

BATTLING TRAFFIC: What New Yorkers Think about Road Pricing

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Traveling on New York City's streets and highways normally takes 50–75% longer at rush hour than under uncongested conditions. The value of time wasted from traffic congestion is about \$8 billion annually. Congestion also increases the cost of doing business in New York and leaves drivers and bus riders stressed from clogged streets and unpredictable travel times.

Cities from London to Singapore to San Diego have shown that road pricing measures such as fees to enter a portion of the city or to use a highway lane are powerful tools in reducing traffic congestion. Yet most road pricing proposals stumble on the political toxicity of fees and tolls, which the public often views as tantamount to taxes aimed at drivers. With advances in toll collection technology, public acceptability is clearly the major barrier to adopting pricing measures.

This study tested the public acceptability of three well-known and widely discussed pricing policies:

- Congestion pricing in which vehicles driving in the Manhattan business district on weekdays would pay a fee
- “Express lanes” on highways for solo drivers who pay a toll as well as buses and high-occupancy vehicles
- Increases in the cost of on-street parking.

The first two measures are aimed at reducing congestion on streets and highways. Increased parking fees are intended to increase turnover of parking spaces, reduce double parking, and make finding a parking spot easier.

In a series of focus groups held with a cross-section of New Yorkers, the express lane concept won broad support, particularly among auto users and owners of retail establishments, restaurants, and delivery companies. There is thus clearly an opportunity to use certain forms of road pricing to improve transportation in New York.

Congestion pricing produced mixed reactions, consistent with public opinion polls showing New Yorkers to be evenly split on the issue. To attract widespread public support, congestion pricing should be targeted to the most congested streets and highways throughout New York City. Congestion fees should also be adjusted by time of day so that the highest charges are during the most congested times.

Reaction to increases in the cost of on-street parking depended on the details of implementation.

A plan that combines a targeted form of congestion pricing, express lanes on selected highways, and a pilot parking-fee program is detailed in the report. The plan includes fees for vehicles entering and exiting the Manhattan Central Business District (CBD—below 60th Street) during the morning and afternoon peak periods. The plan also includes a fee for driving in the CBD during midday, when congestion is worst. Revenue from fees and tolls should be used for improving public transportation and for other measures to reduce traffic congestion. These could include greater traffic enforcement and designated truck-loading areas.

This plan responds to the public's demand that pricing policies solve transportation problems and enhance travel choices. The targeted nature of the plan will demonstrate that the impetus of the program is traffic reduction and that the program will not unfairly penalize drivers who do not contribute to the congestion problem, thus addressing fairness and equity concerns.

A final and important finding of the research is that a pricing program should be preceded by non-pricing measures that improve transportation in the city. Such measures should include greater frequency and reliability of public transportation service, less crowding on trains and buses, park-and-ride lots and express buses that cater to neighborhoods where most CBD-bound auto users live, and steps to better accommodate truck deliveries and relieve pedestrian/vehicular conflicts that stymie traffic. These non-pricing measures would enhance travel choices, increase the perceived fairness of pricing policies, and show that policymakers understand that no one measure is sufficient to solve the varied transportation problems in New York.

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CONTENTS

1	Introduction
2	The Costs of Congestion
3	Potential Benefits of Road Pricing
3	Road Pricing in New York
4	Road Pricing in Other Major Cities
	Figure 1. The Different Types of Road Pricing
5	Road Pricing and Public Acceptability
6	Focus Group Results: Overall Reaction to Congestion Fees and Tolled Express Lanes
7	Factors Underlying Opinions on Congestion Pricing and Tolled Express Lanes
	Figure 2. Summary of Factors Underlying Opinions on Congestion Pricing and Tolled Express Lanes
	Effectiveness
	Solving Problems Personally Experienced
	Improving Transportation Choices
	Fairness and Equity
	Workability
	Supportive Policy Environment
	Figure 3. Desired Transportation Improvements
13	Pricing of On-Street Parking
14	Response to Messages about Road Pricing
16	Conclusion
	Recommended Design of a Pricing Plan
	Figure 4. Examples of the Effects of Midday, A.M., and P.M. Cordon Fees
	Developing a Road Pricing Program
22	Appendix A. Methodology and Concept Statements Used in Focus Groups
24	Appendix B. Traffic Speed Maps
27	Endnotes

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INTRODUCTION

The newest symbol of New York City is the condominium tower rising on a vacant parcel of land previously used as a parking lot. New condominiums epitomize the city's growing population and attractiveness to high-income professionals. Condo developments also point to the consequences of growth: more traffic, crowded sidewalks, less parking, increased pollution, and, overall, more stress in New Yorkers' daily lives.

As new condos and other commercial and residential developments rise around the city, an increasingly key issue for New Yorkers is: How can the city cope with success? The implications for transportation are foremost on people's minds. The majority of New York City residents consider traffic jams to be a "major problem."¹ Traffic is a key issue throughout the city, from the development of Atlantic Yards in Brooklyn and the West Side of Manhattan to asthma rates in East Harlem and the Bronx to population growth on Staten Island. In another sign of the potency of transportation issues, a recent forum on transportation sponsored by Manhattan Borough President Scott Stringer attracted more than 500 participants on a Thursday morning.

New Yorkers also feel that the city is not doing a very good job about the problem. By a two to one margin, New York City residents give the city administration a negative review of its job performance on reducing traffic delays.² The public thinks more highly of the city

administration's performance on education and crime, historically among the most important issues in the city, than of its performance on traffic congestion.

What is the solution to traffic congestion in New York City? One option that virtually no one believes is a solution is to expand the highway network. New York hasn't built a new highway since the opening of the West Shore Expressway on Staten Island in 1976, and there is no discussion of venturing in that direction.

In recent years, various forms of road pricing have been proposed to combat traffic congestion. Potential measures have included East River bridge tolls and, more recently, congestion pricing. While the technological feasibility of these measures has progressed with the advance of toll collection technology, road pricing measures have repeatedly been derided as politically unpalatable. Elected officials ranging from Mayor Michael Bloomberg to Nassau County Executive Thomas Suozzi have backed away from initial discussions of congestion pricing or bridge or highway tolls after negative political reaction. The major barrier to adopting pricing-based policies is thus public acceptability.

Yet road pricing can achieve a number of highly desirable objectives: reducing congestion; generating revenues to improve roads and public transportation; reducing vehicle emissions and gasoline consumption; and improving the efficiency of the city's economy. Addressing these issues is vital to Mayor Bloomberg's strategic land-use planning effort aimed at accommodating a projected 1 million more New York City inhabitants over the next two decades.

New York has arrived at an important moment to give consideration to road pricing. The cumulative impacts of longer-term trends are becoming acute: pressures from population and employment growth in the city; competition among metropolitan areas to attract the so-called creative classes; increased public awareness of the need to address energy and environmental issues; and a broad-based consensus of the need to both encourage the use of public transportation and to make the most efficient use of highway and street space. These longer-term trends now come together with the opportunity presented by the election of a

new governor and by city hall's commitment to developing a citywide strategic plan.

The purpose of this study is to examine the role that road pricing might play in improving transportation in New York City. The study is based on a review of the literature on road pricing and eight focus groups. Focus group participants reflected a range of New Yorkers—business owners and residents, auto and transit users, residents of all five boroughs, as well as suburbanites who regularly drive into Manhattan. The focus groups, held in September 2006, discussed road pricing concepts and other ways to improve transportation in New York City. See Appendix A for details of the research methodology.

This study focuses on the public acceptability of three forms of road pricing: congestion pricing in which drivers would be charged a fee in the Manhattan central business district; express lanes on highways that would charge a toll for solo drivers; and higher metered fees for on-street parking. The results of this research show what a publicly acceptable and sensible road pricing plan should include, and how such a plan should be developed.

Much additional work is required to move from the conclusions of this research to a fully developed plan for road pricing in New York. The value of this research is in pointing the way to developing a plan that is not only workable and effective, but also adoptable.

THE COSTS OF CONGESTION

Today's interest in road pricing stems from the severity of congestion in New York City and the demonstrated effectiveness of road pricing in unknotting traffic in other major cities. Even with the country's largest public transportation system, New York's traffic congestion is as severe as most other major metropolitan areas. The region is ranked eighth among major metropolitan areas in traffic delay per trip, only slightly below the notoriously congested Houston and Atlanta metro areas. Within Manhattan, traffic speeds average 11 mph on arterials and 8 mph

on local streets in the morning and afternoon commute periods.³ As shown on the maps in Appendix B, speeds often fall below these averages in Manhattan as well as the other boroughs.

The cost of congestion can be measured in several ways. One cost is the value of time lost to travel delay. Trips in New York City normally take 50–75% longer at rush hour than they would under free-flow travel conditions, not even counting delays from traffic accidents and other incidents. The economic value of this time is estimated at over \$4 billion a year, according to the New York Metropolitan Transportation Council (NYMTC), the transportation planning agency for downstate New York.⁴ The total cost of delay, when incident delay is included, is about \$8 billion a year.

Congestion costs are borne by businesses as well as individuals. Freight shipment costs in the metropolitan area are double those of the national average. These costs make the region less economically competitive and result in higher prices for goods and services.⁵

There are also nonmonetary impacts from traffic congestion. Even at the risk of inflicting havoc with sleep and family schedules, many motorists choose to travel at less congested times to avoid delay. A survey of trans-Hudson motorists found that 22% choose their travel times to avoid congestion.⁶ Travel delays spawned by congestion also limit New Yorkers' accessibility to jobs, shopping, and entertainment. As the road network becomes ever more saturated with traffic, people may limit the overall amount they travel, thus limiting the economic potential of the city economy.⁷

POTENTIAL BENEFITS OF ROAD PRICING

Road pricing has the clear potential to reduce congestion, traffic delay, and the unpredictability of travel times. As discussed in the next section, congestion pricing programs in London and Stockholm have reduced traffic volumes in the central city by up to 16% and traffic delays by as much as 26%. Congestion charging in Singapore maintains targeted

speeds that maximize traffic flow. A combination of toll and high-occupancy vehicle lanes on highways in the San Diego and Los Angeles areas also maintains uncongested speeds.

These experiences show that road pricing is far more effective in reducing congestion and speeding trips than any measures currently planned or likely to be contemplated in New York City. The most ambitious and costly improvements to transportation currently being undertaken in New York City are rail expansions, which, while not primarily focused on reducing traffic, are indicative of the level of traffic impacts of non-pricing measures. Transportation improvements that are planned to be completed by 2030—which include the Second Avenue subway, connecting the Long Island Rail Road to Grand Central Terminal, and a new rail tunnel from New Jersey into Penn Station—will reduce traffic volumes in Manhattan by 5% compared with traffic volumes without the improvements, according to the regional travel model developed for NYMTC.⁸

ROAD PRICING IN NEW YORK

The New York metropolitan area has a long and noteworthy history of road pricing. In the nineteenth century, New York State led the nation in the number of dirt toll roads. One-third of the tolled highways joining the interstate system when it was established in the mid-1950s were in New York, New Jersey, and Connecticut.⁹ Currently, these three states account for 40% of all toll revenue collected in the United States.¹⁰

Transportation agencies in the New York region have been prominent innovators in toll collection and toll structure. They were key players in developing E-ZPass, ensuring that the same tags could be used throughout the I-95 corridor from Maine to Virginia. More recently, high-speed E-ZPass lanes that do not require drivers to slow down to pay the toll were installed at some Port Authority and New Jersey Turnpike toll facilities. In addition, the New York State Thruway Authority began selling prepackaged \$25 E-ZPass

Figure 1. The Different Types of Road Pricing

Tolls: traditional means of collecting revenue. Typically uniform tolls for all passenger vehicles passing through a toll facility or traveling a specified distance.

Variable highway tolls: tolls vary by time of day to encourage travel at less congested times.

Cordon tolls: system of toll charges that apply to any vehicle entering a specified geographic area. Vehicles are charged each time they cross the cordon line. Stockholm and Singapore are examples. May use variable toll schedule.

Area pricing: fee for vehicles traveling within a geographic area. Vehicles are charged whether or not they cross the boundary. Vehicles are charged once daily. London is an example.

High-occupancy toll (HOT) lanes (also referred to as “express lanes with tolls” in this report): specified lane(s) on a highway that can be used by buses and private vehicles with at least a certain number of occupants (typically 2+ or 3+). Vehicles with one occupant pay a toll to use the HOT lanes. General-purpose lanes remain untolled but are more congested. U.S. examples are in the San Diego, Houston, Minnesota, and Los Angeles areas and being planned in the Washington, D.C. area. May use variable toll schedule.

tags through participating retailers. Motorists can use the tags immediately rather than having to sign up in advance. (Tag registration is required within two days of purchase.)

Several New York area agencies have also implemented variable pricing, a key component of many modern road pricing programs. The objective of variable pricing is to encourage drivers to travel during less congested times by charging them higher tolls during peak periods. Variable tolls have been implemented since 2000 on the Hudson River crossings, the New Jersey Turnpike, and, for commercial vehicles, the Tappan Zee Bridge. The \$1 peak to off-peak differential for E-ZPass users on the Hudson River crossings produced a 7% shift away from A.M. peak hours at the Holland and Lincoln Tunnels.¹¹ Variable pricing also slowed the rate of traffic growth during peak hours on the New Jersey Turnpike.¹²

Within New York City, the Department of Transportation (NYCDOT) implemented parking fees at truck-loading zones to encourage turnover. Using an escalating price structure, the parking fees at commercial spaces in midtown Manhattan are \$2 for one hour, \$5 for two hours, and \$9 for three hours. Payment can be made at Muni-Meters in cash or by credit card. NYCDOT reports quicker turnover and more availability of parking as a result of this program.

ROAD PRICING IN OTHER MAJOR CITIES

Road pricing can extend well beyond the variable pricing and escalating parking-fee measures that have been implemented in the New York region. As summarized in Figure 1, road pricing encompasses cordon tolls, area pricing, and tolled express lanes. Each of these has been implemented in other major cities with successful results.

One of the best-known schemes is London's congestion fee, paid by vehicles traveling in central London between 6:30 A.M. and 6:30 P.M. The charge applies once per day and applies whether vehicles cross into the charging zone or stay entirely within the zone. Initially set at £5 in 2003 (about \$8 at the time), congestion charging reduced the number of automobiles entering central London by 37% between 2002 (pre-implementation) and the spring of 2005. Despite increases in the number of buses and taxis in central London, overall traffic levels declined by 16%, and congestion-induced traffic delays fell by 26%.¹³ The fee was increased to £8 in the fall of 2005 (about \$15 at current exchange rates), leading to additional reductions in traffic and congestion.

Other cities have adopted charges that apply each time that vehicles cross a cordon line. In some cases, fees

vary by time of day to encourage drivers to travel during less congested times. In a six-month trial program earlier this year in Stockholm, vehicles entering the central city were charged a fee that varied by time of day up to \$2.70 during rush hour. Vehicle entries into Stockholm fell by 20–25%, traffic volumes in the central city declined by 10%, and vehicle emissions fell by 14%.¹⁴

Singapore's congestion fee program, which was started in 1975, currently charges motorists entering the central part of the city and at fourteen congested points on highways and major roads outside the central city. The charges range from \$0.30 to \$2.00 (at current exchange rates) and are charged each time a vehicle passes a toll gantry. Fees are periodically adjusted to maintain traffic speeds of 20 to 30 kph (12–19 mph) in the business district and 45 to 65 kph (28–41 mph) on expressways. These targets were chosen as the speeds that maximize the carrying capacity of the roadway. (When the number of vehicles entering a roadway exceeds the maximum carrying capacity, the result is a breakdown in the traffic flow and, ultimately, stop-and-go traffic.)

In the United States, road pricing innovation has focused on high-occupancy toll (HOT) lanes. The pioneering effort was on I-15 in the San Diego area, where reversible HOT lanes operate in the peak commuter direction. The lanes are reserved for buses, high-occupancy vehicles, and, since 1996, cars paying a toll. Tolls generally range from \$0.50 to \$4.00 and are adjusted every six minutes in response to real-time traffic volumes to maintain free-flow speeds. The I-15 lanes are slated for expansion from eight miles to twenty miles in length and from two lanes to four lanes. Similar tolled express lanes have been implemented in the Los Angeles, Houston, Minneapolis, and Denver areas¹⁵ and are planned or under consideration in other metropolitan areas.

ROAD PRICING AND PUBLIC ACCEPTABILITY

In the wake of the introduction of congestion pricing and HOT lanes in major European and American cities, interest in road pricing has in-

tensified in New York City. In the early part of this decade, the focus was on East River bridge tolls. The Bloomberg administration put an \$800 million revenue line item in a 2003 budget plan for "Regional Transportation Initiatives" that would include tolling East River bridges. Due to the political reaction to bridge tolls, combined with the inability of the city to complete the planning and approval process in time to close budget gaps, the administration dropped the idea.

More recently, the focus has shifted to London-style congestion pricing in the Manhattan CBD. The Partnership for New York City, an influential group representing some of the city's largest businesses, is nearing completion of a major study on the economic impacts of congestion pricing. The Regional Plan Association released a study of congestion pricing options in 2003¹⁶ and will release a report in 2007 assessing technology options for use in a congestion pricing program for New York City.

There has also been increased interest in road pricing from city and state governments. The New York State Department of Transportation (NYSDOT) is beginning a feasibility study in January of "managed lanes." The study is expected to include an assessment of HOT lanes as a means of better utilizing the highway network and improving mobility. NYSDOT is also studying managed lane concepts for a new Tappan Zee Bridge. Finally, there has been speculation that the mayor's strategic plan will consider congestion pricing options.

Despite the evident success of various forms of road pricing, attracting public support for road pricing measures is difficult. Before congestion pricing was implemented, polls showed that a bare majority of Londoners supported the idea.¹⁷ Opposition in Stockholm led the city to approve pricing for a six-month trial period, followed by a public referendum. Stockholm voters endorsed the plan (although suburban voters registered opposition). Recent press reports indicate that the government has decided to proceed with permanent implementation.¹⁸ HOT lanes in the United States were adopted only after extensive public education and careful study and were almost always championed by a major political leader.¹⁹

Polls in New York City have shown considerable opposition to tolls and fees. No prominent elected official has come out in favor of road pricing measures. A poll conducted earlier this year for the Tri-State Transportation Campaign found New Yorkers evenly divided on congestion pricing in the Manhattan CBD, with 44% saying it is a “good idea” and 45% saying congestion pricing is a “bad idea.”²⁰ The remainder had no opinion. A 2003 Quinnipiac University poll found that a 2:1 majority of New York City residents opposed tolls on the free East River bridges and, by the same margin, charging single-passenger cars a fee to drive into Manhattan.²¹ When pitted against other ways to balance the city budget, such as taxes and increased subway and bus fares, however, East River bridge tolls gain broad support.²²

These results suggest that depending on the purpose of road pricing and how revenues are used, it may be possible to gain public acceptance and support for road pricing, as results from the focus groups conducted from this study showed.

FOCUS GROUP RESULTS: OVERALL REACTION TO CONGESTION FEES AND TOLLED EXPRESS LANES

Because focus group respondents’ reaction to congestion pricing and tolled express lanes shared many of the same themes, findings on these two concepts are discussed jointly in this section, followed by findings on parking pricing.

Overall, congestion pricing and express lane concepts received a mixed reaction from focus group participants. Opinion ranged from strongly positive to strongly negative. As might be expected, most auto users and delivery-company owners opposed congestion pricing, while congestion pricing gained support among many transit users. The lineup of reaction to

express lanes differed from that for congestion pricing. Auto users and retail, restaurant, and delivery-company owners generally supported express lanes while transit users were mixed. Whether pro or con, transit users who rarely drive on outer-borough highways tended not to have strong opinions about express lanes.

Primary reasons for supporting these concepts were reducing congestion and using revenues to improve

“You reduce the number of cars, you reduce the amount of congestion, you cut down on air pollution, noise, stress, accidents, and hopefully have a healthier, happier population.”

— Participant in transit-user group

roads and public transportation. Improved air quality, reduced noise, and overall bettering of the quality of life were also important reasons for supporting pricing policies.

The underlying basis for opposition to pricing concepts was a negative reaction to fees and tolls. Respondents felt that fees and tolls amount to a tax, and they are strongly against tax increases. Once the discussion focused on the fee and toll aspect of the concepts, it was difficult for respondents to give consideration to possible benefits such as congestion reduction and transit improvements. They viewed the concepts in entirely negative terms as a tax on drivers.

Opinion on the two concepts differed by concept, sometimes in surprising ways. While the focus groups are not a statistically representative sample of the population, it was notable that about one-third of auto users in the groups favored congestion pricing after reading the concept statement. Transit-user groups, which might be expected to be strongly supportive, were almost evenly divided in their initial reaction to congestion pricing. These results from the focus groups are consistent with results from public opinion polling released in November 2006.²³

Differences of opinion within each segment (auto user and transit user) emerge partly from differences in individual situations and experiences. A driver who lives and works in Manhattan is affected by congestion pricing differently from someone driving into Manhattan from Bayside, Queens. Manhattan drivers have more transit options and are more inclined to consider the benefits of congestion pricing. Queens commuters

continued health of the restaurant industry after the mayor's smoking ban.

In contrast to retail and restaurant owners, delivery businesses viewed congestion pricing largely in light of its impact on their businesses. They strongly opposed congestion pricing because they felt they would either have to absorb the cost or pass it on to customers.

"Starting to impose a transportation tax or toll or whatever we want to call it just keeps forcing our costs of doing business higher. It's already so competitive out there, and it's going to have a ripple effect—because I'm going to charge you more because I have to pay this amount of money."

— Participant in delivery-business group

are strongly attached to the comfort and convenience of their cars and are more likely to strongly oppose congestion pricing.

Opinions also reflected the fact that respondents evaluated congestion pricing on a range of criteria, not simply the impact of fees on them personally. Respondents considered the likely effectiveness of the concept in reducing congestion and issues of fairness, equity, and workability. These considerations are discussed in the next section. The general point to be made is that the evaluative process is fairly complex and often quite sophisticated. Simple expectations about who will support or oppose the concepts are, as a result, not borne out by the research.

Retail and restaurant owners had mixed opinions about congestion pricing. Their views were largely based on their personal reactions rather than their reactions as businesspeople. They generally expected that congestion pricing would have little impact on their businesses. Neighborhood bar owners, for example, viewed their clientele as primarily either local residents or transit users. Business owners would be concerned if the overall number of people coming into Manhattan shrank, but felt this was unlikely. In support of this view, one respondent cited the

In either case, they expected that a congestion fee would be harmful to their businesses. They already feel burdened by fees and taxes and strongly oppose any additional costs imposed by government.

While auto users tended to oppose congestion pricing, most supported the concept of tolled express lanes. As discussed below, the element of choice in the express lane concept sharply differentiated express lanes from congestion pricing. Retail, restaurant, and delivery companies also supported tolled express lanes. Transit-user groups were mixed on this concept.

FACTORS UNDERLYING OPINIONS ON CONGESTION PRICING AND TOLLED EXPRESS LANES

What leads some people to support road pricing? What leads others to oppose these concepts? Are there approaches that would attract broad support as sensible and effective ways to improve transportation in New York City?

The opinions of focus group participants hinged on considerations ranging from effectiveness to work-

ability. These considerations can be distilled into six key questions that respondents sought to answer as they evaluated each concept:

1. Will the concept be effective in achieving the goal of reducing congestion and improving the transportation system?
2. Will the concept solve problems that I experience in moving about the city?
3. Does the concept improve my transportation choices and options?
4. Is the concept fair and equitable?
5. Will the concept work as intended?
6. Is the policy environment supportive of success for this plan?

Affirmative answers lead respondents to support the concepts while negative answers swayed respondents toward opposing the concepts. (See summary in Figure 2.)

■ Effectiveness

A basic condition for supporting road pricing is the belief that it will, in fact, reduce congestion. The core of this issue is whether some drivers will drive less when faced with fees or tolls.

Supporters believe that some people would drive less, primarily by switching to public transportation. Many in this group use transit themselves every day. Although they may have criticisms of the transit system, they view public transportation as a viable option. Fees and tolls will nudge drivers toward transit. Other drivers will reduce the number of “unnecessary” or “random”

Figure 2. Summary of Factors Underlying Opinions on Congestion Pricing and Tolled Express Lanes

Key drivers	Views of Supporters of Fees/Tolls	Views of Opponents of Fees/Tolls
Effectiveness in reducing traffic congestion	<ul style="list-style-type: none"> Cost will induce fewer drivers to drive. Express lanes encourage carpooling (although may be skeptical of how many people will actually carpool). 	<ul style="list-style-type: none"> Drivers will pay the fee or toll and continue driving. Few people carpool in existing HOV lanes; carpooling is an ineffective strategy.
Solving transportation problems personally experienced	<ul style="list-style-type: none"> Less congestion means faster bus speeds. Increased funding for public transportation will benefit bus and subway riders. Reduced congestion will benefit drivers. 	<ul style="list-style-type: none"> Drivers will not benefit because fees and tolls will not reduce congestion.
Enhancing transportation choices	<ul style="list-style-type: none"> Improved choices for both driving and public transportation. 	<ul style="list-style-type: none"> Public transportation is too crowded, unreliable, dirty to be considered a viable option.
Fairness and equity	<ul style="list-style-type: none"> Drivers are either cross-section of population or upper income. Driving is personal choice for comfort and convenience. 	<ul style="list-style-type: none"> Will hurt the working person.
Workability	<ul style="list-style-type: none"> Must guarantee use of revenues to transportation. 	<ul style="list-style-type: none"> How will express lanes be enforced? As with Lotto, revenue will be diverted to other uses. Will funds be left after paying program costs?
Policy environment supportive of plan	<ul style="list-style-type: none"> Should encourage people to use public transportation by improving and expanding transit service. Need non-pricing policies to deal with impacts on traffic from commercial vehicles, deliveries, taxis and pedestrians crossing the street. 	<ul style="list-style-type: none"> Cannot count on improvements to transit; read about MTA service cuts. Non-pricing measures preferred.

trips, leaving a core of economically important trips that will benefit from reduced congestion.

Those opposing congestion pricing and express lanes believe that people will continue driving even if they have to pay a fee or toll. Driving is more comfortable and convenient and offers privacy and control. In their view, public transportation is crowded, dirty, unreliable, and uncomfortable. They also tended to feel that the problem of congestion stemmed from a broad range of factors, not simply too many cars. Vehicles such as trucks, commercial vans, and taxis “have to be here.” Congestion from these vehicles and from street closures for the U.N. and other events are important impediments to traffic that respondents felt congestion pricing would not alleviate.

Opponents of congestion pricing and express lanes thus felt that fees and tolls would simply be a way to extract money from drivers without reducing congestion. Opposition to fees and tolls was most intense among auto users who did not want to consider using public transportation. Auto users who considered public transportation to be a viable option for their own travel were much more open to the congestion pricing concept.

Many participants found it difficult to predict how drivers would react to increased costs of driving. Some participants projected their personal reaction; thus if they would switch modes, they expected that others would do so as well, and vice versa. Some pointed to continuing congestion even in the face of bridge and tunnel toll increases and gasoline prices that exceeded \$3 a gallon. Others reasoned by analogy: the perceived effectiveness or ineffectiveness of cigarette taxes on smoking levels was mentioned, for example.

The different views of the likely effectiveness of fees and tolls in reducing congestion stems in part from different expectations about fee and toll levels. Those opposing fees and tolls generally envisioned lower charges, in part because they resisted thinking about

paying a burdensome fee level. Among participants who thought that congestion pricing is “a good idea,” the fee would be “too high to be acceptable” at \$10 (median), compared with \$5.50 among those who thought that congestion pricing is “not a good idea.” For express lanes, a toll would be “too high to be acceptable” at \$10, compared with \$7 among those who thought that congestion pricing is “not a good idea.”

The congestion pricing concept statement mentioned that London’s charge has reduced congestion and improved bus speeds and service reliability. Although some focus group participants cited London’s experience favorably, London’s experience did not convince others that pricing would benefit New York. Some participants have visited or lived in London and felt that while congestion has been reduced, traffic is still

“When you count trucks coming into the city and taxis, there’s a huge number of vehicles that are here because they have to be here, and no amount of charge is really going to change that.”

—Participant in auto-user group

heavy. Participants also cited differences between London and New York: fewer residents in central London; a less dense cluster of office buildings; and cultural differences. As an example of the last, a respondent who had lived in London cited the British willingness to pay a monthly fee for over-the-air television stations. Overall, analogies to the behavior of New Yorkers appeared more convincing than analogies to the behavior of residents of other cities, London included.

■ Solving Problems Personally Experienced

Road pricing tended to be more compelling to respondents who felt it would alleviate their own personal everyday transportation problems. Express bus users, for example, felt that congestion pricing would relieve the problem of buses stuck in traffic in Manhattan and on highways on the way home to Staten Island,

Brooklyn, and Queens. They also saw revenues from congestion fees as increasing the frequency, reliability, and comfort of the buses. They would thus benefit from congestion pricing in direct and obvious ways.

Subway riders were less enthused about congestion pricing if they felt it would not alleviate the overcrowded and unreliable subway service they experience. In fact, if drivers switched to the subway, these problems might be exacerbated. Some bus riders saw congestion as caused by trucks, taxis, and double parking by all types of vehicles—problems that would not be addressed by pricing. Without a direct benefit to the speed or comfort of their trips, considerations of equity and practicality moved some subway and bus riders toward opposition.

Auto users who supported pricing felt that it would reduce congestion and improve public transportation. They viewed transit either as a viable alternative currently, or that it would become more attractive with increased funding. Congestion pricing and tolled express lanes would thus offer them improvements whether they continued to drive or took transit. They viewed the fees as reasonable, given the benefits.

Auto users who opposed road pricing did so for a combination of considerations involving solving problems, effectiveness, and their basic aversion to paying fees or tolls. Since they did not think that road pricing would reduce congestion, pricing would not solve the problem of too many cars on the streets and highways. Road pricing also does not address the lack of parking, a problem that many view as equal to or more acute than congestion. With these views, fees and tolls simply represent a way to “pull money out of” people’s pockets.

Auto users also tended to feel that they could avoid heavy traffic congestion without having to accept a fee. They can travel off-peak and they can use public transportation once they are in Manhattan. Asked whether the car is a good way to get around, auto

users said that the answer depends on when and where you are traveling. As much as possible, they use their cars when it is a good way to travel, given their needs and traffic conditions, and they switch to public transportation when traffic and lack of parking make the car a poor transportation choice. As much as congestion is a problem generally, they can minimize its personal impact.

The focus group composed of delivery-company owners and managers very strongly felt that they would not benefit from congestion fees. They believed that very little congestion is attributable to drivers of personal automobiles, who would be most responsive to pricing incentives. Commercial vehicles, taxis, and particularly pedestrians who block turning movements

“People are going to feel like this is another way of them trying to pull money out of somebody else’s pocket.”

— Participant in auto-user group

are the main sources of congestion and would not be reduced by congestion pricing. Congestion fees would thus be an added cost of doing business without any benefit.

In discussions of express lanes, personal benefits were naturally of most interest to drivers who regularly use highways in the outer boroughs. They tended to support the concept, seeing themselves as benefiting directly from the availability of an express lane when they needed a faster trip.

■ Improving Transportation Choices

The presence of various types of choices was a critical factor in attracting support for road pricing. Auto users who felt that public transportation offers a viable choice favored congestion fees and express lane tolls more than auto users who would not consider public transportation as an attractive option. Similarly, transit users who felt that drivers have a viable transit option were more likely to view road pricing as fair.

Choice was a key reason for auto users who opposed congestion pricing to support tolled express lanes. Express lanes offer a choice between congested general-purpose lanes that they now use and paying a toll to use an uncongested option. The fact that they would not pay unless they chose to do so was a very positive difference from congestion pricing and freed them to consider the possible benefits of express lanes.

Choice also played a role in differentiating incentives from tolls or fees. Incentives such as improvements to public transportation and HOV lanes, which encourage carpooling, were attractive across all focus group segments because they enhance choices. Fees and tolls are less attractive because they are perceived as penalizing people and restricting choice.

The lack of choice was a primary reason that delivery companies opposed congestion pricing. They felt that they would have no choice but to pay the fee, which then represents an additional cost to their businesses, their customers, or both.

■ Fairness and Equity

Fees and tolls have the potential to be regarded as unfair and possibly inequitable to drivers. Tolls and fees are potentially unfair if they single out drivers for no good reason. Road charges are particularly likely to be seen as unfair if they are seen as unlikely to reduce congestion—the charges become “just a tax” applied only to drivers. This feeling is intensified for those who believe that drivers cannot avoid paying the charges. Equity is a somewhat different issue, usually related to differential effects across income groups. Charges that are disproportionately paid by lower-income persons would be considered inequitable.

In considering the fairness and equity of road pricing, respondents think about the impact on specific types of people: the working person, parents dropping kids off

at school, the elderly going to medical appointments, commuters who lack viable transit options because they travel very early or very late, and commuters who live in areas not well served by transit, such as Rockland County. Respondents often know particular people in these groups or at least can visualize such persons. Respondents who are not personally affected by fees and tolls empathize with people who are af-

“I know a lot of mothers who have to take their kids to school on the Lower East Side who are just driving to drop them off and come back. I can see that it would be really hard to do every day [if there were a fee].”

— Participant in retail/restaurant business group

affected. Fairness and equity can be important reasons to oppose road pricing, especially for transit users who would not themselves pay a charge.

Fairness considerations moved respondents who favor pricing measures toward advocating targeted use of pricing so that fees or tolls would be charged only at the times and places where congestion is worst. In that way, no one would have to pay the fee except when there is a strong rationale. This targeting of congestion fees also seems likely to increase the opportunity for drivers to avoid paying the fee if they could not afford it—for example, by traveling early in the morning.

Fairness and equity considerations raise the factual issue of who drives in Manhattan, and why. Is it higher-income persons, lower-income persons, or a cross-section? Do auto users need to drive, or do they drive for the convenience and comfort? How would the charges affect those who would be paying, and how would those who avoid paying be affected? These were important but often unanswered questions in the discussions, particularly among transit users who do not themselves drive.²⁴

Fairness and equity raised strong concerns about congestion pricing, where the fee would be mandatory

for drivers traveling in the CBD during the charging hours. Fairness is less of an issue for express lanes, since there is inherently a free alternative to paying the toll.

■ Workability

Across the board, respondents expressed concern about the cost of fee collection, compliance by those who should pay, and use of fee and toll revenues. Some respondents expected that the cost of collecting a congestion fee would leave little or no revenues to improve public transportation or road or street conditions. Participants also wanted to be assured about driver compliance. Compliance with the HOV option for express lanes was a major concern for those familiar with the HOV lanes on the Staten Island Expressway. Some felt that enforcement is very weak, though others pointed out that enforcement may be greater than one perceives if violators may be sent summonses in the mail.

Another major aspect of workability concerns the distribution of fee and toll revenue. Many participants were skeptical that revenues would be used to improve public transportation or road conditions. They perceived that lottery revenues have been diverted from education, despite promises. There was also doubt that the MTA uses current revenues efficiently, some mentioning the charge in 2003 that the MTA kept two sets of books. There is strong desire for a guarantee that additional funds raised by pricing will go toward transportation improvements.

■ Supportive Policy Environment

Another area of broad agreement was the need to encourage the use of public transportation through improvements to subway and bus service. Desired improvements include more frequent and reliable subway and bus service; park-and-ride facilities in the outer boroughs; express bus services; timely information about transit delays; and traffic enforcement. (See Figure 3 for the variety of transportation improvements suggested by respondents.)

Transit improvements should be made before fees or tolls are instituted so that drivers have a viable transit alternative and to alleviate the potential for exacerbating transit overcrowding. Steps such as plans for bus rapid transit made respondents feel that the transit system was headed in the right direction. Recent press reports about possible service cuts, on the other hand, fed negative perceptions regarding the management of the transit system.

* * *

The importance and interplay of these questions can be seen in participants' responses to particular issues. In discussing congestion pricing, participants were asked whether the FDR Drive and West Street should be excluded from the charging area. Those who favored excluding the FDR and West Street thought that drivers

Figure 3. Desired Transportation Improvements

- Additional traffic phase so that the traffic is frozen in all directions while all pedestrians cross
- Big fines for blocking the box
- Bike lanes on avenues and streets
- Construction at night
- Designated areas for commercial vehicles
- Encourage carpooling
- Enforce requirement that taxis pick up and drop off at the curb
- Express lane for ambulances and fire trucks
- Repair potholes
- Improved bus service
- More parking spaces
- Multilevel parking garages at the end of subway lines
- Muni-Meters
- No cell phones while driving
- One lane for taxis, one lane for buses, and the middle lane for cars--everyone has to stay in the lane
- Park-and-rides with shuttle buses
- Reduce crowding on the subway
- Restrict cars from certain streets in midtown
- Road repairs
- Synchronized traffic lights
- Traffic agents not blocking active lanes
- Traffic enforcement

Respondents made these suggestions in response to being asked what they would recommend to the mayor to improve transportation in the city.

using these roads were not contributing to Manhattan congestion and may lack viable transit alternatives or alternate routes around the charging area. Others thought that without a fee, the FDR and West Street would continue to be traffic-choked, perhaps even more so than currently, as drivers avoid the charging zone. The issue of the charging zone boundaries thus involves considerations of effectiveness, choice, and fairness.

Respondents also discussed whether taxicabs and commercial vehicles should be exempt from a congestion fee. There was universal agreement that taxicabs should be exempt since they will be in Manhattan with or without a fee. Taxis are seen as part of the public transportation system. There was also support for exempting commercial vehicles on the same basis, although some felt that “everyone should pay,” including commercial vehicles. Whether or not respondents thought that commercial vehicles should pay the fee, they supported other measures to combat traffic congestion that would be helpful to commercial vehicles, such as the commercial parking program and better enforcement of traffic rules.

The question of discounts for CBD residents raised considerations of fairness and effectiveness. Some thought that CBD residents use their cars primarily to leave Manhattan and thus do not contribute to the congestion problem. They thought that residents should be given a discount or exemption because, unlike those living elsewhere, they have no choice but to drive in Manhattan when leaving home. Proponents of discounts or exemptions for residents also cited privileges enjoyed by residents living elsewhere, such as discounts for bridge tolls for Staten Island residents and beach access rights enjoyed by residents of coastal towns.

On the other side was the argument that “everyone should pay” and a concern that exemptions or discounts would undermine the effectiveness of a congestion fee.

* * *

The bottom line to this discussion is that to be acceptable, pricing measures need to improve New Yorkers’ day-to-day transportation experiences and strengthen the range and attractiveness of their transportation

choices. Although discussions of transportation policy can easily become focused on the specifics of congestion, crowding, speed of travel, costs, and so forth, from the public’s perspective the discussion is really about the quality of life. A program of road pricing and other measures that improve transportation experiences and transportation choices will enhance the quality of life, reduce stress, and encourage people to enjoy the good things that New York offers.

PRICING OF ON-STREET PARKING

Although most of the focus group time was spent discussing congestion pricing and express lanes, the topic of parking was of high importance to many respondents. Auto users, in particular, placed lack of parking, along with traffic congestion, as a major problem.

Two somewhat different concept statements on the topic of on-street parking fees were presented to focus group participants. (See Appendix A.) Both concepts involved higher parking fees for the purpose of encouraging turnover and making it easier to find an open space. The concept statement shown to the latter five groups included the concept of Muni-Meters for noncommercial on-street parking that would enable payment by credit card as well as using quarters.

Reaction to the parking concepts was mixed. As with congestion pricing and tolled express lanes, the varied reaction stemmed in part from different expectations as to how motorists would respond to higher fees. Some respondents felt that people would pay higher parking fees, with no impact on parking behavior. Negative reaction was also based on resistance to paying higher costs. Some felt that off-street parking garages would raise their prices due to increased demand.

Higher on-street parking fees raised equity issues. Some respondents thought that the higher fees would be unfair to working people shopping for school supplies and doing other necessary errands. Some also thought that higher parking fees would attract wealthy drivers while unfairly penalizing less wealthy shoppers.

Supporters of the parking concepts felt that with higher parking fees, it would be easier to find a parking space, there would be less double parking, and less stress looking for a parking space. Muni-Meters offer very attractive advantages. With the option of paying using a Muni card or potentially a credit card, drivers would not need to stock up on quarters. Blocks with Muni-Meters do not have individual parking places drawn on the street, with the result that more cars can squeeze into a given block. Respondents were also attracted to the idea that parking revenues could be used to improve street and sidewalk conditions and improve public transportation.

Across the board, respondents felt that no level of parking fees would be effective without additional enforcement.

Respondents were also attracted to the idea of paying only for the time that they are actually parked. Motorists do not like having to guess how long their shopping or other errands will take. A system in which they would pay only for the time they use was highly attractive.

Reaction to the parking concepts was similar across the different focus group segments—retail and restaurant owners, transit and auto users. The importance of turn-over to local business owners was widely recognized. Business owners and others also acknowledged that employees at local stores park at meters and feed the meters throughout the day. Business owners recognized the benefit to them of having parking spaces available while also recognizing their employees' desire to use these parking spaces.

Delivery-company owners and managers were highly aware of the city's commercial parking program, and they thought that it worked well.

RESPONSE TO MESSAGES ABOUT ROAD PRICING

After discussing each of the three concepts, focus group participants were asked to indicate their level of agreement or disagreement with messages about congestion fees, tolled express

lanes, and parking fees, and to indicate which of the statements they felt most strongly about. Respondents' reactions to these messages provides further insight into public opinion on road pricing options.

Overall, participants felt most strongly about three messages related to congestion fees. Respondents strongly agreed with these messages, and the level of agreement was remarkably uniform across the different focus group segments and between respondents who favored and respondents who opposed congestion pricing. These messages thus provide a broad foundation for discussions of road pricing:

- *"We should encourage people to take public transportation by making it always less expensive than driving."*

Strong agreement with this statement underscored respondents' feeling that use of public transportation should be encouraged. The emphasis on lower cost for public transportation rather than raising costs for driving helped attract broad agreement.

- *"When ambulances and fire trucks can't get through the gridlock then it's time to reduce the amount of cars in the most crowded areas of the city."*

Participants felt that this message conveys the need to do something about traffic congestion and highlights the serious public safety implications of congestion that go beyond issues of convenience or wasted time. Those who support congestion fees saw this message as supporting the concept. The message did not change the views of those who opposed congestion fees; they thought that steps short of congestion pricing should be taken to reduce congestion.

- *"Given our energy and environmental problems, any plan that gets people out of their cars and into mass transit sounds like a good idea."*

Linking environmental and energy issues contributed to the strength of this statement. Helping to drive the concern is public awareness of the relationship between, on the one hand, energy/

environmental aspects and, on the other hand, foreign oil dependence, Iraq, global warming, the economy, and jobs.

The depth and breadth of agreement shows that there is public consensus that something needs to be done about congestion because of its impact on travel and the environment and that the core solution to congestion is to emphasize the use of public transportation.

Participants who supported congestion pricing also strongly agreed with the statement:

- *“Nobody wants to pay to drive into Manhattan, but if it relieves traffic congestion, a fee would still be a good idea.”*

This statement balances an acknowledgment of the distastefulness of fees with support for fees based on the benefit of reducing congestion.

Those opposing congestion pricing strongly agreed with two other statements that formed the basis of their opposition, and offset their areas of agreement with supporters of the concept. These messages were:

- *“Drivers already pay too much for gas, tolls and taxes. Congestion can be reduced through better traffic enforcement and technology like high-tech traffic signals.”*

This statement summarized opponents’ feeling that fees would pose an unacceptable financial penalty on drivers and that traffic congestion should be reduced through non-pricing means.

- *“Fees for drivers are unfair for working-class people who can’t afford to pay.”*

Participants in the retail/restaurant owner groups felt most strongly about this statement, whereas it received a more muted response from the auto-commuter groups.

Two additional statements also elicited broad agreement although they were not regarded as among

the strongest messages. These messages underscore participants’ conviction that something needs to be done about traffic congestion and that incremental reductions in traffic can be highly effective in reducing congestion.

- *“With all the new apartment buildings going up and new people moving to the city, we have to work even harder to reduce traffic congestion.”*
- *“Getting even a few cars off the road can make a big difference to reducing traffic. You see on minor holidays like Presidents Day when rush hour traffic flows smoothly.”*

While there were fewer strong feelings about messages on tolled express lanes, two statements scored highest in respondent ratings and strength of message. These messages acknowledge the need to use highways as efficiently as possible and the benefit of offering drivers a choice of paying for a faster trip:

- *“Since they aren’t going to be building more highways in the metropolitan area, we should use what we have most efficiently by encouraging use of buses and carpools.”*
- *“Even if free lanes are more congested than before, express lanes are a good idea because they give drivers the option of a faster trip.”*

None of the statements regarding parking pricing gained as strong a response either in terms of agreement levels or in perceived strength of the statement.

In developing the message to communicate and advocate for a specific pricing plan, a few general observations can be drawn from the reactions of the focus group participants:

- There is the need to communicate certain messages early in the process that build awareness and trust and involve input from the people.
- People need choices. They will readily accept incentives but will strongly resist what are perceived as punitive measures.

- When people take some ownership of the problem, much of their resistance to the solutions goes away.
- Whenever the dialogue is primarily about money, the benefits become lost. The focus needs to be kept on improvements. In order for that to work, people need a level of trust that revenues are dedicated to improvements.
- Any discussion involving money should include the discussion of how much money congestion is currently costing us.

CONCLUSION

Road pricing measures can go a long way toward improving the city's transportation system. Road pricing has a far greater potential to reduce traffic in congested areas of the city than other measures. Unlike other measures, road pricing would also generate revenue that can be used to improve roads, highways, and public transportation services.

Yet road pricing faces substantial barriers to obtaining public acceptance and support. Public discussion of congestion pricing, highway tolls, or higher parking fees ignites the public's deep-seated aversion to fees and taxes. Road pricing also raises concerns about the fairness of imposing costs on people who may have no choice but to pay. Road pricing proposals must allay these concerns if the public is to give these proposals serious consideration.

Although there are substantial obstacles to public acceptance, the current transportation situation creates an opportunity to gain support for pricing strategies. New Yorkers believe that something should be done about traffic congestion. They also want to see improvements in the city's public transportation system. Population and employment growth observable throughout the city strengthens the public's belief that something needs to be done. Intensifying concern about environmental and energy issues further bolsters this feeling.

This research shows that there are opportunities to use pricing to improve transportation in New York City. The research also shows how to shape a publicly acceptable and sensible road pricing program for New York City and points to key aspects of the process that should be used to develop a pricing program.

■ Recommended Design of a Pricing Plan

A road pricing plan should pay careful attention to the public's demand that the program be effective, be focused on solving transportation problems, enhance travel choices, be fair and equitable, be workable, and be supported by other policies. Each of these demands is important to building public support.

The pricing program outlined here is designed to embody these goals. This plan focuses on elements most relevant to building public support. It does not address all issues that will need to be dealt with in a road pricing plan. The intent is to point in the direction of a pricing program that is both sensible and able to gain public support.

1. Since congestion is a citywide problem and not only a Manhattan problem, road pricing should be applied to highways and possibly roads in the outer boroughs as well as to the Manhattan business district. Pricing should be targeted to the times and places that congestion is most severe.

Road pricing needs to be carefully tailored to address the problem of congestion. This is critical to maximize the effectiveness of pricing in reducing congestion, to demonstrate that the goal of the program is to reduce congestion (as opposed to raising revenue), and to show that the program is fair and would not penalize drivers who do not contribute to the congestion problem.

Congestion is most severe and widespread in the Manhattan CBD (60th Street to the Battery) during midday hours, as shown in Figure 2 in Appendix B. Midday in the CBD shows the clearest need for an areawide congestion pricing program. Areawide pricing might also be applied to downtown Brooklyn,

where congestion approaches Manhattan levels during the midday period.

Midday congestion is an areawide issue, but during the morning and afternoon rush-hour periods, congestion is more focused on avenues and river crossings entering and exiting the CBD. A sensible pricing strategy could focus during these hours on CBD entries and exits rather than being applied to all of Manhattan below 60th Street.

The most likely approach in the outer boroughs is to implement express lanes with tolls on major congested highways such as the Gowanus, Long Island, Staten

■**A.M. cordon fee:** Traffic entering the CBD from 6:30 A.M. to 10 A.M.

■**P.M. cordon fee:** Outbound traffic from 4 P.M. to 6:30 P.M.

Express lane locations and fee structure need to be determined based on further analysis of traffic levels and operational feasibility.

Motorists would pay whichever fees applied to their travel. Thus, a driver who takes an express lane and then crosses the cordon at 9 A.M. would pay both the express lane toll and the A.M. cordon fee.

“Maybe the [fee] should be [in] increments, whatever you use. If you’re coming right into the heart of the city, it would be one amount of money; if you’re using a less congested area—the avenues, the highways—it would be a little less.”

“You’d have faster [bus] service, you’d have less congestion, less carbon monoxide in the air. There are so many things that would be positive. This should be done during peak times—rush hour.”

— Participants in transit-user groups

Island, Major Deegan, and Van Wyck Expressways. Express lanes would provide drivers with a choice of paying a fee for a speedy trip or traveling in general-purpose lanes for free, as they currently do. Buses and cars with three or more occupants (or possibly 2+ in some situations) would be exempt from the fee. There would be no toll when traffic is light. The upcoming New York State Department of Transportation managed-lanes study is an opportunity to identify the most practical and effective parts of the city’s highway network for tolled express lanes.

Road pricing fees would thus apply as follows:

■**Midday fee:** Vehicles traveling within the Manhattan CBD from 10 A.M. to 4 P.M. The fee would be charged to vehicles entering and exiting the CBD and making internal CBD trips.

Motorists would pay the midday fee a maximum of once per day, and likewise for the A.M. cordon fee and P.M. cordon fee. A delivery van that crosses back and forth between Manhattan and Queens would pay no more than \$12 per day if each fee were \$4. Express lane tolls would be in addition to the midday and cordon fees.

Motorists would be credited for payment of existing bridge and tunnel tolls charged for vehicles at Manhattan crossings. Thus, someone paying a \$4 E-ZPass toll at the Midtown Tunnel at 8 A.M. would not pay an A.M. cordon fee if that fee were set at \$4 or less. Figure 4 shows the effect of this fee structure on a variety of trips.

The details of fee levels and times of operation need to be refined based on further analysis and, once imple-

mented, actual experience. The travel model recently developed for NYMTC, the regional planning agency, can be used to identify optimal times and places that pricing should be applied. The analysis can take into account the impact of fees and tolls on diverting traffic to non-charged routes so as to design a plan that minimizes spillover effects.

This targeted approach would produce areawide traffic relief. Reducing the number of vehicles entering the CBD in the morning would almost certainly reduce traffic in downtown Brooklyn, Long Island City, and the Upper East and West Sides. Reductions in A.M. entries would also somewhat reduce midday traffic. Likewise, reducing A.M. and midday traffic would cascade to reduce traffic volumes during the afternoon peak both in and adjacent to the Manhattan CBD.

This approach especially relieves traffic in downtown Brooklyn and Long Island City. Fewer vehicles would be driven through these areas on their way to the free East River bridges. In addition, drivers who currently bypass the Brooklyn Battery Tunnel to reach a free bridge would no longer have an incentive to do so. The approach also relieves traffic on the West Side of Manhattan during the afternoon rush hour since drivers using the Lincoln and Holland Tunnels, now free for outbound drivers, would pay a fee for exiting the CBD during the P.M. peak.

This targeted plan avoids penalizing drivers who are not part of the problem while still reducing traffic throughout the Manhattan CBD and adjacent areas. It has minimal, if any, impact on reverse commuters, late-night workers, Manhattan residents making short

Figure 4. Examples of the Effects of Midday, A.M., and P.M. Cordon Fees

Midday fee (10 A.M. to 4 P.M.)	\$4
A.M. cordon fee (6:30 A.M. to 10 A.M.)	\$4
P.M. cordon fee (4 P.M. to 6:30 P.M.)	\$4

- Rush-hour commuter who currently pays no tolls: \$8 per day (\$4 inbound cordon fee in the morning and \$4 outbound cordon fee in the afternoon)
- Rush-hour commuter who currently uses the Midtown Tunnel: no fee (continues to pay \$4 E-ZPass fee each way)
- Rush-hour commuter who uses Lincoln Tunnel (or any Hudson River crossing): \$4 (no fee in the A.M. after paying \$5 Lincoln Tunnel toll; \$4 P.M. cordon fee)
- Salesperson who commutes to a Manhattan office and drives around Manhattan during the day: \$12, the maximum possible (all three fees, once each)
- Waiter working from 3 P.M. to midnight: \$4 (midday fee upon entering the CBD at noon; would not pay a fee driving home at 1 A.M.)
- Janitor working midnight to 8 A.M.: no fee (drives in after 4 P.M., when neither the midday fee nor inbound cordon fee is in effect; drives home at 8 A.M., when neither the midday fee nor outbound cordon fee is in effect)
- Theater patron driving into the CBD at 5 P.M.: no fee
- CBD resident commuting to Coney Island: no fee (drives out of the CBD at 8 A.M., when neither the midday fee nor outbound cordon fee is in effect; drives home at 6 P.M., when neither the midday fee nor inbound cordon fee is in effect)
- CBD resident dropping off kids at school downtown: no fee as long as he or she is parked by 10 A.M.
- CBD resident commuting to JFK for the 4 P.M. to midnight shift: \$4 midday fee when leaving home at 2:30 P.M. (no fee going home after midnight)

intra-CBD trips, and theater patrons and others entering Manhattan for evening entertainment.

The structure of this plan encourages drivers to avoid congestion whenever possible. The plan encourages people who cannot avoid driving into the CBD during the morning rush not to drive in the CBD midday and not leave during the afternoon peak, since they would be charged separately at each time. The structure of this plan would also encourage commercial vehicles to make deliveries before or after the congestion fee goes into effect, addressing concerns about costs to businesses.

Drawing on the experience of Singapore, London, and Stockholm, fees and tolls could be collected using a combination of E-ZPass gantries and license-plate cameras. Drivers could be given the option of buying a disposable E-ZPass tag to maintain their privacy. There would be no tollbooths and no need for cars to slow down while the toll is deducted from their E-ZPass.

2. Fees and tolls should be adjusted in response to traffic conditions.

Variable pricing is an extension of the principle that road pricing should be carefully targeted at the problem. The goal is to set tolls and fees relatively high when congestion is most severe. Fee and toll levels should be reduced or eliminated at other times. This approach maximizes the effectiveness of the program while minimizing the impact on drivers who travel at less congested times, and it provides the greatest choices to drivers who can shift travel times or routes.

Variable pricing is most applicable to express lanes, since travel speeds can be readily measured and signs can advise motorists of the current toll. Tolls can be adjusted in real time to maintain uncongested conditions in the lanes. Travel times can be posted on variable message signs at the entrance to express lanes so that drivers can make informed choices between tolled and general-purpose lanes.

It may also be sensible to vary the midday and/or cordon fees. For example, motorists crossing the cordon between 6:30 A.M. and 7 A.M. might pay a lower fee than those entering during the height of rush hour. The midday fee might be varied not by time of day

but by season. The midday fee might be higher during the holiday season, for example, and reduced in the summer. Application of variable pricing in this fashion needs further study.

This plan is similar to the cordon charges in Stockholm and Singapore, to variable tolls on congested highways in HOT lanes in the United States, and to CBD areawide charging in London. The plan is distinctive from London's areawide fees that apply from 6:30 A.M. to 6:30 P.M. in limiting the areawide fee to the midday hours.

3. A parking-fee program should be piloted that charges higher parking fees, collected using Muni-Meters, at selected locations in commercial districts.

Although this discussion of road pricing has focused on moving vehicles, there is also opportunity to price on-street parking in a way that would improve transportation for New Yorkers. Even more than road pricing, parking pricing needs to be considered in place-specific terms. It is difficult to discuss on-street parking generally, given the different character and needs of businesses, residents, and visitors in different neighborhoods around the city. Given the localized nature of the parking situation and focus group respondents' skepticism that parking fees will be effective in easing parking shortages, a sensible approach is to experiment with higher parking fees at selected locations. Higher fees should be combined with installation of Muni-Meters, which can provide benefits including noncash payments and, ideally, a system in which motorists pay only for the time they are actually parked in the space. The New York City Department of Transportation should identify a limited number of parking spaces in major commercial districts in several parts of the city and install Muni-Meters that would charge higher and escalating parking fees. The charge for parking should be set to achieve a reasonable level of vehicular turnover, generally considered to be reached when spaces are unoccupied 15% of the time.

This incremental approach has several advantages. It can be implemented in the short term and is thus a relatively quick way to demonstrate the effectiveness of

pricing-based approaches. It can also be implemented incrementally—in this case, leaving most on-street parking initially unaffected. The DOT might also approach a number of community boards to solicit participation in a pilot program. Locations would thus be selected where there is clear community support.

4. Fee and toll revenues should be used for road and transit improvements with particular attention to public transportation improvements from areas with heavy auto usage.

Another critical element to using road pricing as a means of improving transportation involves the use of fee and toll revenue. Revenues should be allocated to a combination of improvements to public transportation and roadway improvements. Transit improvements should be focused on improving transit service to those directly affected by pricing. This includes areas of eastern Queens and the outer parts of Brooklyn that are home to the largest concentrations of Manhattan auto commuters, who also face long commutes by public transportation. It may also include subway riders affected by additional crowding.

5. Use of the revenues for transportation should be guaranteed through appropriate governmental mechanisms.

Transit and auto users alike are skeptical that fee and toll revenues will be used as promised for road and transit improvements. A road pricing proposal must guarantee that revenues are channeled into these improvements. A variety of mechanisms could be considered, including a joint city/state agency with oversight of the road pricing program and disposition of the revenues. Regular auditing by state and city comptrollers might also be an attractive mechanism to assure the public about the use of the revenues.

A joint city/state agency may offer advantages beyond assuring the public about the use of revenues. Unlike in London, different agencies are in charge of public transportation (MTA), local streets (New York City Department of Transportation), and state and interstate highways (New York State Department of Transportation). In addition, the MTA and Port Authority operate

tolled river crossings. There is thus a daunting need for intergovernmental coordination in developing and implementing road pricing and allocating revenues. An entity that brings together key state and city transportation agencies could help overcome the institutional barriers to program success.

■ Developing a Road Pricing Program

The process followed in developing a road pricing program is just as important as the program itself in gaining public support. Results from this research show three key elements that should be included in this process.

1. Start a public dialogue about transportation problems and the importance of doing something about them.

The discussion of improvements to transportation should emphasize the transportation problems to be rectified and the importance of solving these problems. The problems of traffic congestion, overcrowded trains and buses, and unreliable bus service are especially important in light of new residential and commercial developments throughout the city and the city's remarkable projected long-term growth. A clear focus on these problems and on the fact that, without action, they will only worsen will help to motivate the public's desire for action. The discussion should highlight the costs of congestion to individuals and businesses and the benefits that would be realized from reducing these costs.

2. Engage the public in a discussion of a range of possible solutions.

The range of solutions should include pricing options and non-pricing options. The range of solutions should address the varied causes of congestion, such as double parking, pedestrian/vehicular conflicts, taxis stopping in lanes of otherwise moving traffic and the needs of delivery vehicles. Since these causes lie at least partially outside the influence of road pricing, it is important to show that the wide range of causes of congestion is understood and is being addressed.

Non-pricing options could include additional train and bus service; a network of bus rapid transit lanes; stepped-up enforcement against double-parking, blocking the box and other traffic rules; enforcement of rules requiring cabbies to pick up and drop off at the curb; zoning incentives or requirements for off-street truck loading; restrictions on government permit parking; traffic signal cycles that include an “all walk” phase for pedestrians; additional Thru streets; additional curbside left and right turn lanes from cross-streets (which allow through traffic to progress in the middle lane) and a full network of bicycle lanes.

Discussions on solutions should contrast the advantages and disadvantages of various solutions and combinations of solutions. It should be made clear in this discussion that pricing alternatives are not being favored over non-pricing alternatives but would be included simply to fashion the most effective package. Discussions on solutions should stress incentives for using public transportation and for the efficient use of roads and highways through bus rapid-transit lanes, express bus service, park-and-rides, carpooling and so forth.

Consideration of road pricing should also be clear about who would be affected and how they would be affected. The public’s reaction to road pricing is based in part on perceptions of who will pay the charges. Is it the working person? Is it drivers who choose to drive as a personal choice for convenience and comfort? Is it people who have no choice but to drive, given the public transportation alternatives or their own transportation needs, such as carrying large items? The public is more likely to accept road pricing

if drivers affected by charges are primarily people who drive as a matter of personal choice.

3. Take steps showing that things are moving in the right direction.

Although it is impractical to wait until major transit capital projects are complete before considering road pricing, general agreement that things are moving in the right direction is essential. An extension of the commercial parking program currently planned, the joint City/MTA Bus Rapid Transit initiative, and real-time bus arrival information currently being implemented on Manhattan’s East Side help to build a favorable climate for road pricing. Announcements of bus and subway service cuts, on the other hand, feed negative perception of the transit system’s prospects for improvement.

* * *

These recommendations can form the basis of a program to effectively reduce traffic congestion and increase mobility in New York City. Road pricing is probably the most effective available tool to ease congestion. Road pricing also generates revenue, as opposed to other steps that impose costs.

Extensive traffic analysis and public involvement will be required to refine the details of a pricing program and to develop complementary improvements to roads, highways, and public transportation. The contribution of this research to the public discussion is to show the direction and shape that pricing strategies should take in order to attract public support--and thus overcome the most imposing obstacle in the path to implementing road pricing in New York City.

Appendix A. Methodology and Concept Statements Used in Focus Groups

This study is based on a review of the literature on road pricing and on focus groups of New Yorkers discussing three road pricing concepts.

The literature review covered road pricing in the New York area, nationally, and internationally. The literature review was used to help understand approaches to road pricing, the effectiveness of various forms of road pricing, and possible keys to public acceptability. Approximately seventy reports and studies were reviewed; the report highlights the most relevant findings from this review.

Eight focus groups were held: with New York City and suburban auto commuters; with New York City transit users; and with owners of restaurant, retail, and delivery businesses in and around Manhattan. All respondents live or work in the Manhattan Central Business District (CBD), defined as the area from 60th Street to the Battery. This research protocol was thus designed to capture the range of opinion that exists within the general public on the issues under consideration.

Specific focus group segmentation was:

- Auto users—three focus groups:
 - a) Auto users who live beyond walking distance of the subway (e.g., eastern Queens, southern Brooklyn, Staten Island, or Nassau and Westchester Counties)
 - b) Auto users who have direct subway access to Manhattan
 - c) Auto users who regularly drive to destinations west of 10th Avenue or east of 2nd Avenue, 14th Street to 60th Street, and thus lack convenient subway service to their Manhattan destinations
- Transit users—two focus groups:
 - a) Transit users who live in the city and commute from beyond walking distance of the subway. These groups included residents who take an express bus or bus and subway from eastern Queens, southern Brooklyn, the Bronx, or Staten Island

- b) Transit users who live in Manhattan, the Bronx, Queens, or Brooklyn within walking distance of the subway

- Business owners and general managers—three groups:
 - a) Retail establishments and restaurants located in the Manhattan CBD
 - b) Retail establishments and restaurants located in Manhattan above 60th Street, in downtown Brooklyn and adjacent neighborhoods, Long Island City, and Astoria
 - c) Delivery companies that make deliveries in the Manhattan CBD

All auto and transit-user respondents either live in the Manhattan CBD or travel into the CBD at least three times a week. Respondents also indicated a degree of civic engagement by voting within the last two years and having participated in activities such as: volunteering in a school, religious, social, or community organization; writing a letter to a public official; attending a political rally; and so forth.

Respondents included residents of all five boroughs and Nassau, Westchester, and Rockland Counties and included a mix of age, gender, income, and race/ethnicity. Most of the business owners and managers were from small businesses.

Respondents were asked to describe their feelings about the modes of transportation they currently use; their reaction to concept statements for congestion pricing, tolled express lanes on highways, and on-street parking fees; and their reaction to messages concerning pricing options. At the conclusion of each discussion, respondents were asked to put together a program that they would recommend to the mayor to improve transportation in New York City. See below in Appendix A for the concept statements used in the discussions.

Focus groups were held in September 2006 in midtown Manhattan. Discussions lasted about two hours.

Discussions were captured on audiotape and reviewed in detail for the preparation of this report.

The concept statements discussed by focus groups were:

Congestion Pricing

As you may have heard, London adopted a program three years ago to reduce traffic congestion and raise funds for public transportation. Motorists in London are charged a fee for entering the central part of the city; the revenue is used to increase bus service. Since the charge started, traffic in the center of London has been reduced. Bus speeds have increased and buses arrive at stops more frequently.

A similar program could be implemented for the area of Manhattan below 60th Street. Cars and trucks driving below 60th Street during the day on weekdays would pay a fee. Money raised by this fee could be used to improve public transportation and repair highways and streets in the city.

The fee would be collected using E-ZPass. There would be an alternative to pay in cash such as by purchasing a disposable E-ZPass tag at a store. E-ZPass readers would be installed at various locations in Manhattan below 60th Street. Vehicles would not have to stop at a toll booth to pay the fee.

Express Lanes with Tolls

San Diego and Minneapolis have put “express lanes” on highways. These lanes are reserved for buses, cars carrying at least three people, and cars that pay a toll to use the lane. The toll is set high enough to prevent too many people from using the express lanes to ensure that buses and cars in the express lanes are not delayed by traffic congestion. Motorists pay the toll using transponders similar to E-ZPass.

A similar program could be implemented in New York City. For example, the current in-bound HOV lane on the Gowanus could be expanded into two lanes. Both lanes would be used by buses, HOV cars and single drivers paying a toll. That would leave two lanes for

non-tolled traffic instead of three. It could also be implemented on the wider parts of the LIE

Money raised by the tolls could be used to improve public transportation and repair highways and streets in the city.

On-Street Parking Fees

Concept description used in the first three focus groups:

Currently, the cost of metered parking in New York City ranges from approximately 50 cents per hour to \$2.50 per hour, depending on location. The cost of parking in a garage is generally much higher than parking at a meter. As a result, motorists often drive around looking for an open on-street parking spot, increasing congestion and pollution.

The cost of metered parking could be increased to make it easier to find an open space and encourage motorists to use off-street parking facilities. Enforcement of one-hour and two-hour time limits on parking could be increased as part of this program.

Money from the increased parking fees could be used to improve street conditions.

Concept description used in the last five focus groups:

Several years ago, Muni-Meters were installed at Midtown truck loading zones. Rates for commercial vehicles are \$2 for one hour, \$5 for two hours, and \$9 for three hours of parking for loading and unloading. This program has reduced double parking and increased turnover by trucks and vans.

A similar program could be implemented for cars in areas such as downtown Brooklyn, Jamaica, Queens, and the Hub in the Bronx. Parking rates would escalate each hour to encourage long-term drivers to use off-street parking facilities and free up spaces for shoppers who need to park for only a short time.

Money from the increased parking fees could be used to improve street conditions.

Appendix B. Traffic Speed Maps

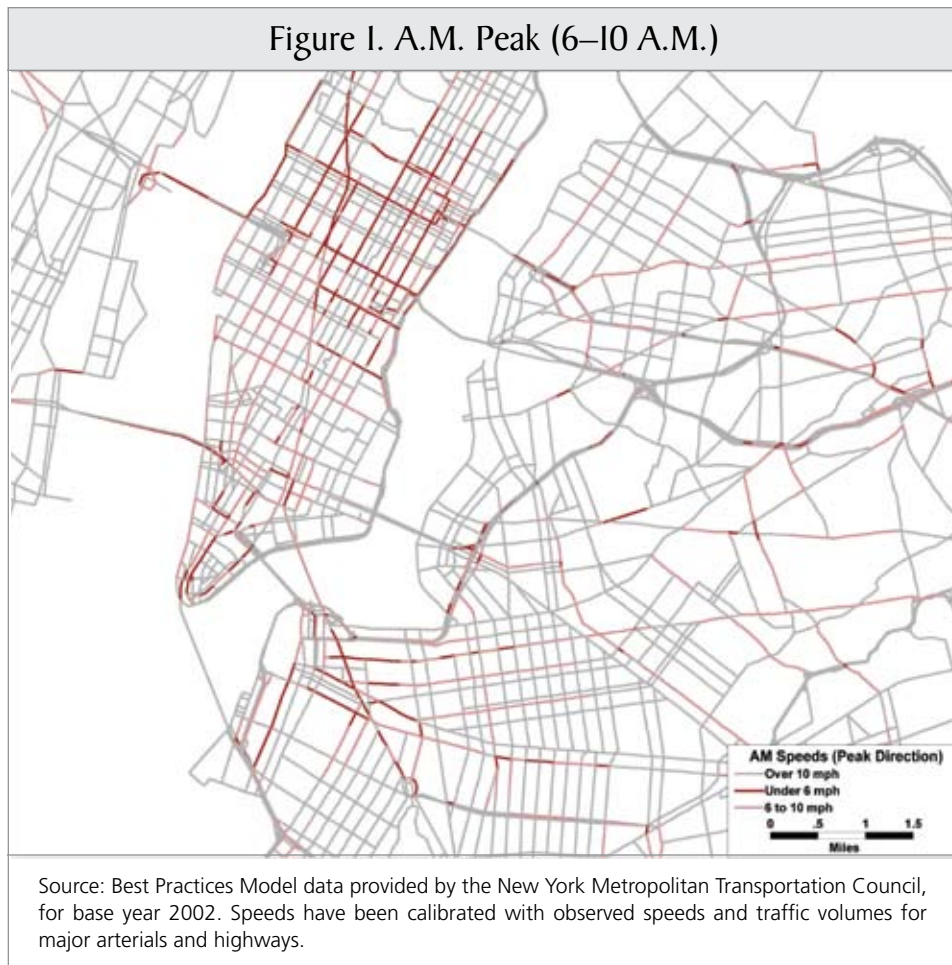


Figure 2. Midday (10 A.M.–4 P.M.)



Source: Best Practices Model data provided by the New York Metropolitan Transportation Council, for base year 2002. Speeds have been calibrated with observed speeds and traffic volumes for major arterials and highways.

Figure 3. P.M. Peak (4–8 P.M.)



Source: Best Practices Model data provided by the New York Metropolitan Transportation Council, for base year 2002. Speeds have been calibrated with observed speeds and traffic volumes for major arterials and highways.

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2. Ibid. Asked to rate Mayor Michael Bloomberg's job performance in various areas, 31% gave a rating of "excellent" or "good" on traffic jams and delays, and 59% gave a rating of "fair" or "poor." The excellent/good and fair/poor percentages were 50/40% on improving education standards, 57/39% on reducing crime, and 28/60% on affordable housing.
3. New York Metropolitan Transportation Council, "Congestion Management System 2005 Status Report," August 2005. Available at: <http://nymtc.org/project/CMS/cms.html#cms2005>.
4. Ibid., p. 129. Based on 605,000 vehicle hours of delay per day and \$23 per hour value of time.
5. New York Metropolitan Transportation Council, "Regional Transportation Plan Update Discussion Document," January 2004, pp. 2–8.
6. José Holguín-Veras, Kaan Ozbay, and Allison de Cerreño, "Evaluation Study of Port Authority of New York and New Jersey's Time of Day Pricing Initiative," University Transportation Research Center, March 2005, p. 389. Available at: <http://www.rpi.edu/~holgij2/PA/Executive%20Summary.pdf>.
7. For a more detailed discussion of monetary and nonmonetary costs and the varied implications of traffic congestion, see Bruce Schaller, "Choices at a Critical Junction: New York's Mobility and Highway Infrastructure Needs for 2005–2010," New York University Rudin Center for Transportation Policy & Management, March 2005, pp. 18–20.
8. New York Metropolitan Transportation Council spring 2006 forecasts, provided by NYMTC to the author.
9. Based on toll facilities listed in Federal Highway Administration, "Why Does the Interstate System Include Toll Facilities?" Available at: <http://www.fhwa.dot.gov/infrastructure/tollroad.htm>.
10. Based on toll revenues reported in Federal Highway Administration, "Highway Finance 2004."
11. Holguín-Veras et al., "Evaluation Study of Port Authority," p. 60.
12. Kaan Ozbay, Ozlem Yanmaz, and José Holguín-Veras, "The New Jersey Turnpike Road Pricing Initiative: Analysis Traffic Impacts," PIARC Seminar on Road Pricing with Emphasis on Financing, Regulation and Equity, Cancún, Mexico, April 11–13, 2005.
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14. Staffan Algers et al., "The Stockholm Congestion Charging Trial—What Happened? Expert Group Summary," City of Stockholm, June 2006. Available at: http://www.stockholmsforsoket.se/upload/Rapporter/Expert_group_summary_060621.pdf.

15. Parsons Brinckerhoff and Texas Transportation Institute, "A Guide for HOT Lane Development," Federal Highway Administration, 2003. Available at: http://www.itsdocs.fhwa.dot.gov/jpodocs/repts_te/13668_files/images/13668.pdf. See also Washington State Department of Transportation, "Other HOT Lanes Projects," 2006. Available at: <http://www.wsdot.wa.gov/Projects/SR167/HOTLanes/OtherHOTlanesProjects.htm>.
16. Jeffrey M. Zupan and Alexis F. Perrotta, "An Exploration of Motor Vehicle Congestion Pricing in New York," Regional Plan Association, November 2003. Available at: http://rpa.org/pdf/RPA_Congestion_Pricing_NY.pdf. For a recent analysis of congestion pricing in New York, see Michael Flynn, "Moving It Forward: A Blueprint for Making Road Pricing a Reality in New York City," master's thesis, Pratt Institute, May 2006. Available at: <http://mikeflynn.net/roadpricing/Road%20Pricing%20-%20Moving%20It%20Forward%20in%20NYC%20-%20Mike%20Flynn.pdf>.
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24. For a discussion of why people drive in Manhattan, see Bruce Schaller, "Necessity or Choice? Why People Drive in Manhattan," report prepared for Transportation Alternatives, February 2006. Available at: <http://www.schallerconsult.com/pub/p-nyc.htm>.

CENTER FOR
RETHINKING DEVELOPMENT

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The Center for Rethinking Development (CRD) fosters a new understanding of the importance of development to New York City's well-being. Focusing on such areas as zoning and planning, environmental review, building codes, historic preservation, and public housing, CRD issues research reports, hosts forums, and offers concrete and feasible proposals for reform.

Many of CRD's specific recommendations for zoning changes have been adopted by the city. Its work on broader issues of construction costs, environmental reviews, and other bottlenecks to building continues to frame policy discussions in the development world—public, private, and not-for-profit.

New Yorkers have become far more development-friendly in the past few years, but are rightly troubled about New York's decaying infrastructure—roads, subways, bridges, tunnels—so necessary to support an expanding city. The costs of housing—rehabilitation as well as new construction—worry everyone concerned about keeping and attracting jobs and business. CRD explains and makes a case for the importance of reconnecting environmental reviews to infrastructural planning and implementation, targeting incentives to neighborhoods that are still weak rather than those that are strong, and tempering historic preservation with economic reason. Addressing these common-sense concerns is key to ensuring that the city continue to thrive and grow.

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