

# ***CLEARING THE AIR***

## ***Public Health Threats from Cars and Heavy Duty Vehicles – Why We Need to Protect Federal Clean Air Laws***

### ***Executive Summary***

Air pollution continues to be a serious health problem in America, and one for which our transportation system bears a large responsibility for. While the nation has undeniably achieved significant success in reducing air pollution since Congress passed the Clean Air Act in 1970, the news isn't all positive. Recent studies have shown strong evidence linking air pollution with public health problems like asthma, cancer, and heart disease. Nearly half of all Americans—more than 130 million people—still live with unhealthy levels of air pollution.<sup>1</sup> And new findings contained in this report show that air pollution has actually gotten worse in dozens of metropolitan areas over the last decade.

Federal efforts, along with federal transportation funding aimed at reducing the health risks from air pollution, have started to make a difference, but must be protected and strengthened if the nation's initial progress is to be sustained. Even so, some in Congress and the Bush Administration are proposing to make drastic changes to clean air laws and programs that could severely undermine current and future progress towards cleaner air. These changes could seriously jeopardize ongoing efforts to protect public health from air pollution. This report:

- Provides an overview of the latest scientific evidence linking poor air quality to public health problems including asthma, cancer, and heart disease;
- Determines which populations and places suffer the most from air pollution in the U.S., in addition to analyzing the trends in air pollution over the last decade;
- Quantifies the role that transportation plays in the nation's air pollution problems; and
- Illustrates the importance of federal laws and federal funding – in particular the federal Clean Air Act and clean air money available under the federal transportation law – in reducing the health-related risks from air pollution.

## **Air Pollution and Public Health**

For many years, air pollution was viewed as a visual nuisance. But as the twentieth century progressed, our understanding of air pollution evolved considerably. As a result of several highly publicized air pollution events, including the Donora, Pennsylvania fog, where 17 people died and nearly half the town's 14,000 residents became sick from a severe air pollution episode in 1948, researchers began to acknowledge that air pollution was also a significant threat to public health.<sup>ii</sup>

Congress responded in 1970 by passing the Clean Air Act. In 1990, they approved a significant set of strengthening amendments to the Clean Air Act aimed specifically at reducing air pollution from cars and heavy duty vehicles since it was increasingly evident that underestimating transportation as a major source of air pollution had been a significant factor in the failure of many air pollution control plans. In February 2001, the U.S. Supreme Court also upheld the right of the U.S. Environmental Protection Agency to use health-based air quality standards.

Recent medical research has linked air pollution to a host of public health concerns including asthma, cancer, heart disease, heart attacks, strokes, high blood pressure, birth defects, and even brain damage.<sup>iii</sup> Air pollution has been found to shorten life expectancy, and not just for sensitive populations such as those with asthma, but for the general population as well.

New research and studies documented in this report also show that:

- Asthma rates are growing significantly in the U.S. population, increasing 59 percent from 1982 through 1996 (see the Appendix, on page 55, for the percentage of adults with a lifetime prevalence of asthma by metropolitan area);
- Transportation-related air pollution, specifically ground-level ozone and particulate matter (PM) from cars and heavy duty vehicles, has been found to severely exacerbate asthma in both adults and children;
- Exposure to air pollution in the form of ozone and particulate matter increases the risk of heart disease;
- Living in neighborhoods with proximity to higher traffic volumes has been linked to increased cancer risk; and,
- Large segments of the U.S. population, in particular minorities, children, and the elderly, are especially vulnerable to the health effects of air pollution.

## Places with the Worst Air Pollution

Where you live makes a tremendous amount of difference in how much air pollution you're typically exposed to. In terms of regional air pollution, the U.S. Environmental Protection Agency (U.S. EPA) produces a daily Air Quality Index that tracks air pollution levels for five primary pollutants and has become a standard part of weather forecasting throughout the U.S. Every year, the EPA publishes an annual survey detailing how many times each region's Air Quality Index exceeds a score of 100, the standard for generally unhealthy air which is often translated into a "Code Orange" day or worse (Code Orange days indicate that air quality is unhealthy for children, older adults, and people with respiratory disease). The chart below shows the ten regions with the highest total number of days exceeding a score of 100 for generally unhealthy air over the last three years (for a listing of the fifty metropolitan areas with the highest number of days of unhealthy air quality, see Table 1, on page 26 in the full report).

<b>Rank</b>	<b>Metro Area</b>	<b>Total Number of Days of Unhealthy Air Quality (2000 to 2002)</b>
1	Riverside-San Bernardino, CA	445
2	Fresno, CA	421
3	Bakersfield, CA	409
4	Los Angeles-Long Beach, CA	255
5	Sacramento, CA	163
6	Pittsburgh, PA	134
7	Knoxville, TN	109
8	Birmingham, AL	100
9	Houston, TX	94
10	Baltimore, MD	93

## Recent Trends in Air Pollution

Air quality has improved significantly since the Clean Air Act was passed in 1970. Yet almost half of all Americans – over 130 million people – still live in areas that violate federal health standards for air pollution,<sup>iv</sup> and we now understand that even modest amounts of air pollution at levels lower than current federal health standards can have significant and detrimental impacts on public health.<sup>v</sup> In some larger metro areas, air pollution routinely reaches unhealthy levels nearly twice a week, and in 52 larger metropolitan areas (for which data was available), air quality was unhealthy at least once a month during the period 2000 to 2002. In short, while significant progress has been made in reducing air pollution nationwide, many regions and millions of people still live with poor air quality that poses a significant threat to public health.

STPP's own analysis of the last ten years of air quality data collected by the U.S. Environmental Protection Agency shows that the number of days of unhealthy ozone pollution (or smog) levels nationally has held just about steady over the last decade (ozone is the only air pollutant of the six major pollutants that the U.S. EPA has collected data for in a consistent manner over the last decade, allowing for comparisons over time). Some metropolitan areas have shown significant improvements in ozone pollution, and nowhere have these changes been more dramatic than in California. While several regions in California – Los Angeles in particular – still have some of the worst air pollution problems in the country, they have also made some of the most significant gains using a combination of air pollution reduction strategies in addition to relying on a strong regional planning agency (known in southern California as the South Coast Air Quality Management District) dedicated exclusively to fighting air pollution.

But in 30 larger metropolitan areas, in 20 states, the number of days of unhealthy ozone has increased over the past decade (see Table 2, on page 28). In all but three of these places, both the number of days of unhealthy levels of air pollution, and the *population* have grown. In other words, not only is air pollution getting worse in these areas, but more people are breathing it. The table on the next page shows the ten metro areas with the highest growth in the number of days of unhealthy ozone levels.

Rank	Metro Area	Number of Days of Unhealthy Ozone (Smog) Levels		
		Avg 1993-1997	Avg 1998-2002	Percent Change
1	Greenville-Spartanburg-Anderson, SC	7.2	19.8	175.0%
2	Knoxville, TN	25.0	42.8	71.2%
3	Charlotte-Gastonia-Rock Hill, NC-SC	22.4	35.6	58.9%
4	Greensboro-Winston-Salem-High Point, NC	12.6	19.6	55.6%
5	Akron, OH	9.4	14.4	53.2%
6	Harrisburg-Lebanon-Carlisle, PA	10.4	15.6	50.0%
7	Raleigh-Durham-Chapel Hill, NC	16.0	23.6	47.5%
8	Memphis, TN-AR-MS	15.8	23.0	45.6%
9	Youngstown-Warren, OH	8.6	12.4	44.2%
10	Middlesex-Somerset-Hunterdon, NJ	15.2	21.8	43.4%

### Transportation Is a Major Contributor to Air Pollution

Cars, buses and trucks are a major source of pollutants that can significantly degrade air quality. Transportation is responsible for more than 50 percent of carbon monoxide, about 34 percent of nitrogen oxide (NOx) emissions, and more than 29 percent of hydrocarbon emissions (which combine with NOx in sunlight to form ozone or smog). Transportation (on-road sources only) also accounts for as

much as 10 percent of fine particulate matter emissions.<sup>vi</sup> The chart below ranks the ten major metropolitan areas in the U.S. with the highest percentage of air pollution from transportation sources (see Table 3, on page 31 in the full report for a ranking of major metropolitan areas).

<b>Rank</b>	<b>Metro Area</b>	<b>Percent of all Criteria Pollutants from Transportation (1999)</b>
1	Fort Worth-Arlington, TX	60.2%
2	San Antonio, TX	57.1%
3	Los Angeles-Long Beach, CA	56.9%
4	Austin-San Marcos, TX	56.7%
5	Dallas, TX	56.4%
6	Hartford, CT	55.6%
7	New York, NY	53.9%
8	Seattle-Bellevue-Everett, WA	53.6%
9	Columbus, OH	53.4%
10	Denver, CO	52.7%

New emissions standards, routine vehicle inspections, and clean technologies established and implemented by the Clean Air Act have had great success in cutting vehicle emissions per mile driven. It's estimated that emissions of criteria pollutants per mile driven have fallen by more than 90 percent since 1970.<sup>vii</sup> But at the same time, the number of miles driven, and the number of trips made by cars and trucks has skyrocketed, growing 162 percent and 57 percent, respectively, since 1969.<sup>viii</sup> Should this pace continue, the growth in driving will substantially undermine much of the emissions reductions made possible by technology improvements from cleaner cars and more efficient engines.

Transportation-related air pollution impacts not only public health, but also exacts a huge price tag in terms of economic costs. Depending on how you value a life, the public health costs of pollution from cars and heavy duty vehicles have been estimated between \$40 billion and \$64 billion per year. The bulk of these public health costs are attributable to premature death, accounting for 77 percent of costs. The remainder is attributable to non-fatal illnesses.<sup>ix</sup>

STPP has calculated specific public health costs from transportation-related air pollution for every major urban area in the U.S., the results of which can be found in Table 4, on page 36 in the full report.

### **Federal Efforts to Clean the Air Have Made Progress**

Amendments to the Clean Air Act passed in 1990 have helped reduce air pollution from transportation by requiring that transportation plans be consistent with, or

“conform to,” state efforts to reduce air pollution. This process, referred to as air quality conformity, currently applies to both short-term (three years out) and long-term (20 years out) plans for metropolitan transportation projects and programs. The law requires that metropolitan areas re-evaluate those short- and long-term plans every two and three years respectively.

The air quality conformity process has been critical in getting transportation planners and air agencies to work cooperatively to find transportation and air quality solutions. Frequent updates can also focus public attention on transportation planning and help the public appreciate the need for investments in public transit and other alternative transportation modes. Most importantly, the conformity process has led to increased investments in cost-effective pollution-reducing transportation strategies that support more diverse travel choices.

To help states and metropolitan areas cut pollution from cars, buses and trucks, in addition to meeting the goals of the Clean Air Act, Congress established the Congestion Mitigation and Air Quality Improvement program (CMAQ) when it passed the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991. Under that program, states have spent over \$11 billion in federal funds over the last 11 years to provide greater mobility and improve air quality in non-attainment and maintenance areas. Of that, more than \$5 billion has been used for public transit projects.

The CMAQ program provides a dedicated source of federal funds to help states meet the air quality standards set under the Clean Air Act. Though the total amount of funding available under the CMAQ program is just a fraction of what the federal government provides to the states each year for transportation projects, the CMAQ program enjoys broad support from a range of interests, including local elected officials, transportation and air quality administrators, business and community groups, and the public.

Together, the Clean Air Act and the CMAQ program have provided critical tools for local officials trying to reduce air pollution and provide cleaner transportation options. As noted above, aggregate emissions of criteria pollutants have been cut by 25 percent over the last several decades. Places which have made the most of the CMAQ program have been even more successful in improving air quality. California in particular has taken full advantage of the CMAQ program, and spent those funds on improving mass transit service, switching to cleaner fuel engines, and other emissions reduction programs. As a result, the number of days of unhealthy ozone pollution levels in California’s larger metro areas has declined by 27 percent.

## **Proposals to Undermine Federal Clean Air Laws**

Despite the progress made under the Clean Air Act and the air quality funding made available under the Congestion Mitigation and Air Quality Improvement (CMAQ) Program under the current federal transportation law, the Bush Administration and some in Congress have authored proposals to exempt many areas from Clean Air Act requirements, delay implementation of the new air quality standards, weaken the conformity process, and undermine the CMAQ program.

Specifically, those proposals would reduce the frequency with which transportation plans must be reviewed for their air quality impacts and excuse metropolitan areas from having to consider the long-term air pollution impacts of transportation projects. Some congressional proposals would allow major road projects to advance even if they don't conform with the air quality plan, thereby ensuring the failure of the air quality plan. Other proposals would eliminate federal review of the adequacy of air quality plan emission limits, allowing huge increases in motor vehicle emissions even though it guarantees the plan will fail and thus endanger public health.

At the same time, the federal air quality funding available under the CMAQ program is threatened by a dilution of its funding, as 135 new counties become eligible for funding under new U.S. EPA clean air standards. The Bush Administration's proposal for fiscal year 2004 cuts CMAQ funding by seven percent. While overall the Administration proposes increasing CMAQ funding by slightly over nine percent over the next six years, it will not be nearly enough to meet the new demand for funding and address the seriousness of the pollution problem from the newly regulated fine particulate pollution as well as from transportation-related air toxics, another major health threat. Under the new EPA standards for ozone and fine particulate pollution, the need for air funding is expected to grow by 33 percent.

Congress should reject efforts to weaken the Clean Air Act, undermine the conformity process, and underfund the CMAQ program. With new medical research illustrating the breadth and the severity of public health problems as a result of poor air quality, the nation must do more – not less – to protect all Americans from air pollution. Below are recommendations which can help fulfill the goal established by Senator Max Baucus (MT) that "...transportation plans and programs also serve as part of the pollution control strategy for the metropolitan area."<sup>x</sup>

## **Report Policy Recommendations**

### (1) Protect and strengthen clean air laws and air quality funding made available through the federal surface transportation law

- Significantly increase federal funding available under the Congestion Mitigation and Air Quality Improvement program (CMAQ) when Congress renews the federal transportation law this year. Funding should be increased significantly over current levels, proportional to the new demands from new areas and new pollutants covered under the revised national air standards.
- Require proportional spending authority for CMAQ over the life of the new surface transportation bill.
- Reject proposals to weaken the Clean Air Act and undermine current requirements that ensure transportation projects and programs conform to air pollution reduction plans.

### (2) Strengthen the role of regional planning agencies in order to reduce transportation-related air pollution

- Direct CMAQ funding to local areas served by metropolitan planning organizations that do not meet federal air quality standards (including maintenance areas). Air pollution is often a regional problem, and these regional agencies are best suited to design and fund transportation programs that can help clean the air.
- Increase the funding available to metropolitan planning organizations for planning activities that will help reduce air pollution, including the modernization of air pollution models to better account for the impacts of “induced traffic.”
- Encourage and provide adequate funding for the use of scenario planning tools that can help states and regions model the air pollution implications of different transportation and growth scenarios 10, 20 or 50 years into the future.

### (3) Encourage a balanced approach to reducing air pollution that emphasizes cleaner vehicles and more convenient transportation options

- Increase guaranteed funding for mass transit projects and operations, as well as for bicycle and pedestrian facilities and other investments in non-motorized travel options.
- Maintain a fair and equal federal cost share (known as the federal “match”) for all types of transportation projects, preserving the current law’s federal match ratio of 80 percent for public transit projects.

- Promote higher fuel economy standards for all vehicles, in particular SUVs, and fund research and deployment of cleaner and more fuel efficient engines for trucks and buses.
- Increase commitments to transit-oriented retail and residential development, and make these factors key criteria for new mass transit ("New Start") projects.

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### **Executive Summary Endnotes**

<sup>i</sup> U.S. Environmental Protection Agency. Latest Findings on National Air Quality: 2001 Status and Trends. September 2002. <<http://www.epa.gov/air/aqtrnd01>>

<sup>ii</sup> Statement of McCabe, W.M., Regional Administrator, U.S. EPA. October 26, 1998.

<sup>iii</sup> American Lung Association. Annotated Bibliography of Recent Studies on the Health Effects of Air Pollution. October 11, 2002.

<sup>iv</sup> U.S. Environmental Protection Agency. Latest Findings on National Air Quality

<sup>v</sup> Daniels, M.J., Dominici, F., Samet, J.M., and Zeger, S.L. Estimating Particulate Matter-Mortality Dose-Response Curves and Threshold Levels: An Analysis of Daily Time-Series for the 20 Largest U.S. Cities. American Journal of Epidemiology, Vol. 152, No. 5, pp. 397-406, September 1, 2000.

<sup>vi</sup> U.S. EPA. Office of Transportation and Air Quality. "Mobile Source Emissions: Past, Present, and Future." <[www.epa.gov/otaq/inventory/overview/index.htm](http://www.epa.gov/otaq/inventory/overview/index.htm)>

<sup>vii</sup> Replogle, Michael, Sept. 17, 2002. "Response to Questions for the Record Concerning Transportation and Air Quality" Follow up to July 30th, 2002 hearing of the Senate Environment and Public Works Committee.

<sup>viii</sup> FHWA. Highway Statistic Series, Summary to 1995, 1996-2001. <[www.fhwa.dot.gov/policy/ohpi/hss/index.htm](http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm)>

<sup>ix</sup> FHWA. Addendum to the 1997 Federal Highway Cost Allocation Study Final Report. May 2000. <[www.fhwa.dot.gov/policy/hcas/addendum.htm](http://www.fhwa.dot.gov/policy/hcas/addendum.htm)>

<sup>x</sup> Baucus, October 27, 1990, §16969-76.