9. AIR QUALITY AND CLIMATE CHANGE ELEMENT

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9. AIR QUALITY AND CLIMATE CHANGE ELEMENT

BACKGROUND AND PURPOSE

Air Quality is an optional element of a General Plan. [1] This Element provides a guide to reduce air pollution, to meet federal and State air quality standards, and to address Pleasanton's efforts to become a more sustainable community.

Skies over Pleasanton

The purpose of the Air Quality Element is to protect the health, safety, and welfare of the community by promoting community development that is compatible with adopted air quality standards and that minimizes climate change. Exposure to air pollutants represents a health risk to everyone living in the Bay Area, particularly children, the elderly, and people with respiratory problems. In addition to health problems, poor air quality can pose a threat to the region's economic growth due to perceived environmental degradation and potential government-imposed sanctions against non-attainment areas, [2] such as the withholding of federal highway funds.

Under the *California Clean Air Act,* each city and county in the Bay Area is required to adopt and implement all feasible control measures to improve air quality in the region. By including an Air Quality Element in its General Plan, the City of Pleasanton shows its commitment to improve air quality and to achieve and maintain compliance with State and federal air quality standards.

LOCAL AND REGIONAL METEOROLOGICAL INFLUENCES

In spite of population and employment growth over the past 30 years, air quality has improved in Pleasanton. From 1973 to 1975 oxidant (similar to ozone) violated the federal standard of 8 parts per hundred million on average about 67 days. [3] (Note that both the pollutant measured and the standard differ from today.) From 2004 to 2006 ozone violated the State standard of 9 parts per hundred million on average about 8 days. A rough comparison between health-based violations of these similar pollutants shows a decrease in unhealthy days since the 1970s. Improvements to air quality are due largely to both cleaner-burning automobile engines and fuels that emit fewer pollutants. Tighter regulatory controls imposed on industrial and

[1] State of California, Governor's Office of Planning and Research, *General Plan Guidelines,* 2003.

[2] The *Federal Clean Air Act* defines Non-attainment areas as geographic areas that do not meet one or more of the Ambient Air Quality standards for the criteria pollutants. The *Federal Clean Air Act* and/or the *California Clean Air Act* designate the criteria pollutants and their standards.

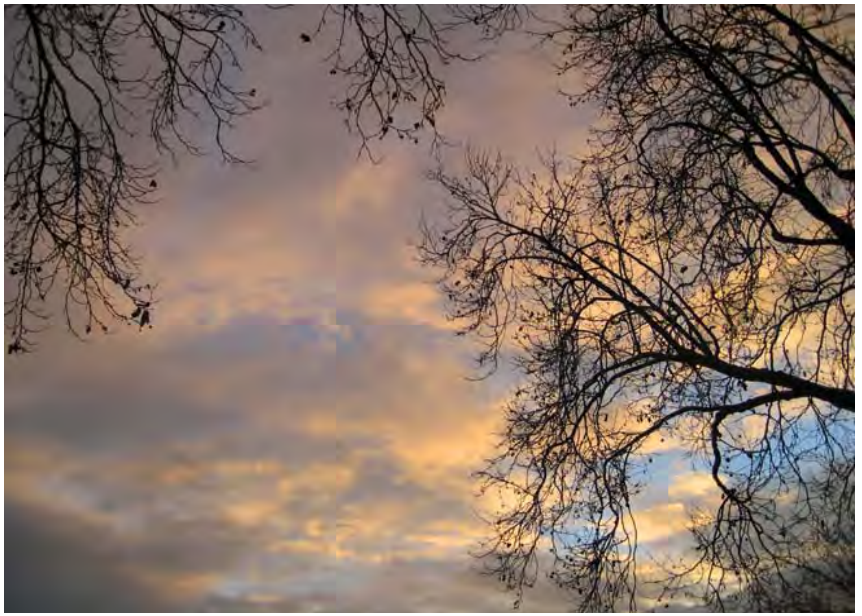
[3] Department of Planning and Community Development, City of Pleasanton, Environmental Element of the Pleasanton General plan, February 9, 1976.

other such point sources of air pollutants have also contributed to air-quality improvements in the region and in Pleasanton.

The amount of a pollutant emitted and the atmosphere's ability to transport and dilute the pollutant determine the amount of a given pollutant in the ambient atmosphere. The frequency of hot sunny days during the summer months is an important factor that affects air pollution potential. Although climate and topography influence air pollution potential, air pollution also depends upon total contaminants emitted in the surrounding area and/or the amount transported from more distant places. Pollutants such as ozone, created by photochemical processes – sunshine and certain chemicals – in the air, may result in high concentrations many miles downwind from the sources of the original chemicals.

Wind data for the Livermore Municipal Airport show wind predominantly blowing from the west and southwest, reflecting the location of the Hayward Canyon and Niles Canyon gaps in the East Bay Hills. Winds are generally highest in the afternoon and lowest at dawn. From 1998 to 2005, BAAQMD measured average wind speeds between 12 and 13 miles per hour (mph) and maximum gusts between 47 and 56 mph.[4] Calm conditions occur about one fourth of the time.[5]

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality because they influence the vertical depth of the atmosphere available for diluting air contaminants near the ground. The highest air pollutant concentrations in the Bay Area generally occur during inversions because they reduce vertical air dilution. Both wind and the amount of sunlight affect stability. The more stable the air, the slower the mixing, resulting in an increased probability of air pollutant build up. During the summer, inversions generally occur from about 500 to less than 5,000 feet above ground. Surface inversions, which are lower and thus worse for air pollution, occur mostly from October through January but frequently dissipate by afternoon.[6]



Evening sky near Civic Center

The topography of the Tri-Valley also affects air quality. The Tri-Valley, ringed by the Diablo Range of hills, is a sheltered inland valley with its floor at an altitude of about 400 feet. Hills rising from a height of 1,000 to 1,500 feet border the valley floor on the west and east, with only narrow gaps in the hills allowing wind movement: the Hayward Canyon and Niles Canyon passes (to the west) and the

[4] Bay Area Air Quality Management District, Weather Data, accessed September 28, 2005. http://gate1.baaqmd.gov/aqmet/met.aspx.

[5] California Department of Water Resources, *Wind in California,* Bulletin No. 185, January 1978.

[6] Bay Area Air Quality Management District, "Climate, Physiography, and Air Pollution Potential – Bay Area and Its Subregions (Referenced by County)," http://www.baaqmd.gov/dst/papers/bay_area_climate.pdf, Sept. 28, 2005.

Altamont Pass (to the east). To the valley's north lie the Black Hills including the 3,849-foot tall Mount Diablo, while the south side of the valley rises up about 3,000 to 3,500 feet.

The Tri-Valley subregional air basin, in which Pleasanton is located, also contains the growing communities of Livermore, Dublin, San Ramon, and Danville. The Tri-Valley area is located generally downwind with respect to the rest of the Bay Area, so that pollutants released upwind contaminate the air stream into the Tri-Valley area. In turn, winds transport pollutants generated within the Tri-Valley easterly through the Altamont Pass into the San Joaquin Valley.

The combined effects of frequent light or calm winds, frequent inversions that restrict vertical dilution, and terrain that restricts horizontal dilution give Pleasanton a relatively high atmospheric potential for pollution.

AIR POLLUTANTS AND STANDARDS

Both the federal and State governments have adopted air quality standards. These are designed as health-based standards to protect the public health, safety, and welfare. In order to evaluate compliance with these standards, local air districts continuously monitor selected air pollutants. Table 9-1 presents these standards. The primary pollutants for which there are standards are discussed below.

Ozone (O_3)

Ozone is an easily recognizable air pollutant due to its visual appearance as smog. Ozone is generated from complex chemical reactions of nitrogen oxides (NO_x) and reactive organic gases (ROG) in the presence of sunlight. In both the Tri-Valley and Bay Area, motor vehicles provide the largest single source of ozone's chemical components. In addition, winds transport emissions from outside the area into the Tri-Valley, where they can be trapped by a temperature inversion and chemically "cooked" on the hot, still days of summer and early fall.

Ozone exposure aggravates respiratory diseases, irritates eyes, damages lung tissue, and may cause cancer and other diseases. Ozone also harms vegetation, reduces crop yields, and accelerates deterioration of paints, finishes, rubber products, plastics, and fabrics.

Evening traffic on Interstate 580 driving east

Carbon Monoxide (CO)

Carbon monoxide is a highly toxic odorless, colorless gas. Automobile emissions provide the main source of carbon monoxide through the incomplete combustion of fuels. Ambient carbon monoxide concentrations normally correspond closely to vehicular traffic, although wind speed and atmospheric mixing also influence concentrations. Under certain conditions, carbon monoxide may distribute more uniformly out to some distance from vehicular sources. Since the major source of carbon monoxide is automobiles, concentrations of carbon monoxide are greatest near heavily-traveled roadways. The emission rate of carbon monoxide is highly dependent on traffic speed, with emissions increasing as speed decreases and

TABLE 9-1 AMBIENT AIR QUALITY STANDARDS AND BAY AREA ATTAINMENT

Pollutant	Averaging Time	California Standards [a]		Federal Standards [b]	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8 hour	–	–	8 pphm	N[c]
	1 hour	9 pphm (180 $\mu g/^{m3}$)	N	–	–
Carbon Monoxide	8 hour	9.0 ppm (10 mg/m^3)	A	9 ppm (10 mg/m^3)	A[d]
	1 hour	20 ppm (23 mg/m^3)	A	35 ppm (40 $mg/^{m3}$)	A
Nitrogen Dioxide	Annual Average	–	–	0.053 ppm (100 $\mu g/m^3$)	A
	1 hour	0.25 ppm (470 $\mu g/m^3$)	A	–	–
Sulfur Dioxide	Annual Average	–	–	80 $\mu g/^{m3}$ (0.03 ppm)	A
	24 hour	0.04 ppm (105 $\mu g/m^3$)	A	0.14 ppm (365 $\mu g/m^3$)	A
	1 hour	0.25 ppm (655 $\mu g/m^3$)	A	–	–
Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	N	50 $\mu g/m^3$	A
	24 hour	50 $\mu g/m^3$	N	150 $\mu g/m^3$	U
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	N	15 $\mu g/m^3$	A
	24 hour	–	–	65 $\mu g/m^3$	A
Sulfates	24 hour	25 $\mu g/m^3$	A	–	–
Lead	Calendar Quarter	–	–	1.5 $\mu g/m^3$	A
	30-Day Average	1.5 $\mu g/m^3$	A	–	–
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	U	–	–
Vinyl Chloride	24 Hour	0.010 ppm (26 $\mu g/m^3$)	Not available	–	–
Visibility Reducing Particles	8 Hour (1000 to 1800 PST)	Visibility > or = 10 miles	A	–	–

Notes: A = Attainment, N = Nonattainment, U = Unclassified (no determination made), pphm = parts per hundred million, ppm = parts per million, mg = milligram (one-thousandth of a gram), μg = microgram (one-millionth of a gram), m^3 = cubic meter, PST = Pacific Standard Time.

a California standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter (PM_{10}), and visibility reducing particles are values that are not to be violated (exceeded). The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or violated.

b National standards other than for ozone, particulates, and those based on annual averages are not to be violated (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.

c In June 2004, the federal government designated the Bay Area as a marginal nonattainment area of the national 8-hour ozone standard.

d In April 1998, the federal government redesignated the Bay Area to attainment for the national 8-hour carbon monoxide standard.

Source: Bay Area Air Quality Management District, "Ambient Air Quality Standards and Bay Area Attainment Status," July 2005.

idling increases. In past years, the Tri-Valley suffered from relatively high carbon monoxide concentrations. The Tri-Valley area, including Pleasanton, currently meets (and is expected to meet in the future) ambient standards for carbon monoxide.

Carbon monoxide's health effects are related to its affinity for hemoglobin in blood. At high concentrations, carbon monoxide reduces the oxygen-carrying capacity of blood, aggravating heart disease, impairing central nervous system functions, and causing fatigue, headaches, and dizziness.

Suspended Particulates (PM_{10} and $PM_{2.5}$)

Suspended particulates are solid and liquid particles of dust, soot, aerosols, and other matter that are small enough to remain suspended in the air for a long period of time. A portion of the total particulate matter in the air is due to natural sources such as wind-blown dust and pollen. Human-made sources include combustion, automobiles, fireplaces, factories, construction, and roads – especially unpaved roads and busy highways. Mobile sources (vehicles) generate about 40 percent while wood burning generates about 37 percent of particulates in Alameda County. [7]

Dust control during roadway work on Old Bernal Avenue

Both particulates (PM_{10}) and fine particulates ($PM_{2.5}$) can aggravate chronic disease and heart/lung disease symptoms including persistent coughs, phlegm, wheezing, and physical discomfort. Continuing inhalation of fine particulate matter may lead to reduced life span from lung or heart failure. Non-health-related effects include reduced visibility and soiling of surfaces.

Nitrogen Dioxide (NO_2)

Nitrogen dioxide is a reddish-brown toxic gas readily visible during periods of heavy pollution. It is one of the oxides of nitrogen that results from combustion. Major sources of nitrogen oxides include automobiles and industrial uses, such as refineries, industrial boilers, and other types of combustion equipment. The Bay Area, including Pleasanton, meets ambient standards for nitrogen dioxide, and the BAAQMD does not expect future violations of these standards. Nitrogen dioxide increases the risk of chronic bronchitis, lung irritations, and sore throats. Nitrogen dioxide also leads to reduced visibility.

Sulfur Dioxide (SO_2)

Sulfur dioxide is a colorless gas with a pungent, irritating odor created by the combustion of sulfur-containing fossil fuels. Major sources of sulfur dioxide in the Bay Area are refineries and some chemical plants. The Bay Area, including Pleasanton, meets ambient standards for sulfur dioxide, and the BAAQMD does not expect future violations of these standards.

[7] Ellen Garvey and Dave Howekamp, Commissioned by Scott Haggerty, First District Supervisor, Alameda County Board of Supervisors, *Clean Air Plan For The Tri-Valley Area, Livermore, Pleasanton, Dublin, Sunol,* page 10, January 2004.

Sulfur dioxide aggravates chronic obstructive lung disease and increased risk of acute and chronic respiratory illness. Sulfur dioxide also accelerates corrosion of materials.

Hazardous Pollutants

In addition to the above pollutants, for which there are ambient air quality standards, is a second type of regulated pollutants called toxic air contaminants (TACs). These are known to be injurious, even in small quantities, but are relatively uncommon outside of industrial and medical uses. The federal and State governments provide emission regulations, rather than ambient air standards, for these pollutants.

Gas station at Main and Saint Mary Streets

In 2002, the BAAQMD monitored 67 different toxic air contaminates in Alameda County including about 2,490 pounds of carcinogenic (cancer-causing) contaminant emissions and 725 pounds of non-carcinogenic contaminant emissions. BAAQMD operates several programs to identify and control ambient levels of these pollutants including: (1) Air Toxic New Source Review, (2) Air Toxics Hot Spots Program, (3) Control Measures for Categories of Sources, (4) Emissions Inventory, and (5) Ambient Monitoring Network. The air toxics program is a separate and complementary program to criteria air pollutants – pollutants discussed above in this section for which there are standards – that is designed to evaluate and reduce adverse health effects resulting from toxic air contaminant exposure.

The City evaluates Toxic Air Contaminants on a project-by-project basis, based upon a conservative health risk evaluation. The City's Hazardous Materials Storage Permit policies (Chapter 9.16 of the *Pleasanton Municipal Code)* regulate businesses that handle, store, or transport hazardous materials (see additional information in the Public Safety Element).

AIR POLLUTANT SOURCES

Pleasanton contains various air pollution sources besides motor vehicle fuel combustion, its largest single source. Additional major pollutant sources include space and water heating, fireplaces, industrial processes, and commercial-use fuel combustion. Other pollutant sources include evaporation of fuels and solvents, incineration, fires, agricultural tilling, and pesticides.

The Bay Area Air Quality Management District (BAAQMD) is the main local permitting agency for air pollutant sources. Pleasanton contains numerous minor sources of air pollutants that have permits from the BAAQMD, such as dry cleaning plants, gas stations, auto body shops, and other businesses that use organic compounds, which could pollute the air.

ODORS

In addition to these sources of pollutants, the Air Resources Board of the California Environmental Protection Agency has identified land-

use types that frequently cause odors, dust or other nuisances.[8] In Pleasanton, these operations generally include: (1) sand-and-gravel harvesting areas – including asphalt plants – along Stanley Boulevard, (2) the Dublin San Ramon Services District sewage treatment plant on Johnson Drive and the treatment ponds and drying beds north of Stoneridge Drive, (3) the solid waste transfer station on Busch Road, and (4) some agricultural areas.

The City relies on the California *Health and Safety Code* to regulate odors. These laws have been written to protect the public health and welfare throughout the State, including in and around Pleasanton. The Bay Area Air Quality Management District (BAAQMD) regulates odors in the City of Pleasanton and has equipment, expertise, and personnel to enforce nuisance odor reduction. The Bay Area Air Quality Management District enforces California *Health and Safety Code* Section 41700 (public nuisance) as well as the Air District's own Regulation 1-301 (which is a restatement of Section 41700 *Health and Safety Code*) against odor sources that cause a public nuisance. The *Health and Safety Code* exempts agricultural sources from this restriction, and the local enforcement authority handles odor complaints related to composting operations (Section 41705). For Alameda County, the local enforcement authority for composting operations is the Alameda County Environmental Health Department.

Not all odors constitute a public nuisance; some are pleasant, some benign, while others are bothersome. For an odor to be considered a public nuisance it would have to bother a widespread segment of the population and not just a handful of individuals, per Bay Area Air Quality Management District regulations.

An asphalt plant within the Pleasanton Planning Area is located on CEMEX property south of Stanley Boulevard near the Vineyard Avenue corridor. This property is under Alameda County's jurisdiction. Operations of this plant have resulted in numerous odor complaints from Pleasanton residents living in the vicinity. In 2007 the City reached an agreement with Alameda County, Granite Construction, and CEMEX to move the asphalt plant closer to Stanley Boulevard near Shadow Cliffs. This should reduce odor impacts to residents in the Vineyard Avenue corridor.

The Dublin-San Ramon Services District (DSRSD) sewage treatment plant is located directly west of Val Vista Park while the ponds and the processed sludge are located across Stoneridge Drive from the closest residential neighborhood. The sewage treatment plant generally meets air emissions standards. It has been the subject of odor complaints in the past, although there have been fewer complaints since the recent upgrade and capacity increase of the plant. Even before these improvements, emissions from the sewage

Dublin-San Ramon Services District

Dublin-San Ramon Services District wastewater recycling treatment facility

[8] California Environmental Protection Agency, Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective,* April 2005.

treatment plant represented a nuisance rather than a health hazard to residents located near the facilities.

The Bay Area Air Quality Management District (BAAQMD) sends out an inspector if a person makes a complaint regarding odors or emissions from the plant. In addition to BAAQMD inspectors, DSRSD also investigates odor complaints.

SENSITIVE RECEPTORS

Sensitive receptors include the infirm, children, the elderly, and people sensitive to air pollutants. Examples of land uses where sensitive receptors congregate are hospitals, childcare centers, schools, playgrounds, rehabilitation centers, residences, and senior housing,

Children at the Mini Indy at Gingerbread Preschool

including assisted living and nursing homes. Table 9-2 lists sensitive receptors and Figure 9-1 shows locations of potential sensitive receptors in Pleasanton. In 2003 the California Legislature passed legislation *(Senate Bill 352)* that expands requirements that school districts must follow in considering the impacts of hazardous air emitters and hazardous material handlers within 1/4 mile of a new school site, and creates new requirements for school sites within 500 feet of a busy freeway or traffic corridor.

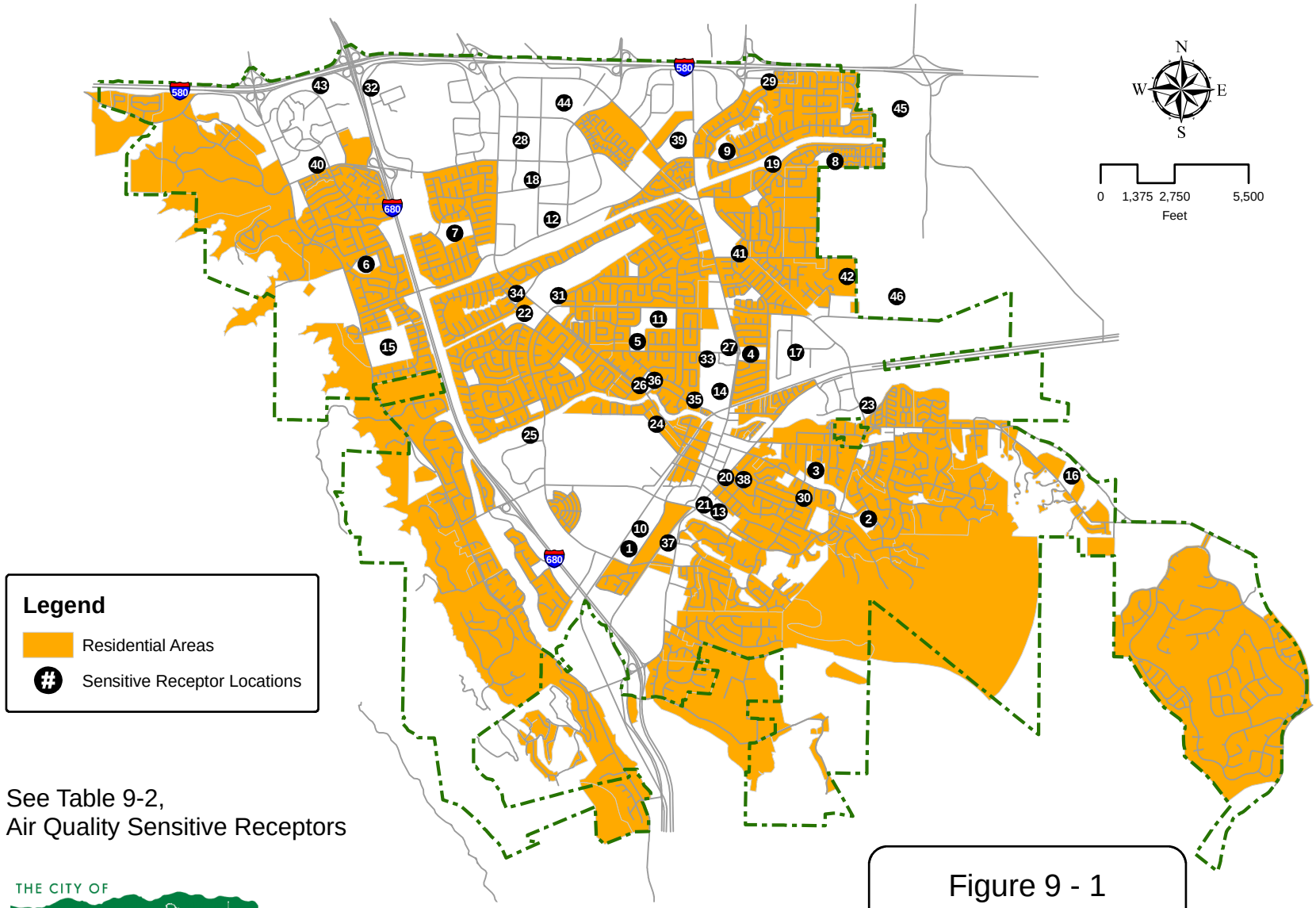
RECENT AIR QUALITY CONDITIONS

In 1988, the State adopted the *California Clean Air Act*. The standards contained in this Act are more restrictive than parallel federal standards. The Act requires that each regulatory authority governing air pollutant emissions throughout the State adopt a strategy to achieve and maintain the State ambient ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide standards by the earliest practicable date. In the Bay Area, the BAAQMD is the agency responsible for preparing the strategy to improve air quality. Based on monitoring data collected and compiled by the BAAQMD, the Bay Area is currently not in attainment for ozone (O_3). In response to legal requirements of the California *Clean Air Act,* BAAQMD has prepared a series of clean air plans aimed at reducing emissions from stationary and mobile sources. In January 2006, the BAAQMD replaced the *2000 Clean Air Plan* with the *2005 Bay Area Ozone Strategy.*

The State has also established measures to control additional pollutants including particulate matter 10 microns or less in size (PM_{10}) and fine particulate matter 2.5 microns or less in size ($PM_{2.5}$).

Pleasanton, in conjunction with the Hacienda Business Park Owners Association, monitored carbon monoxide (CO), particulate matter, and meteorological conditions until 1992 when BAAQMD assumed responsibility for the station on Chabot Drive in Pleasanton. In 1996, BAAQMD ceased monitoring in Hacienda Business Park as no violations of any pollution standard had occurred for years. BAAQMD continues to monitor ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, and particulates at its Livermore

2005 PLEASANTON PLAN 2025



Source: California Department of Social Services - Community Care Licensing Division, http://ccl.dss.cahwnet.gov/Informatio_1768.htm; Pleasanton Unified School District, 2006; SBC Yellow Pages, 2006.

Figure 9 - 1
Air Quality
Sensitive Receptors

TABLE 9-2: AIR QUALITY SENSITIVE RECEPTOR LOCATIONS, 2005

Pleasanton Unified School District Schools

1. Phoebe Apperson Hearst Elementary School, 5301 Case Avenue
2. Vintage Hills Elementary School, 1125 Concord Street
3. Valley View Elementary School, 480 Adams Way
4. Alisal Elementary School, 1454 Santa Rita Road
5. Walnut Grove Elementary School, 1999 Harvest Road
6. George C. Lydicksen Elementary School, 7700 Highland Oaks Drive
7. Thomas H. Donlon Elementary School, 4150 Dorman Road
8. Henry P. Mohr Elementary School, 3300 Dennis Drive
9. Fairlands Elementary School, 4151 West Las Positas Boulevard
10. Pleasanton Middle School, 5001 Case Avenue
11. Harvest Park Middle School, 4900 Valley Avenue
12. Thomas S. Hart Middle School, 4433 Willow Road
13. Village and Horizon High Schools, 4645 Bernal Ave. & 245 Abbie Street
14. Amador Valley High School & Adult Education, 1155 Santa Rita Road
15. Foothill High School, 4375 Foothill Road
16. Potential Elementary School, Vineyard Avenue

Private Schools

17. Quarry Lane School, 3750 Boulder Street
18. Carden West School, 4576 Willow Road
19. Hacienda School, 3800 Stoneridge Drive
20. Lighthouse Baptist School, 118 Neal Street

Note: Family childcare and about 15 residential-care facilities for the elderly are provided in residential neighborhoods throughout Pleasanton. Because residents are also sensitive receptors, Figure 9-1 does not delineate childcare providers and elder residential care in these neighborhoods.

Childcare Centers Not in Schools or Residences

21. Adventure Time (former YMCA facility), 4667 Bernal Avenue
22. Adventures in Learning, 3200 Hopyard Road
23. Beth Emek Preschool, 3400 Nevada Street (at Bernal Avenue)
24. The Child Day School, 883 Rose Avenue
25. Children's World Learning Center, 7110 Koll Center Parkway
26. Early Years Children's Center, 1251 Hopyard Road
27. Gingerbread Preschool, 4333 Black Avenue
28. Hacienda Child Development Center, 4671 Chabot Drive
29. Kindercare Learning Center-Pleasanton, 3760 Brockton Drive
30. Kinderkirk Christian Preschool-Pleasanton, 4300 Mirador Drive
31. La Petite Academy, 5725 Valley Avenue
32. Love and Care Preschool, 7106 Johnson Drive
33. Quarry Lane School, 4444-A Black Avenue
34. Saint Clare's Day Care Center, 3350 Hopyard Road
35. Shining Light Preschool, 4455 Del Valle Parkway
36. Sonshine Enrichment Center, 1225 Hopyard Road

Facilities for the Medically Fragile and Elderly

37. Pleasanton Senior Center, 5353 Sunol Blvd.
38. Pleasanton Nursing and Rehabilitation Center, 300 Neal Street
39. Valley Care Medical Center, 5555 West Las Positas Boulevard
40. Kaiser Permanente Medical Center, 7601 Stoneridge Drive
41. Eden Villa Pleasanton Residential Care, 4115 Mohr Avenue

Potential Future Sensitive Receptors

42. Busch Road Senior Housing
43. West Pleasanton/Dublin BART Station residences
44. Hacienda – Housing locations are not yet specifically identified.
45. Staples Ranch Senior Continuing Care
46. East Pleasanton – Housing locations are not yet identified.

Sources: California Department of Social Services – Community Care Licensing Division, http://ccl.dss.cahwnet.gov/Informatio_1768.htm; Pleasanton Unified School District, 2006; SBC Yellow Pages, 2006; Pleasanton Planning and Community Development Department, 2006.

Station. Table 9-3 shows air quality data for 1995 to 2006. These data indicate violations of ozone and suspended particulate standards.

Foggy winter morning near the Pleasanton Library

Since 1995, ozone levels in the Tri-Valley have generally decreased. The number of days violating State standards has averaged about seven annually over the last three years compared to an average of about 15 annually during the mid-1990s. This can be further compared to an average of almost 18 days of violations from 1983 to 1989 and an average of 10 days of violations from 1990 to 1994. In addition since 1983, there have been no days in which the levels of carbon monoxide violated either State or federal standards.

During the past 10 years, the Tri-Valley area has violated State particulate matter (PM_{10}) standards from zero to three times each year, while it has not violated federal standards. Since the BAAQMD began monitoring the new $PM_{2.5}$ standard, it had measured no violations of either State or federal standards in the Tri-Valley area until 2006 after the State changed its standards. Wood smoke – responsible for about one third of the PM_{10} in the Bay Area – is the largest stationary source of PM_{10}.[9] On cold, stagnant winter evenings in Pleasanton, the combined particulates from fireplaces and traffic may lead to violations of fine particulate matter standards.

In order to protect public health, the Bay Area Air Quality Management District issues Spare the Air advisories on days when unhealthy air quality is forecast due to high pollutant levels. The Air District advises people who are especially sensitive to pollution to limit their time outdoors, particularly in the afternoon hours. On Spare the Air Days, the District requests that Bay Area residents make clean air choices including driving less, taking public transportation, trip-linking, walking, biking, choosing non-gasoline-powered lawn and garden equipment, avoiding polluting household products, barbequing, and in the winter, curtailing burning of wood. The Air District and Metropolitan Transportation Commission partner with numerous Bay Area transit operators to offer free commutes on several Spare the Air days each year.

CLIMATE CHANGE [10]

The Earth's climate is changing because human activities – primarily the combustion of fossil fuels – are altering the chemical composition Of the atmosphere through the buildup of greenhouse gases. Greenhouse gases allow the sun's ultraviolet radiation to penetrate the atmosphere and warm the Earth's surface, but do not let the infrared radiation emitted from the Earth escape back into outer space.

[9] BAAQMD website, accessed Feb. 27, 2008: http://www.baaqmd.gov/pio/wood_burning/wood_burning/index.htm.

[10] Bay Area Air Quality Management District, Board of Directors Resolution on Climate Change, "Climate Change and Protection," http://www.baaqmd.gov/pln/climatechange.htm, June 1, 2005.

TABLE 9.3: 1995 – 2006 LOCAL AIR QUALITY CONDITIONS

POLLUTANT	Emissions Information by Year											
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Ozone												
Ozone Peak One-Hour Concentrations	16	14	11	15	15	15	11	16	13	11	12	12.7
State 1-Hour Standard: 9 pphm: No. of Violations	20	22	3	21	14	7	9	10	10	5	6	13
Federal 1-Hour Standard: 12 pphm: No. of Violations	7	8	0	6	2	2	0	2	1	0	—	—
Ozone Peak Eight-Hour Concentrations	—	—	—	—	12	11	9	11	9	8	9	10.1
State 8-Hour Standard: 7 pphm: No. of Violations	—	—	—	—	—	—	—	—	—	—	7	15
Federal 8-Hour Standard: 8 pphm: No. of Violations	—	—	—	—	5	2	2	6	3	0	1	5
Respirable Particulate Matter (PM_{10})												
PM_{10} Annual Geometric Mean	19.4	19.9	22.0	19.4	22.7	19.4	21.1	21.5	—	—	—	—
PM_{10} Annual Average Concentration	—	—	—	—	25.7	21.8	24.6	24.5	18.9	20	18.8	21.8
PM_{10} Maximum 24-Hour Concentration	—	—	—	—	87	71	109	64	33	49	49	69
State PM10 Standard: 50 $\mu g/m^3$: No. of Violations	1	1	2	2	3	2	3	2	0	0	0	3
Federal PM10 Standard: No. of Violations	0	0	0	0	0	0	0	0	0	0	0	0
Fine Particulate Matter ($PM_{2.5}$)												
Annual Average Concentration	—	—	—	—	—	—	—	13.8	9.0	10.3	9.0	11.0
Maximum 24-Hour Concentration: 35 $\mu g/m^3$, 65 $\mu g/m^3$ in 2006	—	—	—	—	—	56.4	107.5	62	42	41	32.1	50.8
State $PM_{2.5}$ Standard: 12 $\mu g/m^3$ 3-Year Average: No. of Violations	—	—	—	—	—	—	—	0	0	0	0	0
Federal $PM_{2.5}$ Standards: No. of Violations	—	—	—	—	—	—	2	0	0	0	0	3

Notes: No. = number, ppm = parts per million, pphm = parts per hundred million, mg = milligram (one-thousandth of a gram), μg = mircrogram (one-millionth of a gram), m^3 = cubic meter.

Violations of standards are indicated by bold typeface on the table.

BAAQMD has measured no violations (exceedances) of the carbon monoxide, nitrogen dioxide, or sulfur dioxide standards from 1995 to 2005.

On December 17, 2006, the U.S. EPA implemented a more stringent national 24-hour PM2.5 standard—revising it from 65 μg/m3 to 35 μg/m3. PM2.5 exceedance days for 2006 reflect the new 35 μg/m3 standard, while PM2.5 exceedance (violation) days for 2004 and 2005 reflect the 65 μg/m3 standard.

Sources: BAAQMD, Bay Area Air Pollution Summary, 1999–2005; BAAQMD, Summary of Air Pollution in the Bay Area, 1995–1998. All data are from the Livermore Station.

Carbon dioxide (CO_2) emissions are the leading cause of climate change, with additional contributions from air pollutants such as methane, nitrous oxides, and hydrofluorocarbons.

Carbon dioxide concentrations, which had been stable for the past 10,000 years, began rising only during the last two hundred years in California and have now increased by about 30 percent over historic levels. In the last decade, transportation accounted for the largest portion of air emissions, averaging 59 percent of total CO_2 emissions, followed by 16 percent from electricity generation, and 12 percent from other industries. Greenhouse gases other than carbon dioxide, such as methane, play an important role in efforts to address climate change due to their high global warming potentials and the availability of cost-effective emission reduction opportunities.

In terms of air quality, climate change affects public health because higher temperatures result in more air pollution, increased smog, and associated respiratory disease and heart-related illnesses. Continued warming threatens to erode air-quality improvements made in the Bay Area within the past 50 years and may make it more difficult for the region to meet ozone and particulate-matter standards.

Although emission reductions have not been quantified, many transportation control measures will also reduce greenhouse gas emissions from motor vehicles. Control measures that result in reducing or eliminating motor vehicle trips or result in more efficient motor vehicle operations would help reduce greenhouse gas emissions as well as reducing ozone concentrations. Energy conservation measures – including green building – would directly target greenhouse gases while also helping to reduce ozone. In addition, because of the high energy costs related to pumping and treating the domestic water supply, water conservation also has a high potential to reduce energy use and greenhouse gas production.

Assembly Bill 32

The *Global Warming Solutions Act* of 2006 (*Assembly Bill or AB 32*) reflects California's commitment to a comprehensive approach to addressing climate change. It is the overarching state legislation on climate change and requires a reduction in greenhouse gas emissions to 1990 levels by 2020 (which is an approximately 30 percent reduction in greenhouse gas emissions over "business as usual") and 80 percent below 1990 levels by 2050. The California Air Resources Board (ARB) is the lead agency for implementing *AB 32*.

The California ARB has developed a Scoping Plan for implementation. The Scoping Plan was adopted in December 2008 and includes a number of recommendations for reducing California's greenhouse gas emissions, including:

- Expanding and strengthening existing energy efficiency programs and building and appliance standards
- Increasing the proportion of energy generated from renewable resources
- Developing a cap and trade program for emissions
- Implementing existing State laws and policies, including California's clean car standards
- Local Government Actions and Regional Greenhouse Gas Emission Targets

Preliminary Recommendations for Local Government Actions include, among others, actions that can be taken by local governments in relation to community design, including siting and design of new residential and commercial development in a way that reduces greenhouse gas emissions associated with energy, water, waste/ recycling, and vehicle travel. New development that incorporates Transit Oriented Design principles would be consistent with this strategy.

Further, the Scoping Plan supports regional targets for transportation-related greenhouse gas emissions, and the use of a "blueprint" planning process to map out preferred land use and transportation scenarios that meet regional targets. This approach is consistent with ABAG's Focusing Our Vision project (FOCUS) through which the Hacienda area was designated a Priority Development Area. In the future, other areas in Pleasanton, such as the Stoneridge Shopping Center, should also be considered for transit oriented development.

Generally, the draft Scoping Plan recommends that local agencies set greenhouse gas reduction targets for 2020, build on existing strategies and adopt best practices, such as the Institute for Local Government's California Climate Action Network Best Practices Framework. ARB and other agencies will eventually measure and track such local agency greenhouse gas reductions.

Key milestones for implementation of *AB 32* include:

- June 30, 2007 – Identification of discrete early action greenhouse gas emissions reduction measures. *Completed.*
- January 1, 2008 – Identification of the 1990 baseline GHG emissions level and approval of a statewide limit equivalent to that level. Adoption of reporting and verification requirements concerning GHG emissions. *Completed.*
- January 1, 2009 – Adoption of a Scoping Plan for achieving GHG emission reductions. *The Final Scoping Plan was adopted December 2008.*
- January 1, 2010 – Adoption and enforcement of regulations to implement the "discrete" actions.
- January 1, 2011 – Adoption of greenhouse gas emission limits and reduction measures by regulation.
- January 1, 2012 – Greenhouse gas emission limits and reduction measures adopted in 2011 become enforceable.

Senate Bill 375

Senate Bill (SB) 375 legislation, passed in 2008, is the first measure in the nation to link government transportation funding, urban land use, and greenhouse gas reduction goals. The legislation focuses on reducing vehicle miles traveled and sees local government facilitation of higher density, transit-oriented development as the means of reaching the greenhouse gas reduction targets described in AB 32.

A key component of this legislation requires regions to incorporate greenhouse gas reduction targets into their regional transportation plans. The California Air Resources Board will establish these targets in consultation with the regions by 2011. The regional transportation plans must then identify a future development plan that would meet the region's targets for greenhouse gas emission reductions for cars and light trucks, if feasible. This development plan is identified in *SB 375* as the sustainable communities strategy (SCS). Each region's SCS will be required to be approved by the California ARB. Transportation projects consistent with the region's SCS will receive priority for state transportation funding, and residential development projects consistent with the SCS will be subject to a streamlined environmental review under the *California Environmental Quality Act.*

Pleasanton's Response to Climate Change

In advance of any specific regional targets or state direction, the City of Pleasanton has taken several steps to address climate change: first, to understand the nature and extent of greenhouse gas production from City operations and from the community; and second, to incorporate greenhouse gas reduction measures into the General Plan.

The Alameda County Waste Management Authority is coordinating the Climate Protection Project. The County has contracted with the International Council for Local Environmental Initiatives (ICLEI) on behalf of participating cities to receive the following:

- A baseline greenhouse gas emissions inventory and forecast;
- Assistance in developing an emission-reduction target;
- A survey of existing polices and programs to reduce emissions and save energy;
- A template local Climate Action Plan that Pleasanton can use as a start in developing its individual local action plan.

In 2007 the City joined both the Alameda County Climate Protection Project and ICLEI for a one year period. During this time the City has worked with ICLEI to develop an inventory of greenhouse gas emissions. The next step will be to prepare a climate action plan that consists of polices and measures that include existing and future actions capable of meeting local greenhouse-gas-reduction targets. The City will implement, monitor, and report appropriate and achievable components of the proposed action plan.

In March 2009, the Pleasanton City Council reviewed the greenhouse gas inventory prepared by ICLEI for both City operations and the community. Previously, a less complex, "order of magnitude" analysis was prepared by LSA Associates[11] in order to evaluate the comparative level of emissions for existing development and buildout. (Additional data related to the project alternatives were also included in the Draft EIR for the General Plan.) This information is shown in Table 9.4.

The table shows that currently transportation accounts for the largest share of greenhouse gas emissions, with emissions from residential development the second largest category. In the future, at buildout, transportation is still the largest share, but emissions from commercial/office/R&D will be the second largest share. Emissions from residential development in 2025 are expected to be only slightly more than existing levels.

TABLE 9.4: GREENHOUSE GAS EMISSIONS

Emission Source	Existing Conditions (2005)		Buildout (2025)	
	(CO_2e in MT/Year)	% all CO_2e	(CO_2e in MT/Year)	% all CO_2e
Residential	0.277	21	0.319	16
Commercial/Office/R&D/Other	0.241	18	0.404	21
Industrial	0.043	3	0.082	4
Transportation	0.777	58	1.140	59
Total Annual Emissions	1.338	100	1.940	100

Notes: CO_2 =carbon dioxide, e =equivalent, CO_2e =carbon dioxide equivalent, MT=million tons

Source: LSA Associates, August 2008.

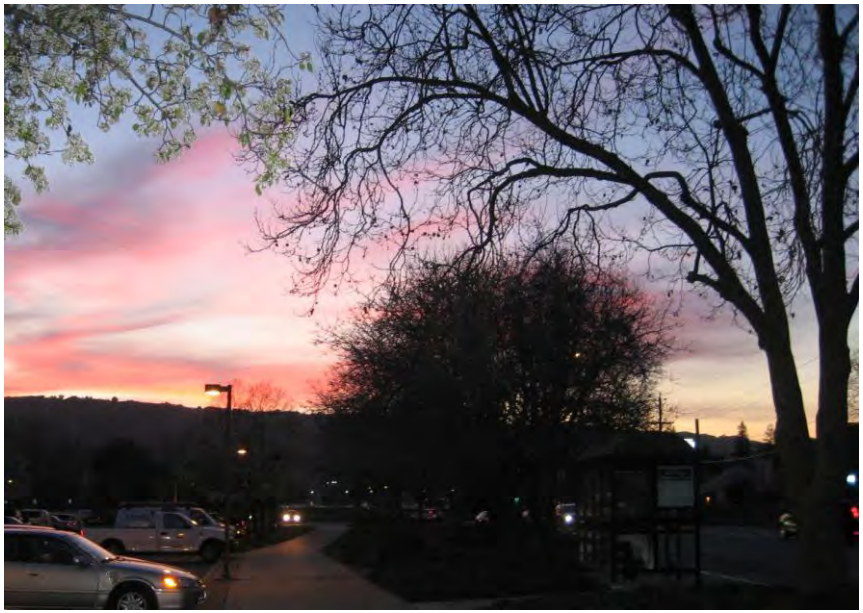
The increase in CO_2e (carbon dioxide equivalents) per year shown in the table represents the "business as usual" scenario. This increase does not take into account potential reductions that would result from the implementation of many new programs in this General Plan. The following section lists and describes those policies and programs.

In September 2008, the City Council adopted a resolution establishing a Committee on Energy and the Environment to advise the City Council on energy and environmental related issues, strategies, planning and protections and opportunities for conservation. The Committee will have the following duties and responsibilities:

- Work closely with City staff to prepare an Energy and Environmental Priorities Plan focusing on energy and environmental issues and strategies reflecting community opportunities, needs and interest;

[11] Memorandum dated August 12, 2008, from Ronald Brugger, Air Quality Specialist, LSA, to Janice Stern, Principal Planner, City of Pleasanton.

- Promote and recommend strategies towards preservation, enhancement and conscientious utilization of environmental resources for use by residents and businesses of the City of Pleasanton;
- Identify and give special consideration to issues that may adversely affect those natural resources within the City of Pleasanton;
- Develop strategies that are measurable in a quantitative and qualitative fashion; and,
- Support the intent of the General Plan's environmental goals, policies and programs.



Evening sky in Pleasanton near library

One of the first tasks of the Committee will be to prepare a Climate Action Plan for adoption by the City Council. The Climate Action Plan will set a target for greenhouse gas production consistent with AB 32, and will include specific targets for greenhouse gas emission reductions for emissions under the control of the City, will quantify the contributions of existing programs in the General Plan, and will discuss additional measures needed to achieve the City's targets, including exploring the relationship between jobs, available housing, vehicle miles traveled and greenhouse gas production.

Goals, Policies, and Programs Serving as Greenhouse Gas Reduction Measures

This General Plan currently includes numerous Goals, Policies, and Programs that, when implemented, will serve to reduce greenhouse gases over "business as usual" levels.[12] Appendix A at the end of this General Plan lists those and indicates in which element they are found in the General Plan.

Programs that would act to reduce greenhouse gas production are contained in the Land Use, Circulation, Public Facilities and Community Programs, Conservation and Open Space, Water, Air. Quality / Climate Change, Energy, Community Character, and Subregional Planning elements of the General Plan. The programs address climate change and greenhouse gas reduction through multiple approaches including:

- A more efficient use of land and other resources;
- Measures that encourage alternative means of travel;
- Maintenance of the Urban Growth Boundary;

[12] "Business as usual" conditions are defined as year 2005 building energy efficiency, average vehicle emissions, and electricity conditions. Business as usual condition forecasts presume no improvements in energy efficiency, fuel efficiency, or renewable energy generation beyond that existing today. Specifically, BAU conditions do not include current or proposed General Plan policies and currently adopted (AB 1493, SB 1078/SB 107) mandates, nor do they include greenhouse gas reduction measures included in the California ARB Scoping Plan (December 2008) which are not yet enacted into statute. This is consistent with the California ARB estimation of emissions for 2020.

- The preservation of the City's urban forest;
- A pattern of urban development that facilitates pedestrian and bike access to parks, other public facilities, and neighborhood commercial uses;
- Water conservation;
- The preservation of air quality;
- Conservation of energy and the use of alternative technology to generate energy; and,
- The subregional coordination of transit and subregional planning of trails for bikes and pedestrians.

At the time of writing, the City is not able to quantify the potential reduction in greenhouse gas emissions below "business as usual" levels that would result with implementation of the above policies. It is anticipated that a future Climate Action Plan would provide additional information regarding how these policies and others will assist the City of Pleasanton in meeting its targets.

FUTURE AIR QUALITY

Buildout of the General Plan would replace currently vacant and underutilized land with mostly residential, commercial, and industrial uses. These urban uses are a source of pollutants from the combustion of fuel for space and water heating as well as from the use of consumer products. These urban uses also contribute to residential and commercial motor vehicle trips that use fuel. Pleasanton projects about 3,800 more housing units and about a 50 percent increase in commercial and industrial development from 2006 until General Plan buildout – from 21.0 million square feet in 2006 to about 32.8 million at buildout.[13] This substantial increase in development will lead to fuel-use and air-emission intensification related to vehicle use.

[13] Based on growth projections in the Land Use Element of this General Plan.

The General Plan also would allow for additional regulated point sources of pollutants and users of hazardous materials. Although the number and nature of future additional air pollutant point sources within Pleasanton are not known, BAAQMD requires that each individual source meet its rules and regulations. These regulations require that sources of hazardous materials or criteria pollutants above certain thresholds obtain permits prior to constructing or operating the facility. BAAQMD regulations may require use of Best Available Control Technology with emission reductions at other locations to offset proposed increases, and may require detailed analysis and/or modeling of air pollution impacts prior to issuing a permit. In certain cases, BAAQMD may also require on-site monitoring prior to and after construction, and may attach conditions that it believes are necessary to avoid public health hazards and community complaints.

By far the largest change in subregional emissions related to buildout under the General Plan would be related to automobile traffic. Table 9-5 shows total daily vehicle miles traveled (VMT) associated with

TABLE 9-5: PROJECTED COUNTY-WIDE VEHICULAR EMISSIONS, 2005 AND 2025 (TONS/DAY)

	2005	2025	% Change
Vehicle Miles Traveled	36,218,000	48,872,000	35 %
Diesel Consumption (gallons)	409,030	481,420	18 %
Gasoline Consumption (gallons)	1,755,530	2,342,660	33 %
Pollutants (in Tons per Day)			
Reactive Organic Gases (ROG)	31.03	11.11	- 65 %
Nitrogen Oxides (NOX)	72.31	20.5	- 72 %
Sulfur Oxides (SOX)	0.57	0.27	- 53 %
Particulate Matter (PM_{10})	3.02	2.52	- 17 %
Carbon Monoxide (CO)	295.45	83.34	- 72 %
Carbon Dioxide (CO_2)	21.19	28.1	+ 33 %

Source: Illingworth & Rodkin, using Emfac2007 V2.3 Nov. 2006, 2007.

county-wide vehicle use, the largest source of air emissions. Emissions generated by automobiles are estimated for 2005 and 2025. Note that all emissions, with the exception of carbon dioxide, would continue to drop and that countywide air quality would improve. This is due to improvements in the vehicle fleet: better controls on newer vehicles while older vehicles are removed from roadways. Carbon dioxide, the gas related to climate change, will continue to grow at about the same rate as future gasoline consumption. Thus to lower greenhouse gas emissions would require consuming less gasoline. Although Pleasanton development contributes to vehicle miles traveled, commuting within the Tri-Valley is a regional problem.

PURPOSE OF AIR QUALITY PLANNING

Air quality in the Tri-Valley area has continually improved over the past 30 years. However, the area continues to violate both federal and State ozone and particulate matter (PM_{10}) standards. Continued improvement of air quality is not assured given climatic warming coupled with continuing population and job growth in the Bay Area. Additional subregional public transit options would lead to decreased dependence on the single-occupant vehicle. Until the Tri-Valley as a whole becomes more sustainable and/or development ceases, air quality considerations will continue to be important in the planning process.

The combined effects of future growth in population and traffic, along with expected deterioration in travel speed and congestion, may offset projected decreases in mobile and stationary-emission rates. Attainment and maintenance of the ozone standard in the future is not likely to occur without implementation of air-emission reduction programs.

The climatological setting of Pleasanton ensures that the potential for ozone and suspended particulate problems will continue to exist. An increase in future traffic volumes will have the potential to exacerbate these problems.

Altamont Commuter Express (ACE) Train

AIR QUALITY PLANNING

The major reason for including an Air Quality and Climate Change Element in the General Plan is to coordinate the planning of land use, circulation, housing, energy, and other City policies with their potential effects on air quality. The City of Pleasanton is committed to incorporating air quality considerations into its plans, policies, and programs for future development.

Sustainable Development and Planning

The City of Pleasanton embraces the concept of sustainable development and planning. A sustainable city draws from the environment only those resources that are necessary and that can be used or recycled perpetually, or returned to the environment in a form that nature can use to generate more resources. Relating the sustainability concept to air quality means reducing emissions related

to buildings as well as reducing the frequency and distance of vehicle trips within Pleasanton. Trip reduction can be accomplished by (1) including housing opportunities for Pleasanton workers of all socioeconomic levels; (2) providing local job opportunities to existing Pleasanton residents; (3) providing neighborhood-serving retail and recreational uses that are readily accessible to residential neighborhoods; (4) maximizing transit, bicycle, and walking opportunities to workers and residents; (5) providing services such as childcare, restaurants, banks, and markets at major employment centers, (6) alleviating the need for and/or number of work-related trips, and (7) concentrating all new development within the Urban Growth Boundary with emphasis on development near transit nodes.

Reducing Building-Related Emissions

By ordinance, the City of Pleasanton currently requires developers to utilize green building practices. The objective of green building design is to implement several related goals: energy efficiency, healthy indoor air quality, waste reduction, water efficiency, and planning for sustainable development. Green building practices that have the potential to improve air quality include non-CFC refrigerants, low-VOC-emitting materials, photovoltaic panels, passive-energy design, and no wood-burning fireplaces.

Solar panels on roof of Centex home, under construction

The City's hazardous materials regulations (Chapter 9.16 of the *Pleasanton Municipal Code)* ensure review and monitoring of stored materials to prevent gases leaking into the environment.

Reducing Vehicle Trips

The Livermore-Amador Valley Transit Authority (LAVTA) bus system – known as Wheels in Pleasanton, Bay Area Rapid Transit (BART) system, Altamont Commuter Express (ACE) train, and various regional bus agencies and private shuttles provide residents and employees with convenient transit alternatives to and from the City of Pleasanton.

Good examples of Pleasanton's efforts to integrate air quality into the planning process include the City's *Transportation Systems Management (TSM) Ordinance* (Chapter 17.24 of the *Pleasanton Municipal Code),* the City's Commendable Commutes program, and the City's pRide program. As part of Transportation Demand Management (TDM) in Pleasanton, the City sponsors a Commendable Commutes program. Employers who wish to enroll in the program enter into a participation agreement with the City and agree to develop a trip-reduction program and goals, conduct a bi-annual transportation survey, and appoint a management-level employee as a transportation coordinator who represents the employer as a member of the Transportation Committee. The City also promotes an internal employee trip-reduction program, known as pRide, which provides incentives for City employees who usually drive to try a commute alternative such as riding public transit, telecommuting, car-pooling, walking or bicycling. Programs include parking cashout, prize

Bicycle riders in residential neighborhood

drawings, transit subsidies, and a guaranteed ride home in case of illness, family emergency, unscheduled overtime, or missed rideshare trip. In addition, the City of Pleasanton and the Pleasanton Unified School District have partnered to implement Rides to School, Pleasanton's School Traffic Calming Program. This program includes ridematch car pooling, local bus service, site improvements, monitoring and enforcement, and other features.

The TDM program reduces air pollutants as well as noise, safety hazards, and other environmental effects. Adding pedestrian and bicycle pathways as well as potential programs such as bicycle sharing are among those measures considered in the Circulation Element. The City's policies and programs to reduce traffic congestion in the Circulation Element are referenced in the Air Quality, Noise, Energy, and other General Plan elements.

Providing housing for Pleasanton workers within the city and the Tri-Valley will also help reduce vehicle miles traveled. The City has adopted a preference system to determine eligibility for affordable housing projects, giving preference to people who both live and work in Pleasanton, with secondary priority given to people who either live or work in Pleasanton. The City is also part of the Tri-Valley Housing Opportunity Center that works toward providing homeownership opportunities to underserved low income groups. The Center holds marketing campaigns targeted at people working in the Tri-Valley area.

The City phases and funds public facilities to encourage compact growth and minimize traffic-generating sprawl. Current zoning designations locate existing and planned residential areas and sensitive receptors apart from possible point (stationary) sources of air pollutants. In addition, the Pleasanton Ridge open space and rural open space areas to the south and east allow for dispersion of air pollutants.

The City also conditions new projects to construct physical improvements aimed at promoting alternative transportation. For example, the City has required new office building developers to provide showers and lockers for bicycle commuters, install new transit stops, and construct traffic improvements to reduce traffic congestion.

RELATIONSHIP TO OTHER ELEMENTS

Policies and programs established throughout the General Plan affect air quality in Pleasanton. Policies that encourage infill development tend to reduce lengthy traffic trips and consequently vehicle emissions.

Land Use Element

The Land Use Element provides guiding principles for the type, location, size, and density of land uses throughout the City of

Pleasanton. Land use objectives that limit air-quality emissions would comply with the Air Quality Element. The Land Use Element includes policies to provide mixed-use developments in the Downtown and business park areas, locates high-density uses near transit facilities, and provides neighborhood-serving retail convenient to residential neighborhoods.

Circulation Element

The Circulation Element strives to improve traffic and circulation systems throughout Pleasanton. Circulation objectives that limit air-quality emissions would comply with the Air Quality Element. The Circulation Element would lead to improved air quality by maintaining level-of-service standards that encourage free-flowing traffic and by continuing to encourage Transportation Demand Management programs such as Commendable Commutes and pRide, which reduce both vehicular trips and traffic congestion.

Public Safety Element

The Public Safety Element promotes mitigation for hazards in the Pleasanton Planning Area. Hazardous material objectives that limit air pollutants and toxic air emissions would comply with the Air Quality Element. The Public Safety Element seeks to minimize risks to lives and property by reducing hazardous material emissions.

Conservation and Open Space Element

The Conservation and Open Space Element identifies existing and planned open space and recreational uses throughout the City of Pleasanton. Conservation and Open Space objectives that buffer sensitive receptors from noxious uses would comply with the Air Quality Element. The Conservation and Open Space Element encourages an open-space buffer surrounding Pleasanton.

Energy Element

The Energy Element guides Pleasanton toward a sustainable energy future. Energy objectives that reduce the use of carbon-based fuels would also reduce air pollutant emissions. The Energy Element encourages increases in renewable energy use, energy conservation, energy efficiency, and energy self-sufficiency.

Economic and Fiscal Element

The Economic and Fiscal Element strives to enhance Pleasanton's economic base. Economic objectives that would lead to fewer automobile trips would also reduce air pollutant emissions.

Subregional Planning Element

The Subregional Planning Element facilitates Pleasanton's involvement in cooperative planning of the Tri-Valley area. Programs that would continue Pleasanton's cooperation with the Bay Area Air Quality Management District and other regional agencies to monitor and control air pollutants would result in fewer air emissions.

AIR QUALITY AND CLIMATE CHANGE GOALS, POLICIES, AND PROGRAMS

The following goals, policies, and programs, in addition to those contained in other elements, constitute an action program to implement the objectives described in this element.

GOALS, POLICIES, AND PROGRAMS

Goal 1: Implement a proactive approach, and use available technology to maintain and improve air quality within Pleasanton and the region to protect the public health, safety, and welfare.

Goal 2: Promote sustainable development and planning to minimize additional air emissions.

Air Quality Standards

Policy 1: Adhere to federal and State air quality standards for local pollutants of concern.

Program 1.1: Incorporate measures in conditions of approval for development projects to reduce grading, construction, and operations-related air quality impacts.

Program 1.2: Support State and federal legislation that promotes improvements in air quality.

Also implement programs from the Hazardous Materials section of the Public Safety Element.

Land Use

Policy 2: Support development plans that reduce mobile-source emissions by reducing vehicle trips and vehicle miles traveled.

Implement programs from the Land Use Element to provide mixed-use developments, locate high-density uses near transit facilities, and provide neighborhood-serving retail uses convenient to residential neighborhoods. These programs would reduce vehicle trips and vehicle miles traveled, thus reducing air-pollutant emissions.

Policy 3: Separate air pollution sensitive land uses from sources of air pollution.

Program 3.1: Locate new air pollution point sources, such as manufacturing and extracting facilities, away from residential areas and other sensitive land uses following the California Air Resource Board's recommendations.[14]

Program 3.2: Locate new sensitive receptors, such as residences (including residential care and assisted living facilities for the elderly), childcare centers, schools, playgrounds, and medical facilities away from point sources of air pollution and busy traffic corridors following the California Air Resource Board's recommendations.[15]

[14] This program is currently based on Tables 1-1 and 1-2 of the California Environmental Protection Agency, California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective,* April 2005 or as amended. As new information becomes available, then this program will use updated information.

[15] *Ibid,* April 2005. As new information becomes available, then this program will use updated information.

Program 3.3: Require site specific studies of air quality health risk for development that would place sensitive receptors closer than 500 feet from the edge of a freeway or close to a significant point source of air pollution.

Motor Vehicle Travel

Policy 4:	Reduce air pollution from motor-vehicle trips and vehicle-miles traveled.

Program 4.1 Develop standards for the design and use of new drive-through businesses to minimize adverse impacts on air quality. Public education and the use of new technologies should be considered as part of this program.

To reduce vehicle miles traveled with commensurate reductions in air pollution and climate change, implement Transportation Demand Management (TDM) programs from the Circulation Element, including the addition of local and regional bicycle lanes. Also implement Circulation Element measures to facilitate the free flow of vehicular traffic, including continually updating computer-control technology for traffic lights. In order to shorten the distance of worker commutes, also implement programs from the Housing Element to provide mixed-use development and to provide housing opportunities for Pleasanton workers of all socioeconomic levels.

Development

Policy 5:	Review proposed projects for their potential to impact air quality conditions.

Program 5.1: Include air quality as a factor in the City's environmental review process. Encourage development plans which minimize negative impacts on air quality.

Program 5.2: Require projects which generate high levels of air pollutants, such as manufacturing facilities and hazardous waste handling operations, to incorporate air quality mitigations in their design.

Program 5.3: Adopt an ordinance regulating burning indoors and outdoors, including fireplaces, wood-burning stoves, and fire pits. The ordinance may consider allowable hours and setbacks from neighbors.

Climate Change and Energy

Policy 6:	Reduce air pollution and the production of greenhouse gases by increasing energy efficiency, conservation, and the use of renewable resources.

Program 6.1: Develop a Greenhouse Gas (GHG) Emissions Reduction Plan and/or Climate Action Plan for the City to control and reduce net GHG emissions and the effects of climate change. Development of this plan(s) shall include the following steps: (1) conduct a baseline analysis (GHG emissions inventory): (2) adopt an emissions reduction target; (3) develop strategies and actions for reducing emissions; (4) develop strategies and actions for adapting to climate change; (5) implement strategies and actions; and (6) monitor emissions and verify results a minimum of every five years starting in 2015.

Program 6.2: Adopt standard methodology for estimating greenhouse gas emissions from development projects and utilize this methodology as part of the project review process.

Program 6.3: For development approved prior to adoption of a Climate Action Plan, require the following Best Management practices: [16]

- BMP #1: Single- and multi-family residential and commercial development to comply with the City of Pleasanton's *Green Building Ordinance.* As far as feasible, residential projects should incorporate: resource efficient landscaping, energy efficient hot water distribution systems; high efficiency toilets and other low flow plumbing fixtures; high efficiency heating and cooling systems; pre-plumbing for solar water heating; installation of wiring conduit for future photovoltaic systems; installation of Energy Star appliances; and Green Points in the Community Design and Planning category.
- BMP#2: Development shall incorporate energy efficient appliances and systems that meet Energy Star standards.
- BMP#3: Where feasible, incorporate solar roofs (or other alternative energy measures) into commercial development sufficient to meet 12.5 percent of the building's annual energy usage. Calculations of energy savings may be prepared at the construction drawing stage. Where feasible, residential development to be solar-ready, including proper solar orientation, electrical conduit installed for solar electric system wiring, plumbing installed for solar hot water system, and space provided for solar hot water storage tank.
- BMP#4: Require transit and bicycle/pedestrian connections in new development, where feasible.

[16] For the purposes of Program 6.2, development is defined as all multi-family residential development with more than eight units, single-family homes with more than 2,000 square fee, commercial development with more than 20,000 square feet, and public projects.

- BMP#5: For commercial/industrial projects, prepare and implement a voluntary Trip Reduction Plan, using the resources available through the City of Pleasanton's Transportation Systems Management program as described in Chapter 17.24 of the *Pleasanton Municipal Code*. Trip reduction goal of 15 percent within five years and 25 percent within 10 years, compared to "business as usual."
- BMP# 6: Require priority facilities for alternative-fueled vehicles, such as priority parking and recharging facilities, where feasible.
- BMP# 7: Development and demolition to comply with the City's *Construction and Demolition Debris Ordinance* (ordinance currently in draft form)
- BMP# 8: In new commercial and multifamily projects, include facilities to accommodate recycling consistent with the City's programs.
- BMP# 9: Incorporate "heat island" treatments that include cool roofs, cool pavements, and/or strategically placed shade trees.

Implement programs from the Energy Element including those related to green building, such as encouraging passive-solar construction, as well as those related to reducing energy from appliances, equipment, and lighting.

Implement programs from the Public Facilities and Community Programs Element to reduce solid waste.

Also implement the program in the Water Element to conserve Pleasanton's urban forest as well as programs in the Community Character Element to replace and protect street trees. Tree shade not only helps lower energy use during hot months, most tree species remove air pollutants from the environment.

Technology Measures

Policy 7:	Provide leadership to Pleasanton residents and businesses by implementing all technology-based air-pollutant-reduction programs that are reasonable and feasible.

Program 7.1: Adopt a City "Green Fleet" policy to guide the City in purchasing energy efficient and clean vehicles.

Program 7.2: Continue to properly maintain the City vehicle fleet to insure as-designed vehicle operation. Proper preventative maintenance includes regular tune-ups, filter replacements, and engine diagnosis.

Program 7.3: As resources allow, continue and increase police bicycle patrols.

Program 7.4: As the City replaces landscaping equipment, gas cans, street sweepers, and other electrical and mechanical equipment, consider purchasing the least polluting equipment available.

Program 7.5: Postpone activities that contribute to air emissions on Spare the Air Days. Activities include: use of fossil fuel-powered landscaping equipment; surface coating and paint projects; and refueling vehicles. Reschedule vehicle trips, if feasible, without impacting project deadlines.

Program 7.6: Adopt a measure requiring large vehicles (gross weight rating of greater than 14,000 pounds) and off-road equipment owned by the City and/or private contractors to restrict engine idling to less than 5 consecutive minutes and to prohibit engine idling in parking lots, where feasible.

Odors

Policy 8:	Minimize unpleasant odors in residential neighborhoods.

Program 8.1: Continue efforts to have the asphalt plant relocated away from Vineyard Avenue residents.

Program 8.2: Continue working with the Dublin-San Ramon Services District (DSRSD) to ensure that odors from the sewage-treatment plant are minimized and other air emissions meet all regulatory requirements.

Public Awareness

Policy 9:	Strongly encourage citizen and business participation in reducing air pollution.

Program 9.1: Provide regional and local air-quality information on the City of Pleasanton's website, including links to the Bay Area Air Quality Management District, the California Air Resources Board, Alameda County Waste Management Authority Stop Waste.org, and other environmental-based internet sites.

Program 9.2: Establish an air quality public awareness program which includes changes that people can make to minimize air pollution. This program would educate the public and encourage people to choose the cleanest paints and consumer products, and to purchase the most energy-efficient appliances, landscaping equipment, and gas cans. This program would further encourage the public to purchase more energy-efficient vehicles and to properly maintain them.

Program 9.3: Develop incentives for the public to help reduce air pollution. This includes offering incentive programs for using non-motorized (i.e., pedestrian and bicycle) and low-polluting mobility alternatives.

Program 9.4: Develop a recognition and awards program for businesses that reduce air pollution.

Program 9.5: Provide information to the public regarding the importance of Spare the Air Days and how people can make a positive impact on the environment.

Program 9.6: When the School District replaces landscaping, cleaning, and other fuel-powered equipment, strongly encourage the District to purchase the least polluting equipment available that is feasible.

Implement measures from the Circulation Element to encourage public participation in Ride-Share and other public transportation programs.