village area, primarily from traffic volumes on I-905 and Airway Road. In all instances, the OMCPU EIR concluded that impacts resulting from mobile source emissions on area roadways would be less than 10 in 1 million (the significance threshold) and less than significant.

The OMCPU EIR also disclosed that in areas where residential and other sensitive uses would be located adjacent to industrial and commercial areas, the collocation of these uses would have the potential to result in air pollution-related health effects to sensitive receptors. The EIR indicated that implementation of the OMCPU would place residential, commercial, and industrial uses in proximity to one another, and impacts could occur associated with exposure of sensitive receptors to pollutants from the operation of industrial and commercial facilities, which can include diesel particulate matter (DPM) emitted by heavy trucks and diesel engines, chromium emitted by chrome platers, and perchloroethylene emitted by dry cleaning operations. The OMCPU contains policies and performance standards to avoid and/or reduce potential impacts associated with collocation of diverse land uses. Even so, the OMCPU EIR concluded that the potential exposure of sensitive receptors to air toxics would be significant and unavoidable.

Policies and Design Standards that are incorporated into the proposed CVSP to address collocation of residential, commercial, and industrial uses include the following. It is noted that although no industrial uses would occur within the Central Village, light and heavy industrial uses are located to the west and south of the CVSP area, that could have effects to sensitive receivers in the CVSP area.

“Design Standard 2.2-13 Drive-through commercial site design is prohibited within Central Village.”

“Policy 2.5-44 Address the challenges presented by the collocation of industrial and residential uses by implementing the following design strategies:

- Provide landscape screening and/or patio walls to reduce noise impacts and protect the privacy of residential units along high traffic streets and intense uses.
- Address noise through the use of berms, planting, setbacks, and architectural design rather than with conventional wall barriers for generating uses.
- Minimize the number of residential units that have window and door openings that afford views into adjacent industrial uses located east of the Central Village. Whenever possible, orient the short end of buildings towards industrial uses.”

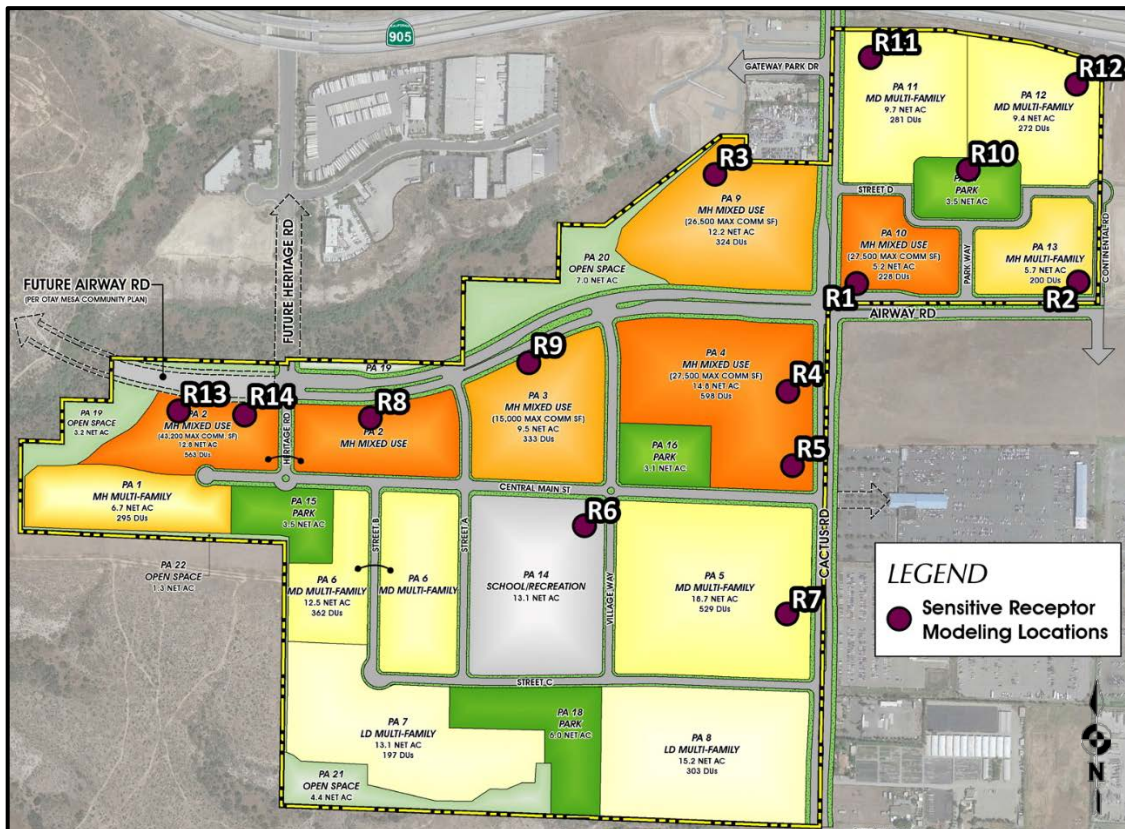
"Policy 2.5-57 Provide mechanical ventilation in all residential units proposed along roadways carrying high traffic volumes...."

"Policy 2.5-58 In commercial buildings, place loading and unloading areas so that commercial buildings shield nearby residential land uses...."

The CVSP proposes multi-family residential planning area (PA) 11 and PA 12 immediately south of SR-905 and mixed-use PA 9 approximately 525 feet south of SR-905. PA 9 also abuts light industrial land uses to the north. According to the CVSP's *Transportation Facilities Trigger Analysis*, the average daily trips (ADT) for I-905 near the CVSP area ranges from 164,100 ADT at Caliente Road to 133,500 ADT at La Media Road. Airway Road, a segment of which traverses the northern portion of the CVSP area, is calculated to carry between 11,900 ADT to 39,200 ADT from sections bordering the Central Village. Due to these traffic volumes, there is a potential that sensitive receivers in the Central Village could be exposed to air toxics associated with mobile source (vehicle tailpipe) emissions and particularly DPM from diesel-fueled vehicles.

Modeling at the CVSP site included coordinates for SR-905 (where DPM emitting vehicles could travel) and 14 receptor points in the CVSP area identified by red circles in Figure 4-A below. These points are representative of the unobstructed areas onsite to SR-915 and nearby Airway Road, as well as Heritage Road.

**Figure 4-A: Modeling Graphical Representation**



Siempre Viva Road is designated by the OMCPU as a "Truck Activity Road," indicating that offsite truck traffic and associated DPM emissions along this road would be increased due to truck activity. Truck traffic and associated DPM emissions along Siempre Viva could have the potential to impact future residents of the Central Village. Based on a review of traffic data for this road from the CVSP's *Transportation Facilities Trigger Analysis*, traffic along Siempre Viva Road (east of Cactus) is not calculated to exceed 6,400 ADT at buildout which is much less than the 50,000 ADT needed to generate a significant toxics air impact. Also, land uses changes within Central Village proposed by the CVSP would not increase traffic along Siempre Viva Road and would not generate any additional impacts from those already identified in the OMCPU EIR. Thus, less than significant impacts would occur and no new or more severe impacts would result from the CVSP.

Emissions from diesel exhaust along heavily traveled roadways near the Central Village were derived using data in CVSP's *Transportation Facilities Trigger Analysis* in association with area wide fleet averages from EMFAC 2011. Results are shown in **Attachment E** to this report. Compared to the amount of traffic assumed to be generated by land uses in the Central Village by the OMCPU EIR, the land use arrangement proposed by the CVSP would generate approximately ~~7,528~~ 4,764 fewer vehicle trips but would potentially increase truck trips from the proposed increase of 107 ksf of commercial floor space. The air modeling conducted for this analysis made a reasonable assumption that 40% of the commercial trips within the CVSP area would be from trucks and assumed an industry-standard vehicle mix ratio for the other uses.

Based on the modeling results that show impacts from vehicle exhaust along heavily traveled roadways, the portions of the CVSP area north of Airway Road (PAs 9 and 10 (mixed use), PAs 11, 12, and 13 (multi-family residential) and PA 17 (park)) would be exposed to carcinogenic risks from DPM that could exceed 10 in one million for 70 year exposure durations (assuming a person stayed in this location for 70 years, 365 days per year, 24 hours per day), which is an unlikely potential. Sensitive receivers located in PA 11 and PA 12 could also exceed a risk potential of 10 in one million for the 9-year exposure duration (assuming a person stayed in this location for 9 years, 365 days per year, 24 hours per day), which is also an unlikely potential. The traffic volumes on SR-905 and the location of sensitive receivers the Central Village area are no higher under the CVSP that would have occurred under the OMCPU; in fact, the CVSP will reduce traffic volumes on regional roadways, including SR-905, due the changes in land uses proposed in the Central Village by the CVSP. As such, the CVSP reduces risk potential compared to the OMCPU.

Table 4.3 on the following page shows the AERMOD predicted DPM concentrations as well as calculated cancer risks from vehicular traffic from SR-905 as well as Heritage Road and Airway Road. Also, it should be noted that these risk rates would not be expected until and unless SR-905 carries its calculated buildout traffic volume of 164,100 ADT. The detailed cancer risk calculations are shown in **Attachment F** to this report. The predicted AERMOD contours are shown in Figure 4-B of this report. After reviewing the modeling results, it is reasonable to conclude that these worst-case potential impacts would be reduced to less than significant by installing mechanical air quality filtration systems on the fresh air

**Table 4.3: Potential Cancer Risk Calculations at each Receptor**

Modeling Results		Cancer Risk per one million exposed		
Receptor	Emission Concentration (ug/m <sup>3</sup> )	9 Years	30 Years	70 Years
<b>R1</b>	<b>0.009560907</b>	4.7	7.5	<b>11.7</b>
<b>R2</b>	<b>0.00952616</b>	4.6	7.5	<b>11.7</b>
<b>R3</b>	<b>0.016906339</b>	8.2	<b>13.3</b>	<b>20.8</b>
R4	0.00662113	3.2	5.2	8.1
R5	0.004695002	2.3	3.7	5.8
R6	0.003822957	1.9	3.0	4.7
R7	0.002980091	1.5	2.3	3.7
R8	0.005317525	2.6	4.2	6.5
R9	0.006548992	3.2	5.1	8.0
R10 Park*	0.01747005	8.5	13.7	21.5
<b>R11</b>	<b>0.047848336</b>	<b>23.3</b>	<b>37.6</b>	<b>58.8</b>
<b>R12</b>	<b>0.04643322</b>	<b>22.6</b>	<b>36.5</b>	<b>57.0</b>
R13	0.005279119	2.6	4.1	6.5
R14	0.00517814	2.5	4.1	6.4

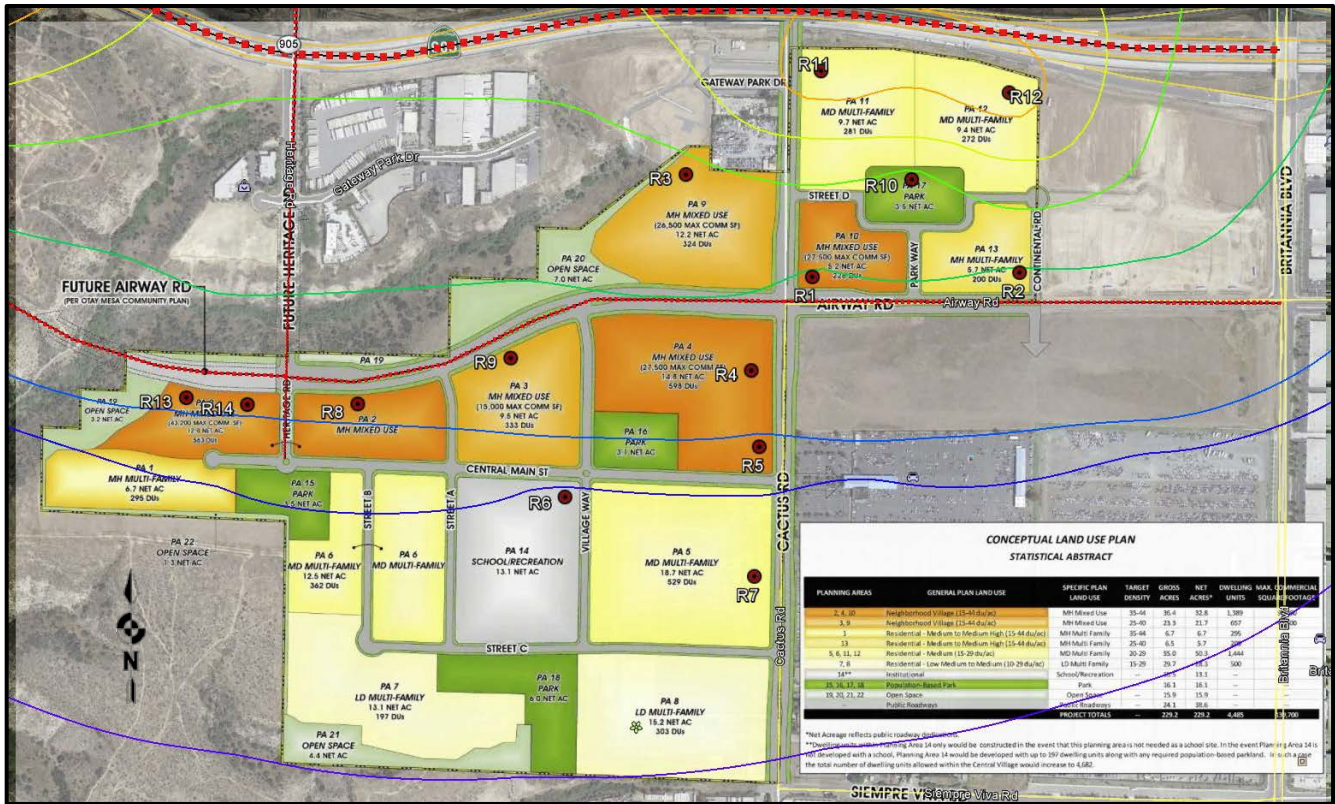
\*A Park is not considered a use with long exposure times and therefore is not considered sensitive

intake systems of the residential uses in affected areas. Filtration systems with a Maximum Efficiency Reporting Value (MERV) of 13, which has been found to reduce particulates 2.5 microns or less by 87 to 95% (CARB, 2012) would likely achieve this result. A requirement for this feature is specified as a Design Standard in the CVSP as follows. Thus, the impact would be reduced to less than significant. In addition, the CVSP includes a Policy to orient residential uses away from SR-905.

“Design Standard 2.2-11: Mechanical air quality filtration systems shall be required for residential units in Planning Areas 9, 10, 11, 12, and 13 (the planning areas closest to SR-905) and for residential units in Planning Areas 5 and 8 that are within 500 feet of the Specific Plan’s eastern and southern boundary lines (the planning areas closest to off-site light and heavy industrial uses) as part of implementing development projects. The filtration systems shall have at least a Maximum Efficiency Reporting Value (MERV) of 13. These systems are required to improve indoor air quality in areas of the Specific Plan that could be most affected by vehicular-related air pollutant emissions along SR-905 and nearby stationary sources associated with off-site industrial land uses.”

“Policy 2.5-54: Residential units located north of Airway Road should be designed to minimize building openings (windows and doors) and usable outdoor spaces (balconies, patios, etc.) from having a direct line-of-sight with SR-905.”

Figure 4-B: Modeling Graphical Representation



Also, physical barriers such as walls and vegetative buffers that would occur between sensitive receivers in these locations and sounding roadways would likely increase DPM deposition rates causing airborne DPM to settle out of the air, which will further reduce cancer risks.

Residential PAs 5 and 8 of the CVSP would be located in close proximity to off-site light and heavy industrial uses to the south and southeast. As concluded by the OMCPU EIR, the collocation of residential and industrial uses would have the potential to result in air pollution-related health effects to sensitive receptors. Therefore, the OMCPU EIR concluded that the potential exposure of sensitive receptors to air toxics would be significant and unavoidable. The CVSP would have no effect on the location, composition, or operational characteristics of off-site industrial uses, and the CVSP plans for the locations of residential uses in the same proximity to off-site areas as called for by the OMCPU. Therefore, the CVSP would not create any new impacts or more severe impacts. Further, Design Standard 2.2-11 (listed on the prior page of this report) would contribute to reducing the impact. Additionally, the following CVSP Policy is pertinent:

“Policy 2.5-44 Address the challenges presented by the collocation of industrial and residential uses by implementing the following design strategies:

- Provide landscape screening and/or patio walls to reduce noise impacts and protect the privacy of residential units along high traffic streets and intense uses.

- Address noise through the use of berms, planting, setbacks, and architectural design rather than with conventional wall barriers for generating uses.
- Minimize the number of residential units that have window and door openings that afford views into adjacent industrial uses located east of the Central Village. Whenever possible, orient the short end of buildings towards industrial uses.”

Finally, it should be noted that all offsite sources which have the ability to generate toxic air contaminants from operations are required to work with the SDAPCD and report emissions and obtain permits to operate. These requirements are independent of the proposed CVSP project, so impacts caused by existing and future off-site industrial activities or operations would be expected to be less than significant.

#### **4.6 Mitigation Measures**

The following mitigation measures from the OMCPU EIR are applicable to the CVSP:

**AQ-1:** For projects that would exceed daily construction emissions thresholds established by the City of San Diego, best available control measures/technology shall be incorporated to reduce construction emissions to below daily emission standards established by the City of San Diego. Best available control measures/technology shall include:

- a. Minimizing simultaneous operation of multiple pieces of construction equipment;
- b. Use of more efficient, or low pollutant emitting, equipment, e.g. Tier III or IV rated equipment;
- c. Use of alternative fueled construction equipment;
- d. Dust control measures for construction sites to minimize fugitive dust, e.g. watering, soil stabilizers, and speed limits; and
- e. Minimizing idling time by construction vehicles.

**AQ-2:** Development [implementing the CVSP] that would significantly impact air quality, either individually or cumulatively, shall receive entitlement only if it is conditioned with all reasonable mitigation to avoid, minimize, or offset the impact. As a part of this process, future projects shall be required to buffer sensitive receptors from air pollution sources through the use of landscaping, open space, and other separation techniques.

**AQ-4:** Prior to the issuance of building permits for any project containing a facility identified in Table 5.3-7 [of the OMCPU EIR], or locating air quality sensitive receptors closer than the recommended buffer distances [of the OMCPU], future projects implemented in accordance with the CPU [CVSP] shall be required to prepare a health risk assessment (HRA) with a Tier I analysis in accordance with APCD HRA Guidelines and the Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics "Hot Spots" Program Risk Assessment Guidelines (APCD 2006; OEHHA 2003). All HRAs shall include:

1. the estimated maximum 70-year lifetime cancer risk,
2. the estimated maximum non-cancer chronic health hazard index (HHI), and
3. the estimated maximum non-cancer acute health hazard index (HHI).

Risk estimates shall each be made for the off-site point of maximum health impact (PMI), the maximally exposed individual resident (MEIR), and the maximally exposed individual worker (MEIW). The location of each of these receptors shall be specified. The lifetime cancer risk, non-cancer chronic and acute health hazard indexes for nearby sensitive receptors shall also be reported. Cancer and non-cancer chronic risk estimates shall be based on inhalation risks. HRAs shall include estimates of population exposure, including cancer burden, as well as cancer and noncancer chronic and acute risk isopleths (contours). The HRA shall identify best available control technology (BACT) required to reduce risk to less than 10 in 1,000,000.

Mitigation Measure **AQ-3** from the OMCPU EIR is not applicable because it addresses potential stationary source emissions, and no potential sources of substantial stationary source emissions are planned within the CVSP area.

## **5.0 REFERENCES**

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ATTACHMENT A: CALEEMOD 2013.2.2 – APPROVED CVSP SUMMER, WINTER

ATTACHMENT B: CALEEMOD 2013.2.2 – PROPOSED CVSP SUMMER, WINTER

ATTACHMENT C: AERMOD OUTPUT FILE

ATTACHMENT D: AERMOD EMISSION INPUTS

ATTACHMENT E: EMFAC BURDEN MODEL 2020

ATTACHMENT F: DETAILED CANCER RISK CALCULATIONS AT EACH RECEPTOR

## **6.0 CERTIFICATIONS**

The contents of this report represent an accurate depiction of the air quality environment and impacts within and surrounding the proposed CVSP development. This report was prepared utilizing the latest emission rates and reduction methodologies.



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Jeremy Loudon, Principal  
Ldn Consulting, Inc.  
(760) 473-1253  
jlouden@ldnconsulting.net

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