8. Air Quality

Setting

The State of California has been divided into fourteen air basins for the purpose of air quality monitoring. Placer County is located within three separate air basins: the Lake Tahoe Air Basin, the Mountain Counties Air Basin (MCAB), and the Sacramento Valley Air Basin (SVAB). It should be noted that these air basins extend well beyond the borders and jurisdiction of the Placer County Air Pollution Control District (APCD). The Auburn/Bowman Community Plan site lies within the SVAB portion of the APCD. The following analysis is prepared in accordance with the Air Resources Board's "Guidelines For Air Quality Impact Assessments for Development Projects".

Climate and Meteorology. The Plan area develops a potential for high-ozone concentration at times during the summer months when an air inversion layer develops in the Central Valley and extends eastward and upslope. A more detailed description of the meteorological conditions which creates this problem is located in the APCD's Mid-Portion of Non-Attainment Plan 1980 quoted below:

> In general the Plan area has cold, wet winters and warm, dry summers although the climate tends to be more rigorous at higher altitudes than at lower altitudes. The annual average maximum temperatures range from approximately 59°F to 75°F with most areas experiencing annual high temperatures of over 100°F.
>
> The heavy rains and snows of the Sierra make this area a significant water source region. The extreme averages of annual rainfall range from 20 inches in the foothills to 70 inches at elevations of 6,000 to 9,000 feet on the western slope.
>
> Air flow in the Air Basin is dependent upon altitude and seasons. In the foothills the prevalent winds originate with the cool maritime air of the Pacific Ocean that enters the Central Valley through the Carquinez Straits and through lesser gaps in the coastal mountain range. Upon entering the Mountain Counties Air Basin, the winds blow predominantly toward the northeast.
>
> With weak barometric pressure gradients occurring during the fall and late summer, nighttime cold density flows are especially pronounced. The cold dense air gathers in pockets and valleys forming night inversions which are potential traps for air pollution.
>
> The Plan area is affected by the inversion which occurs in the Central Valley and its top touches the western slopes of the Sierra Nevada at elevations ranging between 3,000-4,000 feet. Of particular interest is the potential for high oxidant concentrations at the heights of the inversion during the summertime in locations downwind of metropolitan areas [such as Roseville].

Health Effects. The health effects from exposure to air pollutant concentrations at or above State and Federal standards are described in the SACOG "Regional Air Quality Plan 1990" quoted below:

> People living in the Sacramento region are exposed to significant health risks during periods when air pollutant concentrations are high. Air pollution affects everyone to some degree; however, pregnant women, young children, the elderly, and those with respiratory illnesses or cardiovascular disease are particularly susceptible to air pollution.
>
> The two major air pollutants of concern, ozone and carbon monoxide, affect the body in different ways. Carbon monoxide, once inhaled, passes through the lungs directly into the blood stream. Here it interferes with the transfer of fresh oxygen, thus reducing the amount which reaches the heart, brain, and other body tissues. Exposure to carbon monoxide particularly endangers people with coronary heart disease, whose hearts already receive limited supplies of blood and oxygen. Even healthy people who are exposed to low levels of carbon monoxide can experience drowsiness, fatigue, nausea, headache, changes in heart function, impairment of vision and slowed reflexes. At very high concentrations, carbon monoxide can be lethal.
>
> Ozone acts as a strong irritant that attacks the respiratory system. At high concentrations, it can cause severe damage to lung tissue. At lower concentrations, ozone decreases lung flow and increases resistance to air passage in lung tissue. Resulting symptoms range from coughs and chest discomfort to headaches and eye irritation. The human health effect of most concern is aggravation of chronic respiratory disease. Persons suffering from asthma, bronchitis and other respiratory ailments, as well as cardiovascular disease, are particularly susceptible to ozone. Other groups which are susceptible include children and persons engaged in heavy exercise. Nationwide, the EPA has estimated that approximately 44 million people are exposed to one-hour exceedances of the federal ozone standard on the average of nine times during the ozone season.
>
> The length and frequency of exposure to ozone are important in determining health effects. Recent animal studies have indicated that prolonged exposure to ozone, even at concentrations below federal standards, can have adverse health effects, including increased incidence of bacterial and viral infections due to decrease in the lung's ability to resist infection. Animal studies have also demonstrated that prolonged ozone exposure can result in the premature aging of lung tissue, due to the repeated damage and subsequent scar tissue formation that occurs.

Air Quality Standards. The U.S. Environmental Protection Agency (EPA) has established national ambient air quality standards (NAAQS) for six primary pollutants. The federal standards are divided into primary standards designed to protect public health and secondary standards designed to protect the public welfare. The chart on the following page (EIR Table 67) lists these standards. Pursuant to the Federal Clean Air Act, all areas of California have been classified as to their attainment status with regard to NAAQS. In addition to these national standards the State of California Air Resources Board (ARB) has also adopted ambient air quality standards. The State standards are also listed on Table 67 and either equal or exceed the concentration limits allowed according to the NAAQS.

Table 67
AMBIENT AIR QUALITY STANDARDS

		California Standards(1)	National Standards(2)	
POLLUTANT	AVERAGING TIME	CONCENTRATION	PRIMARY(3,4)	SECONDARY(3,5)
Oxidant(7) Ozone	1 hour 1 hour	0.10 ppm -	 0.12 ppm	 Same as Primary
Carbon Monoxide	8 hour 1 hour	9.0 ppm 20 ppm	9 ppm 35 ppm	Same as Primary
Nitrogen Dioxide	Annual Average 1 hour	- 0.25 ppm	100 ug/m^3 -	Same as Primary
Sulfar Dioxide	Annual Average 24 hour 3 hour 1 hour	 0.05 ppm 0.25 ppm	80 ug/m^3 365 ug/m^3 -	- - 1300 ug/m^3 -
Suspended Particulate Matter (PM_{10})	Annual Geometric Mean 24 hour	 30 ug/m^3 50 ug/m^3	 - -	 - -
Suspended Particulate Matter	Annual Geometric Mean 24 hour	 -	 75 ug/m^3 260 ug/m^3	 60 ug/m^3
Sulfates	24 hour	25 ug/m^3	-	-
Lead	30 Day Average Calender Quarter	1.5 ug/m^3 -	 1.5 ug/m^3	 Same as Primary
Hydrogen Sulfide	1 hour	0.03 ppm	-	
Vinyl Chloride (Chloroethene)	24 hour	0.010 ppm	-	
Visibility Reducing Particles	1 observation	Visibility(6) < 10 miles with relative humidity < 70%	-	
APPLICABLE ONLY IN THE LAKE TAHOE AIR BASIN:				
Carbon Monoxide	8 hour	6 ppm	-	
Visibility Reducing Particles	1 Observation	Visibility(6) < 30 miles with relative humidity < 70%	-	

SOURCE: Placer Counth Air Pollution Control Dist., December 1989

Monitoring Stations. In reference to the Plan area, there are two upwind monitoring stations located in Rocklin at Sierra College, and one monitoring site

located in the Plan area at the Dewitt Center. There are also two downwind monitoring stations located in Colfax at Church Street and at the Blue Canyon Airport. Data from annual monitoring at these locations can be found in the "Existing Air Quality" (page 8-5) section of this report.

Enforcement. Responsibility for air quality involves a wide variety of agencies and groups at the federal, state, regional and local levels. Some of these agencies have actual regulatory authority, while others are responsible for the development and implementation of programs and procedures aimed at reducing air pollutant levels. The following is a list of some of the primary agencies in regulating air quality and a brief description of their responsibilities as described in the SACOG "Regional Air Quality Plan 1990" quoted below:

> The Environmental Protection Agency (EPA) is the lead federal agency and is responsible for setting the National Ambient Air Quality Standards and for establishing federal motor vehicle emission standards. The EPA also has the authority under the Clean Air Act to require preparation of state plans for air quality and may approve or disapprove state air quality plans.
>
> The California Air Resources Board (ARB) is the lead state agency for air quality and is responsible for preparing and submitting a state air quality plan to EPA. In preparing a state plan, ARB reviews and approves regional air quality plans and then incorporates them into a State Implementation Plan (SIP).
>
> With regard to mobile source control measures, ARB establishes emission standards for on-road motor vehicles sold in California. These standards are more stringent than the federal standards. With respect to stationary and area source control measures, ARB works closely with county air pollution control districts (APCDs) in the development of model stationary and area source rules for possible adoption by individual APCDs. In addition, the ARB works closely with the APCDs in controlling pollution from agricultural burning. Their primary role is to determine permissible burn days and to fund research toward alternatives to or reducing agricultural burning.
>
> The Bureau of Automotive Repair (BAR), in the California Department of Commerce, is responsible for operation of the Motor Vehicle Inspection and Maintenance (I&M) program. This program, commonly known as the Smog check program, requires biennial inspection and testing of motor vehicle smog Control devices as a condition of vehicle re-registration.
>
> The California Department of Transportation (Caltrans) is responsible, along with local cities and counties, for determining the feasibility and implementation of certain transportation control measures such as freeway ramp metering and high occupancy vehicle lanes. The Caltrans District 3 Rideshare Office also helps local jurisdictions, employers and individuals in establishing and expanding rideshare programs by matching commuters in car, van or bus pools; advertising rideshare services; making direct contact with employers; and identifying potential park-and-ride lots.
>
> The Sacramento Area Council of Governments (SACOG) is the lead agency for the preparation of an update to the 1982 Air Quality Plan (AQP). SACOG cannot enforce compliance with the plan, but must rely upon air pollution control districts and cities and counties to adopt and implement recommended control measures. In addition, SACOG prepares an annual report on the progress made toward implementing the federal AQP, called the Air Quality Annual Progress Report. This report is submitted to ARB and EPA for review.

Air pollution control districts (APCD's) have the primary responsibility for preparation, adoption, and implementation of mobile, stationary, and area emission control measures. APCD's are special districts governed by the county supervisors. In addition, APCDs control agricultural burning based on ARB's determination of permissible burn days and by administering a burn permit system for local farmers.

Cities and counties may assume responsibility for implementing the transportation control measures (TCM's) recommended in the AQP update. If they assume that responsibility, a separate individualized set of control measures will be adopted by each jurisdiction and approved by the APCD, that reflects the type of mix of TCM's that are expected to achieve the greatest emissions reduction for each.

Since employers attract a predictable number of employee commute trips every workday, certain TCM's focus on employers, not government, for implementation. These include employer-sponsored rideshare programs and incentives, alternative work schedules, and on-site facilities such as showers, changing rooms and lockers for bicycle users. Success in reducing emissions ultimately lies with the individual, since individual lifestyle decisions regarding where to live and work, and what form of transportation to use greatly impact emissions.

Existing Air Quality. Pursuant to Federal and State Clean Air Act requirements, all areas in California have been classified by the ARB as to their attainment status with regard to the National and State Ambient Air Quality Standards. An air basin is the area designated for ozone, nitrogen dioxide, suspended particulate matter (PM-10), sulfates and visibility reducing particles. Therefore, if a violation occurs at any monitoring site for these pollutants in the air basin, the entire air basin would be classified as non-attainment.

For carbon monoxide, sulfur dioxide, lead (particulate) and hydrogen sulfide standards, a county or the portion of a county (such as a city) which is located within an air basin will be the area designated. However, if the ARB finds that there are areas within an air basin with distinctly different air quality deriving from sources and conditions not affecting the entire air basin, the State may designate an area smaller than a county or city using political boundary lines to the extent practical.

In general, the Sacramento AQMA violates the NAAQS for ozone about 10 days per year and the California standard about 35 times per year (SACOG). In addition, Sacramento County and the City of Chico are the only areas within the SVAB classified a non-attainment for State and Federal Carbon Monoxide standards. The entire SVAB is classified as non-attainment for ozone and PM-10 standards.

In the Plan area vicinity, State and federal ozone standards and State PM-10 standards are exceeded and therefore the area is classified as non-attainment for these pollutants. It should be noted that the number of days and hours recorded with violations in the Auburn area has declined significantly in the past couple of years. In 1989, there were no recorded violations of the Federal Ozone and PM-10 Standards at any of the area monitoring stations.

The data presented below is a summary of air quality monitoring conducted by the APCD and the ARB which indicates mean concentrations and days/hours with violations of State and federal standards.

Table 68
OZONE DATA ROCKLIN - SIERRA COLLEGE

	...Mean Concentration (pphm)...			Days/Hrs with Violations	
Year	All Hrs Sampled	Peak Hour	High (pphm)	Federal Std.[1]	State Std.[2]
1978	3.4	6.8	20	20/84	--
1979	3.6	6.7	18	8/20	--
1980	2.9	5.6	16	7/18	--
1981	2.7	5.3	14	9/19	--
1982	2.7	5.0	15	4/10	--
1983	2.8	5.3	16	5/10	--
1984	2.7	5.1	18	4/6	--
1985	2.7	5.2	18	8/23	--
1986	2.8	4.8	16	4/9	--
1987	2.7	4.9	13	1/2	--
1988	3.2	5.7	14	3/6[3]	35/96
1989	2.7	5.0	11	0/0	23/25
1990	2.7	5.2	15	4/9	18/63
1991	2.7	4.9	15	2/4	23/56
1992	–	–	17	7/13	40/130

SOURCE: 1992 APCD Monitoring Report

[1] Federal 1 hour standard: >12 pphm
[2] State 1 hour standard: >9 pphm
[3] Data for the peak ozone month (July) in 1988 is incomplete. Only 32% of the hours for July have measured values.

Table 69
OZONE DATA - AUBURN-DEWITT CENTER

	...Mean Concentration (pphm)...			Days/Hrs with Violations	
Year	All Hrs Sampled	Peak Hour	High (pphm)	Federal Std.[1]	State Std.[2]
1979	3.2	5.1	15	1/3	--
1980	4.0	6.3	15	4/12	--
1981	3.7	5.7	16	8/10	--
1982	3.9	6.8	15	4/10	--
1983	4.1	6.3	14	2/6	--
1984	3.8	5.8	15	2/3	--
1985	3.9	5.7	14	2/4	--
1986	3.9	5.9	27	1/2	--
1987	4.1	6.2	18	7/15	--
1988	4.2	6.3	18	11/19[3]	42/183
1989	3.8	5.8	12	0/0	16/43
1990	4.7	7.0	15	6/9	39/176
1990	4.5	6.8	13	2/2	33/118
1992	–	–	14	3/5	37/109

SOURCE: 1992 APCD Monitoring Report

[1] Federal 1 hour standard: >12 pphm
[2] State 1 hour standard: >9 pphm
[3] Data for the peak ozone month (July) in 1988 is incomplete. Only 32% of the hours for July have measured values.

Table 70
OZONE DATA - COLFAX-CHURCH STREET

Year	...Mean Concentration (pphm)... All Hours Sampled	Peak Hour	High (pphm)	Days/Hours With Violations Federal Std.[1]	State Std.[2]
1988[3]	4.2	6.8	16	7/14[3]	39/149
1989	3.6	5.8	12	0/0	24/86
1990	3.7	6.0	16	4/11	18/81
1991	3.3	5.5	13	0/0	29/92
1992	–	–	13	1/1	16/30

SOURCE: 1992 APCD Monitoring Report

[1] Federal 1 hour standard: >12 pphm
[2] State 1 hour standard: >9 pphm
[3] 1988 was the first year of operation for the Colfax Ozone Monitoring Station. Data collected represents 8 months of sampling. The station is located at an elevation of 2500 feet above sea level in the Mountain Counties Air Basin portion of Placer County.

Table 71
OZONE DATA - BLUE CANYON[3] (1992)

Month	...Mean Concentration (pphm)... All Hours Sampled	Peak Hour	High (pphm)	Days/Hours With Violations Federal Std.[1]	State Std.[2]
June	5.1	6.8	10	0/0	2/8
July	5.5	7.0	9	0/0	0/0
August	6.5	8.0	10	0/0	0/0

SOURCE: 1992 APCD Monitoring Report

[1] Federal 1 hour standard: >12 pphm
[2] State 1 hour standard: >9 pphm
[3] This is the first year of seasonal monitoring for the Blue Canyon station sited at the Blue Canyon Airport. This station is located in the Tahoe National Forest at an elevation of 5200 feet. It is a special purpose air monitoring project aimed at increasing our understanding of the extent and severity of ozone transport from the Sacramento Valley Air Basin up into the western slope regions of the Sierra Nevada range.

The District began reporting "Inhalable Particulates" (pm-10) concentrations on a regular basis in 1987. The following excerpt from the "1988 Air Monitoring Report" briefly explains this standard.

> Inhalable Particulates (PM10): Recently, concern over the health impacts of particulate pollution has centered on the fraction of suspended particulate that is inhalable by the human respiratory system. Research has determined that particulates with aerodynamic diameters of 10 microns or less are inhalable. This has led to a need for a revision of the particulate standard based on a 10 micron cut point. The State of California has replaced the 24-hour TSP standard of 100 ug/m^3* with a 50 ug/m^3 pm 10 standard.

At the Federal level, there is a 150 ug/m^3 24-hour PM 10 National Ambient Air Quality Standard in place. As shown below, there were five exceedances of the State standard in both 1987 and 1988. In 1989, the State standard was exceeded four times at the Rocklin-Sierra College Monitoring site and no days/hours violation at the Auburn-Dewitt Center Station.

Table 72
PM-10 DATA

	Rocklin-Sierra College					Auburn-Dewitt Center				
	1987	**1988**	**1989**	**1990**	**1991**	**1987**	**1988**	**1989**	**1990**	**1991**
Annual Geometric Mean	28	28	26	23[9]	22[9]	31[1]	27	24	24	28
Highest Annual 24-hr Conc	70[1,3]	69[3,6]	74[8]	63[10]	69[12]	97[2,3]	81[3,6]	48[8]	62[9]	49[10]
Highest Winter (Nov-Mar) 24-hr Concentration	61[2]	69[7]	74[8]	51[4]	69[12]	66[1]	50[7]	48[8]	62[9]	49[10]
Highest Monthly Annual Geometric Mean	45 Sept	46 Sept	49 Dec	37 Jan	42 Jan	56[1,3] Sept	52[3] Sept	37 Dec	30 Jul	42 Sept
Highest Monthly Winter (Nov-Mar) Geometric Mean	44 Nov	37 Feb	49 Dec	37 Jan	42 Jan	34[1] Nov	32 Feb	37 Dec	26 Dec	33 Nov
Days Exceeding State Std[4]	5	5	4	3	4	5	5	0	1	0
Days Exceeding Federal Std[5]	0	0	0	0	0	0	0	0	0	0

SOURCE: 1991 APCD Monitoring Report

[1] September 6, 1987
[2] November 5, 1987
[3] Significant smoke impact from extensive wildland fires throughout Northern California
[4] State Standard for 24 hr Concentration: >50 ug/m^3
[5] Federal Standard for 24 hr Concentration: >150 ug/m^3
[6] September 14, 1988
[7] January 28, 1988
[8] December 30, 1989

Impact Evaluation Criteria

The Federal and State ambient air quality standards described in the Setting section provide exacting impact criteria. Non-attainment of a Federal or State criteria for any pollutant will result in a significant impact, and if a project contributes in a substantial amount to this condition then there will be significant cumulative impacts associated with the project (an individual development would rarely cause a standard to be exceeded by itself).

Since Placer County is designated as a "severe" non-attainment area for ozone, the District is mandated to reduce ozone "precursor gas" emissions by 5% per year or 15% average over a three year period. Therefore, <u>any</u> increase in TOG or NO_x is significant and should <u>theoretically be fully offset</u>. The Placer County district is also designated non-attainment for particulates (PM-10) as well, making <u>any</u> increase in PM-10 emissions also significant.

However, as a practical measure, the District is requiring only residential projects greater than 30 units, or commercial projects greater than 5-acres to partially off-set

their project's emissions by 50%. The APCD has indicated this "trigger level" may lower in the near future as the need for additional reductions develop and as APCD staffing is increased. The District policy calls for the implementation for mobile source emissions, including the use of alternative transportation control measures (TCM's) to reduce vehicle miles traveled and congestion in the air basin 50% emission reduction goal. This goal does not meet State air quality goals and, as a result, individual projects may result in significant impacts even after meeting the 50% reduction. However, this analysis is a cumulative area buildout discussion.

Impacts

1. **Construction generated pollutants.** Construction activities as a result of buildout of the Community Plan will generate air pollutants intermittently during all construction phases. These air pollutants may include emissions from construction equipment, smoke from controlled burns of cleared vegetation, dust from grading and infrastructure improvements, and laying of asphalt road surfaces. Quantification of impacts from typical development projects are discussed below.

   – Uncontrolled grading operations could result in dust emissions of approximately 1-2 tons per acre of disturbed area according to the EPA.

   – Emissions from gasoline and diesel-powered construction equipment can be estimated. The total amount of emissions expected from a typical construction project are estimated below:

Table 73
TYPICAL ESTIMATED CONSTRUCTION EQUIPMENT EMISSIONS*

Pollutant	Generation* Rate (in grams/yds^3)
Particulate (PM-10)	2.6
Carbon Monoxide (CO)	11.2
ROG	5.6
Nitrous Oxide (NO_x)	42.9
SO_x	4.9

*SOURCE: Jim Humphreys, PCAPCD.

   – Controlled burning of removed vegetation generates visibility-reducing smoke and particulate emissions similar to those generated in residential fireplaces.

   – Construction of asphalt road surfaces during individual project development emits hydrocarbons (ozone precursors) from the layering of hot asphalt. The significance of this emission source cannot be quantified at this time. However, due to the existing conditions in the air basin, significant impacts are expected.

Since the County is in non-attainment of particulate (PM-10) emissions and precursor gas emissions, the cumulative impacts of construction generated pollutants are expected to be significant and unmitigable.

Conclusion: Based on the impact evaluation criteria and analysis above, impacts to air quality resulting from construction activity are expected to be significant and unmitigable.

2. **Effects of motor vehicle emissions due to buildout of the Plan area.** Buildout of the Plan area will result in an increase in localized and regional traffic accompanied by an increase in vehicle emissions such as hydrocarbons, carbon monoxide and nitrogen oxide. However, land use designations and policies contained throughout the Plan increase the opportunity to reduce vehicle miles traveled and trip lengths within the Plan area. This is accomplished through the Bell Road, Dewitt Center and Bowman Area mixed use designations that require commercial projects to provide housing and residential developments to provide access to adjoining neighborhoods for bicycle and pedestrian traffic. Goals and policies contained in various elements of the Plan and listed below encourage provisions for transit stops and shelters, bicycle paths and park and ride parking areas as conditions of project approval.

Table 73a
GOALS AND POLICIES THAT BENEFIT AIR QUALITY

Element	Goals	Policies
General Community Goals and Planning Principals	18, 19 (p. 9)	n/a
Community Development Population and Housing	a, b (p. 12)	a,b,h,i,l (p. 12-13)
Community Design	f,g (p. 61)	5,6 (p. 62)
Parks and Recreation	d (p. 87)	h,i (p. 88)
Air Quality	1, 2 (p. 119)	1-10 (pp.119-120)
Open Space	h (p. 122)	m (p.123)
Traffic and Circulation	3,4,8,9,11-14 (p. 134)	1,13-16 (pp. 134, 136)

Localized air quality impacts. Localized motor vehicle exhaust emissions create air quality problems from carbon monoxide emissions at congested intersections. Regionally the increase in vehicles in the Plan area will result in subsequent increase in ozone precursor emissions of hydrocarbons and nitrogen oxides. Localized and regional contribution emissions have been estimated with the CARB's Caline 4 and Urbemis 3 computer emission models.

The Transportation Element of the updated Plan evaluates operating conditions at thirty-nine intersections throughout the Plan area. Of these thirty nine intersections, the largest traffic volumes are expected to occur at the Bell Road/Highway 49 intersection. This intersection has an existing operational level of service (LOS) of E, and is projected to operate at LOS F with buildout of the Plan area (including roadway improvements). Caline 4 modeling was conducted at this intersection to determine maximum CO concentrations at intersections resulting from buildout of the Plan area.

The Caline 4 computer model results are shown below and determines peak one-hour and eight-hour concentrations of CO in parts per million assuming "worst case" meteorological conditions and average vehicle speeds of 25 mph on Bell Road and 30 mph on Highway 49. The appendix of this EIR contains the Caline 4 computer model runs with the assumptions/input variables used.

Peak one-hour concentrations were estimated to be 12.5 ppm and worst case eight-hour concentrations are estimated to be 8.0 ppm at buildout of the plan area. Therefore, buildout based on the updated plan is not expected to result in one-hour and eight-hour CO concentrations exceeding applicable state CO standards at Plan area intersections. Mitigation measures are recommended to reduce the impacts identified though not below the level of significance.

Regional impacts. Regional impacts to air quality from increasing the number of vehicles in the Plan area have been estimated using the Urbemis 3 computer model for buildout of the Plan area. The results are provided below:

Table 74
ESTIMATED PLAN BUILDOUT AUTO EMISSIONS

Pollutant	Updated Plan[2] Emissions @ Single-Family Residential Buildout-Yr 2003 (tons/day)	Previous Plan Emissions (tons/day)
Total organic gases[1]	11,795	548.4
Carbon monoxide	120,460	4,625.3
Nitrogen oxide[1]	20,459	1,158.8

[1] Ozone precursors
[2] Using Recht Hausrath, 7/92, market absorption rates for all land use categories.

Based on these estimates, buildout of the Plan area is expected to result in regional ozone precursor emissions of 813.5 tons per year of nitrogen oxide and 478.4 tons per year of hydrocarbons.

Conclusion: Based on the discussion above and the impact evaluation criteria, impacts resulting from an

increase in motor vehicle use in the Plan area are expected to be significant and unmitigable. Policies contained within the Population and Housing Element (Policies a,b,h,i,l,n,p) and the Transportation and Circulation Element (Policies 1, 13-16) will partially mitigate this impact, though not below the significant level.

3. **Effects from stationary sources of emissions with buildout of the Plan area** Stationary sources are categorized as either point or area sources. Point sources are typically referred to as "smokestack" industries in which pollutants are emitted from the combustion of heating fuel, waste burning, solvent use, and various industrial processes. Area sources may emit chemically similar pollutants to those of point sources, however, area sources usually emit much smaller quantities of these pollutants. Area sources include dry cleaners, auto repair shops, individual households (primarily from fireplaces). In addition, area source emissions result from the use of industrial coatings, paintings, and various consumer products.

The APCD indicated the Chevreau concrete plant is the only known and permitted point source in the Plan area. However, the Plan area does contain a substantial amount of area source emissions which cumulatively could represent a significant impact to localized and regional air quality.

In particular, the burning of firewood in woodstoves is becoming a greater concern as their use increases. Residential wood burning produces emissions including particulates (PM), sulfur oxides, nitrogen oxides, carbon monoxide, polycyclic organic matter (POM), and mineral constituents. Greater quantities of particulates, carbon monoxide, and POM are emitted with less complete combustion - thus fireplaces and inefficient or improperly operated wood stoves are of greatest concern. Inhalable particulate matter (less than 1- micron in size) and POM (which includes such potential carcinogens such as benzopyrene) are peculiar to organic matter combustion and add a new dimension to air quality problems in areas where fireplaces and stoves are heavily used.

In the past, particulate emission rates have been high, probably ranging between 15-30 grams per hour assuming proper burning methods (Russ Roberts, APCD, Personal Communication, 9/13/89). However, the EPA now requires the following emission limits for new wood stoves:

Table 75
WOOD HEATER PARTICULATE EMISSION LIMITS

	Phase 2 (beg. 7/1/90)
Catalytic	4.1 grams/hr
Non-catalytic	7.5 grams/hr

Thus, new home construction resulting from implementation of the updated Plan can be expected to result in lower wood stove emissions from

installation of EPA certified woodstoves. However, this assumes EPA certified woodstoves are purchased and installed by new homeowners.

It should also be noted that open burning of construction debris and refuse/household trash by homeowners and commercial entities would also contribute substantial amounts of emissions similar to those expected from burning of firewood. The Placer County APCD requests that information be provided to future homeowners that this type of burning is strictly prohibited by County and State rules and regulations.

Conclusion: Based on the discussion above and the impact evaluation criteria, impacts resulting from stationary point and area sources are expected to be significant and unmitigable. Mitigation measures have been recommended to reduce the impact identified, though not below the significant level.

4. **Cumulative impacts - City plus County buildout.** Cumulative impacts of combined City and County buildout are expected to be significant due to the anticipated increase in both motor vehicles and area emission sources within the Plan area. The growth that is expected to occur will make it difficult for the APCD to achieve acceptable air quality standards as required by the CCAA.

Conclusion: Based on the discussion above and in the impact evaluation criteria, cumulative air quality impacts are expected to be significant and unmitigable.

Additional Discussion

The following discussion is provided for informational purposes only; it does not relate to an impact of the project at hand — the adoption and implementation of the Auburn/Bowman Community Plan.

Summary - Previous Plan vs Updated Plan The updated Plan has a lower dwelling unit and commercial/office professional holding capacity than the previous Plan and approximately 100 additional industrially designated acres. As a result, air quality impacts under the updated Plan would be less than those expected under the previous Plan at buildout primarily due to the reduced potential number of stationary point and area sources of emissions and vehicle miles traveled that would result from the lower holding capacity of the updated Plan. However, Plan term (to 2010) buildout would not vary greatly under the two plans (Recht-Hausrath, January 1993). Significant air quality impacts could be expected under either Plan.

Mitigation Measures

1. **Construction generated pollutants — Add policy requiring APCD review and approval of grading plans.** This policy could be implemented by requiring the developer to receive a sign-off on the grading plan to be submitted to the Public Works Department.

Effectiveness of Measure/Relevant Plan Provisions: This measure will ensure all individual project construction related impacts on air quality will be mitigated to an acceptable level by the APCD. However, cumulative impacts are still expected to be significant and unmitigable due to the non-attainment status noted in the Placer County 1991 Air Quality Attainment Plan. Relevant Plan provisions include Air Quality Goals 1 and 2 and Policies 4 and 5.

Implementation: This measure is not included in the Plan. The County has indicated that the existing project review and grading plan review process addresses dust control and construction-generated emissions and will partially mitigate impacts. Unmitigable regardless.

2. **Effects of motor vehicle emissions - Indirect source control.** The Community Plan includes a number of goals and policies related to air quality improvement. The Placer County 1991 Air Quality Attainment Plan also includes recommended programs which the APCD alone cannot implement.

   Within the Air Quality section (p. 119-121) as well as throughout the Plan, various policies require pedestrian and bicycle facility promotion, provisions for mixed use development, traffic signal synchronization and transit improvement which will serve to reduce vehicle miles traveled within the Plan area. However, implementation of these policies alone is not expected to reduce impacts below the significant level as described in the impact evaluation criteria section. To achieve maximum emission reduction, the potential Air Quality section of the Community Plan should be revised to:

   - Emphasize air quality-related policies found in other sections of the Plan;
   - Include the policies recommended for inclusion by the APCD in its 1991 Air Quality Attainment Plan;
   - Include additional policies/programs recommended as part of this EIR.

   Air quality related policies in the Plan:

Table 76
COMMUNITY PLAN
A/BCP POLICIES WITH AIR QUALITY BENEFITS

Encourage residential development in areas which provide an adequate and accessible transportation network and which reduce commuting distances to areas of employment (Population and Housing, Policy a).

Discourage proposals which are not part of a cohesive transportation network and which do not mae possible a diversity of transportation systems (Population and Housing Policy b).

Encourage developments which create a sense of community by fostering human interaction through subdivision design, pathways, interconnecting trails system, in-tract recreation opportunities, etc. (Population and Housing Policy h).

Encourage the use of passive and direct solar collection and incorporate home design innovations which limit energy consumption (Population and Housing Policy i).

Develop a mixed use designation for the north Auburn area to require commercial projects to provide housing. The mixed use district will allow for residential uses in conjunction with commercial projects or for a specific type of residential use not currently found in the Auburn area (Population and Housing Policy l).

Pedestrian walkways should be incorporated into multi-family and urban residential subdivisions to provide access to adjoining neighborhoods and adjacent commercial areas (Population and Housing Policy p).

Rights-of-way for roads shall be wide enough to accommodate roadways, trails, bikeways, drainage, public utilities, landscaping, and suitable separations. Minimum right-of-way criteria for roadways throughout the Community Plan area are shown in the Background Report (Traffic and Circulation Element, Policy C-1).

As development of the Plan area occurs, public dedication of rights-of-way shall be required for the roads, trails, and bikeways identified in the Plan. Dedication of right-of-way as well as construction of such roads, trails, and bikeways shall be required as conditions of approval placed on land development projects (Traffic and Circulation Element, Policy C-13).

Trail rights-of-way shall not be abandoned unless there is substantial evidence of no practical use for trail purposes (Traffic and Circulation Element, Policy C-14).

Transit stops, turnouts, and shelters shall be required a appropriate locations as conditions of approval for land development (Traffic and Circulation Element, Policy C-15).

"Park and ride" shelters and parking areas shall be required at appropriate locations as conditions of approval for land development (Traffic and Circulation Element, Policy C-16).

Table 77
POLICIES RECOMMENDED IN THE
PLACER COUNTY 1991 AIR QUALITY ATTAINMENT PLAN

NOTE: Recommended changes to text or explanations by the EIR consultant are shaded and deletions are ~~lined out.~~

1. Require that development projects be located and designed in a manner which will conserve air quality and minimize direct and indirect emission of air contaminants. IMPLEMENTATION: Hold new development responsible for mitigating any increase in emissions caused directly or indirectly by the project via the following steps:

   - ~~Identify the air quality impacts of development proposals to avoid significant adverse impacts and require appropriate mitigation measures or offset fees.~~ (See below)

   - Require that development projects requiring a discretionary permit and grading plans secure an air quality permit from the APCD.

This process will be used to identify actual trip reduction methods and offsets which will be required to meet the project-by-project 50% trip reduction goal of the APCD. Until Placer County is no longer classified as a non-attainment area, these measures are not expected to reduce impacts below the significant level from individual projects or cumulatively. Since impacts are expected to be significant, quantification of the impacts of each individual project will not be required unless the proponent chooses to prove achievement of a 100% offset (which would reduce impacts below the significant level).

Require employment-generating uses to include trip reduction features.

IMPLEMENTATION:

- Allow with the Zoning Ordinance~~Provide for~~ the location of ancillary employee services (including, ~~but not limited to,~~ child care, restaurants, banking facilities, convenience markets) at major employment centers for the purpose of reducing midday vehicle trips.

- Within the Zoning Ordinance, require~~Disapprove~~ employment intensive development, having the potential to employ 200 or more employees, to ensure~~unless~~ adequate transit service is available.

- Within the Zoning Ordinance, require that all employee parking areas for new development be designed with controllable access (so that parking can be charged for).

- ~~Require that large new developments dedicate land for use as park-and-ride lots if suitably located.~~ (Already included in Community Plan.)

- Require traffic counter loops and traffic management hardware at garage entrances, driveways, new intersections, and other appropriate locations.

- Require that new commercial and industrial projects adjacent to bus stops make provisions in their project design for park-and-ride spaces.

~~9. Promote mixed-use development to reduce the length and frequency of vehicle trips.~~ (Already included in Community Plan.)

~~10. Provide for increased intensity of development along existing and proposed transit corridors.~~ (Already included in Community Plan)

~~11. Require that new development be designed to promote pedestrian and bicycle access and circulation.~~ (Already included in Community Pan)

~~12. Accommodate growth within existing urban areas (infill) as a priority over urban expansion.~~ (The Community Plan accomplishes this via its Land Use Plan.)

~~Provide for buffers between sensitive land uses and sources of air pollution or odor.~~ (Included under Direct Source Review mitigation measures.)

Preserve and ensure the dedication of rights-of-way and station sites along future light rail extensions. (Note: none are mapped at this time.)

~~Require that new and replacement fuel storage tanks at automobile and light duty truck refueling stations be clean fuel compatible, if technically and economically feasible.~~ (Included in the Direct Source Review mitigation measures.)

Consider~~Provide for~~ increased intensity of development ~~along existing and~~ proposed transit corridors. (Accomplished in Land Use Plan for existing corridors. A general plan amendment would be required to increase intensity along future transit corridors since none have been mapped.)

Table 78
ADDITIONAL POLICIES RECOMMENDED IN THIS EIR

- **Actively participate in the APCD's Transportation Control Measures (TCM) program to reduce vehicle trips and miles travelled within the Plan area.**

IMPLEMENTATION:

- **Provide area-wide carpool/vanpool matching and assistance.**
  - Continue to provide assistance to Placer County Transit.
  - Allocate funds yearly for carpool and vanpool programs
- **Develop County trip reduction ordinances** - Require existing and future large employers to institute TCMs with set trip reduction goals to include methods such as:
  - Car/van/bus pool programs.
  - Staggered work schedules, flexible work hours, compressed work weeks.
  - Bicycle support facilities such as bicycle racks and showers.
- **Support public awareness of trip reduction techniques.**
  - Annual budgeting for public awareness campaign.
  - Develop a flexible work hours/work week policy for County employees as a model for private employers.
- Include new park and ride facilities discussed in the Traffic and Circulation Element on the Land Use Map - Require development of new park and ride facilities as conditions of approval of new development in these areas. Develop appropriate land use designation and zoning category for these and other transportation-related facilities.

Effectiveness of Measures/Relevant Plan Provisions: These measures are not expected to reduce impacts below the significant level, however, they will assist in

reducing vehicle emissions from Plan area buildout. Relevant Plan provisions include Air Quality Goals 1 and 2 and Policies 5 and 6. In addition, Population and Housing Policies a,b,h,i,l,n and p; Traffic and Circulation Element Goals 3,4,8, 9,11-14 and Policies 1, 13-16; General Community Goals 18 and 19; Community Design Goals f and g and Policies 5 and 6; Parks and Recreation Goal d and Policies h and i; Air Quality Goals 1 and 2 and Policies 1-10; Open Space Goal h and Policy m. These policies will partially mitigate impacts. However, unmitigable impacts will result.

Implementation: Implementation will occur through A/BCP Air Quality Policies 1-10, Population and Housing Policies a,b,h,i,l,n,p and Transportation and Circulation Policies 1, 13-16.

3. Stationary sources. Add policies related to Stationary Source Review:

3a. New development projects requiring discretionary approval shall provide information to future homeowners to inform them that the open burning of refuse/household trash and construction debris is prohibited by county and state rules and regulations.

3b. Require that new development projects securing discretionary approval shall include Placer County Air Pollution Control District's conditions of approval numbers AP1 through AP8.

Effectiveness of Measures/Relevant Plan Provisions: These measures are not expected to reduce area source emission impacts below the significant level but they will partially reduce the impacts identified. Relevant Plan provisions include Air Quality Goal 2 and Policies 5 and 6. Unmitigable regardless.

Implementation: For stationary sources, implementation will occur through existing APCD rules and regulations; for area sources, implementation will occur through the APCD's 1991 Air Quality Attainment Plan and A/BCP Air Quality Policies 5 and 6.

4. Cumulative impacts - City plus County buildout. No mitigation available. Mitigation measures recommended for impacts #1-3 above will partially mitigate future cumulative impacts. Cumulative impacts will be unmitigable regardless.

Effectiveness of Measures/Relevant Plan Provisions: See #1-3 above.

Implementation: N/A