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## 4.2 - Air Quality

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### 4.2.1 - Introduction

This section describes the existing air quality setting and potential onsite and surrounding area effects from the implementation of the proposed Walmart. Michael Brandman Associates (MBA) performed air quality analysis for the proposed Walmart, which included construction and operational air quality modeling. The mitigation measures that are identified in this section to reduce air quality impacts from the development of a Walmart are separated into two sets of mitigation measures. The first set of mitigation measures is those measures that are the same as those that are required with the development of the approved Wasco Center that includes the 158,000 square foot “Large Box Retail” use building on the project site. The second set of mitigation measures is those measures that are required for the addition of 12,000 square feet to the approved structure and the change in use to a Walmart that includes a 24-hour operation. The following is a list and location of information reviewed in preparation of this section:

- Air Quality and Health Risk Analysis Report. December 2010. Michael Brandman Associates. This report includes numerous references that were used to analyze potential air quality and health risk impacts. This report is located in ~~Draft~~ [Final](#) SEIR Appendix D.
- Air Quality Monitoring Data. November 2010. Michael Brandman Associates. This information is located in ~~Draft~~ [Final](#) SEIR Appendix D.

### 4.2.2 - Environmental Setting

#### San Joaquin Valley Air Basin

The project site is located in the City of Wasco, which is located in the San Joaquin Valley Air Basin (Basin). Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The combination of topography and inversion layers generally prevents dispersion of air pollutants. The information in this section is primarily from the San Joaquin Valley Air Pollution Control District’s Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2002a) and the accompanying Technical Document (SJVAPCD 2002b).

The Basin has an “inland Mediterranean” climate and is characterized by long, hot, dry summers and short, foggy winters. Sunlight can be a catalyst in the formation of some air pollutants (such as ozone); the Basin averages over 260 sunny days per year. At the meteorological station located in Wasco, the maximum daily average temperatures (approximately 100 degrees Fahrenheit [°F]) occur in July. The lowest average high temperatures (35°F) occur in December and January.

The majority of rainfall in the project area occurs between November and April. Since 1901, precipitation at the Wasco weather station has averaged 7.18 inches per year, with 88 percent of the precipitation occurring between November and April. Average snowfall has averaged 0.5 inches per year, occurring only in January and March.

**Topography**

The Basin is generally shaped like a bowl. It is open in the north and is surrounded by mountain ranges on all other sides. The Sierra Nevada mountains are along the eastern boundary (8,000 to 14,000 feet in elevation), the Coast Ranges are along the western boundary (3,000 feet in elevation), and the Tehachapi Mountains are along the southern boundary (6,000 to 8,000 feet in elevation).

**Dominant Airflow**

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the Basin form natural horizontal barriers to the dispersion of air contaminants. The wind generally flows south-southeast through the valley, through the Tehachapi Pass and into the Southeast Desert Air Basin portion of Kern County. As the wind moves through the Basin, it mixes with the air pollution generated locally, generally transporting air pollutants from the north to the south in the summer and in a reverse flow in the winter.

**Inversions**

Generally, the temperature of air decreases with height, creating a gradient from warmer air near the ground to cooler air at elevation. This gradient of cooler air over warm air is known as the environmental lapse rate. Inversions occur when warm air sits over cooler air, trapping the cooler air near the ground. These inversions trap pollutants from dispersing vertically and the mountains surrounding the San Joaquin Valley trap the pollutants from dispersing horizontally. Strong temperature inversions occur throughout the Basin in the summer, fall, and winter. Daytime temperature inversions occur at elevations of 2,000 to 2,500 feet above the San Joaquin Valley floor during the summer and at 500 to 1,000 feet during the winter.

The result is a relatively high concentration of air pollution in the valley during inversion episodes. These inversions cause haziness, which in addition to moisture may include suspended dust, a variety of chemical aerosols emitted from vehicles, particulates from wood stoves, and other pollutants. In the winter, these conditions can lead to carbon monoxide “hotspots” along heavily traveled roads and at busy intersections. During summer’s longer daylight hours, stagnant air, high temperatures, and plentiful sunshine provide the conditions and energy for the photochemical reaction between reactive organic gases (ROG) and oxides of nitrogen (NO<sub>x</sub>), which results in the formation of ozone.

**Location and Season**

Because of the prevailing daytime winds and time-delayed nature of ozone, concentrations are highest in the southern portion of the Basin, such as around Bakersfield. Summers are often periods of hazy visibility and occasionally unhealthy air, while winter air quality impacts tend to be localized and can consist of (but are not exclusive to) odors from agricultural operations; soot or smoke around residential, agricultural, and hazard-reduction wood burning; or dust near mineral resource recovery operations.

### Local Air Quality

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area.

Table 4.2-1 summarizes 2007 through 2009 published monitoring data, which is the most recent 3-year period available. The project is approximately 20 miles northwest of the Bakersfield site and about 8 miles northwest of the Shafter site. The data shows that during the past few years, the project area has exceeded the ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> ambient air quality standards.

**Table 4.2-1: Air Quality Monitoring Summary**

| Air Pollutant, Location  | Averaging Time                                      | Item  | 2007             | 2008  | 2009  |
|--|---|---|------------------|-------|-------|
| Ozone, Shafter-Walker Street   | 1 Hour  | Max 1 Hour (ppm)  | 0.111            | 0.131 | 0.105 |
|  |   | Days > State Standard (0.09 ppm)                          | 3                | 14    | 2     |
|  | 8 Hour  | Max 8 Hour (ppm)  | 0.103            | 0.111 | 0.084 |
|  |   | Days > State Standard (0.07 ppm)                          | 47               | 45    | 31    |
|  |   | Days > National Standard (0.075 ppm)                      | 18               | 33    | 11    |
|  | Carbon monoxide, Bakersfield - Golden State Highway | 8 Hour  | Max 8 Hour (ppm) | 1.97  | 2.17  |
| Days > State Standard (9.0 ppm)  |   |   | 0                | 0     | 0     |
| Days > National Standard (9 ppm)   |   |   | 0                | 0     | 0     |
| Nitrogen dioxide, Shafter - Walker Street  | Annual  | Annual Average (ppm)                                      | 0.014            | 0.014 | 0.012 |
|  | 1 Hour  | Max 1 Hour (ppm)  | 0.101            | 0.057 | 0.052 |
|  |   | Days > State Standard (0.18 ppm)                          | 0                | 0     | 0     |
|  |   | Days > National Standard (0.10 ppm)                       | 0*               | 0     | 0     |
| Sulfur dioxide, Fresno - 1 <sup>st</sup> Street                                    | Annual  | Annual Average (ppm)                                      | ID               | 0.001 | 0.001 |
|  | 24 Hour   | Max 24 Hour (ppm)   | 0.007            | 0.003 | 0.005 |
|  |   | Days > State Standard (0.04 ppm)                          | 0                | 0     | 0     |
|  |   | Days > National Standard (0.14 ppm)                       | 0                | 0     | 0     |
| Inhalable coarse particles (PM <sub>10</sub> ), Bakersfield - Golden State Highway | Annual  | Annual Average (µg/m <sup>3</sup> )                       | 54.8             | 59.7  | ID    |
|  | 24 hour   | 24 Hour (µg/m <sup>3</sup> )                              | 135.0            | 267.4 | 139.5 |
|  |   | Days > State Standard (50 µg/m <sup>3</sup> )             | 28               | 31    | 31    |
|  |   | Days > National Standard (150 µg/m <sup>3</sup> )         | 0                | 1     | 0     |
| Fine particulate matter (PM <sub>2.5</sub> ), Bakersfield - Golden State Highway   | Annual  | Annual Average (µg/m <sup>3</sup> )                       | 25.2             | 18.8  | 19.3  |
|  | 24 Hour   | 24 Hour (µg/m <sup>3</sup> )                              | 154.0            | 88.7  | 93.1  |
|  |   | Measured Days > National Standard (35 µg/m <sup>3</sup> ) | 17               | 13    | 36    |

**Table 4.2-1 (cont.): Air Quality Monitoring Summary**

| Air Pollutant,<br>Location   | Averaging<br>Time | Item | 2007 | 2008 | 2009 |
|--|-------------------|------|------|------|------|
| Abbreviations:<br>> = exceed                      ppm = parts per million $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter<br>ID = insufficient data                      ND = no data                      max = maximum<br>State Standard = California Ambient Air Quality Standard<br>National Standard = National Ambient Air Quality Standard<br>* To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010). Therefore, the area did not exceed the standard during the three-year period.<br>Sources: California Air Resources Board (ARB 2010b). |                   |      |      |      |      |

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or ‘form’ of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the Federal annual  $\text{PM}_{2.5}$  standard is met if the three-year average of the annual average  $\text{PM}_{2.5}$  concentration is less than or equal to the standard.

The current attainment designations for the basin are shown in Table 4.2-2. The basin is designated as nonattainment for the state ozone,  $\text{PM}_{10}$ , and  $\text{PM}_{2.5}$ , standards and the national ozone and  $\text{PM}_{2.5}$  standards.

**Table 4.2-2: San Joaquin Valley Air Basin Attainment Status**

| Pollutant         | Designation                   |                      |
|-------------------|-------------------------------|----------------------|
|                   | National                      | State                |
| Ozone - 1-hour    | No Federal Standard           | Nonattainment/Severe |
| Ozone - 8-hour    | Nonattainment/Serious         | Nonattainment        |
| $\text{PM}_{10}$  | Attainment                    | Nonattainment        |
| $\text{PM}_{2.5}$ | Nonattainment                 | Nonattainment        |
| Carbon Monoxide   | Attainment/Unclassified       | Attainment           |
| Nitrogen Dioxide  | Attainment/Unclassified       | Attainment           |
| Sulfur Dioxide    | Attainment/Unclassified       | Attainment           |
| Lead              | No Designation/Classification | Attainment           |

**Table 4.2-2 (cont.): San Joaquin Valley Air Basin Attainment Status**

| Pollutant                           | Designation         |              |
|-------------------------------------|---------------------|--------------|
|                                     | National            | State        |
| Hydrogen Sulfide                    | No Federal Standard | Unclassified |
| Sulfates                            | No Federal Standard | Attainment   |
| Visibility Reducing Particles       | No Federal Standard | Unclassified |
| Vinyl Chloride                      | No Federal Standard | Attainment   |
| Source: SJVAPCD 2010 and ARB 2010c. |                     |              |

### 4.2.3 - Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The San Joaquin Valley Air Pollution Control District (SJVAPCD) regulates at the air basin level.

#### National and State Regulatory Agencies

The EPA handles global, international, national, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Ambient Air Quality Standards, also known as federal standards. There are national standards for six common air pollutants, called criteria air pollutants, which were identified from provisions of the Clean Air Act of 1970.

The criteria pollutants are:

- Ozone
- Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>)
- Nitrogen dioxide
- Carbon monoxide (CO)
- Lead
- Sulfur dioxide

The national standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary national standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health (ARB 2010a).

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain National standards. The State

Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. The ARB also administers California Ambient Air Quality Standards for the 10 air pollutants designated in the California Clean Air Act. The 10 state air pollutants are the six National standards listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride.

The national and state ambient air quality standards, relevant effects, properties, and sources of the pollutants are summarized in Table 4.2-3.

Several pollutants listed in Table 4.2-3 are not addressed in this analysis. Analysis of lead is not included in this report because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity. There is no generation of hydrogen sulfide usage in the project area.

Table 4.2-3: Description of Air Pollutants

| Air Pollutant                                    | Averaging Time | California Standard | National Standard <sup>a</sup> | Most Relevant Effects from Pollutant Exposure  | Properties   | Sources   |
|--|----------------|---------------------|--------------------------------|--|--|---|
| Ozone  | 1 Hour         | 0.09 ppm            | —                              | (a) Decrease of pulmonary function and localized lung edema in humans and animals; (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) increased mortality risk; (d) altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) vegetation damage; (f) property damage. | Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), NO <sub>x</sub> , and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.   | Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO <sub>x</sub> ) are mobile sources (on-road and off-road vehicle exhaust).                                    |
|  | 8 Hour         | 0.070 ppm           | 0.075 ppm                      |  |  |   |
| Carbon monoxide (CO)                             | 1 Hour         | 20 ppm              | 35 ppm                         | (a) Aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; (b) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) impairment of central nervous system functions; (d) possible increased risk to fetuses.  | CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.  | CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources. |
|  | 8 Hour         | 9.0 ppm             | 9 ppm                          |  |  |   |
| Nitrogen dioxide <sup>c</sup> (NO <sub>2</sub> ) | 1 Hour         | 0.18 ppm            | 0.100 ppm                      | (a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) contribution to atmospheric discoloration.  | During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides - NO <sub>x</sub> (NO, NO <sub>2</sub> , NO <sub>3</sub> , N <sub>2</sub> O, N <sub>2</sub> O <sub>3</sub> , N <sub>2</sub> O <sub>4</sub> , and N <sub>2</sub> O <sub>5</sub> ). NO <sub>x</sub> is a precursor to ozone, PM <sub>10</sub> , and PM <sub>2.5</sub> formation. NO <sub>x</sub> can react with compounds to form nitric acid and related particles. | NO <sub>x</sub> is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. NO <sub>2</sub> concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.                |
|  | Annual         | 0.030 ppm           | 0.053 ppm                      |  |  |   |

**Table 4.2-3 (cont.): Description of Air Pollutants**

| Air Pollutant                           | Averaging Time      | California Standard  | National Standard <sup>a</sup> | Most Relevant Effects from Pollutant Exposure  | Properties  | Sources   |
|---|---------------------|----------------------|--------------------------------|--|---|---|
| Sulfur dioxide (SO <sub>2</sub> )       | 1 Hour              | 0.25 ppm             | 0.075 ppm <sup>d</sup>         | Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor. | Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO <sub>x</sub> ) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and national standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM <sub>10</sub> . | Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards. |
|   | 3 Hour <sup>1</sup> | —                    | 0.5 ppm                        |  |   |   |
|   | 24 Hour             | 0.04 ppm             | —                              |  |   |   |
|   | Annual              | —                    | —                              |  |   |   |
| Particulate matter (PM <sub>10</sub> )  | 24 hour             | 50 µg/m <sup>3</sup> | 150 µg/m <sup>3</sup>          | (a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) declines in pulmonary function growth in children; (c) increased risk of premature death from heart or lung diseases in the elderly. Daily fluctuations in PM <sub>2.5</sub> levels have been related to hospital admissions for acute respiratory conditions, school absences, and increased medication use in children and adults with asthma.                          | Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM <sub>10</sub> refers to particulate matter that is between 2.5 and 10 microns in diameter, (1 micron is one-millionth of a meter). PM <sub>2.5</sub> refers to particulate matter that is 2.5 microns or less in diameter.   | Stationary sources include fuel combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust.  |
|   | Mean                | 20 µg/m <sup>3</sup> | —                              |  |   |   |
| Particulate matter (PM <sub>2.5</sub> ) | 24 Hour             | —                    | 35 µg/m <sup>3</sup>           |  |   |   |
|   | Annual              | 12 µg/m <sup>3</sup> | 15.0 µg/m <sup>3</sup>         |  |   |   |

**Table 4.2-3 (cont.): Description of Air Pollutants**

| Air Pollutant               | Averaging Time          | California Standard   | National Standard <sup>a</sup> | Most Relevant Effects from Pollutant Exposure  | Properties   | Sources   |
|-----------------------------|-------------------------|-----------------------|--------------------------------|--|--|---|
| Sulfates                    | 24 Hour                 | 25 µg/m <sup>3</sup>  | —                              | (a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.   | The sulfate ion is a polyatomic anion with the empirical formula SO <sub>4</sub> <sup>2-</sup> . Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.  | Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.   |
| Lead <sup>b</sup>           | 30-day                  | 1.5 µg/m <sup>3</sup> | —                              | Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction. The more serious effects of lead poisoning include behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs. Lead may also contribute to high blood pressure and heart disease. | Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. An aerosol is a collection of solid, liquid, or mixed-phase particles suspended in the air. Lead was first regulated as an air pollutant in 1976. Leaded gasoline was first marketed in 1923 and was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or national air quality standards at any monitoring station since 1982. | Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering. Lead can be removed from the atmosphere through deposition to soils, ice caps, oceans, and inhalation. |
|                             | Quarter                 | —                     | 1.5 µg/m <sup>3</sup>          |  |  |   |
|                             | Rolling 3-month average | —                     | 0.15 µg/m <sup>3</sup>         |  |  |   |
| Vinyl chloride <sup>b</sup> | 24 Hour                 | 0.01 ppm              | —                              | Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.               | Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.  | Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.                               |

**Table 4.2-3 (cont.): Description of Air Pollutants**

| Air Pollutant                    | Averaging Time | California Standard   | National Standard <sup>a</sup> | Most Relevant Effects from Pollutant Exposure   | Properties  | Sources  |
|----------------------------------|----------------|---|--------------------------------|---|---|--|
| Hydrogen sulfide                 | 1 Hour         | 0.03 ppm  | —                              | High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.  | Hydrogen sulfide (H <sub>2</sub> S) is a flammable, colorless, poisonous gas that smells like rotten eggs.  | Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).   |
| Volatile organic compounds (VOC) |                | There are no state or national ambient air quality standards for VOCs because they are not classified as criteria pollutants. |                                | Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants. | Reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably. | Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM <sub>10</sub> and lower visibility. |
| Benzene                          |                | There are no ambient air quality standards for benzene.   |                                | Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, loss of consciousness can occur. Long-term (chronic) occupational exposure of high doses has caused blood disorders, leukemia, and lymphatic cancer.  | Benzene is a VOC. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a “Group A” carcinogen.   | Benzene is emitted into the air from fuel evaporation, motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is used as a solvent for paints, inks, oils, waxes, plastic, and rubber. It is used in the extraction of oils from seeds and nuts and in the manufacture of detergents, explosives, and pharmaceuticals.   |

**Table 4.2-3 (cont.): Description of Air Pollutants**

| Air Pollutant                   | Averaging Time | California Standard                                 | National Standard <sup>a</sup> | Most Relevant Effects from Pollutant Exposure  | Properties   | Sources   |
|---------------------------------|----------------|---|--------------------------------|--|--|---|
| Diesel particulate matter (DPM) |                | There are no ambient air quality standards for DPM. |                                | Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure. | DPM is a source of PM <sub>2.5</sub> —diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust. | Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment. |

Abbreviations:

ppm = parts per million (concentration)      μg/m<sup>3</sup> = micrograms per cubic meter      Annual = Annual Arithmetic Mean      30-day = 30-day average      Quarter = Calendar quarter

<sup>a</sup> National standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3 Hour SO<sub>2</sub>, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

<sup>b</sup> 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.

<sup>c</sup> Effective April 12, 2010, to attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb, or 188 μg/m<sup>3</sup>

<sup>d</sup> To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

Source of effects: SCAQMD 2007; OEHHA 2002; ARB 2009; EPA 2007; EPA 2000; NTP 2005a.

Source of standards: ARB 2010a.

Source of properties and sources: EPA 1999; EPA 2003; EPA 2009a; EPA 2009b; NTP 2005b.

## State of California Regulations

### **ARB Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle**

**Idling** adopts new section 2485 within Chapter 10, Article 1, Division 3, title 13 in the California Code of Regulations. The measure limits the idling of diesel vehicles to reduce emissions of toxics and criteria pollutants. The driver of any vehicle subject to this section: (1) shall not idle the vehicle's primary diesel engine for greater than five minutes at any location; and (2) shall not idle a diesel-fueled auxiliary power system for more than five minutes to power a heater, air conditioner, or any ancillary equipment on the vehicle if it has a sleeper berth and the truck is located within 100 feet of a restricted area (homes and schools).

### **ARB Final Regulation Order, Requirements to Reduce Idling Emissions from New and In-Use Trucks,**

requires that new 2008 and subsequent model-year heavy-duty diesel engines be equipped with an engine shutdown system that automatically shuts down the engine after 300 seconds of continuous idling operation once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged. If the parking brake is not engaged, then the engine shutdown system shall shut down the engine after 900 seconds of continuous idling operation once the vehicle is stopped and the transmission is set to "neutral" or "park." Any project trucks manufactured after 2008 would be consistent with this rule, which would ultimately reduce air emissions.

**ARB Regulation for In-Use Off-Road Diesel Vehicles.** On July 26, 2007, the ARB adopted a regulation to reduce diesel particulate matter and NO<sub>x</sub> emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation imposed limits on idling, buying older off-road diesel vehicles, and selling vehicles beginning in 2008; requires all vehicles to be reported to ARB and labeled in 2009; and then in 2010 begins gradual requirements for fleets to clean up their fleet by getting rid of older engines, using newer engines, and installing exhaust retrofits. The regulation requires equipment to be retrofitted or retired. The regulation takes effect in phases, requiring the largest fleets to comply by 2010, medium fleets by 2013, and smaller fleets by 2015.

**Statewide Truck and Bus Rule.** On December 12, 2008, the ARB approved a new regulation to significantly reduce emissions from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance requirements between 2011 and 2023. By January 1, 2023, all vehicles must have a 2010 model year engine or equivalent. The regulation applies to all on-road heavy-duty diesel-fueled vehicles with a gross vehicle weight rating greater than 14,000 pounds, agricultural yard trucks with off-road certified engines, and certain diesel fueled shuttle vehicles of any gross vehicle weight rating. Out-of-state trucks and buses that operate in California are also subject to the regulation.

## San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (District) is responsible for controlling emissions primarily from stationary sources. The District maintains air quality monitoring stations

throughout the basin. The District, in coordination with the eight countywide transportation agencies, is also responsible for developing, updating, and implementing air quality attainment plans for the Basin.

### **Ozone Air Quality Attainment Plans**

The Basin is designated nonattainment of state and federal health-based air quality standards for ozone. To meet Clean Air Act requirements for the 1-hour ozone standard, the District adopted an Extreme Ozone Attainment Demonstration Plan (SJVAPCD 2004), which has an attainment date of 2010. However, the federal 1-hour ozone standard has been revoked by EPA and replaced with an 8-hour standard. The planning requirements for the 1-hour plan remain in effect until replaced by a federal 8-hour ozone attainment plan. The EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan, including revisions to the plan, on March 8, 2010, effective April 7, 2010.

The Basin is classified as serious nonattainment for the federal 8-hour ozone standard. On April 30, 2007, the District's Governing Board adopted the 2007 Ozone Plan, which contained analysis showing a 2013 attainment target to be unfeasible (SJVAPCD 2007a). The 2007 Ozone Plan calls for a 75-percent reduction in NO<sub>x</sub> emissions and a 25-percent reduction in ROG emissions by the year 2023. ARB approved the plan in June 2007. On April 15, 2010, the EPA signed a final rule to grant requests from the State of California to reclassify 8-hour ozone nonattainment areas in San Joaquin Valley from "serious" to "extreme."

State ozone standards do not have an attainment deadline but require implementation of all feasible measures to achieve attainment at the earliest date possible.

### **Particulate Matter Air Quality Attainment Plans**

The Basin was designated nonattainment of state and federal health-based air quality standards for PM<sub>10</sub>. To meet Clean Air Act requirements for the PM<sub>10</sub> standard, the District adopted a PM<sub>10</sub> Attainment Demonstration Plan (Amended 2003 PM<sub>10</sub> Plan and 2006 PM<sub>10</sub> Plan), which has an attainment date of 2010.

The District adopted the 2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation (2007 PM<sub>10</sub> Plan) (SJVAPCD 2007b). The 2007 PM<sub>10</sub> Plan contains modeling demonstrations that show the Basin will not exceed the federal PM<sub>10</sub> standard for 10 years after the expected EPA redesignation, monitoring, and verification measures, and a contingency plan. Even though the EPA revoked the federal annual PM<sub>10</sub> standard, the 2007 PM<sub>10</sub> Plan addresses both the annual and 24-hour standards because both standards were included in the EPA-approved SIP. The EPA finalized the determination that the Basin attained the PM<sub>10</sub> standards on October 17, 2007, effective October 30, 2007. On September 25, 2008, EPA redesignated the Basin as attainment for the federal PM<sub>10</sub> standard and approved the PM<sub>10</sub> Plan.

The Basin is also designated nonattainment for the new federal PM<sub>2.5</sub> annual standard. The District adopted the 2008 PM<sub>2.5</sub> Plan on April 30, 2008 (SJVAPCD 2008). This Plan demonstrates the Basin

will attain the 1997 federal standard by 2014 and make progress toward attaining the 2006 federal 24-hour standard. Barring delays due to legal challenges, the District estimates that attainment plans for the federal 2006 standard will be required by 2012 or 2013 with an attainment deadline of 2020. Measures contained in the 2003 PM<sub>10</sub> Plan will also help reduce PM<sub>2.5</sub> levels and will provide progress toward attainment until new measures are implemented for the PM<sub>2.5</sub> Plan, if needed.

The EPA is proposing to disapprove California's air quality plans for PM<sub>2.5</sub> - for failure to achieve adequate emissions reductions in the South Coast and San Joaquin Valley air basins notoriously known for poor air quality. EPA intends to make a final decision on the plans in 2011, after reviewing public comments. In the event the EPA finalizes these proposed disapprovals and the state fails to correct the deficiencies in a timely manner, certain sanctions would apply. More stringent facility permitting requirements may be imposed after 18 months and highway-funding restrictions may be imposed after 24 months from the date of final disapproval.

### **Applicable Rules**

The District rules and regulations that apply to this project include but are not limited to the following:

- Rule 4102 - Nuisance. The purpose of this rule is to protect the health and safety of the public, and applies to any source operation that emits or may emit air contaminants or other materials.
- Rule 4601 - Architectural Coatings. The purpose of this rule is to limit ROG emissions from architectural coatings. Emissions are reduced by limits on ROG content and providing requirements on coatings storage, cleanup, and labeling.
- Rule 4641 - Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations. The purpose of this rule is to limit ROG emissions from asphalt paving and maintenance operations. If asphalt paving will be used, then the paving operations will be subject to Rule 4641.
- Regulation VIII - Fugitive PM<sub>10</sub> Prohibitions. Rule 8011-8081 are designed to reduce PM<sub>10</sub> emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and trackout, etc.

### **Compliance with Rule 9510**

Rule 9510 - Indirect Source Review reduces the impact of NO<sub>x</sub> and PM<sub>10</sub> emissions from growth in the Basin. The rule places application and emission reduction requirements on development projects meeting applicability criteria in order to reduce emissions through onsite mitigation, offsite District-administered projects, or a combination of the two. Pursuant to Section 2.1 of Rule 9510, the proposed Walmart is required to comply with the rule because it seeks to construct more than 2,000

square feet of commercial space. This project will submit an Air Impact Assessment application in accordance with Rule 9510's requirements.

Compliance with District Rule 9510 reduces the emissions impact of the project through incorporation of onsite measures as well as payment of an offsite fee that funds emission reduction projects in the Basin. The emissions analysis for Rule 9510 is highly detailed and is dependent on the exact project design that is expected to be constructed or installed. Minor changes to project components between the CEQA analysis and project construction often occur. An example of such a change is a change in square footage. The required amounts of emission reductions required by Rule 9510 are as follows:

- Construction Exhaust: 20% of total NO<sub>x</sub> emissions and 45% of total PM<sub>10</sub> emissions.
- Operational Emissions: 33% of NO<sub>x</sub> emissions over first 10 years and 50% of PM<sub>10</sub> emissions over first 10 years.

#### **Voluntary Emission Reduction Agreements**

A Voluntary Emission Reduction Agreement (VERA) is an air quality mitigation measure by which a developer voluntarily enters into a contractual agreement with the District to reduce a development project's impact on air quality to less than significant levels (SJVAPCD 2010). Implementation of a VERA is complementary to Rule 9510; project emissions are characterized, mitigation funds are paid to the District, the District administers the funds to secure the required emission reduction projects. For development projects subject to Rule 9510, the developer must also comply with applicable rule provisions. To avoid double counting, emission reductions achieved through implementation of a VERA are credited alongside Rule 9510 reductions.

#### **CEQA Guidance**

The District has prepared the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI), which sets forth recommended thresholds of significance, analysis methodologies, and provides guidance on mitigating significant impacts for CEQA documents (SJVAPCD 2002a).

#### **4.2.4 - Thresholds of Significance**

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether air quality impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

- a) Conflict with or obstruct implementation of the applicable air quality plan?
- b) 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 nonattainment under an applicable federal or state ambient air quality

standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?

- d) Expose sensitive receptors to substantial pollutant concentrations?
- e) Create objectionable odors affecting a substantial number of people?

#### 4.2.5 - Impact Analysis and Mitigation Measures

##### Proposed Walmart Emissions

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**Impact AQ-1:           The proposed Walmart has the potential to emit ozone precursors (ROG, NO<sub>x</sub>, PM<sub>10</sub>, or PM<sub>2.5</sub> over the thresholds of significance.**

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##### ***Project Specific Impact Analysis***

###### Thresholds of Significance

The District indicates that all control measures in Regulation VIII are required by regulation for all construction sites. The District's GAMAQI lists additional measures that may be required because of sheer project size or proximity of the project to sensitive receptors. If all appropriate "enhanced control measures" in the GAMAQI are not implemented for these very large or sensitive projects, then construction impacts would be considered significant (unless the Lead Agency provides a satisfactory detailed explanation as to why a specific measure is unnecessary). The GAMAQI also lists additional control measures (Optional Measures) that may be implemented if further emission reductions are deemed necessary by the Lead Agency.

The GAMAQI does not require construction emission quantification; however, the District indicated that with the requirement to quantify construction emissions for Rule 9510 and the availability of modeling tools to quantify the emissions, the District now recommends construction emission quantification for all projects large enough to trigger Rule 9510 applicability (i.e., 50 residential units or more or 2,000 sq ft of commercial use); therefore, Rule 9510 applies to the proposed Walmart.

Ozone is a secondary pollutant that can be formed miles away from the source of emissions through reactions of ROG and NO<sub>x</sub> emissions in the presence of sunlight. Therefore, ROG and NO<sub>x</sub> are termed ozone precursors. The Basin often exceeds the ozone standards. Therefore, if the proposed Walmart emits a substantial quantity of ozone precursors, the proposed Walmart may contribute to an exceedance of the ozone standard. The District established significance thresholds for ozone precursors, ROG and NO<sub>x</sub>, and has published them in its GAMAQI. For typical projects, operation-related emissions that exceed the threshold of 10 tons per year for ROG or NO<sub>x</sub> would be considered significant. The threshold for PM<sub>10</sub> is not identified in the GAMAQI; however, the District's general practice is to use a threshold of 15 tons per year for PM<sub>10</sub>, which was confirmed by Daniel Barber, Supervising Air Quality Specialist at the District on February 7, 2011.

The GAMAQI does not have quantitative thresholds for construction emissions. However, the GAMAQI does have operational thresholds for ROG and NO<sub>x</sub> of 10 tons per year for each. Since the GAMAQI was published, the District has recommended use of a PM<sub>10</sub> threshold of 15 tons per year.

Because the Basin is in nonattainment for PM<sub>2.5</sub>, the threshold for PM<sub>2.5</sub> for this project will be 9 tons per year. The justification for this number is that PM<sub>2.5</sub> is in nonattainment and should have a more stringent threshold than PM<sub>10</sub> to provide a worst-case assessment. The annual standard for PM<sub>10</sub> is 20 µg/m<sup>3</sup> and the annual standard for PM<sub>2.5</sub> is 12 µg/m<sup>3</sup>. Therefore, the ratio of PM<sub>10</sub> to PM<sub>2.5</sub> results in a threshold for PM<sub>2.5</sub> of 9 tons per year.

The annual significance thresholds to be used for the project for operational and construction emissions are as follows:

- 10 tons per year ROG
- 10 tons per year NO<sub>x</sub>
- 15 tons per year PM<sub>10</sub>
- 9 tons per year PM<sub>2.5</sub>

#### Construction Emissions

Construction emissions from the proposed Walmart were estimated using the Urban Emissions Model, URBEMIS2007 Version 9.2.4 (URBEMIS). The California Emissions Estimator Model Version 2011.1 (CalEEMod) was released in February, 2011. The District is formulating a policy regarding the use of CalEEMod (Dan Barber, personal communication, February 4, 2011). The District indicated that URBEMIS2007 should be used at this time. The District anticipates a transition period where CalEEMod and URBEMIS2007 would both be acceptable. Eventually, the District may phase out URBEMIS2007. The assumptions used for the construction modeling are as follows:

- All phases would operate 6 days per week.
- Grading of 28 acres (1/4 of the Wasco Center site), with a duration of 2 months.
- Grading equipment fleet is the “mass grading” equipment fleet for first phase of construction from the Wasco Center 2008 analysis.
- For the removal of the onsite trees during grading, assuming 28 acres of trees, or 1,219,680 square feet, divided by 2 because there is space between the trees is 609,840 square feet, assuming 1 foot high of debris would total 609,680 cubic feet (22,587 cubic yards) of material to be removed.
- Trenching equipment fleet is the trenching phase fleet for the first phase of construction from the Wasco Center 2008 analysis.
- Building equipment fleet consists of the equipment from the first phase of building from the Wasco Center 2008 analysis, with the addition of four generator sets.
- Paving equipment fleet consists of the equipment from the first phase of paving from the Wasco Center 2008 analysis with the addition of 3 cement and mortar mixers and 1 tractor.

- Acreage to be paved assumed that approximately half of the project site would be paved, or 8.5 acres.

Construction emissions associated with the proposed Walmart are shown in Table 4.2-4. These are emissions without incorporation of regulations or mitigation measures. As shown in the table, the emissions are below the significance thresholds and are, therefore, less than significant on a project basis.

**Table 4.2-4: Walmart Construction Pollutant Emissions**

| Source  | Emissions (tons per year) |                 |                  |                   |
|---|---------------------------|-----------------|------------------|-------------------|
|   | ROG                       | NO <sub>x</sub> | PM <sub>10</sub> | PM <sub>2.5</sub> |
| Grading   | 0.20                      | 1.76            | 3.65             | 0.81              |
| Trenching   | 0.02                      | 0.19            | 0.01             | 0.01              |
| Building  | 0.93                      | 3.78            | 0.28             | 0.26              |
| Coating   | 1.82                      | 0.00            | 0.00             | 0.00              |
| Paving  | 0.07                      | 0.42            | 0.03             | 0.03              |
| Total   | 3.04                      | 6.15            | 3.97             | 1.11              |
| Significance threshold  | 10                        | 10              | 15               | 9                 |
| Exceed threshold - significant impact?  | No                        | No              | No               | No                |
| ROG = reactive organic gases; NO <sub>x</sub> = nitrogen oxides; PM <sub>10</sub> and PM <sub>2.5</sub> = particulate matter<br>Source: Michael Brandman Associates, 2010 (Appendix D). |                           |                 |                  |                   |

#### Operational Emissions

Operational emissions occur over the lifetime of the project and are from two main sources: area sources and motor vehicles, or mobile sources.

**Area sources.** An area source is an emission source spread out over the project site. One example is emissions from the combustion of natural gas. Natural gas may be used by the proposed Walmart to heat water and heat the building. Landscape emissions are exhaust emissions from gasoline powered lawn mowers, leaf blowers, and other landscape equipment. Architectural coatings, or painting, emissions are evaporative emissions from paint. The area source emissions were estimated using URBEMIS and by using the URBEMIS default input.

**Motor vehicles trip length.** The trip length was estimated based on the Wasco Retail Trade Area map provided in the Urban Decay Analysis (Appendix L). The distance from the project site to each of the boundaries of the trade area is as follows:

- 15 miles to the western border

- 6 miles to the northern border
- 8 miles to the southern border
- 15 miles to the eastern border
- Average = 11 miles

The analysis for the Wasco Center assumed 9.5 miles for commute trips, 7.4 miles for non-work trips, and 7.4 miles for customer trips. For this analysis, the commute and non-work trips would remain the same as in the prior Wasco Center 2008 analysis at 9.5 miles and 7.4 miles, respectively. However, 11 miles is used for customer trips for the proposed Walmart, as it is the average of the distances to the trade area boundary. This is a worst case trip length, because approximately 50 percent of the potential customer population base would be located less than half the distance from the project site and half would be located from the half way point to the edge of the trade area boundary.

**Motor vehicles fleet mix.** The fleet mix is from the District’s recommended fleet mix (SJVAPCD 2007c) for the year 2015 (to represent 2013 and 2014) and 2035. Truck deliveries are included in the fleet mix. The Health Risk Assessment assumed that there would be 26 delivery trucks per day (11 delivery trucks associated with Walmart and 15 delivery trucks associated with the remainder of the Wasco Center) to provide a conservative cumulative health risks. To account for longer truck trip lengths than provided in the URBEMIS modeling, the number of trucks was increased. For example, in 2013, 42 heavy-heavy trucks and 59 medium-heavy trucks were assumed (101 trucks total). In this way, the increased vehicle miles traveled for each of the 26 delivery trucks is 43 miles (101 trucks divided by 26 trucks multiplied by 11 miles).

**Motor vehicles trip generation.** The trip generation rate from the traffic study was used to estimate the emissions. The traffic study indicates that passby trips would be 28 and 23 percent in 2013 and 2035, respectively. Therefore, the vehicle miles traveled in 2035 would be slightly greater than in 2013. The traffic study indicates that internal capture would be 14 percent; it was assumed that internal capture were “diverted trips” in URBEMIS. The remainder of the trips are “primary” trips.

**Emissions.** The emissions from operation of the 170,000 square foot Wasco Center Walmart in 2013 (at buildout) are shown in Table 4.2-5. Because there is no existing building, the net increase between the pre-approved 158,000 square feet Wasco Center and the proposed Walmart is not shown. As shown in the table, the unmitigated emissions of NO<sub>x</sub> exceed the District’s significance threshold.

**Table 4.2-5: Walmart Operational Pollutant Emissions (2013)**

| Source | Emissions (tons per year) |                 |                  |                   |
|--------|---------------------------|-----------------|------------------|-------------------|
|        | ROG                       | NO <sub>x</sub> | PM <sub>10</sub> | PM <sub>2.5</sub> |
| Area   | 0.21                      | 0.30            | 0.00             | 0.00              |
| Mobile | 8.68                      | 10.44           | 8.87             | 1.91              |

**Table 4.2-5 (cont.): Walmart Operational Pollutant Emissions (2013)**

| Source  | Emissions (tons per year) |                 |                  |                   |
|---|---------------------------|-----------------|------------------|-------------------|
|   | ROG                       | NO <sub>x</sub> | PM <sub>10</sub> | PM <sub>2.5</sub> |
| Total   | 8.89                      | 10.74           | 8.87             | 1.91              |
| Significance threshold  | 10                        | 10              | 15               | 9                 |
| Exceed threshold - significant impact?  | No                        | Yes             | No               | No                |
| Notes:<br>Area source emissions include emissions from natural gas, landscape, and painting.<br>Source: Michael Brandman Associates, 2010 (Appendix D). |                           |                 |                  |                   |

Motor vehicle emissions decline in future years because as time goes on as older vehicles will be retired and new cleaner vehicles will be placed in service. New vehicles have fewer emissions due to advances in technology and compliance with increasingly stringent emission control standards. Emissions just one year after buildout (in 2014) are shown in Table 4.2-6. Emissions in 2035 are shown in Table 4.2-7. As shown in the tables, emissions are under the significance thresholds.

**Table 4.2-6: Walmart Operational Pollutant Emissions (2014)**

| Source  | Emissions (tons per year) |                 |                  |                   |
|---|---------------------------|-----------------|------------------|-------------------|
|   | ROG                       | NO <sub>x</sub> | PM <sub>10</sub> | PM <sub>2.5</sub> |
| Area  | 0.21                      | 0.30            | 0.00             | 0.00              |
| Mobile  | 8.19                      | 9.59            | 8.86             | 1.91              |
| Total   | 8.40                      | 9.89            | 8.86             | 1.91              |
| Significance threshold  | 10                        | 10              | 15               | 9                 |
| Exceed threshold - significant impact?  | No                        | No              | No               | No                |
| Notes:<br>Area source emissions include emissions from natural gas, landscape, and painting.<br>Source: Michael Brandman Associates, 2010 (Appendix D). |                           |                 |                  |                   |

**Table 4.2-7: Walmart Operational Pollutant Emissions (2035)**

| Source  | Emissions (tons per year) |                 |                  |                   |
|---|---------------------------|-----------------|------------------|-------------------|
|   | ROG                       | NO <sub>x</sub> | PM <sub>10</sub> | PM <sub>2.5</sub> |
| Area  | 0.21                      | 0.30            | 0.00             | 0.00              |
| Mobile  | 2.50                      | 2.43            | 9.49             | 1.99              |
| Total   | 2.71                      | 2.73            | 9.49             | 1.99              |
| Significance threshold  | 10                        | 10              | 15               | 9                 |
| Exceed threshold - significant impact?  | No                        | No              | No               | No                |
| Notes:<br>Area source emissions include emissions from natural gas, landscape, and painting.<br>Source: Michael Brandman Associates, 2010 (Appendix D). |                           |                 |                  |                   |

### **Cumulative Impact Analysis**

The District's GAMAQI states, "Any proposed project that would individually have a significant impact... would also be considered to have a significant cumulative air quality impact."

The project specific analysis demonstrates that without mitigation, Walmart construction emissions would not exceed the District's significance thresholds. In the first year of operation, NO<sub>x</sub> emissions would be exceeded without incorporation of the District's ISR rule. Operational emissions of ROG, PM<sub>10</sub>, and PM<sub>2.5</sub> are under the significance thresholds. ROG and NO<sub>x</sub> have significance thresholds because they are precursors to ozone. The significance thresholds for ROG and NO<sub>x</sub> are not designed to be indicators of health effects from ROG and NO<sub>x</sub> individually. However, one could derive a conclusion that cumulative health impacts of ozone and/or particulate matter would result if the thresholds are exceeded. It would not be a Walmart-specific impact because Walmart emissions of ROG and NO<sub>x</sub> are regional in nature and are dispersed over miles; Walmart emissions alone would not result in a significance ozone health effect. The combination of unmitigated Walmart emissions with pollutants from other sources within the basin could cumulatively contribute to a significant impact. The adverse human health impacts from ozone and particulate matter resulting from cumulative unmitigated emissions for which a significant, unmitigated impact has been identified are as follows.

**Construction and Operation Cumulative Adverse Human Health Impacts from Unmitigated Ozone:** ROG and NO<sub>x</sub> are ozone precursors. High concentration of ground level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Respiratory system irritation, reduction of lung capacity, asthma aggravation, inflammation and damage to lung cells, aggravated cardiovascular disease, and permanent lung damage are also human health effects related to ozone. The greatest health risk is to those who are more active outdoors during smoggy periods, such as children, athletes, and outdoor workers.

**Construction Cumulative Adverse Human Health Impacts from Unmitigated Particulate Matter:** There are 24-hour and annual ambient air quality standards for PM<sub>10</sub> and PM<sub>2.5</sub>. The District's thresholds are for annual emissions; therefore, the potential impact of daily emissions is not assessed. During construction, grading may result in high daily levels of particulate matter. Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) can be inhaled directly into the lungs where it can be absorbed into the bloodstream. It is a respiratory irritant and can cause direct pulmonary effects such as coughing, bronchitis, lung disease, respiratory illnesses, increased airway reactivity, and exacerbation of asthma. Particulate matter is also thought to have direct effects on the heart. Relatively recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air.

**Level of Significance Before Mitigation**

Project Specific

Potentially significant impact.

Cumulative

Potentially significant impact.

**Mitigation Measures**

The proposed Walmart consist of 170,000 square feet and will replace the 158,000 square-foot “Large-Box Retail” use that was approved as part of the Wasco Center Specific Development Plan. The proposed project includes the addition of 12,000 square feet to the approved structure and a change to a 24-hour Walmart use. The following mitigation measures to reduce project and cumulative air pollutants resulting from the development of the proposed Walmart are identified below and are generally the same mitigation measures that were required with the approved Wasco Center.

Project Specific

The following mitigation measure is generally the same mitigation measure that was required with the approved Wasco Center. Part of the mitigation measure is stricken (~~stricken~~) because the fees as calculated for the entire Wasco Center are not applicable to the proposed Walmart. In addition, part of the mitigation measure is underlined (underlined) because the measure required clarification.

**MM AQ-1a** The proposed Walmart project shall comply with applicable provisions of Indirect Source Review (ISR) Rule (Rule 9510) and the Administrative ISR Fee Rule (Rule 3180) in order to reduce PM<sub>10</sub> and NO<sub>x</sub> emissions. ~~The applicant shall~~ Compliance with Rule 9510 is required because the proposed Walmart exceeds the rule’s applicability threshold of 2,000 square feet of proposed commercial space construction. The project is required to identify onsite or offsite measures necessary to achieve a 33-percent reduction in NO<sub>x</sub> over the first 10 years of the proposed Walmart. Examples of onsite emissions reduction measures include landscaping, transit facilities, bicycle and pedestrian facilities, and energy efficiency measures, including any project design features. The requirements of the approved application shall be incorporated into the project. Based on the SJVAPCD ISR Public Fee Estimator 2008 spread sheet, the proposed project will pay a fee of \$78,433.68 to the SJVAPCD prior to issuance of grading permits. The subject fee breaks down as follows: NO<sub>x</sub> emissions \$21,165; PM<sub>10</sub> emissions \$54, 252, and Administrative fees \$3,016.68.

Cumulative

The following mitigation measures are generally the same measures that are required with the approved Wasco Center. Although they are not required to reduce project emissions to below a project level of significance, they are included for the proposed Walmart to reduce its contribution to

overall cumulative emissions. Minor clarifications to the mitigation measures are underlined and ~~stricken~~.

**MM AQ-1b** During Walmart project construction, the proposed Walmart project shall comply with the following San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII dust control requirements.

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizers/suppressant, covered with a tarp, or other suitable cover or vegetative ground cover;
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizers/suppressant;
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking;
- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained;
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.);
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant;
- Within urban areas, track-out shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday; and
- Any site with 150 or more vehicle trips per day shall prevent carryout and track-out.

**MM AQ-1c** During Walmart project construction, in addition to San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII requirements for dust control, the proposed Walmart project shall also implement the following additional dust control measures:

- Limit traffic speeds on unpaved roads to 15 mph;

- Limit area subject to excavation, grading, and other construction activity at any one time. (Construction area limited to 10 acres per day);
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;
- Install wind breaks at windward sides(s) of construction areas; and
- Suspend excavation and grading activity when winds exceed 20 mph. Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.

**MM AQ-1d** During Walmart project construction, the proposed Walmart project shall implement the following measures for the purpose of minimizing construction-related criteria pollutant emissions:

- Minimize the idling time (e.g., 10 minute maximum) of heavy duty equipment or turn off when not in use (scrapers, graders, trenchers, earth movers, etc.);
- ~~Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use;~~
- Replace fossil-fueled equipment with electrically driven equivalents where feasible (provided they are not run via a portable generator set);
- ~~Curtail~~ Prohibit construction during periods of high ambient pollutant concentrations (an Air Quality Index forecast for the project area greater than 150 for particulates or ozone; Air Quality Index forecasts can be obtained at [www.airnow.gov](http://www.airnow.gov)); ~~this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways;~~
- ~~Implement activity management (e.g. rescheduling activities to reduce short-term impacts); and,~~
- Use alternative fueled or catalyst equipped diesel construction equipment.

### **Level of Significance After Mitigation**

#### Project Specific

Less than significant impact. As shown in Table 4.2-8, with implementation of mitigation, emissions are less than the District's significance thresholds.

**Table 4.2-8: Walmart Operational Pollutant Emissions (Mitigated, 2013)**

| Source  | Emissions (tons per year) |                 |                  |                   |
|---|---------------------------|-----------------|------------------|-------------------|
|   | ROG                       | NO <sub>x</sub> | PM <sub>10</sub> | PM <sub>2.5</sub> |
| Area  | 0.21                      | 0.30            | 0.00             | 0.00              |
| Mobile  | 8.68                      | 10.44           | 8.87             | 1.91              |
| Unmitigated total   | 8.89                      | 10.74           | 8.87             | 1.91              |
| ISR reduction   | - 0.00                    | - 2.69          | - 4.43           | - 0.00            |
| Total   | 8.80                      | 7.95            | 4.44             | 1.89              |
| Significance threshold  | 10                        | 10              | 15               | 9                 |
| Exceed threshold - significant impact?  | No                        | No              | No               | No                |
| Notes:<br>Area source emissions include emissions from natural gas, landscape, and painting. ISR, the District's Indirect Source Review Rule, requires that the project reduce NO <sub>x</sub> emissions by 33.3 percent over a period of ten years, which requires that 25 percent of the emissions be reduced in the first year. ISR requires that PM <sub>10</sub> be reduced by 50 percent over a period of ten years.<br>Source: Michael Brandman Associates, 2010 (Appendix D). |                           |                 |                  |                   |

Ozone is a regional impact and the emissions are caused by vehicles driving from miles away to the project. ISR mitigation fees obtain reductions in the Basin that reduce the cumulative ozone impact by the amounts required by the rule. Both onsite and offsite reductions would mitigate this impact; onsite reductions offer no advantage over offsite reductions. ISR only targets the ozone precursor NO<sub>x</sub> because ROG reductions were found in the attainment modeling to be ineffective at lowering ozone concentrations because the air basin is NO<sub>x</sub> limited.

**Cumulative**

Less than significant impact. ISR fully mitigates the cumulative impact because it provides adequate reductions for the Basin to meet its attainment goals.

**Air Quality Plan**

**Impact AQ-2: The proposed Walmart could conflict with or obstruct implementation of the applicable air quality plan.**

**Project Specific Analysis**

A measure of determining if the proposed Walmart is consistent with the air quality plans is if the proposed Walmart will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the air quality plans.

Because of the region's nonattainment status for ozone, PM<sub>2.5</sub>, and PM<sub>10</sub>, if Walmart-generated emissions of either of the ozone precursor pollutants (i.e., ROG and NO<sub>x</sub>), PM<sub>10</sub>, or PM<sub>2.5</sub> would

exceed the District's significance thresholds, then the proposed Walmart would be considered to conflict with the attainment plans.

As discussed in Impact AQ-1, Walmart construction emissions would not exceed the District's significance thresholds. Therefore, construction would not conflict with or obstruct implementation of the regional air quality plan.

As shown in Impact AQ-3, localized emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, or PM<sub>2.5</sub> would not cause a localized air quality violation during operation. However, as discussed in Impact AQ-1, predicted operational emissions would exceed the District's significance thresholds for NO<sub>x</sub> without incorporation of the District's Indirect Source Review rule (compliance with the rule is included in mitigation measure AQ-1a). As a result, the proposed Walmart may conflict with emissions inventories contained in regional air quality attainment plans and result in a significant contribution to the region's air quality nonattainment status. However, with implementation of the rule and mitigation, the proposed Walmart will not exceed significance thresholds and, therefore, the proposed Walmart will not conflict with emissions inventories contained in the regional air quality attainment plans and will not result in a significant contribution to the region's air quality nonattainment status.

### **Cumulative Analysis**

The District has prepared regional air quality plans to bring the basin into attainment with the ambient air quality standards.

The District adopted the 2003 PM<sub>10</sub> Plan on June 19, 2003 and first amended it on December 15, 2003 to comply with federal Clean Air Act requirements. The EPA approved the amended 2003 PM<sub>10</sub> Plan effective June 25, 2004. The San Joaquin Valley Air Basin (Basin) is currently in attainment of the national standards for PM<sub>10</sub>.

The District Governing Board adopted the 2008 PM<sub>2.5</sub> Plan following a public hearing on April 30, 2008. This plan will assure that the Basin will attain all the PM<sub>2.5</sub> standards - the 1997 federal standards, the 2006 federal standards, and the state standard - as soon as possible. The ARB submitted the 2008 PM<sub>2.5</sub> Plan to the EPA June 30, 2008. The 2008 PM<sub>2.5</sub> Plan builds upon the comprehensive strategy adopted in the 2007 Ozone Plan to bring the Basin into attainment of the 1997 national standards for PM<sub>2.5</sub>. The EPA has identified NO<sub>x</sub> and sulfur dioxide as precursors that must be addressed in air quality plans for the 1997 PM<sub>2.5</sub> standards. The 2008 PM<sub>2.5</sub> Plan is a continuation of the District's strategy to improve the air quality in the Basin.

As an extreme nonattainment area for the 1-hour ozone national standard, the District adopted the Extreme Ozone Attainment Demonstration Plan in 2004. On March 8, 2010, the EPA approved the Plan for 1-hour ozone. Although effective June 15, 2005, the EPA revoked the 1-hour standard, the control requirements remain in effect to ensure progress toward meeting the new more stringent 8-

hour ozone standard that has replaced the 1-hour standard. The Plan contains commitments to reduce a precursor of ozone, NO<sub>x</sub>, including NO<sub>x</sub> reductions from indirect sources.

The 2007 Ozone Plan contains measures to reduce ozone and particulate matter precursor emissions to bring the Basin into attainment with the federal 8-hour ozone standard. The 2007 Ozone Plan calls for a 75-percent reduction of NO<sub>x</sub> and 25-percent reduction of ROG. The District Governing Board adopted the 2007 Ozone Plan on April 30, 2007. The plan, with innovative measures and a “dual path” strategy, assures expeditious attainment of the federal 8-hour ozone standard for all Basin residents. The ARB approved the plan on June 14, 2007.

In December 2005, the District adopted the ISR and the accompanying administrative fee rule (Rule 3180). One of the purposes of the District’s Indirect Source Review (ISR) Rule 9510 is to fulfill the District’s emission reduction commitments in the PM<sub>10</sub> and Ozone Attainment Plans. The ISR requires certain development projects within the Basin to reduce emissions by specified amounts either through on-site measures or through the payment of air quality impact fees to the District to obtain emission reductions off-site. The emission reduction requirements are designed to reduce PM<sub>10</sub> and NO<sub>x</sub> by amounts needed to meet the commitments of the 2003 PM<sub>10</sub> Plan necessary to achieve attainment on schedule. Emission reduction projects envisioned by the ISR include retrofitting heavy-duty engines, replacing agricultural machinery and pumps, paving unpaved roads and road shoulders, trading out combustion-based lawn and agricultural equipment for electrical and other equipment, as well as a host of other projects that result in quantifiable emission reductions of PM<sub>10</sub> and NO<sub>x</sub>. Compliance with Rule 9510 is incorporated into Mitigation Measure AQ-1a.

The proposed Walmart would comply with all applicable rules and regulations contained in the air quality plans for the area. Mitigation Measures AQ-1a, AQ-1b, AQ-1c ensure compliance with applicable rules and regulations. Mitigation Measure AQ-1d reduces construction emissions even further. Therefore, the proposed Walmart would not conflict with or obstruct the applicable air quality attainment plan after the incorporation of mitigation measures.

***Level of Significance Before Mitigation***

Project Specific

Potentially significant impact.

Cumulative

Potentially significant impact.

***Mitigation Measures***

The following mitigation measures are generally the same measures that are required with the approved Wasco Center.

Project Specific

Mitigation Measure AQ-1a is required.

Cumulative

Mitigation Measures AQ-1a, AQ-1b, AQ-1c, and AQ-1d are required.

**Level of Significance After Mitigation**

Project Specific

Less than significant impact.

Cumulative

Less than significant impact.

**Air Quality Standards**

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**Impact AQ-3:           The proposed Walmart could violate an air quality standard, and contribute cumulatively to an existing or projected air quality violation.**

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**Project Specific Impact Analysis**

Construction

As discussed in Impact AQ-1, the proposed Walmart would emit air pollutants during construction. However, these construction emissions are under the District's significance thresholds. Therefore, on a Walmart-specific basis, the impact is less than significant.

Operation

The following discussion is based on the Health Risk Assessment, located in Appendix D. During operation, the proposed Walmart would emit PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and NO<sub>x</sub>. These emissions are generated by onsite sources located within the project boundary as well as from offsite local vehicle traffic that travels to and from the proposed Walmart over miles of surrounding roadway. Therefore, to assess whether or not the proposed Walmart would violate any air quality standards during operation, future onsite emissions were estimated and impacts at sensitive receptors were assessed. The nearest sensitive receptors were used because the largest congregation of project air pollutants would be onsite.

During operation, the main onsite sources of air pollutants include delivery truck traffic (onsite travel, idling, and transportation refrigeration units) and customer-generated vehicular traffic. Emissions sources from both the proposed Walmart and the Wasco Center were included in the assessment. In addition, to provide a conservative estimate of impacts, it was assumed that the entire Wasco Center would be built out in 2013, which is the assumed buildout date for the proposed Walmart. This approach conservatively overstates the impacts as it is reasonable to assume that impacts would be less at the actual buildout of the Wasco Center later in the decade since emissions are expected to decline with time.

The anticipated emissions from the Wasco Center and Walmart sources were input into a dispersion model (AERMOD), which outputs the concentrations at the sensitive receptors near the project site. Three types of sensitive receptors were considered in this assessment:

- Existing sensitive receptors: a number of existing residences are located at the east end of the Wasco Center across Palm Avenue as well as scattered residences at the west end of the Wasco Center across Magnolia Avenue.
- Project related sensitive receptors: the Wasco Center involves the development of a residential component to the east of the Walmart building and at the east end of the Wasco Center.
- Sensitive receptors in areas zoned for residential: the City of Wasco General Plan identifies residential areas to the north and south of the Wasco Center and proposed Walmart; these residential areas were included to ensure that future residential development would not be impacted by the operation of the Wasco Center and the proposed Walmart.

If the CO or nitrogen dioxide concentration plus the background concentration are under the appropriate ambient air quality standards, a significant health impact would not be observed. If the PM<sub>10</sub> and PM<sub>2.5</sub> concentrations do not exceed the recommended localized thresholds, a significant health impact would not be observed.

The localized PM<sub>10</sub> and PM<sub>2.5</sub> concentrations are shown in Table 4.2-9. As shown in the table, localized onsite concentrations would not exceed the significance thresholds. Therefore, the proposed Walmart would not exceed those ambient air quality standards.

**Table 4.2-9: Localized PM<sub>10</sub> and PM<sub>2.5</sub> Concentrations During Operation**

| Pollutant         | Averaging Time | Maximum Incremental Project Impact (µg/m <sup>3</sup> ) | Significance Threshold (µg/m <sup>3</sup> ) | Exceed Thresholds? |
|-------------------|----------------|---|---|--------------------|
| PM <sub>10</sub>  | 24 Hour        | 0.57  | 5   | No                 |
|                   | Annual         | 0.12  | 1   | No                 |
| PM <sub>2.5</sub> | 24 Hour        | 0.36  | 1.2   | No                 |
|                   | Annual         | 0.08  | 0.3   | No                 |

Notes:  
 PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter; µg/m<sup>3</sup> = micrograms per cubic meter (a unit of concentration).  
 The significance thresholds are from 40 CFR (Code of Federal Regulations) Parts 51 and 52, Page 64866.  
 Source: Michael Brandman Associates, 2010 (Appendix D).

The localized CO and nitrogen dioxide (NO<sub>2</sub>) concentrations are shown in Table 4.2-10. As shown in the table, localized onsite concentrations plus the background concentration would not exceed the air quality standards. Therefore, the impact is less than significant.

**Table 4.2-10: Localized Carbon Monoxide and Nitrogen Dioxide Concentrations During Operation**

| Pollutant       | Averaging Time      | Concentration (ppm)     |                                    |                              |                      | Exceed Standard? |
|-----------------|---------------------|-------------------------|------------------------------------|------------------------------|----------------------|------------------|
|                 |                     | Background <sup>a</sup> | Maximum Incremental Project Impact | Total (Background + Project) | Air Quality Standard |                  |
| CO              | 1 Hour              | 3.10 <sup>b</sup>       | 0.50                               | 3.60                         | 20                   | No               |
|                 | 8 Hour              | 2.17                    | 0.23                               | 2.40                         | 9.0                  | No               |
| NO <sub>2</sub> | 1 Hour <sup>c</sup> | 0.06                    | 0.03                               | 0.09                         | 0.10                 | No               |
|                 | Annual              | 0.020                   | 0.003                              | 0.023                        | 0.03                 | No               |

## Notes:

CO = carbon monoxide; NO<sub>2</sub> = nitrogen dioxide; ppm = parts per million

a. The highest concentrations measured during the most recent 3-year period of 2007 to 2009

b. 1-hour average CO was derived by dividing the 8-hr average CO by 0.7 since the 1-hour average is not routinely reported by ARB.

c. The background 1-hour NO<sub>2</sub> is the three-year average of the 98th percentile NO<sub>2</sub> concentrations at the air monitoring station in Shafter. The maximum incremental project NO<sub>2</sub> 1-hour impact is the 98th percentile modeled NO<sub>2</sub> concentration assuming 100 percent conversion of NO<sub>x</sub> to NO<sub>2</sub>

Source: Michael Brandman Associates, 2010 (Appendix D).

**Hydrogen Sulfide**

The proposed Walmart is not expected to generate hydrogen sulfide because the proposed land use does not typically generate it in any substantial quantity. Therefore, the proposed Walmart would not result in an exceedance of the California ambient air quality standard for hydrogen sulfide or cause any health impact.

**Lead**

The proposed Walmart is not expected to generate lead because the proposed land use does not typically generate this pollutant in any substantial quantity. Lead is no longer an additive to gasoline. Therefore, the proposed Walmart would not result in an exceedance of the national or state ambient air quality standards for lead or cause any health impact.

**Visibility Reducing Particles**

Visibility-reducing particles are suspended particulates that reduce visibility. During grading, fugitive dust (PM<sub>10</sub> and PM<sub>2.5</sub>) is generated. The majority of this fugitive dust will remain localized and will be deposited near the project site. Fugitive dust during grading should not substantially impact local visibility. In addition, compliance with Regulation VIII and implementation of Mitigation Measure AQ-1c will reduce fugitive dust impacts during grading.

The main source of operational PM<sub>10</sub> and PM<sub>2.5</sub> from the proposed Walmart is from road dust. This road dust would be localized and most of it would be deposited near the road and would not cause a substantial impact to visibility.

### Vinyl Chloride

The vinyl chloride ambient air quality standard refers to the amount of vinyl chloride in the ambient air. The emissions of vinyl chloride are typically associated with the plants that make products containing poly vinyl chloride (PVC). The proposed Walmart will not generate vinyl chloride gas emissions. Therefore, the proposed Walmart would not result in an exceedance of the California ambient air quality standard for vinyl chloride and would not result in health impacts in that regard.

PVC is used in many Walmart construction materials, from pipes to wire insulation. In addition, PVC is contained in products sold in the Walmart stores. Some PVC could be emitted into the air through the use of items that contain PVC; however, the quantity would be minor and any gases would be diluted through the building's circulation. If there was a fire in the Walmart building that resulted in PVC being burned, dioxins (toxins) could be released into the air. However, the possibility of a fire is unlikely, as the Walmart building would have fire sprinklers. Therefore, the project will not result in exposure of sensitive receptors to substantial PVC concentrations.

### Sulfur Dioxide

The proposed Walmart will emit a small amount of sulfur dioxide during operation and construction. There is no threshold for sulfur dioxide emissions. The proposed Walmart will not emit a substantial amount of sulfur dioxide. Therefore, the impact of implementing the proposed Walmart in regards to sulfur dioxide is less than significant.

## **Cumulative Impact Analysis**

### Construction

As discussed in Impact AQ-1, Walmart-related construction emissions could cumulatively combine with other emissions in the Basin and cumulatively could cause an air quality violation for the Basin's nonattainment pollutants - ozone, PM<sub>10</sub>, or PM<sub>2.5</sub>. The ambient air quality standards are set to protect the health of sensitive individuals; therefore, without mitigation, the proposed Walmart could result in health effects (see Table 4.2-3 for a description). Without mitigation, this impact is potentially significant.

Mitigation measures AQ-1b, AQ-1c, and AQ-1d would reduce criteria pollutant emissions during construction and would ensure compliance with measures in Regulation VIII. The regulation is included in the attainment plans as being part of the strategy to meet attainment of the air pollutants. The entire Basin was evaluated during preparation of the attainment plans. Since the attainment plans ensure that the Basin would achieve attainment, complying with the applicable rules and regulations (such as Regulation VIII and ISR) would ensure that the ambient air quality standards in the Basin are not violated. Therefore, with mitigation, there is a less than significant cumulatively considerable impact during construction.

### Operation: Onsite Concentrations

Concentrations of air pollutants from the proposed Walmart would be greatest onsite. As shown in Table 4.2-9, onsite concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> would not exceed the thresholds for those

pollutants. As shown in Table 4.2-10, onsite concentrations of nitrogen dioxide and CO during operation plus the background concentration (the cumulative background) would not result in concentrations that exceed the ambient air quality standards.

#### Operation: NO<sub>x</sub>, Ozone, and Nitrogen Dioxide

As discussed in Impact AQ-1, emissions of NO<sub>x</sub> during the first year of operation would exceed the District's significance thresholds without implementation of the District's Indirect Source Review rule (enforced by Mitigation Measure AQ-1a). The GAMAQI states, "Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact." Therefore, without mitigation, the proposed Walmart's emissions of NO<sub>x</sub> could cumulatively combine and result in an exceedance of the ozone ambient air quality standard or the nitrogen dioxide ambient air quality standard. The ambient air quality standards are set to protect the health of sensitive individuals. Therefore, without mitigation, the proposed Walmart could cumulatively combine and cause health effects from exposure to ozone and/or nitrogen dioxide (see Table 4.2-3 for a description of the health effects). This impact is potentially significant before mitigation.

Mitigation measure AQ-1a would ensure compliance with ISR. As discussed in the District's Staff Report for Rule 9510, implementation and compliance with ISR would reduce the cumulative NO<sub>x</sub> and PM<sub>10</sub> impacts of anticipated growth to less than significant, because the reductions attributed to this program were identified in two attainment plans as necessary to achieve the applicable standards. The entire Basin was evaluated during preparation of the attainment plans. Since the attainment plans ensure that the Basin would achieve attainment, complying with ISR through the mitigation measure would ensure that the ambient air quality standards in the Basin are not violated. Therefore, with mitigation, there would not be a cumulatively considerable impact during operation.

ISR compliance would also reduce operational-related ROG emissions. The emissions sources for ROG and NO<sub>x</sub> are nearly identical. Therefore, if the proposed Walmart achieves the ISR required emission reductions through onsite measures, then measures implemented to reduce NO<sub>x</sub> would also reduce ROG. If the proposed Walmart achieves the required ISR reductions through paying the offsite fee, then offsite projects funded by ISR would reduce ROG emissions incidental to reducing NO<sub>x</sub> emissions. The exact amount of ROG reductions that would accompany ISR compliance is unknown, since not all projects funded by the mitigation fees achieve ROG reductions, and projects that are funded are not predetermined.

#### Operation: Carbon Monoxide Hot Spot Analysis

Carbon monoxide (CO) "hot spot" thresholds ensure that emissions of CO associated with traffic impacts from a project in combination with CO emissions from existing and forecasted regional traffic do not exceed State or national ambient air quality standards for CO at any traffic intersection impacted by the project. Project concentrations may be considered significant if a CO hot spot intersection analysis determines that project generated CO concentrations cause a localized violation

of the State CO 1-hour standard of 20 ppm, State CO 8-hour standard of 9 ppm, national CO 1-hour standard of 35 ppm, or national CO 8-hour standard of 9 ppm.

This potential impact is addressed on a cumulative basis to provide a worst-case scenario. If the cumulative scenario is less than significant, then it follows that the project impacts without cumulative impacts would also be less than significant.

A CO hot spot is a localized concentration of CO that is above the State or national 1-hour or 8-hour CO ambient air standards. Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. To provide a worst-case scenario, CO concentrations are estimated at Walmart-impacted intersections, where the concentrations would be the greatest.

The proposed Walmart would emit CO during construction and operation (see Table 4.2-11). The emissions were estimated as discussed in Impact AQ-1. There is no threshold for assessing the significance of the annual CO emissions. Therefore, the assessment of significance is accomplished through a CO hot spot analysis.

**Table 4.2-11: Project Carbon Monoxide Emissions**

| Construction Carbon Monoxide Emissions (tons)          | Operation Carbon Monoxide Emissions (tons per year) |
|--|---|
| 5  | 98  |
| Source: Michael Brandman Associates, 2010 (Appendix D) |   |

The District indicates that a CO hot spot analysis should be conducted if 1) a traffic study for a project indicates that the LOS on one or more streets or at one or more intersection in the project vicinity will be reduced to LOS E or F; or 2) a traffic study indicates that a project will substantially worsen an already existing LOS F at one or more intersections.

The localized analysis follows guidelines recommended in the CO Protocol (UCD 1997). Using the CALINE4 model, potential CO hot spots were analyzed at the intersections listed in Table 4.2-12. These intersections were chosen because they operate at LOS E or worse in year 2035 with the proposed Walmart and cumulative traffic. There are several inputs to the CALINE4 model. One input is the traffic volumes, which is from the traffic report prepared for the proposed Walmart. The traffic volumes with the proposed Walmart plus cumulative traffic were used for 2035. The emission factors for 2013 were used, as the emission factors in 2013 are greater than in 2035. Thus, the greater traffic (2035) plus the greater emission factors (2013) are used to demonstrate that concentrations in 2013 (with less traffic) would also be less than significant if the concentrations in 2035 are less than significant.

As shown in [Table 4.2-12](#), the estimated 1-hour and 8-hour average CO concentrations at build-out in combination with background concentrations are below the State and national ambient air quality standards. No CO hot spots are anticipated because of traffic-generated emissions by the proposed Walmart in combination with other anticipated development in the area. Therefore, the mobile emissions of CO from the proposed Walmart are not anticipated to contribute substantially to an existing or projected air quality violation of CO.

**Table 4.2-12: Localized Carbon Monoxide Concentrations at Intersections**

| Intersection  | Peak Hour | Estimated CO Concentration (ppm) |        | Significant Impact? |
|---|-----------|----------------------------------|--------|---------------------|
|   |           | 1 Hour                           | 8 Hour |                     |
| Highway 46 and Magnolia Avenue  | PM        | 4.1                              | 2.9    | No                  |
| Highway 46 and Palm Avenue  | PM        | 4.5                              | 3.2    | No                  |
| Highway 46 and J Street/Highway 43 No.  | PM        | 3.8                              | 2.7    | No                  |
| Notes:<br>- The 1-hour concentration is the CALINE4 output plus the 1-hour background concentration of 3.1 ppm (converted from 8 hour concentration by dividing by 0.7).<br>- The 8-hour Walmart project increment was calculated by multiplying the 1 hour CALINE4 output by 0.7 (persistence factor), then adding the 8 hour background concentration of 2.17 ppm (from Table 4.2-1).<br>- A significant impact would occur if the estimated CO concentration is over the 1-hour state standard of 20 ppm or the 8 hour state/national standard of 9 ppm.<br>Source: Michael Brandman Associates, 2010 (Air Quality Modeling Data). |           |                                  |        |                     |

### **Level of Significance Before Mitigation**

Project Specific

Less than significant impact.

Cumulative

Potentially significant impact.

### **Mitigation Measures**

Project Specific

No mitigation measures are required.

Cumulative

The following mitigation measures are generally the same measures that are required with the approved Wasco Center.

Mitigation Measures AQ-1a, AQ-1b, AQ-1c, and AQ-1d are required.

### **Level of Significance After Mitigation**

Project Specific

Less than significant impact.

Cumulative

Less than significant impact.

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### Cumulative Criteria Pollutants

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**Impact AQ-4:**      **The proposed Walmart may result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors).**

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#### ***Project Specific Impact Analysis***

This impact question is related to cumulative impacts. Therefore, Walmart-specific impacts are not applicable to this impact.

#### ***Cumulative Impact Analysis***

The District's GAMAQI (page 29) states, "Any proposed project that would individually have a significant air quality impact... would also be considered to have a significant cumulative air quality impact." The Basin is in nonattainment for ozone and particulate matter (PM<sub>10</sub>, and PM<sub>2.5</sub>), which are discussed below.

#### **Ozone**

Ozone impacts are the result of cumulative emissions from numerous sources in the region and transport from outside the region. Ozone is formed through chemical reactions involving ROG, NO<sub>x</sub>, and sunlight. When small sources of ROG and NO<sub>x</sub> in the region are combined, they result in severe ozone problems. The District's GAMAQI (page 53) indicates that when evaluating cumulative ozone impacts, it should be determined if ROG or NO<sub>x</sub> emissions exceed the District's thresholds.

As discussed in Impact AQ-1, operational emissions from the proposed Walmart would exceed the significance thresholds for NO<sub>x</sub>. Therefore, Walmart emissions could cumulatively combine with other sources in the Basin and could cause a future violation of the ozone standards. This is a potentially significant impact. As such, there could be health effects from ozone from exposure to the cumulative background concentration of ozone. Health impacts may or may not include the following: (a) pulmonary function decrements and localized lung edema in humans and animals, (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals, (c) increased mortality risk, (d) and/or altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans.

After implementation of Mitigation Measure AQ-1a (the Indirect Source Review rule), the emissions of NO<sub>x</sub> from the proposed Walmart would be less than the District's significance thresholds and less than significant and therefore, health impacts from exposure to ozone would be less than significant. As discussed in the District's Staff Report for Rule 9510, implementation and compliance with the rule would reduce the cumulative NO<sub>x</sub> and PM<sub>10</sub> impacts of anticipated growth to less than significant, because the reductions attributed to this program were identified in two attainment plans as necessary to achieve the applicable standards.

The project's operational emissions would not exceed the District's significance threshold for NO<sub>x</sub> after implementation of mitigation measures and would not exceed the threshold for ROG.

Operational activities associated with other planned and approved projects would emit air pollutants, which, depending on the nature of the project, may or may not exceed the District's thresholds. The District thresholds are designed to capture nearly all sources of emissions in the air basin, and thus are not only very conservative but are intended to address a cumulative scenario. Because the project's operational emissions would not exceed District's thresholds after the implementation of mitigation, it would not have a cumulatively considerable impact and would be considered less than significant.

#### Particulate Matter

Particulate matter has the potential to create cumulative problems when particulates are entrained in the atmosphere and build to unhealthful levels over time. PM<sub>10</sub> has the potential to cause local problems during periods of dry conditions accompanied by high winds and during periods of heavy earth disturbing activities.

As discussed in Impact AQ-1, emissions of PM<sub>10</sub> and PM<sub>2.5</sub> would not exceed the significance thresholds. However, during construction, some of this dust could extend up into the air, cumulatively combine with other sources, and cause a cumulative violation of the PM<sub>10</sub> or PM<sub>2.5</sub> ambient air quality standards. This is a potentially cumulatively significant impact. As such, there could be cumulative exposure from the pollutants. Health effects from PM<sub>10</sub> and PM<sub>2.5</sub> may include the following: (a) exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease, (b) declines in pulmonary function growth in children, and/or (c) increased risk of premature death from heart or lung diseases in the elderly. Daily fluctuations in PM<sub>2.5</sub> levels have been related to hospital admissions for acute respiratory conditions, school absences, and increased medication use in children and adults with asthma.

In its GAMAQI (page 53), the District recommends examination of the potential of particulate matter exposure to sensitive receptors near the project site from earth disturbing activities from the current project and any nearby projects that may occur at the same time. If it appears that the level of activity may cause an adverse impact, the Lead Agency should require the enhanced dust control measures listed in the GAMAQI to reduce the impact to less than significant levels. There may or may not be construction activity occurring near the project during earth disturbing activities; therefore, mitigation measure AQ-1c is required, which includes the enhanced and additional control measures as identified in the GAMAQI. Therefore, according to the District's guidance, cumulative impacts of particulate matter are less than significant after mitigation. There would not be cumulative health effects from exposure to particulate matter after mitigation.

#### Air Quality Plan

Section 15130(b) of the CEQA Guidelines states the following:

The following elements are necessary to an adequate discussion of significant cumulative impacts: 1) Either: (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact.

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts is based on a summary of projections analysis. This analysis considers the current CEQA Guidelines, which includes the recent amendments approved by the Natural Resources Agency and effective on March 18, 2010. Under the amended CEQA Guidelines, cumulative impacts may be analyzed using other plans that evaluate relevant cumulative effects. The air quality attainment plans describe and evaluate the future projected emissions sources in the Basin and sets forth a strategy to meet both state and federal Clear Air Act planning requirements and federal ambient air quality standards. Therefore, the plans are relevant plans for a CEQA cumulative impacts analysis. As discussed in Impact AQ-2, the proposed Walmart is not consistent with the air quality attainment plans without implementation of mitigation or the Indirect Source Review rule. Therefore, this is a potentially significant impact.

**Level of Significance Before Mitigation**

Project Specific

No impact.

Cumulative

Potentially significant.

**Mitigation Measures**

Project Specific

No mitigation measures are required.

Cumulative

The following mitigation measures are generally the same measures that are required with the approved Wasco Center.

Mitigation Measures AQ-1a, AQ-1b, AQ-1c, and AQ-1d are required.

**Level of Significance After Mitigation**

Project Specific

No impact.

Cumulative

Less than significant impact.

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**Sensitive Receptors**

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**Impact AQ-5:           The proposed Walmart may expose sensitive receptors to substantial pollutant concentrations.**

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***Project Specific Impact Analysis*****Sensitive Receptors**

Those individuals who are sensitive to air pollution include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. The District considers a sensitive receptor to be a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools.

Three types of sensitive receptors were considered in this assessment:

- Existing sensitive receptors: a number of existing residences are located at the east end of the Project across Palm Avenue as well as scattered residences at the west end of the project across Magnolia Avenue.
- Project related sensitive receptors: the Wasco Center involves the development of a residential component to the east of the proposed WalMart building and at the east end of the Wasco Center.
- Sensitive receptors in areas zoned for residential: the City of Wasco General Plan identifies areas to the north of the proposed Walmart and areas to the south of the Wasco Center across State Route 46 as residential land uses; these residential areas were included to ensure that future residential development would not be impacted by the operation of the proposed Walmart.

**Construction and Operation: ROG**

During architectural coatings (painting), ROG is emitted. The amount emitted is dependant on the amount of ROG (or VOC) in the paint. ROG emissions are typically an indoor air quality health hazard concern and not an outdoor air quality health hazard concern. Therefore, exposure of ROG during architectural coatings is a less than significant health impact.

There are three types of asphalt that are typically used in paving: asphalt cements, cutback asphalts, and emulsified asphalts. However, District Rule 4641 prohibits the use of the following types of asphalt: rapid cure cutback asphalt; medium cure cutback asphalt; slow cure asphalt that contains more than one-half (0.5) percent of organic compounds which evaporate at 500°F or lower; and emulsified asphalt containing organic compounds, in excess of three percent by volume, which evaporate at 500°F or lower. An exception to this is medium cure asphalt where the National Weather Service official forecast of the high temperature for the 24-hour period following application is below 50°F.

The acute (short-term) health effects from worker direct exposure to asphalt fumes include irritation of the eyes, nose, and throat (CDC 2001). Other effects include respiratory tract symptoms and pulmonary function changes. The studies were based on occupational exposure of fumes. Residents are not in the immediate vicinity of the fumes; therefore, they would not be subjected to concentrations high enough to evoke a negative response. In addition, the restrictions that are placed on asphalt in the San Joaquin Valley reduce ROG emissions from asphalt and exposure. Impact to nearby sensitive receptors from ROG during construction is less than significant.

During operation, ROG would be emitted primarily from motor vehicles. Direct exposure to ROG from project motor vehicles would not result in health effects, because the ROG would be distributed across miles and miles of roadway and in the air. The concentrations would not be great enough to result in direct health effects.

Construction:  $\text{NO}_x$ ,  $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$

As discussed in Impact AQ-1, emissions during construction would not exceed the significance thresholds. During construction of the project, sensitive receptors would be more than 1,000 feet from the project site. In addition, on the northern boundary of the project site, approximately 80 feet north of the project, there is an irrigation pond and a possible farm residence/outbuilding. For purposes of this assessment, the building is assumed to be a place where sensitive receptors may reside. Therefore, Mitigation Measures AQ-1b, AQ-1c, and AQ-1d are required to reduce localized exposure of nitrogen dioxide,  $\text{PM}_{10}$ , and  $\text{PM}_{2.5}$  during construction.

Operation:  $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$ , CO, Nitrogen Dioxide

As discussed in Impact AQ-3, localized onsite concentrations of  $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$ , CO, and nitrogen dioxide would not exceed the ambient air quality standards. The ambient air quality standards were set to protect the health of sensitive individuals. If the concentration of those pollutants is under the ambient air quality standards, then no significant health effects would be observed. Therefore, the project would not expose sensitive receptors to substantial criteria air pollutant concentrations during operation.

Construction: Toxic Air Contaminants

Although construction of the project would involve the use of diesel-fueled vehicles, construction risks were not analyzed because of the short duration of the construction phase. While operational emissions are ongoing, the construction phase emissions are short-term. The California Office of Environmental Health Hazard Assessment (OEHHA) provides exposure variants for 9-, 30-, and 70-year exposures its Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2003). These exposures are chosen to coincide with EPA's estimates of the average (9 years), high-end estimates (30 years) of residence time, and a typical lifetime (70 years). OEHHA states their support for the use of cancer potency factors for estimating cancer risk for these exposure durations. However, as the exposure duration decreases, the uncertainties introduced by applying cancer potency factors derived from very-long-term studies increases. Short-term high exposures are not necessarily

equivalent to longer-term lower exposures even when the total dose is the same. OEHHA therefore does not support the use of current cancer potency factor to evaluate cancer risk for exposures of less than 9 years (refer to page 8-4 of OEHHA 2003).

Construction phase risks would be considered acute health risks as opposed to cancer risks, which are long term. OEHHA has yet to define acute risk factors for diesel particulates that would allow the calculation of a hazards risk index, thus evaluation of this impact would be speculative and no further discussion is necessary.

#### Operation: Toxic Air Contaminants

Any project with the potential to expose sensitive receptors or the public to substantial levels of toxic air contaminants would have a potentially significant impact. A health risk is the probability that exposure to a given toxic air contaminant under a given set of conditions will result in an adverse health effect. The health risk is affected by several factors, such as the amount, toxicity, and concentration of the contaminant; meteorological conditions; distance from the emission sources to people; the distance between emission sources; the age, health, and lifestyle of the people living or working at a location; and the length of exposure to the toxic air contaminant. The health risk is determined by estimating potential emissions and then entering the emissions into dispersion models (AERMOD and HARP), which estimates the concentration of pollutants at the nearby sensitive receptors. The concentrations are converted to risk using a set of formulas (see Appendix D for details).

A Health Risk Assessment was prepared to determine the cancer risks to nearby sensitive receptors from diesel particulate matter emitted from project and Wasco Center trucks (diesel truck traffic exhaust, diesel truck idling, operation of transportation refrigeration units) and from the operation of five restaurants within Wasco Center (toxic air contaminants benz(o)pyrene and naphthalene). To provide a conservative estimate of impacts, it was assumed that the entire Center would be build out in 2013, which is the assumed buildout date for the Walmart. Impacts would be less at the actual build out of the Wasco Center later in the decade since emissions are expected to decline with time. The Health Risk Assessment assumed that the Walmart delivery trucks would idle no more than 3 minutes per day and the non-Walmart trucks would idle 15 minutes per day. Note that the idling times presented here are conservative given the 5-minute statewide restriction on idling time. Pursuant to requests from the District on other projects, a mitigation measure to enforce idling reductions is required.

The cancer risk at the maximum impacted sensitive receptor is shown in Table 4.2-13. As shown in the table, the cancer risk is less than the threshold of 10 in one million. Therefore, impacts are less than significant. The project would not expose sensitive receptors to substantial air toxics during operation.

**Table 4.2-13: Cancer Risk from Project Operations**

| Location   | Cancer Risk (per million)     |                        | Exceeds Significance Threshold? |
|--|-------------------------------|------------------------|---------------------------------|
|  | Maximum Lifetime Project Risk | Significance Threshold |                                 |
| Maximum Impacted Sensitive Receptor  | 3.3                           | 10                     | No                              |
| Notes:<br>The maximum impacted sensitive receptor is located approximately 45 meters south of the project across Paso Robles Highway in an zoned for future residential development.<br>Source: Michael Brandman Associates, 2010 (Appendix D) |                               |                        |                                 |

A “significant” health risk is the level of exposure to air toxics at which facility operators are required to notify the public. A facility with a cancer risk over 10 in one million does not necessarily mean that those exposed will develop harmful effects. To put the cancer risk in perspective, there is an approximate risk that one in ten people will suffer from a stroke and there is about a one in one thousand risk of being poisoned (SJVAPCD 2006). The cancer risk at the nearest sensitive receptor was estimated to be 3.3 in one million, which is not a significant cancer risk. A cancer risk of 3.3 is the likelihood that up to between 3 and 4 people out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the specific concentration over 70 years (an assumed lifetime). This would be in addition to those cancer cases that would normally occur in an unexposed population of one million people.

The maximum calculated non-cancer risk as represented by the Hazard Index from the operation of the project was found to be substantially less than the District’s non-cancer risk threshold of 1.0. Therefore, non-cancer risks are less than significant. This means that the nearby residents are not likely to experience significant non-cancer health effects from diesel particulate matter (i.e., eye, nose, throat and lung irritation, coughs, headaches, light-headedness, and nausea).

The pollutant benzene, a carcinogenic ROG, would be emitted from gasoline-powered vehicles that would access the project site. Health effects to the nearby sensitive receptors from benzene are less than significant because the sensitive receptors are of sufficient distance from the project such that the concentrations would be dispersed to low levels prior to reaching the sensitive receptors. In addition, the quantities of benzene during operation are minimal.

**Valley Fever**

Valley Fever, or coccidioidomycosis, is an infection caused by inhalation of the spores of the fungus, *Coccidioides immitis*. The spores live in soil and can live for an extended time in harsh environmental conditions. Activities or conditions that increase the amount of fugitive dust contribute to greater exposure, and include dust storms, grading, and recreational off-road activities.

By geographic region, hospitalizations for Valley Fever in the San Joaquin Valley increased from 230 (6.9 per 100,000 population) in 2000 to 701 (17.7 per 100,000 population) in 2007. Within the

region, Kern County reported the highest hospitalization rates, increasing from 121 (18.2 per 100,000 population) in 2000 to 285 (34.9 per 100,000 population) in 2007, and peaking in 2005 at 353 hospitalizations (45.8 per 100,000 population). The Centers for Disease Control and Prevention indicates that 752 of the 8,657 persons (8.7 percent) hospitalized in California between 2000 and 2007 for Valley Fever died (CDC 2009).

Construction activities would generate fugitive dust. The project will minimize the generation of fugitive dust during construction activities by complying with the District's Regulation VIII. As discussed in Impact AQ-1, compliance with the District's Regulation VIII and mitigation measures will reduce potential impacts to air quality from fugitive dust generated during construction to less than significant.

During operations, dust emissions are anticipated to be negligible, because most of the project area would be occupied by buildings, pavement, and landscaped areas. This condition would preclude the possibility of the project from generating fugitive dust that may contribute to Valley Fever exposure. Impacts would be less than significant.

#### Indoor Air Pollution

Indoor air quality problems are caused primarily from indoor sources that release gases or particles into the air. Ventilation can decrease indoor pollutant levels by diluting the concentrations. The indoor air pollutants that may be associated with operation of the project include ROG's from new carpets and fresh paints, mold spores, radon, cigarette smoke, and combustion sources. The air pollutants that are controlled by the construction of the project include ROG's from carpets, paints, and radon. ROG's from products and new paint are temporary impacts that can be reduced by proper ventilation after installation. The health impact from these sources is anticipated to be less than significant.

Radon is a naturally occurring colorless, odorless, and tasteless radioactive gas originating from the radioactive decay of uranium in rock, soil, and groundwater. Radon gets inside a building primarily from soil under homes. It is a known human lung carcinogen and is the largest source of radiation exposure to the public. Most is rapidly exhaled; however, the inhaled decay products can deposit into the lung where they irradiate sensitive airway cells increasing the risk of lung cancer.

In general, the method and speed of radon's movement through soil is controlled by three conditions: the amount of water present in the pore space (the soil moisture content), the percentage of pore space in the soil (the porosity), and the permeability of the pore spaces that determines the soil's ability to transmit water and air. The distance that radon moves before most of it decays is less than 1 inch in water-saturated rocks or soils, but it can be more than 6 feet, and sometimes tens of feet, through dry rocks or soils. Even though the project area has no "real" source of uranium to produce radon gas, the permeability of the dry gravelly soils permits high indoor radon to occur.

Indoor radon tests were conducted by the California Department of Health Services (CDHS 2010). The project site is within zip code 93280. There were 0 out of 27 of the samples that contained radon concentrations in excess of the EPA threshold of 4 pCi/l that were located off the project site and within zip code 93280. Thus, based on these samples, the project area could have a low potential for radon concentrations over 4.0 pCi/l. This potential impact is less than significant.

#### Naturally Occurring Asbestos

The Department of Conservation, Division of Mines and Geology published a guide for generally identifying areas that are likely to contain naturally occurring asbestos (CDC 2000). The guide includes a map of areas where formations containing naturally occurring asbestos in California are likely to occur. There are no such areas in Kern County. For these reasons, development of the project is not anticipated to expose receptors to naturally occurring asbestos. Impacts would be less than significant.

### **Cumulative Impact Analysis**

#### Construction

As discussed in Impact AQ-1, project-related construction emissions could cumulatively combine with other emissions in the Basin and cumulatively could cause an air quality violation for the Basin's nonattainment pollutants - ozone, PM<sub>10</sub>, or PM<sub>2.5</sub>. The ambient air quality standards are set to protect the health of sensitive individuals; therefore, without mitigation, the project could result in health effects (see Table 4.2-3 for a description). Without mitigation, this impact is potentially significant.

Mitigation measures AQ-1b, AQ-1c, and AQ-1d would reduce criteria pollutant emissions during construction and would ensure compliance with measures in Regulation VIII. The regulation is included in the attainment plans as being part of the strategy to meet attainment of the air pollutants. The entire Basin was evaluated during preparation of the attainment plans. Since the attainment plans ensure that the Basin would achieve attainment, complying with the applicable rules and regulations (such as Regulation VIII and ISR) would ensure that the ambient air quality standards in the Basin are not violated. If the ambient air quality standards are violated, then sensitive receptors could be exposed to substantial air pollutants. Therefore, with mitigation, there is a less than significant cumulatively considerable impact during construction.

#### Operation: Onsite Concentrations

Project related concentrations of air pollutants would be greatest onsite. As shown in Table 4.2-9, onsite concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> would not exceed the thresholds for those pollutants. As shown in Table 4.2-10, onsite concentrations of nitrogen dioxide and CO during operation plus the background concentration (the cumulative background) would not result in concentrations that exceed the ambient air quality standards.

#### Operation: NO<sub>x</sub>, Ozone, and Nitrogen Dioxide

As discussed in Impact AQ-1, emissions of NO<sub>x</sub> during the first year of operation would exceed the District's significance thresholds without implementation of the District's Indirect Source Review

rule (enforced by Mitigation Measure AQ-1a). The GAMAQI states, “Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact.” Therefore, without mitigation, the project’s emissions of NO<sub>x</sub> could cumulatively combine and result in an exceedance of the ozone ambient air quality standard or the nitrogen dioxide ambient air quality standard. The ambient air quality standards are set to protect the health of sensitive individuals. Therefore, without mitigation, the project could cumulatively combine and cause health effects from exposure to ozone and/or nitrogen dioxide (see Table 4.2-3 for a description of the health effects). This impact is potentially significant before mitigation.

Mitigation measure AQ-1a would ensure compliance with ISR. As discussed in the District’s Staff Report for Rule 9510, implementation and compliance with ISR would reduce the cumulative NO<sub>x</sub> and PM<sub>10</sub> impacts of anticipated growth to less than significant, because the reductions attributed to this program were identified in two attainment plans as necessary to achieve the applicable standards. The entire Basin was evaluated during preparation of the attainment plans. Since the attainment plans ensure that the Basin would achieve attainment, complying with ISR through the mitigation measure would ensure that the ambient air quality standards in the Basin are not violated. Therefore, with mitigation, there would not be a cumulatively considerable impact during operation.

ISR compliance would also reduce operational-related ROG emissions. The emissions sources for ROG and NO<sub>x</sub> are nearly identical. Therefore, if the project achieves the ISR required emission reductions through onsite measures, then measures implemented to reduce NO<sub>x</sub> would also reduce ROG. If the project achieves the required ISR reductions through paying the offsite fee, then offsite projects funded by ISR would reduce ROG emissions incidental to reducing NO<sub>x</sub> emissions. The exact amount of ROG reductions that would accompany ISR compliance is unknown, since not all projects funded by the mitigation fees achieve ROG reductions, and projects that are funded are not predetermined.

#### Toxic Air Contaminants

The project would receive truck deliveries on a daily basis. However, toxic air contaminant levels tend to dissipate by 80 to 90 percent within 500 feet of the emissions source. Based on distances from sensitive receptors, prevailing wind patterns, and the short amount of time pollutants would be emitted, sensitive populations would not be exposed to harmful concentrations of toxic air contaminants (such as diesel particulate matter). Again, even though other development projects may also receive diesel truck deliveries, diesel particulate matter exposure is highly localized because of wind dispersion patterns and the low amount of pollutants emitted, and it is unlikely that the proposed project’s diesel emissions would combine with diesel emissions from other projects.

The District cancer risk threshold of 10 in one million is project-specific, not cumulative. Cancer risk is typically a localized impact, as concentrations of toxic air contaminants disperse rapidly from the source and the concentration of the air contaminants in the air decreases. The “Operation: Toxic Air Contaminants” analysis above included cumulative toxic air contaminant emissions from the entire

Wasco Center. The analysis demonstrated that impacts would be below the threshold of 10 in one million. There is a K-Mart across SR-46, which has two heavy-duty diesel delivery truck deliveries per week, one on Tuesday and one on Friday (personal communication with K-Mart receiving department, May 24, 2011). The K-Mart loading docks are more than 1,000 feet southeast from the project. The K-Mart trucks probably drive on Central Avenue to access the K-Mart site. The K-Mart is a smaller store and does not contain a large grocery section; there would not be many trucks with transportation refrigeration units. The maximum cancer risk levels from the project and Wasco Center Health Risk Assessment modeling are south of the project across from SR-46 and west of the existing K-Mart building. The current and future sensitive receptors would be exposed to diesel particulate matter from the trucks accessing the project, Wasco Center, and K-Mart; however, this impact is anticipated to be less than significant, due to the few number of trucks that access K-Mart and the low level of project and Wasco Center cancer risk that the Health Risk Assessment demonstrated. There are no other sources of toxic air contaminants in close proximity to the maximally exposed individual that would contribute substantial additional cancer risk. Potential impacts related to cumulative toxic air contaminants are also less than significant and do not require mitigation. Therefore, the proposed project, in conjunction with other projects that receive diesel truck deliveries, would not create cumulatively considerable health risks and would be considered less than significant.

#### **Mitigation Measures**

##### Project Specific

Mitigation Measures AQ-1b, AQ-1c, and AQ-1d are required.

**MM AQ-5a** The project site shall be posted with signs which state:

- a) Truck drivers shall turn off engines when not in use.
- b) Diesel delivery trucks servicing the project shall not idle for more than three minutes.
- c) Telephone numbers of the building facilities manager and the California Air Resources Board to report violations.

##### Cumulative

Mitigation Measures AQ-1a, AQ-1b, AQ-1c, and AQ-1d are required.

#### **Level of Significance After Mitigation**

##### Project Specific

Less than significant.

##### Cumulative

Less than significant.

**Odors**

**Impact AQ-6:** The project would not create objectionable odors affecting a substantial number of people.

**Project Specific and Cumulative Impact Analysis**

## Thresholds of Significance

Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc., warrant the closest scrutiny, but consideration could also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas.

Two situations create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. The District has determined the common land use types that are known to produce odors in the Basin. These types are shown in Table 4.2-14.

**Table 4.2-14: Screening Levels for Potential Odor Sources**

| Odor Generator   | Distance |
|--|----------|
| Wastewater Treatment Facilities                                  | 2 miles  |
| Sanitary Landfill  | 1 mile   |
| Transfer Station   | 1 mile   |
| Compositing Facility   | 1 mile   |
| Petroleum Refinery   | 2 miles  |
| Asphalt Batch Plant  | 1 mile   |
| Chemical Manufacturing   | 1 mile   |
| Fiberglass Manufacturing   | 1 mile   |
| Painting/Coating Operations (e.g., auto body shop)               | 1 mile   |
| Food Processing Facility   | 1 mile   |
| Feed Lot/Dairy   | 1 mile   |
| Rendering Plant  | 1 mile   |
| Wastewater Treatment Facilities                                  | 2 miles  |
| Source: San Joaquin Valley Air Pollution Control District, 2002. |          |

According to the Guide for Assessing and Mitigating Air Quality Impacts, analysis of potential odor impacts should be conducted for the following two situations:

- **Generators** - projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate, and
- **Receivers** - residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

If the project were to result in sensitive receptors being located closer to an odor generator in the list in Table 4.2-14 than the recommended distances, a more detailed analysis including a review of District odor complaint records is recommended. The detailed analysis would involve contacting the District's Compliance Division for information regarding odor complaints. For a project locating near an existing source of odors, the project should be identified as having a significant odor impact if it is proposed for a site that is closer to an existing odor source than any location where there have been:

- More than one *confirmed* complaint per year averaged over a three-year period, or
- Three *unconfirmed* complaints per year averaged over a three-year period.

#### Impact Analysis

The project would allow the development of a Walmart, which is not considered a source of objectionable odors. During project operations, the project could produce odors as a result of refuse storage and collection. All collection areas and containers will be enclosed to minimize generation of odors. Therefore, the odor impacts associated with refuse storage and collection would be less than significant.

During construction, onsite diesel powered equipment and vehicles will emit diesel particulate matter, which is odorous to some. Also during construction, there would be short-term emissions of ROG's during painting and asphalt paving. These odors will dissipate with distance and should not reach an objectionable level at nearby residences. Impacts would be less than significant.

Regarding surrounding odors, there are no major odor generating sources within a mile of the project site. There are no wastewater treatment plants or refineries within two miles of the project site. Therefore, surrounding uses would not cause substantial odor impacts to the project.

#### **Mitigation Measures**

No mitigation measures are required.

#### **Level of Significance After Mitigation**

Project Specific

Less than significant impact.

Cumulative

Less than significant impact.

