

Memorandum

To: Bill de Blasio, Mayor of New York City
From: Tao Lu
Date: May 5, 2017
Subject: Review of Move NY's Congestion Pricing Plan

Background

New York City has been suffering traffic congestion for a very long time. This issue mainly happens in the Central Business District (CBD) of Manhattan borough, which is the area in the south of 60th Street. Recent reports indicate that its traffic problem is not getting better, but worse. According to the New York City Mobility Report for 2015, the annual average car speed is 8.21 mph in Manhattan CBD, dropped by 12% from 9.35 mph in 2010. The records demonstrate a downward sloping trend of car speed since 2012. And the decreasing rate seems rather stable. (See Figure 1 in Appendix.) Another set of statistics from the same report show a severer situation. The annual average car speed in Manhattan Core¹ is 5.21 mph, decreased by 20% from 6.52 mph in 2010. It is clear that the average car speed in Manhattan Core is 3 mph slower than that in the Manhattan CBD. Meanwhile, the number of both residents and employment in New York City are increasing. The City also faces a growing number of tourists. Therefore, we can foresee that the demand for vehicle service is not likely to decline in the next several years.

The impact of congestion does not only lower the quality of travel experience, but are also “draining” the economy of New York. According to a report from HR & A Advisors, Inc. (2014), 152,000 fewer jobs are created because of congestion-related delay. And the loss of economic output is \$16 billion. The lost income tax revenue and the sales tax revenue from state and city level combined are \$744 million and \$351 million, respectively.²

The social welfare is critically hurt by the excess congestion. For better economic development, higher life quality, and lower air pollution level, we must take actions immediately to solve this problem.

Lessons from Similar Cities

Traffic congestion is common in global cities. Many of the big cities implemented congestion pricing in order to solve the gridlock problem. The following are two examples:

Singapore

Back in 1975, Singapore implemented “Singapore Area Licensing Scheme” (ALS) to charge drivers when they entered the “Restricted Zone” (RZ) in downtown Singapore. This was the first

¹ Manhattan Core is “bounded by East River and Ninth Avenue to the east and west, and 59th and 35th Streets to the north and south, the roughly 1.8-square-mile” area in Manhattan CBD. This area “has the greatest concentration of economic activity.” See *New York City Mobility Report*, page 20.

² HR & A Advisors, Inc. adapted the measurement methods from *Growth or Gridlock?* (2006), published by Partnership for New York City. For detail information of how to calculate the cost of congestion, see page 19 to 41 of the 2006 report.

successful urban traffic congestion pricing scheme in the world.³ The number of vehicles in the RZ reduced 76% in June 1975, after the ALS started. In 1998, this scheme was upgraded to “Electronic Road Pricing” (ERP). Open road tolling is used in the new system, so drivers don’t have to stop or slow down to pay fees. After implementing ERP, the car speed in RZ increased by 20% during peak hours and the traffic reduced 13% during ERP operational hours.⁴

London

“London congestion charge” was introduced in 2003. In 2013, Transport for London (TfL) reported a 10% reduction in traffic levels from baseline conditions. TfL also said that the scheme effectively changed people from using cars. Between 2000 and 2012, the scheme caused an overall reduction of 11% in vehicle kilometers in London. Although congestion charges reduced traffic volume, the traffic speed also declined. According to O’Sullivan (2016), between 2012 and 2016, the average car speed in London dropped from 19.33 mph to 16.5 mph. And the car speed in Central London fell from 8.98 mph to 7.4 mph. TfL explained that traffic speeds declined because of increased road work and development activity, intervention of pedestrian and cycle traffic, and public transport priority.

Besides the two cities, Stockholm and Milan also implemented congestion pricing to reduce the traffic volume and air pollution. Both cities receive positive effects and traffic congestion are lessen.⁵

But will the congestion pricing reduce traffic in New York City? The answer is positive. According to Neuman (2008), the price of gasoline increased to more than \$4 per gallon in May 2008. Record indicated that traffic towards lower Manhattan in May and June on average dropped 4.7 percent compared to the previous year. Meanwhile, ridership in public transportation – subway, bus, and rail – also increased at different level, compared to the same month in 2007. This evidence proves that charging drivers for extra money will decrease their intention to drive into Manhattan, and will force them to take public transportation instead.

Move NY Fair Plan

Congestion pricing is not a new idea to New York City. In 2007, former mayor Michael Bloomberg revealed a proposal for congestion pricing. Unfortunately, after debate and modification, the proposal still did not succeed, because it was not put to a vote in the New York State Assembly.

In 2015, a group named Move NY proposed a new plan for congestion pricing: Move NY Fair Plan. To complete the proposal, the group used the most updated traffic data and Balanced Transportation Analyzer to estimate how the drivers will respond when they are charged various amount of payments, and at which amount of charges will be the best to social welfare.

Here are four main proposals in Move NY’s plan⁶:

³ See Cervero (1998), *The Transit Metropolis*, page 169

⁴ Data from Wikipedia under “Singapore Area Licensing Scheme” and “Electronic Road Pricing”

⁵ See Eliasson (2014) for Stockholm and “Milan Area C” from Wikipedia

⁶ Detail information of Move NY Fair Plan is available at <http://iheartmoveny.org/wp-content/uploads/2015/02/Move-NY-Fair-Plan-150217v1.pdf>

1. Impose a cordon toll for cars when they enter Manhattan's Central Business District. All automobiles (not including taxis) driven in or out Manhattan's CBD, the south of 60th Street area, will be charge fees. The tolls will be collected electronically with E-ZPass. For vehicles without E-ZPass, they will be captured by optical license-plate cameras. After recognizing the cars' plates and matching car owners' information, the authority will send bills to their registered addresses. In this way, drivers do not need to stop to pay the fees, which can cause another congestion scenario.

2. Create new tolls and swap the existing tolls. New tolls will be charged on the four East River bridges: Brooklyn Bridge, Manhattan Bridge, Queensboro Bridge, and Williamsburg Bridge. Besides, congestion fee will be implemented on avenue crossing Manhattan at 60th Street, including the West Side Highway and FDR Drive. The charge of toll is \$5.54 each way with E-ZPass and \$8.00 without E-ZPass. The tolls on MTA's major and minor bridges will be changed.⁷ The toll for major bridges will be reduced to \$3.04 each way for E-ZPass vehicles, which is a \$2.50 (45%) price cut. If vehicles do not have E-ZPass, they will be charged \$5.50. The toll for minor bridges will be reduced \$1.00. So the new toll for minor bridges will be \$1.54. But Harlem River bridges will not be tolled. The proposal did not address any tolls on any of the Port Authority (New Jersey) bridges or tunnels. Figure 2 in Appendix

3. No double tolling. If drivers enters the Manhattan CBD and has already paid a toll on the Triborough/ RFK Bridge and they cross 60th Street within an hour, they will be charged the difference between the CBD toll and the toll already paid on the Triborough/ RFK Bridge. In this way, their net cost will remain \$5.54 by E-ZPass in each direction, the same as the drivers crossing the East River bridges.

4. Commercial and for-hire vehicles will be charged differently. Truck and other commercial vehicles with E-ZPass will be capped at one round-trip toll per calendar day when they cross south of the 60th Street in Manhattan or East River bridges. Meter taxis do not need to pay congestion fees. But the miles rate will be surcharged 15%, and wait-time fare will be surcharged 20%. But such rates will be halved on weekends and holidays. "Boro taxis" (green cabs) will be treated the same as yellow cab, but they can only enjoy the exception of congestion toll for only an hour.

One of the good suggestions in the plan is to swap the existed tolls. By reducing the existing tolls, the user charges will become fairer. The four East River bridges contribute a lot of traffic input to Manhattan CBD because of their locations. However, no tolls are collected from the four bridges. Meanwhile, tolls are collected on the outer bridges. For example, drivers have to pay up to \$16 round trip to cross Verrazano-Narrows Bridge, which connects Staten Island and Brooklyn. Consequently, as described in the Move NY Fair Plan, "drivers on the existing toll bridges outside the Manhattan CBD are subsidizing the drivers who use the free bridges and roads." Move NY's plan puts the tolling target on bridges that will actually contribute to the increase of traffic volume in Manhattan CBD.

⁷ Major bridges are the Verrazano Narrows, Triborough, Whitestone, and Throgs Neck Bridges. Minor bridges are the Henry Hudson, Cross Bay, and Marine Parkway Bridges.

Move NY estimates that there will be 15% to 20% travel speed increase in Manhattan CBD after implementation of their plan. There will be 4% to 5% increase in taxi usage. Also, it is predicted that their plan can increase 110,000 net additional trips to the Manhattan CBD per day, but auto entries will be 100,000 fewer.

In terms of economic impact, Move NY Fair Plan will create over 30,000 annually recurring jobs. As traffic declines, the economic activity will increase \$2.8 billion per year. For the state and city government, it is estimated that annual sales and income tax revenue will rise \$168 million.⁸

Evaluation of Move NY Fair Plan

Compared to the Bloomberg's plan, the Move NY Fair Plan has two major advantages (Figure 3 in Appendix lists the comparison of Bloomberg's and Move NY's proposal.):

1. Better benefits and more specific. The Move NY Fair Plan can provide better benefits. For example, when estimating travel speed improvement in 2020, Bloomberg's plan is only 9% faster, while Move NY's plan is 18% faster. Job creation was unknown in Bloomberg's plan, but Move NY is able to predict the number of job creation. Move NY Fair Plan can also provide specific information on benefits. For example, Move NY's plan contains detailed projects of improving public transportation, roads, and bridges by using the collected toll.⁹ But Bloomberg plan only mentioned a \$500 million annual investment.

2. Toll relief. Bloomberg's plan did not propose any toll relief. His plan simply put extra charges on drives. In the contrary, Move NY's plan suggests a toll relief on bridges that are not necessarily related to increasing traffic volumes in Manhattan CBD. By reducing the tolls in other bridges, drivers will be diverted to those bridges. As a result, when drivers need to pass Manhattan, they will go via the reduced-toll bridges, decreasing the unnecessary passing of Manhattan CBD area.

Balanced Transportation Analyzer plays a key role in the Move NY Fair Plan. Many of the estimates of congestion reduction, travel time savings, and related impacts are based on the inputs of this tool. Thus, whether the tool is reliable will directly affect the plan.

Balanced Transportation Analyzer (BTA) is an integrated spreadsheet that can assess traffic improvements, revenue generation, and other benefits of intelligent traffic-pricing in New York City. The spreadsheet is created by Nurture New York's Nature and Charles Komanoff, a transport economist. BTA was assessed by HNTB Corporation, an architecture, civil engineering consulting and construction management firm. In the HNTB report (2013), they concluded that BTA was able to provide a reasonable and consistent forecasts. They also compared BTA's forecast on Manhattan to the actual data from London, Singapore and Stockholm. They compared traffic change in CBD and speed improvement in the four different locations. BTA's prediction was very close to the actual outcome of the three cities where congestion pricings had already implemented.¹⁰ Therefore, BTA's output is a very good reference and reliable.

⁸ For detailed methodology of these result, see HR & A Advisor's report (2014), page 28-38.

⁹ See Move NY (2015), page 23-28.

¹⁰ See HNTV report (2013), page 29-31.

Recommendations

1. Some charges need to be more specified and complete. In Move NY Fair Plan, the charges of App-based ride service is not specified. Although the usage of GPS as a tracker is mention, it did not provide detailed plan on how to charge those vehicles. App-based ride service is similar to medallion taxis. However, taxis are licensed by New York City Taxi and Limousine Commission (TLC), an agency of New York City government. At the present, App-based ride service is difficult to manage. Unlike taxis, there are no limits on how many cars should be available to provide this type of service. As they can charge customers at a lower price, more and more people are attracted to App-based ride service. The increased demand will make more drivers join this service. If they stay in the congestion charging area, congestion problem will hardly be solved. My recommendation is that those vehicles will be priced based on how long they will stay in the congestion fee zone. GPS can reveal the time and location of each car. By this way, App-based ride service providers will have less intention to stay in Manhattan CBD. Also, Move NY's plan mentioned a price differentiation during peak and off-peak hours. But there are no detailed information on how to define the prices on peak and off-peak hours. So, they should give a specific and reasonable price difference.

2. Comments and suggestions should be collected from areas that will be affected. The reason that Bloomberg's plan failed was concluded to not getting support from New York State Assembly. It is said that politics prevented his plan. However, according to Schaller (2010), the opponents in Albany represented eastern Queens and southern Brooklyn. These two areas have a lot of people who opposed the Bloomberg's plan, because they were automobile users and, clearly, congestion pricing would make them pay more. Although the Move NY Fair Plan suggested a toll reduction on other bridges, the demand of crossing higher-tolled bridges and lower-tolled bridges are not well defined in the plan. If the amount of people who need to drive through higher-tolled bridges is very large, and the members in Albany represent those people, they plan is still less likely to succeed. Therefore, Move NY should do more research on whether residents in the five boroughs support their plan.

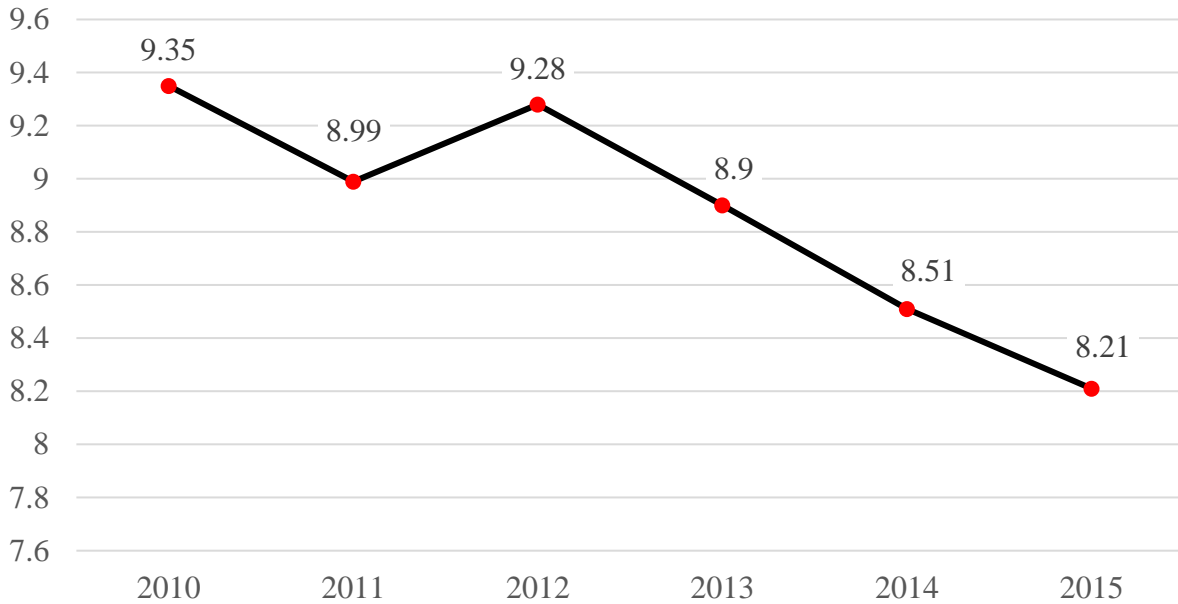
3. A more rigorous study on revenue and cost is needed. Net revenue is very crucial to the success of the Move NY Fair Plan. But the estimates of revenue and cost are not sufficient. The impact on toll collection of Port Authority of New York and New Jersey, and Tunnel Authority need to be investigated. Some possible revenue loss are not considered. For example, if the East River bridges are tolled, federal funding for the four bridges might become less, or even gone. The plan also need to consider the costs for implementing the Move NY Fair Plan. For instance, there might be a direct cost of investment needed to accommodate transportation mode shifts.

Conclusion

Move NY Fair Plan is promising and feasible. The methods to estimate the impact of congestion pricing have been tested by a third professional party. The plan also includes detailed projects to improve the public transportation system, benefiting those who will be diverted from driving their own cars. With the suggested improvements, the plan will become more feasible and will benefit the gridlock Manhattan CBD.

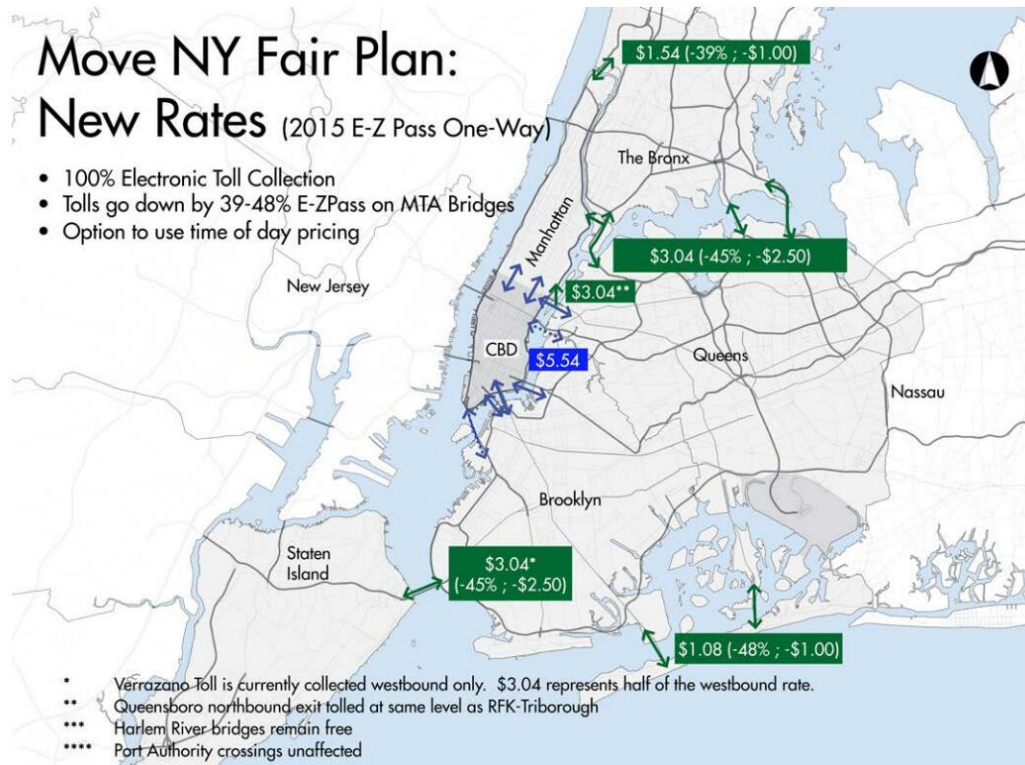
Appendix

Figure 1: Travel Speed in Manhattan South of 60th St. (MPH)



Source: New York City Mobility Report, October 2016

Figure 2 Move NY's Proposed Fair Plan¹¹



¹¹ The Move NY Fair Plan (2015), page 18.

Figure 3 Comparison of Bloomberg Plan And Move NY Fair Plan

Bloomberg Plan 2007-2008	Move NY Fair Plan 2016 (AB XXXX)
1. Largely unspecified transit improvements (\$500 million annually)	1. \$7.3 Billion for MTA Capital Needs, \$3.5 Billion for network expansion projects in Transit Deserts, chosen by a board of local elected officials, and \$1 Billion to the boroughs for hyperlocal transit accessibility and streetscape improvements.
2. No \$\$ provided for fare relief	2. \$121 million in fare relief for intracity commuter and Express Buses, and free out-of-station transfers on select lines in transit deserts
3. \$8.00 entry fee into Manhattan 12/5	3. \$5.54 average toll each way into Manhattan's CBD, 24/7, with peak/off-peak pricing
4. Average taxi surcharge \$1.00	4. Average taxi surcharge \$1.35
5. No \$\$ invested annually in roads and bridges	5. \$375 million annually invested in roads and bridges
6. 9% faster car/taxi/truck travel in CBD by 2020	6. 18% faster car/taxi/truck travel in CBD by 2020
7. Net economic benefit: \$1.4 billion a year	7. Net economic benefit: \$2.2 billion a year
8. Job creation unknown	8. 30,000 + new, annually recurring, local jobs created
9. No toll relief	9. Substantial toll relief on 7 outer bridges (Up to 48% on E-ZPass Triboro, Whitestone, Throgs Neck, Verrazano, Cross Bay, Gil Hodges/Marine Parkway, Henry Hudson Bridges (EZ-Pass)

Source: <http://iheartmoveny.org/wp-content/uploads/2016/03/mny-v-2008-plan.pdf>

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