4.2 AIR QUALITY

4.2.1 Issues

This section addresses the impacts of plan buildout on air quality in the region. Impacts related to emissions from vehicles, energy consumption, operations and construction are addressed in this section.

Buildout in accordance with the Downtown Specific Plan (DSP) would increase the total amount of residential and commercial square footage in the DSP area. Vehicle trips associated with the new residential and commercial square footage would generate emissions. Operation of the various facilities allowed under the DSP may increase emissions associated with heating and cooling. Both vehicular and operational emissions may result in higher regional ozone concentrations and could exacerbate existing exceedances of the state and federal ozone standards. Additional vehicle traffic in the area may increase the amount of re-entrained road dust, adding to existing exceedances of the state PM_{10} standard.

The DSP specifically implements a number of strategies expressed in the Bay Area Air Quality Management District Clean Air Plan for the reduction of emissions in the region. In addition, the overall goal of the DSP would promote a walkable, mixed-use downtown that would support the reduction of greenhouse gas emissions. The implementation of the DSP would result in:

- Increased mixed-use development
- Improvements in traffic flow
- Improvements to pedestrian, bicycle and transit facilities
- The construction of multi-modal paths
- Emphasis on an overall strategy that encourages a "park once" system.
- Tree planting throughout the planning area

Each of the above would serve to address or reduce emissions in the area.

4.2.2 Setting

Air Pollutants

Carbon Monoxide. CO, a colorless and odorless gas, interferes with the transfer of oxygen to the brain. It can cause dizziness and fatigue, and can impair central nervous system functions. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. Automobile exhaust and residential wood burning in fireplaces and woodstoves emit most of the CO in the Bay Area. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. The highest CO concentrations measured in the Bay Area are typically recorded during the winter.

Ozone (O_3). O_3, a colorless toxic gas, is the chief component of urban smog. O_3 enters the blood stream and interferes with the transfer of oxygen, depriving sensitive tissues in the heart and brain of oxygen. O_3 also damages vegetation by inhibiting growth. Although O_3 is not directly emitted, it forms in the atmosphere through a chemical reaction between reactive organic gas (ROG) and nitrogen oxides (NO_x)

under sunlight. ROG and NO_x are primarily emitted from automobiles and industrial sources. O_3 is present in relatively high concentrations within portions of the Bay Area. Highest O_3 concentrations occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies.

Nitrogen Dioxide. NO_2, a reddish-brown gas, irritates the lungs. It can cause breathing difficulties at high concentrations. Like O_3, NO_2 is not directly emitted, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as nitrogen oxides (NO_x) and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10} (see discussion of PM_{10} below). Levels of NO_2 in the Bay Area are relatively low.

Sulfur Oxides. Sulfur oxides, primarily SO_2, are a product of high-sulfur fuel combustion. The main sources of SO_2 are coal and oil used in power stations, in industries, and for domestic heating. Industrial chemical manufacturing is another source of SO_2. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. Due to the lack of sources, SO_2 is found at low concentrations in the North Bay region.

Suspended Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles suspended in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when industry and gases emitted from motor vehicles undergo chemical reactions in the atmosphere. Respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) represent fractions of particulate matter. PM_{10} refers to particulate matter less than 10 microns in diameter, about one/seventh the thickness of a human hair. $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter. Major sources of PM_{10} include motor vehicles; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. $PM_{2.5}$ results primarily from diesel fuel combustion (from motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, $PM_{2.5}$ is formed in the atmosphere from gases such as SO_2, NO_x, and volatile organic compounds.

PM_{10} and $PM_{2.5}$ pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. PM_{10} and $PM_{2.5}$ can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Whereas larger particles tend to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

Toxic Air Contaminants (TAC). TACs are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter and benzene near a freeway). Because chronic exposure can result in adverse

health effects, TACs are regulated at the regional, state, and federal level. Diesel exhaust is the predominant TAC in urban air and is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). Diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the California Air Resources Board (CARB), and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants program.

California has adopted a comprehensive diesel risk reduction program. The United States Environmental Protection Agency (EPA) has adopted low sulfur diesel fuel standards that will reduce diesel particulate matter substantially. These went into effect in June 2006.

In cooler weather, smoke from residential wood combustion can be a source of TACs. Localized high TAC concentrations can result when cold stagnant air traps smoke near the ground; with no wind, the pollution can persist for many hours. This condition occurs in sheltered valleys during the winter. Wood smoke also contains a significant amount of $PM_{2.5}$. Wood smoke is an irritant and is implicated in worsening asthma and other chronic lung problems.

An analysis of risks for diesel particulate matter was conducted by Illingworth & Rodkin in October 2008. The results are discussed below in the impact section.

Climate Change

Climate change is the shift of "average weather" patterns observed on earth, and can be measured by such variables as temperature, wind patterns, storms and precipitation. The temperature on earth is regulated by the "greenhouse effect," where naturally occurring gases, such as carbon dioxide, absorb infrared radiation emitted by the Earth's surface and radiate it back to the surface, thus trapping heat within the atmosphere according to the Intergovernmental Panel on Climate Change (IPCC, 2001a). Changing the atmospheric abundance or properties of these gases can lead to a warming or cooling of the climate system. Without this naturally occurring greenhouse effect the Earth's temperature would be about 61 degrees Fahrenheit (34 degrees Centigrade) cooler (CAT, 2006).

Human activities result in emission of four principal greenhouse gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF6).

Carbon Dioxide (CO_2): CO_2 is an odorless, colorless gas. Natural sources include decomposition of dead organic matter, respiration of plants and animals, evaporation from oceans and volcanic outgassing. Human activities contribute to CO_2 emissions from the burning of fossil fuels for transportation, building heating and cooling, and the manufacturing of goods. In addition deforestation releases CO_2 and reduces its uptake by plants (IPCC, 2007b).

Methane (CH_4): CH_4, a colorless, odorless gas, is the principal component of natural gas. CH_4 is released naturally through the anaerobic decay of organic matter such

as the natural processes that occur in wetlands. Human activities contributing to CH_4 include agricultural activities and landfills.

Nitrous Oxide (N_2O): N_2O, commonly known as laughing gas, is a colorless gas with a slightly sweet order. N_2O is released through natural processes in the soil and oceans. Human activities contribute to N_2O emissions through the use of fertilizers and the burning of fossil fuels.

Chlorofluorocarbons, Hydrochlorofluorocarbons, and Hydrofluorocarbons: Chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), and Hydrofluorocarbons (HFCs) are synthetic chemicals used as air conditioners and refrigerants. CFC use and production is limited by the Montreal Protocol, since CFCs destroy stratospheric ozone. HCFCs have been utilized as alternative refrigerants to CFCs. Although they deplete stratospheric ozone to a much lesser extent than CFCs, they are also being phased out due to an amendment to the Montreal Protocol. The Protocol as amended is carried out in the U.S. through the Clean Air Act, which is administered by USEPA. HFCs are a viable replacement for CFCs and HCFCs, and do not deplete the ozone layer.

Perfluorocarbons. Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays, about 60 kilometers above Earth's surface, are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. Concentrations of tetrafluoromethane in the atmosphere are currently over 70 ppt (USEPA 2006d). The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur hexafluoride. Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas that has a high global warming potential (GWP), as shown in Table 4.2-3. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Of all human activities, the burning of fossil fuels is the largest contributor in overall greenhouse gas emissions, releasing CO_2 into the atmosphere (IPCC, 2007b). The resulting increases in greenhouse gas emissions from human activities are leading to higher concentrations and a change in composition of the atmosphere. During the previous 10,000 years up to 1750, CO_2 measured within the range of 280 ppm, give or take 20 ppm. During the industrial era CO_2 rose to 367 ppm in 1999 and 379 ppm in 2005 (ICPP, 2007a).

Many sources and models indicate that temperatures on earth are and will continue to warm at unprecedented levels. The global mean surface temperature has increased by 1.1 degrees Fahrenheit (^oF) since the 19th century (IPCC, 2001b) and the 10 warmest years of the last 100 years all occurred within the last 15 years. The Intergovernmental Panel on Climate Change (IPCC) also reports that the average global temperature is expected to rise by 1.1 to 6.4 ^oC by the end of the 21st century – depending on future greenhouse gas emission scenarios (IPCC 2007a).

In 2004 California produced approximately 492 million metric tons of CO_2e, including emissions associated with imported electricity. The largest source of greenhouse

emissions comes from the transportation sector. Combustion of fossil fuel in the transportation sector was the single largest source of California's greenhouse gas emissions in 2004, accounting for 40.7 percent of the total greenhouse gas emissions in the state. This sector was followed by the electrical power section at 22.2 percent (including both in-state and out-of-state sources) and the industrial sector at 20.5 percent. (CEC, 2006)

Consistency with Clean Air Plan

The long-term impact of the DSP is perhaps best characterized by analyzing the consistency of the project with the most recent Clean Air Plan. Air quality is a regional issue; the air quality in Cotati is linked with and affected by air quality in the greater Bay Area. As a regional issue, air quality is addressed and improved by regional and even statewide efforts, as evidenced by the marked improvement in air quality statewide with the advent of cleaner burning fuels and vehicles. To this end, the BAAQMD Clean Air Plan sets forth projected growth, associated emissions, and strategies to achieve attainment of air quality objectives. By comparing the growth anticipated in the Downtown Specific Plan to the growth included in the Clean Air Plan, and analyzing compliance with the strategies set forth in the Clean Air Plan, the overall impact of Downtown Specific Plan can be determined.

Sensitive Receptors

Sensitive receptors are defined as those populations who are particularly susceptible to the adverse effects of air pollution. CARB has identified the following populations who are most likely to be affected by air pollution: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. Both State and National ambient air quality standards were developed with the intent to protect sensitive receptors from the adverse impacts of air pollution.

Air Pollution Potential

The clear skies with relatively warm conditions that are typical in summer combine with localized air pollutant emissions to elevate O_3 levels. Air quality standards for O_3 traditionally are exceeded when relatively stagnant conditions occur for periods of several days during the warmer months of the year. Weak wind flow patterns combined with strong inversions substantially reduce normal atmospheric mixing. Key components of ground-level O_3 formation are sunlight and heat; therefore, significant O_3 formation only occurs during the months from late spring through early fall. Air pollution potential in the project area is not as high as other parts of the Bay Area because winds generally do not transport enough of the precursor pollutants into that area (highest concentrations occur at monitoring stations in the eastern and southern portions of the Bay Area that are usually downwind of the major urban areas). However, pollutants emitted in the North Bay area can be transported down-wind and contribute to air quality problems in those areas. Light winds that are common in winter combine with strong surface-based inversions caused by cold air trapped near the surface, to trap pollutants such as particulates (e.g., wood smoke) and carbon monoxide. This can lead to localized high concentrations of these pollutants.

Air Monitoring Data

The Bay Area Air Quality Management District (BAAQMD) monitors air quality conditions at over 30 locations throughout the Bay Area. The Santa Rosa Monitoring Station on Fifth Street is the station closest and the most representative of air quality conditions in Cotati. Criteria pollutants monitored include O_3, CO, NO_2, hydrocarbons, PM_{10}, and $PM_{2.5}$. The gaseous pollutants (i.e., O_3, CO and NO_2) are monitored continuously while particulate matter (i.e., PM_{10} and $PM_{2.5}$) are sampled for 24 hours every sixth day. A summary of the data recorded at this station is shown in Table 4.2-1 for the period 2000 through 2004.

Table 4.2-2 shows the number of days per year that air pollutant levels exceeded national or state standards in Santa Rosa and the entire Bay Area monitoring network. No exceedances of the National Ambient Air Quality Standards (NAAQS) for O_3 (1- or 8-hour concentrations) were recorded at this station. Measured concentrations of CO and NO_2 did not exceed the NAAQS or CAAQS. However, measured concentrations of O_3 and PM_{10} exceeded the State standards during the 5-year period. The State standard for O_3 was exceeded on one day in 2003. The State standard for PM_{10} was exceeded on zero to four sampling days annually during the period. There was one exceedance of the NAAQS for PM2.5 in 2001.

Table 4.2-1.
Highest Measured Air Pollutant Concentrations

Pollutant	2000	2001	2002	2003	2004
Santa Rosa					
Ozone (O_3)					
1-Hour	0.08 ppm	0.09 ppm	0.08 ppm	**0.10 ppm**	0.08 ppm
8-Hour	0.06 ppm	0.06 ppm	0.06 ppm	0.08 ppm	0.06 ppm
Carbon Monoxide (CO)					
8-Hour	3.1 ppm	2.4 ppm	2.1 ppm	1.8 ppm	1.6 ppm
Nitrogen Dioxide (NO_2)					
1-Hour	0.05 ppm	0.06 ppm	0.05 ppm	0.06 ppm	0.05 ppm
Annual	0.013 ppm	0.013 ppm	0.013 ppm	0.012 ppm	0.011 ppm
Fine Particulate Matter ($PM_{2.5}$)					
24-Hour	40 µg/m3	76 µg/m3	51 µg/m3	39 µg/m3	27 µg/m3
Annual	10 µg/m3	11 µg/m3	11 µg/m3	9 µg/m3	8 µg/m3
Respirable Particulate Matter (PM_{10})					
24-Hour	46 µg/m3	78 µg/m3	64 µg/m3	36 µg/m3	48 µg/m3
Annual	18 µg/m3	18 µg/m3	18 µg/m3	17 µg/m3	18 µg/m3
Bay Area (Basin Summary)					
Ozone (O3)					
1-Hour	**0.15 ppm**	**0.13 ppm**	**0.16 ppm**	**0.13 ppm**	**0.11 ppm**
8-Hour	**0.11 ppm**	**0.10 ppm**	**0.11 ppm**	**0.10 ppm**	0.08 ppm
Carbon Monoxide (CO)					
8-Hour	6.3 ppm	5.1 ppm	4.5 ppm	4.0 ppm	3.4 ppm
Nitrogen Dioxide (NO_2)					
1-Hour	0.11 ppm	0.11 ppm	0.08 ppm	0.09 ppm	0.07 ppm
Annual	0.025 ppm	0.024 ppm	0.014 ppm	0.021 ppm	0.019 ppm
Fine Particulate Matter ($PM_{2.5}$)					
1-Hour	NA	NA	**77 µg/m3**	56 µg/m3	**74 µg/m3**
Annual	NA	NA	14 µg/m3	11.7 µg/m3	11.6 µg/m3
Respirable Particulate Matter (PM_{10})					
24-Hour	**76 µg/m3**	**109 µg/m3**	**84 µg/m3**	**60 µg/m3**	**65 µg/m3**
Annual	**24 µg/m3**	**26 µg/m3**	**25 µg/m3**	**25 µg/m3**	**26 µg/m3**

Source: BAAQMD – Bay Area Air Pollution Summaries 2000-2004.

Note:
ppm = parts per million
Values reported in **bold** exceed ambient air quality standard
NA = data not available.

Table 4.2-2.
Number of Days Measured Air Quality Levels Exceeded Standards

Pollutant	Standard	Monitoring Station	Days Exceeding Standard				
			2000	2001	2002	2003	2004
Ozone (O3.)	NAAQS 1-hr	Santa Rosa BAY AREA	0 3	0 1	0 2	0 1	0 0
	NAAQS 8-hr	Santa Rosa BAY AREA	0 4	0 7	0 7	0 7	0 0
	CAAQS 1-hr	Santa Rosa BAY AREA	0 12	0 15	0 16	1 19	0 7
Fine Particulate Matter (PM_{10})	NAAQS 24-hr	Santa Rosa BAY AREA	0 0	0 0	0 0	0 0	0 0
	CAAQS 24-hr	Santa Rosa BAY AREA	0 7	2 10	2 6	0 6	1 7
Fine Particulate Matter (PM2.5)	NAAQS 24-hr	Santa Rosa BAY AREA	0 1	-- 5	-- 7	-- 0	-- 1
All Other (CO, NO_2, Lead, SO_2)	All Other	Santa Rosa BAY AREA	0 0	0 0	0 0	0 0	0 0

Data from all stations throughout the Bay Area indicate that the national ambient air quality standard for O_3 concentrations (recently revoked[1]) was exceeded on 0 to 3 days annually. The 8-hour national ambient air quality standard for O_3 was exceeded 0 to 7 days annually. The more stringent State O_3 standard was exceeded on 7 to 19 days annually. The State PM_{10} standard was exceeded on 6 to 10 sampling days annually and the $PM_{2.5}$ national standard was exceeded on 0 to 7 days annually.

Attainment Status for State and Federal Ambient Air Quality Standards. Areas that do not violate ambient air quality standards are considered to have attained the standard. Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant. The Bay Area as a whole does not meet State or Federal ambient air quality standards for ground level O_3 and State standards for fine particulate matter. For O_3, the entire Bay Area is designated non-attainment at both the federal and state levels.

Under the Federal CAA, the EPA has designated the region as moderate non-attainment for ground level O_3. However, the EPA recently revoked the 1-hour standard and replaced it with an 8-Hour standard. The EPA classified the region as marginally non-attainment for the 8-hour O_3 standard. EPA requires the region to adopt a plan that will bring it into attainment with that standard by 2007. The Bay Area has met the CO standards for over a decade and is classified as attainment by the EPA. The EPA grades the region unclassified for all other air pollutants, which include PM_{10} and $PM_{2.5}$. This means that the area likely meets the standard.

At the State level, which has higher standards, the region is considered serious non-attainment for ground level O_3 and non-attainment for PM_{10}. California ambient air

[1] The national 1 hour air quality standard for ozone was set at 120 parts per billion in the ambient air, averaged over 1 hour. The U.S. EPA revoked this standard as of June 15, 2005 (http://www.sparetheair.org/about/air_scores.htm accessed 9-2-07)

quality standards are more stringent than the national ambient air quality standards. The region is required to adopt plans on a triennial basis that show progress towards meeting the State O_3 standard. The area is considered attainment or unclassified for all other pollutants.

Regional Air Quality Planning

The BAAQMD along with the other regional agencies has prepared an Ozone Attainment Plan to address the NAAQS for O_3. The Bay Area 2005 Ozone Strategy is the current Clean Air Plan that includes a strategy to attain the national ambient air quality standard for O_3. In 2004, EPA made a finding that the Bay Area has attained the national 1-hour ozone standard. However, in 2005, EPA revoked the 1-hour ozone standard, leaving the 8-hour standard as the prevailing national ozone standard. The region is presently considered non-attainment for this standard.

Another earlier plan, the 2000 Bay Area Clean Air Plan, was prepared to address the more stringent requirements of the California Clean Air Act with respect to O_3. This plan includes a comprehensive strategy to reduce emissions from stationary, area, and mobile sources. The plan objective is to indicate how the region would make progress toward attaining the stricter state air quality standards, as mandated by the California Clean Air Act.

The plan is designed to achieve a region-wide reduction of O_3 precursor pollutants through the expeditious implementation of all feasible measures. The clean air plans are discussed in more detail under *4.2.3 Regulatory Setting*.

Transportation Control Measures. The clean air plans have included transportation control measures aimed at reducing air pollution from vehicle use. The most recently adopted Clean Air Plan (i.e., the 2000 Clean Air Plan) included 20 transportation control measures, which seven require participation at the local level. These measures that require action by the city to implement are described in Table 4.2-3.

Buffering for sensitive receptors. There are no major sources of air toxic contaminants and odor emissions identified in Cotati. The largest source of air toxic contaminants would be U.S. 101 traffic. The BAAQMD and CARB recommend that Cities include buffers between sensitive receptors and sources of air toxic contaminant emissions and odors. In April 2005, the CARB released the final version of the Air Quality and Land Use Handbook, which is intended to encourage local land use agencies to consider the risks from air pollution prior to making decisions that approve the siting of new sensitive receptors near sources of air pollution. Unlike industrial or stationary sources of air pollution, siting of new sensitive receptors does not require air quality permits, but could create air quality problems. The primary purpose of the CARB document is to highlight the potential health impacts associated with proximity to common air pollution sources, so that those issues are considered in the planning process. CARB makes recommendations regarding the siting of new sensitive land uses near freeways, truck distribution centers, dry cleaners, gasoline dispensing stations, and other air pollution sources. These "advisory" recommendations are based primarily on modeling information for studies conducted throughout the state and may not be entirely reflective of conditions in Cotati and Sonoma County. Siting of new sensitive land uses within these recommended distances may be appropriate due to site-specific conditions

(e.g., source strength or meteorology), but should only be done after site-specific studies are conducted to identify the actual health risks. CARB acknowledges that land use agencies have to balance other siting considerations such as housing and transportation needs, economic development priorities and other quality of life issues.

Table 4.2-3. Clean Air Plan Transportation Control Measures to be Implemented by Cities	
Transportation Control Measure	**Description**
1. Support Voluntary Employer-Based Trip Reduction Programs	• Provide assistance to regional and local ridesharing organizations; advocate legislation to maintain and expand incentives (e.g., tax deductions/credits).
9. Improve Bicycle Access and Facilities	• Improve and expand bicycle land system by providing bicycle access in plans for all new road construction or modification. • Establish and maintain bicycle advisory committees in all nine Bay Area counties. • Designate a staff person as a Bicycle Program Manager. • Develop and implement comprehensive bicycle plans. • Encourage employers and developers to provide bicycle access and facilities. • Provide bicycle safety education.
12. Improve Arterial Traffic Management	• Study signal preemption for buses on arterials with high volume of bus traffic. • Improve arterials for bus operations and to encourage bicycling and walking. • Continue and expand local signal timing programs, only where air quality benefits can be demonstrated.
15. Local Clean Air Plans, Policies and Programs	• Incorporate air quality beneficial policies and programs into local planning and development activities, with a particular focus on subdivision, zoning and site design measures that reduce the number and length of single-occupant automobile trips.
17. Conduct Demonstration Projects	• Promote demonstration projects to develop new strategies to reduce motor vehicle emissions. Projects include: low emission vehicle fleets and LEV refueling infrastructure.
19. Pedestrian Travel	• Review/revise general/specific plan policies to promote development patterns that encourage walking and circulation policies that emphasize pedestrian travel and modify zoning ordinances to include pedestrian-friendly design standards. • Include pedestrian improvements in capital improvement programs. • Designate a staff person as a Pedestrian Program Manager.
20. Promote Traffic Calming Measures	• Include traffic calming strategies in the transportation and land use elements of general and specific plans. • Include traffic calming strategies in capital improvement programs.

4.2.3 Regulatory Setting

Federal, State, and regional control authorities regulate air quality in the San Francisco Bay Area (Bay Area) air basin. EPA is involved in local air quality planning through the Federal Clean Air Act (CAA), as amended by the Clean Air Act Amendments of 1990. At the State level, the Lewis-Presley Air Quality Management Act (originally adopted in 1976 and substantially amended in 1987) and the

California Clean Air Act of 1988 set air quality planning and regulatory responsibilities for the basin. CARB is charged with the responsibility for coordinating efforts to attain and maintain ambient air quality standards and conducting research into the causes of, and solutions to, air pollution problems.

Federal Clean Air Act. The goal of the Clean Air Act of 1970 was "to protect and enhance the quality of the Nation's air resources". In 1990, the U.S. Congress adopted the federal Clean Air Act Amendments (CAAA), which updated the nation's air pollution control program. The CAAA established a number of requirements, including new deadlines for achieving federal clean air standards.

The EPA is the federal agency charged with administering the CAAA and other air quality-related legislation. As a regulatory agency, EPA's principal functions include setting NAAQS; establishing minimum national emission limits for major sources of pollution; and promulgating regulations. The CAAA require EPA to approve state implementation plans (SIPs) to meet and/or maintain the national AAQS. California's SIP is comprised of plans developed at the regional or local level. The approved SIP for the Bay Area (2001 Ozone Attainment Plan) consists of the Emission Inventory, Attainment Assessment, Control Strategy, and Contingency Measures and adopted rules and regulations.

The Clean Air Act Amendments of 1990 are extremely broad. The major titles of the 1990 Amendments address attainment of air quality standards, mobile source emissions, air toxins, acid rain, a new federal permit program, enforcement, and protection of stratospheric ozone. The titles that most substantially affect the air quality analysis for the project are Title I (attainment and maintenance provisions) and Title II (mobile source provisions).

Title I of the Clean Air Act Amendments of 1990. The goal of Title I is to attain federal air quality standards for six criteria pollutants. These six are Ozone (O_3), carbon monoxide (CO), fine particulates (PM_{10}), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). The 1990 Amendments divided the nation into five categories of planning regions, depending on the severity of their pollution, and set new timetables for attaining set air quality standards. The categories range from "marginal" to "extreme". Attainment deadlines are from 3 to 20 years depending on the category.

Title I also requires each non-attainment area to submit a comprehensive inventory of actual emissions as part of a State Implementation Plan (SIP) revision to demonstrate the means for achieving federal compliance by the established deadlines. Each non-attainment area must achieve a 15 percent reduction from its actual 1990 emissions inventory within 6 years. Thereafter, each area must achieve a 3 percent annual reduction.

Title II of the Clean Air Act Amendments of 1990. Title II of the 1990 Amendments, which contains provisions to control emissions from mobile sources, includes the following measures to reduce pollutants from mobile sources: (1) mandatory use of cleaner, reformulated gasoline in those cities with the most severe ozone problem, (2) use of cleaner fuels, such as methanol and natural gas, to meet particulate standards, and (3) requirements on auto manufacturers to reduce tailpipe emissions of hydrocarbons (HC) and oxides of nitrogen. Section 177 of Title II permits California

to adopt stricter vehicle emission standards and allow other states to adopt California's stricter standards.

The California Clean Air Act (CCAA). In 1988, the California Clean Air Act (CCAA) was signed into law and amended in 1992. The CCAA requires that local Air Pollution Control Districts prepare and adopt a Clean Air Plan which demonstrates how the state air quality standards will be attained and maintained. The Plan must, therefore, discuss the sources of emissions, how the amount of these emissions is expected to change in the future, and emission control strategies. The California Air Resources Board (CARB) is the State agency responsible for coordinating both State and federal air pollution control programs in California. CARB approves local clean air plans (CAPs) which address attainment and maintenance of State ambient air quality standards as mandated by the CCAA. The CARB also coordinates and approves local plans which eventually become part of the SIP for submittal to the EPA.

Bay Area Air Quality Management District (BAAQMD). In 1955, the California Legislature created BAAQMD. The agency is primarily responsible for assuring that the National and State ambient air quality standards are attained and maintained in the Bay Area. The BAAQMD is also responsible for responding to citizen complaints, monitoring meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities. The BAAQMD does not have authority to regulate emissions from motor vehicles.

Clean Air Plan (CAP). As discussed under *Regional Air Quality Planning* above, the BAAQMD, the Association of Bay Area Governments (ABAG), and the Metropolitan Transportation Commission (MTC) share responsibility with the CARB for ensuring that State and national ambient air quality standards are met. State law assigns local air districts the primary responsibility for control of air pollution from stationary sources while reserving to the CARB an oversight function. The BAAQMD, ABAG, and MTC are responsible for developing regulations governing the emission of air pollution, permitting and inspecting stationary sources of air pollution, monitoring of ambient air quality, and air quality planning activities, including implementation of transportation control measures. The BAAQMD and ABAG first adopted a Clean Air Plan in 1991 and revised the document in 1994, 1997, and 2000.

The CCAA requires regions that do not meet the State ozone standard to update Clean Air Plans every three years. Following the 2000 CAP the BAAQMD and ABAG adopted Bay Area Ozone Strategy in 2005 to meet this requirement. The 2005 Ozone Strategy is the latest triennial update to the Bay Area strategy to achieve the State one-hour ozone standard, including new control measures. Currently the BAAQMD is in the process of developing the 2009 Clean Air Plan.

Clean Air Plan Consistency. A key element in air quality planning is to make reasonably accurate projections of future human activities that are related to air pollutant emissions. Most important is vehicle activity. The BAAQMD uses population projections made by the Association of Bay Area Governments and vehicle use trends made by the Metropolitan Transportation Commission to formulate future air pollutant emission inventories. The basis for these projections comes from cities and counties. In order to provide the best plan to reduce air pollution in the Bay Area, accurate projections from local governments are necessary. When General Plans

are not consistent with these projections, they cumulatively reduce the effectiveness of air quality planning in the region.

Air Pollution and Air Quality Standards. The Federal and California Clean Air Acts establish ambient air quality standards for different pollutants. NAAQS were established by the federal Clean Air Act for the six criteria pollutants (CO, O_3, NO_2, PM_{10}, SO_2, Pb, and most recently added $PM_{2.5}$). Air quality studies generally focus on five pollutants that are most commonly measured and regulated: CO, O_3, NO_2, SO_2, and suspended particulate matter, i.e., PM_{10} and $PM_{2.5}$ (all described above under 4.2.2, *Setting*).

Greenhouse Gas Regulation

State of California

EO-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, greenhouse gas emission reduction targets as follows: by 2010, reduce greenhouse gas emissions to 2000 levels; by 2020, reduce greenhouse gas emissions to 1990 levels; by 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels (CA, 2005).

CEQA

On January 8, 2009, in accordance with its charge under Public Resources Code section 21083.05, the Governor's Office of Planning and Research (OPR) released preliminary draft regulatory guidance with respect to the analysis and mitigation of the potential effects of greenhouse gas emissions. OPR will hold two public workshops to present and discuss the preliminary draft guidance before submitting its proposal to the California Resources Agency.

The obligation for public agencies to address the potential environmental effects of greenhouse gas emissions from projects arises from the California Environmental Quality Act (CEQA, Public Resources Code Section 21000 et seq.), which requires agencies to identify a project's potentially significant effects on the environment, and to mitigate significant effects whenever feasible.

Public Resources Code section 21083.05 further suggests that greenhouse gas emissions and their effects are appropriate subjects for CEQA analysis. Section 21083.05 directs OPR to develop draft CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." It further directs that, "OPR shall, on or before July 1, 2009, prepare, develop and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions. On or before January 1, 2010, the Secretary shall certify and adopt guidelines prepared and developed by OPR."

The preliminary draft regulatory language proposed by OPR is consistent with the authority granted by CEQA and with CEQA case law. Because this language is intended to clarify and make specific existing state law, it must be consistent with existing statutes and regulations, and must meet the requirements of the Administrative Procedures Act (APA). OPR has attempted to make the preliminary draft Guideline amendments consistent with the existing CEQA framework for environmental analysis, including but not limited to the determination of baseline conditions, determination of significance, and evaluation of mitigation measures. For these reasons, OPR does not identify a threshold of significance for greenhouse gas emissions, nor have they prescribed assessment methodologies or specific mitigation measures. The preliminary draft amendments encourage lead agencies to consider many factors in performing a CEQA analysis, but preserve the discretion granted by CEQA to lead agencies in making their own determinations based on substantial evidence. The preliminary draft amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

California Global Warming Solutions Act (AB 32)

In response to the Governor Schwarzenegger's Executive Order (S-3-05), the California Global Warming Solutions Act (Assembly Bill 32) was adopted in 2006. The law requires the CARB to adopt rules and regulations that would reduce greenhouse gas emissions statewide to 1990 levels by the year 2020.

CARB published a list of discrete greenhouse gas emission reduction measures for early implementation in April 2007 and the "Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration" in October 2007. Emission reductions include carbon sequestration projects and best management practices that are technologically feasible and cost-effective.

AB 32 requires ARB to prepare a Scoping Plan to achieve reductions in GHG emissions in California. On October 15, 2008 ARB staff presented the final draft of the AB 32 Scoping Plan for public review. The Scoping Plan was adopted by Board on December 11, 2008.

Measures identified in the Scoping Plan will result in reduction of statewide emissions to 1990 levels by 2020. Thus, consistency with the Scoping Plan may be a condition upon which significance can be determined. The table below lists the measures and notes their applicability to DSP sources.

AB 32 Proposed Scoping Plan Measures

Scoping Plan Measure	Description	Applies to DSP?
SPM-1: California Cap-and-Trade Program linked to Western Climate Initiative	Implement a broad-based cap-and-trade program that links with other Western Climate Initiative Partner programs to create a regional market system.	No
SPM-2: California Light-Duty Vehicle GHG Standards	Implement adopted Pavley standards and planned second phase of the program. AB 32 states that if the Pavley standards (AB 1493) do not remain in effect, CARB shall implement equivalent or greater alternative regulations to control mobile sources.	No
SPM-3: Energy Efficiency	Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts. The Proposed Scoping Plan considers green building standards as a framework to achieve reductions in other sectors, such as electricity.	Yes
SPM-4: Renewables Portfolio Standard	Achieve 33 percent renewables by both investor-owned and publicly-owned utilities.	No
SPM-5: Low Carbon Fuel Standard (LCFS)	The LCFS is a Discrete Early Action item and the subject of EO S-1-07. CARB is developing a regulation to reduce the carbon intensity of transportation fuels by at least ten percent by 2020.	Yes
SPM-6: High GWP Gases	This measure includes 6 sub-measures that reduce high GWP gases from mobile sources, consumer products, stationary sources, and semiconductor manufacturing.	Yes
SPM-7: Sustainable Forests	Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. This measure is expected to play a greater role in achieving the 2050 goals in EO-3-05 than the 2020 goal in AB 32).	No
SPM-8: Water	Continue efficiency programs and use cleaner energy sources to move water. California will also establish a public goods charge for funding investments in water efficiency that will lead to as yet undetermined reductions in GHGs.	Yes

Scoping Plan Measure	Description	Applies to DSP?
SPM-9: Vehicle Efficiency Measures	Implement light-duty vehicle efficiency measures. CARB is pursuing fuel-efficient tire standards and measures to ensure properly inflated tires during vehicle servicing.	No
SPM-10: Goods Movement	Implement adopted regulations for port drayage trucks and the use of shore power for ships at berth. Improve efficiency in goods movement operations.	No
SPM-11: Heavy/Medium-Duty Vehicles	Adopt heavy- and medium-duty vehicle and engine measures (aerodynamic efficiency, vehicle hybridization, and efficiency).	No
SPM-12: Million Solar Roofs Program	Install 3,000 MW of solar-electric capacity under existing programs.	No
SPM-13: Local Government Actions and Regional Targets	Encourage local governments to set quantifiable emission reduction targets for their jurisdictions; recommend regional greenhouse gas emission reduction targets. This measure is partially implemented by SB 375.	Yes
SPM-14: High Speed Rail	This measure supports implementation of plans to construct and operate a high speed rail (HSR) system between Northern and Southern California.	No
SPM-15: Recycling and Waste	Increase waste diversion, composting, and commercial recycling, and move toward zero-waste.	Yes
SPM-16: Agriculture	Encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020. Increase efficiency and encourage use of agricultural biomass for sustainable energy production. CARB has begun research on how to reduce GHGs from nitrogen fertilizer use..	No
SPM-17: Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	Require assessment of large industrial sources (greater than 0.5 $MMTCO_2E$ per year) to determine whether individual sources within a facility can cost-effectively reduce GHG emissions and provide other pollution reduction co-benefits.	No

Executive Orders

To support the California Global Warming Solutions Act Governor Schwarzenegger has issued a number of executive orders.

Executive Order S-01-07 on January 18, 2007, which mandates that: 1) a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and 2) that a low carbon fuel standard for transportation fuels be established for California.

Executive Order S-13-08 on November 14, 2008, which mandates that by May 30, 2009, OPR, in cooperation with the California Resources Agency, shall provide state land-use planning guidance related to sea level rise. The extent to which UCSB is susceptible to sea level rise which may result from global warming has yet to be determined.

Executive Order S-14-08 on November 17, 2008, which mandates that pursuant to a memorandum of understanding; Department of Fish and Game and the California Energy Commission will create a "one-stop" process for permitting renewable energy generation power plants in order to facilitate achieving 33% renewable energy by 2020. This is consistent with Scoping Plan Measure 4 (SPM-4).

SB 97

Senate Bill 97 (Stats. 2007, Ch. 185), signed by the Governor on August 24, 2007, directs the Governor's Office of Planning and Research (OPR) to develop CEQA "guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." OPR is required to "prepare, develop, and transmit" the guidelines to the Resources Agency on or before July 1, 2009. The Resources Agency must certify and adopt the guidelines on or before January 1, 2010. The June 19, 2008 Technical Advisory published by OPR provides an overview of requirements for GHG analysis under CEQA but contains limited new information. As discussed in the Technical Advisory, CEQA requirements for GHG analysis are expected to change over the next year.

SB 375

Senate Bill 375 requires the ARB to develop regional greenhouse gas emission reduction targets to be achieved from the automobile and light truck sectors for 2020 and 2035. The 18 metropolitan planning organizations (MPOs) in California will prepare a "sustainable communities strategy" to reduce the amount of vehicle miles traveled (VMT) in their respective regions and demonstrate the ability for the region to attain ARB's targets.

- ARB would later determine if each region is on track to meet their targets.
- Builders also would get relief from certain environmental reviews under California Environmental Quality Act if they build projects consistent with the new sustainable community strategies.
- In addition, cities would get extra time -- eight years instead of five -- to update housing plans required by the state.

State of California Emission Reduction Strategies. The initial report of the Climate Action Team was published in March 2006. This report identifies recommended measures that account for a reduction of approximately 68 million metric tons of CO_2-equivalents ($MMTCO_2E$). The methodologies for determining the emission reductions were updated in the *Updated Macroeconomic Analysis of Climate Strategies Presented in the March 2006 Climate Action Team Report* (October 2007) published in October 2007. In June 2007, the CARB approved the *Proposed Early Actions to Mitigate Climate Change in California*. In October 2007 CARB published the *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California*. The two ARB reports combined include 44 measures that are estimated to reduce greenhouse gas emissions by 42 $MMTCO_2E$. Of the 44 measures, nine are identified as "discrete early actions" that are regulated and enforceable by January 1, 2010. The remaining 35 measures are to be initiated by CARB between 2007 and 2012 (CARB, September 2007). To achieve the 2020 target, California must reduce its emissions by 177 $MMTCO_2E$ (CEC, 2006).

As discussed above, the State of California is in the process of identifying and implementing numerous measures to reduce greenhouse gas emissions in California. Some of these measures have a direct relation to emissions at the local level. Those measures that will contribute to Cotati's community emission reductions are summarized below.

SB 1368 (Regulation of greenhouse gases from load serving entities): SB 1368 requires the California Energy Commission, in consultation with the CPUC and the State Air Resources Board, to establish a greenhouse gas emissions performance standard for

baseload generation that would not exceed the emissions of a combined-cycle natural gas power plant. In 2002 the State of California adopted a goal to achieve 20 percent of retail electricity sales from renewable energy sources by 2017, referred to as the Renewable Portfolio Standard. In 2003 the goal was accelerated to 2010. The emission reductions from the Renewable Portfolio Standard are included under the reductions for SB1368. (CEPA, 2006 and 2007)

Additional RPS: The *2004 Energy Report Update* recommended an increased goal of 33 percent renewable portfolio standard by 2020. This goal was adopted in the *2005 Energy Action Plan II*. In addition, the Public Utilities Commission is evaluating the use of renewable energy certificates for RPS compliance. The Public Utilities Commission is evaluating interaction between RPS program requirements and greenhouse gas emissions cap. (CEPA, 2006 and 2007)

Urban Forestry: CalFire is working with the U.S. Forest Service's Center for Urban Forestry Research (CUFR), CCAR and others to develop a new forestry protocol for urban forestry. An initial draft protocol outline for measuring Urban Forestry emission reductions has been completed and is being reviewed by the task group assigned. Partnering with local government and private sector entities the objective of this strategy is to expand efforts with the end result of five million additional trees in urban areas by 2020. (CEPA, 2007)

Green Building Initiative: Executive Order S-20-04, sets a goal of reducing energy use in public buildings and private commercial buildings by 20% by the year 2015, as compared to 2003 levels, and recommends that buildings be LEED Silver certified or higher.
State agency combined green building standards adopted by the California Building Standards Commission on July 17, 2008, as amended for publication are found in the 2007 California Green Building Standards Code, CCR, Title 24, Part 11.

California Solar Initiative: In late 2006, the Public Utilities Commission finalized implementation rules which took effect beginning January 2007. The Initiative is designed to deliver approximately 2,000 megawatts of clean, emissions-free energy to the California grid by 2016.

Vehicle Climate Change Standards: AB 1493 required CARB to achieve the maximum feasible and cost-effective reduction of greenhouse gas emissions from passenger vehicles and light-duty trucks. These vehicle standards were adopted by CARB in September 2004 and are scheduled to take effect in the 2009 model year. (CARB, 2007)

Strengthen Light Duty Vehicle Technology: This would create new standards that would phase in beginning in the 2017 model year (following up on the existing mid-term standards that reach maximum stringency in 2016). The technologies that might be employed include highly efficient hybrid vehicles, use of lightweight materials to reduce vehicle mass, and reductions in air conditioning related emissions through the use of cool paints, low-GWP refrigerants, or other approaches. (CARB, 2007)

Heavy-duty Vehicle Emission Reductions: This would create new standards that would improve efficiency of the vehicles in areas such as improved aerodynamics, climate engine-based improved efficiency, vehicle weight reduction, rolling and inertia resistance improvements, and optimized vehicle operation. (CEPA, 2006)

Diesel Anti-idling: In July 2004 the ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling. (CEPA, 2006)

Alternative Fuels – Biodiesel Blends and Ethanol: Regulations would be developed to require the use of 1 to 4 percent biodiesel displacement of California diesel fuel. In addition, strategies for increasing the use of ethanol or being developed.

Low Carbon Fuel Standard: Will require fuel providers (including producers, importers, refiners, and blenders) to ensure that the mix of fuels they sell in California meets, on average, a declining standard for greenhouse gas emissions that result from the use of transportation fuel.

Improve Transportation Energy Efficiency: This strategy builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools and information that advance cleaner transportation and reduce climate change emissions. This includes policies governing land use, enhancing outreach and public education programs, and diversifying the transportation energy infrastructure. (CEPA, 2006)

Smart Land Use and Intelligent Transportation: Smart land use is an umbrella term for strategies that integrate transportation and land-use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land-use patterns within each jurisdiction or region to match population increases, workforce and socioeconomic needs for the full spectrum of the population. (CEPA, 2006)

Intelligent Transportation Systems (ITS) is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services. (CEPA, 2006)

Hydrofluorocarbon Reduction Strategies: This includes consideration of several measures to reduce HFC emissions from vehicular and commercial refrigeration systems such as a ban on retail sale of HFC in small cans, require only low-GWP refrigerants be used in new vehicular systems, adopt specifications for new commercial refrigeration, require systems be leak-free at smog-check or be empty and inoperable, and enforce the federal ban on releasing HFCs.

Water Use Efficiency: This strategy focuses on reducing potable water use and wastewater treatment and thereby reducing electricity and natural gas use for the conveyance, treatment, and distribution of water and wastewater.

Regional

Bay Area Climate Protection Program (BAAQMD). BAAQMD initiated a Climate Protection Program in 2005. On June 1, 2005 the Air District Board of Directors adopted a resolution establishing a Climate Protection Program. The Climate Protection Program was the regions first steps towards acknowledging the link between climate protection and programs to reduce air pollution in the Bay Area. A Committee on Climate Protection was formed to provide direction on BAAQMD climate change activities.

The focus of the Climate Protection Program is the integration of climate protection activities into existing BAAQMD programs. In addition, the BAAQMD's climate protection program emphasizes collaboration with ongoing climate protection efforts at the local and State level, public education and outreach and technical assistance to cities and counties in the Bay Area air basin.[2]

Current Climate Protection Program Activities:

- Integration – The District is continually seeking ways to integrates climate protection into current District functions, including grant programs, CEQA commenting, regulations, inventory development, and outreach.
- Climate Neutral – The District is evaluating and implementing measures to reduce electricity and fuel consumption, and therefore greenhouse gas emissions, associated with District activities. The District plans to be carbon neutral by offsetting remaining emissions.
- Climate Protection Grant Program – On November 10, 2006 the District announced a $3 million dollar grant program for climate protection activities in the Bay Area.
- GHG Technology Study – The District conducted a region-wide study to identify and evaluate potential greenhouse gas emission control options for application at stationary sources in the Bay Area region in California. The study identified the industries and source categories which most significantly contribute to greenhouse gas emissions and potential mitigation options for controlling those emissions. The study qualitatively evaluated the effectiveness, costs, and impacts of each of the most promising options.
- Bay Area GHG Emission Inventory – The BAAQMD has prepared a District-wide Source 'Inventory of Bay Area Greenhouse Gas Emissions'.
- Promotion of Energy Efficiency –The BAAQMD recognizes that energy efficiency is key to protecting air quality and our climate and has provided an Energy Efficiency webpage for additional information. The BAAQMD included a control measure, Stationary Source Measure 15, to promote energy efficiency in the 2005 Ozone Strategy.
- K-12 Curriculum Development – BAAQMD t is working to develop a K-12 climate protection curriculum.

Cotati

Cities for Climate Protection Program. In April 2002, the City passed Resolution 02-21: Endorsing the Aims and Objectives of the Cities for Climate Protection Campaign. By doing so, Cotati agreed to consider undertaking the Cities for Climate Protection five-milestone program to reduce greenhouse gas and air pollution emissions:

1. Conduct a baseline greenhouse gas emissions inventory and forecast to determine the sources and quantity of greenhouse gas emissions in the jurisdiction;
2. Establish a greenhouse gas emissions reduction target;
3. Develop a climate action plan consisting of both existing and future actions which, when implemented, will meet the local greenhouse gas reduction target;
4. Implement the action plan; and

[2] http://www.baaqmd.gov/pln/climatechange.htm#whatiscc

5. Monitor and report progress.

In September 2003 Cotati's municipal baseline emissions were reported in *Standing Together for the Future: Greenhouse Gas Emission Inventories for Eight Cities in Sonoma County, California*. In October 2004 the City passed Resolution 04-88: Adopting a Goal of 20% Reduction in Greenhouse Gas Emissions from City of Cotati Municipal Operations from 2000 to 2010, thus completing the second milestone in the Cities for Climate Protection program. In August 2005 the City adopted Resolution 05-66 which established a community-wide reduction goal of 30 percent below 1990 levels by 2015. In May 2008 the City finalized the *City of Cotati Greenhouse Gas Emissions Reduction Action Plan Analysis*, thus completing milestone 3 of Resolution 02-21. The type of compact, pedestrian oriented development in the DSP is consistent with these goals.

In addition, the City has implemented, or is in the process of implementing, many programs that support the reduction of greenhouse gas emissions. A few of these programs are summarized below.

City of Cotati Greenhouse Gas Emissions Reduction Action Plan Analysis (Action Plan). Numerous measures to reduce GHG emissions, reduce energy costs, address equipment problems, and reduce the uncertainty of the city's future annual energy costs are identified in the Action Plan. These measures are broken in to five different "plans". The plans result in a greenhouse gas emission reductions ranging from 23.4 percent (Plan A) to 69.5 percent (Plan E) below 2000 levels. This document can be found on the City of Cotati website (Engineering Services).

The next phase for reducing GHGs is the recent formation of a countywide partnership under the auspices of the Sonoma County Transportation Agency. As a member of this Joint Powers agency, Cotati will be working on an action plan and implementation of measures to reduce GHGs countywide.

Sustainable Building Program. Cotati has had a Sustainable Building Program since 2005. This program is mandatory for all new development and uses the Green Points Checklist. Projects must earn a minimum 90 points (41 of which must be from the energy category), exceed Title 24 by 15 percent, preplumb for solar, incorporate 30 percent flyash, and utilize 50 percent native plant material, 80 percent drought tolerant plant material, and 80 percent drip irrigation.

LEED Certified Police Facility. In 2004 the City completed construction on its new LEED Silver Certified police facility. This facility includes a 35 kW photovoltaic system and ground heat pumping for heating and cooling of the building.

Water Conservation Program. In 2003 the City adopted a Water Conservation Program, though a residential toilet replacement program began in 1996. Currently, the Program includes free home water use evaluations, free efficiency showerheads and faucet aerators, residential clothes washer rebate program, residential and non-residential toilet replacement program, and education on outdoor water conservation and watershed protection. These programs are expected to reduce Cotati's potable water usage by 32 MG per year by the year 2015. This in turn will save electricity that would have been used to pump the additional 32 MG of potable water to the City and pump wastewater from the City to the Laguna Treatment Plant.

4.2.4 Methodology

The Air Quality analysis is done both quantitatively and qualitatively. For qualitative evaluation regional plans are used in the consistency evaluation of the Downtown Specific Plan. For quantitative evaluation the URBEMIS2002 model is used (the work was completed prior to the issuance of the newer URBEMIS2007 model). The URBEMIS2002 model is designed to estimate air emissions from land use development projects. Project buildout data (number of residential units and square footage of commercial and retail space) is inputted into the model to generate project emissions. The model allows mitigation measures to be integrated in to more accurately estimate total emissions from area sources and motor vehicle trips (operational sources).

Significance Thresholds

The CEQA Guidelines state that a project could result in a significant air quality impact if it would:

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

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

d. Expose sensitive receptors to substantial pollutant concentrations.

e. Create objectionable odors affecting a substantial number of people.

f. Conflict with or obstruct implementation of greenhouse gas reduction measures under Assembly Bill 32.

Specific significance thresholds are set by the BAAQMD, in their CEQA Guidelines. The CEQA thresholds can be downloaded from:

http://www.baaqmd.gov/pln/ceqa/index.htm

The current thresholds for operation of individual development projects in the Air Basin are contained in Table 4.2-4.

Construction. Construction emissions are relatively short in duration, and may vary widely among projects. According to their CEQA Guidelines, page 14, BAAQMD does not support quantification of construction emissions. The BAAQMD finds construction impacts less than significant if all control measures are implemented. The CEQA Guidelines recommend Basic Measures for all construction projects and Enhanced Measures for projects greater than 4 acres.

Table 4.2-4.
California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	NATIONAL STANDARDS[1]	
			Primary [2,3]	Secondary [2,4]
Ozone	8-hour	0.07 ppm (154 µg/m3)	0.08 ppm (176µg/m3)	—
	1-hour	0.09 ppm (180 µg/m3)	--[5]	Same as primary
Carbon monoxide	8-hour	9 ppm (10 mg/m3)	9 ppm (10 mg/m3)	—
	1-hour	20 ppm (23 mg/m3)	35 ppm (40 mg/m3)	—
Nitrogen dioxide	Annual	—	0.053 ppm (100 µg/m3)	Same as primary
	1-hour	0.25 ppm (470 µg/m3)	—	—
Sulfur dioxide	Annual	—	0.03 ppm (80 µg/m3)	—
	24-hour	0.04 ppm (105 µg/m3)	0.14 ppm (365 µg/m3)	—
	3-hour	—	—	0.5 ppm (1,300 µg/m3)
	1-hour	0.25 ppm (655 µg/m3)	—	—
PM_{10}	Annual	20 µg/m3	50 µg/m3	Same as primary
	24-hour	50 µg/m3	150 µg/m3	Same as primary
$PM_{2.5}$	Annual	12 µg/m3	15 µg/m3	
	24-hour	—	65 µg/m3	
Lead	Calendar quarter	—	1.5 µg/m3	Same as primary
	30-day average	1.5 µg/m3	—	—

Notes:

1. Standards, other than for ozone and those based on annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
2. Concentrations are expressed first in units in which they were promulgated. Equivalent units are given in parenthesis.
3. Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the EPA.
4. Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
5. The national 1-hour ozone standard was revoked by EPA on June 15, 2005.

Operation. Significance thresholds for operation impacts are set by BAAQMD, in their CEQA Handbook. The current thresholds for individual development projects in the San Francisco Bay Area air basin (Bay Area air basin) are shown in Table 4.2-5.

The DSP includes a series of projects involving a number of properties and potential unit numbers over a relatively long time period. The sequence and size of these projects has been presented conceptually in the Downtown Specific Plan, but the ultimate scenario may vary from that
depiction. In addition, any number of projects could occur at the same time,

Table 4.2-5.
BAAQMD Air Quality Thresholds[1]

Max Daily Thresholds		
Pollutant	**Operation**	
	Daily Threshold	**Annual Threshold**
NOx	80 lbs/day	15 tons/yr
VOC (ROG)	80 lbs/day	15 tons/yr
PM_{10}	80 lbs/day	15 tons/yr
CO	550 lbs/day	N/A
Toxic Air Contaminants and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	1. Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million. 2. Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI.	
Odor	**Projects locating near existing source of odors:** Project has a significant odor impact if it is proposed for site that is closer to an existing odor source than any location where there has been: a) more than one confirmed complaint per year averaged over a three year period, or b) three unconfirmed complaints per year averaged over a three year period. **Projects locating near a source of odors where there is no existing nearby development and for odor sources locating near existing receptors:** determination of significance is based on the distance and frequency at which odor complaints from the public have occurred in vicinity of a similar facility.	

Source: http://www.baaqmd.gov/pln/ceqa/ceqa_guide.pdf

Note:
1. See Appendix 4.2-A for CEQA Guidelines Section 2.3, Thresholds of Significance.

increasing the severity of the impact in aggregate.

Consistency. The long-term impact of the DSP is perhaps best characterized by analyzing the consistency of the project with the most recent Clean Air Plan. Air quality is a regional issue; the air quality in Cotati is linked with and affected by air quality in the greater Bay Area. As a regional issue, air quality is addressed and improved by regional and even statewide efforts, as evidenced by the marked improvement in air quality statewide with the advent of cleaner burning fuels and vehicles. To this end, the BAAQMD Clean Air Plan sets forth projected growth, associated emissions, and strategies to achieve attainment of air quality objectives. By comparing the growth anticipated in the DSP to the growth included in the Clean

Air Plan, and analyzing compliance with the strategies set forth in the Clean Air Plan, the overall impact of DSP can be determined.

Specifically, impacts are considered significant under these criteria if:

- Vehicle miles traveled (VMT) from the project would be greater than the VMT that would be anticipated under the original land use designation
- The project would result in sensitive receptors being in close proximity to sources of objectionable odors, toxics or accidental releases of hazardous materials
- Population growth will exceed the values included in the current CAP, and
- The rate of increase in VMT for the jurisdiction is greater than the rate of increase in population
- Reasonable efforts to implement transportation control measures (TCMs) from the CAP cannot be demonstrated

The DSP is designed to be consistent with these objectives, especially allowing for a reduction in VMT by providing housing near employment opportunities and improved transit.

CO Hotspots. Impacts are also considered significant if the project would create or contribute to a CO "Hotspot." These localized areas of CO concentrations can result in health hazards if concentrations exceed the State thresholds (9 ppm 8-hour or 20 ppm 1-hour) where sensitive receptors are exposed. Land uses such as parks, hospitals, schools and convalescent homes are considered to be sensitive receptor locations. Sensitive receptors in this area include residential dwellings and senior living facilities.

A CO hot spot analysis should be performed for projects which meet any of the following criteria: (1) vehicle emissions of CO would exceed 550 lb/day, (2) project traffic would impact intersections or roadway links operating at Level of Service (LOS) D, E, or F or would cause LOS to decline to D, E, or F; or (3) project traffic would increase traffic volumes in nearby roadways by 10 percent or more.[3]

4.2.6 Impacts and Mitigation Measures

Less than Significant Impacts

The DSP is anticipated to be consistent with the most recent Clean Air Plan (threshold a), and would not create carbon monoxide hot spots at intersections, exceed other air pollutant standards (thresholds b, c, d), create significant odor impacts (threshold e), or cause significant greenhouse gas emissions (threshold f).

The Bay Area 2005 Ozone Strategy reviews the region's progress over the years in reducing ozone levels, describes current conditions, and charts a course for future actions to further reduce ozone levels in the Bay Area.

[3] BAAQMD CEQA Guidelines, page 16.

The control strategy is a central element of the Bay Area 2005 Ozone Strategy (Ozone Strategy). The control strategy outlines a set of control measures to further reduce ozone precursor emissions in order to reduce ozone levels in the Bay Area and to reduce transport of pollution to downwind regions. The control strategy includes stationary source measures, mobile source measures and transportation control measures. On January 4, 2006, the Board of Directors of the Bay Area Air Quality Management District adopted the Ozone Strategy and certified the Final EIR.

According to the Ozone Strategy, Sonoma County has not recorded a single days exceedance of the state's one-hour ozone standard since 1992.

The current CAP based their projections on the ABAG population forecast. ABAG used the 1998 General Plan to determine Cotati's contribution to regional growth.[4] However, as discussed in the project description and section 4.10 Population and Housing, the ABAG projections are lower than the City's projections by approximately 600 people (8500 vs. 9100 in 2030, which is only a six percent difference). In addition, buildout of the DSP is substantially less than that allowed by the 1998 General Plan within the same geographic area. Non-residential square footage of the DSP is approximately 16 percent less than allowed by the General Plan; residential dwelling units are approximately 24 percent less than allowed by the General Plan. Because of the car reduction strategies embedded in the DSP and its lower development potential than the General Plan, the DSP is consistent with the Clean Air Plan.

As stated above, the proposed DSP is consistent with, and helps implement, a number of strategies expressed in the CAP for the reduction of vehicle trips and consequently, emissions in the region, for example, the implementation of the DSP would result in:

- Tree planting throughout the planning area[5]
- Increased transit service[6]
- Mixed-use development near transit, potentially reducing vehicle trips
- Higher density housing near traffic hubs
- Improvements in traffic flow
- Improvements to pedestrian, and bicycle facilities
- The construction of multi-modal paths

When traffic at an intersection or along a roadway is sufficiently delayed, CO "hotspots" may occur. These are areas where tailpipe CO emissions concentrate at unhealthy levels. CO hotspots can be modeled from projected traffic and intersection operations through software programs which project the likelihood of a hotspot.

The CO impacts associated with buildout of the DSP projected to be less than significant. CO impacts are difficult to quantify at particular locations (i.e., potential

[4] Pers.Comm. Greg Tholen, Senior Environmental Planner, BAAQMD, 6/28/07.
[5] Section 3.2.4 Street Trees and Streetscapes of the Downtown Specific Plan is the street tree plan for the planning area.
[6] Section 2.2.1 Circulation and Mobility Plan of the Downtown Specific Plan contains policies directed at increasing transit services.

"hotspots") in both the short and long-term because the phasing and exact building size and type are not known at this time.

CO Hotspots are rare and becoming fewer as vehicle performance and fuels continue to be improved. In addition, CO computer models, because of a layering of conservative inputs, over-predict CO concentrations. An investigation of carbon monoxide studies in California[7] undertaken at UC Davis and sponsored by Caltrans concluded:

> *The implications of these findings are significant for the transportation planning community and for the need to conduct transportation project-level CO analyses. California data indicate that in virtually all metropolitan areas outside Los Angeles and where the vehicle fleet meets existing and projected standards, no existing transportation facility is expected to cause a CO violation… Thus, for CO analysis purposes, any future transportation project reasonably can be compared to existing facilities in the vast majority of the state. If future transportation projects have similar sizes and characteristics as existing facilities, and the existing facilities do not cause a CO violation, it can be inferred that the planned projects, accounting for changes in background concentration, should not cause violations either. This would allow for the elimination of microscale modeling for most transportation projects.* [8]

Furthermore, the project specific findings from the traffic analysis determine that the conditions resulting from implementation of the DSP are not conducive to CO hotspots. The traffic study determined that buildout of the DSP will not result in decreased LOS on any of the roadways or intersections in the planning area.

Criteria pollutants would increase at buildout under the Specific Plan. Emissions associated with project buildout (without assuming any plan components which may mitigate impacts) were determined using URBEMIS2002 (see Appendix 4.2-B for complete air quality analysis)[9]. Table 4.2-7 reflects the unmitigated emissions of the project. In the unmitigated scenario, no thresholds are exceeded. When project components such as pedestrian and transit coverage are considered, the model yields the *mitigated* results shown in Table 4.2-6. Both the unmitigated models produce results that do not exceed AQMD thresholds. The DSP includes several measures which help to reduce vehicular trips and hence operational emissions. The trip reduction strategies include adding a mixture of uses, tree planting, increased transit service, increasing jobs, placing residents near services, park once garages, and designing a pedestrian orientated environment. The type of units which are proposed in the DSP also reduce area source emissions by encouraging more efficient utilization of land, and more efficient construction techniques. All of these mitigation elements have been integrated into the "mitigated" model, which results are shown in Table 4.2-8)

[7] http://aqp.engr.ucdavis.edu/Hotspot%20 Modeling/CO%20Issues/COSept02AWMA.pdf
[8] Eisinger, D. et. al., *A Reevaluation of Carbon Monoxide: Past Trends, Future Concentrations, and Implications for Conformity 'Hot Spot' Policies*. Journal of the Air & Waste Management Association. Vol. 52 page 1024. September 2002. (reproduced in Appendix 4.2-C)
[9] At the time of the analysis, the newer version of URBEMIS was not available, but the results would not be anticipated to differ.

Table 4.2-6. URBEMIS2002 Output for 2025 Buildout of Project (mitigated)					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**
Area Source Emissions Estimates					
Total (lbs/day, mitigated)	16.31	0.01	0.86	0.00	0.00
Operational (Vehicle) Emissions Estimates					
Total (lbs/day, mitigated)	19.55	14.66	163.07	0.37	56.20
Sum of Area and Operational Emissions Estimates					
Total (lbs/day, mitigated)	35.86	14.67	163.93	0.37	56.21
Thresholds	80	80	550	NA	80.0
Significant?	No	No	No	No	No

Table 4.2-7. URBEMIS2002 Output for 2025 Buildout of Project (unmitigated)					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**
Area Source Emissions Estimates					
Total (lbs/day, unmitigated)	16.31	0.01	0.86	0.00	0.00
Operational (Vehicle) Emissions Estimates					
Total (lbs/day, unmitigated)	21.37	16.21	180.02	0.41	61.95
Sum of Area and Operational Emissions Estimates					
Total (lbs/day, mitigated)	37.67	16.22	180.88	0.41	61.96
Thresholds	80	80	550	NA	80
Significant?	No	No	No	No	No

Uses allowed by the DSP are unlikely to be major odor sources. Odors from first-floor entertainment and service uses (especially restaurants) may, but the proximity of such uses is not generally a source of odor complaints to the BAAQMD. Individuals may find certain types of restaurant odors objectionable.

Greenhouse gas emissions of the project are important within the context of cumulative climate change impacts. The analysis of impacts on greenhouse gas emissions is therefore presented under cumulative impacts below. This project is designed to address issues of air quality by creating a pedestrian oriented environment that reduces reliance on single occupancy vehicle.

Significant Impacts
Development of the DSP could result in two significant impacts, as described below.

Impact AQ-1: Buildout of the various land uses proposed by the DSP would result in temporary emissions increases due to construction (thresholds a, b, and c).

The project will require the construction activities throughout the planning area over the next 20 years, such as:

- Demolition
- Grading
- Excavation (foundations and infrastructure)
- Construction
- Finishing (paint and coatings)

The severity of impacts related to construction activity is dependent upon the type, number, location and duration of projects occurring at any one time or within any one period in the planning area. A small project, for example, constructed at a time when there are no other construction projects in the planning area, may have negligible air quality impacts, and require no mitigation. While a large project or combination of small projects occurring together could have significant construction impacts. The combination of a sufficient number of projects at any one time could result in unmitigable temporary impacts. However, The BAAQMD finds construction impacts less than significant if all control measures are implemented**.**

Mitigation AQ-1: The City shall enforce portions of the Cotati Municipal Code relevant to dust, namely, Sections 14.34.090 and 17.30.070 E. Dust.

The City shall also ensure that all construction sites, regardless of size, shall implement BAAQMD *Basic Control Measures;* additional measures, listed as *Enhanced Control Measures*, shall be implemented at larger construction sites (greater than 4 acres) (refer to Table 4.2-7). In addition, all project permits shall limit truck idling time to five minutes and require that all construction equipment be properly maintained and tuned.

Significance after Mitigation: the City Code and BAAQMD Control Measures would reduce construction-phase air impacts to less-than-significant levels.

Table 4.2-8. Mitigation Measure AIR-1
Basic Control Measures – The following controls should be implemented at all construction sites. • Water all active construction areas at least twice daily • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites • Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets
Enhanced Control Measures – The following measures should be implemented at construction sites greater than four acres in area • All "Basic" control measures listed above • Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more) • Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc) • Limit traffic speeds on unpaved roads to 15 mph • Install sandbags or other erosion control measures to prevent silt runoff to public roadways • Replant vegetation in disturbed areas as quickly as possible
Optional Control Measures - The following control measures are strongly encouraged at construction sites that are large in area, located near sensitive receptors or which for any other reason may warrant additional emissions reductions • Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site • Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas • Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph • Limit the area subject to excavation, grading and any other construction activity at any one time.

Impact AQ-2: Increased vehicle and truck traffic generated at buildout of the DSP will increase the levels of toxic air contaminants (TACs) in the planning area (thresholds c, d).

The California Office of Environmental Health Hazard Assessment (OEHHA) recommends the 70-year lifetime exposure period for determining residential cancer risks. This recommendation is accepted by BAAQMD and required for use in risk assessments, including those conducted for CEQA only purposes. According to OEHHA, exposure durations of 9-years and 30-years may also be evaluated as supplemental information to show the range of cancer risk based on residency periods. The U.S. EPA considers 9 years to be the estimate of average residence

time, 30-years to be the high-end of residence time, and 70-years to be representative of lifetime exposure.

The 70-year exposure period ensures that a person residing in the vicinity of a freeway for a lifetime would be included in the evaluation. The lifetime (or 70-year exposure) has been the historical benchmark for comparing facility impacts on sensitive receptors. OEHHA recognizes that although it is not likely that most people will reside at a single residence for 70 years, it is common that people will spend their entire lives in a major urban area. While residing in urban areas it is quite possible to be exposed to the emissions of other sources at the next residence. In addition, people may increase their exposure to DPM or other TACs when they are not at their residences (e.g., traveling on highways).

The maximum individual cancer risks for positions relative to the edge of U.S. 101 were computed from modeled concentrations using the methods recommended by (OEHHA) for continuous exposure over a 70-year lifetime beginning in 2015. Computed 70-year cancer risks along Highway 101 both north and south of State Route 116 are reported in Appendix 4.2-D.

As shown in Table 1 in Appendix 4.2-D, cancer risk is expected to decrease in future years as emissions of diesel particulate matter from trucks and other vehicles decrease. The cancer risk in 2035 is expected to be half of that predicted in 2015. A person residing 125 feet from the edge of the Highway 101 north of State Route 116 would have a lifetime cancer risk of 10 in one million. A similar risk would occur for someone residing 135 feet from Highway 101 south of State Route 116. The difference in risk is attributable to the slightly higher volume of trucks that Caltrans reports south of State Route 116. People residing further away would have a lower risk. Since the BAAQMD considers lifetime cancer risk greater than 10 in one million as significant, the placement of new residences within 135 feet of the edge of Highway 101 should be avoided. Since this analysis included screening level predictions, it is possible that site-specific studies may result in lower predicted cancer risks.

There may also be an increase in commercial uses in the planning area, which will increase the amount of TACs released into the environment. Certain uses, such as restaurants and dry cleaners, among others, require permits to operate from the BAAQMD. The BAAQMD (through the Air Toxic Program, discussed below) reviews projects for VOCs, and TACs, and requires implementation of Best Available Control Technology to minimize TAC emissions. In general, uses possible under the Downtown Specific Plan, such as retail stores and restaurants, are not anticipated to be significant sources of VOCs or TACs.

Mitigation AQ-2: The City shall prohibit new sensitive uses, e.g., residences or convalescent homes, within the 135 feet of Highway 101.

Significance after Mitigation: the buffers recommended by the CARB would allow dispersal of TACs sufficiently to meet standards, and impacts are therefore considered less than significant.

4.2.7 Cumulative Impacts

The thresholds for construction dust, criteria air pollutants, toxic air contaminants, and odors have been set by the BAAQMD to avoid cumulative air-basin-wide impacts. Therefore, the analysis of air quality impacts in Section 4.2.6 above constitutes the cumulative analysis for the project.

Impact AQ-3: Implementation of the DCP may result in a cumulatively considerable contribution to the significant cumulative impact on global climate change (threshold f) if the DSP would conflict with or obstruct implementation of greenhouse gas reduction measures under Assembly Bill 32.

As indicated in the Setting, the cumulative impacts of excess greenhouse gas emissions are reflected in significantly higher concentrations of CO_2 in the earth's atmosphere, which in turn cause significant changes to the world climate. The impact of cumulative greenhouse gas emissions is therefore found to be significant, and the question at hand is whether or not the DSP contribution to that significant impact is cumulatively considerable. Under the significance threshold adopted for this EIR, the impact of the DSP would be cumulatively considerable if it would conflict with or obstruct implementation of greenhouse gas reduction measures under Assembly Bill 32.

The DSP outlines a twenty-year program for sustainable growth within downtown Cotati that promotes energy efficiency and reduction, VMT reduction, and resource conservation. There are over 25 goals and objectives dealing with city-centered growth, mixed use, transportation efficiency, expansion of alternative modes of transportation, sustainable development, and urban forestry. Development of the downtown, with these objectives as a guide, would create a downtown where people want to leave their cars behind and enjoy a pedestrian-friendly shopping and living experience.

The DSP does not have industrial or agricultural uses, but consists of retail, office, residential, and open space uses. It is therefore reasonable to assume that the majority of greenhouse gas emissions resulting from buildout of the DSP would come from electrical and natural gas use by buildings and from transportation. Both square footage of buildings and vehicular average daily trips would increase under the DSP. At the same time, the City of Cotati and the DSP add policies, strategies, designs, and infrastructure that would increase the efficiency of buildings and transportation systems. These policies and programs are expected to reduce greenhouse gas emissions below those that would have occurred under business-as-usual circumstances.

As part of the State's implementation of AB32, the Global Warming Solutions Act, a series of State actions are in the process of being implemented. Table 4.2-9 summarizes State strategies and identifies the Goals and Objectives of the DSP and other City-sponsored programs that comply with or support the State strategies. As noted in the table, some items must be implemented by the State because the City has no regulatory authority over the issue, such as vehicle and fuel standards. However, the DSP would benefit from implementation of these strategies as residents and visitors replace older vehicles with newer more efficient vehicles and used cleaner or alternative fuels. In addition, evidence of the City's support of the overall intent of AB 32 can be seen from DSP Goal 6, Encourage development that is

sustainable, energy efficient, and conserves resources, and Cotati City Council Resolutions 02-21, 04-88, and 05-66.

Table 4.2-9. Greenhouse Gas Emission Reduction Strategies	
State Strategy	**Cotati Programs/Goals/Objectives Supporting State Strategy**
Energy from Transportation	
Vehicle Climate Change Standard (AB1493)	Vehicles in City and Project area will be required to comply with this State law. The City has no regulatory authority over vehicle and fuel standards. However, emissions from vehicles will be reduced by DSP policies and other City laws and regulations.
Strengthen Light Duty Vehicle Technology	Vehicles in City and Project area will be required to comply with this State law. The City has no regulatory authority, but supports greenhouse gas reductions as evident by Resolutions 02-21, 04-88 and 05-66, and DSP Goal 6.
Heavy-duty Vehicle Emission Reductions	Vehicles in City and Project area will be required to comply with this State law. The City has no regulatory authority, but supports greenhouse gas reductions as evident by Resolutions 02-21, 04-88 and 05-66, and DSP Goal 6.
Diesel Anti-Idling	Vehicles in City and Project area will be required to comply with this State law. The City implements the anti-idling regulations for all construction projects approved within the City.
Alternative Fuels – Biodiesel and Ethanol	Vehicles in City and Project area will be required to comply with this State law. The City has no regulatory authority, but supports greenhouse gas reductions as evident by Resolutions 02-21, 04-88 and 05-66, and DSP Goal 6.
Low Carbon Fuel Standard	Vehicles in City and Project area will be required to comply with this State law. The City has no regulatory authority, but supports greenhouse gas reductions as evident by Resolutions 02-21, 04-88 and 05-66, and DSP Goal 6.
Improve Transportation Energy Efficiency	DSP Goal 3 Improve the walking and bicycling system through downtown Cotati as well as the interconnections between Cotati and the region. DSP Goal 4 Promote a street system that is safe for all modes of transportation within a successful commercial mixed-use environment. In addition, numerous transportation and land use objectives in Sections 2.1 and 2.2 of the DSP support the concepts promoted in this strategy.

Table 4.2-9. Greenhouse Gas Emission Reduction Strategies	
State Strategy	**Cotati Programs/Goals/Objectives Supporting State Strategy**
Smart Land Use and Intelligent Transportation	GP Policy 2.2.3 Increase the amount of developable, high density residential land. GP Policy 11.1.1.b Mixed uses shall be encouraged in the Hub Area. DSP Objective LP-6 Reactivate the hub with housing and office over commercial. DSP Objective NG-1 Transform underutilized land into mixed-use district. DSP Objective CSS-2 The larger network, should provide safe, continuous and well-designed multi-modal facilities that capitalize on development patterns and densities that make walking, transit and bicycle travel efficient and enjoyable
Energy from Buildings	
SB 1368 (including RPS of 20 percent by 2010, adopted)	The City has no regulatory authority, but supports greenhouse gas reductions as evident by Resolutions 02-21, 04-88 and 05-66, and DSP Goal 6.
Additional RPS (33 percent by 2020, not yet adopted)	The City has no regulatory authority, but supports greenhouse gas reductions as evident by Resolutions 02-21, 04-88 and 05-66, and DSP Goal 6.
Urban Forestry	DSP Objective OS-1 Landscape shall…while providing the passive solar functions of cooling in summer while allowing filtered sunlight and warmth in winter; DSP Objective OS-5 Indigenous trees such as the local oak species shall be used to provide sustainable habitat and reinforce the existing natural aesthetics of the open space framework. These trees are tolerant of stress created during periods of drought, and are receptive to eco-friendly integrated pest management.
Green Building Initiative	City Sustainable Building Program (adopted in 2005)
California Solar Initiative	City Sustainable Building Program (adopted in 2005), which requires all new buildings to preplumb for solar.
Other	
Hydrofluorocarbon Reduction Strategies	The City has no regulatory authority, but supports greenhouse gas reductions as evident by Resolutions 02-21, 04-88 and 05-66, and DSP Goal 6.
Water Use Efficiency	City Water Conservation Program (adopted in 2003)

The current Renewable Portfolio Standard (RPS), i.e., the portion of electricity used which is generated by "green" sources, for California is 13 percent. When the RPS of 20 percent is reached, DSP greenhouse gas emissions from electrical use in buildings would decrease by 7 percent. Factoring in the City's Sustainable Building Program (15 percent reduction over Title 24.) emissions from all new buildings within the DSP at buildout would be 22 percent less than baseline. New vehicular sources of emissions would be more efficient as state standards for fuel efficiency are implemented. In addition, the DSP provides higher density uses, mixed use zones, improved pedestrian, bicycle, and transit improvements. The re-design of the road system around La Plaza Park is designed to keep vehicles moving, rather than idling, and accommodates the growth of the DSP without significant effects on delay or levels of services at intersections. Implementation of the DSP is, therefore, not anticipated to conflict with or to obstruct implementation of the state greenhouse gas reduction measures under AB 32. It is anticipated that implementation of the State and City strategies discussed above would significantly add to the reduction in greenhouse gas emissions from buildout of the DSP.

Mitigation. No additional mitigation has been identified beyond the State CAT strategies, existing City programs, General Plan Goals, and DSP Goals and objectives that are discussed in the setting and analysis section of this document.

Significance after Mitigation. Despite the City's best efforts to identify probable greenhouse gas reductions from State measures, City programs, and DSP policies and objectives, not all the State reduction measures have been formally adopted at this time. Additionally, there is a substantial level of uncertainty about the effectiveness of some measures and how they will apply to local governments. Nevertheless, based upon the programs in the DSP, City programs and resolutions, it is reasonable to conclude that buildout under the DSP would not result in a cumulatively considerable contribution to the significant cumulative impact of global climate change.

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