4.9 AIR QUALITY

4.9 AIR QUALITY

This section describes the existing air quality and regulations pertaining to maintenance of air quality at and around the project site. The impacts to air quality from the proposed project are assessed to determine exceedances of emission rates. Mitigation measures are provided to reduce the impacts to a level of less than significant, when possible.

SETTING

The project site is located in the northeastern portion of Solano County, which is within the Sacramento Valley Air Basin (Basin). The Basin is located in the northern portion of the Central Valley and includes Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties, the western urbanized portion of Placer County, and the northeastern portion of Solano County. The Basin covers 14,994 square miles and has a population of more than two million people (CARB, 2005b).

The Basin has a Mediterranean climate, characterized by hot dry summers and mild rainy winters. 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 (SMAQMD, 2004).

The mountains surrounding the Sacramento Valley create a barrier to air flow, which can trap air pollutants within the Basin when meteorological conditions are right. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells and the lack of surface wind reduce vertical flow. This causes less surface heating, which 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 biomass burning or when temperature inversions trap cool air, fog, and pollutants near the ground. Periods of elevated ozone are characterized by stagnant morning air. Usually the evening breeze transports the airborne pollutants to the north out of the Basin (SMAQMD, 2004). Emissions from the urbanized portion of the basin (Sacramento, Yolo, Solano, and Placer counties) dominate the emission inventory for the Basin, and on-road motor vehicles are the primary source of emissions (CARB, 2005b).

Within the Basin, the prevailing wind is from the south, primarily because of marine breezes through the Carquinez Strait, although during the winter, the sea breezes diminish and winds from the north occur more frequently. Winter storms, however, can bring strong southerly winds. Between late spring and early fall, a layer of warm air often overlays a layer of cool air from the Delta and San Francisco Bay, resulting in an inversion. Typical winter inversions are formed when the sun heats the upper layers of air, trapping below them air that has been cooled by contact with the colder surface of the earth during the night. Although each inversion type predominates at certain times of the year, both types can occur at any time of the year. Local topography produces many variations that can affect the inversion base and thus influence local air quality (YSAQMD, 1996).

REGULATORY FRAMEWORK

Air Quality Standards and Legislation

The Federal Clean Air Act (FCAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. Basic elements of the act include national ambient air quality standards (NAAQS) for major air pollutants, hazardous air pollutants standards, state attainment plans, motor vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The U.S. Environmental Protection Agency (U.S. EPA) designates areas of the state as "attainment," "nonattainment," or "unclassified" based on compliance with NAAQS. There are numerous classifications of the nonattainment designation, depending on the severity of nonattainment, ranging from marginal to extreme. Areas that lack sufficient monitoring data are designated as unclassified areas and are treated as attainment areas for regulatory purposes. Under the 1977 amendments to the FCAA, states with air quality that did not achieve the NAAQSs were required to develop and maintain State Implementation Plans (SIPs). These plans constitute a federally enforceable definition of the state's approach and schedule for the attainment of the NAAQSs. Areas that were designated as nonattainment in the past, but have since achieved the NAAQSs, are further classified as attainment-maintenance. The maintenance classification remains in effect for 20 years from the date that the area is determined by the EPA to meet the NAAQSs.

The California Air Resources Board (CARB) is the state agency that regulates air quality issues in California. Mobile sources, i.e., vehicles, are regulated under statewide policies by CARB, while YSAQMD has primary responsibility for controlling air pollution from stationary sources within the district's boundaries.

The Health and Safety Code (H&SC) section 39607(e) requires that CARB establish (and periodically review) designation criteria with respect to state ambient air quality standards (SAAQS). CARB also designates areas of the state as "attainment," "nonattainment," or "unclassified" based on compliance with the SAAQS. Areas may also be designated as transitional. It is important to note that because the NAAQSs and SAAQS differ in many cases, it is possible for an area to be designated attainment by the EPA (meets NAAQSs) and nonattainment by the CARB (does not meet SAAQS) for the same pollutant.

The EPA establishes area designations based on NAAQSs for six pollutants: zone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, particulate matter less than 10 microns equivalent aerodynamic diameter (PM_{10}), and particulate matter less than 2.5 microns equivalent aerodynamic diameter ($PM_{2.5}$). CARB's area designations are based on SAAQS for ten pollutants: zone, CO, nitrogen dioxide, sulfur dioxide, PM_{10}, $PM_{2.5}$, sulfates, lead, hydrogen sulfide, and visibility-reducing particles. Each year, CARB reviews the state area designations and updates them, as appropriate, based on the three most recent calendar years of air quality data. The state may petition the EPA for area redesignation with respect to NAAQSs if there are sufficient supporting data.

The northeastern portion of Solano County is within the Yolo-Solano Air Quality Management District (YSAQMD). The YSAQMD encompasses the southwestern portion of the Sacramento Valley and is bounded by the coast ranges to the west and the Sierra Nevadas on the east. Approximately 20 miles southwest is the Carquinez Strait, a sea-level gap between the Coast Range and the Diablo Range; the intervening terrain is relatively flat (YSAQMD, 1996).

The California Clean Air Act of 1988 (CCAA) required submission of a plan for attaining and maintaining state ambient air quality standards for ozone with subsequent updates every three years. The YSAQMD is currently working on the fourth update to the YSAQMD 1992 Air Quality Management Plan. The CCAA requires an air quality strategy to achieve a five percent average annual ozone precursor emission reduction when implemented or, if that is not achievable, an expeditious schedule for adopting every feasible emission control measure under air district purview (H&SC §40914). The Draft 2003 Triennial Assessment and Plan Update reflects expeditiously adopting feasible control measures. The plan update is subject to public review prior to finalization.

The YSAQMD is within an area designated as non-attainment of the NAAQS for ozone (severe) and non-attainment of SAAQS for ozone and PM_{10}. The YSAQMD is in attainment or unclassified for all other state and national air quality standards. Below is a brief description of each of the YSAQMD's non-attainment pollutants.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROG) and nitrogen oxides (NOx). Ozone formation occurs over a period of time, allowing the reacting compounds to spread over a large area, producing a regional pollution problem.

Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources. Motor vehicles are the major source of ozone within the YSAQMD (1996). Once formed, ozone remains in the atmosphere for one or two days. Ozone is then eliminated through chemical reaction with plants (reacts with chemicals on the leaves of plants), rainout (attaches to water droplets as they fall to earth), and washout (absorbed by water molecules in clouds and later falls to earth with rain).

Peak 1-hour ozone values in the Basin have declined about 15 percent over a 20-year period. The number of exceedance days has declined since 1988 (CARB, 2005b).

PM_{10}

Emissions of PM_{10} come from a variety of sources. The primary sources of PM_{10} in the YSAQMD are from construction and demolition activities, farming operations, and entrained road dust (YSAQMD, 1996). The quantity of particulate matter generated is a function of soil type and soil moisture content. Traffic generates particulate matter and PM_{10} emissions through entrainment of dust and dirt particles in the air. PM_{10} also is emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. PM_{10} can remain in the atmosphere for up to seven days before it is removed by gravitational settling, rainout, and washout (YSAQMD, 1996).

Direct emissions of PM_{10} increased in the Basin between 1975 and 2000 and are projected to continue increasing through 2020. Emissions of directly emitted PM_{10} from mobile sources and stationary sources in the Basin have remained relatively steady. On an annual average basis, directly emitted PM_{10} emissions contribute approximately 75 percent of the ambient PM_{10} in the Basin. Approximately 91 percent of the emissions of diesel particulate matter are from mobile sources (CARB, 2005b).

Toxic Air Contaminants

A Toxic Air Contaminant (TAC) is an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health [Health and Safety Code Section 39657(b)]. Many industrial processes, such as petroleum refining, electric utility boilers, and chrome plating operations, emit TACs. TACs are also emitted by local sources, such as diesel generators or pumps, dry cleaners, and motor vehicle exhaust. TACs include metals, other particles, gases adsorbed onto particles, and certain vapors (e.g., benzene, which is in gasoline). Most large industrial processes have undergone significant emission reductions, so regulatory focus is now turning to smaller but more numerous sources.

In 1998, the California EPA identified the particulate portion of diesel exhaust as a TAC. Diesel particulate poses the greatest health risk among the TAC compounds monitored in ambient air within the Basin. Based on modeling, CARB estimated the health risk from diesel particulates in the Basin to be 360 excess cancer cases per million people. Since 1990, the health risk from diesel particulates has been reduced by 52 percent (CARB, 2005b).

The Air Toxics "Hot Spots"" Information and Assessment Act (AB 2588) was enacted in September 1987. The act required that stationary sources report the types and quantities of certain substances their facilities routinely release into the air. The goals of the act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, and to notify nearby residents of significant risks.

The YSAQMD has prioritized facilities in the "Hot Spots" program and assigned a cancer, chronic, and acute prioritization score based on the reported emissions. If the prioritization score is greater than the YSAQMD threshold, the facility must conduct a health risk assessment. The district has established levels where the results of the health risk assessment are considered significant enough to notify the affected residents and businesses near a facility of the potential health impacts from that facility's emissions and require the facility to prepare and implement measures to reduce its emissions and potential health risk. Of the 43 facilities in the City of Dixon listed under CARB's California Emission Inventory Development and Reporting System (CEIDARS), none are considered high priority or have been required to perform a risk assessment (CARB, 2005a).

Air Quality Monitoring

CARB operates an air monitoring network throughout California. The nearest station to the site is located approximately four miles northwest on the University of California campus in Davis, California. The UC Davis station collects data on CO, NO_2, and ozone. The closest station that collects data on PM_{10} and $PM_{2.5}$ is located in Woodland, California approximately 15 miles to the north. Table 4.9-1 summarizes the days state and national air quality standards were exceeded at the nearest monitoring station where data are available for the years 2002 through 2004.

TABLE 4.9-1: **Air Monitoring Station Results**

Air Quality	Standard	Days Standard Was Exceeded in 2002	Days Standard Was Exceeded in 2003	Days Standard Was Exceeded in 2004
1-hour state ozone	0.09 ppm	3	2	0
1-hour national ozone	0.12 ppm	0	0	0
8-hour national ozone[1]	0.08 ppm	2	0	0
1-hour state nitrogen dioxide	0.25 ppm	0	0	0
8-hour state standard CO	9.0 ppm	0	0	0
8-hour national standard CO	9 ppm	0	0	0
24-hour national PM_{10}	150 : g/m^3	0	0	0
24-hour state PM_{10}	50 : g/m^3	6	2	2
24-hour national $PM_{2.5}$	65 : g/m^3	1	0	0

Source: California Air Resources Board website www.arb.ca.gov

Notes: ppm = parts per million.
: g/m^3 = micrograms per cubic meter.

[1] Note that a state standard of 0.07 ppm was promulgated on 28 April 2005.

Dixon General Plan Policies and City Ordinances

The Dixon General Plan (1993) includes one policy in the Natural Environment Element relevant to air quality issues:

Dixon General Plan Policy		Project Consistency
NATURAL ENVIRONMENT		
19:	The City shall establish performance standards to limit air pollution, consistent with the requirements by the Yolo-Solano Air Quality Management District.	City Zoning Ordinance (Dixon, 1999) No. 12.24.08 states that "*All uses shall comply with the current regulations of the Yolo-Solano Air Quality Management District with respect to odor, smoke, fly ash, dust, fumes, vapors, gases, and other forms of air pollution*." The proposed project would be consistent with City requirements.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

Based on the Environmental Checklist in Appendix G of the CEQA Guidelines, a proposed project could be considered to have significant air quality transportation impacts if it would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

The YSAQMD has established quantitative emission thresholds for ROG, NOx, PM_{10}, and CO (YSAQMD, 1996). The significance criteria are shown in Table 4.9-2.

TABLE 4.9-2: **YSAQMD Air Quality Significance Thresholds for Air Contaminants**

Pollutant	Daily Average
ROG	82 lb/day
NOx	85 lb/day
PM_{10}	150 lb/day
CO	550 lb/day

Impacts Determined to Be Less than Significant

- **Conflict with or obstruct implementation of the applicable air quality plan**.

Future Operational Emissions. Emission of ROG, NOx, and PM_{10} may result from the future operation of landscape maintenance equipment, natural gas consumption from water heaters or furnaces, or consumer products used on-site. Area source emissions may also include PM_{10} emission from agricultural activities.

The area source emissions from anticipated future commercial operations were estimated using URBEMIS-2002. The emissions were also estimated assuming that landscape maintenance equipment would be restricted to electrical equipment, assumed by YSAQMD as a mitigation measure. The results are presented in Table 4.9-3.

TABLE 4.9-3: **Estimated Air Pollution from Future Project Operations (pounds per day)**

	ROG	NOx	CO	PM_{10}
YSAQMD Threshold Value	82	85	550	150
Summer				
Total unmitigated	0.89	5	6	0.02
Total mitigated	0.37	5	2	0.01
Winter				
Total unmitigated	0.37	5	2	0.01
Total mitigated	0.37	5	2	0.01

Source: BASELINE, 2005.

Note: Project operational emissions estimated using URBEMIS-2002.

The impact from future agricultural PM_{10} emissions was estimated using the methodology used for estimating area-wide emissions by CARB (2003a, 2003b). The emission factor used by CARB for discing is 1.2 pounds PM_{10} per acre-pass. Assuming the 25-acre agricultural area was disced once a year, in two passes, and it would take two days to complete, the PM_{10} emissions would be 30 pounds a day. Unlike soil preparation activities, harvest operations tend to be fairly unique for each crop. The harvesting of nut trees, such as walnuts or almonds, creates the most PM_{10} emissions at an estimated 41 pounds of PM_{10} per acre. Assuming that all 25 acres of the agricultural area are planted in nut trees, and that it would take 14 days to harvest, the PM_{10} emissions would be 73 pounds per day.

The future operational emissions are predicted to be below the threshold values of significance and therefore these impacts would be less than significant.

Carbon Monoxide Emissions. Carbon monoxide emissions are highest near major intersections with heavy congestion because vehicles emit more CO when traveling at slower speeds. Increased vehicle trips at intersections that would be generated in the future following site development could cause congestion at local intersections, thereby causing localized areas of high CO levels or CO "hot spots."

Carbon monoxide emissions at intersections were estimated using CALINE4, a dispersion model for predicting air pollutant concentrations near roadways in accordance with the California Department of Transportation protocol (Caltrans, 1997). The vehicle emission rates were based on CARB's computer program EmFac2002, which provides an average vehicle emission rate for specific years. CO concentrations adjacent to the roadway (within three meters) were modeled at the following intersections predicted by the transportation study to operate at Level of Service (LOS) D or below for existing plus future project conditions.

- Eastbound ramps and North First Street
- Currey Road and Milk Farm Road
- Currey Road and North First Street

The CO concentrations were modeled using peak AM, peak PM, and Saturday peak hours for existing and existing plus future project traffic volumes as well as future (year 2025) cumulative plus project peak hour volumes from the traffic analysis.

It was conservatively assumed that future traffic speeds would average 35 miles per hour (mph) on the roadway and would be reduced to an average of five mph 150 meters from the intersection. The CO concentrations were estimated assuming average low January temperatures of 38 degrees Fahrenheit plus a five degree correction factor and a humidity of 91 percent (www.city-data.com, accessed 2005). The background CO concentration used in the model was the highest of the second maximum highest 8-hour concentration for the years 2003 and 2004 recorded at the UC Davis air monitoring station. The model results for the highest CO concentrations for each scenario are presented in Table 4.9-4 below.

TABLE 4.9-4: **Anticipated Future Estimated CO Concentrations at Intersections with Level of Service D or Less (ppm)**

Intersection	Existing		Existing plus Project		Cumulative plus Project	
	1 hour	8 hour	1 hour	8 hour	1 hour	8 hour
Eastbound ramps/North First Street	3.8	2.7	5.0	3.5	2.7	1.4
Currey Road/Milk Farm Road	1.1	0.8	5.6	3.9	1.5	1.1
Currey Road/North First Street	2.1	1.5	3.5	2.5	3.8	2.7
SAAQS Standards	9.0	20	9.0	20	9.0	20

Source: BASELINE, 2005.

Notes: CO = carbon monoxide.
ppm = parts per million.

The results indicate that the CO concentration at the intersections evaluated would not exceed the SAAQS [average 1-hour of 9.0 parts per million (ppm) or 8-hour of 20 ppm] and NAAQSs (average 1-hour of 9.0 ppm or 8-hour of 35 ppm) for CO after future site development. The predicted CO concentrations at these intersections in 2025[1] with site development would also be below both the state and national average 8-hour standard and 1-hour standard; this is primarily due to the lower vehicle emissions in future years due to various state and federal programs. Therefore, the anticipated future impact on localized CO hot spots would be less than significant.

[1] The cumulative horizon year for the traffic analysis; refer to Section 4.8, Transportation and Circulation.

- **Create objectionable odors affecting a substantial number of people**.

The future construction and operation of typical highway commercial uses would not create objectionable odors.

Impacts Determined to Be Potentially Significant

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.

Anticipated Future Impact 4.9-1

Air emissions could expose sensitive receptors to substantial pollutant concentrations during future site development. Demolition, grading, paving, and other construction related activities may result in temporary construction related air quality impacts, such as fugitive dust, ozone, and other pollutants that exceed YSAQMD's significance criteria. This is a significant unavoidable adverse impact.

High concentrations of air pollutants may endanger the health of the most sensitive segments of the population, such as children, hospital patients, people practicing outdoor sports, and residents of retirement homes. Land uses where these segments of the population reside for long periods (i.e., schools, childcare centers, hospitals, convalescent homes, family residences, and ball parks) are considered sensitive receptors. The nearest sensitive receptors to the project site are two residences adjacent to the project site's northern boundary. No schools, hospitals, daycare centers, or retirement homes are located within one mile of the site.

Construction-related impacts occur from dust emissions and emissions from construction equipment burning fossil fuels. Construction emissions during future site development would include on-site and off-site generation of fugitive dust, on-site generation of construction equipment exhaust emissions, and the off-site generation of mobile source emissions. Buildings that would be demolished as part of site development may contain asbestos or lead-based paint that could be released into the air during demolition (see discussion in Section 4.4, Public Health and Safety).

Future site preparation and construction activities would include soil excavation and backfilling, grading, and equipment vehicular traffic on paved and unpaved roads. Soils exposed during construction activities would be subject to wind erosion. As a result, short-term dust emissions would cause a temporary increase in localized PM_{10} and $PM_{2.5}$ concentrations.

In addition to impacts resulting from dust generation during future site development, construction equipment exhaust would also contribute to short-term air quality impacts. Primary sources of short-term ROG and NOx emissions are gasoline and diesel-powered heavy-duty mobile construction equipment. Exhaust from heavy-duty equipment is difficult to quantify because of the day-to-day variability in construction activities and equipment used. Air emissions of ROG and NOx would also result from future construction activities, such as painting and asphalt paving.

URBEMIS-2002, a computer model that calculates air emissions from land development, was used to estimate the emissions with and without mitigation measures from demolition, grading, and construction of future site development. The results are presented in Table 4.9-5. It was assumed that construction would begin in 2006 and take three years for complete buildout. It was also assumed that the entire 60 acres would be subjected to grading operations. Because the development plan is conceptual, the default values in the model were used where available, such as types of construction equipment and area of painted surfaces. Mitigation measures used in the model include use of diesel particulate filters on diesel-powered equipment, applying soil stabilizers to inactive areas, replacing ground cover in disturbed areas quickly, watering exposed surfaces twice daily, and reducing the speed on unpaved roads to less than 15 miles per hour.

The model indicated that PM_{10} emissions would be reduced to below the threshold value through the use of the measures committed to by the applicant, as described in Chapter 3, Project Description, of this EIR.

The model also indicated that temporary ROG, NOx, and CO emissions would exceed the YSAQMD's threshold values of significance. The model predicts that the bulk of the NOx and CO emissions will be the result of emissions from diesel-powered construction equipment. The predicted exceedance of ROG is primarily the result of architectural coating off-gassing.

CO emissions would not impact the nearest sensitive receptors during future site development. The sensitive receptors are the rural residences along Hess Lane and Currey Road; because the bulk of the construction activity would occur in the highway commercial area and the residences would be separated from construction activities by an agricultural area of approximately 250 feet to 500 feet, they would not be impacted by increases in CO concentrations.

TABLE 4.9-5: **Anticipated Future Construction Emissions (pounds per day)**

	ROG	NOx	CO	PM_{10} Total	PM_{10} Exhaust	PM_{10} Dust
YSAQMD Threshold Values	82	85	550	150	NA	NA
2006 Emissions						
Total unmitigated	76	**577**	**556**	126	26	100
Total mitigated	76	**577**	**556**	28	5	23
2007 Emissions						
Total unmitigated	75	**552**	**573**	24	24	0.28
Total mitigated	75	**552**	**573**	5	5	0.28
2008 Emissions						
Total unmitigated	**118**	**583**	**676**	24	24	0.57
Total mitigated	**118**	**583**	**676**	5	5	0.57

Source: Emissions calculated using the URBEMIS-2002 Computer Model as recommended by the YSAQMD Guidelines (YSAQMD, 1996).

Notes: NA - not applicable.
Exceedances of the threshold values are indicated in bold text.
These emission estimates do not account for existing emissions at the project site associated with current site operations. The emissions presented are therefore conservative and considered worst case.

While construction equipment and architectural coating off-gassing would temporarily emit ozone precursors (ROG and NOx) above the threshold limit during site development, these pollutants are accommodated in the emission inventories of state and federally required air plans and would not have a significant impact on the attainment and maintenance of ozone NAAQSs and SAAQS (CARB, 2005b).

Anticipated Future Mitigation Measure 4.9-1

To ensure that future health risks from diesel PM_{10} emissions are reduced to acceptable levels, contractors shall use equipment that is well maintained during future site development. The mitigation measure included below shall be used to monitor diesel PM_{10} emissions and ensure that diesel-fueled equipment is not emitting excessive amounts of pollutants because of poor maintenance. Additional mitigation measures listed below shall be made part of any plans for future development to further reduce the impact.

- *Comply with all YSAQMD measures for reducing air quality impacts during construction activities for future site development as well as future traffic-related air quality impacts.*

- *Emissions from all off-road diesel powered equipment used on the project site shall not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. A visual survey of all in-operation equipment shall be made at least weekly throughout the duration of the construction period. A record of the inspection shall be maintained on-site. The YSAQMD and/or other officials may conduct periodic site inspections to determine compliance.*

- *Additional mitigation of NOx, ROG, and PM_{10} emissions in addition to the applicant's environmental commitments may include reformulated fuels, emulsified fuels, catalyst and filtration technologies, cleaner engine repowers, and new alternative-fueled trucks.*

- *For any earth moving activities within 100 feet of the property lines, additional water shall be applied as necessary to prevent visible dust emission from exceeding 100 feet in any direction.*

- *The soil moisture shall be maintained at a minimum of 12 percent, as determined by ASTM Method D-2216. Two soil moisture measurements shall be taken during the first three hours of any active earth moving activities and during each subsequent four-hour period of active operations. Should soil moisture content be below 12 percent, water application shall be increased until the moisture goal has been attained.*

- *Buildings that will be demolished as part of site development shall undergo an asbestos and lead-based paint survey. The asbestos survey shall be conducted by an asbestos inspector certified in accordance with the Asbestos Hazardous Response Act. Lead-based paint inspectors shall be certified by the Department of Health Services. Asbestos and lead-based paint shall be abated as necessary and required by law prior to demolition of the buildings.*

Implementation of the mitigation measures above would not reduce this anticipated future impact to a less-than-significant level; the impact remains significant, unavoidable, and adverse.

Anticipated Future Impact 4.9-2

Additional vehicle trips generated by future site development would result in an regional long-term increase in emissions of air pollutants. This could result in a cumulatively considerable net increase of any criteria pollutants. This is a significant unavoidable adverse impact.

Vehicular traffic to, from, and within the project site would result in air pollutant emissions affecting regional air quality, including ROG, NOx, and PM_{10} concentrations after site development. An air quality analysis was performed to estimate the ROG, NOx, and PM_{10} emissions that would be expected as a result of site development using URBEMIS-2002. The analysis was performed assuming the site would be developed in 2006 and is therefore conservative since full buildout may take as long as three years and vehicle emission rates are expected to decrease in the future due to improvements in vehicle pollution control technology. The analysis used the trip generation rates based on types of land uses. Mitigation measures used in the model included the following:

- Pedestrian circulation access to most destinations with visually interesting walking routes;
- Complete sidewalk coverage with safe crossing and high degree of pedestrian safety from crime;
- Bus service within one-quarter mile every 60 minutes;
- Secure bicycle parking, interconnected bikeways with paved shoulders on some routes for bike routes, safe vehicle speed limits on roadways, and moderate number and variety of land uses within cycling distance;
- Two transit shelters and benches;
- Street lighting and route signs and displays; and
- Small dispersed parking lots with shade from trees.

The estimated vehicle emission following site development would exceed the YSAQMD's threshold of significance values for ROG, NOx, CO, and PM_{10} (Table 4.9-6). The YSAQMD recommends specific transportation demand management elements as part of an overall

TABLE 4.9-6: **Anticipated Future Estimated Air Pollution from Vehicle Emissions (pounds per day)**

	ROG	NOx	CO	PM_{10}
YSAQMD Threshold Value	82	85	550	150
Summer				
Total unmitigated	**235**	**274**	**2,173**	**193**
Total mitigated	**208**	**243**	**1,924**	**171**
Winter				
Total unmitigated	**299**	**336**	**2,675**	**193**
Total mitigated	**264**	**297**	**2,368**	**171**

Source: BASELINE, 2005.

Note: Future operational emissions estimated using URBEMIS-2002.

Transportation Management Plan (TMP). These recommendations are included in the mitigation measure below.

Anticipated Future Mitigation Measure 4.9-2

- *Prior to the approval of any development at the project site applicant shall develop a TMP that includes strategies and long-term goals addressing mobile source emissions. The TMP shall include the formation of a Transportation Management Association (TMA), which will act as a collective body to communicate with Solano Commuter Information (SCI) to coordinate mobile source emission reduction programs and obtain information about travel alternatives that reduce trips and vehicle miles traveled. The applicant shall meet and confer in good faith with the City and Readi-Ride Transit Service to expand transit service to the project site. The applicant shall pay a fair share of expanding transit service to the site.*

- *Future site development shall include planting of trees for shading in all parking lots in accordance with the requirements of the City of Dixon, i.e., 30 percent shading on 22 June on tree types that are deciduous and resistant to disease and parasites common in Dixon. The tree design plan shall be submitted along with building plans and be subject to approval by City staff.*

Implementation of the mitigation measures above would reduce the anticipated future impact; however, the impact would remain significant, unavoidable, and adverse.