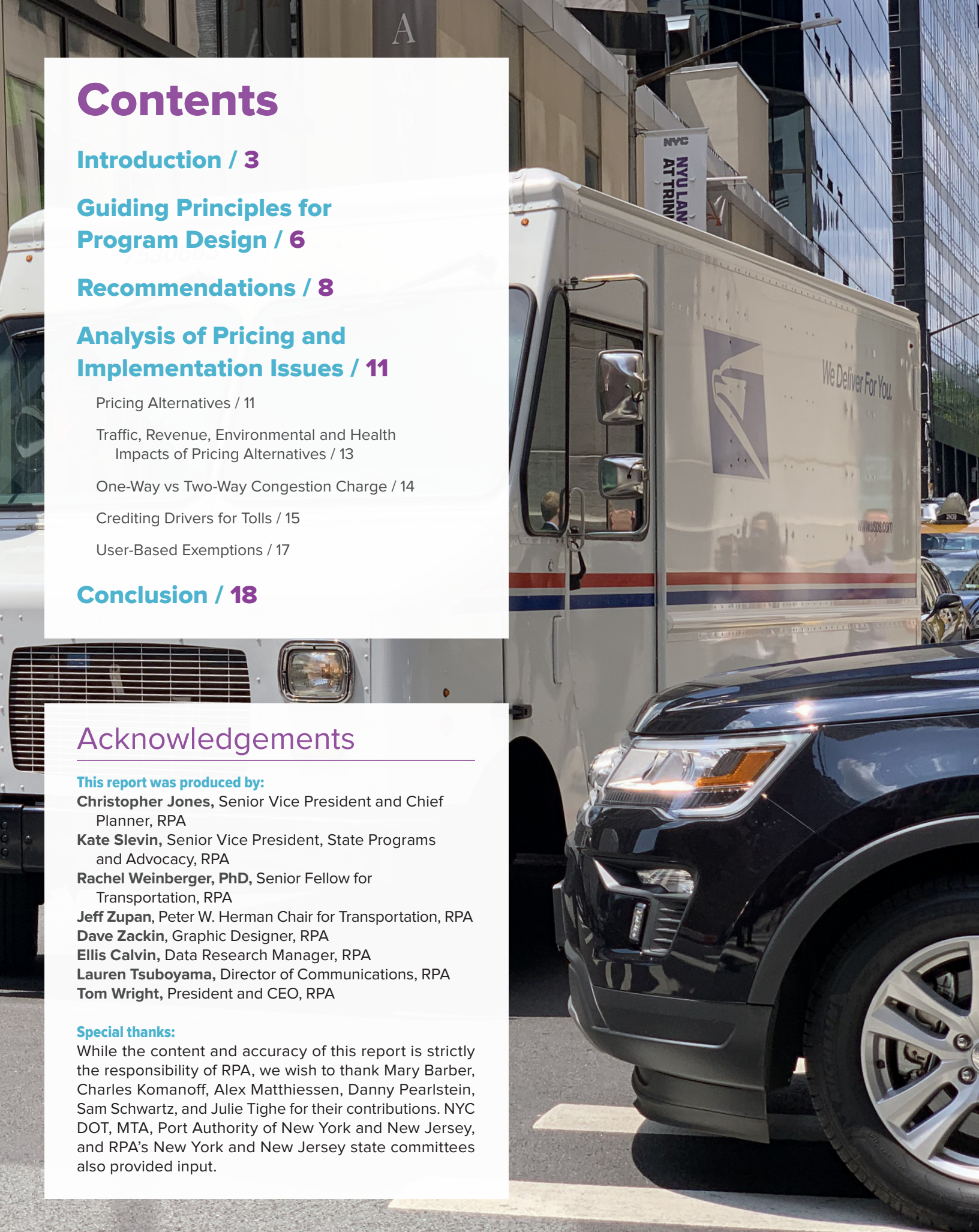
CONGESTION PRICING IN NYC: Getting it right

Regional Plan Association | September 2019

Contents



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Special thanks:

While the content and accuracy of this report is strictly the responsibility of RPA, we wish to thank Mary Barber, Charles Komanoff, Alex Matthiessen, Danny Pearlstein, Sam Schwartz, and Julie Tighe for their contributions. NYC DOT, MTA, Port Authority of New York and New Jersey, and RPA's New York and New Jersey state committees also provided input.

Introduction

New York will soon join London, Stockholm, Milan, and Singapore as a world city using congestion pricing to transform the way people, cars, and trucks move around a city. By pricing traffic congestion, these cities have succeeded in speeding travel, funding and improving public transit, reducing air pollution, and achieving better public health outcomes. New York is poised to reap similar benefits, but many critical decisions on how it will be implemented have yet to be made.

These decisions will not only determine the immediate success of the initiative, they will also provide the opportunity to create a more efficient, equitable and integrated transportation network that improves mobility throughout the metropolitan region.

As part of the historic state budget enacted on April 1, 2019, the New York State legislature and Governor Andrew Cuomo agreed to levy a charge on motor vehicles entering Manhattan south of 61st Street as soon as January 1, 2021. The charge has the dual purpose of reducing congestion and raising funds to provide much needed improvements to the transit system. The Metropolitan Transportation Authority's Triborough Bridge and Tunnel Authority (TBTA) is tasked with implementing the charge and installing, operating and maintaining the congestion pricing collection system. A Memorandum of Understanding (MOU) with the New York City Department of Transportation defines each agency's role in this process.

The legislation provides a program framework and stipulates certain parameters and exemptions, but leaves most of the details to the TBTA informed by a six-person traffic mobility review board (TMRB), yet to be named. The review board will make recommendations to the TBTA between November 15 and December 31, 2020 or within 30 days of implementation. (For a detailed description of what the legislation does and does not contain, see Every Last Detail of Congestion Pricing...Explained!)

This report provides recommendations on how to implement congestion pricing and suggestions for additional attention and resources. In producing it, RPA used the best available public information and tools for estimating revenue and traffic impacts, particularly the Balanced Transportation Analyzer (BTA), a model developed by Charles Komanoff and used by the FixNYC Advisory Panel. We expect the TBTA and TMRB will develop their own estimates based on data and resources they have available.

New York should have the world's best urban transportation system, and congestion pricing moves us in that direction. New York is the first state in the United States to pass a congestion pricing program and this report aims to help the TBTA develop an effective congestion pricing that can serve as a model for cities across the country.

Photo: RPA

The Traffic Mobility Act: What's In It, What's Not

What's Included

The legislation authorizing New York's congestion pricing program specifies several features that must be incorporated:

- The boundaries of the zone as shown in Figure 1
- An operation date no sooner than December 31, 2020
- A testing period of at least 30 days and a public information campaign of at least 60 days prior to the operation date
- The MTA's Triborough Bridge and Tunnel Authority (TBTA) as the entity responsible for implementing and maintaining the new tolling system
- A Memorandum of Understanding between MTA and the City of New York specifying how they will work together
- A six-person Traffic Mobility Review Board (TMRB) — five appointed by TBTA and one by the Mayor — to provide recommendations between November 15 and December 31, 2020, or 30 days before the program will go into effect, whenever is sooner
- $100 million allocated from the state budget for installing new tolling technology and infrastructure
- Annual revenue must be sufficient to bond $15 billion in capital spending for the 2020-2024 MTA capital plan
- Passenger cars may only be charged once daily for entering or remaining in the zone
- Revenue will be placed in a lock-box fund, 80% of which will go to NYC subways, buses, and Staten Island Rapid Transit, 10% to Long Island Rail Road, and 10% to Metro-North Railroad
- Emergency vehicles and vehicles transporting disabled persons will be exempt from the charge
- Residents of the zone with incomes less than $60,000 per year will receive a tax credit equal to the amount paid in congestion charges

What's Not Included

The TBTA, considering non-binding recommendations from the TMRB, will determine all other program features, including the following:

- The mechanism, technology, and location of devices used to identify and charge vehicles entering the zone
- The amount of the congestion charge, including any variations in price by time of day or day of the week
- Any additional exemptions, credits, or discounts
- Metrics or systems for monitoring or evaluating the program

The MTA, through its capital program, will determine which specific projects will be funded.

The Congestion Zone

The congestion zone includes all Manhattan streets and roadways south of and including 60th Street, except for the FDR Drive and West Side Highway (NYS Route 9A). Vehicles that bypass the zone by traveling on the FDR or West Side highway without entering the street grid are not subject to the charge.

Figure 1:
The Congestion Zone

Guiding Principles for Program Design

Congestion pricing and other forms of mobility pricing are based on the principle that automobile and truck users should be charged for the public costs that they impose, including the maintenance of highways, bridges, and tunnels, the economic costs of congestion they impose on others, and the health and environmental costs of air pollution and traffic crashes. This broad principle must be applied to the New York region's particular context.

The new charge will not be imposed in a vacuum. The region's existing tolling structure is a mishmash of policies that have developed over time under the jurisdiction of different entities — the MTA, the Port Authority of New York & New Jersey (PA), and the City of New York. Some people drive into Manhattan's central business district for free, some pay a toll in both directions, and some pay only one way. Untolled crossings are not really free — their maintenance is subsidized by taxpayers. Besides questions of fairness, the toll disparities create perverse incentives and inefficiencies that cause "toll-shopping," where drivers travel extra miles to save money and clog local roadways. This leads to greater distances traveled for the same trips, often on streets ill-suited to high traffic volumes, which in turn means greater congestion. PA and TBTA facilities, which charge tolls, are better funded and maintained than the free crossings. Relative to the free crossings, TBTA facilities are underutilized, as drivers will often drive extra miles to avoid the toll.

The fee for entering Manhattan's clogged streets is an opportunity to create order out of this chaotic and inequitable system, but only if it is designed well.

The analysis and recommendations in this report suggest a set of choices that increase equity and foster a more rational transportation system while meeting the outcomes mandated in the legislation.

Our Work Was Guided By The Following Principles:

- Relieving congestion, the original rationale for congestion pricing, is as important as raising revenue for transit, and should be a primary goal of program design. Greenhouse gas and air pollution reduction is also critical given adoption of the Climate Leadership and Community Protection Act.
- The charging system and its rules should be as simple and transparent as possible, with charging and monitoring equipment as unobtrusive as technology allows.
- The cost of entering and leaving the congestion zone should be uniform at all entry and exit points. This ensures that all drivers will be treated equitably and eliminates the incentive for "toll shopping."
- Prices should be highest when congestion is greatest.
- Larger vehicles have a larger impact and should be charged more.
- To maintain system integrity, maximize revenue and congestion benefits, and fairly distribute benefits and costs among users, exemptions for specific classes of users should be as limited as possible.
- To prevent abuse of the program, strong enforcement measures should be implemented.
- Set prices high enough to cover system costs and to ensure that congestion reduction and revenue goals are met.
- The system should be designed to enable future technological improvements and still more effective pricing policies.

Manhattan's Complex and Inequitable Toll System

Today, passenger cars entering or leaving Manhattan's central business district are charged anything from zero to $15.00, depending on the crossing, direction of travel, form of payment, and time of day. Drivers using E-ZPass pay $12.50 at the Lincoln or Holland Tunnel to enter Manhattan from New Jersey during the morning peak, $10.50 at other times, and nothing on the outbound trip to New Jersey. Those paying by cash are charged $15.00 to enter Manhattan and nothing on the outbound trip. Driving between Brooklyn and Manhattan costs $6.12 in both directions at all times when using the Hugh Carey Tunnel (Brooklyn-Battery Tunnel) using E-ZPass, and $9.50 if paying by cash, but nothing if using the Brooklyn, Manhattan, or Williamsburg Bridges. Entering and leaving Manhattan via Queens costs $6.12 in both directions ($9.50 if paying by cash) if using the Queens-Midtown Tunnel, but nothing if using the Queensboro Bridge. There is no charge for entering the congestion zone at 60th Street from upper Manhattan, but people driving through upper Manhattan to get to the zone will pay $12.50 to enter Manhattan via the George Washington Bridge ($10.50 off-peak and $15.00 by cash), $6.12 in both directions via the Robert F. Kennedy (Triborough) Bridge ($9.50 by cash), $2.80 in both directions if using the Henry Hudson Bridge, and nothing if using other bridges connecting the Bronx and Manhattan. Commercial vehicles pay higher tolls on all tolled facilities, with amounts varying by truck type and size.

Recommendations

Photo: Shutterstock

RPA makes the following recommendations to the TMRB and TBTA. While recognizing the immediate challenge of getting a well-functioning system up and running, these proposals are intended to advance a fair and effective congestion pricing program that will help rationalize the region's tolling system.

Recommendations for System Design and Implementation

1 Implement transit and bicycle improvements prior to starting congestion pricing.

Providing better transit options will make the program's launch more successful. While the MTA is facing financial challenges, it could use existing revenues from for-hire vehicle fees to improve bus service in the near term, as London did before congestion pricing went into effect. Streets could also be prioritized for buses. More protected bicycle routes and bikeshare docks, including those with electric bikes, near entry points and on both sides of the East River would also help.

2 Adopt specific objectives and metrics to meet traffic, environmental, and health goals and ensure that benefits are equitably shared.

Recognizing congestion reduction is just as important as raising revenue, the TBTA should specify program targets for traffic reduction, vehicle counts, vehicle miles traveled, air pollution, and other metrics as recommended in the Fix NYC Advisory Panel Report[1], and make these goals public. Metrics and monitoring should measure neighborhood impacts, and transit improvements should prioritize neighborhoods with fewer transit options, lower household incomes, and disproportionate pollution impacts.

3 Design the system to incorporate new technologies that can transition to more dynamic and effective pricing.

The simplest technology to implement is the E-ZPass system, which has been highly successful over its 25-plus years. Camera systems and license plate recognition (LPR) software are prevalent in existing congestion pricing applications and would be required here to accommodate users without E-ZPass. Nevertheless, E-ZPass does not make use of the new technologies that can identify locations and routes. Planning should begin now for a congestion pricing program technology upgrade to eventually replace the E-ZPass system. The goal should be to replace the lump-sum charges with a more nuanced approach that charges vehicles in proportion to time or distance spent in the most congested locations. New technology could be applied to for-hire vehicles first and then expanded to commercial vehicle fleets and eventually to passenger cars. This will also enable the congestion charge to eventually be incorporated into a region-wide system that could replace tolls and other fees with charges on the number of miles or hours a vehicle traveled, resulting in a fairer and more effective system for managing traffic and maintaining transportation infrastructure.

4 Install congestion pricing devices to allow for a simple method of identifying vehicles bypassing the zone.

To avoid installing dozens of congestion pricing devices to identify vehicles that travel only on the FDR or West Side Highway without entering the zone, use devices placed at bridges, tunnels, and at 60th Street to record when a vehicle enters and leaves using these highways. The congestion fee can then be dropped if the vehicle leaves within a short period of time, indicating that they used the highways for through travel without entering the zone.

5 Introduce two-way tolling in the congestion zone.

To eliminate toll shopping and better manage congestion, the cost of entering or leaving the congestion zone should be consistent. This is best accomplished by implementing the congestion fee as a two-way charge, as TBTA facilities do now, rather than only charging in one direction. By charging for both portions of a trip – entering and leaving the zone – the variable tolls will have more influence on driver behavior, incentivizing drivers to shift their trips out of the peak period whenever possible. Two-way charges would also permit prices to be tailored to most effectively reduce congestion since the traffic patterns of morning and evening peaks differ.

1 Fix NYC Advisory Panel Report, January 2018, p. 24.

Recommendations for Pricing

1 Vary the congestion fee by the level of congestion at different times of day, and by size of vehicle.

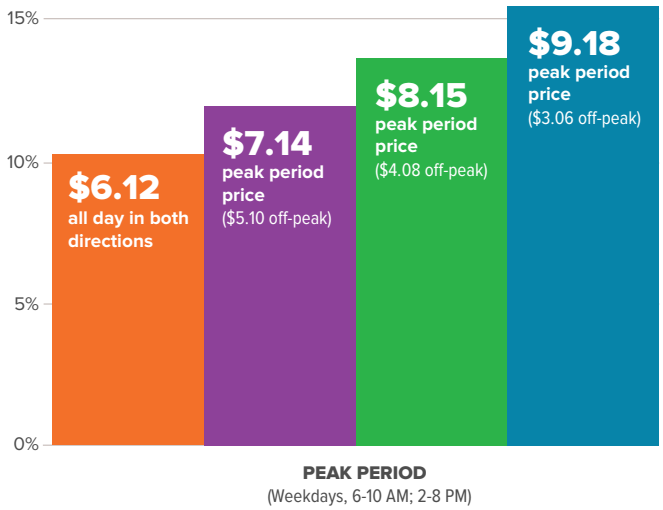
To achieve the most congestion relief, drivers who use the road at the most congested times should be most encouraged to switch to different times or other modes of transportation.

Figure 3 shows estimated improvements in peak period traffic speeds ranging from a 10% traffic speed increase in a pricing scenario with a flat daytime congestion fee to a 16% speed increase in a scenario with sharply peaked tolls. The scenario with the higher peak period price would reduce the number of hours in traffic by 12% more than the flat fee alternative, even though the total fees collected from motorists would only be 6% greater.

Each of these scenarios, all of which are described in the section on pricing alternatives, would raise comparable revenue. The potential congestion relief argues for a robust system of variable pricing driven by the substantial differences in congestion at different times. As they do on existing tolled facilities, large trucks should pay more than smaller vehicles to account for their greater impact on infrastructure, health, and the environment.

Figure 3:
Traffic speed improvement during peak periods using different price scenarios

All four scenarios use two-way tolling and raise comparable amounts of revenue.



2 Set the congestion charge high enough to meet both congestion and revenue targets.

The congestion charge should be sufficient to meet specific traffic and capital investment targets, either by budgeting for contingencies in case estimates are low or by including a mechanism to adjust prices if needed.

3 Apply a consistent rationale to determine which tolls should count as a credit toward the congestion charge.

If no one receives a credit for tolls that they currently pay for traveling to the congestion zone, we would recreate the current inefficient and unfair system in which some drivers pay much more than others, and traffic is exacerbated as people drive extra miles to find the cheapest route. Determining which tolls to credit is a difficult question, but should be based on a consistent rationale that does the most to equalize tolls for drivers with similar trips, reduce incentives to drive farther and add congestion in order to avoid higher tolls, and limit revenue reductions that would be passed on to other drivers. Since the interactions of tolls and the congestion fee will vary depending on whether the fee is one-way or two-way, and what type of variable pricing structure is applied, decisions on which tolls to credit could be deferred until the program design and pricing structure are determined.

4 Exempt taxis and other for-hire vehicles from the congestion charge, but keep the current surcharge on fares within the congestion zone.

The current surcharge for trips taken in these vehicles is a more effective method, for both managing congestion and reaching the revenue target. Regardless of the congestion charge, for-hire vehicle drivers must enter the zone to work, but the per trip charge gives passengers an incentive to walk, bike, or take transit. The per trip charge also raises an estimated $400 million per year which would be lost if the charge were to be replaced with an entry fee.

5 Limit user-based exemptions to those already specified by the legislature.

The legislation exempts several classes of users. Unfortunately, even these mandated exemptions are open to abuse, and must be rigorously enforced with substantial penalties for violators. NY Legislature should consider legislation that clarifies the exemption for persons with disabilities and creates a clear enforcement mechanism to reduce potential abuse. The exemption for emergency vehicles should not be permitted to open the door for misuse by government workers as has been done with windshield placards to get free parking. Since multiple trips by passenger vehicles are exempt, the TMRB should study the revenue, congestion, and economic impacts of multiple trips for small commercial vehicles. However, this should only be considered if multiple charging is found to result in substantial hardship and negative impacts.

Who Benefits From Congestion Pricing? Everyone.

Congestion pricing is intended to benefit car users by reducing congestion; transit riders by investing in subways, buses and commuter rails; and communities by reducing air pollution and improving health outcomes. It is also an economically progressive policy.

Across the region, there is a clear income disparity between households that own cars and those that do not. In every county, car-owning households report at least double the income of non-car owning households. For example, Brooklyn households with cars make twice as much as households without. In the Bronx, that ratio is 2.5, in Nassau County it is 3.5, and in Bergen County it is 3 times as much. In New York City overall, more than half of households do not own private vehicles. By reducing traffic, the congestion fee benefits those who pay it. By investing collected revenue into public transportation, congestion pricing will help address existing inequities throughout the city and region.

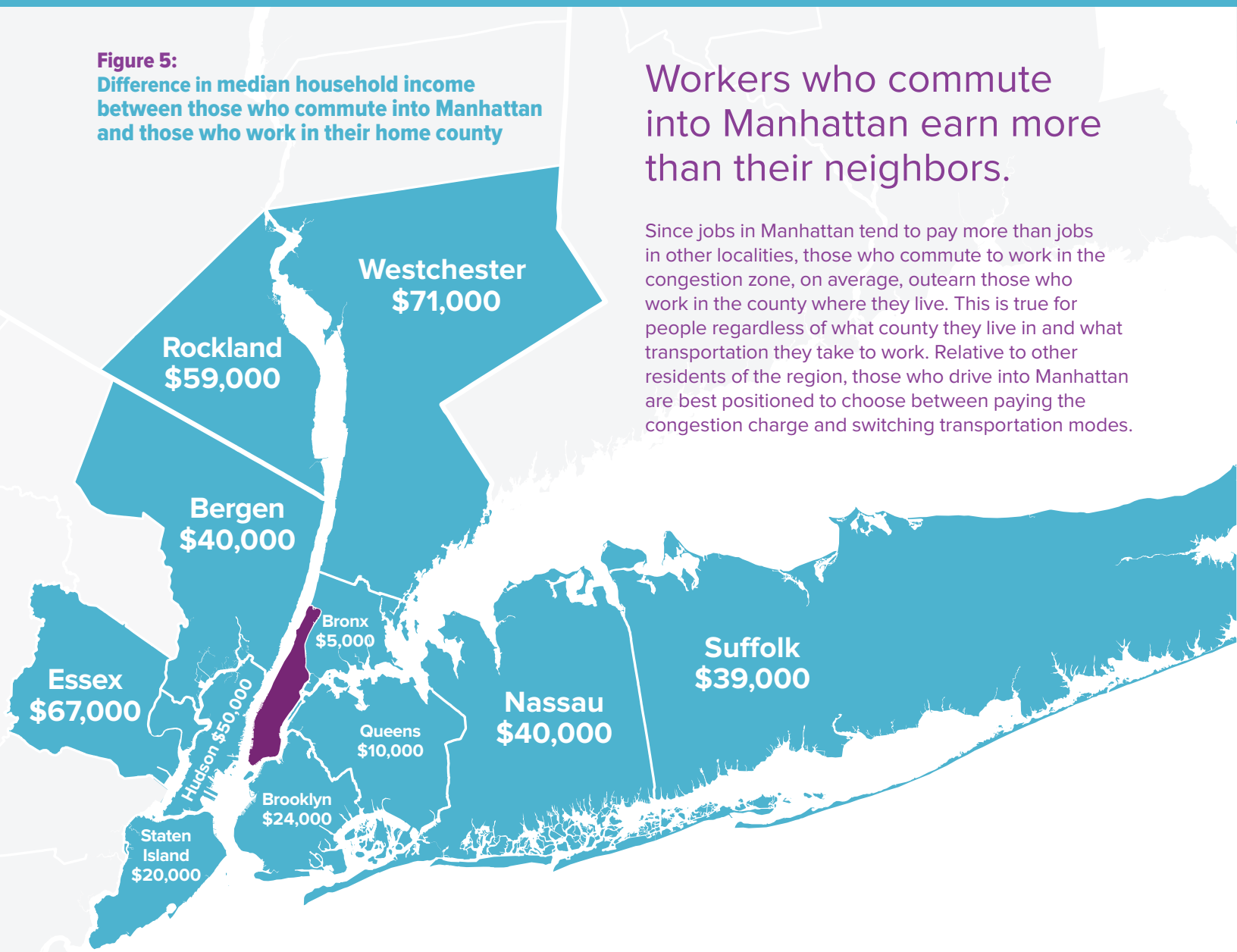
The Community Service Society found that just four percent of outer borough NYC residents drive into Manhattan for work, while 56% rely on public transportation to get to jobs in Manhattan and elsewhere. Just two percent of the working poor would potentially pay a congestion charge.[1]

1 Congestion Pricing, A CSS Analysis, October 24, 2017

Figure 5:
Difference in median household income between those who commute into Manhattan and those who work in their home county

Workers who commute into Manhattan earn more than their neighbors.

Since jobs in Manhattan tend to pay more than jobs in other localities, those who commute to work in the congestion zone, on average, outearn those who work in the county where they live. This is true for people regardless of what county they live in and what transportation they take to work. Relative to other residents of the region, those who drive into Manhattan are best positioned to choose between paying the congestion charge and switching transportation modes.



Analysis of Pricing and Implementation Issues

Photo: Ryan DeBerardinis

Pricing Alternatives

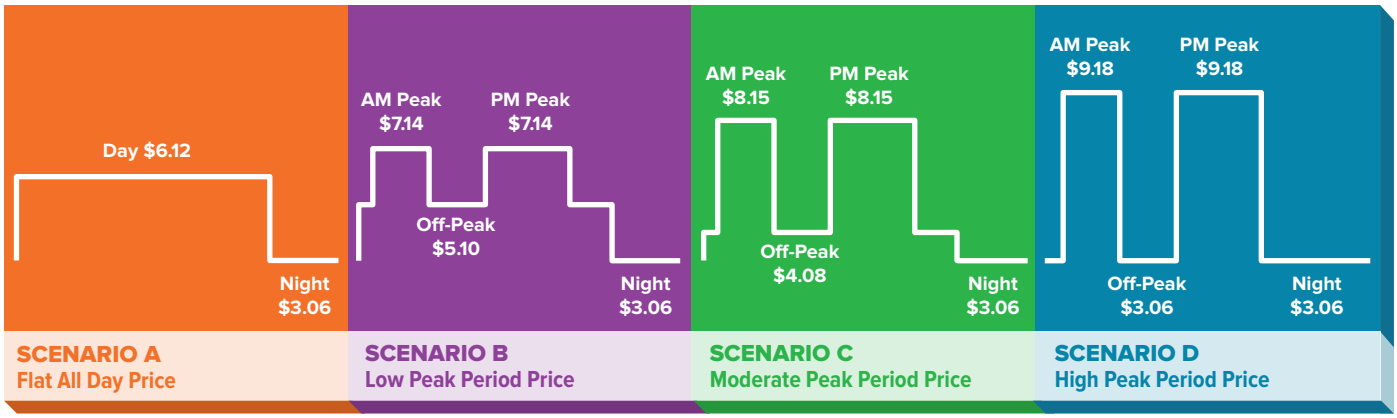
To test the effects of different pricing strategies, RPA used the Balanced Transportation Analyzer (BTA), a robust modeling tool developed by Charles Komanoff to estimate the impacts of various congestion pricing proposals. At the core of this model is a series of linked spreadsheets that generate a wide range of output measures based on well-documented sources of data and research. Inputs include pricing levels for different times of day, and different types of surcharges and exemptions. Outputs include revenues raised, toll and surcharge incidence by geography, traffic volumes, traffic speeds, air quality, and health impacts. The model is available with detailed documentation at https://nurturenature.org/pages/balanced-transportation-analyzer.

The BTA was also used by the Fix NYC Advisory Panel to estimate the impacts of pricing strategies. The scenarios developed for this report build on the Fix NYC analysis by exploring a wider range of variable pricing scenarios and additional output variables. These scenarios are not completely comparable to the Fix NYC results. The results shown here use different assumptions, incorporating updated toll prices and the exemptions included in the enabling legislation.

The four scenarios presented in Figure 4 were designed to be consistent with the principles outlined in the beginning of this report, and to test the revenue and traffic impacts of pricing alternatives that are based on existing TBTA tolls.

They range from a scenario that assumes a flat fare equal to the current TBTA toll to one in which the peak fare is 50% higher than the TBTA toll and the off-peak fare is 50% lower. All four assume that weekday nights and weekend days, when congestion is less, are half the TBTA fare, and weekend nights, when congestion is least, are free. Commercial vehicle fees were assumed to vary in the same proportion as passenger car fees. Each scenario assumes that vehicles traveling directly into the zone through tolled facilities, or crossing the Robert F Kennedy, George Washington, and Henry Hudson Bridges in upper Manhattan, are credited for the tolls they paid.

Figure 4: Alternative congestion pricing scenarios — price curves and details



	SCENARIO A Flat All Day Price	SCENARIO B Low Peak Period Price	SCENARIO C Moderate Peak Period Price	SCENARIO D High Peak Period Price
Weekday Pricing	No changes during day, night half price	Peak 1/6 higher; off-peaks 1/6 lower, night half price	Peak 1/3 higher; off-peaks 1/3 lower, night half price	Peak 1/2 higher; off-peaks 1/2 lower; night half price
Weekend Pricing	Half price all day, night free	Half price all day, night free	Half price all day, night free	Half price all day, night free
Weekday Time Periods				
Peak (6-10 AM; 2-8 PM)	$6.12	$7.14	$8.15	$9.18
Off-Peak (5-6 AM, 10 AM-2 PM, 8 PM-11 PM)	$6.12	$5.10	$4.08	$3.06
Night (11 PM-5 AM)	$3.06	$3.06	$3.06	$3.06
Weekend Time Periods				
Day (10 AM-12 PM)	$3.06	$3.06	$3.06	$3.06
Night (12 PM-10 AM)	$0	$0	$0	$0
Net Revenue Raised	$1.01 billion	$1.06 billion	$1.08 billion	$1.09 billion
Benefits				
Speed Increases, weekday peak	10.3%	12.0%	13.7%	15.6%
Speed Increases, weekday off-peak	9.1%	6.9%	4.5%	1.7%
Reduced auto trips, weekdays	58,900	59,100	59,200	59,100
Hours saved per day, weekdays	136,000	142,000	147,000	152,000
Vehicle-miles traveled reduction, Congestion Zone, weekdays	-3.8%	-3.8%	-3.7%	-3.7%
CO2 emissions reductions, Congestion Zone, weekdays	-7.0%	-7.0%	-7.1%	-7.1%
PM2.5 emissions reductions, Congestion Zone, weekdays	-7.4%	-7.5%	-7.6%	-7.6%

Note 1: Prices indicate the congestion charge for autos. The charge for trucks is assumed to be 2.5 times auto charge.
Note 2: The revenue estimates include an estimated loss of 4% from the legislated exemptions for emergency vehicles, persons with disabilities, and multiple trips per day by passenger cars. Since the model has not yet been adjusted to account for vehicles that bypass the congestion zone on the FDR and West Street, an additional $30 billion was deducted based on calculations in technical memorandum: Potential Location of Congestion Pricing Devices. Gross revenues were then reduced by $113 million operating costs estimated for a two-way charge.

Traffic, Revenue, Environmental, and Health Impacts of Pricing Alternatives

Revenue Impacts

All four scenarios yield similar levels of net revenue ranging from $1.0-1.1 billion annually. The results demonstrate that all four could produce enough revenue to meet the $1 billion net revenue target. This suggests that there is flexibility for meeting the revenue target with different price assumptions. However, actual costs and driver behavior could differ from model predictions for a number of reasons, and pricing policies should provide reasonable certainty that revenues will cover bond payments for $15 billion in capital expenditures.

These scenarios show that raising peak prices and lowering off-peak prices by similar amounts raises similar amounts of revenue, while yielding better congestion benefits. Even highly peaked pricing schedules can be designed to be revenue neutral relative to pricing at a flat rate.

For illustration purposes, all of these scenarios used the same assumptions for night and weekend prices. Varying these prices could also change revenues significantly. For example, making weekday nights free instead of half the TBTA toll would decrease revenues by $70 million. Increasing weekend day fees to equal TBTA tolls would increase revenues by $150 million. It would also be desirable to differentiate truck fees by size and type of vehicle to account for different impacts on congestion and road maintenance costs.

Traffic Impacts

The scenarios produce significant differences in congestion relief. Even this improvement in average traffic speeds can make a big difference, with greater reliability and less time spent in stalled traffic.

The more the prices vary between peak and off-peak, the greater the benefits during high congestion periods.

Speeds increase by 12% in the peak with mildly peaked prices, 14% with moderately peaked and 16% with highly peaked. These estimates are conservative, as the model does not account for the additional congestion reduction effect of two-way charging. Speed increases are progressively less in the off-peak, but these times are far less congested overall.

Currently, vehicles travel only 6.35 miles per hour (mph) on average in peak periods compared to 10.19 mph outside of the peak. Scenario D, with a high differential between peak and off-peak prices, would improve the average peak period speed to an estimated 7.34 mph and off-peak speed to 10.36 mph. Not only would average peak speeds be closer to what they currently are at less congested times of day, but travel times would be more predictable, with less time in stalled traffic and fewer extremes when trips take substantially longer.

The total amount of time saved, for both the peak and off-peak periods combined, rises with peak pricing. Drivers save an estimated 152,000 hours each weekday in the highly peaked scenario, 12% more than with a flat rate. On the other hand, there is little difference in the total number of cars entering the congestion zone or the number of vehicle miles traveled between the scenarios. This follows from the expectation that many drivers will shift to a less congested time of day, rather than forgoing the trip altogether.

Even with conservative estimates, these time savings alone could be worth the equivalent of over $1.5 billion per year.[2]

Environmental and Health Impacts

Congestion pricing will help clean the air and reduce respiratory-related illness and disease. It would also help to meet emissions reductions requirements set by the Climate Leadership and Community Protection Act. The scenario comparisons indicate that most of these benefits will come from a reduction in the overall number of cars on the road. Since variable pricing is likely to shift the time of trips more than it reduces their overall numbers, the differences between the scenarios are slight. Both carbon dioxide emissions and small air-borne particles would be reduced by between seven and eight percent in each scenario, while other pollutants like carbon monoxide, nitrogen oxides, and sulfur dioxide would be reduced by between four and five percent. These emission reductions would result in over $100 million in estimated health cost savings annually. The model also projects that each scenario would result in over 750 fewer traffic-related injuries and four fewer deaths each year.

2 Using a commonly used rule-of-thumb that commuting time is valued at half of a person's hourly wage and the 2018 average wage for Manhattan ($77,000), the dollar equivalent for time savings range from $1.3 billion per year for scenario A to $1.6 billion for scenario D. Recent research (K.Chatterjee, et al, The Commuting and Well-Being Study, UWE Bristol, 2017) indicates that this may significantly undervalue time savings..

One-Way vs Two-Way Congestion Charge

To best eliminate toll shopping, the congestion charge would need to be implemented as a two-way fee as TBTA facilities currently operate. The two-way approach provides sufficient additional benefits to justify the higher cost.

A one-way congestion charge combined with two-way TBTA tolling would leave many of the existing incentives for toll shopping in place and potentially create new ones. Levying the congestion charge only on inbound traffic would mean that the now-free bridges would become twice as expensive as the now-tolled tunnels when entering Manhattan, and would still be free outbound as opposed to the current $6.12 on the TBTA facilities. Thus, drivers would have a cost incentive to take the Hugh Carey Tunnel or RFK Bridge on the way in, and the currently free bridges on the way out, leading to more vehicle miles traveled and greater congestion, particularly at the lower-priced points of entry and exit.

A two-way congestion charge would be slightly more expensive to implement because it would require more devices to record cars entering and leaving the zone and would need to process more transactions. The annual amortized cost for a two-way congestion charge would be an estimated $50 million more than a one-way option.[3]

A second best option would be converting TBTA facilities to one-way tolling. This has two obvious downsides. It would entail an upfront cost. It would also increase incentives for drivers crossing the Harlem River to take the free Madison and Willis Avenue bridges inbound during the morning peak rather than pay the RFK's higher toll. Most importantly, a two-way toll would apply pricing incentives to both legs of a round trip, encouraging drivers to avoid peak periods in both the morning and evening. It also gives the TBTA the ability to vary the charge differently in each direction to more closely align with traffic. For example, the inbound charge in the morning peak could be set higher than the outbound charge in the evening peak, matching the relative use and congestion to the volume by direction as well as time of day. This could become more important over time as advances in technology and familiarity with the congestion charge make it easier and more acceptable to tailor the charge to the level of congestion.

The end result of a two-way charge would be fewer miles traveled in Manhattan, Brooklyn, and Queens, and on the Brooklyn-Queens Expressway,[4] less traffic congestion, and more time saved by both passenger cars and trucks.

3 See technical memorandum Probable Location of Congestion Pricing Devices for explanation of cost calculations.

4 This is particularly relevant as the NYCDOT struggles to find an acceptable design when replacing this facility through Brooklyn Heights. See *Reimagining the BQE*, Regional Plan Association, April 2019.

Photo: RPA

Crediting Drivers for Tolls

Historically, tolls have been used to build and maintain the region's transportation infrastructure, including the highways, bridges, and tunnels where the tolls are collected, and the trains, subways, and buses that keep these facilities from being overwhelmed with traffic. The congestion charge is different in that it is designed explicitly to reduce traffic by discouraging driving in and during the most congested part and time of the region. But it is layered on top of both tolled and untolled facilities serving the same area. Many drivers already pay a toll to get to the congestion zone. The existing price structure and the purpose of congestion pricing complicate the goal of equality in price.

Depending on how the congestion charge is applied for trips already paying an existing toll, it can equalize the cost of driving between those who have been paying to come into the congestion zone for years and those who have been driving in for free. However, because the congestion fee must meet the legislated revenue target to support $15 billion in capital expenditures, every toll credit means that the fee needs to be higher on other users to fulfill the revenue goal. In addition, crediting tolls reduces the congestion mitigation effect. This is a potential area of conflict between the revenue goal and the promised traffic mitigation.

Equalizing the cost to enter the congestion zone is important to the success of a congestion pricing program. Without crediting existing tolls, congestion pricing would replicate the inequities of the current toll structure with some drivers who make similar trips paying far more than others. But there is no clear fomula for drawing the line in determining which tolls to credit. In evaluating the merits of different options, facilities can be grouped into three alternatives that have an arguable rationale: crediting tolls on bridges and tunnels connected directly to the zone, crediting all bridges and tunnels connected to Manhattan, and crediting all bridges and tunnels connected to one of the five New York City boroughs. Any tolls beyond this geography are used to support a different part of the transportation system and should be in addition to congestion charges in the region's core.

The general pros and cons of each of these alternatives are described below based on the following criteria:

- How much it equalizes tolls so that drivers with similar trips pay similar amounts in combined tolls and congestion fees
- What effect it has on vehicle miles traveled and congestion from toll shopping
- How much the overall congestion charge would need to increase to fulfill the revenue target

To fully evaluate the impacts of these alternatives, however, the program design and pricing structure need to be determined first. Driver behavior will vary depending on whether the congestion fee will be a one-way or two-way charge, and how the fee will vary by time of day. For illustrative purposes, the following page shows what drivers would pay under different crediting options assuming two-way tolling and the differential pricing assumptions from Scenario C shown previously in Figure 4. In this scenario, all drivers would pay more in the peak period even if they receive a credit, since the round trip peak period charge is higher than both the TBTA and PA tolls. Outside of the peak period, when the congestion charge is lower, most drivers receiving a toll credit would not pay an additional congestion charge. Those using the Henry Hudson Bridge or other facilities with lower tolls would pay a small increment in the off-peak.

Impacts on revenues would be driven by the number of vehicles and the toll amounts for each crossing. More than 200,000 passenger cars, representing about 30% of all autos entering the congestion zone, pay a toll to directly enter the congestion zone using either a TBTA or PA tunnel. An even greater number, about 34% of the total, come over one of the free East River bridges. Ten percent cross at 60th Street after paying a toll at the RFK, George Washington or Henry Hudson Bridges. The remaining 26% cross at 60th Street after originating in upper Manhattan or crossing into upper Manhattan via a free bridge from Queens or the Bronx. About two percent of all vehicles entering the congestion zone crossed a tolled bridge in the outer boroughs on their way to the Manhattan. Most of these currently use a free crossing to enter Manhattan, but some use one of the tolled crossings.

Figure 6: Cost of Crediting Drivers for Tolls

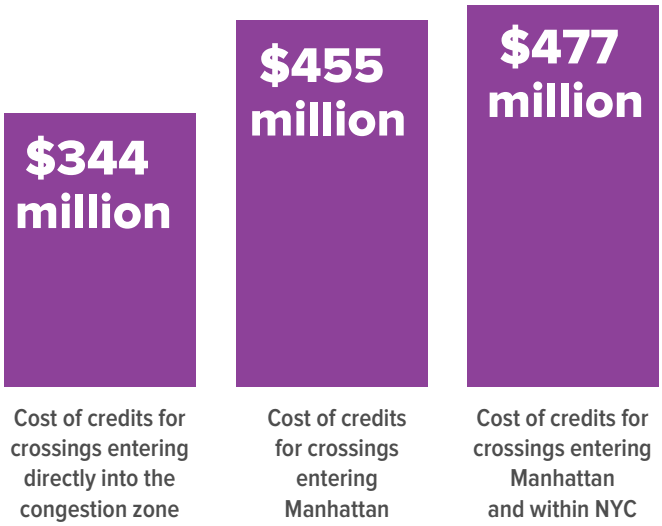
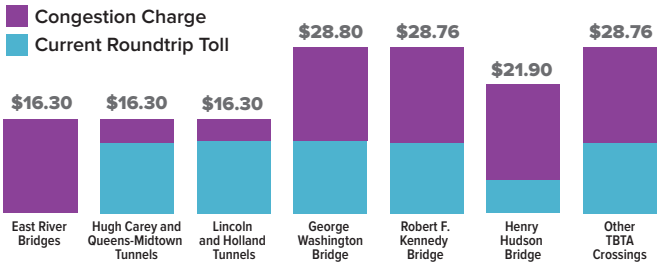


Illustration of Toll Crediting Options

The three cases below describe the pros and cons of different options for crediting drivers for tolls payed on the way to and from Manhattan. The charts describe what drivers would pay to get in and out of Mahattan in each case using the $16.35 ($8.15 in each direction) peak time congestion fee proposed in Figure 4, Scenario C.

Case 1: Credit Crossings Entering Congestion Zone

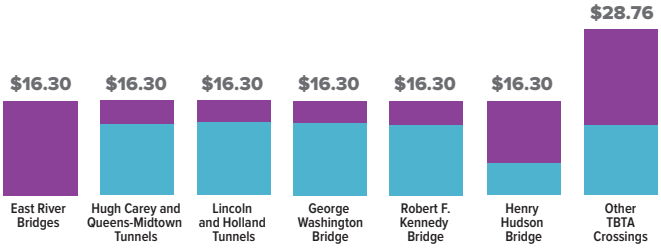
Crediting tolls for the four tunnels connected directly to the congestion zone would create parity for the drivers using those facilities with those who currently pay no toll. If combined with two-way charging, it would eliminate toll shopping at the East River crossings. These credits are equivalent to $340 million in annual revenue using pricing Scenario C from Figure 4. However, drivers coming over the upper Manhattan bridges would pay as much as twice as much to travel to the congestion zone as everyone else. Many of these drivers are likely to divert to tunnels or bridges where they could receive a credit. This would be a particular concern at the already congested Lincoln Tunnel, affecting not only cars and trucks but also bus operations in and out of the Port Authority Bus Terminal. It would also be likely to push more drivers to the Queens-Midtown Tunnel and untolled crossings from Queens and the Bronx.



- **Equalizes tolls for nearly 90% of entrants to the zone,** but over 80,000 drivers could pay as much as double what others pay
- **Eliminates toll shopping incentives for many drivers** but maintains or increases incentives for drivers entering from west of the Hudson, the Bronx and parts of Queens
- **Congestion fee could approximate current TBTA toll** and raise $1 billion

Case 2: Credit Crossings Entering Manhattan

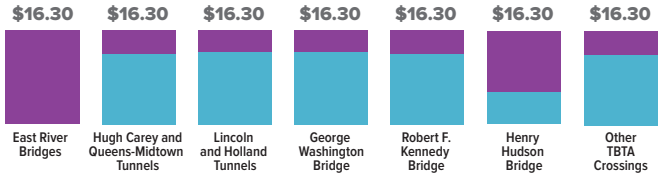
The main argument for crediting all crossings into Manhattan is that it would result in nearly all congestion zone-bound drivers paying the same amount. There is little to distinguish drivers crossing at the George Washington Bridge from those crossing through the Lincoln and Holland tunnels, and those taking the RFK Bridge from those taking the Queens-Midtown tunnel. They are paying the same toll for similar facilities and their revenues are used for the same purpose. Henry Hudson Bridge tolls are lower, but the same principles apply. Incentives for toll shopping would be largely eliminated. The main disadvantage is that it would require an increase in the congestion charge to meet the revenue target. Using the scenario in Figure 6, the charge would need to be 9% higher to yield comparable revenues.



- **Equalizes tolls for nearly all entrants to the zone**
- **Eliminates or reduces most toll shopping incentives**
- **Congestion fee would have to be 8-10% higher than Case 1**

Case 3: Credit Crossings Entering or within New York City

Extending the credit to all bridges and tunnels in the five boroughs would cover the remaining two percent of congestion zone-bound drivers, and have only a small impact on revenues compared with crediting Manhattan crossings. However, all of these drivers have to cross a second bridge or tunnel to get into Manhattan, and there is an argument that they should pay somewhat more for their cost of their trip.



- **All entrants to the zone would pay the same amount,** although users of outer bridges would use two crossings
- **Eliminates or reduces most toll shopping incentives**
- **Congestion fee would have to be 10-12% higher than Case 1**

User-Based Exemptions

Any discounts or exemptions granted to particular classes of users will erode the revenue and congestion mitigation impacts of the program, and increase the burden on non-exempt users. The exemptions specified in the legislation are already estimated to reduce overall revenues by about 4% per year. Weak enforcement and tolerance of tampering to avoid paying will result in even greater losses.

The emergency vehicle exemption needs clearly defined and easily enforced guidelines so other government or quasi-government vehicles, or vehicles used by government employees for private purposes, pay the congestion charge. The widely abused parking placard system, whereby government employees park indiscriminately using widely available, sometimes counterfeit, placards, is a lesson in what can occur with weak enforcement. The implementation of the congestion pricing program is an opportunity to strengthen measures to prevent placard and license plate abuse and congestion pricing avoidance.

Persons with disabilities are exempt from the congestion fee. This exemption is difficult to enforce and is prone to abuse when vehicles are shared. The NY Legislature should consider legislation that clarifies this exemption and creates a clear enforcement mechanism to reduce potential abuse.

Most other exemptions that have been proposed are not justified by any undue hardship or larger societal benefit. However, two that deserve consideration are exemptions for for-hire vehicles and multiple trips by commercial vehicles.

For-hire vehicles — taxis, car service vehicles and cars using app-based services by transportation network companies (TNCs) currently pay a surcharge for trips within, to, from, or passing through a zone from 96th Street south in Manhattan. It is reasonable to exempt these vehicles from the congestion charge while keeping the surcharge in place. The surcharge is $2.50 for yellow cabs, and $2.75 for green cabs and TNCs. It is estimated to raise over $400 million a year for the MTA, while levying the congestion charge on these vehicles would yield over $100 million. The revenue from the surcharge is in addition to the $1 billion that needs to be raised from the congestion charge, so substituting the congestion charge for the surcharge would mean $400 million less in revenue for transit. The surcharge for these trips is also more likely to have the effect on individual passenger choices that congestion pricing is meant to have than will the congestion charge — i.e. a livery driver will not think twice about their "mode" to the congestion zone. But if individuals facing a new cost structure choose alternate modes within the zone, in time the supply of livery vehicles would readjust to meet the demand.

Whether to exempt multiple trips by commercial vehicles, as passenger cars will be, is less clear cut. Forgiving the cost of the multiple trips would soften the impact on small businesses, and it would be consistent to treat passenger and commercial vehicles similarly. However, business is one of the greatest beneficiaries of congestion reduction, and small businesses should continue to be incentivized to program trips as efficiently as possible. Further research is needed to determine the congestion, revenue, and economic impacts of extending this exemption to commercial vehicles.

Photo: RPA

Conclusion

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If Implemented Properly, Congestion Pricing Will Be Groundbreaking

After decades of discussing the merits of congestion pricing, New York finally has the opportunity to see how the proposal not only transforms our transportation network, but also the way people live and move in and around the City. We've seen congestion pricing be a game changer for cities around the world. And now, New York has the critical chance to take a major step forward towards a world class transportation network.

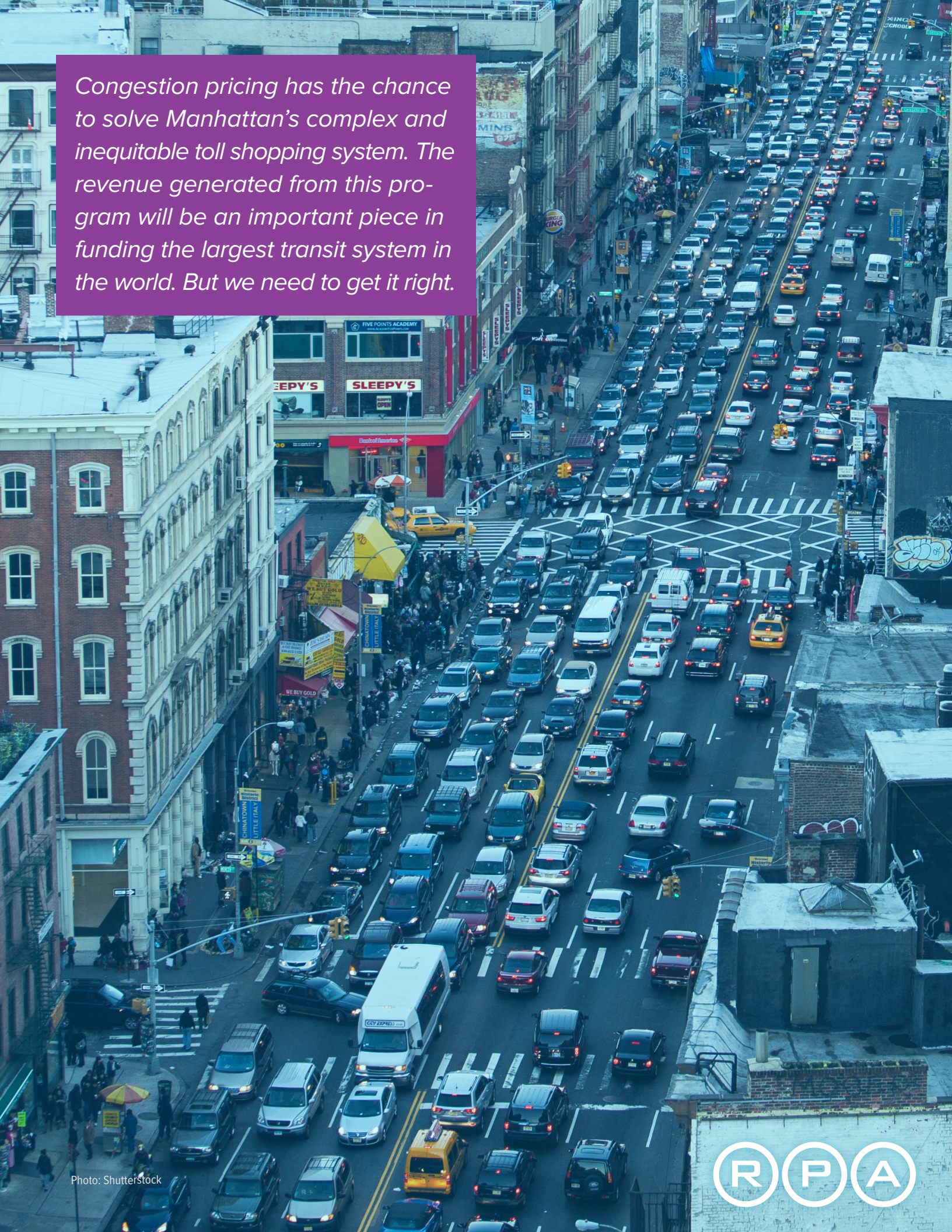
But passing congestion pricing is just the beginning. Many hard and controversial decisions lay ahead.

If implemented properly, congestion pricing will be groundbreaking. It will allow us to unclog our streets, improve quality of life and health, help meet state clean air goals, and raise much-needed revenue for our public transportation system. And it will set a model for other cities across the country and world struggling with congestion, air pollution, and aging infrastructure.

The next 15 months will prove to be a critical time as proposals arise and begin to shape what the program looks like. And while the legislation created a framework for a congestion pricing program that prominently positions revenue goals, it is equally as important to set congestion relief targets, and ensure public and environmental health remain priorities.

The new program has the chance to solve Manhattan's complex and inequitable toll shopping system. The revenue generated from this program will be an important piece in funding the largest transit system in the world. But we need to get it right.

Now the real work begins.



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Regional Plan Association

Regional Plan Association is an independent, not-for-profit civic organization that develops and promotes ideas to improve the economic health, environmental resiliency and quality of life of the New York metropolitan area. We conduct research on transportation, land use, housing, good governance and the environment. We advise cities, communities and public agencies. And we advocate for change that will contribute to the prosperity of all residents of the region. Since the 1920s, RPA has produced four landmark plans for the region, the most recent was released in November 2017. For more information, please visit rpa.org or fourthplan.org.

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