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TO THE U.S. DEPARTMENT OF TRANSPORTATION:
COMMENTS ON THE ENVIRONMENTAL DEFENSE FUND ON
THE SECRETARY OF TRANSPORTATION'S
NATIONAL TRANSPORTATION POLICY

September 1, 1989

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Boulder, Colorado

AIR QUALITY PROTECTION IN THE WEST

Natural Resources Law Center
University of Colorado
School of Law
Boulder, Colorado

November 27-28, 1989

TO THE U.S. DEPARTMENT OF TRANSPORTATION:
COMMENTS OF THE ENVIRONMENTAL DEFENSE FUND ON
THE SECRETARY OF TRANSPORTATION'S
NATIONAL TRANSPORTATION POLICY

SEPTEMBER 1, 1989

Prepared by

Robert E. Yuhnke, Senior Attorney
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INTRODUCTION.

The Environmental Defense Fund is a national public interest organization committed to protecting public health, wildlife and the environment. These comments on the development of a national transportation policy by the U.S. Department of Transportation are filed on behalf of our 100,000 members nationwide, and particularly on behalf of our members who live or work in urban areas where they are exposed to dangerous concentrations of air pollution caused by mobile sources.

SUMMARY OF COMMENTS.

EDF calls on the Department to place a major emphasis on the development of urban-suburban transportation policies, systems and services that contribute to reducing the contribution of the single-occupant vehicle to 1) air pollution in the urban environment, 2) excess energy consumption nationwide, 3) America's excessively high contribution of CO₂ to the global greenhouse gas inventory, and 4) to the cost and delays of congestion in urban transportation. The urban transportation system, with its principle reliance on the single-occupant vehicle, is a major cause of each one of these problems. The nation has made clear commitments to reduce air pollution in the urban environment to make our cities more habitable, to reduce our energy dependence of foreign sources, to lead global efforts to reduce the impact of global warming, and to increase mobility at an acceptable cost to urban areas. But during the last three

decades, urban transportation systems have not been designed with the intention of contributing to all of these important national, regional and local objectives. As a result, the nation's investments in transportation infrastructure, systems and services have failed to serve these needs.

EDF asks that the Department begin a new era of transportation policy and planning by recognizing each of these needs as legitimate objectives of regional and national transportation plans. It is no longer enough to consider mobility as the exclusive, or primary, objective of transportation systems and services.

In the next two decades, the technological options for reducing tailpipe emissions will diminish as the law of diminishing returns increasingly applies to vehicle emission controls. As a result, it becomes increasingly more important to turn toward transportation system planning and design to develop alternatives to the single-occupant vehicle as a key strategy in the battle against air pollution.

Similarly, increasing global concern about fossil fuel use and the impact of CO2 emissions on climate change demand that the U.S. develop policies aimed at reducing fuel use in the transportation sector, as well as other energy consuming sectors of the national economy. This policy issue has been addressed by the Department primarily within the context of tightened CAFE standards. EDF applauds the recent initiatives you have taken with regard to CAFE standards, and encourages you to tighten

these standards much further. But it is unlikely that tighter CAFE standards alone will achieve reductions in total mobile source CO2 emissions. Overall reductions in CO2 emissions require an integrated policy approach that combines increased fuel efficiency with shifts toward transportation systems designed to reduce single-occupant vehicle use. Such policies will also increase our national energy independence by reducing the demand for imported liquid fuels.

Finally, vehicle congestion on urban and suburban highway networks are causing substantial costs to commuters and business from the time lost to traffic delays and the increased fuel costs and engine wear caused by traffic delays. If we attempt to address congestion by simply adding more highway lanes, it is rapidly becoming clear that the costs of capacity expansion on existing urban-suburban highway networks far exceed available resources. Policies designed to increase the passenger carrying capacity of existing infrastructure are far more cost effective than capacity expansion, and need to be given higher priority.

At the bottom line, policies that shift passenger miles away from the use of single-occupant vehicles and to alternative ways of meeting mobility needs, also meet other regional and national goals including 1) cleaner air and a healthier urban environment, 2) reduced energy use, 3) lower CO2 emissions and less impact on the greenhouse effect, and 4) less congestion on the highways, reduced delays and more cost-effective use of existing

transportation infrastructure investments. For these reasons, we ask the Department to identify the reduced use of single-occupant vehicle use in the urban-suburban environment as a major objective of a new national transportation policy.

**AN ACCEPTABLE URBAN ENVIRONMENT REQUIRES CLEANER VEHICLES
AND A SHIFT OF TRANSPORTATION POLICY TO ALTERNATIVES TO
THE SINGLE OCCUPANT VEHICLE**

Air pollution in American cities undermines the quality of urban life by compromising the ability of large percentages of the population to lead normal, productive and healthy lives. For some, pollution contributes to premature death or incapacitating disease. (See "Critical Analysis of the Federal Motor Vehicle Control Program", Northeast States for Coordinated Air Use Management, July, 1988 pp. 9-20, hereinafter NESCAUM). For others, it detracts from the enjoyment of the sweet smells of Spring, the experience of stars in the night sky, or the delight of distant mountain views. However we are affected, urban air pollution detracts from the potential offered by a clean and healthful urban environment. Since most Americans seem destined to spend their lives in the urban environment, it is essential that we design cities to avoid the disease, pain and discomfort caused by pollution. The grey-brown pall that shrouds cities like Los Angeles, New York, Houston, Denver, Phoenix, Albuquerque and Salt Lake need not be the curse of urban civilization, or the legacy of future generations.

Transportation sources account for 40% to 80% of air pollution in most American cities, depending on the pollutant.

(NESCAUM, p.7). The most common pollutants to foul the urban air are ozone (O₃), carbon monoxide (CO), and particulates that include a wide array of contaminants ranging from respiratory irritants to potent carcinogens. (NESCAUM, pp. 9,15-19). Almost all of these pollutants can be traced to the emissions from gasoline and diesel-powered vehicles. (NESCAUM, p.7).

The severity of urban pollution levels is directly related to 1) the number of vehicle miles traveled each day, 2) the use and effectiveness of pollution controls on vehicles, and 3) the quality of fuels burned. (NESCAUM, pp. 85-88). Reducing the impacts of transportation sources on urban pollution will require transportation policies aimed at meeting mobility needs while reducing the use of single occupant vehicles and the use of less polluting vehicles and fuels.

The dramatic deterioration of urban air quality in the U.S. during the last two years has focused renewed public attention on the need for action on clean air. The number of ozone violation days in the US (outside of California) increased from about 380 in 1986, the cleanest year in the last 10, to over 1250 in 1988. In 1988, urban ozone concentrations returned to pollution levels not seen in over a decade. (NESCAUM, pp. 3,4). Some major cities exceeded the health standard on more than 30 days, and approached the peak levels previously seen only in Los Angeles. (NESCAUM, pp. 3,4).

Based on EPA projections, pollution levels will increase even more in the next decade as tailpipe emissions begin to climb.

again for the first time in 20 years. (See, 53 Fed. Reg. 3703, Feb. 8, 1988). The gradual, but impressive gains in urban air quality achieved since the passage of the Clean Air Act in 1970, will continue to erode if new initiatives are not taken to build on the progress of the past. Action is needed to assure a safe and healthy air supply for urban Americans.

For vehicle-related pollutants other than ozone, peak pollution levels today are less than one-third of what they were in many polluted cities during the early 70's, (NESCAUM, p.16). and the number of days when pollution levels violate national health standards have dropped by as much as 90% in many of the nation's more severely polluted cities. (NESCAUM, p.16). Despite this progress, most of the severely polluted cities of the 70's continue to have unacceptably high levels. (NESCAUM, pp. 2,16). Most important, the emission control programs adopted since 1970 are not expected to provide further reductions in tailpipe emissions in the years ahead. After 1994, U.S. EPA projects that total vehicle emissions will begin to increase again for the first time since 1970. (53 Fed. Reg. 3703).

Most of the tailpipe-related emission reductions since 1970 have come from Congressionally mandated tailpipe standards that have required automakers to produce cleaner cars. (53 Fed. Reg. 3703). Pollution reductions have come from replacing older, dirtier cars with new vehicles that, since 1981, have been six to eight times cleaner than cars in 1968. (NESCAUM, p.24, table 2). Total emissions have decreased because the emission reductions

from fleet replacement have been greater than the emission increases caused by growth in the number of miles we drive our vehicles each year. (NESCAUM, pp. 34,43,44). But by 1994, the pre-1981 vehicles will largely have been replaced, and the emission offset against increasing auto use will be gone. (53 Fed. Reg. 3703, NESCAUM, p.70).

Vehicle miles traveled (VMT) are increasing nationally at about 2.5%/year, and in many growth areas are increasing at 4%, 5% and even 6%/year. (NESCAUM, p.43). At these growth rates, vehicle use will double in many urban areas by 2010. (NESCAUM, p.43). For example, the new transportation plan for Denver is based on an expected increase in vehicle miles travelled from 33 million to 63 million miles per day. (Denver 2010 Regional Transportation Plan). Vehicle emissions will soon begin to grow at comparable rates. In Denver, for example, nitrogen oxide emissions are expected to increase 26% from 1995 to 2010 and particulate emissions will increase even faster. (See, New Denver Airport Environmental Assessment, Tables 4.46b, 4.46d, November, 1988). To prevent these emission trends, new initiatives are needed to 1) reduce vehicle use trends by offering less polluting transportation alternatives to the single-occupant vehicle, 2) reduce emissions from new vehicles by requiring manufacturers to install the best available pollution controls, and 3) use cleaner burning fuels.

All three approaches are needed to meet clean air goals over the long term. The tighter tailpipe standards now under

powerful hurricane in over 50 years which left thousands dead or homeless.

No scientist can say with certainty what the future effects of a warmer climate will be because there has been no comparable change in the global climate within human times. It is well accepted in the scientific community that atmospheric temperatures will soon rise well above 1988 levels (Fisher, p. 53), and that the rate of temperature rise in the next 50 years will be the same or greater than the warming that occurred during the 10,000 years following the last glaciation. (See, V. Nanda, "Global Warming and International Environmental Law: A Preliminary Inquiry", 1989, to be published in a forthcoming issue of the "Denver Journal of International Law and Policy", p. 6, hereinafter Nanda). Such a rapid rate of climate change has never been experienced by natural systems. Science is left to speculate regarding the consequences, but the range of credible scenarios describe major disruptions in the food and water supply for large portions of the human population. (See, generally P. Gleick, "Global Climate Change and International Politics", Pacific Institute for Studies in Development, Environment, and Security, 1989, hereinafter Gleick, also see Fisher and Nanda).

To slow the transfer of carbon in the ground to CO₂ in the atmosphere, which is the most important greenhouse gas (Firor, p.2), 300 experts at the Toronto conference on the global atmosphere recommended that the industrialized nations reduce carbon combustion 20% by 2005. (See, Toronto Global Conference,

Executive Summary). The U.S. emits 25% of the world's CO2 (Gleick, Table 1) even though we are only 5% of the world's people, and burn more carbon per capita than any other nation. (Gleick, Figure 3). Per unit of economic production, the US burns twice as much carbon as our major competitors in Japan and many nations in Europe. A large portion of our excess use of fossil fuels is directly related to our use of automobiles. (NESCAUM, p.98).

The US owns about 180 million vehicles, close to 40% of the world's total. (See, "Urban Travel Behavior", Journal of the American Planning Association, Autumn 1988, p.510, hereinafter JAPA). Only 18% of all person-trips in the US are on public transportation or private shared-ride services, whereas 60% to 80% of person-trips in European countries are by some form of transportation other than the single occupant vehicle. (JAPA, p.510). Many Americans have no choices and are forced to use their private vehicles. But it must be recognized that there are few more profligate uses of fossil fuel than moving two tons of steel for every 160 pound passenger.

Action to reduce carbon dioxide emissions in the U.S. must include transportation sources. Scientific estimates are that 31% of total CO2 emissions in the U.S. are from mobile sources. (See, World Resources Institute, "CO2 Emissions By Sector"). More important, transportation is the energy use sector of the economy in which CO2 emissions are increasing most rapidly. Increased vehicle fuel use is directly linked to the 2.5% annual

growth in vehicle miles travelled. (NESCAUM, p.43). If the current rate of VMT growth continues, CO2 emissions from the transportation sector will increase by 40% by 2005. (NESCAUM, p.43, Environmental Defense Fund calculations).

Increased CO2 emissions from VMT growth will not be offset by tighter fuel efficiency standards, unless average fuel efficiency is increased by 1.25 miles/gallon/year to 42 miles/gal for the 2000 model year, and 55 miles/gal for 2010. (Environmental Defense Fund calculations). No net reduction in fuel use below current levels would be achieved by such efficiency improvements if national VMT growth continues unrestrained. To achieve actual reductions in CO2 from the transportation sector, increased fuel efficiency must be combined with policies aimed at reducing vehicle miles travelled.

Air pollution from the tailpipe remains the same whether there are five passengers or only one, but pollution is five times greater if there are five vehicles instead of only one. To reduce the impact of transportation on global climate and urban air quality, transportation policy should be aimed at increasing vehicle ridership while reducing the use of the single occupant vehicle.

New initiatives toward alternatives to the single-occupant auto are being launched by many communities across the nation. At least forty-one urban areas have proposed new transit systems, or major expansions of existing systems. Other alternatives to the single occupant vehicle are also emerging as part of

community transportation systems, employer-provided transportation services and private operators of shared-ride services. (See, Southern California Association of Governments, Draft Regional Mobility Plan, Feb., 1989, pp. 116,145,146, hereinafter SCAG RMP).

The clearest community commitment to reduce single-occupant auto use is in the South Coast air basin in southern California. The South Coast Association of Governments, which is the federally recognized "metropolitan planning organization" with transportation planning responsibilities for the four county basin, recently adopted a new "Mobility Plan" aimed at achieving a 60% reduction in VMT growth in the basin by 2010. (SCAG RMP, Table 5). If the traditional transportation policies underlying the development of the freeway system in the South Coast basin were continued, by 2010 VMT would be expected to increase by another 150 million miles per day to about 380 million miles per day. (SCAG RMP, Table 5, RMP figures are an increase of 154 million miles per day for a total of 376 million vehicle miles traveled per day). The Mobility Plan, however, is designed to limit VMT growth during the period to only 60 million mi/d. (SCAG RMP, Table 5, actual RMP figures limit the increase to 63 million mi/d). This ambitious objective is expected to be achieved by a full array of policies to encourage a shift to expanded bus and new light rail systems, reducing trips and trip lengths. (See, SCAG RMP generally).

The L.A. plan calls for a major shift in facility investment strategies away from expanded freeway capacity and into a regional

high-occupancy vehicle network supplemented by a new light rail system to serve the major travel corridors. (SCAG RMP, pp. 17-27). The objective is to move passengers on express buses and rail faster than cars caught on congested freeways. (SCAG RMP, p.19).

In addition, major employers will be required to develop incentive strategies designed to bring two out of every three workers to the workplace in something other than a single occupant vehicle. (SCAG RMP, pp. 22,23). For the long term, the plan also relies on strategies such as telecommuting and the 4-day 10-hour workweek to reduce the total number of trips in the basin, and policies aimed at establishing a better neighborhood balance between jobs and housing to reduce trip lengths. (SCAG RMP, pp. 22,23,132-149).

L.A.'s new Mobility Plan responds to two major factors: the unacceptable cost of transportation-as-usual, and air pollution. (SCAG RMP, p.3). Congestion on freeways in the basin has grown to intolerable levels. Most freeway commuters now average a 10% time delay for every hour of commuting. (SCAG RMP, p.144, this delay has been calculated to cost \$1,800,000,000 annually in lost time, opportunity, and vehicle operating costs). Delays are expected to increase to over 1/2 of an hour for every hour traveled by 2010 if action is not taken to reduce congestion. (SCAG RMP, p.144, total congestion costs would increase to a frightening \$26,300,000,000).

To maintain congestion at current levels, the highway planners calculated that the current freeway network would have

to be doubled by 2010 at a cost of \$110 billion. The expanded freeway cost exceeds expected transportation revenues for the period (about \$27 billion) by fourfold. By contrast, the planned HOV network and new regional light rail system will cost about \$57 billion, or about half the freeway plan. (SCAG RMP, p.27). Both plans exceed current revenues, but the political leadership in the basin decided that a regional plan to move people off of freeways was at least financially plausible. Continuing to build concrete to serve the auto is no longer feasible.

Slowing the increase in auto use is also essential if the L.A. basin can have any hope of moving toward cleaner air. Even if all the other aggressive new policies planned to reduce air pollution in the basin are fully implemented by the Air District to meet federal clean air standards by 2007, air quality would continue to deteriorate if auto use expands to 380 million miles per day over the next twenty years. (SCAG RMP, pp. 42-44,47, see also SCAG Air Quality Management Plan, pp. v,x, hereinafter SCAG AQMP). Reduced auto use is an essential element of the plan to meet air quality standards by 2007. (SCAG RMP, p.43, SCAG AQMP, pp. 6-1,2,). As a result, SCAG's new Mobility Plan has been adopted as well by the Air Quality management District and incorporated into the region's air pollution control plan as an emission reduction strategy. (SCAG RMP, pp. 40,43). This the first time in the nation that a regional transportation plan has been designed to achieve air quality goals.

Los Angeles may be one of the more extreme examples of the impact tailpipe emissions have on regional air quality, but its experience demonstrates the central role transportation planning plays in the air quality future of polluted urban areas. The most severely polluted city in the nation, is also the largest city in the nation to rely exclusively on the highway as the basis for its transportation system. (SCAG AQMP, p.i). Now it is learning that its dependance on the auto is choking the air with life-threatening levels of pollution, and clogging the arteries of commerce with congestion-caused delays. Traffic delays are driving up the cost of transportation and subtracting hours of lost time each week from the lives of Angelinos stuck on the highway. (SCAG RMP, 141-144).

The price of building a transportation system to move cars rather than people has now become too high to pay. The price in lost health, the costs of delays and the pricetag for expanded highway capacity have now outstripped the willingness and the ability of the community to pay. Carried to its extreme, the environmental and economic consequences of creating an auto-dependent metropolis is demonstrated by the Los Angeles experiment with the highway. But having discovered the unacceptable outcome of such a choice, L.A. may now become the crucible for experimentation that will show the way to building a more livable city as the model for the Twenty-first century.

**FEDERAL TRANSPORTATION INVESTMENT POLICY
MUST BECOME PART OF THE SOLUTION
INSTEAD OF THE CAUSE OF THE PROBLEM.**

The shift away from exclusive reliance on the single occupant vehicle must happen both locally and in Washington, but it is clear that few creative local alternatives will be pursued until federal transportation investment policy is reformed to give the states and metropolitan areas real choices.

Currently, federal transportation investments are largely committed to promoting auto use. (See, Federal Year 1990 Federal Budget, p. 5-85, hereinafter FY 1990 Budget). Eight cents of every nine cents collected on a gallon of gasoline is dedicated to building highways. (FY 1990 Budget, p. 5-85). Only 5% of federal transportation investments are made to expand public transportation alternatives to the single occupant vehicle. (FY 1990 Budget, p. 5-85). Communities that wish to expand their investment in transportation alternatives are politically locked into highways because of the leveraging effect of federal transportation dollars. Federal dollars are matching dollars which force local and state governments to spend equal or greater amounts to simply qualify for the federal funds. (See, "Financing Federal Aid Highways", Federal Highway Administration, Nov., 1987). For local or state leaders to shift state funds away from highways and into transportation alternatives for which few, if any, federal dollars are available, they often must abandon the federal highway funds. ("1988 Statistical

(e.g., gasoline and diesel) to hydrogen-rich fuels (e.g., CNG or H fuel cells). Only by recognizing a target for reduced CO2 emissions from each sector of the U.S. economy can the nation begin to develop coherent policies aimed at achieving the reductions necessary to stabilize the global atmosphere. Once the target is defined, rational policy choices can then be weighed in terms of cost-effectiveness, lead-time needed for technological development, assignment of responsibilities to public and private actors, selection of regulatory and market-oriented strategies to achieve identified objectives, and other factors.

EDF recognizes that DOT has limited authority to implement only some elements of a national fuel-use policy, such as tighter fuel efficiency standards which could be expressed as limits on carbon emissions per mile and VMT reduction strategies required in regional transportation plans for polluted urban areas under the Clean Air Act's conformity provision. Despite these limitations on current authority, the Department should begin now to consider alternative strategies for the implementation of a national global warming policy aimed at reducing CO2 emissions from the transportation sector. At a minimum, this should include an assessment of the degree to which fuel efficiency, VMT reduction and fuel-switching strategies can contribute to reducing CO2 emissions, the relative cost-effectiveness of each option, preferred implementation strategies for achieving

specified objectives, and the development of Departmental recommendations for legislative and agency action.

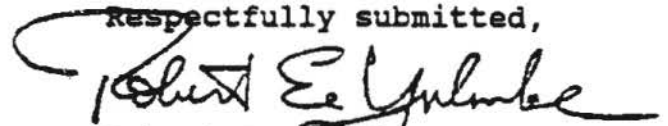
Given your commitment to undertake a comprehensive review of national transportation policy, it would represent a great opportunity lost if the Department fails to consider the options available for developing national policies that will contribute to finding solutions to the global warming threat. Secretary of State Baker at the recent Washington conference of world leaders, EPA Administrator William Reilly in Congressional testimony and the President at the economic summit in Paris have all recently recognized the need for action to address global warming. The US will be hosting an international global warming conference this winter, and has agreed to participate in another major conference in 1990 to consider the negotiation of international agreements aimed at reducing greenhouse gas emissions. It is clear that the international community is moving rapidly toward the adoption of global objectives which the US will inevitably participate in.

The Department should anticipate now the need to identify and evaluate policies that will allow the President to act as a leader in the global movement to address global warming, rather than waiting for the global agenda to be defined for the US and then forcing the Department to play catch-up after the rules have been set. Accordingly, EDF urges you to recognize the need to develop policies aimed at reducing CO2 emissions from transportation in the U.S. and to begin the task of identifying and weighing the available options that we outlined above.

CONCLUSION.

The health and habitability of urban environments in the US, the stability of the planetary climate, the energy independence of the U.S. and the growing costs of congestion on existing urban and suburban highways will all be substantially improved by developing policies aimed at reducing VMT growth represented by the increasing use of the single-occupant vehicle. In addition, it appears likely that no one strategy for the reduction of CO2 emissions from transportation in the U.S. is likely to achieve the magnitude of reduction needed to stabilize the global climate. Thus VMT reduction strategies will likely have to be combined with fuel efficiency and fuel-switching strategies to achieve overall reductions in CO2 emissions to the global atmosphere. EDF urges the Department of Transportation to support the objectives of a national transportation policy we have identified here and to fully explore EDF's recommendations and additional options aimed at achieving these objectives.

Respectfully submitted,



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Transportation Project