

TRI-STATE TRANSPORTATION CAMPAIGN



Mobilizing the Region

Citizens Action Plan

THE TRI-STATE TRANSPORTATION CAMPAIGN

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**The Tri-State Transportation Campaign's
CITIZENS ACTION PLAN**

**A 21st Century Transportation System
A Vision of Our Region's Land, Cities and Communities**

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Chapter 1 / Introduction and Executive Summary

Transportation. It affects so much of our lives. More and more, it has come to shape our lives, and to dictate to us: How we get to work in the morning and whether we're on time. Whether we're out of work because we don't have a car and can't get to jobs that left our cities and moved to office parks in the suburbs. Whether traffic tie-ups have led us to cut down on visiting friends and family. Why reliable and efficient rail can't move goods now shipped by truck. Whether the day-care center will close before the traffic jam ends. How our teenagers will get to and from their after-school activities or part-time jobs. Whether our aging relatives can get to the grocery store, the pharmacy and the doctor.

Transportation should serve us, not limit us. Our future on many fronts — clean air, an educated workforce, a competitive marketplace, land preservation and opportunities for recreation, national energy independence — is slipping away. Our unsatisfactory transportation choices are partly to blame. If we do not begin to shape our transportation destiny differently, things will get worse.

The Tri-State Transportation Campaign thinks we deserve better in our 32-county, three-state region. We envision a region in which lack of an automobile will limit no one's opportunities, in which city and town centers thrive and open spaces remain intact, in which those who choose to walk or bicycle to their destinations will find safe and pleasant routes, where the air is fit to breathe and businesses and individuals are not taxed daily by congestion and system failure. Our aim is an environmentally sound, economically efficient, and equitable transportation system.

The Tri-State Transportation Campaign aims to mobilize the region to demand change. Together, in the next three to five years, citizens in the New York/New Jersey/Connecticut tri-state region have the power to begin restructuring transportation policy, infrastructure and choices. The Campaign will employ constituency-building, technical analysis and legal advocacy to begin turning around seventy years of excessive road-building, loss of open space, suburban sprawl and urban decay.

Two new federal laws have helped throw open this window of opportunity. The Clean Air Act Amendments of 1990 require an unprecedented cleanup of our dirty air, to be completed by 2007. Because of air pollution's ongoing damage to public health, with frightening increases in asthma and other lung disease, the law stipulates year-by-year deadlines, with stiff penalties for non-compliance. Similarly, the revamped highway funding law, known as ISTEA (the Intermodal

Surface Transportation Efficiency Act of 1991), gives states and localities the power to decide how to invest federal transportation dollars. Public involvement in guiding these expenditures — \$20 billion in our region between now and 1997 — could pay enormous dividends in economic efficiency, social justice and quality of life.

The Tri-State Region

The Tri-State Transportation Campaign defines the greater New York metropolitan region in its most expansive form — 32 counties stretching from Ocean County, NJ in the south, to Hunterdon and Warren Counties, NJ in the west, Sullivan and Ulster Counties, NY in the northwest, and Litchfield and Hartford Counties, CT in the Northeast (see map, next page). At times in this Plan, statistics are given for slightly different regional configurations, due to data limitations.

What will the future of transportation look like physically? If we succeed in capping and reducing vehicular travel, we won't need to expand highways. Instead, we can create a much more varied transportation system. One with new and better transit options for suburbs as well as central cities. New and improved inter-suburban and reverse-commute rail. Bus and van routes with frequent, reliable service in low-density areas. More ferries. A regional transit fare card. Instant access to transit and traffic information by telephone, television or computer. Communities with town centers and conveniences that won't require separate auto trips to reach child care, dry cleaning and food shopping.

There's more. Extensive and frequent subway and light rail service throughout our core. Rail freight to carry many more goods. Rail access to our airports. No more vast parking lots for development and employment centers. Developers to have strong incentives, and in some cases requirements, to provide access by transit. Lanes set aside for safe passage of bicyclists, space to

reductions on the most congested roads during crowded times. We have charted a course to prevent further sprawl and thus induced driving. We have mapped out a plan for our state and local transportation and transit agencies to work together to make regional train, bus and transit transfers and fares as easy to negotiate as highway ramps.

To initiate the process, we have included in Chapter 7 dozens of actions that could and should be taken in the coming year by each of the major stakeholders — state legislatures and governors, business and employers, land developers and motorists, and the region's transportation agencies.

**Five Premises to Guide Transportation Policy in the NY/NJ/CT Region
The Tri-State Transportation Campaign Believes:**

1. People don't necessarily wish to drive all the time, and will gladly use other ways to get around if they are safe, comfortable, convenient, attractive and affordable.
2. People are willing to pay to eliminate smog, congestion and other harms created by driving, provided the costs are borne equitably and the monies are invested soundly and honestly in improving transportation and protecting the environment.
3. People want a transportation system that unifies, rather than divides our region, that ensures fair and equal access to transportation resources, and that includes all of its residents as an integral part of the planning process.
4. People want to preserve open land and concentrate development in already developed areas, and are willing to accept reasonable controls on land use to make this happen.
5. People want their transportation agencies to adapt to, indeed, anticipate changes in people's travel needs and social circumstances rather than reflexively plan and spend the same way year after year.

How much will the transportation future cost? It depends upon what projects are undertaken, how ambitiously they are pursued and how they are financed. We have assumed higher motor vehicle user fees, but these will be phased in gradually and invested to make transportation work better for more people, get more people to more jobs, and save time now lost to traffic jams. By giving people ways to travel other than in single-occupant automobiles, our region will reap savings in gas, car insurance and upkeep, and will be able to cut real

estate, sales and income taxes that now support vehicle use and hinder the region's economic development. A strong and expanded transportation system will also allow government to shrink its outlays for health care, unemployment and welfare, energy inefficiency and highway expansions. Our groups are committed to working as watchdogs to make sure that precious transportation funds are spent effectively, and without waste or corruption.

Outlining steps toward our goal makes more sense than attempting to chart the entire journey in detail. New opportunities will arise. Technological breakthroughs and hold-ups will change priorities. Compromises are inevitable. Still, the premises highlighted on this page underlie our approach. We think they make a realistic and fair framework for sound transportation policy.

We believe that you, the reader, share our goals. With your help, we can create a transportation system that will serve people better, strengthen our communities, enhance our livelihoods and protect our environment. Please read on. Please join us.

Chapter 2 / What Needs Fixing

A. Economic Damage from Our Transportation System

Increasing Automobile Use Jams Our Roads

Traveling around our region has become a nightmare. Roads are jammed day and night. Half our bridges are in disrepair, and two have actually collapsed in recent years, one in Connecticut and another in upstate New York. Rail service, although improving, doesn't serve the millions in New York City who shun the subways and the millions more who live and work where the subways and commuter trains don't go. There is no direct train service to our airports, and trucks clog our streets. Open space in our suburbs is being gobbled up indiscriminantly, and many communities are becoming indistinguishable exits off superhighways. Increasingly, the weekday drive to work or the weekend trip to the mall, the beach or the country is a struggle against too many drivers trying to get to the same places at the same time.

Why then do so many people insist on driving? Because for all their drawbacks, cars have several powerful advantages. The car is private and immediately available. It usually doesn't require people to walk long distances and seems safe. Overall, except in very high-congestion areas, many people find the car more comfortable, more convenient and faster than buses or trains.

Yet more than individual choice has wrought the ascendancy of the automobile. Over the past 70 years, while lavishing vast resources on our road system, we allowed our public transit system to atrophy. The latticework of trolleys, subways and trains that once criss-crossed our cities and towns with frequent, fast service, was replaced by a huge network of highways. The suburban home and a two-car garage became the American dream and a driving force behind the world's greatest economy.

This worked for a while — perhaps too well. Today there are many more drivers, due to growth in population, an increased share of people of driving age and a larger labor force, particularly as more women have taken jobs outside the home. More importantly, both population and job growth have gone to places where most people are dependent on driving. In suburban Connecti-

cut, New Jersey and New York, 80-90% of all work trips are by car, and 80-90% of these are made in single-occupant (driver only) vehicles. Other trips — recreation, shopping, personal business — are even more car-intensive; no wonder our roads have become so congested, even on Saturdays and Sundays.

As settlement patterns — home, workplace and stores — have become more dispersed, more cars are driven, and each is driven further. In response, our transportation agencies have built many more roads — almost 300 route-miles of limited-access highways from 1970 to 1990 alone.¹ Yet these roads induced more driving; in the entire tri-state region, vehicle miles traveled (VMT) grew 60% in the same period.² It has become painfully clear that our region cannot build its way out of congestion without becoming a second Los Angeles. Indeed, if all the roads already built in our region were laid end to end, they would stretch from here to California and back a dozen times.

Dependence On Cars and Trucks Hurts Our Economy

The sheer volume of auto and truck travel has created its own huge costs — pollution, congestion and stress, reduced competitiveness due to increased shipping time, and lost person-hours owing to traffic and infrastructure damage. In this report, we have divided costs created by driving into three types: motorists' direct out-of-pocket costs for gas, depreciation and insurance; taxpayer costs to finance road building and maintenance; and indirect or social costs like time lost in traffic and lung damage from air pollution. All three categories are large and are growing, and all three are damaging our economy.

First, the care and feeding of motor vehicles absorbs huge amounts of money — an average of \$3,600 annually per car.³ The big expense isn't gasoline; with cheap oil and more efficient autos, the average car on the road now goes 18 miles on a dollar's worth of gas, further than at anytime in history.⁴ It's depreciation, insurance, parking and upkeep. With families increasingly needing two or even three cars, auto ownership is straining budgets and leaving less money to spend on other goods and services.

While car ownership is often viewed as a sign of wealth, the spread of automobiles has also narrowed options. Our crowded cities and suburbs and the

aging highways linking them are ill-equipped to handle this veritable explosion in motor vehicle use. Some of the costs of congestion can be quantified, and the figures are staggering: traffic tie-ups waste an estimated 1.5 billion hours of motorists' time each year in the metropolitan region, at an annual cost of \$15 billion.⁵ These figures are enough to give pause to any business in search of a plant or office site.

| New York State Annual Motor Vehicle Revenue And Expenditures | | | |
|--|----------------|---------------------|--------------------|
| Circa 1991, in millions | | | |
| <i>(right column denotes extent of subsidization of drivers by taxpayers)</i> | | | |
| | Revenue | Expenditures | Net Subsidy |
| Localities | \$864 | \$3,015 | \$2,151 |
| <i>New York City</i> | \$658 | \$1,018 | \$360 |
| <i>Other Localities</i> | \$207 | \$1,997 | \$1,791 |
| State | \$1,555 | \$2,216 | \$660 |
| Public Authorities | \$1,264 | \$903 | (\$362) |
| Federal | \$855 | \$805 | (\$49) |
| Total | \$4,538 | \$6,938 | \$2,400 |
| Note: Using 1992 figures for Petroleum Business Tax collections would increase State revenue collections from motorists by \$383 million, raising total revenue to \$4,921 million and reducing net subsidy to \$2,018 million. Parentheses denote negative numbers. Source: KEA. ⁶ | | | |

A second category of vehicle-related costs is taxes to build, maintain and administer highways. Notwithstanding monies that motorists pay in gasoline taxes, tolls and parking tickets, as well as in the less visible Petroleum Business Tax and various trucking and taxi usage fees, the public sector collects considerably less money from drivers than it spends on roads. After exhaustive analysis of government books, the Campaign has concluded that public agencies in New York State spend roughly \$7 billion annually on roads, while taking in only \$4½-\$5 billion from motorists. This amounts to a net subsidy to drivers from taxpayers of \$2 billion or more a year (see table).

While these figures pertain to New York State and not our 32-county tri-state region, it is a reasonable assumption that taxpayer subsidies in the region in Connecticut and New Jersey are roughly equal to those in New York outside the region. Accordingly, \$2 billion seems a fair estimate of the regionwide subsidy to drivers by taxpayers. These dollars come from levies on income, property and sales and are disbursed largely from state and local governments' general funds. Indeed, the table suggests that the lion's share of taxpayer subsidies to motorists in New York State is at the local level. Cities, counties and towns spend approximately \$3 billion a year building, maintaining and managing roads while collecting less than \$1 billion in user fees.

Finally, cars and trucks impose social costs, ranging from the health effects of air pollution to the psychological effects of car noise, from time lost in traffic to land lost to highways. The Campaign estimates that these costs amount to at least \$55 billion a year in our region, or more than \$5,000 per vehicle per year (see table, p. 25). In the political arena, many of these costs have come to be thought of as environmental or pollution-related, or otherwise concerned with quality of life, rather than pocketbook issues. This distinction is somewhat arbitrary; lung disease, gridlock and car crashes cost money, lots of it. And some of the precious things car-centered transportation has taken away from us — senior citizens' freedom to travel, a play street free of hurtling vehicles, a glittering sky — can't be quantified at all.

Freight Movement is Too Truck-Dependent

Our region must move freight — 2 million tons per day pass to and through the tri-state region. Rail freight once carried the lion's share of goods into, out of and through the region. But with the decentralization of warehousing, the decline of manufacturing in the region and expansion of the highway network, rail's share of goods movement has dwindled to the point where over 90% of all freight in the region that crosses the Hudson River moves by truck. By comparison, in the rest of the United States, less than half of overland freight is carried by truck.⁷ In our region as a whole, trucks account for one-eighth of vehicle miles traveled, but for around 35% of ton-miles,⁸ making them responsible for at least one-quarter of the total harm from motor vehicles, since pollution, noise, accidents, and burden on roadways increase with vehicle weight.

One legally loaded, 80,000 lb. tractor trailer wears out pavement five thousand times faster than the average car.⁹

Our reliance on trucks reduces the reliability of freight movement and adds to the cost of doing business, since trucks get stuck in the same congested traffic as everyone else. Making matters worse, safety and pavement considerations restrict trucks to roads that are already jammed, such as the Gowanus Expressway, the Connecticut Turnpike, and New Jersey Routes 1 and 130, further increasing congestion and the cost of moving freight.

Although the freight rail system is in better shape than it was twenty years ago, it is still underutilized, and some key trackage and rail yards are disappearing. In the New Jersey portion of the region, some 178 miles of rail freight lines were abandoned from 1976 to 1984 alone.¹⁰ Federal, state and local investment have restored some of New Jersey's rail freight track since then, but a lack of funds now threatens the state's shortline railroads.

The Workforce Has Begun to Reflect Our Mobility "Divide"

Vast additions to highway capacity in the region in the 50's, 60's and 70's have added to the apparent mobility of many households, particularly those with automobiles in suburban locations. But increased dependence on cars, in tandem with car-dependent land development, has restricted mobility for many, most of whom fall into two broad categories: (1) people who have remained in cities but, due to lack of an automobile, cannot reach employment, education and recreation opportunities that have moved from urban centers and are no longer accessible by transit, and (2) people who live in the suburbs, but who do not drive and are therefore dependent on a substandard suburban mass transit system.

| Tri-State Region: Households without Cars | |
|--|-----|
| All 32 Counties | 29% |
| New York City | 56% |
| 6 Urban Counties | 53% |
| 26 Suburban Counties | 10% |

6 Urban Counties are New York (Manhattan), Kings (Brooklyn), Bronx, Queens, Essex (NJ), Hudson (NJ). Source: 1990 census data compiled by Regional Plan Association, as calculated by Komanoff Energy Associates.

An indirect result of the shift to automobile transportation is a region with increasing ethnic, economic and geographic segregation and a widening income, access and employment opportunity gap between those with cars and those without. This is because a disproportionate number of non-drivers are people of color, people with disabilities, the economically disadvantaged and/or the young or elderly. This “divide” has enormous consequences for our businesses, our work force and our economic well-being.

Our Transit System is Second-Rate

For much of this century, our region grew up around the subway system in New York City and commuter rail lines in Long Island, Connecticut, Westchester and New Jersey. Half of all trips in the United States using public transit are still made in our region. Recently, however, businesses and households have dispersed beyond our city centers, creating the economic harms described above. Transit, broadly defined, can play a key role in fostering economic competitiveness, anchoring land use to stop further sprawl, and curbing congestion and air pollution by providing people with alternatives to driving.

Much has been done to improve transit here over the last ten years; in Chapter 4 we outline a series of further improvements necessary for transit’s expanded role. Yet public transportation remains hobbled by problems and shortcomings, which we summarize below.

The Subway System

The largest component of the region’s public transit network is the subway system. Subways reach throughout Manhattan and much of Brooklyn, Queens and the Bronx, and carry New Jersey commuters across the Hudson (via PATH) and service part of Newark’s central business district. New York City’s system alone carries 3.5 million riders per weekday, and is the transportation mainstay for the city’s 1.6 million families without cars. After many years of neglect, the subways have benefitted from a multi-billion dollar investment program that has increased reliability and safety. Derailments, fires, stuck doors, and graffiti have been largely eliminated, and thousands of new and rehabilitated vehicles have been purchased.

But New York's system is stagnating — except for the 63rd Street tunnel in Manhattan, no major lines or connectors have been built for 50 years. Ridership has declined by half from its peak of 2 billion a year in 1948. Yet several busy lines are chronically overcrowded, and some rush-hour service has been cut. Travel between and within boroughs other than Manhattan is slow and cumbersome; the subways are completely focused on the city's central business district — all lines but one enter Manhattan.

The region's subways do not reach any of the three airports. Use of the subway is hindered by lack of free transfers from the feeder bus systems, the maddening lack of connections between PATH and New York City's system, and incomplete fare and schedule integration with other transit lines and ferry services. Though subway crime in New York has declined, many passengers feel unsafe and uncomfortable, and the widespread perception of danger discourages ridership.

The Commuter Rail Network

The commuter rail network of the Long Island Rail Road (LIRR), Metro-North and New Jersey Transit is a tremendous asset for people living in the suburbs and working in many of our urban centers (see map, p. 13). For example, four-fifths of Connecticut's Manhattan-bound commuters use Metro-North's New Haven line.¹¹ But the network is inefficient, and hence little used, for travel from the core to the suburbs, from one suburb to another or from one part of the region to another. With the rapid rise in suburb-to-suburb travel, this deficiency has become glaring.

Despite efforts to treat riders as customers — people with other travel options — the commuter rail system still doesn't qualify as user-friendly. Where motorists enjoy an interconnected network of highways and local streets, transit users traveling about the region face a bewildering array of price, service and information hurdles. The three systems operate independently, making it impossible to get from suburbs in one area to suburbs in another without considerable inconvenience, uncertainty and extra transfer costs. Even many riders bound for Manhattan must transfer to a subway, bus or taxi or make a long walk, unless they work close to Penn Station or Grand Central.¹²

Then there's the morning trip to the train station. In Europe and Japan, most commuters walk, bike or bus. In our suburbs, almost everyone drives to the station, since most homes are beyond walking distance, cycling means braving traffic and bike theft, and low densities often can't support conventional feeder bus services that would be convenient enough to be used widely. Driving to the train is a surprisingly big source of pollution (short trips pollute far more per mile¹³), while a lack of station parking keeps some would-be riders from using the train altogether. Rail commuters going to suburbs find that most suburban job sites are located beyond a walk from the stations, forcing a choice between costly taxi service and limited local bus service, creating another incentive to drive for the whole trip. Only rarely is there connecting and convenient van or jitney service.

The Region's Bus Network

Our region is also served by an extensive *express bus* network that fills gaps where neither the railroads nor the subways effectively serve commuters to Manhattan. In New Jersey, express bus service into the Lincoln Tunnel carries 60,000 morning commuters, mostly where the rail network is either non-existent, such as in northern Hudson County, southern and eastern Bergen County, and along the Route 9 corridor in central New Jersey, or along corridors where the rail network is oriented to Hoboken.¹⁴

East of the Hudson, express buses largely originate in outer portions of the four "outer boroughs"; these services, operated by both private carriers and the New York City Transit Authority, arose two decades ago as a convenient and more secure alternative to the bus-subway combination in two-fare zone areas. The downside is that express buses pollute and congest local streets, particularly in Manhattan, and also draw passengers from the Transit Authority's subway and bus lines, hurting the Authority's bottom line. Commuter express bus service also serves regional hubs such as Newark, and across the Tappan Zee Bridge to White Plains.

The region's *local bus* network must serve a multitude of purposes. In urban areas it fills many of the gaps for shorter trips and provides feeder service to the subways and trains. But buses are slowed by traffic as well as frequent

stops to pick up passengers. Preferential measures, such as exclusive bus lanes, are limited and not always enforced. Moreover, rising car ownership, jitney vans that offer more frequent, personalized and cheaper feeder service to subways, and service cuts have led to a precipitous decline in use — 42% from 1970 to 1992,¹⁵ which in turn makes it harder to stave off further service cuts. Over time, declining transit service makes car ownership a necessity for many, cutting even further into ridership.

In the suburbs, local buses are a lifeline for the 20% of suburban residents 12 years and older who do not use automobiles because they are disabled, too young, too old, too poor or too environmentally-minded to own an automobile. But low densities limit the extent and level of service of the bus network. Most of those with automobiles think of the bus as “downscale” and irrelevant to them. In much of the region buses fail to meet the need for suburban public transportation, isolating many people from services.

Inadequate Maintenance Undermines the Transportation System

Because of past neglect, much of our transportation system has fallen into disrepair, necessitating huge expenditures to replace worn-out roads, tracks and other equipment. Skimping on maintenance now means excessive spending later; a Cooper Union-NYCDOT study found that each dollar’s worth of highway maintenance deferred eventually requires five dollars in capital replacement.¹⁶

Transit funding is highly uncertain, leaving systems functioning hand-to-mouth. In New York, the mass transit system depends for capital appropriations on the legislative budgetary process, where it must vie with competing (and compelling) priorities such as housing, education and health care. Until recently, funds were allocated only annually, making it difficult to plan major system reconstruction and repair.

B. Environmental Damage from Our Transportation System

Suburban Sprawl Eats Away at Land and Open Space

Highway expansion and decentralization of jobs, shopping and housing — two ongoing and mutually reinforcing trends — are consuming land and open space at a terrifying rate. The automobile has opened up for development land previously inaccessible, making possible construction of low-density housing and isolated office buildings. In Connecticut, three of four new non-agricultural jobs have been located in the suburbs since 1950.¹⁷ Even many suburban residents on a day's outing must journey far from their communities to find rural ambience and open space. In the 32 counties in the region, the percentage of land classified as open space has declined by half in just 40 years. At this rate, every acre in the region will have been built on by the year 2040 — when children being born today will only be in their mid-40s.

Remaining natural areas are constantly under threat of development. Zoning codes promote suburban sprawl by restricting development near local centers or transit nodes, imposing larger than necessary minimum acreage requirements for residential lots, and discouraging development of multi-family dwellings. The race to acquire tax ratables to fund continuously expanding local budgets has also spurred sprawling office park and mall development. This in turn leads to further erosion of open space as roads, shops, housing and other amenities follow this new development. A growing number of highway commercial strips have contributed inordinately to both loss of community character and traffic congestion.

Tri-State Region: Our Diminishing Open Space

| | |
|------|-----|
| 1954 | 77% |
| 1970 | 62% |
| 1985 | 48% |
| 1993 | 41% |
| 2007 | ??? |

Percentages denote land classified as undeveloped or public open space in the 32 counties. Source: Regional Plan Association, "Where the Pavement Ends," in *The Open Space Imperative*, 1987, except figure for 1993, which is extrapolation from 1954-85 rate.

Air Pollution From Cars and Trucks Is Killing Us

Every day, millions of people throughout the tri-state region breathe unhealthy air. By many measures our region has the second-worst air in the country, second only to Los Angeles. The U.S. Environmental Protection Agency has designated most of our region a "severe" non-attainment area for ozone (only Los Angeles carries the more "extreme" designation),¹⁸ a "moderate" non-attainment area for carbon monoxide (again, only Los Angeles outranks us), and has reported that it will shortly redesignate Manhattan as a non-attainment area for fine particulate matter, or soot.¹⁹

The predominant source of our air pollution is the internal combustion engines of our cars, trucks and buses. No other pollution source comes close. Every year, the average automobile (travelling 10,000 miles) emits into the air about 650 pounds of carbon monoxide, 105 pounds of hydrocarbons (or VOCs), 50 pounds of nitrogen oxides (NOx), and 12 pounds of particulates.²⁰ Considering that over 11 million motor vehicles are registered in the 32-county tri-state region, that adds up to an astounding amount of air pollution.

Motor vehicles are responsible for close to half of the chemicals that combine to form ground-level ozone and up to 90% of the region's carbon monoxide,²¹ and are the major source of air toxics, a class of pollutants just beginning to be regulated. Ozone, acid rain and particles from tailpipes kill trees, poison lakes and forests, corrode buildings and monuments, dump algae-inducing nitrogen into estuaries, and cut down on the clarity of the air, even on crisp fall days.

The greatest harm from vehicular emissions falls on people, especially children and the elderly. But more than the young and the old are affected; individuals at risk of developing respiratory distress when exposed to ozone smog include otherwise healthy people who exercise outdoors and those with ordinary allergies, chronic bronchitis and emphysema. Allergens are well-known triggers of asthma, and there is increasing evidence that even low ozone concentrations increase vulnerability to allergens in asthmatic people.²²

Vehicle Pollutants — How They Harm Our Health

Ozone is an irritating gas, formed by the action of sunlight on hydrocarbons and nitrogen oxides — pollutants released in great quantities by cars and trucks. Sunlight transforms these pollutants into the potent health threat known as photochemical smog, of which ozone is the chief component.

High levels of ozone make breathing difficult during exercise and also damage cells in the lining of the lungs. Most susceptible are children, the elderly, people with respiratory problems, and people who exercise heavily. Toughening the federal ozone standard has become a widely-heard demand; in June 1993, the American Academy of Pediatrics stated that the current standard allows "little or no margin of safety for children engaged in active outdoor activity."

Carbon Monoxide (CO) is a highly poisonous, colorless, odorless gas produced by the incomplete combustion of organic matter, including fossil fuels like gasoline and diesel fuel. Nearly 90% of all CO emissions come from motor vehicles.

Carbon monoxide attaches to blood hemoglobin and prevents oxygen from reaching body tissues. The hazard of reduced oxygen flow is most acute for people who suffer from angina, chronic lung disease, or anemia, and for pregnant women and their unborn children.

Particles/Particulate Matter (soot) refer to substances that exist as small particles in the atmosphere. Particulates less than 10 microns (roughly 1/2,500 of an inch) in diameter (known as PM-10) are small enough to elude the body's respiratory defense mechanisms and be readily deposited deep into the lungs. Diesel exhaust contains large quantities of tiny carbon-based particles of this size, onto which are adsorbed toxic substances which are known to be capable of causing cancer and birth defects.

Studies of hospital admissions for asthma and other respiratory diseases and mortality rates in Seattle, Philadelphia, Ohio, and Utah have shown that hospital admissions and deaths increase when daily particulate levels rise. U.S. EPA, the Harvard School of Public Health and others suggest that excessive levels of fine particulate matter cause 70,000 deaths in the United States each year.

Pedestrians and bicyclists are disproportionately exposed to particulates from diesel exhaust because of where they are emitted — out of tailpipes, directly at breathing level, and in narrow street canyons that trap pollutants. Yet the New York City Transit Authority has committed over \$300 million to purchase as many as 1,500 new diesel-fueled buses over the next four years.

The incidence of asthma is on the rise. Asthma is now the most common chronic disease of childhood and the leading cause of days lost from school, resulting in over 200,000 hospital admissions and more than 12 million contacts with doctors nationwide each year. African-American children suffer more severe asthma attacks than their white counterparts and are hospitalized

more frequently.²³ The asthma death rate in 1989 (the last year for which figures are available) was nearly twice that in 1979, with the most rapid rate of increase — an average of about 10% a year — in the under-five age group.

The race gap has also been widening. By 1979, African-Americans were twice as likely to die from asthma as whites; by 1989, three times more likely. Today, those most likely to die of asthma are the poor, people of color, the very old and very young, and residents of inner cities, particularly the poorest neighborhoods of Chicago and New York. Asthma death rates in East Harlem, for instance, were nearly 10 times the national average in 1987.²⁴ Exposure to fine particulate matter has also been shown to increase the risk of early death by up to 26 percent.²⁵

While improvements in tailpipe controls and inspection and maintenance requirements have helped reduce the rate of pollution from our cars and trucks, these advances have been significantly offset by the steady increases in miles driven in the region. In New York State alone, travel on state highways has more than doubled in the past 30 years, and some are predicting that travel will double again during the next 35 years.²⁶

Vehicle Noise Adds to Stress

Car and truck traffic also generates a constant din of noise, ranging from the whining of tires on pavement and the roar of engine exhaust, braking and gear-shifting, to the constant annoyance of car horns on congested streets, booming stereos and high-pitched car alarms. Noise erodes not only public civility but also human health and economic well-being through sleep loss, inability to concentrate, reduced productivity and general irritability. A 1981 study for the Federal Highway Administration (FHWA), inferred a per-decibel estimate of the economic cost of highway noise from property value differences between homes located near and far from urban interstates.²⁷ Based on this estimate, the economic loss from noise in our region may be in the range of \$3 billion a year.²⁸

Our Region is Losing Its Edge in Energy-Efficiency

From the mid-'70s to the late '80s, the combined force of improved technology, federal regulations and consumer preference brought about a big increase in automotive fuel economy. This trend has stalled, however, and now, as vehicle miles traveled increase year after year, our region's fossil fuel consumption is rising. Transportation, mostly cars and trucks, used up 31% of total energy in New York State in 1970, but 42% in 1990.²⁹ Motor fuels keep America dependent on foreign oil — the U.S. imports half its oil and over 60% goes to vehicle use. Moreover, every extra tankful of gasoline and diesel fuel contributes indirectly to oil spills, refinery pollution, and habitat and homeland destruction by drilling, and directly to the buildup of atmospheric carbon dioxide that is causing global warming.

C. Social Damage from Our Transportation System

Our Communities Are Disappearing

Throughout our region, car life has overrun and replaced street life. Increasingly, sidewalks, streets and urban space have been carved up to serve the automobile's demand for passage, leaving less for the pedestrian to experience, see or do.³⁰ Along with other social and economic forces — high land and housing costs, racial prejudice, crime and disorder, troubled schools, subsidies for road building and vehicle use, and preferential tax treatment for land development — this diminution of the urban experience has propelled our cities into a downward spiral.

New highways and parking areas have stretched out space between activities until they can no longer be negotiated on foot. Some suburban main streets still function as community centers where residents shop and converse at family-run businesses. An equal number have lost out to a kind of drive-through culture, with isolated office campuses encircled by massive lawns and cookie-cutter shopping malls surrounded by parking lots. This commercial development continues apace, sucking vitality from town and city centers, consuming vast amounts of land, and compounding congestion and traffic danger on suburban arterials.

We Have Disenfranchised Walkers and Bicyclists

Our land use and transportation policies cater to motorists, treating pedestrians and cyclists as non-persons. Sidewalks in many of our towns have been narrowed; many suburban areas have no sidewalks at all — a clear signal that pedestrians don't exist. Zoning rules sequester residential areas away from commercial centers, leaving shops and offices too far to reach on foot, while street patterns force pedestrians into time-consuming circuitous paths. In many suburbs, schoolchildren must use dangerous roadway paths when they are not on buses, or their parents must drive them, occasioning even more auto trips. Those who choose to walk must contend with dense and fast motor traffic, highway medians and limited local street access that make crossing dangerous.

Bicyclists face even tougher conditions, for they must carve out space in the sea of cars. New York City has a mere 1 lane-mile of bike lane or path per 500 arterial lane-miles; areas outside the city make even fewer provisions for cyclists. Where bike lanes do exist, they are frequently too narrow for safe and efficient riding and often fail to link meaningful destinations.

In much of Europe and Asia, everyone cycles — children, adults, seniors. Here, the region's compact geography, generally flat terrain and rich matrix of neighborhoods beckon the cyclist, but danger from traffic, along with a lack of secure bicycle parking and uncertain access to bridges, deters all but the intrepid. A New York City DOT survey found that almost half of Manhattan office workers would consider commuting by bike if provided with safe lanes, parking and wash-up facilities.³¹ Yet daily ridership in the City is only 75,000 — an impressive figure given the circumstances, but a tiny fraction of the potential.³²

Where walking and cycling lose out, so does mass transit. In Europe and Japan, piggybacking rail travel with cycling or walking to neighborhood stations is so convenient that most families limit themselves to one or even no car, guaranteeing a large market for transit. While most transit users in New York City still walk to the subway, our regional suburban rail stations increasingly are ringed by enormous parking lots that practically demand that people drive. In a 1992 survey, one-quarter of LIRR commuters in the Nassau County

north shore village of Oyster Bay who drive to stations said they would bike instead if offered theft-proof bike lockers.³³

Our Transportation System Short-Changes Low-Income Communities and Communities of Color

Poor people and people of color — African-Americans, Latinos, Asian- and Pacific Islander-Americans and Native Americans — are particularly ill-served by the region's transportation system. The region has a history of treating communities of color and low-income communities as thruways for highway and transit projects, rather than places where people live and work, and children play. This pattern is part of the larger phenomenon of *environmental injustice* — the targeting of communities of color for siting environmentally undesirable facilities.

To absorb traffic flow from the West Side Highway, New York City recently turned a mile-long stretch of Riverside Drive in Harlem into a high-speed drive with dividers while shrinking Riverside Park and adjacent sidewalks. Connecticut DOT planned to double the width of Highway I-95 through New Haven by destroying parks and housing in a racially mixed community. Although the plan has been dropped from consideration, it reflects the frequent lack of sensitivity to transportation facility impacts on people of color and the poor.

Similarly, of eight Transit Authority bus depots in Manhattan, seven are located north of 100th Street in Harlem, adding deadly diesel particulate pollution to the air that residents breathe. A mile to the northeast, the Harlem River Rail Yard in the Port Morris section of the South Bronx has been targeted for re-activation into a major rail transportation hub. While this project could benefit the region as a whole by enabling a shift from truck to rail freight, as presently designed by NYSDOT it could *add* 400 truck trips a day to neighborhoods already beset by pollution from a variety of local sources. As yet, no mitigation plans have been included in the \$250 million project.

People of color are less likely to own cars than whites, both because they are concentrated in cities, where it is harder to keep an automobile, and because of income differences. Car ownership mattered less when mass transit was more

efficient and served the vast majority of destinations. Today, many urban dwellers are cut off from employment opportunities by infrequent reverse commuting schedules or spotty transit access to suburban office parks where most of the new jobs are located. Moreover, many inner city wage earners who live far from a subway line pay two (or even three) fares to get to work each morning, one for the bus and another for the subway.

Compounding these hardships are numerous instances of dilapidated and dangerous stations and service cuts, such as the skip-stop service on the Metropolitan Transportation Authority's Numbers 1 and 9 subway lines. During rush hours, every other train skips several stations in Harlem, Washington Heights and Inwood, forcing riders at these stations to wait longer for trains. Residents in these communities believe that transit planners did not adequately balance the needs of communities of color in northern Manhattan against those of largely white communities further north in Riverdale and western Kingsbridge in the Bronx.

Stations too are more likely to be poorly maintained and policed in communities of color, such as stations on the Franklin Avenue shuttle in Brooklyn, left in a dangerous state of disrepair for decades. Night service of trains and buses to communities of color is sporadic. Service changes are frequent, yet riders are rarely informed.

Low-income neighborhoods and communities of color have also borne the brunt of blight, noise and fumes from urban expressways and other transportation infrastructure. In Newark, the last 20 years have seen the construction of two major highways, Interstates 78 and 280, each cutting a concrete swath through residential neighborhoods, displacing thousands of low-income residents and people of color, and dividing communities irreparably. The Gowanus Expressway ripped away the community fabric of much of western Brooklyn in the 1940s and 1950s; now that the Expressway is crumbling from decades of pounding under heavy trucks, New York State's rebuilding plan could dump 60,000 cars and trucks a day onto local streets that are only now recovering economically and socially.

Motor Vehicles Maim and Kill

Each year in the 32-county tri-state area, approximately 1,700 people are killed and thousands more seriously injured in motor vehicle crashes. Six hundred of the fatalities are pedestrians and cyclists, tragic evidence of inadequate infrastructure and governmental indifference to the spatial assertiveness of cars in populous areas. In New York City alone, almost one pedestrian a day is run over and killed, many of them small children mowed down on urban boulevards such as the Grand Concourse in the Bronx and Eastern Parkway in Brooklyn — roads that motorists (and, for the most part, police) treat as high-speed expressways.

Motor Vehicle Fatalities in the Tri-State Region, 1992

| | Motorists | Non-motorists | Total |
|--------------------------|--------------|---------------|--------------|
| Connecticut (4 counties) | 186 | 18 | 224 |
| New Jersey (14 counties) | 262 | 135 | 397 |
| New York (14 counties) | 651 | 416 | 1,067 |
| Total | 1,099 | 589 | 1,688 |

Motorists encompass all vehicle occupants. Non-motorists are pedestrians (93%) and bicyclists (7%).
 Source: CONNDOT, NJDOT, NYDMV data compiled by Komanoff Energy Associates.

While the toll has been declining, largely due to increased use of seat belts and a decline in alcohol-impaired driving, its human consequences are immense, as are the costs, which in our region translate to roughly \$20 billion a year in emergency services, hospitalization and rehabilitation, lost wages and diminished quality of life.³⁴ Indeed, of all types of societal harm from motor vehicles, car crashes appear to be the most costly.

D. Drivers Don't Pay Their Way

As Campaign research has demonstrated, driving imposes large costs on society. The table on the next page summarizes these "hidden" costs, or at least those that can be reasonably quantified, for a 25-county area covering most of the 32-county region addressed by the Tri-State Transportation Campaign.

The \$55 billion total represents the side-effects of motor vehicle use. While drivers themselves absorbed much of these hidden costs in accident costs, delays and so forth, almost half of the overall cost, or \$25 billion, was borne by the public at large, as the health costs of air pollution, non-motorist injuries from car crashes, land occupied by roads, etc. (This is in addition to the \$2 billion in annual taxpayer subsidies that support motor vehicle use in the tri-state region, discussed at p. 8). If the \$25 billion in hidden costs borne by the public are spread evenly over the miles driven by cars and trucks, the result is an average cost to society of around 25¢ per mile driven.

These figures are not mere numbers. They demonstrate that not all of the cost of motor vehicles is borne by individual drivers — the public pays as well. This not only penalizes non-drivers; it leads us collectively to drive more than makes sense for our region's economy and environment. In Chapter 5, Section C, we discuss how a program to offset these subsidies through roadway pricing measures could cut down on the harms from driving, finance better transportation and enable governments in the region to reduce general taxes.

| "Hidden" Costs of Roadway Transport In Tri-State Region (25 counties) | |
|--|---------------------|
| (billions of 1990 dollars, per year) | |
| Accidents | \$20.8 |
| Congestion | \$14.8 |
| Air Pollution | \$ 6.0 |
| Land | \$ 4.9 |
| Noise | \$ 3.0 |
| Other | \$ 5.4 |
| Total | \$55 billion |
| <i>Approximate Share of Costs Borne by General Public</i> | |
| | \$25 billion |
| Total Miles Driven | 102 billion |
| Cost per Vehicle-Mile | \$0.54 |
| <i>Public's Cost/Veh-Mile</i> | \$0.25 |
| <small>Source: Ketcham-Komanoff, <i>Win-Win Transportation</i>, op. cit. The seven "Campaign" counties excluded from the analysis are Hartford (CT), Sussex, Warren, Mercer and Ocean (NJ), and Sullivan and Ulster (NY). "Other" costs include vibration damage to buildings and roadways from heavy trucks, military costs to safeguard oil supplies, climate change costs, etc.</small> | |

E. Transportation Agencies Are Failing Us

Transportation Agencies Don't Plan Together

Our transportation needs are region-wide and multi-modal. People and businesses travel and operate from one end of the region to another, frequently mixing individually driven cars and trucks with publicly operated bus and rail transportation. However, transportation providers in the three states do not co-ordinate planning. The highway agencies do not work with the transit agencies to see where improving or expanding transit rather than highways might better meet travel needs. This lack of communication, coupled with a strong bias towards highway building, has kept regional transit service inefficient and created inequities between motorists and transit riders.

For example, New York State DOT is considering adding lanes to I-287 in Westchester County, while the Metropolitan Transportation Authority (MTA) has been weighing a new cross-county rail system to serve the same corridor. The two agencies should be conducting a joint study to see how best to reduce congestion and serve travel demand, including consideration of enhanced express bus service and light rail options; instead, DOT has discouraged the MTA from pursuing its study. The MTA has also been evaluating a rail link between Rockland and Westchester Counties, including a possible new cross-Hudson rail crossing at or near the Tappan Zee Bridge. At the same time, New Jersey Transit has been studying re-establishing the West Shore Line to serve Rockland County. While the two routes may serve overlapping markets, the two studies are being conducted separately.

In Connecticut, neighboring transit districts rarely co-ordinate their bus systems. Co-ordination of bus schedules with Metro-North is haphazard at best, hampering crucial feeder service to the train. Nor do highway agencies always co-ordinate. On the same day that NJDOT celebrated the opening of a 20.5-mile stretch of I-287 from Montville to the New York State border at Mahwah, officials of Rockland County sued to close the road until interchanges with the New York Thruway are completed, in 1994. Rockland officials fear that additional traffic from the interstate spilling onto local roads will intensify air pollution, noise and car accidents.³⁵

Compliance with ISTEA and Clean Air Mandates is Incomplete

Only recently, Congress passed landmark legislation designed to finally unclog our roads and rid our air of deadly pollutants. The Intermodal Surface Transportation Efficiency Act of 1991,³⁶ ISTEA, entrusts local transportation with distributing among all modes of transportation billions of dollars in federal funds that previously could only be used to build highways. To spend these monies responsibly, the local agencies are required to consider “the overall social, economic, energy and environmental effects of transportation decisions” and to enhance transit and other alternatives to motor vehicles.³⁷ The agencies within our metropolitan region are also directed to improve interstate coordination.³⁸

Over the past two years, the Tri-State Transportation Campaign has closely monitored planning at all three state DOTs (departments of transportation) and the region’s various MPOs (metropolitan planning organizations), paying particular attention to the agencies’ transportation improvement programs (TIPs) detailing highway and transit projects as well as “demand management” measures. While some effort to comply with the new law is evident, by and large transportation planning has changed little since passage of ISTEA. Transportation planning mandates in the Clean Air Act Amendments of 1990 have also been given short shrift.³⁹

Indeed, the three state DOTs and the various MPOs in our region are moving ahead with plans to add significant new highway lane capacity. As itemized by the Campaign in Appendix 1, these projects will add at least 431 miles of lanes in the tri-state region at a cost of over \$2.5 billion: 168 lane-miles in New Jersey costing at least \$750 million, 207 lane-miles in New York at a cost of \$1,427 million, and 56 lane-miles in Connecticut for \$377 million. Our figures exclude: widening of many county and state roads, projects that add capacity under the rubric of reconstruction; and many projects in preliminary planning for which no cost estimates are available.

While the DOTs claim that some of this new capacity will be reserved for high occupancy vehicles (HOVs), the projects authorize use by vehicles with as few as two passengers — hardly high occupancy. Further, these projects satis-

**Highway Planning in the Tri-State Region
Currently Violates the Federal Transportation Law**

- ISTEA directs state Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) to consider overall economic and environmental effects — land use impacts, energy conservation, air pollution and economic efficiency. (See 23 U.S.C. §134(f).) As yet, no MPO or state DOT in the region has done so adequately.
- ISTEA requires DOTs and MPOs to evaluate alternative ways to reduce congestion that don't add highway capacity, and to refrain from projects that will increase capacity for single-occupant vehicles, unless the project is part of an approved "congestion management system." (23 U.S.C. §134(1).) As yet, no MPO or state DOT has done so adequately.
- A host of Transportation Control Measures (TCMs) are available to reduce congestion in overcrowded corridors, at considerably less total cost to taxpayers and the environment than highway capacity additions. However, no MPO or state DOT has yet considered TCMs as a substitute for highway expansion.
- Notwithstanding provisions of ISTEA requiring public participation in transportation decisions, the public has had only minimal opportunity to comment meaningfully on decisions to add lane capacity.
- The MPOs and state DOTs have not fully identified long-term O&M costs of new highway expansion projects, how these costs will be financed and what future maintenance needs will be foreclosed as a result.
- The MPOs and DOTs improperly account for the impact of highway expansions on pollution, through increased traffic volumes and speeds.
- In developing plans to add highway capacity, including so-called high occupancy vehicle (HOV) lanes, the state DOTs and MPOs are not yet complying with ISTEA in that they have not:
 - conducted comprehensive corridor studies evaluating reasonable alternatives, including reducing demand for driving through better transit and pricing mechanisms;
 - demonstrated by quantitative modeling that the projects will not increase emissions, vehicle trips and vehicle miles traveled;
 - shown that the projects conform to land use plans and will not engender sprawl by encouraging low-density development;
 - analyzed whether the projects will pre-empt transit services in the corridor by creating disincentives to use of public transportation.

fy neither ISTEA planning mandates described above (see box) nor sound transportation planning criteria generally.

Highway expansion projects are not part of the solution, but part of the problem, reflecting traditional thinking that new lane capacity will reduce congestion and pollution. Particularly significant are new segments to expand and complete the region's major beltway network. New lane capacity is planned on I-287 in Westchester County (New York DOT) and in Morris and Somerset Counties (New Jersey DOT). The Staten Island Expressway, I-278 (New York DOT), and its link to New Jersey, the Goethals Bridge (Port Authority of New York and New Jersey), are also slated for expansion. Although these highways are all part of the same beltway network, the three agencies are planning these expansions with no assessment of regional impacts or consideration of regional alternatives.

The agencies' planning "models" have little or no capability to take into account the effects of highway expansion on travel demand and land use. Yet decades of experience have demonstrated that highway expansion stimulates dispersal of homes and offices and, hence, increased travel. The agencies also do not take into account that speeding up traffic and expanding total travel — inevitable results of highway expansions and traffic flow improvements — will increase emissions of nitrogen oxides, one of the two primary pollutants that create ozone smog.

The Campaign believes that no highway expansion projects should go forward in the region until they have been shown to comply fully with the ISTEA and Clean Air mandates. This includes full examination of transit, pricing and land use alternatives, such as we undertake in the next chapters.

Chapter 3 / Policies for a New Transportation Future

Our tri-state metropolitan region has a rich and complex transportation system. It is an historical force in its own right. Enormous capital has been invested in its creation, much of it in an age when work travel had a suburb-to-core focus, non-work destinations were easily reached by transit, fewer women worked outside the home, and families had one car or none at all.

Shifting to a transportation system that serves our emergent metropolitan form and our very different lifestyles requires new investments on many fronts. Many of these new strategies are described in the next three chapters. The primary objectives of the Tri-State Transportation Campaign are shown in the adjoining box, along with the major means to achieve these objectives and the targets the Campaign has set for the region's changing travel patterns.

Two goals merit special mention. One is to create a tri-state regional cooperative transportation effort — a council of metropolitan planning organizations (MPOs), transit agencies and DOTs to (i) review all major projects for their impact on the region and the driving they will induce, and (ii) develop long-range transit goals and a plan to realize them for the region. This cooperative council would adopt a joint methodology for assessing impacts, projections and modelling. A citizens council would review the methodology and its application at each decision step.

Tri-State Transportation Campaign Goals for the NY/NJ/CT Region

Objectives

- Provide access and eliminate inequities
- Restore communities with a sense of place
- Protect public safety and health
- Conserve land and open space
- Improve energy efficiency

Means to achieve these objectives

- Spend transport funds honestly and wisely
- Fix and expand the transit system
- Increase rail freight shipments
- Fix and maintain our highways
- Encourage cycling and walking
- End taxpayer subsidies to motor vehicles
- Foster regional transportation planning

Quantitative travel targets

- Reduce vehicular travel by 15% by 2007
- Increase rail/bus transit by 2%/year
- Double or triple rail freight movement
- Expand vans, mini-buses, carpools
- Use bikes for 10% of trips under 5 miles
- 50% increase in walking

A second goal that merits attention is a 15% reduction in motor vehicle trips and total vehicle miles traveled (VMT) by cars and trucks by 2007, the year the region has to attain all federal air quality standards. This VMT reduction goal is approximate, and it is unlikely that a steady reduction will be achieved each year; indeed, with VMT in the region having increased for decades by several percent a year, it may be unrealistic to seek an immediate contraction in driving, especially since it will take some time to put the full range of alternatives in place. Still, the Campaign believes that this target is not only achievable but fundamental to all of our goals. Even as vehicles become cleaner and, hopefully, safer, it will not be possible to move people and goods efficiently and predictably, and to protect open space and the neighborhoods where we live, without reducing the total amount of driving.

The Campaign's program to reduce car and truck use relies on a broad array of measures. The half-dozen ones outlined in the box on p. 30 are a summary of two dozen individual measures examined by the Campaign, ranging from smaller and more flexible suburban bus service to bicycle access to rail transit facilities. All of these measures are in place or under development in cities and communities in America and in Europe. Our preliminary analysis suggests that by the year 2007, roughly 13 years from now, these measures in combination could reduce VMT in the region by 15% — as opposed to the 14% *increase* mapped out by the region's transportation agencies.⁴⁰

The difference between these two paths spells a critical choice for our region. Although the reduction in driving targeted by the Campaign will not be achieved easily or cheaply, we believe that the net costs, stretched over the next 15 or more years, could amount to far less than the expenditures associated with a continued increase in driving. In weighing the difference, we must bear in mind that a strong, varied and more effective public and private transit system could reduce the level of many indirect federal, state, local and private outlays — for public health problems, energy inefficiency, environmental cleanup and highway expansions. The total cost to society of reducing VMT could be lower, and the benefits greater, than those associated with accommodating ever-increasing use of cars and trucks. Accordingly, we believe our plan could give our region a healthier and stronger economy, with less social fragmentation and more livable communities.

Transportation Goals for the Tri-State Region

- **Provide Access and Reduce Inequities**
 - Restructure the region's transportation and land use system so that all income and age groups have a reasonable alternative to driving to reach all key destinations in the region, in particular, all major employment centers.
 - Mitigate past inequitable siting and service policies toward low-income communities and communities of color by distributing costs and benefits equitably among all transit users.
 - Assure equitable provision of transit services and improvements.
 - Comply with the Americans With Disabilities Act.
- **Restore and Promote Communities With A Sense Of Place**
 - Focus development in urban centers, both large and small, and in communities of place that are or could be served by transit (as broadly defined), and that have a sense of community and relationship to the region.
 - Design all transportation investments and tailor all land use regulations to promote center-oriented residential and business development that offer genuine opportunities to walk or bicycle to shopping and services.
- **Protect Public Safety and Health**
 - Sharply reduce incidents of vehicle pollution-related respiratory attacks and hospital admissions.
 - Sharply reduce stress from using the system, i.e., from traffic congestion, unresponsive public transit, etc.
 - Reduce vehicular fatalities 3%/year (2%/year faster than the drop in VMT).
 - Comply with federal clean air standards for all vehicular related pollutants as quickly as possible, but no later than 2007. This will probably require reducing motor vehicle emissions of hydrocarbons, nitrogen oxides and fine particulates by 60% to 80% between 1990 and 2007.
 - Eliminate annually 5% or more of "nuisance" vehicle noise — car alarms, sirens, etc. — with overall 80% reduction by 2007. Reduce background (ambient) vehicle noise by 5 decibels (almost 30%) by 2000 and by 10 decibels (50%) by 2007, with steeper reductions in high-noise areas.
- **Conserve Land and Open Space**
 - Designate all environmentally sensitive open space in the region "for conservation purposes" only in town, municipal, county and state plans and zoning.
 - Minimize development on significant tracts of open space or other environmentally sensitive lands (most undeveloped land and water resources — forests, watersheds, farmland, floodplains, wetlands and open bodies of water).
- **Improve Energy Efficiency**
 - Reduce total vehicular fossil fuel use by 2% per year, or 1%/year faster than the reduction in VMT, for a total of 30% between 1992-2007 (taking into account fuel consumption by utility plants to recharge electric vehicles).

At the same time that our region reduces overall vehicle use, we need to change those aspects of our car and highway system that have been most harm-

ful socially, economically and environmentally. The box on the next page spells out our goals for protecting public health and safety, preserving open space and enhancing community through appropriate transportation and land use policies.

Where we have chosen figures for our targets, they represent benchmarks rather than specific targets. The goals are a challenge to which we believe both government and the people are ready to rise. Some may say we are trying to change too much, too fast. Our program is far-reaching but manageable. It is a practical plan for restructuring the subsidies, land use codes and other public policies that now bias the market in favor of automobiles and sprawl. We have presented herein an ambitious program, but one within political reach.

In any event, we see no alternative. The federal Clean Air Act requires steep reductions in our air pollution by 2007 or sooner, or billions of dollars in federal funds earmarked for our region will be lost. To avert this impact, and to work toward our positive alternative, the Campaign will seek to integrate the elements identified here into every state and city DOT and transit agency policy program and every municipal and county land use master plan. To this end, we pledge our resources to design and pass the necessary legislation, to ensure its proper implementation, and to build public support at the grassroots.

We recognize that the measures we propose entail a shift in values — an openness to greater use of transit options as broadly defined, less solo driving, pricing policies that reflect the real cost of driving, and center-oriented land uses. This is not to say that suburban living and use of the automobile will not continue — they will. But the logic of devotion to the automobile, single-family homes on large lots and isolated office campuses has created its own galaxy of problems. We have a choice to make, all of us. The choice we at the Tri-State Transportation Campaign have made leads us to propose the following measures.

Chapter 4 / Transit Improvements for Our Region

Improving transit is the major strategy for expanding mobility and access in our region. By transit we mean the full range of travel modes through which operators provide service for travelers: subways, surface rail, express buses, local buses, ferries, mini-buses and jitney/van services. This chapter outlines the Tri-State Transportation Campaign's plan to make transit in our region at least as safe, comfortable, convenient, attractive and affordable as travel by automobile. Further details on some proposals are presented in Appendix 2.

Tri-State Transportation Campaign Goals for the Transit System

- **Maintain, Repair and Improve the Physical System**
 - Provide proper maintenance of the rail and bus system
 - Upgrade rail terminals and stations
 - Replace the most blighted portions of elevated transit lines
- **Tie the Transit Systems Together**
 - Integrate the transit systems' fare policies
 - Better integrate system operations
- **Expand the System and Services to Serve Travelers Better**
 - Provide better direct access to major employment and other activity centers
 - Expand rail transit to cover underserved areas
 - Relieve overcrowded lines
 - Provide for circumferential travel in both urban and suburban areas
 - Improve circulation within the Manhattan core
 - Improve airport access
 - Expand ferry services
 - Expand local bus service and add new paratransit services
 - Convert diesel buses to cleaner alternative fuels

Our region's transit network is by far the most extensive in the nation. But it is old and needs to be repaired and upgraded. Its size and complexity beg for simplification so that users can more easily pay fares and connect without onerous transferring. Service in poorly served travel markets needs to be upgraded, and newly emerging markets require new services.

A. Maintain, Repair and Improve the Physical System

1. Provide Proper Maintenance of the Rail and Bus System

Over the past 10 to 15 years the operating authorities have been repairing and renovating the region's rail and bus systems. Much more needs to be done in upgrading and modernizing track roadbed, rail tunnels and bridges, and improving signaling, stations and passenger information systems. This should be the first order of business, with completion by 2005. Proper maintenance, including preventive maintenance, must be ongoing.

2. Upgrade Rail Terminals and Stations

The region's rail stations should be renovated, made more accessible to people with disabilities, and made centers of economic vitality and good neighbors. Millions of riders pass through the region's major terminals each day. By renovating these centers, ensuring wheelchair access, and providing goods and services in attractive "one-stop shopping," our major stations will generate revenues and help reduce motor vehicle use by decreasing non-work auto trips.

New Jersey Transit is pursuing this concept at Newark Penn Station, and the Metropolitan Transportation Authority is renovating Grand Central Station. The MTA is also planning to spend \$10-\$12 million renovating the 125th Street railroad station; the agency should use the opportunity to develop the station as a focus of economic development, incorporating the landmarked, city-owned building just west of the railroad station. In station neighborhoods throughout the region, particularly in the suburbs, localities should work with transit agencies to remove barriers to transit use and up-zone the neighborhood where appropriate to provide greater opportunities for more intensive uses that would encourage more walk-on transit users.

At Grand Central Terminal, the MTA should implement its long-planned (and sorely needed) north end access project to shorten walking distances for commuters who work uptown. Amtrak should proceed with its plan to rebuild the Farley Post Office on Eighth Avenue, to provide a grand gateway to the city for intercity rail travelers and add circulation space for Amtrak, LIRR and NJ

Transit commuters. East of Penn Station, a new link could simplify commuter rail/subway transfers and create a dramatic access system to A&S Plaza and the Herald Square subway complex.

3. Replace the Most Blighted Portions of Elevated Transit Lines

The subway system must replace not only its worn out parts but entire lines. Some elevated lines are almost a century old. These noisy, blighted eyesores, located throughout much of the Bronx and Brooklyn as well as in parts of Queens and upper Manhattan, should be replaced through a measured plan that provides equivalent or improved underground subway service where feasible.

B. Tie the Transit Systems Together

1. Integrate the Transit Systems' Fare Policies

Actions to Integrate Transit Operations in the Region

- Offer an integrated regional fare and trip program including attractively-priced single-trip, daily, weekly, monthly and unlimited-ride magnetic regional passes usable on all rail systems, the subway and connecting bus systems. This would eliminate arbitrary 2- and 3-fare zones in the New York City transit system and in the suburbs as well.
- Where adequate capacity is available, establish daily and monthly pass prices on the region's commuter railroads in New York City to increase the attractiveness of this Intra-city rail service for New York City residents.
- Create a fare system to enhance bus and rail travel within and between suburban regions.
- Coordinate schedules to allow flexible and efficient transfers and convenient and frequent service between different modes.

The region's subway and rail systems were historically operated by separate companies. Today the responsible agencies continue to operate and plan capital investments for these systems somewhat independently. The transit systems in our region should be unified as much as possible, particularly from the

standpoint of the customer, to maximize efficiencies and make the system more accessible to more people throughout the region.

The regional transit system can be unified in many ways without expensive physical improvements. Integrating fare policies, coordinating schedules and informing passengers can link the systems, as shown in the adjoining box.

2. Better Integrate System Operations

The LIRR, NJ Transit and Amtrak all use Penn Station. These agencies could increase ridership and better serve current riders by more fully integrating their operations. Such integration will produce further benefits if Metro-North's Hudson and New Haven lines are extended to Penn Station, as could be done using existing rail connections (see Appendix 2A). With these lines all terminating or connecting at Penn Station, the transportation agencies should jointly consider provision of through-service from New Jersey to Long Island, Connecticut and the Hudson Valley, as discussed directly below.

C. Expand the Transit System and Services to Serve Travelers Better

1. Provide Access to Major Employment and Other Activity Centers

Notwithstanding the breadth of the region's radial rail network, access to and movement through the region's core, including Manhattan, downtown Brooklyn, Long Island City, the New Jersey Waterfront and Newark, is often needlessly time-consuming. The three commuter rail systems each terminate at only one location in Manhattan — Metro-North at Grand Central Terminal, and the Long Island Rail Road and NJ Transit at Penn Station; travelers must therefore transfer to reach most major destinations.

The system should be made more direct from each of the suburban sectors — Long Island (LIRR), the Hudson Valley and Connecticut (Metro-North), and northern New Jersey (NJ Transit). Transfers and connections that improve each line's access to other core destinations will complement other public and private efforts to strengthen the economic vitality of the region's core and

regional hubs in Long Island, western Connecticut, the Hudson Valley and northern New Jersey.

Fortunately, some links such as the Kearny Connection, the Secaucus Transfer, the Montclair Connection and the Newark-Waterfront Connection, all in New Jersey, are moving forward. Other measures that should be considered include direct LIRR service to the east side (at Grand Central Terminal), Metro-North access to Penn Station and lower Manhattan, and LIRR service to lower Manhattan. In addition, both Metro-North and the LIRR should better serve the city neighborhoods that they travel through, by reducing their in-city fares. (For further discussion, see Appendix 2.)

2. Expand Rail Transit to Cover Underserved Areas

The subway covers much of New York City well, but there are notable exceptions: coverage is poor in southeastern and northeastern Queens, central and northern Bronx, and Manhattan's upper and lower east sides, and the Staten Island Rapid Transit system only covers a portion of that borough. To address these shortcomings, a serious look is warranted at longstanding proposals abandoned in the wake of the economic downturn of the 1970s. By providing new lines in these underserved areas, many two-mode trips could be eliminated, as could express buses that clog and pollute Manhattan streets. For example, the No. 5 or 6 subway line could be extended to Coop City, or Metro-North's New Haven line could be rerouted there.

As noted on p. 12, the region's rail network fulfills most Manhattan-bound commuting needs. Nevertheless, expansion is warranted, especially in corridors with available rights-of-way. Opportunities are particularly great west of the Hudson, as shown in the adjoining box. Implementation of these projects has begun, the last two spurred in part by funds made available through ISTEA. Progress should be accelerated, particularly on the West Shore line, which would remove many automobiles from crowded Hudson River crossings.

Connecticut also has underused and/or protected rail corridors that could be deployed for rail, light rail or rapid transit bus service. Commuter service should be initiated between New Haven and Hartford in Amtrak's underused

Springfield corridor, and should be considered from Hartford to its northern suburbs along the abandoned Griffin corridor, and from the southern, western and eastern suburbs to downtown Hartford along abandoned or underutilized freight lines. Existing service should also be increased between Stamford and New Haven, and on the Shore Line East into New Haven from New London.

In the Hudson Valley, too, opportunities exist to consider much-needed east-west rail or light rail connections. These could include the I-287

corridor between Rockland and Westchester Counties, tied into Metro-North facilities and White Plains, and a light rail loop connecting Poughkeepsie and Beacon Metro-North facilities in Dutchess County and, potentially, Stewart Airport in Orange County.

3. Relieve overcrowded lines

While the subway system has always been known for crowding, two lines stand out as the most inhumane — the Lexington Avenue line and the E and F trains along Queens Boulevard. The Transit Authority should proceed with renewed impetus on longstanding solutions — the Second Avenue subway, and the Queens Bypass route using the 63rd Street tunnel under the East River which was built for that purpose.

4. Provide for circumferential transit travel in both urban and suburban areas

Traditional radial services are not equipped to serve the fast-growing intra-borough and intra-suburban markets. In New York City virtually all subway service radiates outward from Manhattan, making subway travel cumbersome

Commuter Rail Expansion Opportunities West of the Hudson

- Along the transit-poor corridor in eastern Bergen and eastern Rockland counties, using the West Shore line.
- On the Susquehanna line using an existing freight rail line which serves the western-northern portions of Passaic, Bergen, Morris and Sussex counties and connects to Paterson and to Penn Station via the Secaucus Transfer.
- In central New Jersey along a swath of suburban landscape between NJ Transit's Northeast Corridor and North Jersey Coast lines.

within and between the other boroughs. The lack of transit service for circumferential trips is evidenced by rampant congestion on non-radial highways: the Cross-Bronx Expressway, the Brooklyn-Queens Expressway, the Cross-Island Parkway, the Staten Island Expressway, the Goethals Bridge corridor, the Garden State Parkway, portions of the New Jersey Turnpike, and Interstate 287 in the Westchester/Tappan Zee Bridge/Rockland County corridor and northern New Jersey. The lack of circumferential highways impedes travel elsewhere, e.g., north-south travel on Long Island and east-west travel in northern Bergen County. In conjunction with the Campaign, the transportation agencies should investigate transit alternatives, coupled with pricing and land use strategies outlined in Chapters 5 and 6.

We propose close examination of a line connecting Brooklyn with Queens and possibly the Bronx, using the Bay Ridge freight right-of-way and the underused Hell Gate Bridge. This new route would connect with 13 existing radial subway lines, creating new opportunities for residents of the three boroughs to travel by transit. Two new projects are already advancing in urban New Jersey — the Hudson River Waterfront light rail line and the Newark-Elizabeth light rail line. The Campaign applauds these efforts, both far into the design stage, and recommends investigation of other possibilities in urban New Jersey. Indeed, the two light rail lines could anchor an extensive light rail network.

Other non-radial projects that have been rejected or put on hold should be re-examined, including a Metro-North cross-Westchester line linked to a Hudson River rail crossing near the Tappan Zee Bridge, conversion of the LIRR's Oyster Bay Branch to light rail service to Hempstead, and a Staten Island-New Jersey transit connection. By judiciously combining available rights-of-way with existing and committed rail projects, a non-radial network could emerge, promoting redevelopment in urban and inner-suburban areas. (See Appendix 2C for a discussion of combining suburban circumferential transit lines with land-use planning.)

5. *Improve Circulation within the Manhattan Core*

The Manhattan central business district's surface transportation system — bus, taxi, bicycle and foot travel — is congealed by traffic. Moreover, long walking distances between major destinations and attractions — particularly for tourists — discourage activities and damage

the economy. Creation of exclusive rights-of-way on transitways closed to auto and taxi traffic could transform the experience of visitors to midtown Manhattan. A light rail loop could operate on car-free 42nd Street and circle back to Broadway via 33rd or 34th Street and turn up Broadway to Columbus Circle. Such a loop, more ambitious than the city's proposals for a 42nd Street trolley, would pass alongside both Grand Central and Penn Stations and all of midtown's subway lines, and would connect the major tourists attractions of the area (see box). The line might also connect to a proposed East River ferry terminal and a new distributor trolley in Long Island City.

Major Destinations Reachable by a Midtown Trolley Loop

- Empire State Building
- Javits Convention Center
- Hudson River tour boats
- Madison Square Garden
- United Nations
- Theater district
- Lincoln Center
- Weehawken ferry
- Public Library
- Major hotels
- Central Park
- Macy's

6. *Improve Airport Access*

Our region deserves what other great cities (and some not so great) have — quick and reliable access to its international airports. Recent actions by the Port Authority to extend a people-mover to a new NJ Transit Northeast Corridor station could improve access to Newark International Airport. In contrast, the Port Authority's proposed automated technology to access Kennedy and LaGuardia Airports would be extremely costly. Particularly problematic are land-use impacts of the proposed link alongside Flushing Meadow Park between LaGuardia and Jamaica, and a Manhattan terminal at 59th Street near Third Avenue that would provide no direct access to Grand Central Station or any other connections to the subway system in Manhattan.

An alternative is to link the two airports to the subways and the LIRR by building *parts* of this system — a line from Kennedy to Jamaica Station, and

another from LaGuardia to the No. 7 line to Long Island City or Shea Stadium. Since all LIRR lines but one run to and through Jamaica, there is almost constant service to Jamaica from Penn Station. With eventual LIRR access to Manhattan's east side (see p. 38), Manhattan and the rest of the region will have vastly improved service to both airports at considerably less expense.⁴¹

Another major airport in the region is Bradley International, north of Hartford in Windsor Locks. Connecticut DOT and the Greater Hartford Transit District are evaluating a possible light rail or bus transitway from Union Station in downtown Hartford to Bradley Airport. The "Griffin Line" would use a state-owned right-of-way and serve intermediate suburban stops. It could also help underutilized Bradley Airport attract air travelers from southwestern Connecticut who currently journey to Newark, LaGuardia or Kennedy, thus alleviating congestion on both the region's roads and airports.

7. Expand Ferry Services

Ferries have come back to life in our region. Ferry service connects Weehawken to midtown Manhattan (38th St.), Hoboken to the World Financial Center downtown, and Monmouth County to lower Manhattan. Newburgh and Beacon are considering re-establishing ferry services to relieve congestion on the Beacon-Newburgh Bridge and at the Beacon Metro-North parking lot, and New York State DOT is studying multiple ferry routes connecting Manhattan with Hudson River points. Where access can be made easy to both ends of the ride, ferries can match other transit options in efficiency while providing a travel experience that shows off our region's natural beauty.

The potential may be far greater than just a few new lines. In 1920, 27 ferry routes linked Manhattan with the outer boroughs, New Jersey, Connecticut, Long Island, and upstate New York. One proposal would replicate this level with a network of hovercraft commuter ferries carrying passengers and freight to the regional airports, and linking Manhattan to ten public parks in the region, including Orchard Beach (Bronx), Jones Beach (LI) and Sandy Hook (NJ), which together have available 30,000 car parking spaces on weekdays.⁴² Such public-private partnerships to create services for commuters and tourists should be encouraged.

Ferries and bicycles are a natural combination, since ferry terminals are sometimes far from public transit, and cyclists are always looking for “intermodal” connections with public transit. Accordingly, ferries should be required to provide secure bicycle parking and also to carry bikes — two vital provisions that have been provided only haphazardly with recently instituted ferry service.

8. Expand Local Bus Service and Add New Paratransit Services

Rail works best in corridors with a high density of households and employment centers. Where densities may be insufficient to support expanded rail, even after introduction of pricing measures, growth management and new land use policies, feeder bus service can provide efficient transit. In some corridors, a major role could be played by “paratransit” — services tailored for lower-density markets, including subscription buses, shared ride taxis, vans and minibus services. The private sector should be engaged by public agencies to provide such services in Queens and Brooklyn and in suburban counties throughout the region.

With appropriate regulation and market incentives, private sector van and minibus services could supplement public sector subway, surface rail and conventional bus services. Throughout the region, vans and minibuses could transport people to subway, rail and express bus stations and also convey workers from rail nodes to employment centers, particularly as employer trip reduction programs get underway (see p. 74). Already, a 22-passenger minibus operated by Liberty Systems under contract to Westchester County is providing service connecting the White Plains Metro-North station to major employment centers in the I-287 corridor in central Westchester; commuters can purchase a joint rail-bus commuter ticket.

In New Jersey, \$7 million has been appropriated for 41 suburban transit services including subscription buses and jitneys to employment sites. Funding for these experimental services should be dramatically increased in the coming years. Similar van service from train stations to major employment centers should be established in New Jersey’s I-287 and Route 1 corridors. In Nassau and Suffolk Counties, such services coupled with LIRR rail improvements could

provide the basis for a transit-oriented commutation system and an alternative to some highway expansion projects in the two counties.

As van and minibus services are expanded, they must be insured and registered, with fares and tariffs conspicuously posted. A more difficult regulatory issue is whether van/minibus services should operate as common carriers; if not, unregulated vans could “skim the cream” of potential peak transit ridership, leaving these routes unserved at non-peak hours. An unregulated van service could also halt unprofitable operations at whim, leaving residents without transit service if public transit had also ceased service in response to private sector competition.

9. Convert Dirty Diesel Buses to Cleaner Alternative Fuels

Most of the region’s bus traffic is provided by networks of public and private buses fueled by dirty diesel fuel. Along with diesel trucks, these fleets emit large quantities of unhealthy particulates (or soot).

Transit operators, particularly the New York City Transit Authority, which runs the nation’s largest transit bus fleet, should shift their capital priorities immediately from diesel to compressed natural gas (CNG), by purchasing CNG buses. The operators should also work with natural gas providers to develop a refueling and maintenance depot infrastructure for the new CNG fleets. Because most of these depots are located in communities of color, converting to cleaner fuels will reduce death and disease in communities that now suffer disproportionately from vehicular pollutants.

D. Strengthen Rail Freight

A modest shift from truck to rail would reduce congestion and excessive wear and tear that drives up highway maintenance costs. The region should work to expand rail freight shipment throughout the region, especially from the west side of the Hudson River to New York City, the lower Hudson Valley, Long Island and Southern Connecticut.

1. Charge Trucks More of Their True Social and Environmental Costs

Trucks contribute disproportionately to air pollution, infrastructure wear and tear, and road congestion, especially on local streets and key expressways. Federal tailpipe emission standards for trucks are only now coming into force, decades after controls were first imposed on car emissions. Taxes and tolls paid by trucks cover only a small fraction of the disproportionately large costs they impose. Except for Alaska, New York State collects a smaller share of its highway revenues from truckers than any other state; New Jersey and Connecticut are close behind.⁴³

Measures to reduce damage from trucks include stringent truck tailpipe emission standards and inspection and maintenance (I&M) programs. More steps are needed. The persistence of taxpayer subsidies to trucks, along with their high degree of environmental harm, calls for user fees as well. While increased truck taxes or highway fees would increase the cost of truck shipments, they would concomitantly decrease the funds government must draw from general revenues to repair and maintain the highway and bridge network. User fees could be designed to minimize economic disruption by encouraging truckers and their customers to find myriad economies — by consolidating loads, deploying smaller vehicles in congested areas, and using nearby suppliers.

2. Reconstruct the Region's Rail Freight Infrastructure

Even with trucks paying an increasing share of the costs they impose on the region's environment and highway system, physical improvements to the rail freight infrastructure are essential. Adequate trans-Hudson capacity is the highest priority. Several generations after the Port Authority was created for

the express purpose of building a trans-Hudson rail-freight tunnel, there is no direct rail freight connection between New Jersey and New York. All freight trains from west of the Hudson bound for New York City, Long Island, Westchester and New England must cross the Hudson at Selkirk, just south of Albany. Moreover, because of bridge height limitations south of Selkirk, those trains cannot haul economical double-stack container cars.

Cross-Hudson Rail Service: Four Alternative Proposals

1. A new double-stack passenger and freight rail tunnel from New Jersey parallel to the existing Penn Central tunnel under Manhattan to Sunnyside Yards in Queens; connecting via the Bay Ridge line to the Brooklyn waterfront, the Bronx Oak Point and Harlem River Yards, the LIRR and southern Connecticut.
2. Tunnel from Conrail's Newark freight yards to the Brooklyn waterfront; from there goods, could be moved via the Bay Ridge line or exported.
3. Tunnel from New Jersey to the recently renovated Amtrak line along Manhattan's west side and the Hudson River; connecting to tracks and yards in the Bronx, Queens, Brooklyn, Long Island and southern Connecticut.
4. Freight rail tunnel or bridge in conjunction with a new passenger rail tunnel or bridge at or near the Tappan Zee or Newburgh-Beacon Bridges; freight trains would use Amtrak tracks along the east side of the Hudson to New York City.

Each of the proposals in the adjoining box has advantages and disadvantages. But there is no process for choosing among them, largely because no agency has authority over regional freight planning. The proposals need to be judged with side-by-side comparisons based on these criteria:

- the value of rail freight improvements to New Jersey, the Brooklyn port waterfront area, Queens, the Bronx, Long Island and southern Connecticut;
- capital and operating costs;
- impact on the environment, particularly the Hudson River and its views;
- community impacts, and the nature of necessary mitigation steps.

In addition, if additional passenger rail capacity between New Jersey and New York is considered, as we propose, transportation planners should also weigh the advantages of a joint passenger-freight rail tunnel vs. separate tunnels.

Rail access to Port Newark/Elizabeth must be improved as well, to preserve and expand rail goods movement in New Jersey and to maintain the region's share of port business. Terminal facilities and sidings must be expanded, rail clearance problems must be resolved, and some of New Jersey's smaller freight

railroads may need additional support to weather the current economic climate. Other issues east of the Hudson include raising height limits to accommodate double stack containers or any other proposed stacking technique, and continuing the MTA's effort to upgrade LIRR rail freight operations.

As noted on p. 22, NY State DOT is seeking to re-activate the Harlem River Rail Yard into a major rail transportation hub. Although this project could enable a regionwide shift from truck to rail freight, it should not go forward without strong measures to offset impacts on surrounding South Bronx communities. These could include traffic controls to route trucks off local streets and directly onto expressways, and public amenities (e.g., construction of the proposed Manhattan Beach esplanade on the Harlem River). In addition, the State should re-evaluate its leasing arrangement with a private operator, whose plans to sell off parts of the yard for other industrial development could both constrain future rail freight capacity and saddle nearby neighborhoods with further truck traffic and pollution.

Chapter 5 / Improving Personal Travel — Driving, Walking and Cycling

A. New Options for Short Trips

1. Bicycling

Cities and states across America and Canada are moving quickly to increase bicycle transportation, as growing clamor from bicyclists dovetails with clean-air and congestion-reduction mandates. Chicago's official *Bike 2000* Plan includes a 300-mile network of bike routes, municipal and office bike-parking, increased commercial and governmental use of bicycles, and driver education to respect cyclists' rights.⁴⁴ Montreal, although frequently snowbound in winter, is creating a 125-mile system of cycle lanes, which by the year 2000 will pass within a kilometer (3/5 mile) of every home, office and store in the city center; much of the network is already in place.

Bicycle advocates in New York City have published the *Bicycle Blueprint* — perhaps the most comprehensive plan for improving and increasing bicycling in any American city.⁴⁵ The *Blueprint* spells out over 150 steps targeted at city and state agencies, intended to induce a 10-fold increase in bicycling — a boom that could save New Yorkers between half-a-billion and a billion dollars a year in direct travel costs and indirect costs from pollution and congestion.

Throughout the region, authorities should fully institutionalize bicycle planning by adopting the proposals in the *Blueprint*, as well as measures tailored to suburban settings.⁴⁶ Chief among them:

- Create outdoor bicycle parking in public places; induce commercial and other buildings to admit commuters' bikes for safe, all-day indoor parking.
- Fully link cycling with transit by adapting buses and trains to carry bikes and providing bicycle lockers and other safe parking facilities at every transit and train station in the region.
- Develop a complete network of off-street paths and greenways and on-street roadway and highway bicycle lanes, on which cyclists can ride any-

Why We Should Encourage More Cycling and Walking

Bicycling consistently ranks among the most cost-effective transportation measures for reducing pollution and congestion; cycling also adds flavor to car-dominated urban and suburban landscapes, and complements public transit by expanding the pool of passengers who can reach stations without cars.

The Campaign seeks to increase the number of cycling trips for business, work and pleasure throughout the region. An ambitious but achievable objective is for bicycling to capture 10% of trips under 5 miles now made by cars, including commuter trips to suburban rail stations, by the year 2000. This goal, which Chicago and Portland (Oregon) have officially adopted, would have a significant impact on pollution, since short trips pollute more per mile.

State DOTs and regional MPOs should begin data collection to measure the extent of cycling and walking.

Walking remains basic to city life, where the rich mixture of streets, stores and other stimuli is best negotiated on foot. Although the design of newer suburbs centers upon the automobile, some traditional villages still function as pedestrian centers. The new phenomenon of "mall-walking" is testament to the deep-seated desire to walk. A recent study for the Federal Highway Administration estimated that Americans walk as much as 16 billion miles a year.* The same analysis estimated that with inexpensive infrastructure development and strategic changes in land use, this figure could grow by 50% or more by 2000 — a goal we have adopted for our region.

* *Environmental Benefits of Bicycling and Walking in the United States*, Komanoff Energy Associates, 1992, Part 16 of the *National Bicycling and Walking Study*, Federal Highway Administration, 1993.

where in the region with minimal direct exposure to vehicular exhaust or unsafe proximity to speeding traffic.⁴⁷

- Adopt bicycle policy statements to ensure that bridge and roadway maintenance and repair practices protect bicyclist safety and access.

Cycling advocates outside New York City are developing parallel plans on the municipal, county and regional levels. The Campaign strongly supports these initiatives, particularly those that can be funded through ISTEA.

2. Walking

Just above, we stated our goal of increasing walking trips and miles by at least 50% by 2000. We believe this can be met with six inter-related actions:

- Construct and widen sidewalks and make street crossings safer in both urban centers and the region's suburbs.
- Develop people-friendly streets along "traffic-calming" lines used in Europe to slow car and truck traffic and put all road users on an equal footing (see next page).
- Regenerate downtown commercial activity and street life conducive to walking throughout the region.
- Wherever possible re-configure built-up areas to increase density and shrink distances between home, work, and family and personal business; (for example, re-zone town and village downtowns to restore "accessory apartments" above shops and stores).
- Improve and expand transit centers to support pedestrian access for distances up to 2 miles.
- Close roadways through parks to create vehicle-free recreation areas and restore parks — never intended for motorized vehicles — to their original purpose.

As first steps to improve the ease and safety of walking, the three state DOTs and local and state police should lower and enforce speed limits; local governments should assign high priority to widening and maintaining pedestrian sidewalks, crossings and amenities, and implementing traffic-calming measures (see below). Studies of urban walking patterns have found that pedestrians will walk up to four times as far on car-free streets as on heavily trafficked streets.⁴⁸ The same is probably true of streets that permit cars but are designed to avoid being dominated by them.

Ultimately, people will walk where the communities in which they live are configured with housing clustered around shopping amenities or close to schools and other facilities. In addition, in the region's densely populated central business districts we propose closing selected streets to private cars (for example, see discussion of Manhattan's 42nd Street on p. 41).

3. *Traffic-Calming*

In the early 1900s, at the dawn of the auto age, a Viennese physician decried the automobile for its “constant mobilization of passersby” — for forcing those without cars to behave according to its rules.⁴⁹ In recent years, as an antidote to the pressure that cars impose on the public environment, a number of European cities have introduced “traffic-calming” measures to refashion street space and usage so as to permit non-motorized travel and non-transportation activities, such as children’s play. In these cities, cars are not banned from neighborhoods, but are admitted on equal terms with other users — slowly, and without superior rights.

Traffic-calming entails not only low speed limits (e.g., 15 mph), but design features to let motorists know instinctively that they are to proceed slowly — devices such as narrowed or curving roadways with limited sight lines, or special paving materials that identifies streets as pedestrian places. Such techniques are now used widely in several dozen cities including Bordeaux, Bologna, Nottingham, Portland and Berkeley. A complementary approach, area-wide traffic calming, combines localized designs and rules with transit, congestion pricing and innovative traffic management.

Whereas car-free pedestrian malls may be best suited for special-purpose districts (e.g., shopping or historic areas) in large central cities, traffic calming, with its qualified inclusion of motor vehicles, could restore vitality without unduly restricting motorized movement of people and goods in many of the region’s cities, towns and villages.

B. Making our Automobile Infrastructure Work Better

Even under the Campaign’s target of a 15% reduction in vehicle miles and trips by 2007, cars will still capture a high percentage of passenger travel in our region, particularly in low-density, suburban areas. The following measures are intended to ensure that automobile travel is made safer, more efficient and less polluting, without expanding the region’s road and highway system.

1. Maintain Highways, Roads and Bridges

Our existing roadway infrastructure needs to be rebuilt, with better methods and materials, so that, with good maintenance, it lasts for 50 years. All reconstruction should include installation of vehicle detectors that can monitor, regulate and eventually price the flow of vehicles.

By sharply curtailing construction of new highway capacity, state transportation departments and local authorities can focus on bringing and maintaining our highways, roads and bridges to a state of good repair. As a side-benefit, congestion and delays from major reconstruction projects will diminish. Specifically, states should:

- Revise state DOT mission statements to assign top priority to maintenance, upkeep and repair, postponing highway expansion projects until funding for repair of all roads and bridges has been fully allocated;
- Establish multi-year funding cycles emphasizing preventive maintenance to minimize the need to replace and rebuild roads and bridges;
- Impose weight-distance charges on heavy trucks to help pay for maintenance programs and create economic incentives for truckers to reduce wear-and-tear on our infrastructure.

2. Minimize Automotive Emissions

Cars manufactured and sold today are considerably cleaner than earlier models — perhaps twice as clean as cars built five years ago, and five times cleaner than cars from the early 1970s.⁵⁰ Much more needs to be done, however, to reduce car and truck emissions to the point where automotive pollution no longer harms public health and the environment. The following steps by all three states are key:

- Carry out the mandate of the 1990 Clean Air Act Amendments; in particular, adopt and enforce vehicle emissions inspection and maintenance

(I&M) programs that reflect actual driving conditions and implement the Clean Fuel Fleet Program.⁵¹

- Adopt the California Low-Emission Vehicle standards mandating successively lower vehicle emissions between now and 2003, and a 10% share for “zero-emission vehicles” (ZEVs) by 2003;⁵²
- Develop incentive programs to encourage centrally fueled truck and vehicle fleets, including transit buses, to switch additional vehicles from diesel fuel to cleaner compressed natural gas (CNG) and/or electric power.⁵³

3. *Minimize Vehicular Injuries and Fatalities*

Vehicular crashes and fatalities have declined in our region and nationwide, but not rapidly enough, in view of their profound human and economic impacts. State and local governments should take these steps to meet the Campaign’s goal of a 45% drop in fatal and serious injuries by 2007 (3%/year):

- Establish extensive public spaces that are safe for cycling and walking (on-street bicycle lanes, “greenways,” new and larger sidewalks, car-free and traffic-calmed districts);
- Enforce vehicle speed limits, lower them on certain local streets and arterials with heavy pedestrian and bicycle traffic, and sharply lower speed limits on traffic-calmed streets. (When a pedestrian is struck by a motor vehicle, the chance of death is only 5% at 20 mph, but it rises to 45% at 30 mph and to 85% at 40 mph.⁵⁴)
- Sharply raise penalties and enforcement for driving without a license (or with a suspended license) and without insurance.
- Consider restricting use on local streets of technologies that may endanger pedestrians and cyclists by requiring operator attention, e.g., cellular phones.

4. Carefully Judge High-Occupancy Vehicle Lanes

High-Occupancy Vehicle (HOV) lanes increasingly are being touted as a means to reduce single-occupancy vehicles (SOVs) and encourage ride-sharing. The Campaign considers highway expansion via HOV lanes highly problematic; they are expensive to enforce and manage, and thus far have proven vulnerable to being “watered down” by motorists wishing admission to the lane. New HOV lanes also create perverse but real incentives for more SOV trips by freeing up space in conventional lanes formerly occupied by HOVs. Moreover, HOV lanes compete with public transit in many corridors.

Less troubling are “take-away” HOV lanes converted from existing lanes. But although no new capacity is added, operating costs and the potential of drawing transit customers dictate a cautious approach. Moreover, congestion pricing (see p. 59) may make special HOV lanes superfluous, as the increased cost of using roads for peak commuting, induces SOV drivers to switch to car-pools, vans and other alternatives.

5. Consider Alternatives to Park-and-Ride Lots

Park-and-ride lots collect drivers at rail and other stations, so they may transfer to trains, buses or carpools for the main part of their commute journey. Park-and-ride lots are an adjunct to public transit; in communities in the region where station parking capacity is oversubscribed, railroad authorities and local officials alike are seeking to expand them. However, like HOV lanes, park-and-ride lots can have drawbacks. For one thing, short car trips to and from the lots generate considerable pollution.⁵⁵ Moreover, park-

Tri-State Transportation Campaign Criteria for Adding High-Occupancy Vehicle (HOV) Lanes

- A comprehensive study of transit alternatives in the highway corridor must indicate that the HOV lane is the only feasible alternative to solo driving (single-occupancy vehicle, or SOV).
- The HOV lane must provide users with savings of at least 10 minutes over other lanes.
- Other effective, enforceable strategies must be in place to encourage carpooling in the area, including pricing measures and parking restrictions.
- Occupancy required in the HOV lane must be at least three, and must be precluded by design and law from being lowered.

and-ride lots discourage non-polluting cycling and walking trips to stations by placing stations in a sea of asphalt. Finally, some stations may be able to offer more parking only if they are moved to village outskirts, a switch that may reinforce car dependence and damage walking-based village centers.

Thus, while the objective of new or expanded park-and-ride lots is laudable — to support transit or ride-sharing for the journey to work, and thereby reduce congestion and pollution — their impact on emissions may be less than expected and they may undermine local non-car travel and lifestyles. Accordingly, before towns or transportation agencies expand or build new park-and-ride lots, they should conduct assessments of the net effect of park-and-ride lots vis-a-vis alternatives such as improved walking and cycling access to stations, increased station parking fees with revenue-neutral rebates to residents, and provision of feeder bus and dial-a-ride services during morning and evening commute hours. In addition, the design and siting of park-and-ride lots should not interfere with proposals for focused, high-density commercial or residential development close to and around rail and bus transit nodes.

C. Economic Incentives to Use Roads More Efficiently

Changing the way cars and trucks are charged for the use of public resources — our roads, our air, our public space — is central to our plan. The Campaign regards carefully designed economic incentives as essential if our region is to (i) discourage uneconomic driving and associated suburban sprawl; (ii) generate a revenue stream to pay for improving transit; and (iii) reduce inequities resulting from our subsidization of motor vehicles.

As we saw in Chapter 3, drivers don't pay their way in full; the region's taxpayers subsidize road building and maintenance at a rate of \$2 billion a year, and all of us lose an additional \$25 billion annually in health and social costs from car and truck travel (not counting another \$29 billion that drivers themselves lose in gridlock, crashes, etc.). The Campaign urges our region to move as quickly as possible to end these subsidies, bearing in mind critical concerns such as minimizing economic dislocation and maximizing equity and efficiency. How best to change the terms under which motorists pay for gas,

insurance and the use of roads, and how to return these funds to the people of the region and invest them for better travel, must be fully considered.

Rather than rely on a web of regulations dictating who can and cannot drive on this day or on that road, as has been done elsewhere, the economic incentives discussed here will help to make roadway usage fairer and more efficient. Motorists will be able to continue making their own decisions about when, where and how to drive, while offsetting the costs to society from vehicle use.

The Campaign has identified seven different kinds of economic incentives for possible application in our region. Some measures could be implemented immediately; others would require technological development, public education and, perhaps, modification of the roadway infrastructure. All would need to be phased in to minimize economic dislocation and give drivers time to adapt.

In combination, these measures could potentially eliminate subsidization of vehicle travel and sharply reduce the environmental and social harms from cars and trucks. If people in the region become convinced of their value, all seven measures could start to be in place by the turn of the century. Each state should determine which combination of these measures best suits it, depending on such factors as availability of transit and auto use patterns.⁵⁶

To promote public support for these measures, the Campaign proposes two complementary approaches for applying the revenue streams. Some revenue would be invested to improve alternatives such as transit, and to create dedicated repair and maintenance funding to make driving safer and more efficient. To address inequities created by the increased cost, some revenue would be returned directly to the citizenry, largely in the form of tax savings enabled by having drivers pay road costs in full. The reduction in driving engendered by the fees (and the improved alternatives) would also spin off large societal benefits by reducing congestion, pollution and accidents and allowing unnecessary new road-building ventures to be shelved. The Campaign is also committed to closely monitoring transportation spending to ensure that these precious funds are spent without waste or corruption.

1. "Cashing-out" Free Parking

Although motorists in the tri-state area spend over a billion dollars a year at garages, lots and municipal meters, far more parking is provided free, at office parks, shopping centers and strip malls. Employers provide parking as a fringe benefit, and proprietors provide it as a courtesy. Both recover their land and maintenance cost by "bundling" parking as overhead in the price of goods; in effect, each \$20 receipt at the mall includes 25¢ to cover the share of rent that pays for the parking space.

How Cashing Out Free Parking Would Work — An Example

Consider an office park with 1,000 workers, 700 of whom drive and park for free (the remainder ride-share, walk, cycle, etc.). Under cashing out, each car would be charged the actual cost of providing its parking space (corresponding to land, maintenance, etc.), say \$5 per day. Each day's parking revenue, \$3,500 in this case, would be distributed *per capita* — a daily payment of \$3.50 to everyone, drivers and non-drivers.

Non-drivers thus come out \$3.50 ahead; drivers come out \$1.50 behind (\$3.50 less \$5.00); *the group as a whole breaks even*. The \$5 daily difference between driving and non-driving creates a strong incentive not to drive; as some drivers find other ways

to get to work, the parking lot — and the roads, bridges, atmosphere, etc. — grow less congested. Non-drivers, for their part, get a better deal than their present choice between a free parking space or nothing.

As the number of drivers declines, the parking area freed up could be sold or put to alternative use. The charges and rebates would have to be adjusted over time, to ensure that the arrangement remains revenue-neutral; if the percentage of drivers goes down, as we expect, the rebate would decline. Eventually a balance would be reached. Although managing the charges and rebates would cost money, electronic vehicle identification systems could hold down costs.

Provision of free parking is a powerful inducement to travel by car, more powerful in many circumstances than if motorists were offered free gasoline.⁵⁷ Offered a choice between free parking and nothing, car-owners are more likely to take the parking and drive to work or shop. In a sense, the fringe benefit becomes free commuting rather than free parking. When parking is unbundled — paid for separately — driver-only traveling declines, by an average of 25-30% in recent studies in Los Angeles.⁵⁸ The Campaign's proposal, then, is to charge employees for parking, and to return the revenues to all employees on

an equal per capita basis. This policy, known as cashing-out free parking, is required by law in California in certain circumstances and is a key provision of the Clinton Administration's Climate Change Action Plan.⁵⁹

The Campaign urges New York, New Jersey and Connecticut to enact a comparable requirement to cash out free parking. Once this was in place and widely understood, the program could be extended to shopping malls and other large establishments. While many details would need to be worked out, unbundling parking costs is a powerful tool for expanding travel choice and reducing forced dependence on cars.

2. *"Pay-At-The-Pump" Insurance*

Motorists purchase insurance on a lump-sum basis; yet their chances of being in an accident rise with miles driven. The Campaign is impressed by a proposal originating in California that would overhaul the auto insurance system to align premiums more closely with risk and give motorists incentives to conserve on driving. Under "pay-at-the-pump" insurance, drivers would purchase part of their premium with each refill of gasoline. To reflect differences in actuarial risk, high-risk vehicles would pay a surcharge at registration, fines for moving violations would be raised, and drivers in high-risk age groups might pay more for licenses.⁶⁰

Proponents of pay-at-the-pump insurance make a convincing case for its potential to cut costs for drivers and society as a whole. Most insurance sales and underwriting costs would be eliminated, less effort would be expended in shopping and paying for insurance, and there would be no uninsured motorists. Of course, blending some of the cost of insurance into the price of gasoline would create a significant incentive to economize on driving, and thus reduce congestion, pollution and traffic accidents.

Because of border issues — inequities for drivers from neighboring states and incentives to purchase gas outside the tri-state region — pay-at-the-pump insurance may not be practical on a state or even a regional basis; federal action may be preferable. Nevertheless, in view of its positive potential for our transportation system and economy, the Campaign urges state and regional offi-

Pay-At-The-Pump Insurance — A Brief Primer

Consider a "typical" car with a \$900 yearly insurance premium, whose tank consumes 600 gallons of gas a year — for example, a car getting 20 miles to the gallon that is driven 12,000 miles. Averaged over the course of a year, the owner in effect spends \$1.50 for insurance per gallon of gasoline.

Under pay-at-the-pump, a rising share of the insurance premium would be purchased with gasoline. The level might eventually reach 50¢ or 60¢ per gallon — a powerful inducement to drive less. The monies would be collected by state government (along with

the gas taxes it already collects) and divided among insurers in proportion to their coverage.

The rest of the driver's premium would be paid in a lump-sum to her insurer, who would be selected randomly through a state-run pool. Premiums would be reduced to reflect drivers' purchase of insurance at the pump. Total insurance payments wouldn't increase; indeed, they would almost certainly drop because of savings in paperwork and elimination of uninsured motorists (see text). Just the method of payment would change.

cials to monitor proposals for pay-at-the-pump insurance and to support their application nationally, as appropriate.⁶¹

3. Congestion Pricing

Congestion pricing is a proposal to assess vehicles for the congestion and time loss they impose on other roadway users. Congestion charges would vary widely between peak, shoulder and off-peak conditions, corresponding to each vehicle's responsibility in creating congestion. Thus, commuters driving into Manhattan would pay premium prices, while reverse commuters travelling to suburban job locations would be charged considerably less, commensurate with their lower contribution to congestion. Motorists using uncongested rural roads would pay little or nothing in congestion fees.

Airlines and utilities have used congestion or "peak" pricing for decades to shift discretionary demand to off-peak periods and to dun peak users for the high costs of serving peak demands. Congestion pricing of transportation facilities would serve this purpose, and encourage use of other travel modes as well. With the advent of automatic vehicle identification (AVI) systems and "smart cards" to meter vehicle mileage electronically, congestion pricing could

soon be applied to roadways. As an immediate benefit to drivers, these technologies could replace toll barriers, with their frustrating delays, congestion and fumes, with automatic "non-stop tolls," saving drivers precious time if not money. Accordingly, the Campaign proposes that all vehicles registered in the three states have smart card systems installed by the start of 1997.

The Campaign believes that congestion pricing is a rational approach to using our existing highway system more efficiently. The transportation agencies in the region should begin implementing congestion pricing as information is learned from federally sponsored demonstration projects elsewhere; the agencies should also use \$1 million available in ISTEA funds to select a demonstration project for our region. The Campaign further proposes eliminating commuter discounts on area tunnels and bridges, since their price signals are antithetical to congestion pricing. We can then begin to implement a full congestion pricing for the region's congested roads and at all toll facilities.

4. Smog Fees

Smog fees, or pollution-distance charges, would assess vehicles for the emissions they dump into the environment, based on each vehicle's mileage driven times its per-mile emissions. Both could be measured using technology developed for vehicle I&M (inspection and maintenance) checks mandated under the Clean Air Act. Alternatively, "blue book" pollution ratings could be used, pegged to model-specific test data adjusted for vehicle age. Motorists willing to invest in emission tune-ups could optionally base their pollution fee on emissions measured at licensed test centers, giving them a strong incentive to keep emission control systems in good working order.⁶²

The Campaign proposes initiating slowly escalating smog fees starting in 1998, two years after the enhanced inspection and maintenance program will be in place in all three states. By then the necessary data will be available on actual vehicular emissions for different model cars from different years.⁶³

5. *Weight-Distance Charges*

Weight-distance, or ton-mile charges, would help offset the destructive effects of heavy trucks on our bridge and highway infrastructure. The heaviest trucks (40 tons) cause an estimated \$2 of infrastructure damage per mile driven in our region, yet New York State charges them less than 4¢ per mile.⁶⁴ Thus, the brunt of roadway damage from heavy trucks falls on other motorists, who suffer the consequences of roadway deterioration, and on taxpayers, who pay a high percentage of roadway repair costs — whether or not they buy or benefit from the goods being shipped.

Just as smog fees would be based on per-mile emissions times miles driven, weight-distance charges would reflect vehicle weight times miles driven. The same AVI technology that could levy congestion charges could undergird a network of “weight-in-motion” stations to weigh trucks while they are driven past a bank of sensors. Weight-distance charges might also be used to offset motor vehicles’ noise and physical intrusion on community and ambiance, since these are roughly proportional to vehicle weight. Again, heavy vehicles would be charged more than light ones.

6. *Drive+ (Drive Plus)*

Improving car-owners’ vehicle purchases can help reduce the harmful impacts of driving, especially in parts of the region where transit options are fewer and people are more reliant on cars. Under the “Drive+” program, purchasers of new cars and trucks would be charged a fee or receive a rebate based on whether the vehicle is more or less polluting and energy-efficient than the average new car. To promote public support, Drive+ would be revenue-neutral, with the fees covering the rebates and administrative costs.

Originally proposed in California, Drive+ should be studied as to its impacts on emissions, fuel-efficiency, vehicle sales and VMT in the tri-state region. Consideration should also be given to incentives to retire or “scrap” the dirtiest vehicles already on the road.

7. Gasoline Taxes

Taxes on motor fuels — gasoline and diesel fuel — are the prime means used by industrial countries to offset societal harms from driving. Taxes on motor fuel average \$1.75 per gallon in Japan, \$3.75 in Italy, and in-between in Germany, France and Britain. Although gasoline taxes are far less in the U.S. — combined federal and state levies average only 34¢/gallon in the tri-state region⁶⁵ — they dwarf other roadway use charges.

Gasoline taxes create incentives for fuel efficiency, and the collection mechanism is in place. They are also a good tool for offsetting the harms directly associated with using petroleum — refinery and groundwater pollution, drilling's destruction of homeland and habitat, contribution to global warming, and American military costs to protect oil supplies. On the other hand, gasoline taxes, like all taxes, are unpopular politically, and they create “boundary” problems at the region's edges, limiting the amount of gasoline taxes that can be assessed at the state level.

Moreover, gasoline consumption correlates only indirectly to other, apparently larger costs of motor vehicle use — congestion, air pollution and accidents; the other measures discussed here would capture these impacts more explicitly. Thus, gasoline taxes are only one of many economic incentives proposed by the Campaign, rather than the centerpiece of our plan.

Economic Incentives — A Summary

The economic incentives discussed here are of two types: those that “meter” or “unbundle” motorist costs (cashing-out parking, pay-at-the-pump insurance); and roadway pricing measures levied on driving (congestion pricing, smog fees, weight-distance charges, gasoline taxes). Each measure would come at a price. Smog fees could hurt poor families that rely on old, polluting automobiles. Weight-distance charges could add to the cost of goods movement. Unbundling free parking would create another service to pay for.

Still, each of these costs would spin off tremendous benefits. Changing the way motorists pay for parking and insurance, from lump-sum to a metered ap-

Possible Timetable to Implement Economic Incentives for Roadway Travel

Targets

- By 2003, eliminate all taxpayer subsidies and a portion of social and environmental subsidies to motor vehicles.
- By 2018, offset all other net costs imposed by driving, to cover society's costs for accidents, air and noise pollution, petroleum use, etc.

Measures

- 1996-2000: replace "free parking" with revenue-neutral parking fee / rebate arrangements at concerns with parking facilities sized for a hundred vehicles or more.
- 1996-2000: convert motorist insurance to pay-at-the-pump, which shifts lump-sum insurance payments

to automatic purchase with gasoline (requires federal action).

- 1997-2005: cover all congestion costs on the crowded highways of the region, including major bridge and tunnel crossings.
- 1998-2007: implement smog fees to offset health costs from emissions.
- 1999-2018: apply weight-distance charges to offset damage from heavy trucks and community intrusion from vehicles.
- 1994-1997: implement Drive+ program for all new-car purchases.
- 1995-2018: rising gasoline taxes to offset petroleum's environmental, social and military costs (requires federal action).

proach, will save drivers money by eliminating huge built-in costs.⁶⁶ Congestion pricing will cut down on traffic tie-ups. Smog fees will help clean the air. Weight-distance taxes will let rail freight compete with heavy trucks. In total, the costs of these measures will be far less than the costs the region now bears because drivers have little incentive to pollute and drive less, because our capital budgets for transit improvements are stretched thin, and because a large share of our tax dollars goes to road building and repair.

The measures discussed here are not competing but complementary, even synergistic; they should be pursued simultaneously. If any one measure is not adopted, the others should be correspondingly increased. The Campaign believes that no program to solve our transportation problems can succeed unless it wins public support for a comprehensive, co-ordinated set of appropriate economic incentives, coupled with effective and careful spending of the revenues on sound transportation projects. Even radically improved transit, cycling and walking will fail to compete with cars, unless the playing field is made level by

slashing subsidies for driving, metering parking and insurance costs, and making car and truck travel pay its own way.

The Campaign hopes to develop the details of such a plan, specifying possible ranges for per-mile, per-emission, per-gallon and per-ton charges. As noted, charges would vary considerably depending on the particular vehicle and where, when and how it is driven. Cars with poor emission controls, driven in peak hours, by accident-prone drivers, in, say, downtown Brooklyn or midtown Manhattan, would pay many times more than their cleaner, safer and less invasive counterparts. Likewise, small, light trucks would pay much less than heavy trucks. The entire pricing structure would be designed to encourage motorists to save money by avoiding high-cost driving.

D. Effect of Transportation Demand Measures on VMT Reduction

The Campaign has made preliminary estimates of the potential to reduce vehicle miles traveled (VMT) with the measures outlined in Chapter 4 (Transit Improvements) and this chapter (Improving Personal Travel), along with the land-use program that follows in Chapter 6. Details of the estimates appear on the following two pages and further in Appendix 3.

We recognize that quantitative estimates such as these are fraught with difficulties; they are based on broad assumptions about synergistic effects, the technical literature is often sparse or silent on the impacts of these strategies, and some of them are untried on a broad scale. Nevertheless, it should be apparent that many measures can be taken to curb excessive vehicle use and provide a range of emission-reduction, energy-saving and community-building benefits.

Indeed, consider the benefits — a first-class rail and bus transit system, with greatly strengthened links at both the regional and local level; more efficient movement of freight, due to a revived rail freight system and less gridlocked roadways; vastly expanded opportunities to travel safely and conveniently by bicycle and on foot; and an enormous reduction in pollution, congestion and other costs from cars and trucks, translating directly into better health and more time. Harder to quantify, but at least as important, would be the preservation of open space, revitalization of urban and suburban communities, and greatly

expanded ability of everyone to travel freely throughout our region — and the impetus all this would provide for the region's economy.

In short, the Campaign proposes a significant increase in capital investment in the region's transportation system. This investment could markedly improve personal and goods mobility, increase economic vitality and competitiveness, and make the tri-state area one of the world's premier urban regions for the 21st Century. We urge state and regional transportation agencies to join with us as we refine our analysis of the costs and benefits of this plan.

Estimated Effects of Transportation Demand Measures in the New York / New Jersey / Connecticut Metro Region

VMT (Vehicle Miles Traveled) Reductions from Prevailing Growth Trends

| | All Vehicle Travel | | | Auto Work Travel | | | Non-Work Auto Travel | | | Truck Travel | | |
|---|--------------------|--------------|--------------|------------------|--------------|--------------|----------------------|--------------|--------------|--------------|--------------|--------------|
| | 1996 | 2000 | 2007 | 1996 | 2000 | 2007 | 1996 | 2000 | 2007 | 1996 | 2000 | 2007 |
| A. Roadway Pricing Measures | 2.0% | 8.1% | 14.6% | 4.7% | 11.1% | 15.9% | 1.0% | 7.1% | 14.2% | 2.0% | 3.7% | 5.3% |
| 1 Cash out employer-paid parking; raise parking fees | 0.6% | 1.6% | 1.9% | 1.5% | 4.0% | 4.5% | 0.3% | 0.7% | 1.0% | 0.0% | 0.0% | 0.0% |
| 2 Parking fee/rebate for retail destinations | 0.0% | 1.9% | 3.9% | 0.0% | 0.2% | 0.4% | 0.0% | 2.5% | 5.0% | 0.0% | 0.0% | 0.0% |
| 3 Pay-per-mile auto insurance (revenue neutral) | 0.0% | 1.4% | 1.9% | 0.0% | 1.2% | 1.5% | 0.0% | 1.5% | 2.0% | 0.0% | 0.0% | 0.0% |
| 4 VMT-based smog fee | 0.2% | 0.7% | 1.4% | 0.2% | 0.5% | 1.0% | 0.2% | 0.8% | 1.5% | 0.5% | 1.0% | 0.3% |
| 5 Automated toll collection/congestion pricing | 0.3% | 1.5% | 4.5% | 1.0% | 3.0% | 6.0% | 0.0% | 1.0% | 4.0% | 1.0% | 2.0% | 4.0% |
| 6 Increased NYC bridge/tunnel tolls | 0.9% | 1.0% | 1.2% | 2.0% | 2.2% | 2.5% | 0.5% | 0.6% | 0.7% | 0.5% | 0.7% | 1.0% |
| B. New Options for Short Trips | 0.8% | 2.9% | 6.5% | 0.9% | 2.5% | 5.0% | 0.7% | 3.0% | 7.0% | 0.1% | 1.1% | 2.2% |
| 7 Traffic calming, bike/pedestrian improvements | 0.5% | 1.7% | 3.4% | 0.5% | 1.0% | 1.5% | 0.5% | 2.0% | 4.0% | 0.1% | 0.5% | 1.0% |
| 8 Develop traffic cells in selected primary centers | 0.0% | 0.5% | 1.9% | 0.0% | 0.5% | 1.5% | 0.0% | 0.5% | 2.0% | 0.0% | 0.1% | 0.2% |
| 9 Enhanced bicycle/pedestrian access to transit | 0.3% | 0.6% | 1.3% | 0.4% | 1.0% | 2.0% | 0.2% | 0.5% | 1.0% | 0.0% | 0.5% | 1.0% |
| C. Smart Systems & New Technologies | 0.3% | 1.0% | 2.0% | 1.0% | 2.5% | 5.0% | 0.1% | 0.5% | 1.0% | 0.0% | -0.1% | -0.2% |
| 10 Smart communities: teleshopping & telelogistics | 0.1% | 0.4% | 0.8% | 0.0% | 0.0% | 0.0% | 0.1% | 0.5% | 1.0% | 0.0% | -0.1% | -0.2% |
| 11 Telecommuting | 0.3% | 0.7% | 1.3% | 1.0% | 2.5% | 5.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| D. Growth Management and Land Use Policies | 0.1% | 0.5% | 2.7% | 0.1% | 0.6% | 2.7% | 0.1% | 0.5% | 2.7% | 0.0% | 0.2% | 1.0% |
| 12 Encourage accessory apartments, neighborhood retail | 0.1% | 0.3% | 1.2% | 0.1% | 0.3% | 1.2% | 0.1% | 0.3% | 1.2% | 0.0% | 0.0% | 0.0% |
| 13 Growth management favoring infill/clustering/centers | 0.0% | 0.2% | 1.5% | 0.0% | 0.2% | 1.5% | 0.0% | 0.2% | 1.5% | 0.0% | 0.2% | 1.0% |
| E. Improved Public Transportation | 2.1% | 4.4% | 9.4% | 2.2% | 4.0% | 9.0% | 2.1% | 4.5% | 9.5% | 0.3% | 0.5% | 2.0% |
| 14 Expanded paratransit services | 0.4% | 0.9% | 2.6% | 0.2% | 0.6% | 1.5% | 0.5% | 1.0% | 3.0% | 0.0% | 0.0% | 0.0% |
| 15 Rail service expansion & transit improvements | 0.4% | 1.0% | 1.9% | 0.5% | 1.0% | 3.0% | 0.3% | 1.0% | 1.5% | 0.3% | 0.5% | 2.0% |
| 16 Transit fare integration, marketing, pass subsidy | 1.0% | 1.5% | 2.0% | 1.0% | 1.5% | 2.0% | 1.0% | 1.5% | 2.0% | 0.0% | 0.0% | 0.0% |
| 17 Transit Information Systems | 0.4% | 1.0% | 2.9% | 0.5% | 1.0% | 2.5% | 0.3% | 1.0% | 3.0% | 0.0% | 0.0% | 0.0% |
| F. Marketing and Incentives | 0.7% | 1.3% | 2.4% | 1.2% | 2.3% | 3.4% | 0.5% | 1.0% | 2.0% | 0.0% | 0.1% | 0.2% |
| 18 Employer Trip Reduction programs | 0.1% | 0.3% | 0.4% | 0.5% | 1.0% | 1.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 19 Compressed work week | 0.0% | 0.0% | 0.0% | 0.1% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 20 Public education campaigns for alternative modes | 0.4% | 0.8% | 1.6% | 0.1% | 0.2% | 0.3% | 0.5% | 1.0% | 2.0% | 0.0% | 0.1% | 0.2% |
| 21 Area-wide ridesharing programs | 0.1% | 0.3% | 0.4% | 0.5% | 1.0% | 1.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| G. Automobile Infrastructure Systems | 0.0% | -0.8% | -2.0% | 0.0% | -0.5% | -0.5% | 0.0% | -0.7% | -2.5% | 0.0% | -0.6% | -2.3% |
| 22 HOV Lanes | 0.1% | 0.3% | 0.5% | 0.5% | 1.0% | 2.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.2% |
| 23 Park-and-Ride Lots | 0.0% | 0.1% | 0.1% | 0.1% | 0.5% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 24 Signal Timing/Intersection Flow Enhancement | -0.0% | -0.3% | 1.0% | -0.1% | -0.5% | -1.0% | 0.0% | -0.2% | -1.0% | 0.0% | -0.2% | -1.0% |
| 25 Traffic Incident Management | -0.1% | -0.8% | -1.6% | -0.5% | -1.5% | -2.0% | 0.0% | -0.5% | -1.5% | 0.0% | -0.5% | -1.5% |
| Total Reduction from VMT Growth Trend | 6.0% | 17.8% | 35.6% | 10.1% | 22.4% | 40.5% | 4.5% | 15.9% | 33.9% | 2.4% | 4.9% | 8.2% |

| VMT (Vehicle Miles Traveled) Growth Trend Ratio to 1990 | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|------|
| o Official NYMTC/NJTCC Forecast | 1.07 | 1.10 | 1.14 | 1.07 | 1.10 | 1.14 | 1.07 | 1.10 | 1.14 | 1.07 | 1.10 | 1.14 |
| o With Demand Measures Shown Here | 1.02 | 0.95 | 0.85 | 0.97 | 0.88 | 0.75 | 1.03 | 0.93 | 0.78 | 1.05 | 1.04 | 1.02 |

Figure greater than 1.00 indicates increase in VMT; figure of 0.99 or less indicates decline in VMT; e.g., 0.85 indicates 15% decrease in VMT from 1990.

EDF preliminary estimates based on literature review and professional judgements by Michael Replogle, November 1993. For more details on assumptions and sources, see Michael Replogle, "Transportation Conformity and Demand Management: Vital Strategies For Clean Air Attainment," Environmental Defense Fund, Washington, DC, April 30, 1993. Companion estimates of effects on number of trips, not shown here. Percentages are additive; negative percents indicate increases in VMT.

Transportation Demand Measures — Glossary and Guide
(each measure corresponds to the measures tabulated on the facing page)

A. Pricing Measures

- 1 Cash out employer-paid parking; raise parking fees — see p. 57
- 2 Parking fee/rebate for retail destinations — see p. 57
- 3 Pay-per-mile auto insurance (revenue neutral) see p. 58
- 4 VMT-based smog fee — see p. 60
- 5 Automated toll collection/congestion pricing — see p. 59
- 6 Increased NYC bridge/tunnel tolls — these would be a particular application of congestion pricing and weight-distance charges, discussed on pp. 60-61

B. New Options for Short Trips

- 7 Traffic calming, bike/pedestrian improvements — see p. 51
- 8 Develop traffic cells in selected primary centers — see p. 51
- 9 Enhanced bicycle/pedestrian access to transit — see p. 48

C. Smart Systems & New Technologies

- 10 Smart communities: teleshopping & telelogistics — “electronic yellow pages” and other tools to let consumers substitute information for some travel
- 11 Telecommuting — decentralizing employees to satellite offices or homes via computer links, to reduce physical commuting

D. Growth Management and Land Use Policies

- 12 Encourage accessory apartments, neighborhood retail — see p. 50
- 13 Growth management favoring infill/clustering/centers — see p. 82

E. Improved Public Transportation

- 14 Expanded paratransit services — see p. 43
- 15 Rail service expansion & transit improvements — see all of Chapter 4 and Appendix 2
- 16 Transit fare integration, marketing, pass subsidy — see p. 43
- 17 Transit Information Systems — providing real-time access to information both at transit stops and in the home

F. Marketing and Incentives

- 18 Employer Trip Reduction programs — see p. 74
- 19 Compressed work week — incentives to compress work weeks to 4 days
- 20 Public education campaigns for alternative modes — media and other outreach explaining “how-to” and rationale for transit, cycling, etc.
- 21 Area-wide ridesharing programs — guaranteed-ride home and other ways of strengthening and expanding employer-based car- and van-pool programs

G. Automobile Infrastructure Systems

- 22 HOV Lanes — see p. 54
- 23 Park-and-Ride Lots — see p. 54
- 24 Signal Timing/Intersection Flow Enhancement — measures to reduce congestion by optimizing traffic flow at identified bottlenecks
- 25 Traffic Incident Management — dedicated response teams to minimize traffic disruption from vehicle crashes and other highway incidents

Chapter 6 / Land Use Measures to Promote Center-Oriented Development and Protect Open Space

The goals of preserving natural areas and promoting center-oriented community development can be achieved only if major new office, retail and residential development in the region is sited to avoid open space and to take advantage of existing and new transit opportunities. Moreover, we must ensure that environmentally threatening transportation land uses are not disproportionately sited in communities of color and low-income communities.

Although some measures to achieve these goals are available, changing the direction of land use and development is an enormous challenge. Hundreds of units of government in our region make zoning and land use decisions, and businesses and households make locational decisions in a highly decentralized and personal way.

A. Linking Transportation and Land Use Planning

The region must work to create links between transportation and land use planning on several levels, including between state-level agencies; between agencies and to municipalities; between applicants for development permits and municipal planning and zoning boards; and between households and service-providers. These participants or decision-makers already interface with one another. We now need to create tools that will affect those relationships to improve transit and center-oriented development. Some examples follow.

State agencies build highways and other projects. An agency generally considers the land use in the vicinity of a project, if at all, as a "given," intervening only when the project will be unduly disruptive to its immediate surroundings. Thus, authors of a highway expansion will examine the zoning codes of the towns the highway will traverse, paying particular attention to on/off ramps and their impact. Consideration should be given to the effect of the highway on the future use of land in those towns, or to the feasibility of avoiding further dispersion by employing other modes than highway expansion, e.g., through tools to create activity centers less dependent on single-occupant cars. In New Jersey, for example, the DOT capital construction program must be determined to be consistent with the State Development and Redevelopment Plan.

Municipalities and counties need grants for infrastructure improvements from state agencies. This is another interaction that can be improved by an appropriate tool linking transit and land use. In New Jersey and Connecticut, state agencies should not fund improvements that are inconsistent with state development plans, and all participants should execute a memorandum of agreement to that effect; for instance, an extension of sewer lines to a housing development that will be served only by cars does not promote center-oriented growth and should not be funded. In New York, an executive order or state legislation may be needed.

A *builder* seeks approval of a site plan from municipal planning and/or zoning boards. The Campaign proposes a “transit access survey” through which the applicant would identify existing and planned transit access to the site and estimate the percentages of employees, guests, shoppers and the like who will arrive by transit or other means such as foot or bike. The developer will need to describe plans to increase these numbers, such as providing bicycle lock-up facilities and washrooms, sidewalks adequate for walking, and shelter from the weather while waiting for a bus or vanpool. If the transit percentage is small, the applicant may be required to improve the plan, relocate the facility nearer to an established transit node, or advocate for better service from the local transit provider.

Individuals and families make decisions in a highly personal manner, whether they are as simple as where to shop for food or as complex as where to rent an apartment, buy a house, take a job or enroll a child in school or pre-school. Most of these decisions involve a transportation aspect. However, most such decisions are dictated by the larger question — a well-paying job will hardly be turned down because of the traffic implications of getting to it; the best school for a child will be selected whether or not there is a carpool or bus.

These decisions are so personal that it can be hard to imagine tools to affect them. There are some promising starts, however. Local master plans and ordinances can be amended to encourage locating schools and pre-schools, postal centers, dry-cleaning and other convenience services within walking distance of residential areas, or along transit stops and bikeways. Realtors are giving relocating families bus and train schedules to select living arrangements that work

in tandem with transit. Businesses are letting customers shop by phone and are providing delivery services.

Other tools exist or can be created to link transportation and land use planning. By considering how the agencies, businesses, applicants and households interact, we can raise awareness of all the actors without the need for omnibus legislation. Statewide land use statutes may need to be amended to empower planning and zoning boards to initiate reforms to encourage transit-friendly towns. These boards are often hamstrung by pressure from applicants whose permits they feel must be approved regardless of the impacts on community life. The Campaign supports giving these boards the tools to promote transit-friendly development.

B. Other Measures to Improve Land Use and Community Planning

The Campaign has identified a number of other measures to pursue innovative land use, community design and infrastructure planning measures. They include:

Land acquisition — State open space plans and the Regional Plan Association's open space report identify major tracts of undeveloped open space that should be preserved.⁶⁷ Local, state and federal acquisition funds should seek to maximize those tracts, with assistance from non-government organizations.

Regional commissions — State legislation is needed to establish regional commissions to plan protection and development. In its last session, the New York State legislature enacted the Long Island Pine Barrens Protection Act, calling for outright preservation of a 50,000-acre core area and mixed preservation and managed growth in a 50,000-acre compatible growth area. New Jersey has considerable experience with regional commissions in the New Jersey Pinelands and the Hackensack Meadowlands. The Regional Plan Association's Metropolitan Greensward initiative seeks to create a permanent green edge for the urbanized part of the region through creation of regional commissions in the NY/NJ/CT highlands, the Catskills and other important districts.

Targeting development with TDRs — Transfer of development rights (TDR) programs offer a means to guide private development into mixed-use centers that facilitate walking, biking, and transit use. TDRs allow owners of property in preservation areas to sell their development rights to property owners in designated regional growth areas. The New Jersey Pinelands Commission has made extensive use of TDRs as a market mechanism to steer development to areas with existing or planned infrastructure that can support that growth. The Long Island Pine Barrens Commission is considering TDR programs, and we urge other communities to adopt them as part of regional planning initiatives.

New Jersey's State Development and Redevelopment Plan

New Jersey has an innovative growth management plan that, if implemented properly, will concentrate new development in areas best served by alternatives to the automobile. The State Development and Redevelopment Plan, adopted in 1992 after six years, divides the state into five planning areas, from urban and suburban to rural and environmentally sensitive. Within each planning area, new development is targeted to centers — cities, towns, villages and hamlets — where opportunities exist to make trips on foot or bicycle and where densities could support cost-effective transit service.

New Jersey's local, county and state elected leaders and planning officials affirmed their support for the plan through a time-consuming but rewarding process called "cross-acceptance."

This was a series of statewide hearings and work sessions in which stakeholders negotiated drafts of the plan until a consensus was reached. The process produced the Plan and raised awareness of pertinent issues.

Unfortunately, New Jersey's State Planning Act does not require municipal planning boards to make their plans consistent with the state document. Instead, "cross-acceptance" is relied upon to bring state and local plans into line. The Office of State Planning is working with state agencies to ensure that their functional plans — including transportation capital spending — support the development plan. The primary enforcement tool is the ability to give or withhold monies for infrastructure development. More resources will be necessary for the plan to effectively guide development.

Targeting state infrastructure investments — Each state in the region spends large sums on infrastructure — roads, water lines and sewers. State agencies responsible for these capital investments should be required to show that they will not induce development in transit-inaccessible places. As part of approval of any highway expansion project, the responsible state DOT or MPO should be

required, among other conditions (see box, p. 28), to show that the highway will not augment development pressure in undeveloped or low-density areas that cannot support transit use.

Transportation projects — ISTEA requires state and metropolitan planning agencies to consider the land use impacts of transportation projects and plans. Insofar as MPOs and state DOTs have considered land use at all, they have accepted municipal zoning and land use plans as a given. This must change. As a pre-condition of any highway expansion project, the agencies should be required to demonstrate that the project will not augment transportation demand through decentralization of facilities that are dependent on solo driving.

Transit node development incentives — State and ISTEA transportation funds should be used to create incentives for municipalities to redesign railroad and subway nodes to attract major employment, retail or housing development. This will allow employees and shoppers to travel to their destinations by rail and enables residents to get to jobs by walking or biking to the stations. In some cases, these opportunities will improve with redevelopment of centers around these nodes. In others, whole new development will have to be encouraged, e.g., around the Ronkonkoma LIRR station in Suffolk County. Development plans should also be an integral part of planning for major transit improvements, such as new service on the Susquehanna line in New Jersey, the West Shore line in Rockland County and the New Jersey counties bordering the Hudson River, and improved service on Long Island.

Community design workshops — The states should adopt community design and redesign programs that provide technical assistance and grants to communities taking specific zoning and redevelopment actions that will facilitate walking and biking to center shopping and other amenities.

Transit access reviews — Most major employment and retail facilities generate a lot of driving. Through revision to state land use enabling statutes, all municipalities should adopt the measures specified in the box below, to minimize VMT generated by new major facilities. Moreover, all such facilities should be required to estimate vehicular emissions from the projected traffic. As part of an air quality review, the facility would have to purchase NOx and

Siting and Design of Major Development Centers

The Campaign proposes modifying zoning and building code regulations governing siting and design of major employment centers, so as to limit new transportation demands, as follows:

- *Parking* — State and local regulations require excessive provision of employee and customer parking. In addition to un-bundling parking charges, commercial building and zoning regulations should be revised to set the number of parking spaces well below the number of employees or customers.
- *Siting* — Major new employment centers — with 50-100 or more employees — should be sited in close proximity to transit.
- *Transit access survey* — As part of zoning review and occupancy approval, every new, relocating or expanding major center should be required to submit a transit access survey indicating how employees and customers will get to the development. These plans would promote siting near transit nodes, contracting for van service, improving bicycle access and parking, etc.

VOC credits above a baseline based on transit accessibility.

Parking ordinances — Many municipalities have planning and zoning ordinances that require enormous parking areas, usually pegged to the number of employees, customers or square footage of buildings. Over-provision of parking undercuts environmental and community goals by encouraging single-occupancy driving, discouraging downtown development (especially in older centers where existing in-fill parking lots are too small), and covering land with impervious surfacing that adds to run-off pollutants in detention basins. These ordinances will especially require overhaul if programs to cash-out free parking take root and demand for parking diminishes accordingly (see p. 57).

Chapter 7 / Call to Action

Millions of people in our region, along with thousands of businesses, government agencies and civic groups, have a stake in the region's transportation system. Everyone — every group and every affected institution — must play a role.

A. Businesses and Employers

Business location decisions have tremendous implications for transportation. New locations should be chosen to minimize development on open space; best are sites proximate to railroad stations and other transit nodes. Employers that are tenants rather than developers of their sites should negotiate transit access in leases.

The 1990 Clean Air Act Amendments require large firms in the country's most heavily polluted areas (including most of the 32-county tri-state region) to reduce car commuting by developing Employer Trip Reduction (or Employee Commute Option) programs to expand ridesharing, van pools, bicycle commuting, transit access, telecommuting, compressed work weeks, etc. Employers should seize this opportunity to dramatically reduce commuter delays and stress. All major employers should charge employees the full cost of car parking and return the revenue with cash incentives to use transit and ride-sharing.

These changes will promote the region's long-term economic vitality, not only in our urban cores but in the region's suburban and rural reaches.

Actions for the coming year (note — these actions all fall under the rubric of Employer Trip Reduction programs discussed above)

- Begin developing transit access programs for employees, including van pooling from transit hubs.
- Replace free parking with employee cash-out parking programs.
- Provide lockers, parking and showers for bicyclists.
- If relocating, site in proximity to rail or other transit facilities.

B. Land Developers

Increasingly, land developers are facing obstacles. Community groups and regional civic organizations are questioning development that induces traffic and congestion, wipes out small-scale, center-oriented shopping, and destroys open space, especially watersheds, wetlands and floodplains, farmland endangered species habitats and scenic areas.⁶⁸ Developers will be better off if they invest in urban redevelopment and concentrate growth around transit nodes. Developers who pursue this land vision will earn not only respect but healthy returns: they should welcome regional plans, TDRs and existing infrastructure that support communities of place. Such strategies will eventually reduce their planning costs, environmental reviews, community opposition and permit litigation.

Actions for the coming year

- Support regional planning and land preservation initiatives such as TDR programs (see p. 70).
- Adopt building and community designs to improve non-car mobility, e.g., clustering growth around transit, bike and pedestrian paths, bicycle access to buildings, walkable communities.

C. Automobile Users

Our plan will allow the automobile to do what it does well — provide convenient, comfortable and speedy mobility. Nevertheless, drivers must be willing to face up to the economic and social consequences of excessive use of and dependence on cars and trucks. To enjoy the automobile means to use it efficiently, and pay fairly for that use. That translates into phased-in roadway pricing policies. Automobile and truck users should support electronic vehicle identification systems that allow for tolling roadway use without stopping at toll booths. They should appreciate that transit investments benefit them by reducing highway congestion and land fragmentation, so that they should be willing to help pay for those investments.

Evidence is growing that drivers are coming to recognize the environmental harm from automobiles and the importance of public transportation. By a margin of better than 3-to-2, New York City *car owners* polled in the 1992 Empire State Survey endorsed paying higher tolls if revenues went to improve public transportation.⁶⁹ People are coming to understand that building more highways doesn't solve congestion but compounds it by adding to traffic.⁷⁰

Users of trucking services will especially benefit from proposals to improve the attractiveness of moving goods by rail. Motorists along with other stakeholders should help shape transportation pricing strategies that promote efficient vehicular use, land and energy conservation, clean air and social equity.

Actions for the coming year

- Show political support for roadway pricing and unbundling measures such as congestion pricing, pay-as-you-drive insurance, smog fees, by writing to local, state and federal elected officials.

D. State Legislators and Governors

Shifting transportation and land use policies can only be accomplished with appropriate state legislation and budget commitments. Although state legislatures traditionally were strong supporters of highway expansion projects, this has been changing. Lawmakers from the tri-state region, led by New York's Senator Moynihan, fought hard to fashion the landmark 1991 ISTEA law, which grants states wide flexibility in using federal transportation funds. New York State legislators, for example, have approved an unprecedented \$23 billion for transit repairs and modernization from 1981-1997 in the state's metropolitan areas, and billions more in transit operations.

The legislatures should direct their transportation agencies to get on with the task of repairing and renovating our highway, bridge and transit systems, and to defer expanding highways at least until ISTEA-mandated planning systems are in place. They must also ensure that the transportation agencies in the region have the requisite staff resources, modeling and planning capacities and policy direction.

The state legislatures will also play a key role in the adoption of Automatic Vehicle Identification (AVI) systems and “smart cards” for cars and trucks and development of a roadway pricing structure that controls congestion, charges for other harms of driving such as smog and roadway deterioration, and unbundles motorists’ costs through pay-as-you-drive insurance and pay-as-you-use parking. They will also need to be involved in land use initiatives discussed in Chapter 6.

Actions for the coming year (in addition to measures in box on next page)

- Broaden representation of the Metropolitan Planning Organizations (MPOs) to include membership from state environmental agencies and citizens.
- Provide full funding of transit operating budgets.
- Direct the regional transportation agencies to develop and implement a single regional fare card.
- Enact legislation strengthening penalties for driving without auto insurance or a valid license, with particularly stiff terms for unlicensed motorists in serious accidents.
- (all three states) Convene hearings to assess “pay-at-the-pump” insurance, including ways to alleviate regional or state border issues (see p. 58).
- Establish a tri-state regional cooperative transportation effort — a council of MPOs and DOTs from the three states in the region to review all major transportation projects for their impact on the region and to develop a long-range transportation plan for the region.
- Set up citizens’ advisory committees to review and comment on all major transportation projects.
- (all three states) Enact a land-use legislative package to (i) establish regional land planning commissions; (ii) provide financial incentives to regional groupings of local governments to implement well-designed TDR (transfer of development rights) programs and other innovative growth management and land preservation tools; (iii) create incentives for siting major employment centers near transit opportunities and assure equitable access; and (iv) link transportation investments to adoption of local and regional land use plans.

**Reducing Air Pollution from Motor Vehicles:
Key Steps for State Legislatures and Environmental Agencies**

1. *Strengthen deficient state air quality implementation plans (SIPs)* — States must pursue integrated, comprehensive strategies to reduce emissions of both VOCs and NO_x, covering the full range of mobile, stationary, and area sources — as opposed to their current “grab bag” plans.
2. *Implement and enforce the SIPs* — Each state’s air quality plan must provide for accurate monitoring and evaluation of individual programs and cumulative progress, as well as for strict legal accountability.
3. *Include all effective transportation strategies in the SIPs* — The SIPs largely exclude effective transportation demand measures because they are considered politically difficult. States need to assess not only costs but benefits — in reduced congestion, accidents, etc. — of reducing emissions through transportation demand measures, and should undertake concerted outreach to help convince the public of the multifaceted benefits from this approach.
4. *Implement the California low emission vehicle (LEV) program and other measures to insure cleaner new cars* — Connecticut and New Jersey should emulate New York and implement California’s LEV program in its entirety. To promote swift development of cleaner fleets, states should devise policies conveying correct price signals (e.g., transferring air pollution costs of vehicles to their buyers and drivers), the necessary research support, and a “technology-forcing” regulatory framework.
5. *Adopt measures to clean up existing cars* — All three states must introduce centralized, “enhanced” inspection and maintenance programs to identify and clean up the dirtiest cars remaining on the road; this may be the single most effective way to reduce emissions from the existing car fleet. “Clunker scrappage” programs can also be a cost-effective tool to curb emissions.

E. Transportation Planners and Providers

ISTEA allows — indeed requires — transportation agencies in the region to radically change their *modus operandi*. The agencies must (i) consider means of reducing congestion other than merely expanding highway capacity; (ii) forego transportation projects that will thwart efforts to meet national air quality goals; (iii) consider energy conservation, land use, social equity and mobility; and evaluate the transportation demand measures and mechanisms described in this Plan in an integrated way. They must also promote meaningful participation in planning processes by non-government groups.

For the public to participate in transportation planning processes, the transportation agencies must indicate clearly what travel needs they perceive (with supporting data), what alternatives could satisfy those needs (including the full range of transportation demand measures), what actions could reduce the demand for travel, and the economic, social, and environmental consequences of the various alternatives.

Actions for the coming year

- (major transportation agencies) Undertake an initiative, with the Campaign, to develop an alternative for each highway expansion project identified in Appendix 1 that encompasses transit, pricing, ETR programs, land use and other transportation demand measures described in Chapters 4, 5 and 6.
- (Metro-North, NJ Transit, LIRR) Expand level and variety of service for reverse commuters to regional job centers such as White Plains, Stamford, Parsippany and Edison, including pilot projects such as subscription express buses.
- (NJ Transit and CONNDOT) Pursue additional suburban mobility pilot projects, such as subscription express buses, demand-responsive transit.
- (NYSDOT) Investigate raising clearances (to 22 feet) from Albany through the Oak Point Link in the Bronx to Long Island, to accommodate double-stack rail cars; develop facilities to allow alternative rail-vehicle designs such as road railers (truck trailers equipped with steel wheels), run on rail-road tracks without restrictive clearances.
- (MTA) Begin steady conversion of diesel bus fleets throughout the region to less-polluting fuels such as compressed natural gas.
- (Port Authority) Repair rail car floaters and open the 65th Street Yard rail intermodal facility in Brooklyn to permit high-capacity cross-harbor rail float service.
- (Port Authority) Finance efficient operation of Cross-Harbor rail-car ferry service from Bay Ridge to Jersey City.
- (MTA) Ensure that the 5-year \$9.6 billion MTA rebuilding program is efficiently implemented and is responsive to community and rider needs.
- (Metro-North, NJ Transit, LIRR) Install bicycle lockers at selected commuter rail stations. Open all NJ Transit and MTA rail lines to bicycles except during peak use periods. Begin developing bike-and-ride facilities.

- (NYCDOT) Begin the congestion pricing study approved for New York City Transportation Coordinating Council CMAQ (Congestion Mitigation and Air Quality) funds.
- (CONNDOT, MPOs) Evaluate new transitways along state-owned rail rights of way in Hartford area; begin new service between New Haven and Hartford on underused Amtrak corridor.
- Survey, categorize and map all regional land uses in the region using a geographic information system (GIS) to provide standardized information to transportation planners and the public.
- (State DOTs, DMVs) Devise campaign to improve driver performance and attitudes about bicyclists and pedestrians.
- (All operating agencies) Maintain transit fares at current levels.
- (All operating agencies) Time bus schedules to meet train schedules.
- (MTA) Eliminate two and three fare zones starting in 1995.
- (MTA) Provide riders with unlimited-ride weekly and monthly passes starting in 1995.
- (Metro-North, NJ Transit, LIRR) Provide cheaper fares within New York City to encourage City ridership on suburban lines within the City.
- (State DOTs) Develop ISTEA-mandated congestion management plans.
- (NJDOT) Revise regulations for the Highway Access Management Code to discourage sprawl.
- (State DOTs) Monitor and enforce employer trip reduction (employee commute option) programs.
- (State DOTs) Ensure that all HOV lanes authorize use only by vehicles with a minimum of three passengers.
- (NYCDOT) Revise the New York City 42nd Street transitway plan to eliminate auto traffic and expand pedestrian areas and bicycle lanes.
- (NYCDOT) Close Central Park and Prospect Parks to motor vehicles.
- (NYCDOT) Build proposed Lafayette Street bike lane as prototype for NYC on-street bike lane system.
- (NJDOT) Develop strong implementation plan for memorandum of understanding supporting the State Plan in agency decisions.
- (CONNDOT) Build center-island platform at Stamford railroad station.
- (CONNDOT, MPOs) Enhance and expand intrastate commuter rail service.

F. State Environmental Agencies

ISTEA presents an enormous challenge to the environmental agencies in the three states. For these agencies to fulfill their responsibilities to prepare and enforce strong state implementation plans (SIPs) to clean up the region's air, they must become active participants in the transportation planning process with a view to reducing the amount of driving in the region. Of course, the agencies must have the necessary resources to do this well.

Actions for the coming year

- Establish SIP land use task forces in all three states in the region.
- Map open space throughout the region using a geographic information system (GIS) to provide standardized information to transportation planners and the public.
- Adopt a common methodology for assessing the region-wide impacts of all transportation projects on regional land use, amount of driving, air pollution, energy and mobility for all income groups.
- Establish permitting procedure for large traffic generators to mitigate air pollution from new developments.

G. Local Government

In New York, New Jersey, and Connecticut, state law confers upon towns or municipalities — ranging from incorporated villages to New York City — authority to regulate land use. This means that several hundred municipalities with zoning powers in the region must achieve exceptional co-operation to make the development strategies in this plan work.

Suburban and rural towns have a particularly important role to play. They must adopt land conservation and growth management strategies. In some cases they will have to work closely with other towns through regional commissions, such as the newly-formed Long Island Pine Barrens Commission or state-legislated regional entities such as the New Jersey Pinelands Commission, to conserve remaining multi-town tracts of open space. They must take advantage of new land use management tools described in Chapter 7, Section B, such

as transfer of development rights. They must adopt some of the specific measures identified therein, including rezoning areas around railroad stations for high-density residential and commercial development to focus public investments there. At the same time, they need to stop zoning for large, isolated, office campuses accessible only by cars.

Local units of government must adopt design guidelines for municipal centers that create a sense of community and provide opportunities for biking and walking to shopping clusters. They must support investment that strengthens centers, both large and small, and urban, suburban and rural.

Actions for the coming year

- Revise local master plans and zoning ordinances to permit higher-density development in municipal centers and around or near transit facilities.
- Adopt a transit access survey for inclusion in development application guidelines issued by planning and zoning boards.
- Hold a workshop on making your town more transit-friendly, and create a committee to investigate bus, van, rail, bike and walk options where not enough exist.
- Revise parking ordinances to favor less over more parking for developments, provided suitable transit access is available.
- Initiate revision of land use plans and zoning ordinances with a view to minimizing highway travel demand.

Appendix 1 / New Highway Capacity Being Built or Actively Planned in the Tri-State Region

State DOT and MPO officials in the region say they intend to devote new ISTEA and state highway funds overwhelmingly to repairing and maintaining existing highways and bridges. However, these agencies are still looking to expand highway capacity as a way to relieve congestion, as evidenced by this list of highway expansion projects compiled by the Tri-State Transportation Campaign. As shown below, a partial listing of intended projects totals over 400 lane-miles at a cost exceeding \$2.5 billion.

The lane-mile and cost figures, while approximate, reflect careful review by the Campaign of DOT and MPO plans. Not included are hundreds of projects to increase roadway capacity with traffic-flow improvements such as computerized or re-timed traffic signals, and turning and on-and-off ramp lanes. Also excluded are many large-scale roadway reconstructions which increase vehicle through-put capacity without widening the road, such as reconstruction of Route 9A on the West Side of Manhattan, which New York State DOT projects will increase peak-hour traffic flow capacity by 20%.

Connecticut (4 counties in Tri-State Region)

56 lane-miles priced at \$377 million

- Route 6: new highway from Bolton to Willimantic
- Route 7: extension of current Super 7 to Route 33, Wilton, and new lanes north of Danbury
- Route 72: new urban arterial
- I-95: additional capacity from New Haven to Greenwich
- I-84: extension of current HOV lanes into downtown Hartford
- Quinnipiac River Bridge; re construction and possible new bridge

New Jersey (14 counties in Tri-State Region)

168 lane-miles priced at \$750 million

- I-287: add additional lane in each direction (for 2-person, peak period-only HOV) in Morris and Somerset Counties
- Route 1: additional lanes
- Route 92F: new highway connecting NJ Turnpike to Routes 130 and 571

- Route 18: extension to connect to I-287
- Route 70: additional lanes
- Route 80: additional lanes for HOV
- NJ Turnpike: additional lanes for (3-person) HOVs between Exits 11 and 14

New York (14 counties in Tri-State Region)

207 lane miles priced at \$1,427 million

- I-287: additional lane each direction on Cross Westchester Expressway
- Tappan Zee Bridge Corridor: additional peak direction lane, widening/lane additions at bridge ends
- Taconic Parkway: throughout Westchester and Putnam Counties: add lanes and widen and add “shoulder” lanes
- Route 22: widen from 2 to 4 lanes in Westchester, Putnam and Dutchess Counties
- Route 119: widen in Westchester County
- Route 117: widen in Westchester County
- Route 6: widen in Westchester County
- Studies for expansion of Routes 6N, Route 35/202, Route 120, Route 9A bypass, Route 312 and Route 9 in Westchester County
- Route 59: widen in Rockland County
- Studies for expansion of Routes 52, 9, 9D, 9W, 17K, 17M and 17 in Orange County
- Long Island Expressway: additional lane in each direction
- Northern State Parkway: additional lanes in Nassau and Suffolk Counties
- Southern State Parkway: widening in Nassau County
- Route 347: additional lanes in both directions, Suffolk County
- Route 25: widen in Suffolk County
- I-878/Nassau Expressway: Construct new expressway section between Cross-Bay Boulevard and 150th Street
- Cross-Bronx Expressway: studying addition of lanes across the Bronx
- Gowanus Expressway: add “special use lane” in existing median
- Staten Island: widen Staten Island Expressway and other limited-access arterial roadways
- Goethals Bridge: plan to double motor vehicle capacity by constructing new bridge

New York State cost estimate excludes Long Island Expressway, Staten Island arterials, Goethals Bridge and smaller routes in Westchester and Orange Counties. Cost estimates for many projects included in total only reflect costs for preliminary phases of work.

Entire Tri-State CT/NJ/NY Region (32 counties)

431 lane-miles priced at \$2,554 million

Appendix 2 / New Public Transportation for Our Region

The Tri-State Transportation Campaign's initial efforts to develop measures for improving public transportation in the region have focused on New York City and its immediate environs. This is because some Campaign members have already worked on this issue for years, and because the massive transit system in place provides many opportunities for expansion and improvement.

Opportunities also exist in the suburbs, but they are less apparent and not as readily accessible. Campaign members are working on innovative approaches to expand mobility and access in the suburbs without expanding roadway capacity. The Campaign will share these plans with the public and government officials as they take shape. We invite input from you, the reader.

A. Measures to Interconnect the Region's Rail Network

The region's rail system is poorly interconnected, making it relatively inefficient and unattractive for reaching major destinations. This Appendix describes problems and possible solutions, in an effort to involve the public so that intelligent and informed choices can be made in an open setting. In some instances the Campaign emphasizes particular solutions which appear to offer extraordinary benefits to the region's economic health and mobility.

Some choices overlap or even conflict with one another. Fortunately, sometimes they work synergistically. Considering the costs and implications, decisions must be made thoughtfully and carefully, but not timidly. The stakes for the region are too high for us not to be bold.

Ideally, commuters using the three commuter rail networks — the LIRR the three Metro-North lines (New Haven, Harlem and Hudson) and NJ Transit — should have comfortable, convenient and speedy access to key core destinations in the region — Manhattan's east and west sides, lower Manhattan, downtown Brooklyn, Long Island City, the New Jersey waterfront and Newark. Reaching some destination presently requires a combination of commuter rail, PATH or subway service with multiple transfers.

A matrix of service levels indicating the quality and directness of trips (■■ for good, ■ for some, and a blank for poor) is shown here for each commuter system and each primary destination. Following is a discussion of options to improve each entry where service is less than good.

| | LIRR | Metro-North | NJ Transit |
|----------------------|------|-------------|------------|
| East Side | | ■■ | |
| West Side | ■■ | | ■■ |
| Lower Manhattan | | | ■ |
| Brooklyn | ■■ | | |
| Long Island City | ■ | | |
| NJ Waterfront/Newark | | | ■■ |

LIRR to East Midtown and Long Island City

1. In the short-term, improve the transfer between the LIRR and the subways in Long Island City. The existing Hunters Point transfer to the #7 line is cumbersome, and service to Hunters point is infrequent. Frequent service between Jamaica and the Long Island City terminus must be provided, with the subway stations reconfigured for better transfers to the subways.

2. Complete the 63rd Street tunnel lower level connection to the Park Avenue Metro-North tunnel to Grand Central. Completion of this \$1.7 billion project will remove many cars from highways in Queens, Manhattan and Long Island, strengthen the Long Island economy, free up capacity at Penn Station, provide an excellent terminal for airport travelers, and establish a link between the Metro-North lines and the LIRR.

3. Provide LIRR service connections to Grand Central Terminal via Atlantic Terminal in Brooklyn via the BMT tunnel to lower Manhattan and then north (see discussion of LIRR to Lower Manhattan below). This connection would be slower than the one described in (2) above but would provide many advantages for lower Manhattan.

4. Convert the LIRR Port Washington line to a high-frequency, high-amenity line with direct service to the upper level of the 63rd Street tunnel and into the BMT Broadway line for midtown and lower Manhattan distribution.

LIRR to Lower Manhattan

The LIRR provides service to the Atlantic Terminal in downtown Brooklyn. Establishing a direct connection to lower Manhattan via the BMT would require constructing a short rail link to allow LIRR trains to move onto the BMT tracks. If the BMT tunnel has inadequate capacity, the MTA could construct a new tunnel to lower Manhattan; trains would continue north, using the BMT tunnel where capacity exists. This would require a new tunnel from the BMT north of 17th Street under Madison Avenue to the lower level turning tracks at Grand Central Terminal. Metro-North trains would use the tunnel to reach lower Manhattan and downtown Brooklyn directly. (See discussion below of Metro-North lines to lower Manhattan and downtown Brooklyn.)

LIRR to Newark and other New Jersey Regional Hubs

Rail operators should provide through-service between Long Island and New Jersey via Penn Station. In addition to linking these two sectors of the region, this operation would improve train flow through Penn Station.

Metro-North lines to lower Manhattan and downtown Brooklyn

Metro-North passengers destined for lower Manhattan and downtown Brooklyn must transfer at Grand Central to the highly congested Lexington Avenue subway. If the new Madison Avenue tunnel linking Grand Central and the BMT lines north of 17th Street were constructed, Metro-North trains could continue directly south to lower Manhattan and into downtown Brooklyn, with either no transfer or an easy transfer within Grand Central Terminal. This would also ease congestion on the Lexington Ave. line south of 42nd Street while reducing the need to extend the new Second Ave. Subway south of 42nd Street.

Metro-North to west Midtown and New Jersey

Metro-North could bring its Hudson Line trains directly into Penn Station by using Amtrak track over the Harlem River at Spuyten Duyvil down Manhattan's west side. Similarly, Metro-North could bring its New Haven Line trains to Penn Station via the underutilized Hell Gate Bridge; these trains could proceed beyond Penn Station to Newark and possibly beyond. Linkages for Metro-North's Harlem Line to Penn Station would be more expensive, however.

NJ Transit to west Midtown

Of the ten NJ Transit lines, only two (the Northeast Corridor and North Jersey Coast lines) have direct service to Manhattan's west side at Penn Station. All other midtown passengers must transfer at Hoboken to PATH. Seven of the other eight lines will have vastly improved access to Penn Station upon completion of advanced projects: the Kearny Connection (the Morristown line, Gladstone and Montclair branches), the Secaucus Transfer (Bergen County, Main and Pascack Valley Lines) and the Montclair Connection (Boonton Line). Fortunately, these projects are well along. These projects will also provide transfer capabilities for intra-New Jersey rail connections, e.g., from points on the Bergen County Line to stations along the Northeast Corridor.

NJ Transit to lower Manhattan

PATH trains from Newark to the World Trade Center could be lengthened to 10 cars (a 25% increase in capacity) and ferry connections could be further improved at NJ Transit's Hoboken Terminal.

NJ Transit to east Midtown and Long Island City

NJ Transit passengers destined for the Grand Central area must now take a long walk, a taxi or one or more subways from Penn Station or the Port Authority Bus Terminal. The following options merit consideration:

1. *Build a new station at 33rd street on Manhattan's east side.* Many NJ Transit trains continue through the LIRR train tunnel under Manhattan's east

side to Sunnyside Yard in Queens. Although this option would be difficult to operate because of the limited number of tracks, it should be explored fully.

2. Construct a new combined passenger and freight tunnel parallel to the existing tunnel under the Hudson River to Penn Station, continuing to Manhattan's east side and Sunnyside Yards. The existing Penn Central tunnel under the Hudson River used by NJ Transit and Amtrak has only two tracks. If service expands west of the Hudson (on the West Shore or Susquehanna lines) this capacity will be further constrained. An east side station described in (1) would give east side access to New Jerseyans. This tunnel could be double-decked, with the lower level providing trackage for freight rail to Queens as described on p. 45.

3. Construct a new Hudson River tunnel across upper midtown connecting with the 63rd Street tunnel, with one or more stops on the east side.

4. Extend the #7 line to New Jersey. The Flushing Avenue line would be extended west from Times Square, its current terminus, to a stop serving the Javits Convention Center near the Hudson River, into New Jersey with a transfer at the New Jersey waterfront light rail line, and on to the Meadowlands. Although this option could require relocating the Port Authority Bus Terminal to the Meadowlands, New Jersey bus passengers would be linked directly into the New York City subway system to Times Square and Grand Central Terminal and for distribution throughout Manhattan.

5. Construct a rail crossing of the Hudson River in the vicinity of the Tappan Zee Bridge. This crossing would connect to Metro-North's Hudson Line for access to Grand Central. This option would serve areas west of the Hudson in New York State north of New Jersey, and in part duplicate the market for the West Shore line. Consideration should also be given to extending this line across Westchester County to White Plains or Stamford.

B. Measures to Improve Rail Access To Major Destinations

Designing vastly improved rail connections to all major employment destinations in the region's core is complex but essential for the region's economic

future. Some options may compete with one another for similar markets or for use of the same trackage and tunnel capacity. Without foreclosing detailed engineering and cost assessments of any and all of these options, we are particularly intrigued by these elements of a regional rail program:

- Complete the lower-level 63rd Street tunnel providing LIRR access to the east side and a direct connection between Kennedy Airport and Grand Central.
- Link the LIRR to lower Manhattan with construction of a new rail tunnel under Madison Avenue to Grand Central Terminal. This option will benefit LIRR and Metro-North riders with access to lower Manhattan.
- Construction of a new two-tier tunnel with both passenger and freight rail capacity under the Hudson River parallel to the existing Penn Central tunnel, with a freight and passenger terminus in Long Island City.

Criteria for Major Rail Improvements In the Tri-State Region

1. Maximize direct access to major core destinations — Manhattan, downtown Brooklyn, Long Island City, New Jersey Waterfront, Newark.
2. Improve access to regional hubs, e.g., Mineola, Jamaica, White Plains, Greenwich, Stamford, Metropark and New Brunswick, thereby protecting open space and protecting communities of place.
3. Improve intra-suburban and non-core transportation, e.g., movement among and within Bronx, Brooklyn and Queens.
4. Benefit rail freight movement.
5. Cost-effectiveness.

These new links and tunnels would greatly improve direct access by all of the commuter rail lines to the principal core destinations. All Metro-North lines would service lower Manhattan and downtown Brooklyn, and the LIRR would service Lower Manhattan and midtown. New Jerseyans would gain direct access to Manhattan's west side with construction of the rail transfers that NJ Transit is now advancing. Any of the four options described earlier for added trans-Hudson capacity could give New Jerseyans access to the east side. The MTA, NJ Transit and the Port Authority are currently studying these projects. The Campaign will monitor these efforts to help ensure that they are made in the interest of the region as a whole.

With the major improvements described above, all passengers using these lines would eventually have good rail service to the east and west sides of Manhattan, lower Manhattan (via PATH), and the Hudson Valley, Western Connecticut and Long Island through improved connections with Metro-North and the LIRR. As service is introduced or upgraded along these or other lines, the region's transportation agencies must work with local governments, businesses and civic associations to create transit-oriented and -friendly communities centered around these transit nodes. Zoning changes and public investments that support high-density residential, office and retail uses with pedestrian and bicycling amenities will be critical.

This expanded commuter rail network should also serve other objectives with improved through service and transfers at these principal core destinations. One objective would be improved access and therefore economic revitalization of other regional hubs or centers, including, for example, Mineola, Hempstead and Ronkonkoma, White Plains, Stamford, New Haven, Paterson, Morristown, Newark, New Brunswick and Trenton.

C. Suburban Transit via New Circumferential Rail Service

New circumferential rail service, connecting major regional centers and radial lines, could offer an attractive alternative to the automobile for suburban mobility. Such a system merits careful examination despite its high cost; it would be key to congestion relief and would support redevelopment of key regional hubs in the inner ring of our tri-state region, thus easing pressure for further exurban development. Much of this circumferential rail system could be built along existing highway and railroad rights of way and use existing bridge crossings.

An I-287 Beltway Railway

This concept applies further out in the region's suburbs as well. The corridor dominated by the region's major beltway, I-287, is used predominantly by single-occupant vehicles. New York and New Jersey DOTs, NJ Transit and the MTA should explore development of transit service in this corridor, combining rail, improved bus service and private sector van and minibus transit operations serving major employment centers. The MTA is already investigating rail ser-

vice in Westchester County's I-287 corridor; it should also consider an I-287 rail link to the White Plains railroad station.

A Long Island Circumferential Rail System

Long Island provides a quintessential example of the need for improved and expanded rail service. The Long Island Rail Road, built a century ago when all movement was from Island communities into the City, is a splendid network to serve east-west travel. However, much service is slow, particularly east of Huntington on the Port Jefferson line and east of Babylon on the Montauk line. Electrification and through-service on the Greenport line to Ronkonkoma has reduced travel times significantly and concomitantly increased ridership from Suffolk County; electrification or use of dual-powered locomotives to Port Jefferson and Patchogue could do the same.

Nevertheless, the vast majority of Long Island's working population is employed locally. LIRR capital improvements and scheduling need to respond to this market by creating an intra-Long Island system. Rail track capacity already exists for such service, and north-south transit links could tie together key rail nodes. Together with the recommendations for paratransit services and improved cycling and walking presented in the body of this report, an intra-Island transit system could be created with opportunities for travel throughout most of Nassau and Suffolk Counties. This could be replicated in the region's other suburbs as well.

Land use plans and infrastructure investments by localities throughout the suburbs should promote more compact development patterns around key transit nodes. These land use programs would reinforce transit investments and contribute to preserving open space and reducing highway congestion.

Appendix 3 / Estimating The Effects of Transportation Management Strategies for the New York/New Jersey/Connecticut Metropolitan Region⁷¹

Introduction

This report has put forward the Tri-State Transportation Campaign's vision for a revitalized New York/New Jersey/Connecticut metropolitan region. It emphasizes re-investment in existing infrastructure, a general halt in addition of new road capacity for single-occupant vehicles, major reforms to transportation pricing and land use policies, and new investment in public transportation, pedestrian and bicycle facilities.

The report recognizes that there are no magic bullets to solve the 32-county region's mobility and environmental problems. Rather, a host of synergistic strategies — mutually reinforcing programs — will enable the region to continue to grow while reducing dependence on the single-passenger automobile and expanding the freedom of citizens to choose alternatives to cars to meet their daily activity needs.

The Campaign's Proposed Transportation Strategies

The region's planners expect traffic to rise by 14% by 2007 in the 32-county metropolitan area, adding further to congestion and pollution. Based on preliminary estimates which the Campaign is now refining, the comprehensive strategy proposed here could reduce vehicle miles traveled (VMT) by 15% by 2007, restoring better flow to area roads, reducing time wasted in congestion, and helping the region achieve healthful air quality. As the table on page 64 reveals, pricing strategies account for the largest share of VMT reductions, complemented by contributions from public transportation, walking /bicycling, and "smart" systems technologies.

Our package of measures calls for a major change in pricing policies to "cash-out" existing subsidies that encourage commuters to drive to work. It also addresses non-work travel through automated road pricing systems, "pay-as-you-drive" automobile insurance, and "smog fees" based on how much vehicles pollute and how far they are driven each year. These would all be phased

in over time. The measures are mutually reinforcing in many respects. To take just one example, employer parking fees affect work travel most, but they would also lead some households to reduce non-work automobile travel and even to reduce automobile ownership. Parking fee/rebates at large retail centers would have similar effects.

While advanced technologies can help reduce automobile dependence and make cars more efficient and less polluting, technology alone cannot solve the problems we face. The package therefore calls for rapid improvement of our communities to make them safe and attractive for people to walk and to use bicycles for short purposeful trips. It identifies the need to invest in the region's transit network; to expand and diversify the region's transit network. New paratransit must complement more traditional services, and far more attention must be paid to improving and diversifying transit access, particularly to develop bike-and-ride access and egress so that transit can better compete with the automobile in the suburbs.

Even in the short-term, land use policy changes have a role to play in expanding the freedom of individuals to live and work with less forced dependence on the automobile. For example, suburban local governments in the region should relax or eliminate zoning and site design standards and prohibitions on accessory apartments and businesses in homes that have reduced opportunities for integrated pedestrian and transit-friendly communities. Further analysis of forecasted housing, population, and labor force in the region is needed to assess the potential for shifting growth to less automobile-dependent patterns through pursuit of the comprehensive transportation strategies outlined here. Thus, the estimates of VMT effects of land use strategies should be viewed as extremely provisional.

Evaluating Complementary Transportation Measures

Evaluating this package of measures for their effect on transportation system performance, travel behavior and the environment is a challenge beyond any of the region's operating transportation analysis models, which have sadly fallen into neglect. However, previous research in the New York region using sketch planning models of the now disbanded Tri-State Regional Planning Commis-

sion suggests the potential for pricing and transit investment strategies to reduce Vehicle Miles of Travel (VMT).⁷²

Research and experience in other regions around the country and world have also provided valuable insights into the sensitivities of travel behavior to different transportation and land use regimes.⁷³ Similarly, there is very little in the research literature in America on the effects of area-wide bicycle, pedestrian, and paratransit system improvements, nor of the synergism of pricing strategies with such measures. In the absence of meaningful information, these have been evaluated based on experience in other countries and in a handful of American communities.

Where appropriate, adjustments have been made based on planning judgment to account for particular attributes of the New York metropolitan area — the heavily transit-dependent, walkable core areas of New York City and northern New Jersey, the older suburban ring and “edge city” complexes, and the rural edges. Outer parts of the region are much like the outer parts of many other contemporary U.S. suburban growth areas. The inner core, however, is the least automobile-dependent urban center in North America. High non-automobile driver mode shares in many travel markets in the region are an expression of the extent to which currently provided transit services, walking opportunities, and pricing measures have already been used to shape travel behavior. These systems make it easier to move away from policies which in recent decades have fostered growing dependence on the automobile.

The effect of a change in the price or level of service of different transportation modes is highly dependent on the context into which it is introduced. A single measure alone will tend to have a smaller effect than when bundled with others. There are threshold effects as well: if a measure is too small, it may have no appreciable effect. At the other end of the spectrum, packages of comprehensive measures also can be expected to reach points of diminishing returns, especially as a set of measures makes one or two modes predominant in a particular travel market. For example, the potential to shift automobile drivers to other modes for work trips is greater for work trips within Staten Island, where three-fourths of such travel is by automobile, than for work trips

originating and terminating in Upper Manhattan, where the automobile mode share is only 1 out of 10 trips.⁷⁴

The potential for mode shifts is also greater where there is already genuine competition between driving and other modes. For example, increased parking charges will have a greater effect in areas that are also well served by transit and friendly for walking and bicycling than where these modes are unavailable or unsafe. This synergism makes it vital to analyze transportation strategies in a holistic framework that considers the interactive effects of different measures, rather than merely evaluating measures alone and in limited bundles.

The method used here does not account for the benefits from travel time savings, costs and revenues, distributional impacts and other factors. There is considerable "wobble" room in specifying the level of prices that would be needed to attain specific VMT reduction levels in conjunction with other supporting measures. However, the method provides a reasonable first-order estimate of the likely magnitude and relative importance of different strategies in reducing motor vehicle use. As such, it indicates the importance of moving forward with pricing strategies, transit, bicycle, pedestrian, and paratransit system improvements, and "smart" transit, cars, highways, and communities.

This proposed comprehensive package of transportation demand strategies is no doubt politically challenging, but it should nonetheless provide a framework for more informed debate over the choices facing the citizens and leaders of the New York metropolitan region.

Appendix 3 References

Michael Replogle, *Transportation Conformity and Demand Management: Vital Strategies for Air Quality Attainment*, Environmental Defense Fund, Washington, DC, April 30, 1993.

Apogee Research Corporation, *Costs and Effectiveness of Transportation Control Measures (TCMs): A Review and Analysis of the Literature*, prepared for U.S. EPA/U.S. DOT and the National Association of Regional Councils, Washington, DC, April 1993.

Cambridge Systematics, Inc., *Transportation Control Measure Information Documents*, U.S. EPA Office of Mobile Sources, March 1992.

Metropolitan Washington Air Quality Committee, *The Clean Air Challenge: Meeting the Federal Health Standard for Ozone in the Washington Metropolitan Region*, Washington, DC, July 1, 1993.

National Capital Region Transportation Planning Board, *Conformity Determination of the FY 94-99 Transportation Improvement Program for the Washington Metropolitan Region With the Requirements for the 1990 Clean Air Act Amendments*, June 16, 1993.

Stacy C. Davis and Sonja G. Strang, *Transportation Energy Data Book: Edition 13*, U.S. Department of Energy/Oak Ridge National Laboratory, NTIS, Washington, DC, March 1993.

Endnotes

1. From 1970 to 1990, limited-access highway route miles in the region increased 18%, from 1,575 to 1,863. Source: Regional Plan Association.
2. Using New York Metropolitan Transportation Council (NYMTC) data, Brian Ketcham has estimated that VMT increased 58% for the 26-county metropolitan region. Allowing for slightly faster growth in the six most outlying counties, the aggregate increase for the full 32-county tri-state region is approximately 60%.
3. Source: Brian Ketcham & Charles Komanoff, *Win-Win Transportation: A No-Losers Approach to Financing Transport in New York City and the Region*, 1992 draft, Transportation Alternatives, New York, NY, p. 20. The 10.25 million registered vehicles in the 25-county metropolitan area absorbed approximately \$32 billion in 1990. Assuming 85% of vehicles are personal (leaving 15% for freight and hire), the average is roughly \$3,600.
4. Based on 1991 U.S. average of 21.68 miles per gallon (U.S. Dept. of Energy, *Monthly Energy Review*) and estimated average retail gasoline price, including taxes, of \$1.20/gallon.
5. Calculated by Brian Ketcham from data provided in Texas Transportation Institute, *Estimates of Urban Roadway Congestion — 1990*, Research Report 1131-5, Texas A&M University System, March 1993; adjusted to reflect estimates by Port Authority of NY & NJ of the costs of congestion to truckers (estimated at \$4.5 billion a year), as well as time lost by non-motorized travelers (pedestrians and cyclists).
6. Cora Roelofs and Charles Komanoff, *Subsidies for Traffic: How Taxpayer Dollars Underwrite Driving in New York State*, Tri-State Transportation Campaign, March 1994. The table in text summarizes dozens of annual revenue and expenditure categories pertaining to motor vehicles in New York State, analyzed in the report. It includes revenues collected for parking taxes, meters and violations; petroleum business, motor fuel, trucking corporation and highway use taxes; motor vehicle registration fees; and tolls collected by the TBTA, Port Authority, Thruway Authority, Bridge Authority and other public authorities, excepting Port Authority revenues allocable to New Jersey.
7. Data for freight in tri-state region, from Regional Plan Association. U.S. data from Eno Transportation Foundation, Inc., *Transportation in America*, 1992, 10th edition, pp. 44 and 46. Non-truck freight is largely via rail, water or pipeline.
8. Calculation by Brian Ketcham, November 1993, for all of New York State, based on Federal Highway Administration data for 1989, excluding light-duty trucks used for passenger travel. Assuming a 4-to-1 weight ratio of trucks to cars (e.g., 6-8 tons vs. 3,500 pounds), trucks' share of the region's ton miles is roughly 36%.
9. U.S. DOT, *Final Report of the Federal Highway Cost Allocation Study*, p. E-19, May 1982.

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10. New Jersey Transportation Co-ordinating Council, *Regional Transportation plan for Northern New Jersey*, no date, p. 40.

11. Connecticut DOT, *Southern Connecticut Transportation Corridor Feasibility Study*, June 1993.

12. As an example of commuter rail deficiencies into Manhattan, consider a Long Island commuter bound for east midtown. The rider must either backtrack from Penn Station, or get off at Hunters Point and take a crowded subway to east midtown, or travel to Atlantic Avenue in Brooklyn and, again, take the subway. Each way, a half-hour is added to the basic trip.

13. See Endnote 55 for explanation.

14. Most express bus service from New Jersey converges on the Lincoln Tunnel via the Route 495 exclusive bus lane, which uses a contraflow lane (an outbound lane converted for inbound use during the morning peak) en route to the Port Authority Bus Terminal on West 42nd St. in Manhattan. The Port Authority's George Washington Bridge Bus Station in upper Manhattan is less heavily used, mostly for travel between eastern Bergen County and upper Manhattan, the Bronx or the Manhattan central business district.

15. "Bus Ridership is Continuing Long Decline" *The New York Times*, Dec. 6, 1993, p. B1. The Transit Authority estimates that illegal vans have captured 7% of bus ridership. *The Times*, "Gunman Robs Riders in Van, Killing Driver," Dec. 5, 1993, pp. 49 and 54.

16. Infrastructure Institute at Cooper Union, *Smart Money — Now is the time to Invest in the Physical City*, 1992, New York, p. 35.

17. Connecticut Council on Environmental Quality, *Annual Report, 1990*, p. 14.

18. Only Ulster and Sullivan Counties and the northern part of Orange County, all in New York State, are attainment areas for ozone, according to federal EPA. Putnam and Dutchess (NY) and Warren (NJ) are "marginal" non-attainment areas, and Litchfield, Hartford and New Haven (CT) are "serious" non-attainment areas. All other parts of the 32-county tri-state region are "severe" non-attainment areas for ozone.

19. PM-10 (particulate matter) levels in Manhattan have exceeded national air pollution standards for every measuring period since the first (and only) street-level monitor was introduced in 1988. EPA announced that it would redesignate Manhattan in mid-1990, but failed to act. In October 1993, after campaign members petitioned the agency, EPA officials informed campaign members that the redesignation was imminent.

20. Goldstein, E. and Izeman, M., *The New York Environment Book*, Island Press, NY, 1990, pp. 100-101, citing 48 Fed. Reg. 56407 (Dec. 21, 1983).

21. U.S. Environmental Protection Agency, *1992 Transportation and Air Quality Planning Guidelines*, EPA 420/R-92-001, July 1992, p. 4; Center for Resource Economics,

Annual Review of the U.S. Environmental Protection Agency, Island Press, May 1993, p. 92.

22. N.A. Molfino, "Effect of Low Concentrations of Ozone on Inhaled Allergen Responses in Asthmatic Subjects," *The Lancet*, July 27, 1991, Vol. 338, No. 8761, pp. 199-203.

23. William Taylor & Paul Newacheck, "Impact of Childhood Asthma on Health," *Pediatrics*, Nov. 1992, Vol. 90, No. 5, pp. 657-662.

24. Robin Marantz Henig, "Asthma Kills," *The New York Times*, March 28, 1993, Section 6, p. 42.

25. C. Arden Pope, Brigham Young University and Harvard School of Public Health, followed more than 8,000 adults for fourteen years, correcting for individual risk factors such as smoking, and correlated life expectancy with exposure to particulate matter small enough to penetrate deep into the lungs, and which had been measured consistently over the study period. The results were presented at the May, 1993 American Lung Association / American Thoracic Society Conference in San Francisco, and published in Douglas W. Dockery et al., "An Association Between Air Pollution and Mortality in Six U.S. Cities," *New England Journal of Medicine*, Dec. 9, 1993, Vol. 329, No. 24, pp. 1753-1759.

26. The 1991-92 New York State *Energy Master Plan* forecasts a 51% growth in VMT over the next 20 years. At this rate, VMT would double in 33.6 years.

27. Institute of Urban and Regional Research, *Measures of Noise Damage Costs Attributable to Motor Vehicle Travel*, University of Iowa, August, 1981, citing J.P. Nelson, *Economic Analysis of Transportation Noise Abatement*, Ballinger, 1978.

28. See *Win-Win Transportation*, op. cit., p. 105.

29. NY State Energy Office, *New York State Annual Energy Review: Energy Consumption, Supply and Price Statistics, 1970-1990*, 1991, p. 27.

30. Wolfgang Sachs, *For Love of the Automobile*, University of California Press, 1984 (translation, 1992), p. 191.

31. NYCDOT, "Improving Manhattan Traffic and Air Quality Conditions: Effectiveness of Bicycle Programs," Sept. 1990. See also, Transportation Alternatives, *Bicycle Blueprint: A Plan to Bring Bicycling into the Mainstream in New York City*, 1993, p. 22.

32. *Bicycle Blueprint* (see previous note), Appendix 2.

33. "LIRR Adds Parking Spots As Ridership Keeps Slipping," *The New York Times*, Nov. 29, 1992, Section 13. See also *Bicycle Blueprint*, op. cit., p. 83, Note 13.

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34. Cora Roelofs and Charles Komanoff, *Costs of Motor Vehicle Fatalities and Injuries in New York City and State*, Komanoff Energy Associates, December 1993 draft.
35. See *Times-Herald Record*, "Suit Seeks to Close New I-287," Nov. 20, 1993; also, *New York Times*, "Missing Link of Interstate Opens, Despite Lawsuit," Nov. 20, 1993.
36. Intermodal Surface Transportation Efficiency Act of 1991 (Public Law 102-240), Dec. 18, 1991, 105 Stat. 1958, 23 U.S.C. 1.
37. *Id.* at §13 and §14.
38. See 23 U.S.C. 134(e).
39. Clean Air Act, 42 U.S.C. §7501 et seq. (1990).
40. The 14% growth projection is inferred from the TIP Conformity Analyses prepared by the New York Metropolitan Transportation Council and the North Jersey Transportation Coordinating Council in Fall, 1993.
41. The Port Authority claims that federal law restricts rail links financed by airport ticket taxes to airport travel only, and thus prohibits the Federal Aviation Administration from authorizing such taxes to contribute to financing direct LIRR access to Grand Central Station. However, if this rail connection from Manhattan's east side to Jamaica is cost-effective compared to the Port Authority's JFK access proposal, then the Campaign urges changing federal law to allow it. Use of standard gauge rail technology for the Kennedy-Jamaica link would be required in any event for direct rail service between JFK and Grand Central.
42. Tom Fox, "Metroport," draft proposal, typescript, 1988. Fox currently is director of the Hudson River Park Conservancy. According to his proposal, Hovercraft operate in shallow water, eliminating the need to dredge and maintain channels and minimizing the costs and impacts of docking facilities; because they use aircraft engines, Long Island's aircraft industry might be used as a design and manufacturing base.
43. Of the 50 states and the District of Columbia, New York ranks 50th, New Jersey 47th and Connecticut 45th in the percentage of highway revenues from truckers. Source, American Automobile Manufacturers Association, *Facts and Figures, 1992*, "State and Federal Highway User Taxes Levied on Trucks By State," p. 81.
44. City of Chicago, Mayor's Bicycle Advisory Council, *The Bike 2000 Plan: A Plan to Make Chicago Bicycle-Friendly by the Year 2000*. 1992.
45. *Bicycle Blueprint*, op. cit.
46. Bicycle advocacy is growing in the region's suburbs as well. Groups such as Long Island's Paumonok Bicycle Club and B.I.K.E. (Biking is Kind to the Environment) are proposing ambitious suburban bicycling plans and improvements. New state-wide bicy-

cling advocacy initiatives in New Jersey and New York are also increasing pressure for better cycling throughout the region.

47. See NYC Dept. of City Planning, *A Greenway Plan for New York City*, Fall 1993.

48. Jeffrey Kenworthy and Peter Newman, *Towards a More Sustainable Canberra: An Assessment of Canberra's Transport, Energy and Land Use*, Institute for Science and Technology Policy, Murdoch University, Perth, Australia, 1991, pp. 108-109.

49. Michael Freiherr von Pidoll, "Automobilism Today: A Call to Protest," p. 63, quoted in Wolfgang Sachs, *For Love of the Automobile — Looking Back into the History of Our Desires*, 1984, p. 22.

50. Some auto and oil companies claim that new cars eliminate 95% or more of emissions; this is a "best-case" exaggeration that ignores manufacturing defects, driver tampering and age-related deterioration of catalytic converters; excludes evaporative emissions of VOC's and ignores NOx emissions entirely; and downplays the high rate of emissions during cold starts and stop-and-go driving and heavy acceleration. See Harrington and McConnell, "Vehicle Emissions Inspection and Maintenance: Where Do We Go From Here?," *Resources*, Winter 1993, Resources for the Future, Washington, DC.

51. The Clean Fuel Fleet Program of the 1990 Clean Air Act Amendments mandate a phase-in of tighter emission limits for new cars in California; other states may "opt-in." The program also requires the country's dirtiest areas, including most of the tri-state region, to limit emissions from centrally-fueled vehicle fleets, starting in 1998. See U.S.C.A. §7511A (c)(4) and §7581 et seq. (1990). New York City's Local Law 6 requires 30% of new cars and light trucks to be non-gasoline fueled in fiscal year 1994-95 (rising to 80% in 1996-97); similarly for 30% of new bus purchases in 1997-98.

52. Battery-powered electric cars that would qualify as ZEVs are actually "elsewhere-emission" vehicles, considering that some of the battery charging from the grid would be by fossil-fuel generated electricity. Energy analyst Amory Lovins has suggested expanding California's ZEV definition to include "hybrid" vehicles driven by electricity manufactured on-board by low-emission gas turbines or fuel cells, provided their net emissions are less than those of battery-electrics. See *Electricity Journal*, June 1993, pp. 2-3.

53. To obtain vital scale economies, transit and other agencies in the states should shift their capital spending priorities for bus purchases immediately from diesel to cleaner alternative fuels such as compressed natural gas (CNG) and/or electric power.

54. United Kingdom, Department of Transport, "Government Crackdown on Speeding," Press Notice No. 17, Jan. 13, 1993, and companion report, *Killing Speed and Saving Lives*, Nov. 1992, Section 1.6.

55. "Cold starts" produce high pollution levels because catalytic converters take a few minutes to heat up and are effective only at very high temperatures which take several

Endnotes

minutes to reach. After the engine is shut off, "hot soaks" produce evaporative emissions while the engine cools down.

56. For a fuller discussion of these mechanisms, see Charles Komanoff, "Pollution Taxes for Roadway Transportation," in *Pace Environmental Law Review*, Pace University Law School, Center for Environmental and Legal Studies, 1994, forthcoming; article alone is available from Komanoff Energy Associates.

57. Donald C. Shoup and Richard W. Willson, "Employer-Paid Parking: The Problem and Proposed Solutions," *Transportation Quarterly*, April 1992, Vol. 46, No. 2, Eno Transportation Foundation, Inc., Westport, CT, p. 170.

58. Shoup and Willson, *op. cit.*, Table 1.

59. California Assembly Bill 2109, effective Jan. 1, 1993, requires employers who defray commuter parking cash outlays to make equivalent payments to all employees. See Donald Shoup, "Cashing Out Employer Paid Parking," U.S. DOT, Dec. 1992, Appendix 1. In Oct. 1993 President Clinton directed his Administration to prepare legislation giving workers the option of receiving the cash value of employer-paid parking. *The Climate Change Action Plan*, President William J. Clinton, Vice President Albert Gore, Jr., pp. 17-18.

60. Andrew Tobias, *Auto Insurance Alert*, Simon & Schuster, 1993, is a popular treatment of this idea and the basis of the presentation (and much of the language) in the text. See also *Wall Street Journal*, "To 'Fill 'Er Up' May Soon Mean With Premiums," Nov. 8, 1993, p. B1.

61. As an alternative to pay-at-the-pump, auto insurance might be levied on the basis of vehicle miles traveled, provided this could be reliably measured and charged for.

62. The voluntary scheme is a proposal of Prof. William Vickrey, Columbia University, *Making New York City Work*, May 5, 1992, typescript. To implement it, inspection and maintenance schemes might have to be modified to better reflect real-world driving cycles and actual emissions; means of avoiding tampering with odometers would also have to be in place.

63. An interim (and less precise) alternative to smog fees would be a pollution charge based on vehicle weight and fuel consumption, levied annually with registration. Conversely, smog fees themselves could be an alternative to mandated State programs for inspection and maintenance (I&M).

64. \$2/mile of infrastructure damage: 1992 calculation by Brian Ketcham for *Win-Win Transportation*, *op. cit.*; NY State charge under 4¢/mile, from New York State Department of Taxation and Finance, *Form MT-903 (Combined Truck Mileage and Fuel Use Tax Return)*, June 1990.

65. In Dec. 1993, the federal gasoline tax stood at 18.4¢; state taxes were 10.5¢ in New Jersey, 15.6¢ in New York, and 20.0¢ in Connecticut.

66. Charging for directory assistance by local phone companies is an instance in which unbundling became popular. Once consumers understood that they could lower bills by limiting directory calls, they supported charging for the service. Of course, it helped that consumers had an easy alternative — looking up numbers in the phone book.
67. Robert Pirani, *Greensward Map*, Regional Plan Association, 1993.
68. Many of these considerations motivated the community opposition that blocked the proposal by Olympus Corp., an otherwise “clean” and valued enterprise, to locate its new corporate headquarters in Melville, Long Island in 1993.
69. *Empire State Survey — New Yorkers on New York*, Empire Foundation, Albany, and Lehman Institute, New York, 1992. The survey, by Richard J. Behn and Dr. Douglas Muzzio, addressed 83 questions to 1,237 New York City residents. To the question, “If you had only two choices — spend more money on better roads and highways or spend more money improving mass transit like subways, which would you prefer?,” 59.1% of respondents preferred transit and 29.6% preferred highways (the remaining 11.3% gave no answer). Among car owners, the margin was 56% to 34%, with 10% not answering.
70. For a revealing portrait of drivers’ changing attitudes, especially regarding driving’s impact on the environment, see K.T. Berger, *Where the Road and the Sky Collide — America Through the Eyes of its Drivers* (Henry Holt & Co.), New York, 1993. Interestingly, the *New York Times*’ “About Cars” columnist called this book “a true gem” in his Nov. 21, 1993 column (Section 10, p. 12).
71. This Appendix was prepared by Michael Replogle, co-director of the EDF Transportation Project. Mr. Replogle has evaluated transportation models in nearly a dozen U.S. metropolitan regions and advised the transportation planning process in many North American cities and counties. He also guides Federal transportation modeling research programs and Intelligent Vehicle Highway Systems research and development as a member of several U.S. DOT advisory panels.
72. See George Haikalis and J. David Jordan, “Stringent Transportation Measures to Reduce Vehicular Emissions in the New York City Metropolitan Area,” *Transportation Research Record 963*, Washington, DC, 1984, p. 50, and Tri-State Regional Planning Commission, *The B-5 Strategy: An Analysis of Short-Range Transit Improvements that Would Reduce Auto Use to the Manhattan CBD*, George Haikalis, July 1977.
73. Staff and consultants to the region’s Metropolitan Planning Organizations (MPOs) also combine empirical quantitative models with expert judgement to evaluate transportation control measures as part of the official planning process.
74. 1990 Census data, cited in *New York Region’s Transportation Plan*, final draft 9/24/93, New York Metropolitan Transportation Council, p. 3-10.

ABOUT THE CITIZENS ACTION PLAN

The Tri-State Transportation Campaign presents this Plan as a working document for review and comment by citizens of the tri-state metropolitan area. It represents the thrust of a consensus of the Campaign's 14 founding organizations and firms and 18 affiliate organizations (as of January, 1995). The Campaign intends to work with other civic and community-based organizations, businesses, unions, educational institutions, and state and local transportation, land use, environmental and economic development agencies and elected officials to make this a blueprint for transportation action that will help our region thrive economically, socially and environmentally.

The Campaign can provide additional copies of the Plan, and multiple copies of a 6-page brochure version of its contents. If you have ideas or comments, please contact the office of the Campaign or any of the founding organizations.

We particularly welcome formal organizational endorsements (the Campaign is developing a network of *affiliates*) or other statements of support for the Plan.

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This copy of the Plan was published in April 1994, slightly revising the first edition of December 1993. The figures in the table on page 8 were revised, several references were updated or added, and the cover was redesigned.

Also available from the Campaign:

Subsidies for Traffic: How Taxpayer Dollars Underwrite Driving in New York State
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