4.3 AIR QUALITY

4.3 AIR QUALITY

INTRODUCTION

This section addresses potential effects on air quality that could result from implementation of the Lincoln East Specific Plan (LESP or proposed project), and recommends mitigation measures to reduce or eliminate significant impacts. The section summarizes the existing climate in the project area; existing air quality conditions for both "criteria air pollutants" and "toxic air contaminants"; and identifies federal, state, and regional air quality standards. The section also analyzes potential air quality effects caused by stationary and mobile sources related to the proposed project.

Comments received in response to the NOP (see Appendix B) raised concerns related to an increase in air pollutants due to the project as well as the potential for an increase in air temperature (climate change). These issues are discussed in this section. Because the proposed project includes residential, commercial, and public uses (no industrial uses), potential impacts associated with odors were considered less than significant and addressed in the Initial Study (see Appendix A). Changes in climate are addressed in Section 4.14, Climate Change.

Information for this section was obtained from the California Air Resources Board, the Feather River Air Quality Management District, City of Yuba City General Plan, the California Energy Commission, and a review of the *Draft* Lincoln East Specific Plan (March 2009).

ENVIRONMENTAL SETTING

Climate and Topography

The proposed project is located within the Sacramento Valley Air Basin (SVAB) which includes the counties of Shasta, Tehama, Glenn, Butte, Colusa, Sutter, Yuba, Yolo, Sacramento, and parts of Placer and Solano counties. Hot dry summers and mild rainy winters characterize the Mediterranean climate of the SVAB. During the year the temperature may range from 20 to 115 degrees Fahrenheit with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches with snowfall being very rare. The prevailing winds are moderate in strength and vary from moist clean breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the SVAB. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog and pollutants near the ground.

The ozone season (May through October) in the SVAB is characterized by stagnant air or light winds with the delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the valley. During about half of the days from July to September; however, a phenomenon called the "Schultz Eddy" prevents this from occurring. Instead of allowing for the prevailing wind patterns to move north carrying the pollutants out of the Valley, the Schultz Eddy causes the wind pattern to circle back south. This phenomenon's effect exacerbates the pollution levels in the area and increases the likelihood of violating federal or state standards. The Eddy normally dissipates around noon when the delta sea breeze arrives.

Air Quality Background

Air pollutant emissions within the SVAB are generated by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources are usually subject to a permit to operate from the local air district, occur at specific identified locations, and are usually associated with manufacturing and industry. Examples of point sources include refineries, concrete batch plants, and can coating operations. Smaller point sources include automotive refinishers and gasoline stations. Area sources are widely distributed and produce many small emissions and do not require permits to operate from any air agency. Examples of area sources include residential and commercial water heaters, painting operations, portable generators, lawn mowers, and consumer products such as barbeque lighter fluid and hairspray. The wide-spread use of these items and operations contributes to regional air pollution.

A subcategory of area sources are "mobile sources" which refer to emissions from motor vehicles, including tailpipe and evaporative emissions. Motor vehicles are classified as either on-road or off-road. On-road sources are those that are legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, racecars, and construction vehicles. Mobile sources account for the majority of the air pollutant emissions within the SVAB.

Criteria Air Pollutants

Criteria air pollutants are a group of pollutants for which federal or state regulatory agencies have adopted ambient air quality standards. Criteria air pollutants are classified in each air basin, county, or in some cases, within a specific urbanized area. The classification is determined by comparing actual monitoring data with state and federal standards. If a pollutant concentration is lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "non-attainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

Ambient Air Quality Standards

Both the federal and state government have established ambient air quality standards for outdoor concentrations of various pollutants in order to protect public health. The federal and state ambient air quality standards have been set at levels whose concentrations could be generally harmful to human health and welfare and to protect the most sensitive persons from experiencing health impacts with a margin of safety. Applicable ambient air quality standards are identified later in this

section. Table 4.3-1 identifies the federal and state ambient air quality standards that are applicable in California. Table 4.3-2 lists the health effects associated with these pollutants.

TABLE 4.3-1

AMBIENT AIR QUALITY STANDARDS APPLICABLE IN CALIFORNIA

Pollutant	Averaging Time	Standard (ppm)[1]		Standard (µg/m)[2]	
		State[3]	Federal[4]	State[3]	Federal[4]
Ozone (O_3)	1-hour	0.09	0.12	-	-
	8-hour	0.07	0.08	-	-
Carbon Monoxide (CO)	1-hour	20	35	-	-
	8-hour	9.0	9.0	-	-
Nitrogen Dioxide (NO_2)	1-hour	0.25	-	-	-
	Annual arithmetic mean	-	0.053	-	-
Sulfur Dioxide (SO_2)	1-hour	0.25	-	-	-
	24-hour	0.04	0.14	-	-
	Annual arithmetic mean	-	0.03	-	-
Hydrogen Sulfide (H_2S)	1-hour	0.03	-	-	-
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	-	-	-
Particulate Matter – 10 microns or less (PM_{10})	24-hour	-	-	50	150
	Annual arithmetic mean	-	-	20	-
Particulate Matter – 2.5 microns or less ($PM_{2.5}$)	24-hour	-	-	-	35
	Annual arithmetic mean	-	-	12	15
Sulfate Particles (SO_4)	24-hour	-	-	25	-
Lead Particles (Pb)	30 days	-	-	1.5	-
	Calendar quarter	-	-	-	1.5

Notes:
1. ppm = parts per million by volume
2. µg/m^3 = micrograms per cubic meter
3. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter (PM_{10} and $PM_{2.5}$), and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 on Title 17 of the California Code of Regulations.
4. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

Source: California Air Resources Board, Ambient Air Quality Standards, <www.arb.ca.gov/research/ aaqs/aaqs2.pdf>, Accessed August 31, 2007.

The air pollutants for which federal and state standards have been promulgated and which are most relevant to air quality planning and regulation in the air basins include ozone, carbon monoxide, nitrogen oxides, suspended particulate matter, sulfur dioxide, and lead. In addition, toxic air contaminants are of concern in Sutter County. Each of these pollutants is briefly described below.

- **Ozone (O_3)** is a gas that is formed when reactive organic gases (ROGs) and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust and other processes undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.

TABLE 4.3-2

HEALTH EFFECTS OF MAIN CRITERIA AIR POLLUTANTS

Pollutant	Adverse Effects
Ozone	• Ozone can irritate lung airways and cause inflammation. Other symptoms include wheezing, coughing, and breathing difficulties during exercise or outdoor activities. People with respiratory problems are most vulnerable, but even healthy people that are active outdoors can be affected when ozone levels are high. • Repeated exposure to ozone pollution for several months may cause permanent lung damage. • Even at very low levels, ground-level ozone triggers a variety of health problems including aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis. • Ground-level ozone interferes with the ability of plants to produce and store food, which makes them more susceptible to disease, insects, other pollutants, and harsh weather. • Ozone reduces crop and forest yields and increases plant vulnerability to disease, pests, and weather.
Carbon Monoxide	• The health threat from lower levels of CO is most serious for those who suffer from heart disease. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. • Healthy people can be affected by high levels of CO as well. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death. • CO contributes to the formation of ground-level ozone, which can trigger serious respiratory problems.
Particulate Matter	• Particle pollution, especially fine particles, contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including: increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; decreased lung function, aggravated asthma, development of chronic bronchitis; irregular heartbeat, nonfatal heart attacks; and premature death. • Particles can be carried over long distances by wind and then settle on ground or water. The effects of this settling include: making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.
Nitrogen Dioxide	• One of the main ingredients involved in the formation of ground-level ozone, which can trigger serious respiratory problems. • Reacts to form nitrate particles, acid aerosols, as well as NO_2, which also cause respiratory problems. • Contributes to formation of acid rain; to nutrient overload that deteriorates water quality; and to atmospheric particles that cause visibility impairment. • Reacts to form toxic chemicals.
Sulfur Dioxide	• SO_2 causes a wide variety of health and environmental impacts because of the way it reacts with other substances in the air. • Peak levels of gaseous SO_2 can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposures to high levels of SO_2 gas and particles cause respiratory illness and aggravate existing heart disease. • SO_2 reacts with other chemicals in the air to form tiny sulfate particles. When these are breathed, they gather in the lungs and are associated with increased respiratory symptoms and disease, difficulty in breathing, and premature death.
Lead	• People, animals, and fish are mainly exposed to lead by breathing and ingesting it in food, water, soil, or dust. Lead accumulates in the blood, bones, muscles, and fat. Infants and young children are especially sensitive to even low levels of lead. • Excessive exposure to lead causes seizures, mental retardation, behavioral disorders, memory problems, and mood changes. Low levels of lead damage the brain and nerves in fetuses and young children, resulting in learning deficits and lowered IQ. • Lead exposure causes high blood pressure and increases heart disease, especially in men. Lead exposure may also lead to anemia.

Source: Environmental Protection Agency, Six Common Air Pollutants, <www.epa.gov/air//urbanair/6poll.html>, accessed August 29, 2007.

- **Carbon Monoxide (CO)** is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the SVAB. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

- **Nitrogen oxides (NO_X)** is the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. Many of the nitrogen oxides are colorless and odorless. However, one common pollutant, nitrogen dioxide (NO_2) along with particles in the air can often be seen as a reddish-brown layer over many urban areas. Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO_X are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels. Nitrogen oxides can also be formed naturally.

- **Respirable Particulate Matter (PM_{10})** and **Fine Particulate Matter ($PM_{2.5}$)** consist of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter. Some sources of suspended particulate matter, like pollen and windstorms, occur naturally. However, in populated areas, most fine suspended particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.

- **Sulfur Dioxide (SO_2)** is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of the burning of high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries.

- **Lead** occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead. Since the use of leaded gasoline is no longer permitted for on-road motor vehicles, lead is not a pollutant of concern in the SVAB.

- **Toxic Air Contaminants (TACs)** are known to be highly hazardous to health, even in small quantities. TACs are airborne substances capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects (i.e., injury or illness). TACs can be emitted from a variety of common sources, including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations.

  TAC impacts are assessed using a maximum individual cancer risk (MICR) that estimates the probability of a potential maximally exposed individual (MEI) contracting cancer as a result of sustained exposure to toxic air contaminants over a constant period of 24 hours per day for 70 years for residential receptor locations. The CARB and local air districts have determined that any stationary source posing an incremental cancer risk to the general population (above background risk levels) equal to or greater than 10 people out of 1 million to be excessive. For stationary sources, if the incremental risk of exposure to project-related

TAC emissions meets or exceeds the threshold of 10 excess cancer cases per 1 million people, the CARB and local air district require the installation of best available control technology (BACT) or maximum available control technology (MACT) to reduce the risk threshold. To assess risk from ambient air concentrations, the CARB has conducted studies to determine the total cancer inhalation risk to individuals due to outdoor toxic pollutant levels. The CARB has conducted studies to determine the total cancer inhalation risk to individuals due to outdoor toxic pollutant levels. According to the map prepared by the CARB showing the estimated inhalation cancer risk for TACs in the State of California, Yuba City has an existing estimated risk that is between 100 and 500 cancer cases per 1 million people. There is a higher risk around downtown Yuba City where the cancer risk is as high as 500 cases per 1 million people.[1] This represents the lifetime risk that between 100 and 500 people in 1 million may contract cancer from inhalation of toxic compounds at current ambient concentrations under an MEI scenario.

Regional Air Quality

Regionally, some portions of the SVAB have fewer air quality problems than others. Only the southern portion of the SVAB is in non-attainment for federal ozone standards, which includes the southern portion of Sutter County. Regarding state standards, the entire SVAB is in non-attainment for both the 1-hour and 8-hour ozone standards and PM_{10} and $PM_{2.5}$ standards.

Existing Local Air Quality

The CARB collects ambient air quality data through a network of air monitoring stations throughout the state. Many of the monitoring stations are part of the State and Local Air Monitoring Network Plan (SLAM) which collect data on ambient levels of gaseous and particular air pollutants which are used to determine attainment status. There are two monitoring stations in Sutter County: the Yuba City – Almond Street station and the Sutter Buttes – S (south) Butte station. Because the proposed project is located closest to the Yuba City – Almond Street station, data on ozone, carbon monoxide, PM_{10}, $PM_{2.5}$, and nitrogen dioxide are reported from this station.

Table 4.3-3 lists the ambient pollutant concentrations that have been measured within the county through the period of 2004 to 2006 from the Yuba City – Almond Street station. As shown, Yuba City has a recent history of exceeding federal levels for the 8-hour ozone standard. Yuba City has also exceeded the state standards for the ozone 1-hour average, the ozone 8-hour average, and the PM_{10} standards. The federal and state standards for CO, $PM_{2.5}$, and NO_2 have not been exceeded during this time.

1 California Air Resources Board, Cancer Inhalation Risk: Local Trend Maps, Yuba-Sutter: 2001 Cancer Risk per Million, <http://arb.ca.gov/toxics/cti/hlthrisk /cncrinhl/rskmapvwtrend.htm>, accessed August 29, 2007.

TABLE 4.3-3

FEDERAL AND STATE AIR POLLUTION STANDARDS EXCEEDED IN SUTTER COUNTY[1]

Pollutant	Standard[2]	2004	2005	2006
Ozone (1-hour)				
Highest 1-hour measurement	-	0.100 ppm	0.096 ppm	0.110 ppm
# days over Federal standard	0.12 ppm	0	0	0
# days over State standard	0.09 ppm	1	4	5
Ozone (8-hour)				
Highest 8-hour measurement	-	0.081 ppm	0.073 ppm	0.081 ppm
# days over Federal standard	0.08 ppm	1	0	2
# days over State standard	0.07 ppm	3	7	10
Carbon Monoxide (CO 8-hour)				
Highest 8-hour measurement	-	2.54 ppm	3.39 ppm	2.29 ppm
# days over Federal standard	9.0 ppm	0	0	0
# days over State standard	9.0 ppm	0	0	0
Particulate Matter (PM_{10})				
Highest 24-hour concentration	-	53.0 $\mu g/m^3$	60.0 $\mu g/m^3$	66.0 $\mu g/m^3$
# days over Federal standard	150.0 $\mu g/m^3$	0	0	0
# days over State standard	50.0 $\mu g/m^3$	1	5	4
Particulate Matter ($PM_{2.5}$)				
Highest 24-hour concentration	-	41.0 $\mu g/m^3$	47.2 $\mu g/m^3$	51.6 $\mu g/m^3$
# days over Federal standard	35.0 $\mu g/m^3$	0	0	0
Annual Mean	-	10.1 $\mu g/m^3$	10.2 $\mu g/m^3$	11.2 $\mu g/m^3$
Annual Mean over State standard?	12.0 $\mu g/m^3$	NO	NO	NO
Nitrogen Dioxide (NO_2)				
Highest 1-hour measurement	-	0.066 ppm	0.062 ppm	0.070 ppm
# days over State standard	0.25 ppm	0	0	0
Annual Mean	-	0.012 ppm	0.012 ppm	0.012 ppm
Annual Mean over Federal standard?	0.053 ppm	NO	NO	NO

Notes:
1. Data is derived from the Yuba City-Almond Street station due to the limited data collection capabilities of the Sutter Buttes-S Butte station. The Sutter Buttes station only collects data about ozone, while the Yuba City station collects data for all the pollutants listed above.
2. It should be noted that according to the CARB, an exceedance is not necessarily a violation of federal or state standards.

Source: California Air Resources Board, Air Quality Data Statistics, <www.arb.ca.gov/adam/welcome.html>, accessed August 30, 2007.

Attainment Status

As specified in the California Clean Air Act (CCAA) of 1988, it is the responsibility of each air pollution control district and air quality management district within the state to attain and maintain California's ambient air quality standards. The CCAA requires that an Attainment Plan (Plan) be developed by all non-attainment districts for O_3, CO, sulfur oxides (SO_X), and NO_X that are either receptors or contributors of transported air pollutants. Districts are required to update the Plan every three years. The purpose of this Plan is to comply with the requirements of the CCAA as implemented through the California Health and Safety Code.

In compliance with the CCAA, the Feather River Air Quality Management District (FRAQMD), in conjunction with other air districts in the Northern Sacramento Valley Air Basin (NSVAB), prepared the 2006 NSVAB Air Quality Attainment Plan (AQAP) to address the non-attainment status for ozone and respirable PM_{10}. The NSVAB includes the following counties located in the northern portion of the SVAB: Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba. This triennial update of the

NSVAB AQAP discusses the progress made in implementing the 2003 plan and proposes modifications to the strategies necessary to attain the California ambient air quality standard for the 1-hour ozone standard at the earliest practicable date. The 2006 Plan focuses on the adoption and implementation of control measures for stationary sources, area wide sources, and indirect sources, and addresses public education and information programs. The 2006 Plan also addresses the effect that pollutant transport has on the ability of the NSVPA to meet and attain the State standards. Like the 1994, 1997, 2000, and 2003 Plans, the 2006 Plan focuses on the adoption and implementation of control measures for stationary sources, area wide sources, indirect sources, and address public education and information programs. The 2006 Plan also addresses the effect that pollutant transport has on the NSVAB's ability to meet and attain the state standards.[2] Table 4.3-4 shows the District's attainment status for criteria air pollutants.

TABLE 4.3-4

CRITERIA AIR POLLUTANTS ATTAINMENT STATUS OF THE FEATHER RIVER AIR QUALITY MANAGEMENT DISTRICT AREA

Pollutant	State Standards	Federal Standards
Ozone (1-hour)	**Non-attainment**	N/A
Ozone (8-hour)	**Non-attainment**	**Non-attainment**
Carbon Monoxide	Attainment	N/A
PM_{10}	**Non-attainment**	Unclassified
$PM_{2.5}$	**Non-attainment**	Unclassified
Nitrogen Dioxide	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Unclassified/Attainment
Sulfates	Attainment	N/A
Lead	Attainment	N/A
Hydrogen Sulfide	Unclassified	N/A
Visibility Reducing Particles	Unclassified	N/A

Source: Feather River Air Quality Management District, 2004 FRAQMD Area Designations for State and National Ambient Air Quality Standards, <www.fraqmd.org>, accessed August 30, 2007.

Ozone violations are caused in part, within the NSVAB, by combustion sources and have occasionally been influenced by smoke impacts due to nearby wildfires. The primary emission source is the internal combustion engine. The ozone problem is further aggravated by transport from the greater Sacramento region, which is comprised of Sacramento County, and portions of El Dorado, Placer, Sutter, and Yolo counties. Ozone is formed by a photochemical reaction of the ozone precursors, nitrogen oxides and reactive organic gases. These ozone precursors are emitted as part of the exhaust of internal combustion engines in the NSVAB and greater Sacramento area and are transported northward via prevailing winds. Due to the regional nature of the ozone problem and the fact that the NSVAB counties share the same air basin with the greater Sacramento area, the 2006 Attainment Plan is prepared in conjunction with the Sacramento Valley Air Basin Control Council's Technical Advisory Committee.

The CARB has outlined, in the approved 1994 State Implementation Plan (SIP) for ozone, new control strategies that will be developed and implemented over the next decade in California. This

2 Feather River Air Quality Management District, Northern Sacramento Valley Air Basin, 2006 Air Quality Attainment Plan, <www.fraqmd.org/FinalNSVAB/2003PlanContents.htm>, Accessed November 2008.

2006 Plan contains the suggested control measures included in the 2000 and 2003 Plan along with the Tier 1 Control Measures (*Identification of Achievable Performance Standards and Emerging Technologies for Stationary Sources – March 1998*; *Identification of Performance Standards for Existing Stationary Sources – Updated May 16, 2002*). These control measures will reduce air pollution throughout California and ensure continued progress towards meeting or maintaining federal standards, as well as progress towards California's more stringent health protective state standards.

With the SIP as the state's established control strategy for the future, the CARB found that the NSVAB Districts would not be required to prepare a comprehensive Plan update for 2006. Instead, districts were directed to focus on implementing their existing control strategies and SIP commitments. The 2006 Plan, similar to the 2003 Plan, incorporates three general principles that guide air districts in their planning process:[3]

1. Air quality modeling to identify the reductions needed and to design effective emission reduction strategies;
2. Comprehensive emission reduction programs that take advantage of current emission control technologies; and
3. Address the impacts of pollutant transport in the attainment demonstration.

While air quality is gradually improving and tons of ROG and NO_x have been removed from the emission inventory, the District must continue to reduce emissions to meet and maintain state healthful air quality levels. Incentive programs, such as the Carl Moyer Program, assist the District in achieving the necessary NO_x and PM emission reductions to meet these objectives and requirements. Without incentive programs, emission reductions would have to be obtained from industry and other sources or through regulatory measures, where reductions are not typically as cost effective.

Sensitive Receptors

Some individuals are considered to be more sensitive than others to air pollution. Reasons for greater sensitivity can include existing health problems, duration of exposure to air pollutants, or certain peoples' increased susceptibility to pollution-related health problems due to factors such as age.

Land uses such as day care providers, primary and secondary schools, hospitals, and convalescent homes are considered to be sensitive receptors to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality related health problems than the general public. Residential uses are considered sensitive because people in residential areas are often at home for extended periods of time, so they can be exposed to pollutants for extended periods. Recreational areas are considered moderately sensitive to poor air

3 Feather River Air Quality Management District, Northern Sacramento Valley Air Basin, 2006 Air Quality Attainment Plan, <www.fraqmd.org/FinalNSVAB/2006PlanContents.htm>, Accessed November 2008.

quality because vigorous exercise associated with recreation places a high demand on the human respiratory function.

Land Use Planning and Air Quality

California's population is expected to grow, and meeting federal and state air quality standards suggests a need for a fundamental shift in approaches to land use and development. According to the California Energy Commission, the State needs to investigate approaches that go beyond decreasing transportation fuel use and relieving congestion to approaches that can serve as a nexus for developing efficient transportation means in communities. This approach can help California reach attainment status for those pollutants which are currently above the standards. An opportunity to meet those goals includes incorporating "smart growth," which refers to the application of specific development principles to make prudent use of resources and create low-impact communities through design.[4]

Sutter County is a member of the Sacramento Area Council of Governments (SACOG), which covers a six-county area. SACOG has developed the "Blueprint," a transportation and land use study for the Sacramento region which includes all of Sutter County. SACOG has also adopted a Metropolitan Transportation Plan (MTP) to provide a regional vision for all modes of surface transportation and a guide for regional transportation investments. The MTP includes programs designed to meet goals which include: clean air; design of communities to encourage local walk, bicycle, and transit travel; and for improvements to main routes that serve longer distance travel around the region, specifically freeways, rail lines, and major roadways and streets that serve regional traffic. Application of these smart growth planning concepts in growing areas of Sutter County would help reduce the emission of criteria air pollutants by reducing vehicle trips, promoting alternative transportation, and developing smart-growth projects that, overall, reduce the population's reliance on motor vehicle use and reduces the distance of any necessary vehicle trips.

REGULATORY SETTING

Air quality in the proposed project area is regulated by the U.S. EPA, the CARB, and the Feather River Air Quality Management District (FRAQMD). These agencies develop rules and regulations to meet the goals or directives imposed on them through legislation. Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent than the federal standards. In general, air quality evaluations are based on air quality standards developed by the federal and state governments. Emissions limitations are then imposed upon individual sources of air pollutants by the various air agencies. Mobile sources of air pollutants are largely controlled through federal and state agencies, while most stationary sources are regulated by the local air pollution control or air quality management districts.

4 California Energy Commission, *2006 Integrated Energy Policy Report Update*, January 2007.

Federal

U.S. Environmental Protection Agency

The U.S. EPA is the federal agency responsible for setting and enforcing the federal ambient air quality standards for atmospheric pollutants. The EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The EPA also has jurisdiction over emission sources outside state waters (outer continental shelf), and establishes various emissions standards for vehicles sold in states other than California.

As part of its enforcement responsibilities, the EPA requires each state with non-attainment areas to prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in non-attainment areas, using a combination of performance standards and market-based programs.

Federal Clean Air Act

The Federal Clean Air Act (CAA), as amended, establishes air quality standards for several pollutants. These standards are divided into primary standards and secondary standards. Primary standards are designed to protect public health, and secondary standards are intended to protect public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage. The CAA requires that regional plans be prepared for non-attainment areas illustrating how the federal air quality standards could be met. The CARB approved the most recent revision of the SIP in 1994, and submitted it to the EPA. The SIP, approved by the EPA in 1996, consists of a list of ROG and NO_x control measures for demonstrating future attainment of ozone standards. The steps to achieve attainment will continue to require significant emissions reductions in both stationary and mobile sources.

State

California Air Resources Board

The CARB, a part of the California EPA (Cal EPA) is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets state ambient air quality standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. The CARB also has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts.

California Clean Air Act

The CCAA of 1988 requires non-attainment areas to achieve and maintain the state ambient air quality standards by the earliest practicable date and local air districts to develop plans for attaining the state ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide standards. The CCAA also requires that by the end of 1994 and once every three years thereafter, the air districts are to assess their progress toward attaining the air quality standards. The triennial assessment is to report the extent of air quality improvement and the amounts of emission reductions achieved from control measures for the preceding three year period.

Air Toxics Hot Spots Information and Assessment Act

The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), California Health and Safety Code Section 44300 et seq., provides for the regulation of over 200 air toxics and is the primary air contaminant legislation in the state. Under the Act, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public. The TAC control strategy involves reviewing new sources to ensure compliance with required emission controls and limits, maintaining an inventory of existing sources of TACs, and developing new rules and regulations to reduce TAC emissions. The purpose of AB 2588 is to identify and inventory toxic air emissions and to communicate the potential for adverse health effects to the public.

Assembly Bill 1807

AB 1807, enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. The CARB is responsible for the identification and control of TACs, except pesticide use. AB 1807 defines a TAC as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. The CARB prepares identification reports on candidate substances under consideration for listing as TACs. The reports and summaries describe the use of and the extent of emissions in California resulting in public exposure, together with their potential health effects.

In 1998, the CARB identified diesel particulate matter (DPM) as a toxic air contaminant under the AB 1807 program. DPM is emitted into the air via heavy-duty diesel trucks, construction equipment, and passenger cars. In October 2000, the CARB released a report entitled Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. This plan identifies DPM as the predominant TAC in California and proposes methods for reducing diesel emissions.

Senate Bill 656

As a first step in the implementation of Senate Bill 656 (SB 656, Reducing Particulate Matter in California), the CARB approved a list of the most readily available, feasible, and cost-effective control measures that can be employed by air districts to reduce particulate matter PM_{10} and $PM_{2.5}$ (collectively referred to as PM) in 2004. The list is based on rules, regulations, and programs

existing in California as of January 1, 2004, for stationary, area-wide, and mobile sources. As a second step air districts must adopt implementation schedules for selected measures from the list. The implementation schedules will identify the appropriate subset of measures, and the dates for final adoption, implementation, and the sequencing of selected control measures. In developing the implementation schedules, each air district will prioritize measures based on the nature and severity of the PM problem in their area and cost-effectiveness. Consideration is also given to ongoing programs such as measures being adopted to meet national air quality standards or the state ozone planning process. The consideration and adoption of air district rules in their implementation schedules, coupled with CARB's ongoing programs, will ensure continued progress in reducing public exposure to PM and attainment of the state and federal standards.

Senate Bill 700

In September 2003, the California Legislature adopted SB 700: Agriculture and Air Quality Summary and Implementation. This bill removed a long-standing statute that exempted agricultural operations from obtaining operating permits for sources of air pollution. The bill requires agricultural sources with emissions greater than or equal to one-half the threshold for a federal major source to obtain a District permit, and sources that meet or exceed the threshold for a federal major source to obtain a federal operating permit from U.S. EPA or a local district with a federally approved federal operating permits program.

Local

Feather River Air Quality Management District

The FRAQMD is a bi-county air district that was formed in 1991 to administer local, state, and federal air quality management programs for Yuba and Sutter counties. The mission of FRAQMD is to promote and improve the air quality of Sutter and Yuba counties through monitoring, evaluation, education, implementing control measures to reduce emissions from stationary sources, permitting and inspecting pollution sources, enforcing air quality regulations, and supporting and implementing measures to reduce emissions from motor vehicles.

FRAQMD also collaborates with other air districts in the NSVAB to address the non-attainment status for O_3 and PM_{10} in the greater Sacramento region. For example, FRAQMD prepared the 2006 NSVAB AQAP to discuss the progress made in implementing the previous 2003 plan and proposed modifications to the strategies necessary to attain the California ambient air quality standards at the earliest practicable date. The 2006 Plan also identified the air pollution problems to be cooperatively addressed on as many fronts as possible with the cooperation of other air districts.

Currently FRAQMD is proposing to adopt new and amend existing regulations regarding agricultural source emissions in accordance with passage of SB 700. As discussed above, SB 700 requires that major agricultural sources of air pollution and certain non-major agricultural sources of air pollution obtain stationary source permits from local districts. Existing FRAQMD Rule 4.3 exempts all agricultural sources from obtaining district permits. The proposed amendments to Rule 4.3 would remove those exemptions for these sources and will update FRAQMD rules and regulations to be

consistent with state and federal law. The exemption will be such that FRAQMD rules will be equally, but not more stringent than state law requires.[5]

Yuba City General Plan

The following goals and policies from the City of Yuba City General Plan (2004) are relevant to air quality.

5.2 Roadway System

Guiding Policies

5.2-G-2 Make efficient use of existing transportation facilities, and, through the arrangement of land uses, improved alternate transportation modes, and provision of more direct routes for pedestrians and bicyclists, strive to reduce the total vehicle-miles traveled per household.

Implementing Policies

5.2-I-7 When constructing or modifying roadways, plan for usage of the roadway space by all users, including motor vehicles, transit vehicles, bicyclists, and pedestrians.

5.3 Transit

Guiding Policies

5.3-G-1 Continue to expand and improve the existing transit network to provide convenient and efficient public transportation to workplaces, shopping, and other destinations.

5.3-G-2 Preserve options for future transit use when designing improvements for roadways.

Implementing Policies

5.3-I-1 Cooperate with public agencies and other jurisdictions to promote local and regional public transit service in Yuba City.

5.3-I-2 Work with Yuba-Sutter Transit to situate transit stops and hubs at locations that are convenient for transit users, and promote increased transit ridership through the provision of shelters, benches, and other amenities.

5.3-I-3 Coordinate with Caltrans and Yuba-Sutter Transit to identify and implement Park & Ride sites with convenient access to public transit.

5.3-I-4 Require new development to provide transit improvements, where needed. This includes:

- Direct pedestrian access to transit stops;
- Bus turnouts and shelters; and
- Lane width to accommodate buses.

5.3-I-5 Ensure that new development is designed to make transit a viable choice for residents. Design options include:

- Have Neighborhood focal points with sheltered bus stops;

5 Feather River Air Quality Management District, Staff Report, Proposed Rule Amendment: Regulation IV Rule 4.3 Exemptions From Permit, <www.fraqmd.org/Rules/Rule4-3_staffreport(draft).pdf>, Accessed August 31, 2007.

- Locate medium-high density development whenever feasible near streets served by transit; and
- Link neighborhoods to bus stops by continuous sidewalks or pedestrian paths.

5.3-I-6 Require community care facilities and senior housing projects with more than 25 units to provide accessible transportation services for the convenience of residents.

Provision of transportation services at large facilities will reduce demand on the Dial-A-Ride and fixed-route transit systems.

5.4 Bicycle and Pedestrian Circulation

Guiding Policy

5.4-G-1 Develop a system of sidewalks and bikeways that promote safe walking and bicycle riding for transportation and recreation.

Implementing Policies

5.4-I-1 Establish a network of on- and off-roadway bicycle routes and encourage their use for commute, recreational, and other trips. Design bike routes with the safety of cyclists as a priority.

5.4-I-2 Develop bicycle routes that provide access to schools, parks, and the Feather River Parkway.

5.4-I-3 Require bicycle parking, storage, and other support facilities as part of new office and retail developments, and public facilities.

5.4-I-4 Provide bicycle lanes with a minimum width of five feet (six feet along all parkways) on new streets and existing streets whenever they are widened to more than two travel lanes.

5.4-I-5 Plan for reuse of abandoned rail rights-of-way, and seek to acquire suitable rights-of-way for separate bicycle paths, as they become available.

State and Federal funding for "rails-to-trails" programs can help the City implement this policy. An example of how a bikeway and road can be developed along the abandoned railroad is shown in Figure 5-3.

5.4-I-6 Work with Sutter County and other agencies to update the Yuba-Sutter Bikeway Master Plan, implement a regional bikeway system and, maintain a regularly updated map of local and regional bikeways.

5.4-I-7 Increase bicycle safety by:

- Sweeping and repairing bicycle lanes and paths on a regular basis;
- Ensuring that bikeways are delineated and signed in accordance with Caltrans' standards, and lighting is provided, where needed;
- Providing bicycle paths or lanes on bridges and overpasses;
- Ensuring that all new and improved streets have bicycle-safe drainage grates and are free of hazards such as uneven pavement and gravel;
- Provide adequate signage and markings warning vehicular traffic of the existence of merging or crossing bicycle traffic where bike routes and paths make transitions into or across roadways; and
- Work with the Yuba City Unified School District to promote classes on bicycle safety in the schools.

5.4-I-8 Give bikes equal treatment in terms of provisions for safety and comfort on arterials and collectors as motor vehicles.

5.4-I-9 Develop a series of continuous walkways within new office parks, commercial districts, and residential neighborhoods so they connect to one another.

5.4-I-10 Provide for pedestrian-friendly zones in conjunction with the development, redevelopment, and design of mixed-use neighborhood core areas, the Downtown area, schools, parks, and other high use areas by:

- Providing intersection "bump outs" to reduce walking distances across streets in the Downtown and other high use areas;
- Providing pedestrian facilities at all signalized intersections**;**
- Providing landscaping that encourages pedestrian use; and
- Constructing adequately lit and safe access through subdivision sites.

5.4-I-11 Establish specific standards for pedestrian facilities to be accessible to physically disabled persons, and ensure that roadway improvement projects address mobility or accessibility for bicyclists or pedestrians.

8.6 Air Quality

Guiding Policies

8.6-G-1 Protect Yuba City's air quality.

8.6-G-2 Make air quality a priority in land use planning by introducing concepts that reduce vehicle trips.

Implementing Policies

8.6-I-1 Cooperate with other local, regional, and State agencies to achieve and maintain air quality standards.

8.6-I-2 Work with the Feather River Air Quality Management District to implement the regional Air Quality Management Plan.

8.6-I-3 Require the use of trees and plants in urban and street designs to reduce air pollutant levels.

8.6-I-4 Provide information to encourage the use of transportation modes that minimize motor vehicle use and resulting contaminant emissions.

Reducing the reliance on automobiles will minimize air pollution in the Planning Area.

8.6-I-5 Evaluate new commercial and industrial development for potential handling, storage, and transport of hazardous materials to minimize public exposure to toxic air contaminants.

The City can establish proper buffer zones between stationary sources of TACs and sensitive receptors such as residential areas.

8.6-I-6 Require applicants whose development would result in construction-related fugitive dust emissions to control such emissions as follows:

- During clearing, grading, earth-moving, or excavation operations, fugitive dust emissions shall be controlled by regular watering, paving of construction roads, or other dust-preventive measures.

- All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering, with complete coverage, shall occur at least twice daily, preferably in the late morning and after work is done for the day.
- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 20 mph averaged over 1 hour.
- All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- The area disturbed by demolition, clearing, grading, earth-moving, or excavation operations shall be minimized at all times.
- Portions of the construction site to remain inactive longer than a period of 3 months shall be seeded and watered until grass cover is grown.
- All on-site roads shall be paved as soon as feasible or watered periodically or chemically stabilized.

Particulate emissions are often the result of construction activities. These provisions should also be implemented outside and adjacent to the urban growth area through a Memorandum of Understanding with the County.

8.6-I-7 Require applicants whose development would result in construction-related exhaust emissions to minimize such emissions by maintaining equipment engines in good condition and in proper tune according to manufacturer's specifications and during smog season (May through October) by not allowing construction equipment to be left idling for long periods.

8.6-I-8 Require applicants whose development would result in potential carbon monoxide (CO) "hot spot" impacts to consult with the City to ensure that schools, hospitals, or day care facilities are not located near such "hot spots".

8.6-I-9 Require all new wood-burning stoves and fireplaces to comply with EPA standards and prepare homeowner information handouts outlining low-emission alternatives to woodburning fireplaces.

Fireplaces are a growing source of localized air pollution. Wood smoke released from fireplaces and wood stoves contains carbon monoxide, nitrogen dioxide, volatile organic compounds, and inhalable particulate matter (PM10). Wood burning should be encouraged only in stoves and fireplaces designed to minimize air pollutants. Pollution can be reduced by installing gas fireplaces or EPA certified wood heaters, and by operating existing fireplaces and wood stoves more efficiently. Pacific Gas & Electric and the Hearth Products Association have offered incentives in the past in the form of cash rebates to encourage replacement of old wood-burning appliances with more efficient fireplaces and stoves. These incentives are determined annually and are not necessarily offered each year.

IMPACTS AND MITIGATION MEASURES

Methods of Analysis

The analysis focuses on the nature and magnitude of the change in air quality due to construction and operation of the proposed project. Air pollutant emissions associated with the proposed project would result from construction activities, increased residential population, and increased traffic

volumes. The net increase in emissions generated by these activities and other secondary sources have been estimated and compared to thresholds of significance recommended by the FRAQMD.

The FRAQMD guidance for CEQA analysis, called the *FRAQMD Indirect Source Review Guidelines*, was adopted in July 1998 by the FRAQMD Board of Directors. The document is designed to assist lead agencies in evaluating impacts to air quality from their proposed projects and recommends methods for use by lead agencies when making a determination of significance. The Guidelines establishes thresholds against which to measure air emissions from the proposed project. Projects that would trigger the thresholds in these Guidelines are those which would generate 25 pounds per day of ROG or NO_X, or 80 pounds per day of PM_{10}, or greater. See Table 4.3-5 for FRAQMD's significance thresholds.

TABLE 4.3-5

FRAQMD CEQA SIGNIFICANCE THRESHOLDS (MASS EMISSION, POUNDS PER DAY)

	Ozone Precursor Emissions		Respirable Particulate Matter Emissions
Project Type	**NO_X**	**ROG**	**PM_{10}**
All	25	25	80

Source: Feather River Air Quality Management District, FRAQMD CEQA Significance Thresholds, <www.fraqmd.org/CEQA_Thresholds.htm>, Accessed January 15, 2008.

Construction Impacts

The demolition, clearing, grading, and construction activities associated with the proposed project would generate emissions of criteria air pollutants. Construction of the 1,160-acre project site would occur over the course of 10 to 20 years in seven phases. Because specific information about construction equipment is not available at this time, the analysis used the construction equipment defaults assumed in the URBEMIS 2007 emissions model, version 9.2.4. The number of construction vehicles calculated in URBEMIS 2007 is based on land use data provided by the project applicant. Please refer to Appendix C for the URBEMIS modeling data.

Operational Emissions

Operational emissions refer to the emissions that are generated by the normal day-to-day activity of the project. These activities include the heating and cooling of buildings, landscape maintenance, emissions from increased traffic, and the use of consumer products by residents and employees.

Average emission factors for operational emissions of criteria pollutants are estimated by using emission factors in the URBEMIS 2007 emissions model, version 9.2.4. These emission factors are based on CARB's EMFAC2007 model. Mobile source emissions are largely driven by the daily trip generation rates calculated in the traffic study (see Section 4.12, Transportation and Circulation) that was conducted for the proposed project. The analysis assumed that 75 percent of the residential development would use natural gas fireplaces, while the remaining 25 percent of residential

development would not have any hearth option. Please refer to Appendix C for URBEMIS modeling data.

Localized CO Concentrations

The CALINE4 dispersion model for predicting CO concentrations is the preferred method of estimating pollutant concentrations at sensitive receptors near congested roadways and intersections. For each intersection analyzed, CALINE4 adds roadway-specific CO emissions calculated from peak-hour turning volumes to the existing ambient CO air concentrations. For this analysis, CO concentrations were calculated based on a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District. The simplified model is intended as a screening analysis in order to identify a potential CO hotspot. This methodology assumes worst-case conditions and provides a screening of maximum, worst-case CO concentrations.

CO concentration levels are highest near crowded or congested intersections where traffic is slow or idling. The proposed project would increase traffic volumes on surrounding roadways, possibly degrading the existing level of service (LOS) and increasing CO concentrations at nearby intersections. Normally, barring other environmental considerations, CO concentrations should be carefully analyzed at intersections classified as LOS "D" or worse, which is usually considered to be "unacceptable" for traffic circulation.

The closest monitoring station to the project site is the Yuba City – Almond Street station located in Yuba City. This station collects CO data for the 8-hour standard, but not the 1-hour standard. Consequently, monitoring data can be used to determine an 8-hour CO background value. To ensure an adequate margin of safety, the highest 8-hour CO reading for the years 2004 through 2006 from the Yuba City – Almond Street station was used as the eight-hour background concentration (3.39 parts per million – refer to Table 4.3-3).

Lincoln East Specific Plan

The following policies from the *Draft* Lincoln East Specific Plan (March 2009) are applicable to air quality emission reductions for the proposed project:

3.2 Land Use

Objectives

3. Locate commercial centers, community buildings, parks and recreation areas, and schools within walking distances for residents within the Plan Area.

6 Provide adequate recreational facilities that are centrally located within neighborhoods and are linked throughout the Plan Area to promote pedestrian and bicycle usage.

3.3.5 Residential Land Use

Policies

9. Low-Medium and Medium-High designated residential areas should be located near parks, schools, and commercial centers.

11. Provide for pedestrian oriented development within all residential land use designations through the use of sidewalks, multi-use trails, residential unit design and orientation, and location of recreational amenities.

3.4 Commercial Land Use

Policies

3. Ensure connectivity between commercial and residential areas through the use of sidewalks, pathways, and bicycle routes.

6. High Density Residential may be incorporated into the community commercial site consistent with the Yuba City General Plan. Any such plans shall be reviewed by the City and approved through a Planned Development Review.

3.5.4 Park & Public Facilities

Policies

2. Park and school sites shall be designed to encourage pedestrian and bicycle access from surrounding residential uses.

4.3 Affordable Housing

Objectives

5. Encourage the use of energy efficient materials and technology in new residential unit construction to reduce ongoing utility costs.

Policies

11. Incorporate energy conservation measures as an integral part of new affordable housing construction including, but not limited to, the use of high performance windows, proper installation of insulation, high efficiency heating and air conditioning systems, and energy star compliant appliances, light fixtures, etc.

5.1 Circulation

Goal: To create a safe and efficient circulation system that promotes a variety of transportation modes including: automobile, bicycle, and pedestrian, with an emphasis on establishing an attractive, walkable community.

Objectives

3. Establish a network for alternative modes of transportation, including walking and bicycling.

4. Provide transit locations within the Plan Area, in accordance with the Yuba-Sutter Transit Agency Bus Stop Standards, Policies and Procedures.

Policies

7. Provide circulation that promotes pedestrian and alternative modes of transportation.

8. Provide pedestrian circulation access from residential neighborhoods to neighborhood amenities such as parks and schools within the Plan Area.

10. Cul-de-sacs within the Plan Area are shall be day-lighted, where possible, to provide pedestrian and bicycle access. Daylight openings in sound attenuation walls shall not occur less than 400 feet apart.

13. Dedicated bicycle lanes shall be provided within parkways, arterials and collectors.

14. Class II bicycle lanes shall be designated on all parkways, arterials, and collectors, as depicted in street section Figures 5-3 through 5-9 [in the Lincoln East Specific Plan] , unless otherwise designated as Class I Bicycle Path or multi-use trail.

6.3 Parks and Recreation

Objectives

1. Provide adequate recreational facilities that are centrally located and linked throughout the Plan Area to encourage walking and bicycling activity.

2. Establish a network of trails and paths to promote pedestrian and bicycle circulation.

7.1.1 Resource Management

Objectives

3. Promote pedestrian and other non-motorized modes of transportation to reduce vehicle emissions associated with residential and commercial development.

4. Reduce the amount of paved surfaces by including planting strips and other non-paved surfaces to reduce heat islands and stormwater runoff.

7.6 Air Quality

Policies

1. Residential development shall provide an interconnected street network that allows alternative routes for pedestrian, bicyclists, and motorists to reduce vehicle emissions associated with development.

2. A combination of trees, shrubs, and ground cover shall be incorporated into landscaping plans.

3. The Yuba-Sutter Transit Authority shall review fixed-service transit lines within the Plan Area for the implementation of expanded service to the Plan Area.

4. Yuba City and the Yuba-Sutter Transit Authority should work closely to locate an additional commuter Park-and-Ride facility near the Plan Area.

5. Dust emissions resulting from construction shall be controlled using the following standards as a part of conditions of approval for any project within the Plan Area:

    - Dust emissions resulting from clearing, grading, earth-moving, or excavation operations shall be controlled by regular watering, paving of construction roads, or other such dust-preventive measures.
    - All excavated or graded material shall be sufficiently watered. Watering, with complete coverage, shall occur at least twice daily, preferably in the late morning and after work is done for the day.
    - All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 20 mph averaged over 1 hour.
    - All material transported off-site shall be sufficiently watered or securely covered to reduce dust.
    - The area disturbed by demolition, clearing, grading, earth-moving, or excavation operations shall be minimized at all times.
    - Areas under construction to remain inactive longer than a period of 3 months shall be seeded and watered until grass cover is grown.

- All on-site roads shall be paved as soon as feasible or watered periodically or chemically stabilized.

7.7 Energy Conservation

Policies

1. The use of Photovoltaic (PV or solar) panels is encouraged for all new residential development within the Plan Area.
2. 15% of all residential units constructed in each subdivision should be "Energy Star Homes" as defined by the Environmental Protection Agency (EPA) and certified by a qualified independent Home Energy Rater.
3. The use of energy efficient street lighting shall be used throughout the Plan Area.
4. To reduce heat islands street trees shall be planted.

Standards of Significance

For the purposes of this EIR, impacts on air quality would be considered significant if the proposed project would:

- Result in construction or operational emissions that would exceed the following thresholds established by the FRAQMD:
  - ROG: 25 lb/day
  - NO_x: 25 lb/day
  - PM_{10}: 80 lb/day;
- Expose sensitive receptors to substantial pollutant concentrations;
- Expose receptors to a substantial toxic air contaminants health risk;
- Result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is non-attainment; or
- Result in a cumulatively considerable toxic air contaminants health risk level.

Project-Specific Impacts and Mitigation Measures

4.3-1 Construction activities would generate PM_{10} emissions that could exceed the air district thresholds.

Prior to building construction, the building site(s) would have to be graded and prepared for development. Grading activities would involve site clearing and leveling the land using heavy equipment such as scrapers, bulldozers, and backhoes. Particulate matter (e.g. fugitive dust, $PM_{10,}$ or $PM_{2.5}$) is generated during this process as the ground is disturbed. The total amount of particulate matter generated is normally determined by the size of the graded area. The larger the area, the more particulate matter is created. Because construction equipment for the proposed project is unknown at this time, construction equipment defaults contained in the URBEMIS 2007 model were used for the construction analysis. Please refer to Appendix C for the modeling data.

Table 4.3-6 shows the construction emissions modeled for the proposed project over a 10 year construction period. FRAQMD has a threshold for PM_{10} of 80 pounds per day. Based on the URBEMIS 2007 modeling results, the proposed project would not result in construction emissions that would exceed the FRAQMD's threshold. The highest PM_{10} emissions per day would be less than 15 pounds per day.

TABLE 4.3-6

CONSTRUCTION EMISSIONS IN PEAK POUNDS PER DAY

Construction Year	ROG	NO_x	PM_{10}	$PM_{2.5}$
Year 2010	70.13	246.71	15.20	10.32
Year 2011	64.20	224.34	14.62	9.78
Year 2012	58.54	202.65	13.99	9.20
Year 2013	52.97	181.83	13.39	8.65
Year 2014	47.80	162.25	12.70	8.01
Year 2015	43.03	144.02	12.25	7.60
Year 2016	38.63	128.07	11.67	7.06
Year 2017	34.56	114.02	11.29	6.73
Year 2018	31.05	101.76	10.98	6.45
Year 2019	27.94	91.08	10.68	6.19
Year 2020	24.80	81.70	10.46	5.98

Source: PBS&J, 2008. Calculation sheets are provided in Appendix C.

In addition to not being over the FRAQMD threshold, the LESP contains Air Quality Policy 6 which includes several dust (PM_{10}) emission controls that would be applied during construction of the proposed project listed below:

- Dust emissions resulting from clearing, grading, earth-moving, or excavation operations shall be controlled by regular watering, paving of construction roads, or other such dust-preventive measures.
- All excavated or graded material shall be sufficiently watered. Watering, with complete coverage, shall occur at least twice daily, preferably in the late morning and after work is done for the day.
- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 20 mph averaged over 1 hour.
- All material transported off-site shall be sufficiently watered or securely covered to reduce dust.
- The area disturbed by demolition, clearing, grading, earth-moving, or excavation operations shall be minimized at all times.
- Areas under construction to remain inactive longer than a period of 3 months shall be seeded and watered until grass cover is grown.
- All on-site roads shall be paved as soon as feasible or watered periodically or chemically stabilized.

Because it is anticipated that the proposed project would be built out over a 10 to 20 year period, the amount of acres to be graded each day would be minimized. The fewer acres that are graded in a day equates to fewer emissions of PM_{10}. Because the proposed project would not exceed FRAQMD's threshold for PM_{10} emissions, and because the project would include the above dust (PM_{10}) emission controls during project construction, this is considered a *less-than-significant impact.*

Mitigation Measure

Although mitigation measures are not required to minimize PM_{10} emissions, the following recommendations could be included in project construction contracts to further reduce emissions. These recommendations are suggested by the FRAQMD. With or without the following recommendations, the proposed project would result in a ***less-than-significant impact.***

4.3-1 (a) *Non-toxic soil stabilizers shall be applied to all inactive construction areas, according to manufacturer's specifications.*

(b) *Prior to final occupancy, the project applicant or contractor shall re-establish ground cover on the construction site through seeding and watering.*

(c) *During project construction, paved streets shall be swept (water sweeper with reclaimed water recommended) at the end of each day if substantial volumes of soil material have been carried onto adjacent paved, public roads from the project site.*

(d) *During project construction,* w*heel washers shall be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed prior to each trip.*

4.3-2 Construction activities would generate ROG and NO_X emissions from construction equipment that could exceed the air district thresholds.

Construction activities associated with the proposed project would emit ozone precursors, ROG and NO_X, associated with construction equipment. Because the type of construction equipment for the proposed project is unknown at this time, construction equipment defaults contained in the URBEMIS 2007 (version 9.2.4) model were used to analyze construction activities. Please refer to Appendix C for the modeling data.

ROG and NO_x emissions, as shown in Table 4.3-6, would vary by construction phase and would cease once construction is complete. Modeling indicates that construction equipment ROG and NO_x emissions would exceed the FRAQMD's threshold of 25 pounds per day during a majority of the construction stages. Construction impacts would be temporary; however, since the URBEMIS model indicates that ROG and NO_x emissions associated with construction activities would exceed the 25 pounds per day threshold of significance, this would be considered a *significant impact.*

Mitigation Measures

The following mitigation measures would reduce the amount of ROG and NO_x generated during construction activities; however, these mitigation measures would not reduce the emissions to a level that is less than the FRAQMD's threshold of 25 pounds per day. Therefore, this impact would remain ***significant and unavoidable.***

4.3-2 *To reduce exhaust emissions during construction, all construction contracts shall include the following heavy-duty off-road equipment requirements to reduce ROG and NO_x emissions:*

(a) *The prime contractor shall submit to the FRAQMD for approval, an Off-road Construction Equipment Emission Reduction Plan prior to groundbreaking demonstrating that heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, and operated by either the prime contractor or by any subcontractor, shall achieve a fleet-averaged 20 percent NO_x reduction and a 45 percent particulate reduction compared to the most recent CARB fleet average; and*

(b) *The prime contractor shall ensure that emissions from all off-road diesel powered equipment on the project site do not exceed 40 percent opacity, pursuant to EPA Method 9 for reading visible emissions, for more than three minutes in any one hour. Any equipment found to exceed the 40 percent opacity shall be repaired immediately, and the FRAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The FRAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this measure shall supersede other FRAQMD regulations.*

4.3-3 Operational emissions associated with the proposed project could exceed the air district thresholds.

Implementation of the proposed project would generate an increase in criteria pollutants associated with operation of new residential, commercial, public, and recreational uses. ROG, NO_x, and PM_{10} are the primary criteria pollutants of concern in Sutter County because the county is currently in nonattainment of the federal and state ozone standards and the state particulate matter standards. The FRAQMD has developed thresholds of significance for these pollutants. Please refer to Table 4.3-5.

Emissions associated with project operation would be created by the proposed project in two ways: (1) through the use of stationary equipment to operate facilities (i.e., water heaters and boilers), and (2) through an increase in traffic generated by the project. Area source emissions, which are associated with operation of residential units, would be generated by fuel combustion in woodstoves,

fireplaces, consumer products, and the use of landscaping equipment. Woodstoves and fireplaces contribute to the degradation of air quality during winter months, which is approximately four months of the year, while gas operated landscaping equipment contributes to the degradation of air quality during the summer months. In contrast, mobile source emissions are generated year round. FRAQMD Rule 3.17, requires that only EPA certified Phase II wood burning stoves be installed in new homes and Rule 7.10 lists fees for various land uses to mitigate for indirect (i.e., mobile) air pollutants would apply to operation of the proposed project. For example, an applicant for a building permit would pay the following fees:

- For each residential unit - $15.00
- For each commercial unit - $0.06 per square foot
- For each industrial unit - $0.04 per square foot

The LESP includes a number of policies designed to integrate land use planning with less dependence on the automobile. For example, the LESP includes policies that locate park and commercial uses in close proximity to residential to promote walking and bicycling. In addition, parks are centrally located within the various neighborhoods to encourage walking as well as bicycling. The use of energy efficient building materials is encouraged as well as an emphasis on planting trees along sidewalks to create shady areas to encourage people to walk throughout the plan area. All of these policies are designed to minimize dependence on the automobile to help off-set the contribution of mobile emissions.

A policy is included in the Specific Plan that requires installation of energy-efficient street lights, which would reduce emissions associated with project operations, but this was not included in the modeling assumptions. Peak daily emissions associated with the proposed project were calculated using the URBEMIS 2007 (Version 9.2.4) model. Results of this modeling are shown in Table 4.3-7. An additional analysis was completed assuming that 75 percent of the residential development would use natural gas fireplaces, while the remaining 25 percent of residential development would not have any hearth option. While the assumption for natural gas fireplaces results in a significant decrease in emissions as compared to development with a fireplace option, peak daily emissions of ROG, NO_x, and PM_{10} would still exceed FRAQMD thresholds of significance for all three pollutants resulting in a *significant impact.*

Mitigation Measures

Implementation of the following mitigation measures and compliance with Rules 3.17 and 7.10 as well as the LESP policies would slightly reduce operational emissions by promoting alternative forms of transportation such as walking and biking instead of relying solely on the automobile and by increasing the energy efficiency of buildings beyond Title 24 requirements. However, even with implementation of these mitigation measures, operational emissions would still exceed the FRAQMD's threshold of 25 pounds per day for ROG, NO_X, and PM_{10}. Therefore, this impact would remain ***significant and unavoidable.***

TABLE 4.3-7

PROPOSED PROJECT DAILY OPERATIONAL EMISSIONS

Emissions Source	Emissions in Pounds per Day		
	ROG	**NO_X**	**PM_{10}**
Natural Gas	6.57	86.99	0.16
Hearth	938.36	110.96	793.62
Landscape Maintenance	29.25	1.91	0.45
Consumer Products	238.06	-	-
Architectural Coatings	80.03	-	-
Motor Vehicles	331.39	424.89	968.40
Maximum Daily Emissions	**1,623.66**	**624.75**	**1,762.63**
FRAQMD Thresholds (lb/day)	25	25	80
Significant Impact	**Yes**	**Yes**	**Yes**
With Reduced Hearth Emissions:			
75% Natural Gas Hearth, 25% No Hearth	1.51	25.84	2.09
Maximum Daily Emissions	**686.81**	**539.63**	**971.10**
Significant Impact	**Yes**	**Yes**	**Yes**

Source: PBS&J, 2008. Calculation sheets are provided in Appendix C.

4.3-3 *The project applicant shall implement mitigation measures listed below to the extent deemed appropriate and feasible by the applicant and the Yuba City Community Development Department:*

For all new development:

(a) *Provide for the use of energy-efficient lighting and process systems such as, low-NO_x water heaters, furnaces, and boiler units.*

(b) *All newly installed wood burning devices shall be EPA Phase II certified.*

(c) *Large residential and commercial projects shall include bus shelters at transit access points where deemed appropriate by Yuba-Sutter Transit Authority.*

For new residential development:

(d) *All residential structures shall include electric outlets in the front and rear of the structure to facilitate use of electrical lawn and garden equipment.*

(e) *The applicant shall contribute their fair share to dedication of land for off-site bicycle trails linking the project to designated bicycle commuting routes in accordance with the regional Bikeway Master Plan.*

(f) *The project shall contribute their fair share to the provision of synchronized traffic signals on roadways impacted by the project, as deemed necessary by the Public Works Department.*

(g) *The project shall provide transit amenities e.g., bus turnouts, passenger benches, and shelters as demand and service routes warrant subject to review and approval by local transportation planning agencies.*

(h) *The project shall install solar water heaters for at least 25 percent of the residential units.*

(i) *The project applicant shall use available emissions offset credits.*

For new commercial development:

(j) *For all new commercial/retail development with more than 50 employees, the project applicant shall prepare a Transportation Systems Management Plan (TSMP) which shall include the following requirements, but is not limited to:*

- *Provide preferential parking spaces for carpools and vanpools for commercial developments.*
- *Incorporate transit-use incentives such as subsidized transit passes and flexible work schedules to encourage transit use and trip reduction.*
- *Use of clean fuel vehicles in vehicle fleet.*
- *Provide onsite shower/locker facilities for bicycling and pedestrian commuters.*
- *Provide ancillary services within walking distance of the project (no further than 1,500 feet) such as cafeterias, health clubs, automatic tellers, post office etc., as appropriate and in compliance with local development regulations.*
- *Feature alternative work schedules, where practical, that allow for work hours that are compressed into fewer than five days (e.g., 9/80; 4/40; or 3/36 hour schedules); or allow Flextime schedules.*
- *Install solar water heaters for at least 25 percent of the building floor area.*

4.3-4 Future residents within the plan area could be exposed to toxic air contaminants from diesel trucks and school buses operating in the plan area.

Various sources of toxic air contaminants (TACs) within the project area include emissions from stationary sources as well as those from mobile sources. TACs have historically been associated with point sources or area sources. When a stationary source or area source generates TACs, the FRAQMD evaluates the emissions, and if necessary, requires the installation of Best Available Control Technology (BACT) to reduce the emissions to an acceptable risk threshold. According to the land use plan for the proposed project, it is not anticipated that the project would develop any land uses that would emit TACs from a stationary source. In addition, the proposed project would not place new residents or other sensitive land uses close to an existing stationary source of TAC. Thus, emissions of TAC from a stationary source would not expose residents of the plan area to a substantial health risk.

Vehicle traffic on major roadways is a source of Diesel Particulate Matter (DPM), which the CARB has listed as a toxic air contaminant. State Route 99 (SR 99) is located east of the project site and State Route 20 (SR 20) is located north of the project site.

The CARB has offered guidance on siting sensitive land uses (i.e., residential homes, schools, day care facilities, parks, and hospitals) in proximity to sources of air toxics.[6] The CARB's guidance recommends that sensitive land uses should be located at least 500 feet from a freeway or other heavily traveled roadway. SR 99 is located approximately 5,000 feet east of the project site. In addition, SR 20 is located approximately 5,250 feet north of the project site. Because the proposed project would be located over 500 feet from a heavily traveled roadway as recommended by the CARB, the proposed project would not expose residents of the plan area to a substantial health risk from mobile sources of DPM.

Although the proposed project would not be exposed to a substantial TAC health risk from mobile sources, future residents located within the proposed project and those residents located adjacent to the project site would be exposed to some amount of TACs from diesel-powered vehicles delivering merchandise to commercial and retail uses. Existing and future residents, as well as employees in commercial buildings, could be exposed to TAC levels in areas where diesel powered vehicles deliver and load merchandise. In addition, idling school buses are also a source of TAC from diesel particulate emissions. This is considered a *potentially significant impact.*

Mitigation Measure

Implementation of the following mitigation measure would reduce any TAC risk that might occur due to diesel trucks or school buses idling in loading areas. Because there would be no stationary source of TAC within the project site or in proximity of the project site, and because the project is located farther than 500 feet from a heavily traveled roadway, this impact would be reduced to a ***less-than-significant level***.

4.3-4 *All diesel trucks delivering merchandise to commercial uses and all school buses dropping students off at schools within the Lincoln East Specific Plan shall minimize idling time to 15 minutes or less. Signs shall be posted at high visibility points around the facility where delivery trucks congregate (e.g, loading docks) or around schools at designated student drop-off areas.*

4.3-5 The proposed project would increase traffic volumes that could contribute to excessive CO concentrations near roadways and intersections.

While motor vehicles emit ozone precursors ROG and NO_x, they also generate CO, which is a directly emitted pollutant. CO levels are highest at intersections where there is congestion and traffic is slow. The proposed project would add traffic to existing roadways and to new roadway intersections proposed as part of the proposed project. To the extent that increases in traffic volumes lower the level of service (LOS), busy intersections could experience higher concentrations of CO. LOS "D" or worse results in conditions where traffic is no longer "free flow." The traffic section (see Section 4.12, Transportation and Circulation) identifies eight intersections where LOS would be D, E, or F under Existing No Project conditions during a.m. or p.m. peak hours. The traffic

6 California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective*, April 2005.

section also identifies 18 intersections where the LOS would be D, E, or F under Existing plus Project conditions during a.m. or p.m. peak hours under project build-out conditions. All other roadway intersections, due to lesser congestion and traffic, are expected to generate lower CO concentrations that would not exceed the federal or state 8-hour standard of 9 parts per million. CO modeling results for existing no project conditions compared to existing plus project conditions can be found in Table 4.3-8.

TABLE 4.3-8

MOTOR VEHICLE EIGHT-HOUR AVERAGE CARBON MONOXIDE CONCENTRATIONS (ppm)[1]

Intersection	Existing (2007)	Existing + Project (2015)
State Route 20 / George Washington Blvd.	LOS <D[2]	3.9
State Route 20 / El Margarita Rd.	3.8	4.0
State Route 20 / Walton Ave.	4.0	4.1
State Route 20 / State Route 99	4.2	4.4
Bridge St. / State Route 99	LOS <D	4.4
Franklin Rd. / State Route 99	4.0	4.3
Richland Rd. / State Route 99	LOS <D	4.2
Lincoln Rd. / State Route 99	4.0	4.2
Bogue Rd. / State Route 99	LOS <D	4.0
Bridge St. / Walton Ave.	LOS <D	4.0
Franklin Rd. / George Washington Blvd.	LOS <D	3.7
Franklin Rd. / El Margarita Rd.	3.7	3.8
Franklin Rd. / Harding Rd.	3.6	3.9
Lincoln Rd. / Sanborn Rd.	LOS <D	3.8
Bogue Rd. / Sanborn Rd.	LOS <D	3.7
Franklin Rd. / Walton Ave.	3.9	4.1
Lincoln Rd. / Walton Ave.	LOS <D	3.9
Bogue Rd. / Walton Ave.	LOS <D	3.8

Notes:
1. CO concentrations were calculated using a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District.
2. LOS <D = The Level of Service at intersections under Existing Conditions were LOS A, B, or C. Thus, it was assumed that the CO concentration under Existing Conditions would be less than the CO concentration under Existing + Project Conditions.

Source: PBS&J, 2008.

As shown in Table 4.3-8, the modeling indicates that 8-hour CO concentrations would not exceed the NAAQS or CAAQS under Existing plus Project conditions. This would be considered a ***less-than-significant impact***.

Mitigation Measure

None required.

Cumulative Impacts and Mitigation Measures

The cumulative context of an air pollutant is dependent on the specific pollutant being considered. Ozone precursors (ROG and NO_x) are regional pollutants; therefore, the cumulative context would be existing and future development within the entire SVAB. This means that ozone precursors

generated in one location do not necessarily have ozone impacts in that area. Instead, precursors from across the region can combine in the upper atmosphere and be transported by winds to various portions of the air basin. Consequently, all ozone precursors generated throughout the air basin are part of the cumulative context.

For localized pollutants such as PM_{10} and CO, the cumulative context would include existing and proposed future development in the immediate vicinity of the proposed project. The localized nature of PM_{10} means that emissions generated by project-related activity would only affect the area in, and directly around, the project site. Consequently, only PM_{10} emissions from non-project sources near the project site could conceivably combine with project emitted emissions and create a cumulative impact.

For CO, which is the product of fuel combustion, the cumulative context would be all existing and future traffic on local roads in the vicinity of the project site. The existing and future traffic would include all the development currently contributing to traffic volumes on the local roads analyzed in the traffic study, as well as all reasonable foreseeable future development, including the proposed project, that would contribute to traffic volumes on the local roads analyzed in the traffic study. The traffic is accounted for in the traffic study and CO modeling at intersections uses the cumulative numbers in the traffic study.

4.3-6 Construction of the proposed project, combined with other development in the vicinity of the project site, could increase cumulative levels of PM_{10}.

As specified in Impact 4.3-1, significant levels of particulate matter could be generated during project excavation, grading, and other construction activities. These PM_{10} emissions, when combined with other construction projects in the vicinity of the project could be considerable. However, at this time there are no development projects proposed in the vicinity of the project site that would be large enough to generate significant amounts of PM_{10}. The proposed project is one of the largest development projects in this area of the city. However, because the proposed project would be constructed over a period of 10 to 20 years, modeling results indicate that the FRAQMD's PM_{10} threshold would not be exceeded. Therefore, the project's contribution would not be considerable resulting in a *less-than-significant cumulative impact.*

Mitigation Measure

Although mitigation measures are not required to minimize PM_{10} emissions, the following recommendations could be included in project construction contracts to further reduce emissions. With or without the following recommendations, the proposed project's contribution to the cumulative impact would remain ***less than significant.***

4.3-6 *Implement Mitigation Measure 4.3-1.*

4.3-7 Construction of the proposed project, combined with other development in SVAB, could increase cumulative levels of ROG and NO_x.

On-going construction activities that occur simultaneously with project construction throughout the SVAB would contribute emissions of ozone precursors (ROG and NO_x). While those emissions would be temporary, combined they would exceed the FRAQMD thresholds. As shown in Table 4.3-6, the proposed project would contribute emissions of ozone precursors that would exceed FRAQMD thresholds. Because the project's contribution to the cumulative impact is considerable, this would result in *significant cumulative impact*.

Mitigation Measure

Implementation of Mitigation Measures 4.3-2 (a) and (b) would result in a reduction of project NO_x construction emissions. However, these mitigation measures would not reduce the emissions to a level that is less than the FRAQMD's threshold of 25 pounds per day. Therefore, this cumulative impact would remain ***significant and unavoidable*.**

4.3-7 *Implement Mitigation Measures 4.3-2 (a) and (b).*

4.3-8 Operational emissions from the proposed project, combined with other operational emissions from on-going development in the SVAB, could exceed air district thresholds.

As discussed above, the SVAB is currently in non-attainment for ozone and PM_{10}. As future growth occurs in the basin, vehicle use and other activities would increase the amount of ozone precursors and PM_{10} generated. Increases in air pollutants would further degrade air quality and make attainment of the AQMP more difficult. The proposed project would contribute to the cumulative degradation in air quality by generating vehicle trips and developing uses that rely on heating and cooling and other activities that require energy.

As discussed in Impact 4.3-3, operation of the proposed project would generate emissions that exceed the FRAQMD thresholds and would remain significant and unavoidable even with implementation of mitigation. Development of the proposed project, in combination with other development in the region, would result in the generation of additional ozone and PM_{10} pollutants within the air basin. This would result in a potentially significant cumulative effect.

The Sacramento Valley Ozone Attainment Plan emission estimates are based on future development that would occur consistent with the zoning and land use designations in local General Plans. Because the project is amending the City of Yuba City General Plan, the emissions associated with operation of the Specific Plan are not accounted for in the Sacramento Valley Ozone Attainment Plan. However, the land uses assumed in the proposed project are not necessarily more intense than what was assumed in the Yuba City General Plan; thus, it cannot be assumed that the proposed project would result in greater or fewer operational emissions than under the General Plan land uses. Nevertheless, because the project would contribute to exceeding the FRAQMD's thresholds, this is considered a *potentially significant cumulative impact.*

Mitigation Measure

Implementation of the following mitigation measures would slightly reduce operational emissions of the proposed project. However, even with implementation of these mitigation measures, operational emissions would still exceed the FRAQMD's threshold of 25 pounds per day for ROG, NO_x, and PM_{10}. Therefore, the cumulative impact would remain ***significant and unavoidable.***

4.3-8 *Implement Mitigation Measure 4.3-3 (a) through (j).*

4.3-9 Development of the proposed project in combination with other development in the SVAB could expose sensitive receptors to a cumulative TAC risk.

In 1998 the CARB identified DPM as a TAC. The risk to sensitive receptors associated with exposure to this pollutant depends upon a number of factors, including the wind direction, wind speed, concentration of the DPM, length of exposure, the existing concentration of DPM in the air, and the distance from the source. Yuba City has an existing estimated risk that is between 100 and 500 cancer cases per 1 million people.[7] The highest cancer risk is concentrated in downtown Yuba City, where the density of vehicles that produce DPM is the highest. The farther from the downtown area, the lower the estimated cancer risk.

DPM is unique in that it is generated by mobile sources, which are currently unregulated by all air districts, including the FRAQMD. However, mobile source emissions, including DPM, are regulated by the CARB. The CARB has derived a number of strategies for reducing DPM. These strategies include retro-fitting existing engines by installing diesel particulate filters, using alternative fuels, and stricter emission control standards for all new engines. According to the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, the CARB tentatively proposes implementation of the above strategies between 2002 and 2008. The CARB also published the *Proposed Regulation for the Verification Procedures for the In-Use Strategies to Control Emissions from Diesel Engines.* This plan proposes specific regulations and strategies for reducing the amount of DPM released into the atmosphere. During October 2002, specific strategies and regulations were adopted by the State of California, which will be implemented during the coming years to reduce the amount of DPM generated within the state and to reduce the health risk associated with the exposure to these pollutants. However, a noticeable reduction in the ambient level of DPM emissions would not occur until sometime in the future.

Development of the proposed project, in combination with other development in the SVAB, would result in more TACs being generated within the air basin. Diesel vehicles, including heavy-duty trucks traveling to and from commercial areas and school buses, would be associated with the proposed project and would also generate TACs. The proposed project would be constructed in an area located southwest of the City's current city limits. The existing background cancer risk from air toxics at the project site would not be as high as areas in downtown Yuba City which can be as high as 500 cases per million people. However, cumulative development could significantly increase

7 California Air Resources Board, Cancer Inhalation Risk: Local Trend Maps, Yuba-Sutter: 2001 Cancer Risk Per Million, <http://arb.ca.gov/toxics/cti/hlthrisk /cncrinhl/rskmapvwtrend.htm>, accessed August 29, 2007.

residents' health risk due to increases in diesel-powered vehicles traveling to and from new developments in the City. While the cumulative impact from development would be potentially significant, the proposed project would not add a significant source of DPM which would increase the background cancer risk. As discussed in Impact 4.3-4, the proposed project would not introduce a stationary source of TAC, nor would it introduce land uses (i.e., industrial) that would result in higher traffic volumes of diesel vehicles for operation. The only considerable impact to the cumulative TAC risk would be from diesel-powered vehicles and school buses traveling to and from the proposed commercial uses and schools. Therefore, this is considered a *potentially significant cumulative impact.*

Mitigation Measure

The following mitigation measure would reduce the amount of TAC generated during product deliveries to commercial/retail centers and schools within the LESP, thus reducing the proposed project's contribution to the cumulative impact to a ***less-than-significant level***.

4.3-9 *Implement Mitigation Measure 4.3-4.*

4.3-10 The proposed project, in conjunction with other future development in the project vicinity, could contribute to cumulative CO levels.

For cumulative impacts, project-related CO impacts are evaluated in combination with CO emissions from other existing and future development. The traffic study prepared for the proposed project predicts future (2025) traffic volumes at nearby intersections for Cumulative plus Project conditions. This evaluation also takes into account traffic from other sources that would be in existence at this future date. It should be noted that it is unlikely that future projects would result in long-term future exposure of sensitive receptors to substantial pollutant concentrations, because CO levels are projected to be lower in 2025 due to improvements in vehicle emission rates predicted by the CARB. Maximum CO concentrations were determined by conducting modeling at 23 intersections that would have LOS "D" or below in 2025. Table 4.3-9 shows the expected maximum eight-hour CO concentrations for these intersections in 2025 with buildout of the proposed project, and assumes cumulative traffic in the calculations. As shown on Table 4.3-9, even though the LOS would be further degraded in the future, CO levels under any scenario would not exceed the NAAQS or CAAQS for CO. This would be a ***less-than-significant cumulative impact.***

Mitigation Measure

None required.

TABLE 4.3-9

MOTOR VEHICLE EIGHT-HOUR AVERAGE CUMULATIVE CARBON MONOXIDE CONCENTRATIONS (ppm)[1]

Intersection	Existing (2007)	Cumulative (2025)
State Route 20 / George Washington Blvd.	LOS <D[2]	3.6
State Route 20 / Harter Pkwy.	LOS <D	3.7
State Route 20 / Walton Ave.	1.1	3.7
State Route 20 / State Route 99 (6a)	1.3	3.8
State Route 20 / State Route 99 (6b)	1.3	3.8
Bridge St. / State Route 99	LOS <D	3.7
Franklin Rd. / State Route 99	1.1	3.7
Richland Rd. / State Route 99	LOS <D	3.7
Lincoln Rd. / State Route 99	1.1	3.7
Bogue Rd. / State Route 99	LOS <D	3.6
Bridge St. / Walton Ave.	LOS <D	3.6
Franklin Rd. / Harding Rd.	0.7	3.6
Lincoln Rd. / Sanborn Rd.	LOS <D	3.5
Bogue Rd. / Sanborn Rd.	LOS <D	3.5
Franklin Rd. / Walton Ave.	1.0	3.6
Lincoln Rd. / Walton Ave.	LOS <D	3.6
Bridge St. / Harter Pkwy.	LOS <D	3.6
Bridge St. / George Washington Blvd.	LOS <D	3.5
State Route 20 / Western Pkwy.	LOS <D	3.6
Bridge St. / Tharp Rd.	LOS <D	3.6
Franklin Rd. / Tharp Rd.	LOS <D	3.6
Franklin Rd. / Harter Pkwy.	LOS <D	3.6
Lincoln Rd. / Harter Pkwy.	LOS <D	3.6

Notes:

1. CO concentrations were calculated using a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District and the worst-case CO background levels recommended by the SMAQMD for rural areas of the Sacramento Valley.
2. LOS <D = The Level of Service (LOS) at intersections under Existing Conditions were LOS A, B, or C. Thus, it was assumed that the CO concentration under Existing Conditions would be less than the CO concentration under Existing + Project Conditions; however, Existing Condition CO concentrations would likely be higher than Cumulative Conditions due to improvements in vehicle efficiency standards, but would not be higher than the CO concentrations of the calculated CO emissions under Existing Conditions.

Source: PBS&J, 2008.