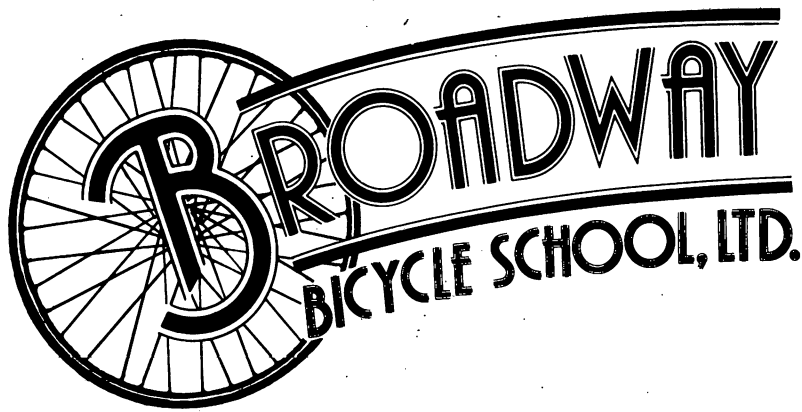




Cambridge City Council  
c/o City Clerk  
Cambridge City Hall  
795 Mass. Ave.  
Cambridge, MA 02139

August 11, 1994

Dear City Councilors:

As the commuter-oriented bicycle shop located across the street from where Cantibridgians go to pay their parking tickets, we say hallelujah to the bike lanes to be built along Massachusetts Avenue. We hope it will encourage more to join the ranks of people who improve the air quality of all who live here by making the bicycle their number one form of transportation.

Though many seasoned cyclists are undaunted by riding with traffic, the dangers posed by motorists who open up their driver's side doors before looking for a cyclist, or who turn without signaling, have kept many would-be cycle commuters away for too long. Thanks to Cambridge for providing a safer place for them to ride.

We will be there at the ribbon cutting.

With appreciation,

the staff and collective of Broadway Bicycle School

*Jonathan Mayzner*  
*Reto*  
*Walter R. Gray*  
*Ann Adelsinger*

351 Broadway • Cambridge, MA 02139 • (617) 868-3392

J Day  
C Barker  
71 Templeton Pkwy  
Watertown, MA 02172 PM



*Cliff*

Columbia River Gorge



Cambridge City Council  
c/o City Clerk  
Cambridge City Hall  
795 Mass. Ave.  
Cambridge, MA 02139

71 Templeton Pkwy  
Watertown 02172  
July 31, 1994

RECEIVED BY  
OFFICE OF CITY CLERK

Dear Council Members:

As bicycle commuters who travel through  
your city daily and as neighbors who visit  
your city often, we are delighted with your  
plans for bike lanes on Mass. Ave. Keep  
up the good work, + keep safety in mind.

Sincerely,

Cynthia S. Barker  
John H. Day

Comm 1.

MASSACHUSETTS  
AUG 25 11 31 AM '94  
BOSTON

323 Tappan Street #4  
Brookline, MA 02146  
August 24, 1994

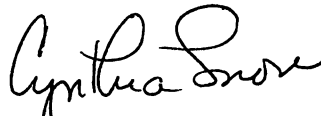
Cambridge City Council  
c/o City Clerk  
Cambridge city Hall  
795 Massachusetts Avenue  
Cambridge, MA 02139

Ladies and Gentlemen:

I am a non-car owning cyclist, and I use my bicycle for commuting and for errands. I am writing to support the creation of bicycle lanes on Massachusetts Avenue from Memorial Drive to Central Square. This stretch of Massachusetts Avenue is a very dangerous one for cyclists, and it would considerably improve the cycling environment to have a designated bicycle lane. Since there is no direct alternate route available to cyclists between these destinations (from the Back Bay of Boston to Central Square), it would certainly increase the likelihood that I would do business in Central Square if I had a safe way to get there on my bicycle.

In the interests of safety and encouraging alternate, non-polluting transportation in Cambridge, I urge you to finalize the plans for these bicycle lanes.

Sincerely,

  
Cynthia Snow

cc: Cambridge Environmental Program

1

*Julia Priest*  
3 Ellery Place  
Cambridge, Massachusetts 02138  
354-1253

July 29, 1994

Cambridge City Council  
c/o City Clerk  
Cambridge City Hall  
795 Massachusetts Avenue  
Cambridge, MA 02139

Cambridge Environmental Program  
57 Inman Street  
Second Floor  
Cambridge, MA 02139

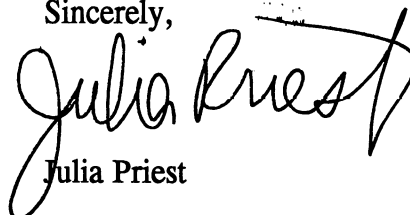
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We always grumble about parking, but the parking problem would be solved if we all rode our bikes around the Boston area as much as possible. The only reason I don't ride my bike everywhere is because traffic conditions and shoddy road maintenance make cycling so unsafe. As an enlightened modern city, Cambridge really ought to do everything in its power to encourage bicycle commuting, since it is healthful both to humans and to our environment.

Therefore I strongly encourage you not only to build bicycle lanes on Massachusetts Avenue, but also to pursue this line of thinking as it concerns lanes on other major commuter roads and as it concerns repavement of potholes, traffic-law education, etc.

Sincerely,

  
Julia Priest

RECEIVED BY  
CITY CLERK  
AUG -2 PM 1:20  
CAMBRIDGE MA

25 Peabody Terrace #31  
Cambridge, MA 02138

August 5, 1994

Cambridge City Council  
c/o City Clerk  
City Hall  
795 Massachusetts Ave.  
Cambridge, MA 02139

Dear City Council Members:

I strongly support the Highway Department's plans to include bicycle lanes in its reconstruction of Massachusetts Avenue from Main Street to Memorial Drive.

I am one of those people who would bike more in Cambridge and Boston if it were safer to.

More bikers and fewer drivers would reduce air pollution and the adverse respiratory effects that go with it. Reducing car exhaust is especially important on Mass Ave., where walking there during business hours is not much different from sitting in the smoking section of a restaurant.

I hope this project will just be the beginning of many more projects that improve bike safety.

Thank you.

Sincerely,

*Christina Holcroft*

Christina Holcroft

RECEIVED  
CITY CLERK  
AUG 10 1994

RECEIVED  
JUL 23 PM 2:17  
CAMBRIDGE, MA.

Eve M. Goldfarb  
29 Rindgefield Street  
Cambridge, MA 02140

27 July 1994

Cambridge City Council  
c/o City Clerk  
Cambridge City Hall  
795 Mass. Avenue  
Cambridge, MA 02139

To the Cambridge City Council;

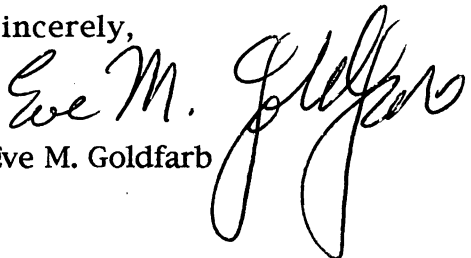
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I was delighted to read in the current issue of the Mass Cyclist (newsletter of the Bicycle Coalition of Massachusetts) that Cambridge is finally going to take all us bicycle commuters more seriously! The plan to construct two bicycle paths along Mass. Ave. (and remove some parking to do it) has my total support. The congestion of that area of the city is not aided by the existence of parking spaces; the congestion would be improved by making the area better for cyclists! I know I will not be the only one to voice support, either; when I do ride along that section of Mass. Ave., I always have lots of bicycling company.

If there are other ways in which I can show my support, please contact me at the letterhead address, call me at (617) 354-6624 (home), at work (617) 266-1400 x321, voicemail me at (617) 266-1400x8439, or contact me electronically at: egold@world.std.com

Thanks so much for really hearing the needs of your constituents who cycle seriously.

Sincerely,

  
Eve M. Goldfarb

EMG/hg

cc: Cambridge Environmental Program  
57 Inman Street, Second Floor, Cambridge, MA 02139



PHYSICIANS FOR SOCIAL  
RESPONSIBILITY  
New England Region

GREATER BOSTON, MA  
CENTRAL MA  
PIONEER VALLEY, MA  
MAINE  
NEW HAMPSHIRE / VT  
CONNECTICUT  
CAPITAL DISTRICT, NY  
RHODE ISLAND

Regional Office:  
11 Garden Street  
Cambridge, MA 02138  
617-497-7440  
Fax 617-876-4277

August 5, 1994

Dear members of the Cambridge City Council,

Greater Boston Physicians For Social Responsibility (P.S.R.) and the P.S.R. Human Health and Environment Project strongly support the proposal to remove parking places from along Massachusetts Avenue in favor of a bike lane. There are important health and safety reasons to install such a bike lane. Mass. Ave. is currently not safe for bicyclists because of the heavy traffic and the parked cars. A bike lane would markedly reduce the risk of serious injuries to bicyclists from accidents along that street. The addition of a bike lane also encourages bicycle commuting by opening up an important artery from North Cambridge to the river to bicyclists. Finally, the removal of up to fifty parking spaces sends an important signal that discourages unnecessary automobile use.

Recent studies show that air pollution is extremely hazardous to human health: the death rate, and visits to emergency rooms, go up in the days following a day with high pollution levels, and heavily polluted areas have higher mortality rates than less polluted areas. Recent studies have also supported the role of air pollution in lung cancer. While the evidence is still somewhat conflicting on the magnitude of the problem, there is considerable agreement within the scientific community that air pollution clearly is a problem. Therefore anything we can do now to discourage the use of motor vehicles and encourage the use of public transportation and of bicycles may prevent significant health effects in the future.

Please review the enclosed testimony and information sheet on the health effects of air pollution from internal combustion engines. We would be happy to provide more information upon request.

Please continue with plans to build a bike lane along Massachusetts Avenue.

Sincerely,

Gina Solomon, M.D., M.P.H.  
Human Health and Environment Project  
Physicians for Social Responsibility



PHYSICIANS FOR SOCIAL  
RESPONSIBILITY

New England Region

GREATER BOSTON, MA

CENTRAL MA

BERKSHIRE, MA

PIONEER VALLEY, MA

MAINE

NEW HAMPSHIRE / VT

HARTFORD, CT

NEW HAVEN, CT

ALBANY, NY

Regional Office:  
11 Garden Street  
Cambridge, MA 02138  
617-497-7440  
Fax 617-876-4277

May 16, 1994 - Testimony in Favor of the Bike  
Program Fund Bill, S. 1393 and H. 2348  
TO: The Joint Committee on Taxation, Sen.  
William Keating and Rep. Angelo Scaccia

Jefferson H. Dickey, MD  
Co-Chair, *Human Health & Environment Project*

New England Physicians for Social Responsibility,  
representing over 2800 physicians and other health  
professionals in New England concerned about the  
public health consequences of environmental  
degradation, strongly supports the *Bike Program Fund  
Bill* which would earmark 1% of the state gas tax for  
bicycle lanes, routes, paths and parking. We also  
support the Paulsen bicycle and pedestrian  
amendments to the Transportation Bond Bill.

Public health considerations demand that steps be taken to reduce  
transportation sources of air pollution. Air pollution has a  
substantial effect on the health of the people of our nation.  
Transportation sources contribute about a third of our air  
pollution. The main pollutants are carbon dioxide (CO<sub>2</sub>), carbon  
monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), and a complex mixture of  
hydrocarbons, referred to in the attached as HC.

The contribution of fossil fuel combustion to disease in our  
society is staggering. Repeated studies have shown that improved  
public transportation will decrease air pollution. Bicycles are  
pollution free, and increased fitness (due to exercise) has a  
significant effect on improving survival. It seems reasonable,  
even obvious, that every practical step should be taken to reduce  
air pollution by improving public transportation and improving  
opportunities for alternative, therapeutic non-polluting forms of  
transportation, like cycling.

Over 80 million people in our country live in areas that the EPA  
admits has unhealthy levels of air pollution, and this is  
unquestionably an underestimate. Boston is one of those areas  
that the EPA has designated as being in non-compliance with air  
pollution standards. The improved bicycle path system envisioned  
by the bicycle bill will be a major move to mitigate the public  
health threat caused by automobile emissions.

The attached outlines the contribution of the combustion engine  
to air pollution and human disease.



Regional Office:  
11 Garden Street  
Cambridge, MA 02138  
617-497-7440

## THE CONTRIBUTION OF THE COMBUSTION ENGINE TO AIR POLLUTION AND HUMAN DISEASE

The combustion engine burns a complex mix of hydrocarbons, and in the process of creating usable energy, creates several chemical compounds which not only damage the global ecosystem, but which are well recognized human poisons. These chemicals in very small amounts are relatively harmless, but in the amounts currently extant in our environment are associated with serious health problems around the country. While the last word is surely yet to be spoken on the degree of damage, there is no question that living in a polluted environment constitutes a significant risk factor for a number of serious diseases.

When sunlight comes in contact with the mixture of HC and NO<sub>x</sub>, a photochemical reaction occurs resulting in the creation of ozone (O<sub>3</sub>). This ozone stays in the troposphere, or layer of atmosphere closest to the earth. Here it is a poison. In the stratosphere, a level of atmosphere very high above the earth surface, ozone is a benefit, because at this level it absorbs solar radiation, and protects the earth's surface from the harmful effects of ultraviolet radiation. NASA tells us the stratosphere is where the ozone is thinning at an unexpectedly rapid rate. This is one of the reasons we are now seeing evidence of global warming (1991 was the second warmest year on record, after 1990; three of the previous five warmest years were in the last decade). Another reason we are seeing global warming is the increasing amounts of CO<sub>2</sub> in the atmosphere. CO<sub>2</sub> is very effective at absorbing infrared radiation, adding to the process of global warming.

About 700 million tons of CO are generated in the atmosphere from a variety of sources every year by humans. In the United States, about 67% of the CO formed is from transportation sources. When CO is breathed in (inhaled) by humans, it binds to hemoglobin to form a compound called carboxyhemoglobin (COHb). The relation between the level of CO in the air and the level of COHb in the blood is very complex. As the levels of COHb increase in the blood, the hemoglobin loses its ability to carry oxygen to the rest of the body. One common way doctors look to see if the heart is getting a good enough supply of oxygen is to do an exercise test. This test is very important in deciding on the likelihood of a patient having a heart attack. Scientists have shown that increasing the ambient CO levels to the highest levels obtained in the Boston area makes people do significantly worse on the exercise tests, causing them to have more chest pain, serious changes in their electrocardiograms, less ability of their heart to work as a pump, and abnormal heart rhythms. This suggests that living in areas with a lot of traffic would increase the likelihood of having a heart attack. Researchers have actually shown that people who work in traffic tunnels, who have a lot of exposure to exhaust, do tend to have more heart attacks than people who work on bridges, who have less exposure to exhaust. Here, AS WITH EVERYTHING IN SCIENCE, the last word

has not been heard. But we can say confidently that we have every reason to believe that regular exposure to high levels of car exhaust increases the chance of having a heart attack, especially if someone already has a heart condition.

Tropospheric (low altitude) ozone is one of the most pervasive and dangerous air pollutants. As we said, it is formed when exhaust reacts with sunlight. The government has decided that 120 parts per billion (ppb) is an acceptable level of ozone. The EPA is required to reevaluate this standard every five years as more scientific data is obtained. They have not done this since 1985, and is violating Federal law in the process. The American Lung Association has joined a law suit to try to force them to follow the law. The effects of ozone are now very well understood. Much of the experimental work has been done on animals. There is clear evidence in animals of lung damage that can be seen under the microscope, but no one has done this on people (because you can't just take somebody's lung out to look at it under the microscope). In the animals exposed to levels comparable to those commonly seen in Boston, there was evidence of inflammation (one of the body's reactions to damage) and scarring. The blood vessels in the lungs leak more than they should, and the lungs have a very decreased ability to clean foreign materials out the way they normally do. This is very important in fighting off infection and getting soot particles out. Ozone also causes alterations in the structure and function of cells that fight off lung infections like pneumonia. Animals exposed to ozone and infections are more likely to get sick and die than if they were exposed to just the infection.

An equally impressive amount of work has been done on humans. Two classes of people may be especially effected by ozone: asthmatics and people who exercise regularly outside. Symptoms that occur at levels of 120 ppb and below include cough, shortness of breath, pain on deep inspiration; higher levels cause headache, throat irritation chest tightness and pain, wheezing, lassitude, and nausea. Doctors use lung function tests (PFTs) to determine, among other things how well the lung is able to take air in and blow it out. PFTs gradually get worse as anyone gets older, and they commonly get worse faster if someone smokes. The worse someone's PFTs are, the more likely they are to have coughing, wheezing, shortness of breath, and trouble breathing at night. There is increasing evidence that the worse one's PFTs are the more likely they are to die of emphysema, heart disease, or any disease for that matter. Scientists have shown beyond any reasonable doubt that ozone worsens PFTs in adults and in children. Some of the most useful information has come from just testing normal children while playing outside in the summer. These children have significantly worse PFTs on days when the ozone levels are high, even if the ozone levels only got up to about 78 ppb, well within the "legal" limit of 120 ppb. The same is true for normal adults exercising in air that has ozone levels of "only" 80 ppb. Peak ozone levels in Massachusetts are COMMONLY between 100 and 140 ppb. The status quo is a travesty on this issue. Not only do high ozone levels

worsen the lung function of people who are exercising, the effects on people who are exercising outdoors are greater than those who are not exercising. Ozone has been shown to decrease the athletic performance of everyone from casual exercisers to serious competitive athletes.

Not only does ozone cause short term impairment in lung function, but there is increasing evidence that the scarring in lungs seen under the microscope in animals is reflected in permanent damage to adult lungs. A series of studies looked at the PFTs of people living in three cities with very different levels of ozone. They found that the more ozone the people were exposed to on a chronic basis, the more permanent impairment of PFTs could be seen.

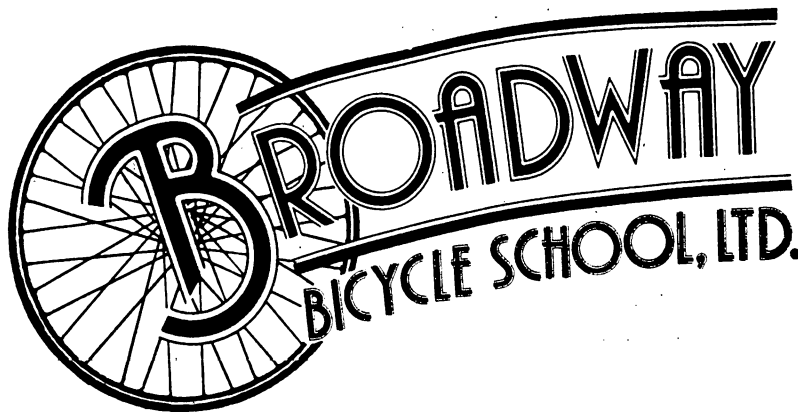
The evidence is increasing that air pollution due to automobile exhaust is a cause of cancer. The individual chemicals in exhaust have long been known to alter chromosomes and cause changes that are consistent with cancer in the laboratory. The question has been whether these chemicals are at high enough levels in the air in cities with a lot of air pollution due to traffic to cause the cancer rates to increase. Some studies seem to indicate that this is the case. Many studies have been done to see if people who work all day with diesel truck have higher cancer rates. These studies include garage mechanics and truck drivers. It seems the risk of lung cancer in these occupations is about 20 - 89% higher than expected, and about 240% higher in those persons who had very high levels of exposure. Traffic policemen have a very high exposure to auto exhaust. One study showed that they have more abnormal changes in their chromosomes (something often seen in someone with cancer). However, one does not need to have a job with a very high risk like garage mechanic or traffic policeman to have an apparent elevation of cancer risk. People in Hamburg, Germany who live on streets with a lot of traffic (more than 30,000 cars a day) have a 34% greater chance of getting lung cancer than people in the rest of the city. A different study found that children who lived on streets with more than 500 cars a day had 70% more cancer and 200% more leukemia. If they increased the cutoff to 10,000 vehicles per day, the risk of cancer was 300% and the risk of leukemia was 470%. The last word is yet to be written, but as one of the experts in the field has been quoted "Chemical, physical and biological data unite to form a constellation that strongly implicates the atmosphere as one dominant factor in the pathogenesis of lung cancer." Even the MKSAP, a publication of the American College of Physicians, states that current evidence supports a role for air pollution as a significant cause of lung cancer.

The medical literature is replete with examples of elevated death rates during periods of increased air pollution. In 1985 a smog period of 5 days occurred in West Germany that was associated with an 6% increase in the death rate. It has been shown that the frequency with which people with emphysema go to the emergency room increases when the level of CO in the air increases. The death rate due to pneumonia, COPD, and heart

44-22

disease increases 7% in Philadelphia every time the NO2 levels go up a certain amount. Mortality in Los Angeles county increase when the levels of oxidants (a measure that includes ozone), NO2, and CO increase. In fact, recent studies show that 1600 people in southern California die every year just due to air pollution.

RECEIVED BY  
FBI - LOS ANGELES  
AUG 14 1981  
COMMUNICATIONS SECTION



Cambridge City Council  
c/o City Clerk  
Cambridge City Hall  
795 Mass. Ave.  
Cambridge, MA 02139

August 11, 1994

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Reto J.  
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71 Templeton Pkwy  
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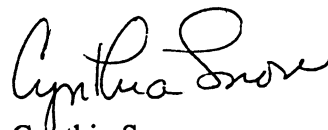
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Cynthia Snow

cc: Cambridge Environmental Program



1

*Julia Priest*  
*3 Ellery Place*  
*Cambridge, Massachusetts 02138*  
*354-1253*

July 29, 1994

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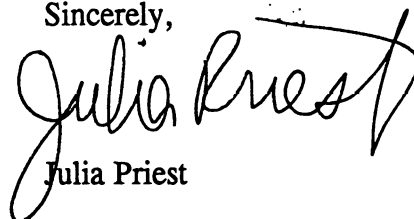
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JUL 30 1994  
CITY CLERK  
CITY OF CAMBRIDGE  
MA



25 Peabody Terrace #31  
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1001 AUG - 8 PM 4:18  
Cambridge, MA.



Jul 28 PM 2:17  
Eve M. Goldfarb  
29 Rindgefield Street  
Cambridge, MA 02140

27 July 1994

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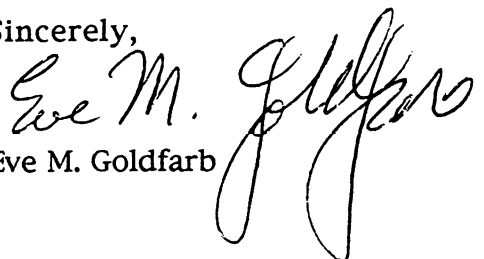
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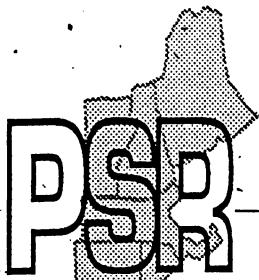
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EMG/hg

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RHODE ISLAND

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Sincerely,

Gina Solomon, M.D., M.P.H.

Human Health and Environment Project  
Physicians for Social Responsibility





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Fax 617-876-4277

May 16, 1994 - Testimony in Favor of the Bike  
Program Fund Bill, S. 1393 and H. 2348

TO: The Joint Committee on Taxation, Sen.  
William Keating and Rep. Angelo Scaccia

Jefferson H. Dickey, MD

Co-Chair, *Human Health & Environment Project*

New England Physicians for Social Responsibility,  
representing over 2800 physicians and other health  
professionals in New England concerned about the  
public health consequences of environmental  
degradation, strongly supports the *Bike Program Fund  
Bill* which would earmark 1% of the state gas tax for  
bicycle lanes, routes, paths and parking. We also  
support the Paulsen bicycle and pedestrian  
amendments to the Transportation Bond Bill.

Public health considerations demand that steps be taken to reduce  
transportation sources of air pollution. Air pollution has a  
substantial effect on the health of the people of our nation.  
Transportation sources contribute about a third of our air  
pollution. The main pollutants are carbon dioxide (CO<sub>2</sub>), carbon  
monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), and a complex mixture of  
hydrocarbons, referred to in the attached as HC.

The contribution of fossil fuel combustion to disease in our  
society is staggering. Repeated studies have shown that improved  
public transportation will decrease air pollution. Bicycles are  
pollution free, and increased fitness (due to exercise) has a  
significant effect on improving survival. It seems reasonable,  
even obvious, that every practical step should be taken to reduce  
air pollution by improving public transportation and improving  
opportunities for alternative, therapeutic non-polluting forms of  
transportation, like cycling.

Over 80 million people in our country live in areas that the EPA  
admits has unhealthy levels of air pollution, and this is  
unquestionably an underestimate. Boston is one of those areas  
that the EPA has designated as being in non-compliance with air  
pollution standards. The improved bicycle path system envisioned  
by the bicycle bill will be a major move to mitigate the public  
health threat caused by automobile emissions.

The attached outlines the contribution of the combustion engine  
to air pollution and human disease.





Regional Office:  
11 Garden Street  
Cambridge, MA 02138  
617-497-7440

## THE CONTRIBUTION OF THE COMBUSTION ENGINE TO AIR POLLUTION AND HUMAN DISEASE

The combustion engine burns a complex mix of hydrocarbons, and in the process of creating usable energy, creates several chemical compounds which not only damage the global ecosystem, but which are well recognized human poisons. These chemicals in very small amounts are relatively harmless, but in the amounts currently extant in our environment are associated with serious health problems around the country. While the last word is surely yet to be spoken on the degree of damage, there is no question that living in a polluted environment constitutes a significant risk factor for a number of serious diseases.

When sunlight comes in contact with the mixture of HC and NOx, a photochemical reaction occurs resulting in the creation of ozone (O<sub>3</sub>). This ozone stays in the troposphere, or layer of atmosphere closest to the earth. Here it is a poison. In the stratosphere, a level of atmosphere very high above the earth surface, ozone is a benefit, because at this level it absorbs solar radiation, and protects the earth's surface from the harmful effects of ultraviolet radiation. NASA tells us the stratosphere is where the ozone is thinning at an unexpectedly rapid rate. This is one of the reasons we are now seeing evidence of global warming (1991 was the second warmest year on record, after 1990; three of the previous five warmest years were in the last decade). Another reason we are seeing global warming is the increasing amounts of CO<sub>2</sub> in the atmosphere. CO<sub>2</sub> is very effective at absorbing infrared radiation, adding to the process of global warming.

About 700 million tons of CO are generated in the atmosphere from a variety of sources every year by humans. In the United States, about 67% of the CO formed is from transportation sources. When CO is breathed in (inhaled) by humans, it binds to hemoglobin to form a compound called carboxyhemoglobin (COHb). The relation between the level of CO in the air and the level of COHb in the blood is very complex. As the levels of COHb increase in the blood, the hemoglobin loses its ability to carry oxygen to the rest of the body. One common way doctors look to see if the heart is getting a good enough supply of oxygen is to do an exercise test. This test is very important in deciding on the likelihood of a patient having a heart attack. Scientists have shown that increasing the ambient CO levels to the highest levels obtained in the Boston area makes people do significantly worse on the exercise tests, causing them to have more chest pain, serious changes in their electrocardiograms, less ability of their heart to work as a pump, and abnormal heart rhythms. This suggests that living in areas with a lot of traffic would increase the likelihood of having a heart attack. Researchers have actually shown that people who work in traffic tunnels, who have a lot of exposure to exhaust, do tend to have more heart attacks than people who work on bridges, who have less exposure to exhaust. Here, AS WITH EVERYTHING IN SCIENCE, the last word



has not been heard. But we can say confidently that we have every reason to believe that regular exposure to high levels of car exhaust increases the chance of having a heart attack, especially if someone already has a heart condition.

Tropospheric (low altitude) ozone is one of the most pervasive and dangerous air pollutants. As we said, it is formed when exhaust reacts with sunlight. The government has decided that 120 parts per billion (ppb) is an acceptable level of ozone. The EPA is required to reevaluate this standard every five years as more scientific data is obtained. They have not done this since 1985, and is violating Federal law in the process. The American Lung Association has joined a law suit to try to force them to follow the law. The effects of ozone are now very well understood. Much of the experimental work has been done on animals. There is clear evidence in animals of lung damage that can be seen under the microscope, but no one has done this on people (because you can't just take somebody's lung out to look at it under the microscope). In the animals exposed to levels comparable to those commonly seen in Boston, there was evidence of inflammation (one of the body's reactions to damage) and scarring. The blood vessels in the lungs leak more than they should, and the lungs have a very decreased ability to clean foreign materials out the way they normally do. This is very important in fighting off infection and getting soot particles out. Ozone also causes alterations in the structure and function of cells that fight off lung infections like pneumonia. Animals exposed to ozone and infections are more likely to get sick and die than if they were exposed to just the infection.

An equally impressive amount of work has been done on humans. Two classes of people may be especially effected by ozone: asthmatics and people who exercise regularly outside. Symptoms that occur at levels of 120 ppb and below include cough, shortness of breath, pain on deep inspiration; higher levels cause headache, throat irritation chest tightness and pain, wheezing, lassitude, and nausea. Doctors use lung function tests (PFTs) to determine, among other things how well the lung is able to take air in and blow it out. PFTs gradually get worse as anyone gets older, and they commonly get worse faster if someone smokes. The worse someone's PFTs are, the more likely they are to have coughing, wheezing, shortness of breath, and trouble breathing at night. There is increasing evidence that the worse one's PFTs are the more likely they are to die of emphysema, heart disease, or any disease for that matter. Scientist have shown beyond any reasonable doubt that ozone worsens PFTs in adults and in children. Some of the most useful information has come from just testing normal children while playing outside in the summer. These children have significantly worse PFTs on days when the ozone levels are high, even if the ozone levels only got up to about 78 ppb, well within the "legal" limit of 120 ppb. The same is true for normal adults exercising in air that has ozone levels of "only" 80 ppb. Peak ozone levels in Massachusetts are COMMONLY between 100 and 140 ppb. The status quo is a travesty on this issue. Not only do high ozone levels



worsen the lung function of people who are exercising, the effects on people who are exercising outdoors are greater than those who are not exercising. Ozone has been shown to decrease the athletic performance of everyone from casual exercisers to serious competitive athletes.

Not only does ozone cause short term impairment in lung function, but there is increasing evidence that the scarring in lungs seen under the microscope in animals is reflected in permanent damage to adult lungs. A series of studies looked at the PFTs of people living in three cities with very different levels of ozone. They found that the more ozone the people were exposed to on a chronic basis, the more permanent impairment of PFTs could be seen.

The evidence is increasing that air pollution due to automobile exhaust is a cause of cancer. The individual chemicals in exhaust have long been known to alter chromosomes and cause changes that are consistent with cancer in the laboratory. The question has been whether these chemicals are at high enough levels in the air in cities with a lot of air pollution due to traffic to cause the cancer rates to increase. Some studies seem to indicate that this is the case. Many studies have been done to see if people who work all day with diesel truck have higher cancer rates. These studies include garage mechanics and truck drivers. It seems the risk of lung cancer in these occupations is about 20 - 89% higher than expected, and about 240% higher in those persons who had very high levels of exposure. Traffic policemen have a very high exposure to auto exhaust. One study showed that they have more abnormal changes in their chromosomes (something often seen in someone with cancer). However, one does not need to have a job with a very high risk like garage mechanic or traffic policeman to have an apparent elevation of cancer risk. People in Hamburg, Germany who live on streets with a lot of traffic (more than 30,000 cars a day) have a 34% greater chance of getting lung cancer than people in the rest of the city. A different study found that children who lived on streets with more than 500 cars a day had 70% more cancer and 200% more leukemia. If they increased the cutoff to 10,000 vehicles per day, the risk of cancer was 300% and the risk of leukemia was 470%. The last word is yet to be written, but as one of the experts in the field has been quoted "Chemical, physical and biological data unite to form a constellation that strongly implicates the atmosphere as one dominant factor in the pathogenesis of lung cancer." Even the MKSAP, a publication of the American College of Physicians, states that current evidence supports a role for air pollution as a significant cause of lung cancer.

The medical literature is replete with examples of elevated death rates during periods of increased air pollution. In 1985 a smog period of 5 days occurred in West Germany that was associated with an 6% increase in the death rate. It has been shown that the frequency with which people with emphysema go to the emergency room increases when the level of CO in the air increases. The death rate due to pneumonia, COPD, and heart



disease increases 7% in Philadelphia every time the NO2 levels go up a certain amount. Mortality in Los Angeles county increase when the levels of oxidants (a measure that includes ozone), NO2, and CO increase. In fact, recent studies show that 1600 people in southern California die every year just due to air pollution.

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Consent Communication #1

W- 138

Comms. received from various residents  
regarding the proposed bicycle lane on  
Massachusetts Avenue.

In City Council September 12, 1994

*Placed on file*