Our Changing Air: An Overview of the Risks to Placer County Residents

A report to Placer County Health and Human Services in cooperation with the Placer County Air Pollution Control District

March 2007

Overview

This report provides policy makers and residents of Placer County an overview of the current health impacts of air pollution in the County and options to improve air quality and enhance the health of those living, working, and recreating in Placer County.

At the request of the Placer County Department of Health and Human Services, Breathe California of Sacramento-Emigrant Trails reviewed currently available scientific literature, captured local research and data where available, and identified areas of emerging research that can lead to greater clarity on these issues.

Placer County enjoys a dramatic and varied geography, consistently growing population, extensive wild lands, and is one of the leading economic engines in the region. The County stretches from the Sacramento Valley with its rice fields and growing cities to the Sierra Nevada with its great natural beauty and year round recreational opportunities. There are 549,000 acres of forest in Placer County, including portions of the El Dorado and Tahoe National Forests and approximately 60% of Lake Tahoe's western shore in the national treasure of the Tahoe Basin.

For everyone to continue to enjoy the diverse opportunities that exist in Placer County, the business community, residents, and policy makers must fully understand the reality of the health impacts of Placer County's current and future air quality.

Placer County's regulatory oversight of local air quality issues

The Placer County Air Pollution Control District (PCAPCD) is responsible for monitoring and enhancing the air quality in the county. PCAPCD works with the California Air Resources Board and U.S. Environmental Protection Agency to achieve and maintain healthful air quality in California.[i]

Placer is unique among California counties in that it crosses three distinct air basins. The Sacramento Valley, Mountain Counties, and Lake Tahoe vary greatly in the types and levels of air pollution trapped within their air basins. Each air basin is impacted not only by locally generated air pollution, but also by both naturally occurring and human generated air pollution from the San Francisco Bay Area and the Central Valley. Some studies indicate that pollution from as far away as East Asia impact the Tahoe Basin.

The Sacramento Valley Air Basin includes the growing communities of Rocklin, Roseville, and Lincoln. On-road motor vehicles are the largest source of smog forming air pollution emissions in this air basin. For the Valley as a whole, vehicle miles traveled have increased 95% over the past 20 years. In 2000, the State 8-hour ozone standard was exceeded on 42 days and the particulate matter (PM10) standard was exceeded 45 days. Ozone has not declined as quickly in the Sacramento Valley Air Basin as it has in other California urban areas.[ii]

Air pollution is also transported into the Sacramento Valley Air Basin from the San Francisco Bay Area. Delta breezes move Bay Area and Sacramento's air pollution eastward into Placer County and the Sierra foothills. On the smoggiest days with stagnant air, pollution emissions produced in the basin itself are the most prevalent.[iii] Air pollution in the Valley comes from both urban sources such as vehicles and industry, and agricultural sources such as rice burning.

The Mountain Counties Air Basin includes the city of Auburn and the eastern part of Placer County. The largest source of air pollution within this basin comes from motor vehicles. Many people commute from the Sierra to jobs in the Sacramento Valley.

Though more lightly populated, this air basin exceeds California's 8-hour ozone standards because air pollution blows in from cities to the west and gets trapped in the foothills and Sierra Nevada Mountains. The highest ozone concentrations are found in Auburn and Colfax in Placer County and Cool in El Dorado County. These communities and surrounding areas also experience high particulate matter (PM) levels in the winter, mainly from older wood burning stoves, burning of wet yard waste, and fireplaces.[iv]

At 6,000 feet above sea level, the **Lake Tahoe Air Basin** is the smallest of California's air basins. The basin has relatively clean air and does not often exceed California's 8-hour ozone or PM10 standards. However, recent studies by the California Air Resources Board suggest that ozone may sometimes exceed the state standard in the Placer and El Dorado Counties portion of the Lake Tahoe basin.

The Tahoe Basin air pollution comes mainly from residential and tourist traffic around the lakeshore and from the burning of fuels for heating. Air quality is further compromised by elevations in particulate matter generated by wild land fires.[v]

Placer's air pollution comes from many sources

The major forms of air pollution affecting the people of Placer County are ozone and particulate matter. Currently, Placer County does not meet the federal and state standards for ozone. In addition, the County does not meet the state standard for particulate matter (both PM 10 and PM 2.5). At present, Placer County lacks sufficient air quality monitors. This is particularly troubling because a growing body of research reveals close links between air pollution and acute and chronic health problems, and even premature death.

Air pollution also has seasonal components, with ozone, or "smog," a greater problem on warm, windless, sunny days and particulate levels rising throughout California between November and March during stagnant weather conditions.[vi]

Stationary and Area Sources

Placer County Air Pollution Control District has jurisdiction over stationary sources of air pollution. These sources are industrial, manufacturing and commercial facilities called "point sources." They include dry cleaners, mills, mines, automobile re-finishers, gas

dispensing facilities, wood processing businesses, print shops and many manufacturing facilities.

"Area" sources of air pollution come from processes that are individually small and widespread or not well-defined point sources. They include solvent evaporation, such as consumer products and architectural coatings, and miscellaneous processes such as residential fuel combustion and farming operations.[vii]

Biogenic Sources

Biogenic emissions are emissions from natural sources, such as plants and trees. The California Air Resources Board has models and region-specific databases to estimate emission of biogenic volatile organic compounds (BVOC) for natural areas, crops, and urban vegetation. In 2005, the BVOC was approximately 57 tons per day in Placer County. This is much higher than the emissions from anthropogenic (human-caused) sources of 35 tons per day.[viii]

Mobile Sources

In the Valley portion of Placer County, air pollution is frequently trapped close to the ground because of an inversion layer. Vehicles and other mobile sources, including trucks, locomotives, buses, motorcycles, agricultural equipment and construction equipment, cause approximately 70 percent of the greater Sacramento region's air pollution problem.[ix] In the eastern portions of Placer County, the largest source of emissions also comes from motor vehicles.

Interstate 80, a major cross-country artery for the transportation of goods, runs through Placer County. Diesel emissions from trucks, buses, cars on the highway, and locomotives on the nearby rail line contribute to Placer County's air pollution. The problem is complicated by the large number of heavy-duty vehicles, like line haul trucks, registered in other states that travel on California's highways and roads. Often, trucks in other states are not required to meet the strict California air quality standards.[x]

Rail

Locomotive engines are significant contributors to air pollution. During their total service lives (typically 40 years or more), locomotive engines continue to emit large amounts of nitrogen oxides and particulate matter (PM), both of which contribute to public health problems. In order to reduce the health impacts from locomotives, in 1997 U.S. EPA promulgated exhaust emission standards for newly manufactured and remanufactured locomotive engines. In addition, the U.S. EPA also finalized new rules for non-road diesel fuel that will decrease the allowable levels of sulfur in fuel used in locomotives by 99% by 2012, which will allow for the application of diesel PM control device on locomotives. According to above efforts, U.S. EPA estimates that by 2030,

controlling these emissions will annually prevent 12,000 premature deaths, 8,900 hospitalizations, and one million lost workdays.[xi]

The JR Davis Rail Yard has operated in Roseville since 1905 and occupies about 950 acres near Interstate 80. The Yard is the largest service and maintenance rail yard in the Western United States with over 30,000 locomotives visiting annually.[xii]

The California Air Resources Board conducted a health risk assessment of airborne particulate matter emissions from the diesel locomotives at the Rail Yard. The assessment showed elevated concentrations of particulate matter from diesel sources, in excess of the regional background level. Specifically, the study showed that:

- About 25 tons of diesel particulate matter emissions came from locomotive operations at the Rail Yard in 2000
- Moving locomotives account for about 50 percent of these emissions, idling locomotives account for about 45 percent, and locomotive testing accounts for about 5 percent
- People have a varying degree of elevated risk from rail yard emissions depending on their length of exposure and proximity to the rail yard.[xiii]

Research for Breathe California of Sacramento-Emigrant Trails by Dr. Thomas Cahill of UC Davis shows that diesel-associated particulate matter frequently distributes itself across a broad region and impacts areas far from the rails and roadways where they originate.

The rail industry is implementing pollution reduction measures including changes in operations management, utilization of cleaner diesel fuels and improved engine technologies. PCAPCD and industry have also piloted enhanced monitoring and pollution control measures that may further reduce air pollution.

Indoor Air Pollution

In 1987, the U.S. Environmental Protection Agency ranked indoor air pollution fourth in cancer risk among the 13 top environmental problems analyzed. Indoor radon ranked first. According to the California Air Resources Board, Californians spend an average of 87 percent of their 24-hour day indoors. Moreover, indoor air pollutant levels are often higher than those outdoors. Research by the ARB, the U.S. EPA and others has shown that indoor levels of some pollutants, such as formaldehyde, chloroform, and styrene, range from two to 50 times higher than outdoor levels. Exposure to pollutants such as environmental tobacco smoke and radon occurs almost entirely indoors. [xiv]

Residential Burning Practices

Wood smoke is a source of particulate matter, hydrocarbons, nitrogen oxides, toxic air contaminants and odors. Older woodstoves and fireplaces, along with the illegal burning of residential yard waste, are important contributors to particulate matter (PM) air pollution.

In most areas of the county, wood burning from fireplaces and woodstoves is the largest source of particulate matter air pollution (PM) generated by residential sources. Woodstoves routinely produce several times more air pollutants than original design values simply because of improper operation (including their misuse as incinerators for residential refuse), maintenance, and normal equipment degradation with use.[xv]

Residential outdoor burning practices that inappropriately burn household waste or smoke generated by yard waste significantly worsen community air quality. Wood smoke contains carbon monoxide, irritant gases such as nitrogen dioxide and formaldehyde, and known cancer causing chemicals, including dioxin.

Some residents are taking advantage of incentives offered through the Placer County Air Pollution Control District to change out older woodstoves with cleaner, more efficient heating technologies. The District is also evaluating regulations affecting residential wood burning devices as part of SB 656 requirements and may propose rules for adoption to the Placer County Air Pollution Control Board in the future.

Forest Fires

Placer County has 549,000 acres of forested lands in two National Forests. With communities close by, there is an increasing threat to human health from wildfire-generated air pollution. In the past five years, four major forest fires (Gap, Ponderosa, Star and Ralston fires) have burned over 30,000 acres of forest. Catastrophic wildfires in Placer County have forced the cancellation of school and community sporting events, have increased demands on the health delivery system, created economic losses to local businesses, degraded watersheds, and caused severe air pollution.[xvi]

One of the biggest dangers of smoke comes from inhaled particulate matter found in the air – liquid droplets and small, solid particulates of minerals and soot – which can penetrate deep into the lungs. While healthy adults are not usually at major risk, children, the elderly, pregnant women, and people with chronic lung and heart disease are susceptible.[xvii]

Forest fires are also financially costly. As an example, a 2001 fire in Alberta, Canada blackened 287,000 acres and resulted in an estimated cost of $8,780,000 to $10,530,000 (U.S. dollar value) in medical care, lost wages, decreased productivity, and increased risk of mortality. The fire destroyed over $8,780,000 in timber, burned two railroad bridges worth $1,755,000, and damaged electrical power infrastructure worth $878,000 (U.S. dollar value).[xviii]

The Placer County Board of Supervisors is taking steps to reduce wild land fires by working with local, state, and federal entities to expand the use of biomass management. This could provide significant economic and public health benefits.

Land Use Decisions

Studies show growing evidence of the health and air quality impacts of land use patterns in the United States. Mixed land uses, higher density, and greater street connectivity can significantly lower per capita emissions of smog-causing chemicals like NOx (nitrogen oxides) and VOC (volatile organic compounds).[xix]

A 1999 study in Seattle found that local zoning ordinances often require separation between residential and other land uses and often restrict mixed-use development that could support local retail and regional transit services. Subdivision regulations often favor disconnected cul-de-sac street designs over grid networks, making distances between where people live, work, and play too far to walk or bicycle.[xx]

Closer to home, Dr. Thomas Cahill of U.C. Davis has uncovered important information on air pollution and land use decisions on school children in his studies for Breathe California of

Sacramento-Emigrant Trails. One study measured air pollution levels at nine sites across the Central Valley and found the level of diesel and smoking gasoline vehicle impacts were larger at a local middle school on an arterial than at sites directly downwind of the freeway. Very fine particles also traveled far away from freeways and filled large areas of downtown Sacramento.[xxi]

In December 2004, the Sacramento Area Council of Governments adopted a regional Blueprint Project that promotes compact, mixed use development and more transit choices as an alternative to low-density development. Some developers and local governments in Placer County have adopted the Blueprint's strategies to guide future local planning and policies.[xxii]

Naturally Occurring Sources

Naturally occurring sources of air polluting particulate matter also exist in Placer County. For instance, asbestos is often found in the serpentine rock formations present in several foothill areas in Placer County. When materials containing asbestos are disturbed, fibers may be released into the atmosphere creating a potential health hazard.
Inhaling or ingesting asbestos fibers over time may damage the lungs or membranes that cover the lungs and lead to illness or death.[xxiii]

Professor Thomas Cahill of UC Davis found high levels of ozone precursors from natural emissions in the San Joaquin Valley and foothills. These came from dry grasslands, nitrate rich agriculture, and "temperature dependent out gassing" of ozone precursor gases (ROG and NOx) from soils and vegetation, including oak trees. These findings may also be relevant to Placer County.[xxiv]

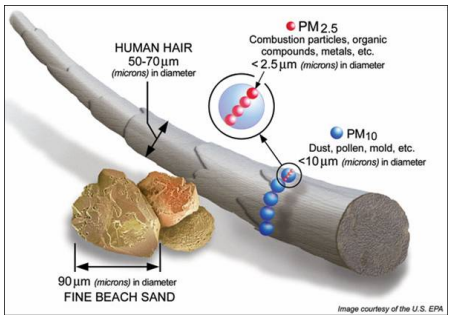
Air pollution harms public health and the economy

Air pollution levels have improved in recent decades thanks to concerted efforts to reduce vehicle and industry emissions. However, Californians and Placer County residents still breathe air that exceeds state and national health-based standards.

Particulate Matter (PM 10 and PM 2.5)

PM10 is a mixture of particles and droplets that vary in size and chemical composition, depending on each particle's origin. PM10 includes "coarse" particles, between 10 and 2.5 microns in diameter while PM2.5 includes "fine" particles, 2.5 microns or less. For comparison, a human hair is 50-70 microns in diameter.[xxv]

The California Air Resources Board found that premature deaths linked to particulate matter are now at levels comparable to deaths from traffic accidents and second-hand smoke. Fine particulate matter (PM 2.5) from diesel exhaust, fireplace soot, and wood burning stoves is one of the most dangerous pollutants. PM bypasses the body's defense mechanisms and becomes embedded in the

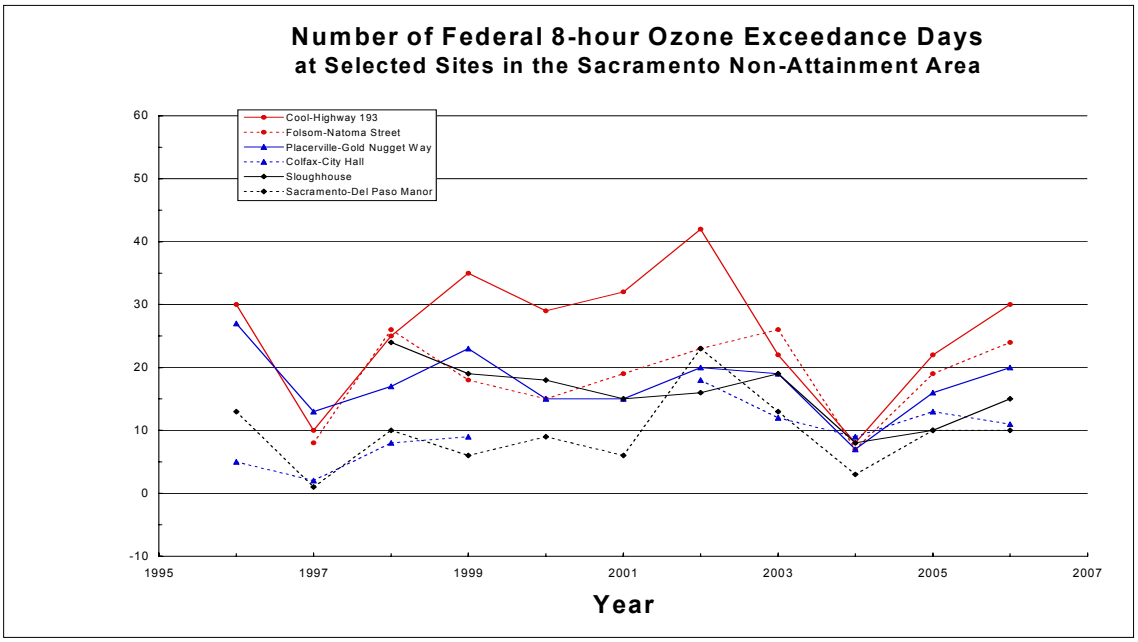


deepest recesses of the lungs and can disrupt cellular processes. Studies in hundreds of U.S. cities and around the world demonstrate a strong connection between elevated levels of particulate matter and premature deaths, hospital admissions, emergency room visits, and asthma attacks.[xxvi]

Attaining the California PM standards statewide would annually prevent about 6,500 premature deaths, or 3% of all deaths. These premature deaths shorten lives by an average of 14 years. This is roughly equivalent to the same number of deaths linked to second-hand cigarette smoke or to the number of deaths from car crashes and homicides combined.[xxvii]

Ozone

Ozone is an important component of smog and forms in greater quantities on hot, sunny, calm days. It is a highly reactive and unstable gas capable of damaging living cells, including the lining of human lungs. Ozone forms in the atmosphere through a complex reaction between chemicals emitted directly from vehicles, industrial plants, consumer products, and many other sources.



Ozone can damage the tissues of the respiratory tract, causing inflammation and irritation. It can bring about coughing, chest tightening, and shortness of breath, worsening asthma symptoms, and reduced ability for lungs to inhale air. People at greatest risk from ozone pollution are those that spend the most time outside during smoggy periods – outdoor workers, athletes, and children.

Ozone also damages crops, forests, native plants, and materials like plastics and rubber. It reduces plants' ability to photosynthesize and weakens the plants, making them more susceptible to disease, pests, cold, and drought. Ozone reduces crop and timber yields, creating millions of dollars in economic losses statewide. Exposure to ozone shortens a

plant's lifespan and can result in economic losses as a result of increased costs of maintenance, upkeep, and replacement of these materials.[xxviii]

Carbon Monoxide

Carbon Monoxide (CO) is a colorless and odorless but harmful gas. It is readily absorbed through the lungs into the blood, where it binds with hemoglobin and reduces the blood's ability to carry oxygen. As a result, the heart, brain, and other tissues cannot receive enough oxygen. CO is particularly harmful to people with heart disease, chronic lung disease, anemia, and to unborn children. Even healthy people can feel its effects through headaches, fatigue, and dizziness.[xxix] Because the effects of CO are more pronounced at high elevation where the air is thin, the Lake Tahoe Air Basin has stricter standards for CO.[xxx]

CO is most often found near heavily congested intersections where cars and trucks spend long periods of time idling their engines.[xxxi]

Effects on Children

Children and teenagers spend nearly twice as much time outdoors and engage in more vigorous activities than adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults.[xxxii]

In 2004, a groundbreaking study was published. The "Children's Health Study" followed over 5,500 children (average age, 10 years old) from 12 Southern California communities and measured their lung function annually for 8 years. The study found that children exposed to air pollution had "significant deficits in respiratory growth over an eight year period" and that this deficit led to "clinically important deficits in lung function" when these children turned 18 years old. These deficits in lung function were closely associated with a set of pollutants – nitrogen dioxide, acid vapor, fine particulate matter (PM 2.5), and elemental carbon. The primary source of these pollutants was motor vehicles. [xxxiii]

Effects on the Elderly

The elderly are also at risk. In several studies, researchers estimate that tens of thousands of elderly people die prematurely each year from particulate matter air pollution, often because elderly people are more likely to have pre-existing lung and heart diseases, or because their respiratory defense mechanisms decline with age.

A 2006 study by Johns Hopkins researchers found that short-term exposure to fine particulate air pollution increased the risk of Medicare-age hospital admissions for cardiovascular and respiratory ailments. The study discovered that "use of medical care is significantly higher in areas with more pollution and that decreased use of care is an important potential benefit from pollution control."[xxxiv]

Effects on the Economy

Air pollution profoundly affects the health of the economy as well. According to the American Lung Association, for California as a whole, the health impacts of air pollution each year contribute to:

- 6,500 premature deaths
- 9,000 hospitalizations
- 1,700,000 respiratory illnesses, including asthma
- 1,300,000 school absences, and
- 2,800,000 lost work days[xxxv]

Similar studies conducted in the San Joaquin Valley peg the cost of air pollution at $1,000 per person per year. [xxxvi] Local policy makers may wish to consider undertaking a similar study to begin to quantify what air pollution costs Placer County each year.

Global Climate Change is the Wild Card

A temperate and somewhat predictable climate has been one of California's most appealing features. This predictability dictates the state's water supply policies, food production, energy demands, ecosystem health, and recreational patterns. Unfortunately, overwhelming scientific evidence finds that climate change will have severe consequences for California and Placer County.

According to the California Energy Commission, California's climate will likely become much warmer over the next 100 years. "Continued global warming will affect Californians' health by exacerbating air pollution, intensifying heat waves, and expanding the range of infectious diseases." Sierra snow pack will decrease by as much as 70 to 90 percent, affecting the state's water supplies and the local winter tourist industry. Wildfires, which have already decimated parts of Placer County, are projected to increase by as much as 55 percent. Recent projections also predict that global warming may reduce the productivity of California's forests by as much as 18 percent.[xxxvii]

Opportunities for Placer County to Take Action

Leaders from Placer's local governments, schools, hospitals, health care providers, and the business community are implementing measures to enhance local air quality and reduce the impact of air pollution on human health. PCAPCD works with the county and cities on voluntary measures through public-private partnerships that improve the local business climate and air quality at the same time. In addition, renewable energy sources are replacing air polluting energy use at an increasing pace.

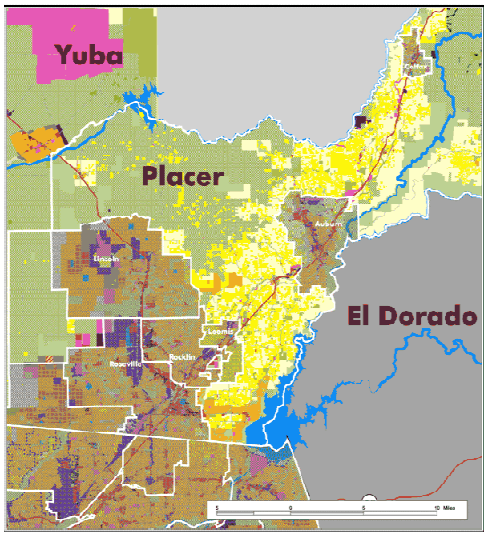
Beyond these voluntary measures, the Placer County Air Pollution Control District is responsible for developing the State Implementation Plan or "SIP" for the regions of Placer County that the U.S. EPA has classified as "serious ozone non-attainment areas." The SIP that is adopted will include regulations and commitments required by law.

Elected officials understand what tremendous economic and natural resources exist in Placer County. Prioritizing clean air will have long-term positive effects on the County and its people. Placer County has unique challenges and is well positioned to take advantage of opportunities that will improve air quality and human health even further.

Local Land Use Decisions

A growing body of evidence shows that common land use patterns in the United States actually contribute to bad health and that many zoning and subdivision regulations harm public health and safety.[xxxviii]

While implementation of the following recommendations needs to be considered in the context of competing priorities, from a public health viewpoint, local counties and cities could avoid siting new sensitive land uses, such as residences, schools, day care centers, playgrounds, and medical facilities, within:



- 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day
- 1,000 feet of a distribution center that accommodates more than 100 trucks per day
- 1,000 feet of a major service and maintenance rail yard
- One mile of a rail yard
- 300 feet of any dry cleaning operation
- 300 feet of a large gas station or 500 feet of a typical gas station[xxxix]

According to the California Air Resources Board, if local governments undertook these land use decisions, they could reduce exposure to air pollution by as much as 80%.[xl]

Rail Related Emissions

Placer County has actively engaged Union Pacific and is working toward clean air solutions at the Roseville Rail Yard. A mitigation plan was developed that will reduce diesel PM emissions. Because rail-related traffic has increased at the rail yard, meeting the 10% reduction goal by 2007 may be challenging. The mitigation plan focuses on:

- Reducing unnecessary idling
- Introducing low-sulfur diesel fuel for locomotives
- Switcher locomotive fleet replacements and upgrades
- Emission control from the service, test, maintenance, and repair locations using stationary source equipment, often called a "hood"

This strategy should reduce emissions throughout the rail yard and will emphasize reducing the emissions concentrations that have created peaks in the health risk.[xli]

Reducing Catastrophic Wildfires

Placer County has taken a pro-active approach to deal with wildfires and the build up of large fuel loads in the forests. The County is promoting biomass facilities as a way to reduce the risk of catastrophic wildfire in the eastern part of the county. In 2006, the county hired a biomass project manager and is investigating the feasibility of implementing projects that could burn forest waste for energy or process the woody biomass into a biofuel.[xlii]

The County has taken a national leadership role in promoting biomass management as an effective means to prevent wildfires while generating energy locally. The County works with partners at the local, state, and federal levels, as well as experts from the academic, business, health, and regulatory communities.

Tackling Mobile Sources

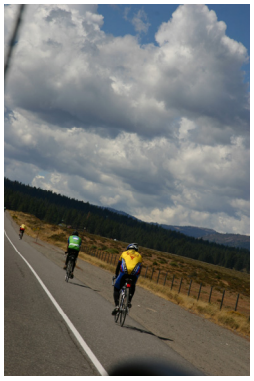
Although over 70 percent of Placer County's air pollution problems come from mobile sources, PCAPCD does not have legal jurisdiction over mobile sources. Despite this fact, PCAPCD has made important strides by strategically using available grant funds. For instance, PCAPCD uses much of its state Department of Motor Vehicle Funds for clean air grants.

In addition, the PCAPCD has an agreement with the Sacramento Metropolitan Air Quality Management District (SMAQMD) to handle the Carl Moyer Program funds for all the Districts in the federal non-attainment area. The SMAQMD uses funding to provide incentives to retrofit, repower or replace heavy-duty diesel vehicles and construction equipment throughout the region, including many projects in Placer County. A Mitigation Fund also provides money to reduce voluntary air emissions by supporting efforts such as lawn mower swap-outs, wood stove replacements, and re-powering heavy-duty diesel with alternative fueled vehicles, as well as removing, replacing, retiring, or rebuilding older heavy duty diesel engines with newer, lower emitting engines.[xliii]

In addition, approximately $3 million in Carl Moyer Program funds has been designated for replacement of four of the six switchers used in the hump and trim areas of the Roseville Rail Yard. Union Pacific will match this investment to cover the total cost of these locomotives.

In the future, Placer County's public sector, businesses, and communities could consider:

- Purchase more electric and clean fuel vehicles for the county fleet and remove the most polluting engines from operation join or create a Clean Cities program, similar to those springing up around California and across the nation.
- Adopt regional design standards for land use development projects that support walking and biking, and integrate them into regional transportation designs
- Increase transportation funding for pedestrian and bicycle projects



- Fund expanded public transit that is clean-fueled
- Take greater advantage of state programs like the Air Resources Board's Carl Moyer Plan that provides funds on an incentive basis for the incremental cost of cleaner-than-required engines and equipment. The Placer County Air Pollution Control District Board has also used increased local DMV fees and applied them to projects similar to the Carl Moyer Plan.
- Adopt the Air Resources Board's regulations to reduce diesel emissions at a faster rate than currently required
- Encourage land use development projects to pursue the principles set forth in the Sacramento Area Council of Governments' Blueprint Project

Indirect Source Rule

PCAPCD may want to consider adopting an Indirect Source Rule (ISR) for new land use/development projects. In general, new development contributes to the air pollution problem by increasing the number of vehicles and vehicle miles traveled. Therefore, the purpose of ISR is to mitigate emission increases by collecting a fare share associated with operation of new land use/development projects within the County. The fare share can be determined based on the emission reduction targets that reflect the efforts needed to attain the air quality standards. The implementation of ISR will apply the fare share from new land use projects to reduce air pollutant emissions within the County. Consequently, the emission reductions are real and quantifiable to offset the project's increases and achieve air quality standards.

Global Warming

With the passage of AB 32, Placer County could initiate a climate protection program and knowledge the link between climate protection and air pollution reduction within the County. The core initiatives of climate protection program could include gathering the county's greenhouse gas (GHG) emission inventory, promotion of energy efficiency, renewable energy programs, green building standard encouragement, and the public outreach for the climate protection program.

Biomass Initiative and Vegetation Management

Currently, Placer County is conducting a biomass utilization program to determine the feasibility and options for removing bio-based materials such as wood or biomass from forests and agriculture lands to convert renewable woody biomass into energy production. The implementation of the program can produce significant benefits including diminishing the threat of wildfires, reducing harmful air emissions and GHG emissions, producing energy, decreasing the need for fossil fuel usage, and decreasing public health burdens from smoke. Essentially, the program will focus on utilizing natural resources wisely to reduce the impacts from wildfires and enhance air quality for the public health. It will also benefit to reduce GHG emissions within Placer County and provide renewable energy production to drop the demand of fossil fuel usage.

Data is Fundamental

Placer County has implemented a series of regulatory and voluntary programs that are both effective and innovative. However, air quality and public health officials lack an

important instrument in their air quality toolbox – location specific data. Local stakeholders should continue to seek resources for best local monitoring that shows the extent and impacts of air pollution.

To obtain key data on the health effects of air quality, Placer County could:

- Expand on-site air quality monitoring and real-time air quality measurements in the County.
- Support studies on the health-related impacts of air pollution, to determine how poor air quality impacts the local economy.
- Support and advocate for state and federal resources to promote air quality programs that educate the public, including the growing body of evidence that shows the health effects of ultra fine particulate matter.
- Support and advocate for state and federal resources to capture, document, and analyze mortality and morbidity data, and compare with existing air quality metrics to look for links and trends.

Conclusion

Placer County local government states as its vision:

> *To be a county government known for providing exceptional local and regional leadership, that works in partnership with the community to develop creative solutions to the diverse issues facing our region, and bestows to current and future generations even better communities in which to live, raise families, work, vacation, and conduct business.*

With severe air quality problems and global climate change looming, the stakes could not be higher for Placer's people, businesses, and spectacular natural resources. Fortunately, Placer County has the history and experience of working collaboratively in public-private partnerships on a variety of issues. As a result, Placer County can serve as a model for innovative, multi-disciplinary solutions that will lead to cleaner air and healthier people

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[v] Ibid.
[vi] "Carbon Monoxide: A Cold Weather Health Threat," October 12, 2006 press release, California Environmental Protection Agency.
[vii] Proposed Control Measures for Sacramento Regional 8-Hour Ozone Attainment Plan," October 2006, p. 3-1.
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