

NORTHERN MANHATTAN AND THE CONGESTION PRICING PLAN

A comprehensive look at the citywide plan from a community perspective



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WE ACT has initiated this study to research the potential impacts of PlaNYC 2030's proposed congestion pricing plan in New York City on Northern Manhattan neighborhoods. It is an outcome of a sustained dialogue with Northern Manhattan community residents and elected officials regarding their concerns about potential negative impacts of the proposed plan.

Over the past 18 months, WE ACT has served as a member of Mayor Michael Bloomberg's Sustainability Advisory Board and the Campaign For New York's Future, a coalition working to ensure implementation of a comprehensive sustainability plan for New York City that involves over 127 initiatives to reduce our global warming emissions by 30% by 2030, reinvest in our aging infrastructure, clean the air, and generate revenue for improved mass transit. I believe that the Mayor has understood the depth of the challenges before us and has developed a plan that engages communities and resonates throughout our neighborhoods, which welcome improved air quality, increased access to open space, and reliable, clean energy.

This report presents our findings and makes recommendations that we expect can ensure that congestion pricing is a benefit not a burden to Northern Manhattan communities.

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WE ACT for Environmental Justice (West Harlem Environmental Action, Inc.) is a non-profit, community-based, environmental justice organization dedicated to building community power to fight environmental racism and improve environmental health, protection and policy in communities of color. WE ACT accomplishes this mission through community organizing, education and training, advocacy and research, and public policy development. As a result of our ongoing work to educate and mobilize our base – the more than 600,000 residents of Northern Manhattan – on environmental issues affecting their quality of life, WE ACT has become a leader in the nationwide movement for environmental justice, influencing the creation of federal, state and local policies affecting the environment.

The **Urban Design Lab (UDL)** at the Earth Institute works to find innovative solutions to the sustainable development issues confronting cities. The UDL conducts multi-disciplinary applied design research in collaboration with community-based organizations and other public and private interests. The Lab's work cuts across all of the Earth Institute's themes: Climate and Society, Water, Energy, Poverty, Ecosystems, Global Health, Food, Ecology, Nutrition, Hazards and Risk, and Urbanization. During its first two years, the UDL has assisted New York City communities in tackling environmental remediation, high-performance and green building design, micro-infrastructure, public health, climate change, and sustainable economic development.

The **Center for Sustainable Urban Development (CSUD)** fosters and participates in education and research for physically and socially sustainable cities. CSUD focuses on the challenges and opportunities of urban development in developing countries and in the New York City region. CSUD undertakes interdisciplinary analysis of the linkage between urban transportation, land use, urban growth, population health and climate change with the goal of designing plans and policies for sustainable urban growth. Founded in 2004, CSUD is one of seven Centers of Excellence established by the Volvo Research and Educational Foundations (VREF) to conduct interdisciplinary research on coping with the increasing complexities of urban transportation.

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EXECUTIVE SUMMARY

The City and State of New York are currently considering a comprehensive congestion pricing plan initially put forward by the Mayor. The plan, as refined by the Traffic Congestion Mitigation Commission, promises to improve the city's overall environmental health by reducing traffic and congestion. The plan would also provide a revenue stream dedicated to transit improvements, eventually resulting in easier and faster commutes for all riders. Though residents throughout the five boroughs would experience these benefits, many neighborhoods are also concerned about the potential for negative local impacts. Northern Manhattan residents have in particular raised concerns that suburban commuters will opt to "park and ride" near transit stations in their community, adding to local traffic congestion and reducing the availability of parking. A second concern is that the plan may worsen conditions on an already crowded transit system. A final concern is the impact of the proposed expansion in bus service on communities of color. This report examines these concerns and identifies measures the City, State and Metropolitan Transportation Authority can take to prevent or mitigate these outcomes.

The City's Plan

The plan recommended by the Commission would charge vehicles a daily fee when entering the Central Business District (CBD) of Manhattan from 6 am to 6 pm on weekdays. The Commission projects that this fee will encourage drivers to commute via transit, causing congestion to decrease not only in the CBD itself, but in neighborhoods near the charging zone as well. The Commission projects that 78,000 auto trips each day will switch to transit to avoid paying the congestion fee.

Benefits for Northern Manhattan

This plan brings a wide range of benefits to the City as a whole and certain localized benefits to communities such as Northern Manhattan that are outside the charging zone. Congestion pricing provides a dedicated revenue source that, when combined with other funding sources, will allow the MTA to fund the first wave of major expansions to New York's transit system in over half a century. For Northern Manhattan, projects such as the Second Avenue Subway and bus rapid transit (BRT) on 125th Street and 1st and 2nd Avenues promise to alleviate crowding on the Lexington Avenue 4-5-6 lines and provide new transit alternatives. A new MetroNorth line along the Hudson could provide a fast alternative from West Harlem to Midtown and relieve crowding on the 1 line, and an Upper West Side Transit Alternatives Study could develop new options such as BRT for the West Side.

Congestion pricing also promises to cut traffic in Northern Manhattan. The City's model forecasts a 6.4% reduction in vehicle volumes for the CBD, but it also predicts a 3.8% reduction above 86th Street and noticeable improvements in traffic flow. For example, the model predicts that more than one-fifth of the most congested intersections above 86th Street – intersections that are currently

operating at or above capacity – would be operating below capacity after congestion pricing began. These effects would likely translate to cleaner air, with fewer vehicles emitting pollutants and the remaining vehicles spending less time idling in traffic. For Northern Manhattan, the health benefits of these decreases are an important benefit of congestion pricing. As an area with the highest asthma rate in the country, any improvement to air quality is a public health benefit for the community as a whole.

Park-and-Ride

Despite these benefits, there is some concern that park-and-ride activity could occur in Northern Manhattan if drivers choose to commute partially via private car and switch to transit just outside the congestion zone. For Northern Manhattan, an increase in park-and-ride activity is possible but unlikely for a number of reasons. With on-street parking occupancy typically above 90% in Harlem, on-street capacity for additional cars is extremely low at all times, a fact that may deter would-be park-and-riders. Off-street parking can be found at prices significantly lower than in the CBD, but the supply of off-street parking in Northern Manhattan is somewhat limited. If there is a limited increase in park-and-ride, it is likely to be offset by the reduction in through traffic that congestion pricing will induce. Park-and-ride could have other adverse impacts on local residents, including more congested streets, subways, and sidewalks. Increased demand for parking would also likely lead to higher prices at off-street facilities.

If sufficient demand for parking developed as a result of congestion pricing, for it could spur the development of new facilities, as there is currently a significant amount of vacant land near some Northern Manhattan subway stations. Before landowners could convert their vacant lots into private parking facilities, they would have to overcome a number of legal and regulatory requirements. These requirements, along with further restrictions the city could put in place to impede the development of private parking lots, are likely to limit development of private parking facilities in Northern Manhattan.

Transit

Whether or not suburban commuters choose to park and ride in Northern Manhattan, there will almost certainly be an increase in demand for transit. In the Bronx alone, the City forecasts 4,000 drivers will switch to transit. Any increase would come on top of years of rapid growth – subway ridership is up 17% since 1999, with some lines such as the 1 in Northern Manhattan seeing much faster growth. As a result, many of the subway lines that serve the area are currently at or above capacity. With another nearly one million residents expected to join the City by 2030, these conditions are likely to grow worse unless planned expansions are completed.

Yet completion of these projects is years away in most cases and depends on full funding of the MTA's capital plan. In the interim, the MTA plans to accommodate the expected surge in ridership from congestion pricing primarily with expanded bus service. This includes twelve new express routes from the Bronx, Brooklyn,

and Queens. The MTA also plans to roll out the first of five new bus rapid transit (BRT) routes in 2008.

Recommendations

While our analysis suggests that local impacts will be small and may be offset by other positive impacts of the program, we look forward to the more detailed analysis that the Commission suggests as part of a customized Environmental Impact Statement. To allow the City and MTA to respond quickly to any adverse impacts, we urge the City to develop a robust monitoring program, in accord with the Commission's recommendation. The City, State, and MTA have also proposed a number of other measures that we believe are essential to mitigate or prevent any adverse impacts for Northern Manhattan. These include:

- Expanding suburban park-and-ride facilities;
- Establishing a residential parking permit program for Northern Manhattan;
- Guaranteeing that congestion pricing revenue is used for transit improvements through a "lockbox" mechanism;
- Examining alternatives to facilitate transit on the West Side of Manhattan and relieve crowding on the 1, 2 and 3 lines.

In addition, we urge these parties to adopt the following measures to ensure a positive impact for Northern Manhattan:

- Restricting construction of new parking facilities in Northern Manhattan;
- Adding 125th Street to the Congested Corridors program;
- Reducing the disproportionate impact of bus depots on Northern Manhattan and other communities of color around the city;
- Identifying additional sources of funding to build and operate new transit services.

INTRODUCTION

On January 31, 2008, the New York State Traffic Congestion Mitigation Commission proposed a comprehensive congestion pricing plan for New York City. According to the Commission, the plan would cut traffic in Manhattan below 60th Street by 6.4% while raising nearly \$500 million annually for transit improvements.¹ Congestion pricing is a major element of Mayor Bloomberg's PlaNYC program to reduce the City's carbon emissions 30% by 2030, and has garnered wide support from environmental and transit advocates.² However, leaders in neighborhoods just outside the charging zone have voiced concerns that their communities could suffer adverse effects from the program.³

A particular concern for communities in Northern Manhattan is that congestion pricing could bring park-and-ride activity to the area. Harlem and Washington Heights are home to a disproportionate number of pollution sources, such as bus depots and sewage treatment plants,⁴ and asthma rates in those neighborhoods are the city's highest.⁵ New park-and-ride activity could further clog neighborhood streets and inflict additional environmental and safety hazards on residents.

At the same time, there is concern that congestion pricing could exacerbate crowding on the subway. Rapid development in Northern Manhattan has brought thousands of new riders to the system in recent years; proposed developments and the planned rezoning of 125th Street are likely to bring thousands more. Without adequate measures to accommodate new demand, the concern is that congestion pricing will only add to these demands on the subway system.

This study examines the potential impacts of congestion pricing on Manhattan above 110th Street. It begins with a description of the plan put forward by the Commission. The study then reviews the evidence on potential parking and traffic impacts in Northern Manhattan, and examines in particular the possibility of park-and-ride activity. This is followed by a discussion of the plan's potential impact on subway and bus service. Finally, the study identifies steps that the City, State and MTA can take to improve the plan's outcomes for Northern Manhattan.

The Commission's Recommended Plan

The plan put forward by the Commission and endorsed by Mayor Bloomberg imposes a fee on most drivers entering the Manhattan Central Business District (CBD) below 60th Street on weekdays between 6 am and 6 pm. Cars would pay a daily fee of \$8 and trucks \$21, with a credit for any bridge or tunnel tolls.⁶ Taxis would be exempt, but there would be a \$1 surcharge on trips beginning or



Figure 1. The proposed Congestion Pricing Zone in relation with Northern Manhattan.

1 Traffic Congestion Mitigation Commission, Interim Report (January 10, 2008).
 2 The City of New York, PLANYC: A Greener, Greater New York (April 22, 2007).
 3 See, for example: Columbia Spectator, Congestion Pricing's Effects On Upper Manhattan Debated (September 25th, 2007).
 4 West Harlem Environmental Action, "Asthma Hospitalization Rates by ZIP Code," 2003.
 5 New York City Department of Health and Mental Hygiene, Asthma Facts, Second Edition (2003).
 6 Low-emission trucks would pay \$7. The credit would apply only to EZ-pass users.

ending in the zone. The City would raise the price of on-street metered parking and eliminate a parking garage tax exemption for Manhattan residents.⁷

The Commission estimates that traffic, measured in vehicle miles traveled (VMT), would drop by 6.4% below 60th Street in Manhattan, and that the plan would raise \$491 million annually from the tolls, after deducting operating costs. The Commission recommends that these revenues be devoted to funding the MTA capital program. It further recommends that new revenue from the proposed parking measures be devoted to city transit programs and to bicycle and pedestrian amenities.

To advance congestion pricing in New York, the Federal government has awarded New York a one-time grant of \$354 million. The bulk of these funds would pay for transit improvements that would be put in place before the pricing program begins. The grant is contingent on approval by both the State Legislature and the City Council of a congestion pricing plan – the Commission’s recommended plan or an equivalent alternative.⁸ Failure by the City or State to approve a plan by March 31 would disqualify New York City from receipt of the funds.

Analysis of Neighborhood Impacts

The City projects that congestion pricing will reduce traffic levels in neighborhoods outside the charging zone, as through traffic to the charging zone decreases. In fact the greatest reductions are expected on the Upper East and Upper West Sides. For Manhattan above 86th Street, the city’s traffic model suggests a 3.8% reduction (see Table 1).

The City’s model also estimates significant improvements in traffic flow for Northern Manhattan. Intersections are characterized by a level of service (LOS) ranging from A for intersections with free flowing traffic, to F for intersections where traffic volumes are at or above capacity and there are long delays. For the City as a whole, the model forecasts an increase in intersections with the highest ratings (A or B) and a decrease in the number of poor-performing intersections. For Manhattan above 86th Street, the number of intersections with an F rating is expected to drop 21%. This suggests that despite a seemingly small percentage reduction in traffic, drivers will see noticeable improvements in traffic flow.

To develop these estimates, the City used the Best Practices Model of the New York Metropolitan Transportation Council. This traffic model is based on a detailed survey of area residents in 1997-1998 that established the origins and destinations for thousands of daily trips. The model applies this information to a programmed network of arterial roads and transit routes to estimate traffic volumes. Because the model is less reliable at smaller scales, it was only used to estimate impacts for large areas such as Manhattan above 86th Street. In addition, while the model is calibrated against recent traffic counts and transit

⁷ Traffic Congestion Mitigation Commission, Commission Recommendation to the City and State of New York (January 31, 2008).

⁸ To qualify for the Federal grant, the approved plan must reduce VMT below 86th Street by 6.3%, the reduction initially promised by the Mayor’s plan.

Table 1. Projected traffic reductions under congestion pricing

Geography	VMT Reduction
Manhattan south of 60th Street	-6.4%
Manhattan 60th – 86th Streets	-8.0%
Manhattan north of 86th Street	-3.8%
Western Queens*	-6.1%
Northwest Brooklyn**	-4.7%
Bronx	-1.3%
Staten Island	-1.0%
Citywide	-2.1%

* Western Queens includes Long Island City, Astoria and Sunnyside.

** NW Brooklyn includes Park Slope, Carroll Gardens, Boerum Hill, Red Hook, Downtown Brooklyn, Williamsburg, Greenpoint and Bushwick.

Source: Traffic Congestion Mitigation Commission, Interim Report (Jan. 10, 2008), p. 41.

schedules, changes in land use and demographics since the 1997-1998 survey may add to the uncertainty about the precise magnitude of a forecast change. Therefore, in considering impacts on Northern Manhattan, we have chosen to augment the model forecasts with a more focused analysis of local conditions.

We begin with an examination of the community's concern about increased park-and-ride activity. In particular, we look at the physical potential for park-and-ride in Northern Manhattan – the availability of public parking near transit stations and vacant lots that could be converted to parking. We also compare potential traffic impacts with the reduction that congestion pricing could bring. Then we consider the economic decision faced by commuters, to estimate the likelihood that they will park in an intermediate neighborhood and take transit to the CBD.

Next, we examine another concern voiced by many Northern Manhattan communities: the potential impact of congestion pricing on subway crowding. The City projects that 78,000 existing auto commuters will switch to transit (subway and/or bus) to avoid the congestion charge.⁹ Northern Manhattan communities may be uniquely impacted by this increase as a result of the extensive transit system serving the area, include multiple express routes. We therefore review current transit conditions in Northern Manhattan and point to potential problem areas.

TRAFFIC AND PARKING

Overview

A chief concern of Northern Manhattan neighborhoods is that CBD commuters from outside the area could drive to these neighborhoods, walk to the nearest subway station, and take the train to their workplace downtown. For example, easy access from the George Washington Bridge make areas around the 181st and 168th Street stations on the A and 1 lines potential candidates for park-and-ride activity. Similarly, express stations on 125th Street could draw park-and-ride activity because of easy access from both the Henry Hudson Parkway and the FDR Drive. We have examined a scenario in which park-and-ride commuters park within ¼ mile of transit stations that have express service to the CBD and good highway access. The target stations in Northern Manhattan are as follows:

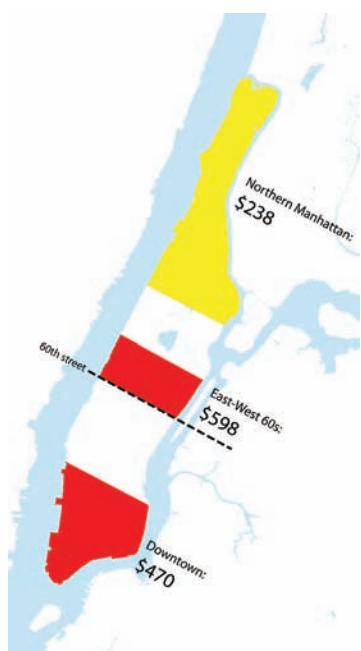


Figure 2. Off-street parking rates for selected districts in Manhattan
Data Source: BestParking.com

Table 2. Potential Sites of Park-and-Ride Activity in Northern Manhattan

Station	Lines
181st Street	A
181st Street/Broadway*	1
168th Street/Broadway*	1
168th Street/Broadway	A-C
145th Street	A-B-C-D
125th Street	A-B-C-D
125th Street	2-3
125th Street	4-5-6

*The 1 line is a local train; these stations are listed because they have relatively good highway access. The 2-3 is express below 110th Street; the 125th Street station is listed because of its accessibility via 125th Street.

The likelihood of park-and-ride activity first depends on the availability of either on- or off-street parking for commutes. Throughout Northern Manhattan, on-street parking is very difficult. In 2005, the City found that 92% of on-street parking spaces between 116th and 135th Streets were filled at any given moment.¹ A recent study by the New York City Department of Transportation looking at residential parking in Central Harlem found similar occupancy rates, ranging between 91 and 93 percent.²

When parking is so scarce, drivers must spend time searching for parking. Research by Donald Shoup, Professor of Urban Planning at the University of California at Los Angeles and an authority on parking, suggests that occupancy rates need to drop to 85% before drivers have some certainty of finding a space quickly.³ The high occupancy rates seen in Harlem serve as a deterrent, then, to commuters wishing to make a fast park-and-ride transfer.

Off-street parking in garages or surface lots offers a more assured alternative, for a price. Nevertheless, this price is significantly less than the price for off-street

1 New York City Department of City Planning, Harlem/Morningside Heights Transportation Study, 2005, http://home.nyc.gov/html/dcp/html/transportation/harlem_study.shtml
 2 The study looked at parking from 120th to 130th Streets between Madison Avenue and Frederick Douglass Boulevard. New York City Department of Transportation, "Workshop on Neighborhood Parking, Round 2 Participant Workbook: Harlem," January 24, 2008.
 3 Donald Shoup, "Cruising for Parking," Access, No. 30, Spring 2007, pp.16-22.

parking in the CBD. Daily parking in Northern Manhattan can cost less than \$10, compared with \$25 downtown. On a monthly basis, lots above 110th Street charge an average \$227, less than half the \$470 for Financial District garages. These price differentials would tend to encourage park-and-ride activity in Northern Manhattan. Furthermore, parking in Northern Manhattan is much less expensive than just above the proposed 60th Street cordon, with monthly rates averaging \$600 in the East and West 60s. This price differential would tend to encourage CBD commuters to park in Northern Manhattan rather than on the Upper East or West Sides, particularly if they cannot walk to work from the East or West 60s.⁴

Off-street park-and-ride activity in Northern Manhattan would also depend on the availability of spaces. As a whole, Northern Manhattan has a much lower density of parking lots than the Central Business District or the Upper East Side. However, there is some evidence of current park-and-ride behavior and the potential for additional activity. At least one parking lot in Harlem advertises itself as a park-and-ride facility, although current capacity suggests a relatively small number of CBD commuters are dropping their cars in Northern Manhattan. Within ¼ mile of the 125th Street station on the Lexington Avenue line, there are 6 publicly-accessible lots with a total of 1,469 spaces.⁵ Assuming a utilization rate during the day of 69%, in line with the findings of the 125th Street Environmental Impact Statement, there could be as many as 455 free spaces within walking distance of the subway station.⁶

These existing spaces near 125th Street could accommodate a fairly modest increase in park-and-ride activity. However, if CBD commuters find park-and-ride a viable option, the increased demand could encourage owners of existing lots to provide more spaces by investing in vertical stacking equipment. As discussed below, higher demand could also encourage development of new parking lots.

Potential Impact of Park-and-Ride

If it occurs, increased park-and-ride activity could bring many new cars into neighborhoods throughout Northern Manhattan. Many streets suffer from congestion, particularly during the afternoon rush hour; additional traffic would slow all vehicles and worsen the already poor air quality. Yet much if not all of this increase might be offset by a reduction in through traffic induced by congestion pricing. A more detailed analysis, which could be included in a customized Environmental Impact Statement recommended by the Commission, could more precisely estimate potential increases in park-and-ride activity and compare the traffic impact against the projected overall reduction in through traffic. Here we provide a rough estimate of the potential traffic impact for one neighborhood, and identify additional impacts of increased park-and-ride activity.

4 Prices from BestParking.com, <http://nyc.bestparking.com/#1>, as of February 8, 2008.

5 Sources: BestParking.com, 125th Street EIS, and site analysis.

6 New York City Department of City Planning, 125th Street Corridor Rezoning and Related Actions Environmental Impact Statement, p. 3.15-89. http://www.nyc.gov/html/dcp/pdf/env_review/125th/0315_deis.pdf. Occupancy rate is for lots in Sub-Area 3 of table 3.15-9.

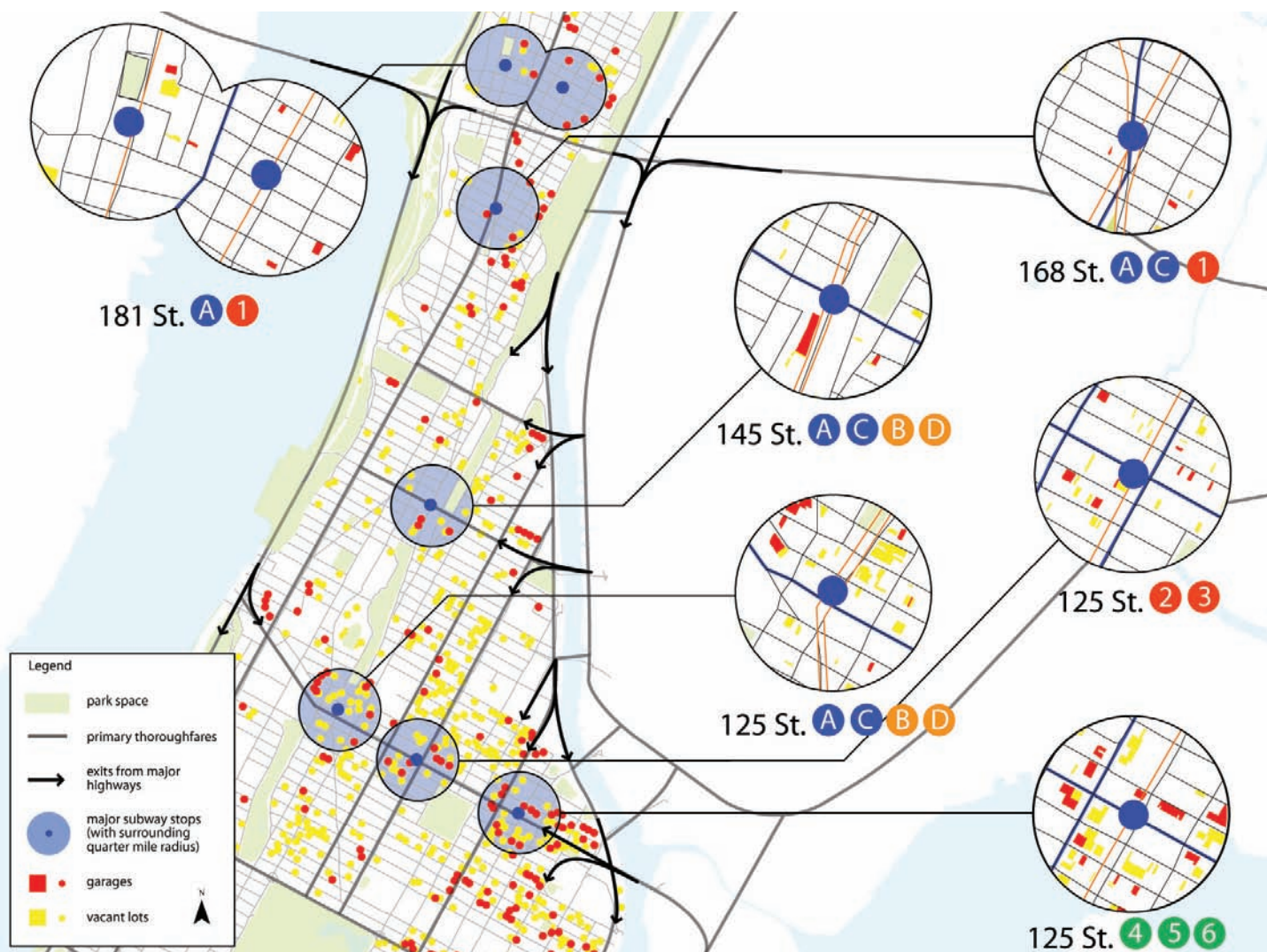


Figure 3. Northern Manhattan transit network, main roads and existing off-street parking
 Data Source: New York City Department of Finance [Residential Tax Class 1 Garage, Garage - Two or More Stories, Garage - One Story (Semi-Fireproof or Fireproof), Garage and Gas Station Combined, Licensed Parking Lot, Unlicensed Parking Lot, Garage With Showroom, Miscellaneous]

First, we consider the potential for increased traffic. From the above analysis of off-street parking, we estimate a maximum of 455 new park-and-ride trips into East Harlem, near 125th Street and Lexington Avenue. This assumes that park-and-ride commuters take all of the available parking spaces in lots within ¼ mile of the subway station. We could further assume that park-and-riders leave the area in the afternoon over a two hour period.

Figure 4 shows the routes that CBD commuters might take through East Harlem if they transfer to the 125th Street/Lexington Avenue station for the 4, 5, or 6 train. Areas in red are surface lots; hash marks on streets indicate travel routes to those lots. Park-and-ride commuters seeking to use these lots might drive through East Harlem on 123rd, 124th, 125th, 126th and 128th Streets as well as Madison, Park, Lexington, 3rd and 2nd Avenues until they find an open lot.

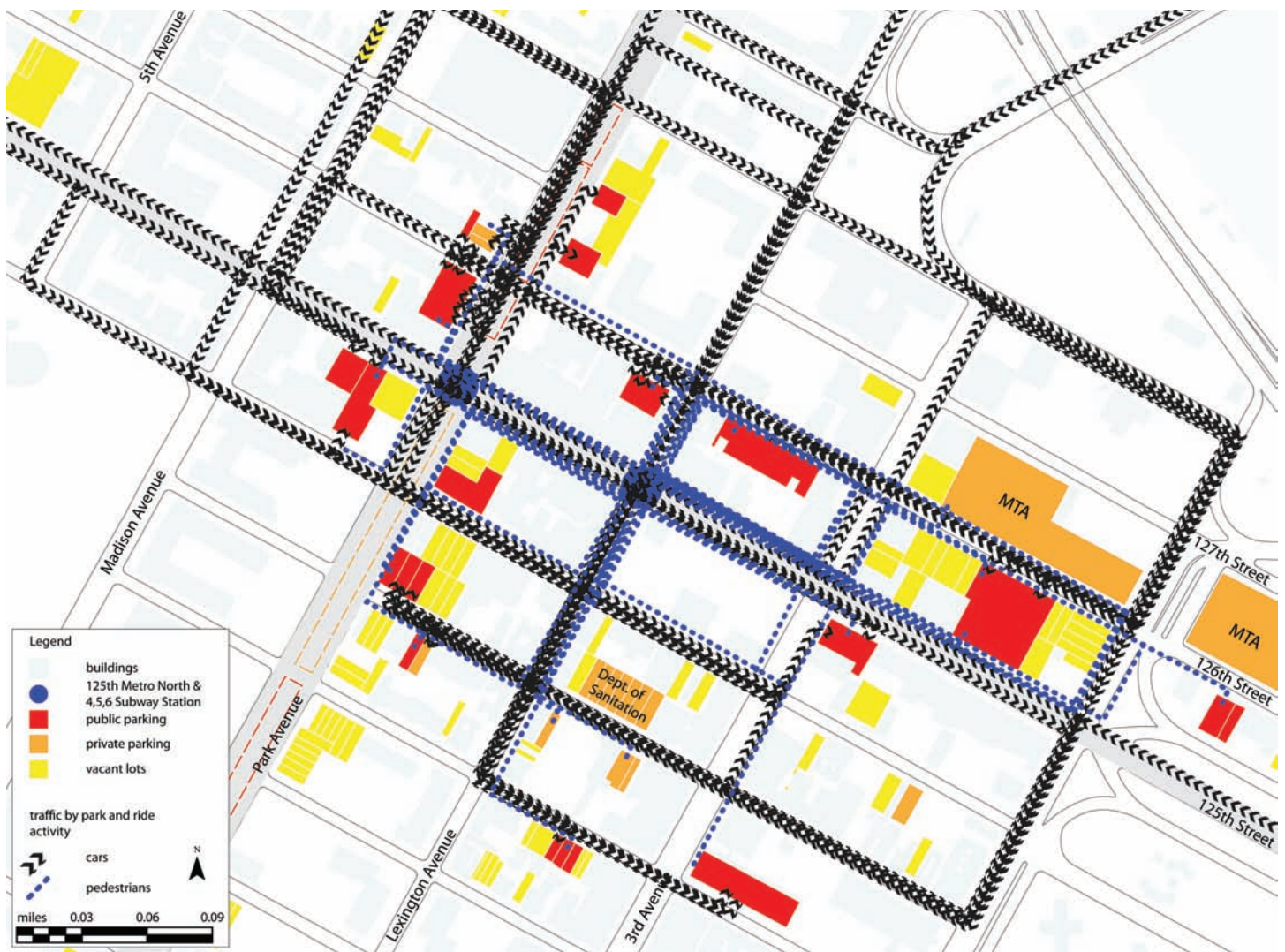


Figure 4. Traffic routes to parking lots near 125th Street/Lexington Avenue.

Data Source: New York City Department of Finance, BestParking.com, 125th Street EIS, and site analysis.

Any increase in local traffic congestion could have a detrimental effect on residents' health through increased local air pollution, although these effects might be offset by a drop in through traffic to the CBD. The significant health impacts that come from increased air pollution could spread 500 feet or more from these streets.⁷ This increased air pollution would be a concern in even the most pristine community, but is of particular concern for Northern Manhattan residents. Communities in Northern Manhattan already suffer disproportionate environmental hazards from the local concentration of highways, bus depots, sewage treatment plants, and other pollution sources.⁸ These communities also suffer the city's highest asthma hospitalization rates.⁹ New vehicular traffic could further exacerbate these conditions.

7 See Environmental Defense, *All Choked Up: Heavy Traffic, Dirty Air and the Risk to New Yorkers*, March 2007. http://environmentaldefense.org/documents/6117_AllChokedUp_NYCTrafficandHealthReport.pdf

8 West Harlem Environmental Action, "Asthma Hospitalization Rates by ZIP Code," 2003.

9 New York City Department of Health and Mental Hygiene, *Asthma Facts*, Second Edition (2003).



Figure 5. Vacant lots in Manhattan
Data Source: New York City
Department of Finance.

We compare the possible increase in traffic with the potential reduction in through traffic from congestion pricing. A more detailed analysis could establish the number of vehicles traveling to and from the CBD through this area, but a cursory look at vehicle count data shows that tens of thousands of vehicles travel through the area every day. For example, during the afternoon peak (between 4 and 5 pm), more than 5,000 northbound vehicles cross 125th Street between Madison Avenue and 1st Avenue.¹⁰ On a daily basis, nearly 67,000 outbound vehicles cross the nearby Willis Avenue Bridge.¹¹ Congestion pricing is likely to have a significant impact on facilities such as this bridge that are currently not tolled, since drivers would face the full congestion charge.¹² If these volumes fall by 3.8% -- the forecast for Manhattan above 86th Street -- the daily reduction in traffic would far exceed the modest increase in traffic from new park-and-ride activity. Again, a more detailed analysis could identify impacts on individual intersections, but the impact of park-and-ride appears to be small compared to the broader reduction in traffic from congestion pricing.

However, park-and-ride activity could have other adverse impacts. Sidewalks between parking lots and the subway stations would become more crowded. Area residents and employees could find themselves paying higher parking prices in their neighborhood if increased demand causes lot owners to raise prices. If congestion pricing increases the demand for park-and-ride, landowners could be tempted to convert vacant lots near subway stations into parking. Likewise, developers of new commercial and residential projects could consider augmenting their parking plans to include park-and-ride spaces. While growth has accelerated in Harlem and Washington Heights in recent years, there are still many vacant lots with parking potential. Figure 4 shows these lots in yellow for a portion of East Harlem and Figure 5 shows vacant lots in blue for the entire Manhattan.

¹⁰ Ibid., calculated from Figure 3.15-4A. Traffic heading south was excluded because during the afternoon peak, it would seem less likely to be CBD-bound and thus affected by the congestion charge.

¹¹ Source: New York City Department of Transportation.

¹² CBD-bound drivers using tolled crossings would receive a credit for those tolls, if they used EZ-Pass.

Congestion Reduction in London and Stockholm

Congestion pricing programs in which drivers pay a fee to drive into and/or within an area have been implemented in just a few cities worldwide. The most notable examples are London, where congestion pricing has been in place since 2003, and Stockholm, where congestion pricing was introduced in 2005. Both cities saw significant reductions in traffic within as well as outside their congestion zones. But they also took significant measures in advance to prevent adverse impacts outside the charging zone and ensure sufficient transit capacity to accommodate the expected increase in demand. Both cities relied heavily on expansions of their bus networks to facilitate the shift in mode choice.

Congestion Charging was introduced in Central London in February, 2003.¹ There was considerable opposition to the Congestion Charging scheme before it went into effect. However, many of the negative impacts predicted by the critics never materialized, and the program has generally been regarded as successful. Decreases in congestion (as measured by time spent waiting in traffic), decreases in total vehicle kilometer miles traveled, and improvements in air quality were all observed within the congestion zone. Significantly, benefits were not limited to the congestion zone itself, but were observed in neighborhoods outside the zone as well.

The city used a range of tools to prevent or mitigate potential negative impacts outside the congestion zone. For example, a residential parking permit program discouraged unwanted commuter parking in areas adjacent to the zone. Traffic calming measures such as sidewalk extensions and raised crosswalks deterred drivers who might consider switching to local streets to avoid congestion or fees. Improvements to pedestrian and bicycle facilities encouraged residents to use those forms of transportation.

In addition to local traffic mitigation schemes, the government enacted a number of measures to increase transit capacity, with a particular focus on bus service. The bus program included new routes, more frequent service, and the purchase of bigger vehicles. The expanded bus service accommodated most of the new transit demand resulting from congestion charging and in fact drew some existing riders from the Underground (subway).

In Stockholm as in London, the government took advance measures to ease the shift from automobiles. Enhancements to the transit system included increased capacity at suburban park-and-ride facilities, increased rail service (longer trains and more departures) and significant increases in bus service (including the addition of almost 200 new buses). As in London, the congestion charge was effective at reducing congestion and improving traffic flow, both inside and outside the charging zone.²

1 Transport for London, Congestion Charging Central London Impacts Monitoring: Second Annual Report, 2004. This is the fourth annual report from the governmental body responsible for implementing the congestion charging scheme in London. There are some excellent details regarding the effects of the congestion charging scheme on auto emissions (p.114).

2 Congestion Charge Secretariat, City of Stockholm, Facts and Results from the Stockholm Trials, 2006.

Economic Analysis

A look at the economics of park-and-ride suggests, however, that few drivers will have an incentive to park and ride. As explained below, the majority of drivers to the CBD do not pay for parking; for the remainder, the cost savings of uptown parking must be weighed against the inconvenience of switching modes, the inability to use the car during the day, and round-trip transit fares. Here we examine these trade-offs in detail.

First, we identify the group of drivers to the CBD who might consider parking uptown. An independent study by Bruce Schaller in 2007 found that less than half of all drivers pay for parking in the CBD.¹³ Nineteen percent park in unmetered spaces, while 38% receive free parking at work or are reimbursed for their parking. Another five percent pay for metered parking, and 38% pay for parking in a garage or surface lot.

For the 57% of drivers who do not pay for parking, congestion pricing is not likely to induce park-and-ride behavior. On-street parking uptown is scarce, and off-street parking costs more than the congestion charge. The 5% who pay for metered parking downtown presumably need their cars throughout the day (although some may feed the meter every hour). This leaves the 38% who pay for off-street parking downtown as potential park-and-ride commuters.

More than four-fifths of these 38% pay a daily rate instead of the less expensive monthly rate, suggesting that they have a specific reason for driving that day. It may be that they are carrying merchandise, or that they need to make multiple stops around the region, or that they have poor transit access and only work in the CBD on certain days. For the first two classes of drivers, leaving their car uptown is not an option.

To evaluate whether the remaining drivers are likely to park uptown and take transit downtown, we look at the financial and time trade-offs faced by a driver who considers park-and-ride at a lot near the 125th Street station on the Lexington Avenue line. There are several parking lots east of the station near the Willis Avenue bridge and the off-ramp from the FDR Drive/Triborough Bridge interchange. If we assume that it takes three minutes to drive from the highway to the parking lot, five minutes to walk to the subway station, and three minutes to wait for the train, the total park-and-ride transfer takes eleven minutes, or twenty-two minutes for both inbound and outbound trips.

Comparing this with the benefit of avoiding the proposed congestion charge shows that park-and-ride is in fact not financially viable for most drivers. Park-and-ride commuters save \$8 on the congestion charge but must pay \$1.74 each way in transit fares (under the MTA's new fare plan), assuming that they buy

13 Schaller Consulting, Free Parking, Congested Streets. Report for Transportation Alternatives, March 2007. http://www.transalt.org/campaigns/reclaiming/freeparking_traffictrouble.pdf.

a multiple-ride pass and receive the 15% discount. Park-and-ride saves \$5.52 and-ride commuters save \$8 on the congestion charge but must pay \$1.74 each way in transit fares (under the MTA's new fare plan), assuming that they buy a multiple-ride pass and receive the 15% discount. Park-and-ride saves \$5.52 but requires twenty-two minutes in additional travel time, implying a time value of \$15.05/hour. This is well below the \$23 established by the New York Metropolitan Transportation Council in 2005 as the baseline value for a vehicle hour and indicates that a park-and-ride trade-off would be uneconomic for most area travelers.¹⁴ This analysis ignores other benefits of driving such as personal comfort and the ability to carry merchandise or personal belongings. These benefits may explain why the existing differential in off-street parking rates does not currently induce significant park-and-ride activity.¹⁵

To the extent that congestion pricing encourages CBD commuters to switch to transit before entering Manhattan, the plan is likely to have a positive impact on Northern Manhattan. While only about 3% of Northern Manhattan workers drive to the CBD, congestion pricing may also encourage some of them to switch to transit. Both of these effects could make a small contribution to cleaner air in the community.

14 New York Metropolitan Transportation Council, Congestion Management 2005 Status Report.

15 This analysis does not consider the possibility that transit will be faster than highway travel. In some cases the subway will be faster and in others, driving. Here we assume that subway and highway travel times are the same and only consider the additional travel time to and from the uptown lot. This analysis also assumes that walking time between the workplace and subway station is similar to walking time between the workplace and a parking lot. In fact, the nearest parking lot is probably closer than the nearest subway station, given the density of parking lots in the CBD.

TRANSIT

Congestion pricing’s impact on transit is somewhat more certain: ridership will increase as drivers switch to the bus or subway. To accommodate these riders, the Metropolitan Transportation Authority (MTA) plans to purchase new buses and increase service on some subway lines. Some of the drivers who switch to transit will undoubtedly add to crowding on the subway. Yet, congestion pricing provides a new source of revenue for capital projects that, in the long run, could alleviate crowding and provide new transit alternatives for the City and Northern Manhattan in particular.

Subway Crowding

For many commuters, subway over-crowding is a daily reality. Among the subway routes that run through Northern Manhattan, nearly half are running above capacity. The 4 and 5 lines are at 110% and 108% of capacity, respectively, while the 2 and 3 are at 106% and 101%.¹ The 6 is at 98% of capacity, while the 1, A, and C lines are between 84% and 87%. In all, only two of the ten different subway lines serving Northern Manhattan are operating at less than 80% of capacity.

1 Source: New York City Transit.

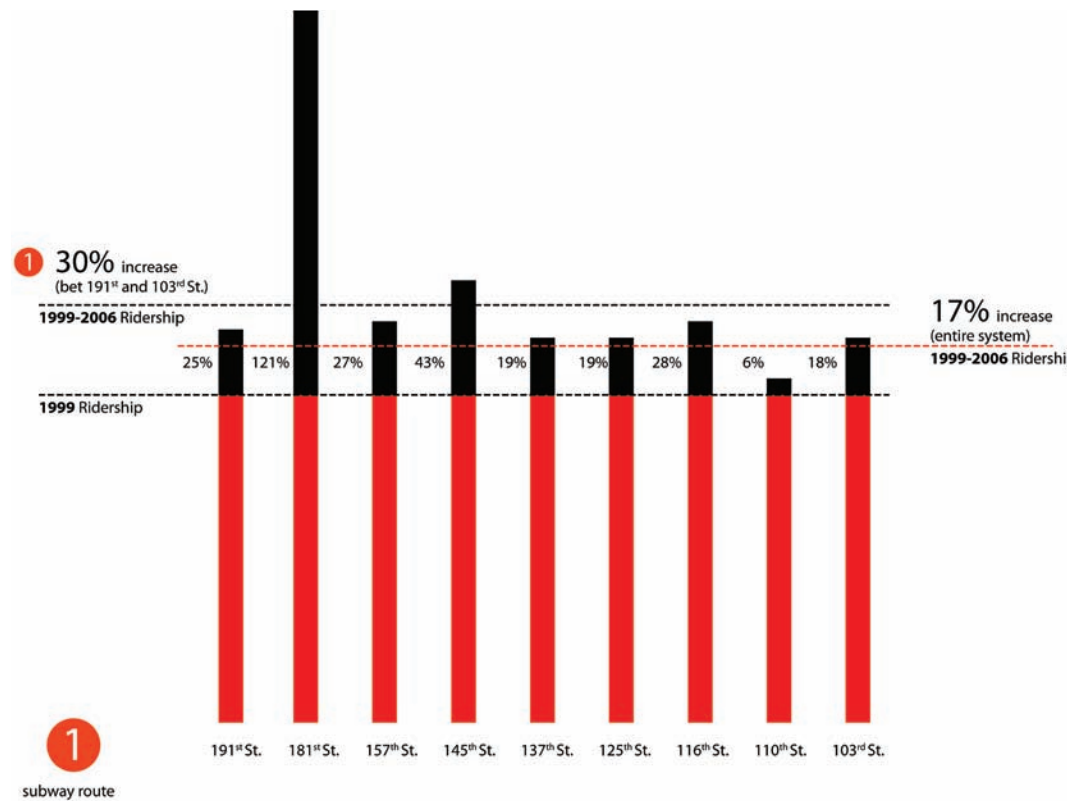


Figure 6. Percentage of ridership increase between 103rd and 191st St. subway line (1) stations, compared with the average increase in the entire NYC subway system for the period 1999-2006. Data Source: NYC Transit, Subway Annual Ridership Data, 1904-2006.

During peak hours, riders on these trains endure very crowded and uncomfortable conditions. Small disruptions in service can cascade into larger disruptions, as passenger loading and unloading at each station takes longer and trains get further behind schedule. Riders may have to watch one or more full trains pass before they can board and begin their journey. Additional ridership growth on the most congested lines could worsen these conditions.

The City estimates that congestion pricing will bring 78,000² new riders to the transit system, including 4,000 from the Bronx.³ If all of these riders were to choose the subway instead of the MTA's new buses, individual lines would see a small surge in ridership – on the order of over one percent. This increase would come on top of years of increases – citywide ridership has increased 17% since 1999. Northern Manhattan has seen particularly strong growth on some lines; for example, ridership on the 1 line has grown 30% since 1999 at stations in Harlem and Washington Heights.⁴ This uneven growth also points to the possibility that future increases in ridership may not be spread evenly throughout the system and may impact some lines more significantly than others.

These years of increases have brought many lines near to or above capacity. Even assuming that the ridership increase from congestion pricing is distributed evenly throughout the system, and ignoring the background growth in subway ridership, a small increase in transit riders could affect many lines. As shown in Table 3, the 6 train is very close to capacity. The Lexington Avenue 4-5 express lines and the Lenox Avenue/Broadway 2-3 lines would become even more overcrowded than at present. They would likely fill up earlier on their routes – higher up on the East or West Sides or in Harlem, meaning that commuters from those areas would face more difficult conditions. Riders who now cannot find a seat may have a hard time even getting on the train, and those riders who are now squeezing on to crowded trains may have to start waiting for a second or third train to pass before being able to board. Beyond the mere crowding issue, the increase in

2 Source: MTA's response to the congestion pricing proposal, www.nysdot.gov/portal/page/portal/programs/congestion_mitigation_commission

3 Source: New York City Department of Transportation.

4 Source: New York City Transit.

Table 3. Effect of a 1.5% Increase in Subway Ridership

Line	Maximum Load Point	Hourly Capacity	- Current -		- Projected -	
			AM Peak Hour Ridership	Volume/ Capacity	AM Peak Hour Ridership	Volume/ Capacity
1	103rd St-Broadway	20,900	17,768	0.86	18,035	0.86
2	72nd St-Broadway	13,200	13,678	1.04	13,883	1.05
3	72nd St-Broadway	12,100	12,276	1.01	12,460	1.03
4	86th St-Lexington	15,400	16,381	1.07	16,626	1.08
5	86th St-Lexington Ave	14,300	15,444	1.08	15,676	1.10
6	68th St-Lexington Ave	26,125	24,820	0.95	25,192	0.96
A	125th St-St. Nicholas Ave	14,000	11,930	0.86	12,109	0.87
B	72nd St-Central Park West	10,150	6,523	0.64	6,620	0.65
C	72nd St-Central Park West	6,960	5,831	0.84	5,918	0.85
D	125th St-St. Nicholas Ave	12,600	9,783	0.78	9,930	0.79

Projected ridership assumes a 1.5% increase for all lines. Source for current ridership and capacity data: New York City Transit

riders could affect the overall service. The margin for error on all lines would decrease, so that small disruptions in service would be more likely to result in overcrowding and delays, negatively impacting the quality of riders' trips.

The MTA has proposed increasing subway service to accommodate new transit users, but the major investments required to alleviate crowding and allow for future growth will not be completed for years. In the near term, the MTA proposes adding cars to the C train and increasing midday service on the 1 line. Among long term measures, the Second Avenue Subway will provide an alternative for East Side riders who currently crowd onto the Lexington line, but the project is not slated to open until 2015. Completion of the new South Ferry station by the end of 2008 could allow the MTA to also increase rush hour service on the 1 line, but this would require the purchase of new cars, a measure not included in the MTA's capital plan. Additionally, MetroNorth is studying the possibility of opening service on the Empire corridor along the Hudson River to Penn Station. New stops in the Bronx and at 125th Street could relieve crowding on the 1 line as well as on the 2-3 lines, which reach their peak load when riders from the 1 transfer to the 2-3 express at 96th and 72nd Streets. However, MetroNorth service on the West Side could not begin before 2015. In the meantime, conditions are likely to become worse on these subway lines.

Expanding Bus Service

Overview

Given the constraints on subway capacity, the MTA plans to rely primarily on bus service to handle near-term ridership growth. In its response to the City's congestion pricing proposal, the MTA put forward plans to provide new and additional bus service throughout the five boroughs, including twelve new express bus routes from the Bronx, Brooklyn, and Queens. Of the 309 new buses that the MTA plans to add to its fleet, fifty-one would serve Manhattan routes.

New York City Department of Transportation and the MTA are also currently working together to develop "Bus Rapid Transit" (BRT) corridors in New York City. BRT is a program of physical measures and operating policies that can help buses move more quickly along city streets. Measures include exclusive bus lanes, traffic signals that self-adjust to give priority to buses, and fare collection at stations on the street. BRT has been used around the world to provide service that is much faster and more convenient than conventional bus service at a fraction of the price of light rail or subways.⁵ BRT also requires far less physical infrastructure than rail and can be implemented relatively quickly. The City plans to roll out the first of five planned BRT lines in 2008; one of these five will run along 125th Street and up and down 1st and 2nd Avenues. This line has the potential to provide some relief for the Lexington Avenue subway.

⁵ The City Of New York, PLANYC: New York City Mobility Needs Assessment 2007-2030. (April 22, 2007)



Figure 7. Bus depots in Manhattan and the bus routes they serve.
 Data Source: 2000 Insiders Guide, NYC Transit Department of Buses.
 Transportation Committee Hearing on Health Impacts of MTA Bus Operations, www.weact.org/transportation/index.html.

Concerns

New bus service in Manhattan could shift some demand away from subways and relieve crowding. Yet this benefit does not come without the possibility of negative local impacts, particularly for Northern Manhattan communities. The majority of new and expanded Manhattan routes are currently based at bus depots in Northern Manhattan. Northern Manhattan has a history of struggling to reduce the depots that are disproportionately sited in the area. This disproportionate siting of depots has resulted in significant negative health impacts for the community, such as high rates of asthma resulting from air

pollution caused by buses idling in and near the depots. In addition, depots create noise and light pollution that negatively impact residents' quality of life. Increasing the number of depots, or the number of buses assigned to existing depots, would result in considerable additional health impacts for local communities.

However, increasing bus service within Manhattan does not necessarily imply adding new bus depots in the borough or even increasing the number of buses served by current depots. The MTA has not indicated where its 309 new buses would be stationed, but it has proposed to build two new depots in Brooklyn and Queens and to explore development of a new depot in Lower Manhattan. These could reduce the impact of new buses on Northern Manhattan. Furthermore, as existing depots are renovated, the MTA could incorporate technologies to reduce their impact on the community. The MTA's reconstruction of the Mother Clara Hale Depot, budgeted for 2009, may provide such an opportunity.

PREVENTIVE MEASURES

While the City projects reduced traffic for Northern Manhattan and economic analysis supports this outcome, there is a great deal of uncertainty about impacts at the local level. The granularity of the City's traffic model does not allow it to predict traffic for individual intersections, arterials or even neighborhoods. The model also does not take into account the availability of vacant lots that could be turned into parking. As for transit, the City and MTA have not developed ridership estimates for individual lines. Thus there is uncertainty about the potential for crowding on these lines.

This uncertainty suggests the need for more thorough analysis before implementation of the program. It also highlights the urgency of creating an explicitly articulated formal monitoring process before implementation begins, as the Commission has recommended. Such a program would collect data on traffic volumes and speeds, park-and-ride activity, parking availability and prices, accident rates, local air quality, transit line and station crowding, on-time performance of rail and bus transit, pedestrian crowding, and local business revenues. Data would be collected before the implementation of the plan and at frequent intervals thereafter, both within the charging zone and in neighborhoods adjacent to or near the zone, including Northern Manhattan. This information would allow the City and MTA to respond rapidly to any adverse impacts. The City could fund the monitoring and mitigation process with dedicated funds from the congestion fees, and establish an independent oversight panel with representation from non-governmental organizations and community-based organizations.

Both London and Stockholm established monitoring programs in advance of their congestion charge. London implemented an extensive monitoring program in 2001, more than a year before the introduction of the congestion charge. The program monitors several categories of potential impacts including traffic, public transport utilization, business and economic activity, social impacts, and air quality. The government publishes comprehensive annual reports describing the findings of the monitoring program.

Stockholm began its monitoring program six months in advance of their charging regime. The Stockholm program evaluates travel patterns, public transport usage, environmental consequences, effects on business revenues, pedestrian traffic, and regional macroeconomic impacts.

Beyond establishing a monitoring process, there are a range of potential measures the City, State and MTA can take to prevent or mitigate any negative outcomes. Many of these have been adopted by the Commission; it is now important for the City, State, and MTA to follow through:

1. The City can use its permitting and zoning powers to restrict new parking lots and capacity expansions near transit stations in Northern Manhattan. Off-street parking near the uptown transit stations is fairly limited, but lot operators could quickly add stacking facilities to accommodate new park-and-ride traffic. Owners of vacant lots could pave them and turn them into surface parking. Developers of residential and commercial projects could increase the size of any planned parking facilities to accommodate park and ride activity. The City should closely monitor this kind of development and take necessary actions to prevent it.
2. MetroNorth can expand park-and-ride facilities in the northern suburbs to accommodate new riders. Building new parking was a key component of Stockholm’s program: the transit agency built or expanded 23 park-and-ride lots, with 1,400 new spaces, before beginning the charging program. For New York, the Federal government has agreed to fund two new suburban MTA park-and-ride facilities. These facilities would make it easier for upstate commuters to leave their cars outside the city.
3. The City can add key arterials such as 125th Street to its Congested Corridors program, to prevent or mitigate any park-and-ride activity. 125th Street experiences severe traffic congestion during the morning and afternoon peaks, particularly between the FDR Drive and Lexington Avenue, with several intersections operating near capacity.¹ New park-and-ride activity could worsen this congestion. The MTA and City plan a new BRT service for 125th Street that could alleviate some traffic congestion; adding 125th Street to the Congested Corridors program would allow the City to evaluate additional mitigation measures, including pedestrian and bike amenities and modifications to parking rules.
4. The City can follow through on the Commission’s recommendation to offer the community a Residential Parking Permit (RPP) program to prevent CBD commuters from parking on neighborhood streets. RPP gives residents the right to park on residential streets in their neighborhood and generally excludes outside cars.²

Neighborhoods in Northern Manhattan should carefully weigh the costs and benefits of joining such a program. While RPP would make it easier for residents to park in their neighborhoods, it could create a sense of private entitlement to public space and inhibit community efforts to replace parking spaces with pedestrian or transit amenities. Since only 20% of households in Northern Manhattan own a car, it may be appropriate to give more weight to amenities that benefit pedestrians and transit riders than drivers. At the same time, there is concern about the affordability of permits for residents who now park for free.

1 125th Street EIS, Table 3.15-2.

2 The City has discussed a range of proposals in neighborhood workshops. Some of these proposals would allow outsiders to park for a fee; others would disallow parking by all but residents.

5. The MTA could guarantee that new buses will not burden already-congested neighborhoods around the depots in Northern Manhattan.³ The MTA capital plan for 2008-2013 indicates that two new depots will be constructed in Brooklyn and Queens, one depot will be demolished in Northern Manhattan, and planning will begin for a new depot in Lower Manhattan. There is, however, an immediate need for an overall plan that equitably allocates the depots in the City.

WE ACT has identified a number of steps that the MTA could take to reduce the local impact of bus depots. These include preventing buses from parking on neighborhood streets; applying the latest emission reduction technologies to vehicles, equipment, and buildings; and adopting green design standards for new construction and renovations. With reconstruction of the Mother Clara Hale Depot budgeted for 2009, the MTA has the opportunity to apply these measures and reduce the depot's impact on the community.

6. The City and State could guarantee that all or most of the congestion pricing revenue will go toward enhancing the transit system. The State's Commission recommended that funds be put in a "lockbox" for the MTA's capital program. Priority could be given to projects such as the Second Avenue Subway, additional cars for the 1 line, and MetroNorth Penn Station Access that will relieve congestion on existing routes.

7. The State and City could commit to fully funding the MTA capital plan. The MTA has proposed a \$29.5 billion program to maintain and expand the system over the next five years. The bulk of the funding is for maintaining and upgrading the existing system – replacing worn track, upgrading antiquated signal systems, renovating stations, and purchasing new cars. Critical to the success of congestion pricing, however, will be the MTA's planned investments in new services. The Second Avenue Subway, East Side Access, bus rapid transit, MetroNorth access to Penn Station, and other projects will provide new service to relieve crowding and accommodate existing auto commuters.

However, the MTA has identified only \$20.2 billion in funding, leaving a \$9.3 billion shortfall. This \$20.2 billion includes \$4.5 billion in bonds supported by congestion pricing revenues. Other expected funding sources include \$8.7 billion in Federal grants and \$4 billion in state-backed bonds.

Beyond this capital shortfall, the MTA will need a secure revenue stream to operate any new services. Traditionally, the MTA has relied on a package of state taxes and direct subsidies to close the gap between operating costs and fares. While riders have seen three fare increases since 2003, state and local operating assistance (section 18-b subsidies) has remained constant since the mid-1990s. Increasing these subsidies to keep pace with current ridership levels would more

3 MTA Capital Program 2008-2013 (February 27, 2008).

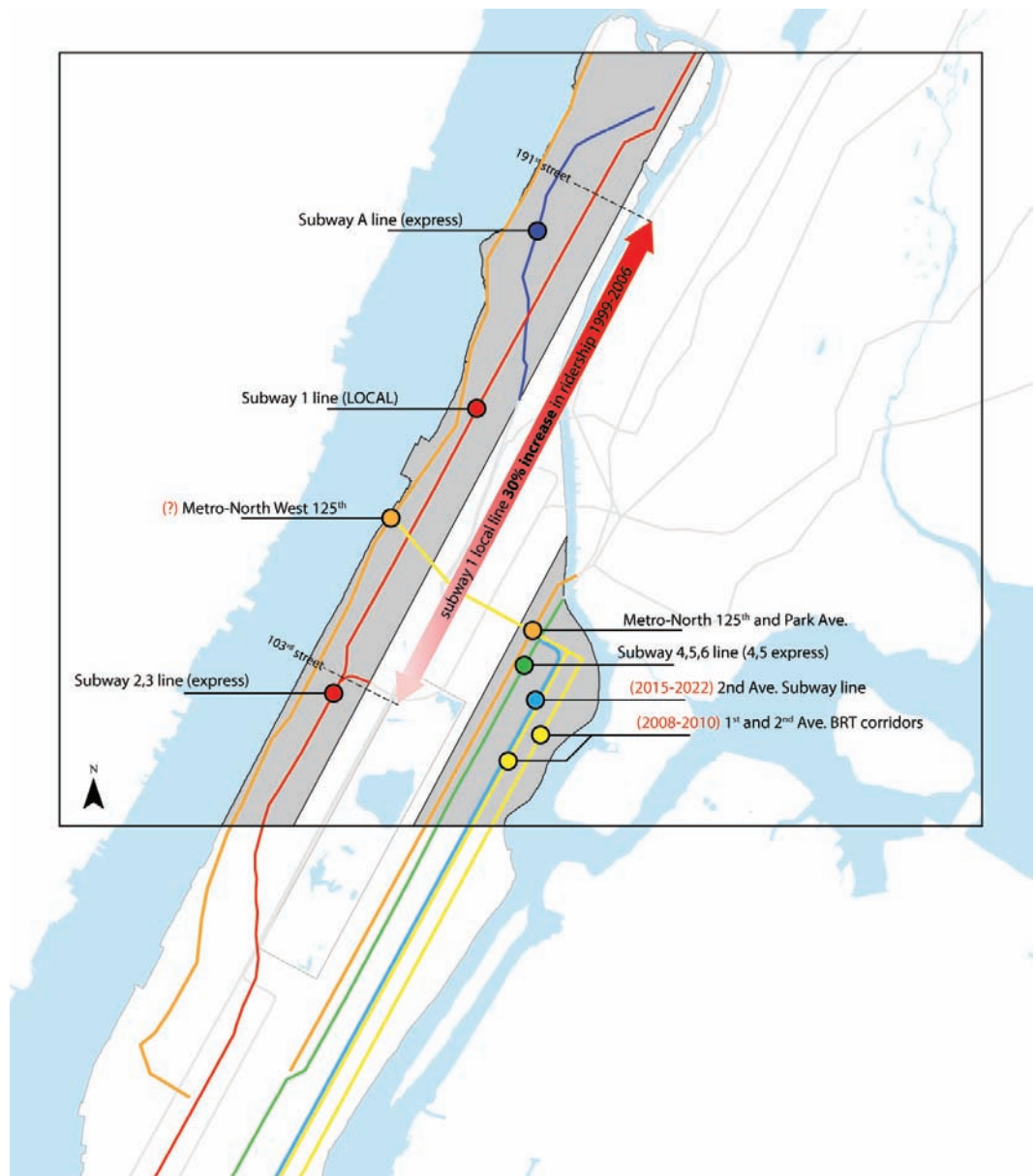


Figure 8. Density of “rapid” public transit infrastructure on the west and east side of Northern Manhattan.

than cover the new operating needs.⁴ The MTA has proposed to use a portion of congestion pricing revenues to cover operations, but this reduces the amount that can be used for capital improvements.

8. The City and MTA could examine alternatives for relieving congestion on the 1, 2, and 3 lines. The MTA capital plan proposes an Upper West Side Subway Alternatives Study to address crowding and long travel times from Upper Manhattan; this study could be expanded to address concerns of Northern Manhattan residents. Such a study could look at adding peak-hour service on the 1 line and developing bus rapid transit (BRT) service on the West Side.

⁴ For an analysis of MTA operating fund sources, see New York City Independent Budget Office, “A Review of the Metropolitan Transportation Authority’s Financial Outlook and Options for Closing the Gaps,” June 2007, <http://www.ibo.nyc.ny.us/iboreports/MTAfiscal2007.pdf>

CONCLUSION

As indicated in the introductory paragraphs, congestion pricing promises a significant reduction in traffic congestion and new revenues for transit. Less congestion potentially means cleaner air for all New Yorkers, benefiting all residents, while new transit funding can ease travel for the large majority who rely on subways and buses for transportation.

This study looked at the concern that congestion pricing would encourage park-and-ride activity in neighborhoods outside the charging zone and worsen local traffic. Our brief analysis suggests that few commuters would find park-and-ride in Northern Manhattan a viable option. However, we encourage the City to closely monitor the situation and take pre-emptive actions to restrict development of park-and-ride lots in Northern Manhattan. We also encourage the City and State to guarantee the MTA sufficient funding to provide new transit options for drivers from the outer boroughs and the suburban counties.

To the extent that congestion pricing is successful, the MTA's overburdened transit system may be stretched even further. At the same time, congestion pricing could provide funding to sustain the current wave of expansion projects, the first in more than sixty years. We encourage the City and State to take this opportunity to secure congestion pricing revenues for transit capital projects. They should also work together to find new funding to operate these new services.

Finally, for Northern Manhattan, congestion pricing represents only the beginning of concerns about the city's burdened transportation network. These neighborhoods are already experiencing the effects of rapid development, with rapid ridership growth on the 1 line only one manifestation. The rezoning of 125th Street, Columbia University's expansion into Manhattanville, and other planned developments could exacerbate these conditions, as thousands of new travelers squeeze onto congested streets, sidewalks, and subways. The concern that these developments could worsen local noise and air pollution and harm the quality of life highlights the importance of evaluating potential impacts and the need to develop a transportation and development plan that avoids these outcomes.

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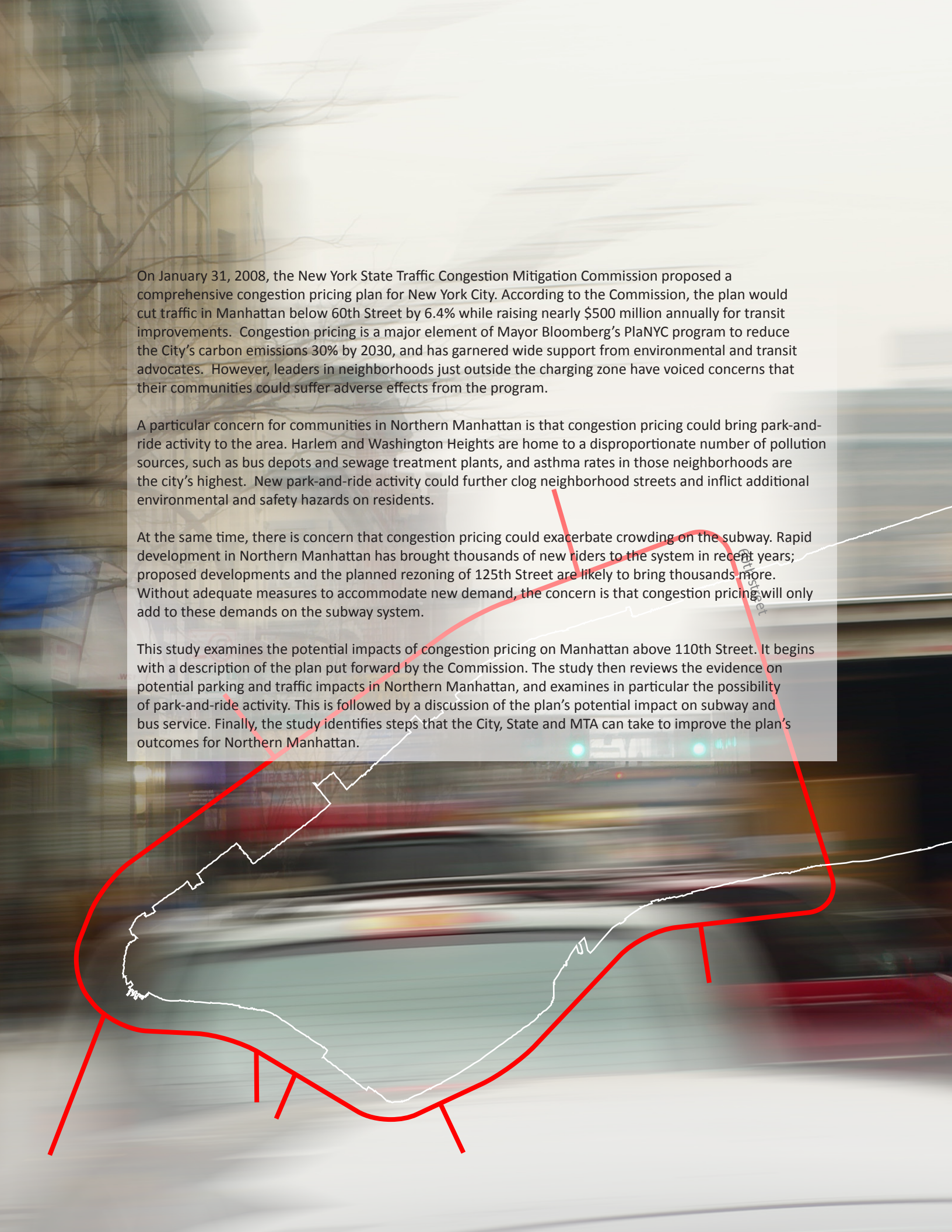
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On January 31, 2008, the New York State Traffic Congestion Mitigation Commission proposed a comprehensive congestion pricing plan for New York City. According to the Commission, the plan would cut traffic in Manhattan below 60th Street by 6.4% while raising nearly \$500 million annually for transit improvements. Congestion pricing is a major element of Mayor Bloomberg's PlaNYC program to reduce the City's carbon emissions 30% by 2030, and has garnered wide support from environmental and transit advocates. However, leaders in neighborhoods just outside the charging zone have voiced concerns that their communities could suffer adverse effects from the program.

A particular concern for communities in Northern Manhattan is that congestion pricing could bring park-and-ride activity to the area. Harlem and Washington Heights are home to a disproportionate number of pollution sources, such as bus depots and sewage treatment plants, and asthma rates in those neighborhoods are the city's highest. New park-and-ride activity could further clog neighborhood streets and inflict additional environmental and safety hazards on residents.

At the same time, there is concern that congestion pricing could exacerbate crowding on the subway. Rapid development in Northern Manhattan has brought thousands of new riders to the system in recent years; proposed developments and the planned rezoning of 125th Street are likely to bring thousands more. Without adequate measures to accommodate new demand, the concern is that congestion pricing will only add to these demands on the subway system.

This study examines the potential impacts of congestion pricing on Manhattan above 110th Street. It begins with a description of the plan put forward by the Commission. The study then reviews the evidence on potential parking and traffic impacts in Northern Manhattan, and examines in particular the possibility of park-and-ride activity. This is followed by a discussion of the plan's potential impact on subway and bus service. Finally, the study identifies steps that the City, State and MTA can take to improve the plan's outcomes for Northern Manhattan.