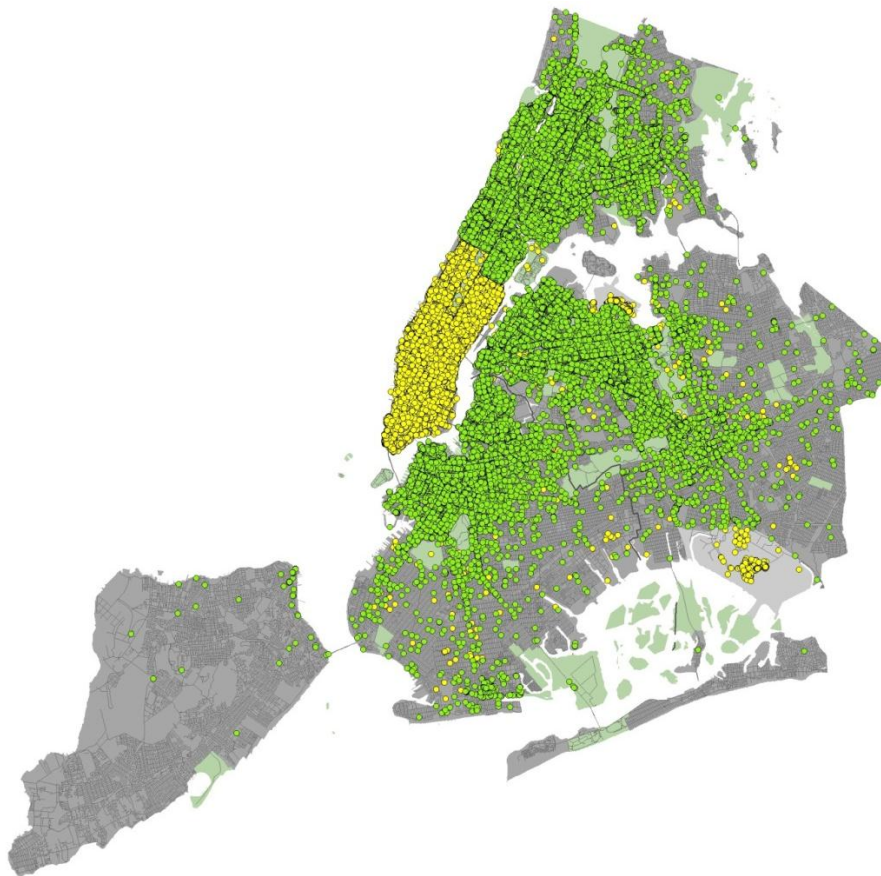


# HAIL Market Analysis

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December 19, 2013



Michael R. Bloomberg  
Mayor

David Yassky  
Commissioner

This report was submitted to the NYC Council, the NYS Department of Transportation, and made available to the public on the NYC TLC website in December 2013. It was assembled by staff of the NYC Taxi and Limousine Commission:

Dawn M. Miller, Director of Research and Evaluation

Jeffrey Garber, Policy Analyst

Rodney Stiles, Senior Policy Analyst

Omar Quintero, Policy Analyst

Karen Martin, Policy Analyst

Emily Genser, NYC Urban Fellow/Policy Analyst

The research team greatly benefited from the assistance of members of the public and taxi and for-hire industries who provided insights and information, the NYC Department of Transportation, OpenPlans, and TLC staff in the Licensing Division, Uniformed Services Bureau, Legal Division, Office of Finance and Administration, and Office of Policy and External Affairs.

## Executive Summary

In his January 2011 State of the City Address, Mayor Bloomberg announced the Five Borough Taxi Plan. This initiative sought to bring safe, convenient, and legal street hail service to all five boroughs of New York City. In June 2011 the State Assembly and Senate passed the State Livery Law to authorize the NYC Taxi and Limousine Commission (TLC) to issue Street Hail Livery permits (SHLs), allowing specially-licensed liveries (“Boro Taxis”) to legally pick up street hails outside of the Manhattan Core and the airports. The State Livery Law also called for TLC to publish this HAIL market analysis, examining issues including the demand for additional Boro Taxi permits, the impact of the program on the taxicab and For-Hire Vehicle (FHV) markets, the impacts on street congestion and safety, and the effectiveness of TLC enforcement and regulations. The analysis’ key findings are:

**Additional Boro Taxi permits are needed to meet high demand from drivers.** Drivers are eagerly seizing the opportunity to legally serve street-hail passengers in the outer boroughs and Northern Manhattan. All 6,000 Boro Taxi permits the State Livery Law authorized for sale during the program’s first year, including 1,200 permits that must be used with wheelchair-accessible vehicles, were issued within the first six months of the program. As of December 2013, more than 2,000 drivers were already on a waiting list hoping to be given the opportunity to purchase a permit in the program’s second year. At least *one third* of the permits in the second issuance already have buyers signed up to purchase them. The drivers who serve the Boro Taxi Zone as livery drivers every day—and who know the market best—see the program as a personal economic opportunity and are eager to commit their own resources to expanding the program.

**Additional Boro Taxi permits are needed to meet passenger demand.** Before the Boro Taxi program, outer borough and Northern Manhattan residents needing a ride on-demand relied on illegal street hails. Although Boro Taxi trip records show that passengers in some neighborhoods, such as Harlem and Northwest Queens, currently have access to Boro Taxis, TLC field observations and passenger survey data show that residents of other areas of the city, such as Brooklyn south of Prospect Park and eastern Queens, continue to lack access to safe and legal Boro Taxi service. Passenger surveys show that 20% of riders must resort to hailing illegal taxis in certain parts of the city but would rather ride in yellow or Boro Taxis. Even in the Boro Taxi Zone there are residents who are unable to find street hail service; 51% of passengers who wanted to but were unable to hail a legal taxi reported that problem in the Boro Taxi Zone. Until more Boro Taxis go into service, residents of many NYC neighborhoods will have few convenient options other than continued reliance on illegally street-hailed FHVs.

**TLC enforcement capacity has increased due to new initiatives and procedures.** Over the last two years TLC has graduated five new cadet classes with an average class of 20 officers. There is now citywide capacity to identify and penalize drivers of unlicensed vehicles, drivers of licensed FHVs illegally accepting street hails, and drivers of Boro Taxis who accept hailing passengers in the Exclusionary Zone. Since September, TLC has issued an average of more than 2,200 poaching summonses per month. Vehicle seizures are at record levels since TLC contracted for towing and storage services in 2012. In August 2013, TLC seized a record 1,000 illegal taxis. Field reports from USB officers confirm that the Boro Taxis are hesitant to pick up fares in the Hail Exclusionary Zone and that field operations remove illegal taxis from the streets.

**The yellow taxi industry is as healthy as ever.** Because Boro Taxis only pick up fares in areas where yellow taxis have historically provided little service and generated little revenue, there is no evidence that Boro Taxis have impacted yellow taxi revenue. Average independent medallion sale prices, a key indicator of the health of the yellow taxi industry, have increased 47% between 2011 and 2013. Average minifleet medallion sale prices have increased 28% over that same period. In the November 2013 medallion auction, 200 minifleet wheelchair accessible medallions all sold for over \$1 million each.

**The traditional FHV industry remains strong.** Boro Taxis must be affiliated with a livery base, must have an FHV license, and may make both street-hail and dispatch pickups. Therefore they are most accurately classified as part of, rather than a competitor of, the FHV industry. As Boro Taxis expand the legal reach of

the FHV industry to include street hails, the traditional dispatch FHV industry remains strong. The number of FHV vehicles, drivers and bases has grown year-over-year from 2012 to 2013. Only about one third of Boro Taxi passengers would have called a car service in the absence of the Boro Taxi, suggesting that direct competition between Boro Taxis and members of the FHV industry who choose not to participate in the program is low.

**Boro Taxis have had a minimal impact on New York City traffic congestion.** In the months since the Boro Taxi Program was introduced, NYC traffic speeds have *increased* an average of 0.3 mph as compared to the same period in 2012. Boro Taxis have introduced few truly “new” vehicles to NYC streets: 83% of Boro Taxis are operated by individuals who previously operated a traditional FHV. Most Boro Taxi drivers already cruised for street hails when they drove traditional FHV, so legalizing this practice has not significantly increased the level of traffic circulation associated with cruising for fares.

**Preliminary analysis suggests that Boro Taxis have minimal impact on New York City’s traffic safety.** Boro Taxi drivers have, on average, slightly more experience than the typical TLC-licensed driver. Despite logging many miles each year, three-quarters of all Boro Taxi drivers have not had a collision since January 2010. Another 22% of drivers have had a collision, but at a frequency of one every two or three years. Only 9% of Boro Taxi drivers have *ever* paid a fine or had a license suspended under either of TLC’s driver quality/safety programs.

**Boro Taxis extend the reach and fill in the gaps of the public transit system.** Because many NYC residents do not own personal vehicles, they rely heavily on taxis and FHV to perform trips that are not fast or convenient by public transit. According to a passenger survey, 44% of Boro Taxi trips involved a connection with either a bus or the subway to complete the trip. Trip records show that 52% of pickups occurred very close to subway or commuter rail stations. This suggests that some riders take subways as far as they can go, then complete their trips by transferring to Boro Taxis.

**Boro Taxis create a more accessible New York City.** Before the Boro Taxi Program, there were 231 yellow taxis that were accessible to wheelchair users and only a handful of livery vehicles that were accessible to wheelchair users. The Boro Taxi Program will put 1,200 wheelchair-accessible Boro Taxis on the road. At full program implementation, there will be 3,600 wheelchair-accessible Boro Taxis on the road. Wheelchair users will be able to hail or call ahead for these vehicles and pay the same fare as other passengers, providing them with unprecedented access to on-demand, rapid transport to get to work, meetings, appointments, or social activities.

**Recommendations.** The Boro Taxi Program has brought safe, convenient, accessible, and legal taxi service to the outer boroughs and Northern Manhattan for the first time, causing minimal disruption to the yellow taxi industry and expanding the scope of services offered by the FHV industry. The service is popular with passengers, but there are not yet enough Boro Taxis on the road to meet this demand. The opportunity to provide the service is popular with drivers, but not enough permits are available to permit their entry into the market. TLC should continue to expand the Boro Taxi Program by selling the second issuance of licenses as soon as is permitted by law. The TLC should continue to closely monitor the program elements discussed in this report and adjust its regulations and outreach activities to ensure that the program continues to meet residents’ needs.

## Glossary and List of Acronyms

**Boro Taxi Zone** – The areas in NYC where Boro Taxis are permitted to pick up passengers – the Bronx, Brooklyn, Queens, Staten Island and Northern Manhattan. Everywhere outside the HEZ.

**Exclusionary Zone** — Another name for the HEZ.

**FHV** – Acronym for “for-hire-vehicle.” A vehicle that is affiliated to a car service company (black car, livery or luxury limousine) and transports passengers through pre-arrangement.

**Five Borough Taxi Plan** — Mayor Bloomberg’s initiative to bring safe and legal street hail service to all five boroughs of New York City. The Boro Taxi Program was the centerpiece of this plan.

**HEZ** – Hail Exclusionary Zone. The areas in New York City where Boro Taxis are not permitted to pick up street hails – Manhattan south of West 110<sup>th</sup> St. and East 96<sup>th</sup> St., John F Kennedy Airport, and LaGuardia Airport. South of W. 110<sup>th</sup> St. and E. 96<sup>th</sup> St. Boro Taxis also may not pick up prearranged trips, but they may pick up prearranged trips at the airports.

**LPEP** – Livery Passenger Enhancements Program, also known as the Boro Taxi Technology System. A system that interfaces with taximeters and roof lights in Boro Taxis containing driver and passenger information monitors, a credit/debit card payment system, and a GPS tracker that records trip activity.

**Manhattan Core** – Manhattan south of West 110<sup>th</sup> St. and East 96<sup>th</sup> St.

**PUMAs** – Public Use Microdata Areas. Geographic areas derived from decennial federal census data that are contained within a single state.

**SHL** – Street Hail Livery, also known as a Boro Taxi.

**Straight Plates** – Term for vehicles not licensed by the TLC, often used to refer to these vehicles when they are illegally operating for hire.

**Taxi Zones** – Geographic designations designed by TLC to facilitate analysis of taxi data. Their borders are similar to NYC neighborhood boundaries.

**TLC** – The Taxi and Limousine Commission, an agency of the City of New York.

**USB** – Uniformed Services Bureau. TLC’s enforcement arm.

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## Introduction

Yellow taxis, liveries, and other For-Hire Vehicles are vital to New York City's transportation network. They enable New Yorkers and visitors to travel point-to-point quickly and conveniently without using personal automobiles. Until the introduction of the Boro Taxi Program (also known as the "HAIL vehicle program" or the "Street Hail Livery program"), yellow taxis were the only legal option to get a ride by street hail. Because yellow taxis predominantly serve the Manhattan Core (Manhattan south of E. 96<sup>th</sup> St. and W. 110<sup>th</sup> St.) and the airports, this left most of the city without any legal street hail service. The Boro Taxi Program provides street hail service to Northern Manhattan and neighborhoods outside Manhattan by creating a new class of vehicle—the distinctive green Boro Taxi—that specializes in providing both street hail and call-ahead service exclusively in these communities.

## The HAIL Market Analysis

The legislation authorizing New York City to implement the Boro Taxi Program called for a HAIL market analysis to determine the effectiveness of the program, its impact on other industries, its impact on New York City's transportation network, and the need to issue additional Boro Taxi licenses beyond the 6,000 issued during the first year of the program. Specifically, the legislation calls for the following:

*§ 6. HAIL market analysis. Prior to the second issuance and third issuance, the TLC shall prepare and submit (i) to the council of the city of New York for its comments, (ii) for public comment, and (iii) to the New York state department of transportation for its comments, a HAIL market analysis examining HAIL vehicle rider demand, shortages, and the need for adequate and affordable transportation, including an analysis of (a) the need for additional HAIL licenses to meet rider demand, (b) the adequacy of enforcement provisions governing HAIL licenses, (c) the adequacy of the HAIL exclusionary zone, (d) the state of the market for issuance or other transfer of such licenses, (e) the impact of such new licensing on for-hire vehicle license owners, taxicab license owners and other industry participants that have not obtained such license, (f) the impact of additional license issuance on traffic safety and street congestion within the city of New York, (g) the need for related statutory or regulatory changes, (h) actions by the TLC on: (i) the promulgation of rules and regulations governing HAIL vehicles and the enforcement of existing laws, rules and regulations governing for-hire vehicles, taxicabs, HAIL vehicles and vehicles that operate without a valid license issued by the TLC, (ii) the allocation of resources for enforcement and (iii) deterring and punishing individuals who repeatedly violate such laws, rules and regulations; and (i) implementation of the HAIL license system and its integration into the New York city transit system.*

The report begins with a description of the Boro Taxi Program. Subsequent chapters provide data and analysis responding to the research areas outlined in the legislation. The final chapter provides recommendations for next steps in implementing the Boro Taxi Program.

- **Chapter 1: Boro Taxi Program Background.** This chapter describes how the Boro Taxi Program works, presents the policy rationale for implementing the program, and lists important milestones in the program's history.
- **Chapter 2: Supply and Demand for Boro Taxi Permits.** This chapter analyzes the state of the market for issuance or transfer of Boro Taxi permits and determines whether there appears to be a shortage or surplus of permits in circulation.
- **Chapter 3: Supply and Demand for Boro Taxi Service.** This chapter discusses utilization and demand for Boro Taxi service and whether the program is currently meeting customer demand for service. It discusses whether additional licenses are needed to meet customer demand.
- **Chapter 4: Enforcement of Regulations Surrounding Boro Taxi Licenses and Other For-Hire Vehicles.** This chapter describes TLC enforcement efforts and analyzes the adequacy of existing enforcement provisions. It discusses the adequacy of the HAIL Exclusionary Zone, geo-fencing,



enforcement operations, and partnerships with the NYPD and other enforcement agencies. It also presents TLC plans for continued enhancement of enforcement.

- **Chapter 5: Impact on Traditional For-Hire Vehicles and Yellow Taxis.** This chapter compares conditions in the yellow taxi and For-Hire Vehicle markets before and after rollout of the Boro Taxi Program to determine whether there has been an impact on these industries that is associated with the Boro Taxi Program.
- **Chapter 6: Impact on Traffic and Transit System.** This chapter compares trip volumes, number of For-Hire Vehicles, and trip distributions before and after rollout of the Boro Taxi Program to analyze its impact on traffic safety and street congestion. It also discusses the extent to which Boro Taxis are integrating with the transit system.
- **Chapter 7: Adequacy of the Existing Regulatory Framework.** This chapter describes the rules TLC put in place to implement the program outlined by the state legislation. It discusses issues with the existing regulatory framework and the actions TLC has taken to address them.
- **Chapter 8: Conclusions and Recommendations.** This chapter summarizes the information presented in previous chapters and outlines recommendations for the program.

## Research Methodology

Data for this report was obtained using both quantitative and qualitative methods including:

- Analysis of Boro Taxi and yellow taxi GPS trip-sheet data
- Analysis of TLC licensing data
- Analysis of TLC enforcement data (summonses, penalties, rate of re-offending, etc.)
- Analysis of Boro Taxi permit issuances and transfers
- Field observations
- Discussions with For-Hire Vehicle industry stakeholders and TLC staff implementing the program in various capacities (e.g., outreach, licensing, safety and emissions, enforcement)
- Surveys of Boro Taxi and yellow taxi passengers through screens in the back of yellow taxis and Boro Taxis

This in-depth analysis provides TLC, City Council, the NYS Department of Transportation, the general public, and other stakeholders with valuable information about the program's progress so far and what next steps the City should take to continue to move toward yellow-caliber taxi service for all communities.

## Chapter 1: Boro Taxi Program Background

The Boro Taxi Program was put into place to bring yellow-caliber taxi service to all NYC neighborhoods, including those that traditionally have not had access to yellow taxi service. To provide background and context for the analysis that follows in subsequent sections, this section briefly describes:

- Program need and justification.
- The legislative and legal processes that put the program in place.
- Program features.
- Implementation milestones.

### 1.1 Need for the Boro Taxi Program

Prior to the introduction of the Boro Taxi Program, residents who lived outside the Manhattan Core had very limited ability to hail a safe and legal taxi on the street. Because yellow taxis were not available in their neighborhoods, they relied upon dial-a-car services (“livery cars”) and illegal street-pickups by liveries and wholly unlicensed vehicles. Although many passengers were happy with their local car services’ call ahead-ahead service, the street hail system outside the Manhattan Core was broken. Although passengers street hail liveries and wholly unlicensed vehicles out of necessity, many do not like engaging in this common but illegal activity. Passengers sometimes found the service vaguely menacing, and the TLC was not able to ensure an adequate level of safety and service. Boro Taxis fill in a gap in service in the outer boroughs and Northern Manhattan and are addressing the following six issues:

- *Mobility*: Neighborhoods outside Manhattan previously lacked access to legal point-to-point transportation without calling ahead.
- *Illegal Activity*: Passengers outside Manhattan who wanted “on demand” service by street hailing had to rely on illegal service.
- *Passenger Safety*: Many passengers have difficulty differentiating legal liveries from illegal cabs.
- *Service Quality*: The quality of street-hail service available outside Manhattan was inconsistent and in some ways inferior to the service yellow taxis provide.
- *Accessibility*: Wheelchair users outside Manhattan had virtually no access to taxis that could accommodate them.
- *Car Ownership*: Taxis are a form of car sharing and a well-functioning taxi system helps provide alternatives to car ownership.

#### 1.1.1 Mobility: Neighborhoods Outside the Manhattan Core Lacked Access to Legal Street-Hail Service

Historically, people in the outer boroughs and in Northern Manhattan have had less access to transportation options than have Manhattanites. Prior to the Boro Taxi Program, yellow taxis were the only vehicles that could legally accept street hails. Due to the limited number of yellow taxis and the density of fares available in the Manhattan Core, yellow taxis served few neighborhoods outside of the Manhattan Core and the airports. GPS data collected in all yellow taxis and analyzed by TLC consistently show that 95% of yellow taxi pickups occur in the Manhattan Core and at the airports and only 5% occur in Northern Manhattan and in the outer boroughs.

Residents and those doing business outside the Manhattan Core have demonstrated demand for street-hail service. In a 2011 TLC passenger survey conducted prior to the introduction of the Boro Taxi Program, the average outer borough respondent reported hailing a car service vehicle twice a month. In a study conducted

from October 7, 2010 to November 14, 2010, TLC field researchers also observed high levels of car service hailing in various outer borough and Northern Manhattan locations, such as Coney Island, Brooklyn, Jamaica, Queens, and Grand Concourse in the Bronx. For example, in Queens at the intersection of Roosevelt Avenue & Main St., TLC staff observed 34 illegal street hails over the course of three hours. At the intersection of Archer Avenue and Sutphin Boulevard in Queens, they observed 59 illegal street hails in 3 hours. Drivers confirmed that they were providing this service even though doing so put them at risk of a summons. In a TLC survey administered to for-hire vehicle owners and drivers in 2012, nearly 75% of those surveyed said they performed some street hails each day. The Boro Taxi Program's introduction of a class of vehicle that is restricted to pickups in the outer boroughs and Northern Manhattan is enabling New Yorkers outside the Manhattan Core to hail taxis legally, easing transportation inequalities between the Manhattan Core and other New York City neighborhoods.

### **1.1.2 Illegal Activity: Passengers Outside the Manhattan Core Who Wanted Street-Hail Service Had to Rely on Illegal Service**

Prior to the introduction of the Boro Taxi, participating in illegal street hails was both socially acceptable and generally understandable from the point of view of both passengers and drivers. Passengers wanting to hail a cab in many neighborhoods *only* had the option of accepting a ride from a livery that was breaking the law. Livery drivers knew that accepting or soliciting street hails was illegal, but some had limited business from the call-ahead service and found it to be an essential source of revenue and an important way to serve their communities. This created a situation in which strict enforcement of the law would have resulted in denying people a needed service. Boro Taxi service provides a way for passengers and drivers to engage in street-hail activity without violating the law. Boro Taxis drivers who once did their jobs looking over their shoulders out of fear of enforcement officers can now work with the peace of mind that they are providing service legally. Boro Taxi drivers, no longer working in a perpetual state of stress, now drive New York City streets with the pride and dignity in their profession they deserve.

### **1.1.3 Passenger Safety: Many Passengers Have Difficulty Differentiating Legal Liveries from Illegal Cabs**

Although livery drivers accepting street hails are behaving illegally (unless they are driving Boro Taxis), passengers hailing them at least know that the driver and vehicle have passed TLC's standards for licensure. Problems arise, however, when passengers think they are hailing a livery vehicle but are actually hailing a wholly unlicensed vehicle posing as a livery. Hailing unlicensed vehicles poses safety issues. Unlike TLC-licensed drivers, drivers of unlicensed vehicles have not been screened for criminal records, DUI convictions, or traffic violation histories. They also do not take the regular drug tests that are required of licensed TLC drivers. The vehicles themselves may be unsafe (they do not have to undergo inspections at the frequency TLC-licensed vehicles do) and may not have proper insurance.

Many passengers do not know it is illegal for livery cars to pick up hails or do not know that there is a difference between a licensed livery vehicle and a wholly unlicensed vehicle. Other passengers know that this practice is illegal, but, lacking other convenient options, do it anyway despite finding it somewhat menacing. Boro Taxis are painted a distinctive "big apple" green and have other notable features, such as a roof light, TLC markings, and a meter and taxi technology system. Because, like yellow taxis, Boro Taxis are very difficult to impersonate, passengers are able to hail them with confidence that the driver and vehicle meet TLC safety standards.

Although harder to quantify than other benefits, the peace of mind Boro Taxis bring to their passengers is great. For a long time New Yorkers and visitors in the Manhattan Core have taken for granted that they can spot a yellow taxi on the street, stick their hands in the air, and climb directly into the back seat knowing they will get where they need to go safely. They know the driver must take them anywhere in New York City, and

they know that the fare is set at a level that is consistent and fair to both the passenger and the driver. They know they can pay by credit or debit card if they are short on cash. Although they may not know all of the details of TLC's driver and vehicle screening/inspection processes, they know that this system is watched over by their elected and appointed officials. With the Boro Taxi Program, residents of Northern Manhattan and the outer boroughs have the same peace of mind enjoyed by those in the Manhattan Core.

#### **1.1.4 Service Quality: Street-Hail Service Quality Outside the Manhattan Core Lacked Key Desirable Features of Yellow Taxi Service**

Although livery service is often excellent for call-ahead passengers, there are several important features of yellow taxi service that livery street-hail service was not providing:

- *Fares:* Lacking meters, street-hail fares in livery cars were set through bargaining. Although some passengers like to bargain, many (74% according to a 2011 TLC passenger survey) prefer an “objective” and predictable metered fare. A predictable fare is especially important for individuals doing trips that are less familiar to them and for individuals urgently needing a ride (e.g., needing to travel in unfamiliar neighborhood at night). The lack of clear prices imposed transaction costs—stress and demands on the driver's and the passenger's time—that are not present in metered yellow taxi service or current Boro Taxi service.
- *Credit and debit card payment:* Street-hailed livery cars often did not accept credit/debit cards or imposed high (e.g., \$20) minimum charges for their use. Credit and debit card payment are extremely popular among yellow taxi passengers (55% of trips were paid by credit card in September 2013). Nearly 80% of outer borough residents responding to a 2011 TLC survey said that this is a feature they would like to have available to them.
- *Electronic trip records:* Electronic trip records are important to TLC's ability help yellow taxi customers find lost property. TLC also uses these records to assist in the prosecution of complaints filed by yellow taxi passengers. Street-hailed livery cars did not have these electronic trip records, leaving TLC without these tools to assist livery passengers.

Boro Taxis have metered fares, accept credit and debit cards, and have electronic trip records, addressing the service level inequality that existed previously.

#### **1.1.5 Accessibility: Passengers Outside Manhattan had Virtually No Access to Taxis that are Accessible to Individuals who use Wheelchairs**

Boro taxis make it easier for everyone living, working, or visiting one of the outer boroughs or Northern Manhattan to reach their destinations. Boro taxis are particularly making a difference for individuals who use wheelchairs because one-fifth of Boro Taxis are required to be wheelchair accessible. Before the Boro Taxi Program, there were 231 yellow taxis that were accessible to wheelchair users and only a handful of livery vehicles that were accessible to wheelchair users. In its first year, the Boro Taxi Program will put 1,200 wheelchair-accessible Boro Taxis on the road. At full program implementation, there will be 3,600 wheelchair-accessible Boro Taxis on the road. Wheelchair users will be able to hail or call ahead for these vehicles and pay the same fare as other passengers, providing them with unprecedented access to on-demand, rapid transport to get to work, meetings, appointments, or social activities.

The chapters that follow provide insights into the progress of implementing the Boro Taxi Program and the service Boro Taxis are providing to New Yorkers.

#### **1.1.6 Car Ownership: Well-Functioning Taxis are Part of Providing Alternatives to Car Ownership**

Taxis are the ultimate form of car sharing. Working with New York City's extensive subway, bus and train networks, taxis are a key component of many New Yorkers' ability to have high levels of mobility without owning their own cars. A 2007 survey of yellow taxi passengers revealed that 66% believed that taxis helped them live without a car.<sup>1</sup> New York City has some of the lowest rates of car ownership in the nation, especially Manhattan, where only about a fifth of households own a car. Outside Manhattan, car ownership rates are still lower than the national average but higher than in Manhattan. Boro Taxi service was put in place to help some outer-borough and Northern Manhattan residents rely less-heavily on personal cars, which will have positive impacts on traffic and parking congestion, sustainability, and the affordability of living in the city.

## 1.2. Boro Taxi Program Enacting Legislation

The Five Borough Taxi Plan was first announced by Mayor Bloomberg during his State of the City address in January 2011. Following months of discussions with elected officials and industry stakeholders, a bill known as the State Livery Law (Bill A8691-2011) was drafted and then passed by the State Assembly and Senate in June 2011. On December 21, 2011, Governor Cuomo signed the bill into law under the condition that a chapter amendment would accompany the bill at the start of the next legislative session.

The chapter amendment, which made the bill's intentions clearer and added some additional regulations, was signed into law on February 17, 2012. The passing of this law meant that the New York City Taxi and Limousine Commission (TLC) had to develop rules and guidelines to be followed by all parties governed by the TLC. The rules were passed by the TLC Commissioners on April 19, 2012 (a summary of these rules is provided in Chapter 7).

Although many in the livery industry demonstrated significant interest in joining the program as soon as possible, on April 18, 2012 a group representing yellow taxi medallion owners challenged the State Livery Law in court and the court issued a temporary restraining order preventing TLC from issuing permits until the litigation was resolved. The law was ultimately upheld unanimously by the Court of Appeals in June 2013. After this litigation was resolved, the TLC was able to begin issuing Boro Taxi permits.

## 1.3. Program Description

The State Livery Law authorized the TLC to sell 18,000 HAIL licenses, also known as a Street Hail Livery Licenses (SHL) or "Boro Taxi" permits, over the next three years. One fifth of these permits would be restricted to use with wheelchair accessible vehicles. Much like yellow taxis, Boro Taxis are uniform in color (apple green), have a debit/credit card reader, a meter, a roof light and a camera or a partition. Boro Taxis must undergo the same hack-up process as yellow taxis. Figure 1 shows the exterior of a Boro Taxi after being properly outfitted.



Figure 1: All Boro Taxis are required to have the same markings and equipment to make them easy recognizable to passengers.  
Source: Smart Design

<sup>1</sup> Design Trust for Public Space. Taxi 07: Roads Forward. (2007)

To apply for a Boro Taxi permit, with few exceptions individuals must be a licensed For-Hire Vehicle driver or owner in good standing (i.e., they must have had an FHV license for at least one year and have no outstanding fines, summonses, or suspensions). The Boro Taxi must have both an FHV vehicle license and a Boro Taxi permit. These vehicles must be inspected for safety, emissions, and proper taxi equipment by the TLC twice every year.

Boro Taxi permits allow for-hire vehicle (FHV) licensees operating Boro Taxis to pick up passengers from the street in Northern Manhattan (north of West 110<sup>th</sup> street and East 96<sup>th</sup> street), the Bronx, Queens (excluding the airports), Brooklyn and Staten Island (see Figure 2). Like yellow taxis, Boro Taxis may drop off anywhere. Yellow taxis can still pick up anywhere in New York City and retain the exclusive right to pick up passengers by street hail in the Manhattan Core and at JFK and LaGuardia airports. Boro Taxis are allowed to pick up prearranged trips in Northern Manhattan, the outer boroughs, and at the airports, but may not pick up any trips—prearranged or street-hail—in the Hail Exclusionary Zone, also known as the HEZ—Manhattan south of West 110<sup>th</sup> St and East 96<sup>th</sup> St.

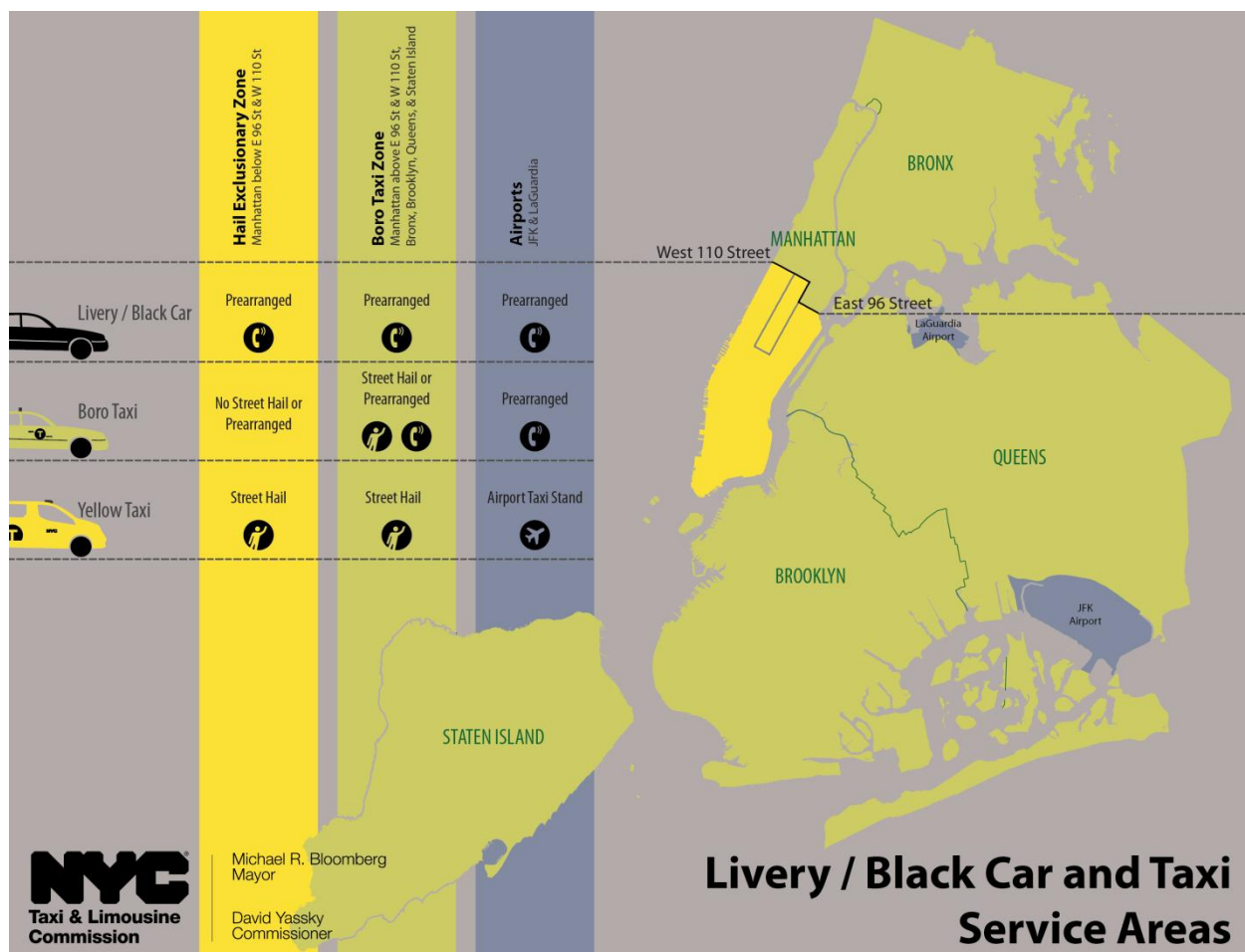


Figure 2: Livery/Black Car, Boro Taxi, and Yellow Taxi Service Areas

To protect the investments of yellow taxi drivers and Boro Taxi drivers, TLC established violations for Boro Taxis that pick up passengers within the HEZ or at the airports. A summary of fines and other penalties is provided in Chapter 4.

#### 1.4. Boro Taxi Program Implementation

Implementation of the Boro Taxi Program began shortly after approval by the Court of Appeals.

- The first Boro Taxi permit was purchased on June 12, 2013.
- The first Boro Taxi permit was affiliated with a base and certified on July 24, 2013.
- The first Boro Taxi trip was completed on August 8, 2013.
- On November 8, 2013 the entire first issuance of 6,000 Boro Taxi permits was purchased.
- As of December 12, 2013, there were 2,082 people on the waiting list for Boro Taxi permits
- As of November, 27, 2013, 139 Boro Taxi *base endorsements* had been purchased.
- As of December 17, 2013, 2,106 Boro Taxis were already providing service.
- The average Boro Taxi is completing 10 street hail trips per working day.
- In November, the Boro Taxi fleet completed an average of 11,066 street hail trips per day.

## Chapter 2: Supply and Demand for Boro Taxi Permits

One important issue to analyze is the supply and demand for Boro Taxi permits and base endorsements. This chapter discusses each of these license types in turn.

### 2.1. Supply and Demand for Boro Taxi Permits

#### 2.1.1 License Issuance and Waiting List

In the first five months of the first issuance (which was set by legislation to last for one year), all 6,000 permits were purchased. As of December 12, 2013, there were already 2,082 qualified individuals on a waiting list to purchase a permit in the second issuance, even though each permit will cost twice what it did in the first issuance. For-hire vehicle drivers and owners who invest their own earnings in vehicles, new taxi equipment, and licensing fees are sending a clear signal of demand for additional Boro Taxi permits. It is clear that there is currently a shortage of Boro Taxi permits to meet the demand of the FHV industry.

#### 2.1.2 Double-Shifting

Whereas a vast majority of yellow taxi owners lease their vehicles out for two shifts per day, in the first three months of the Boro Taxi Program only about 6% of Boro Taxi on the road on a given day were double-shifted. However, the share of vehicles that are double-shifted has been increasing. In the first month of the program only 3% of vehicles on the road were double-shifted, while in the most recent month of the program 7% of vehicles on the road on a given day were double-shifted. This shows that Boro Taxis are not generating the intensity of 24-7 utilization found in the yellow taxi industry. At this initial stage, they are more closely mirroring the practice in the FHV industry of single-shifting and the owner's using the vehicle personally during his or her non-working hours. TLC will continue to monitor double-shifting behavior as an additional indicator of demand for Boro Taxi permits.

#### 2.1.3 Permit Transfers

A permit transfer process has been created and transfer applications are available on the TLC website. Nearly all transfer applications received by the TLC so far are from individuals transferring ownership from themselves to a corporate entity which they solely own. For the purposes of this report, these applications are not considered true permit transfers from one party to another. In early December TLC received one true transfer application for \$7,000, which is much higher than the issuance price. Because only one transfer application has been received, TLC can draw few conclusions about the market price of Boro Taxi permits.

#### 2.1.4 Permit Leasing

Although there is not yet an active secondary market for the purchase of permits, there is a growing leasing market in which permit owners lease out their permits to drivers for individual shifts, weeks, or other periods of time. TLC does not have information about prices paid to lease permits. Figure 3 shows the distribution of permit owners by the percentage of days they have leased their vehicles.



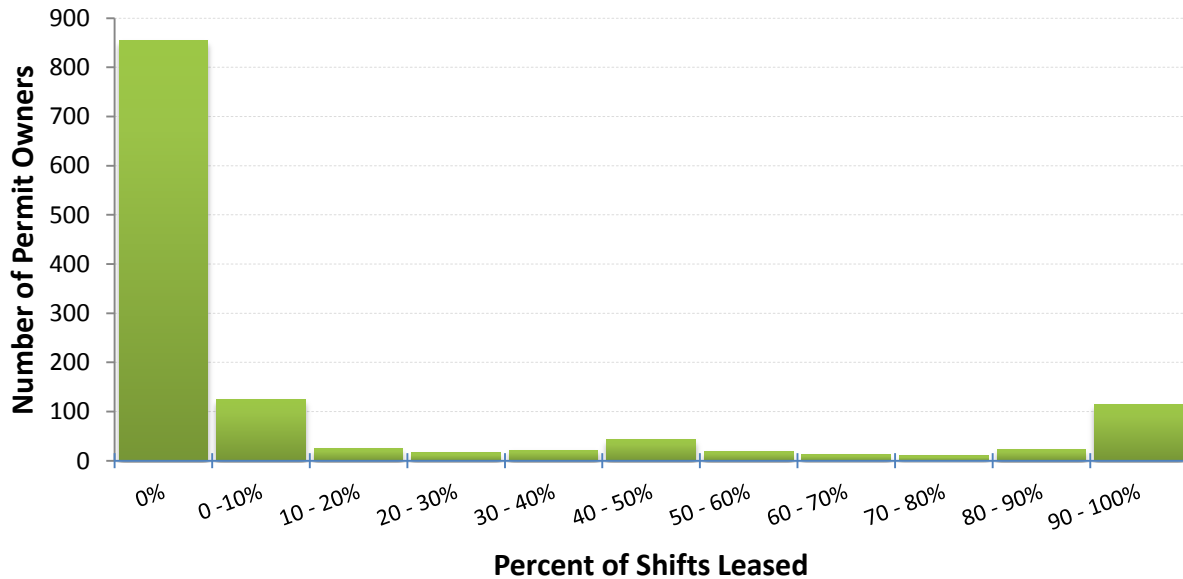


Figure 3: Distribution of Permits Leased Since the Beginning of the Boro Taxi Program

Source: TLC analysis of TLC licensing and Boro Taxi trip-sheet data August 8 to November 17, 2013.

In the first three months of the program, the majority of permit owners did not lease their permits to other drivers. However, 9% of all Boro Taxi permit owners whose vehicles have begun performing street-hails - have leased their permits for over 90% of the shifts that the Boro Taxi has worked. Furthermore, 7% of the Boro Taxis in service have never been driven by the Boro Taxi's permit owner, even though 70% the owners who have never driven possess a valid and current TLC driver's license. Nearly one quarter of the permits are occasionally operated by their owners and occasionally leased out. However, permit owners are trending away from operating their own permits and towards leasing for a greater percent of the time. In August only 12% of permit owners leased their taxis at least once and 3% leased their taxi exclusively. In the month of November, 26% of permit owners leased their taxis at least once and 10% leased their taxi exclusively.

The number of leased permits per day has grown over time. In August, 10% of Boro Taxi drivers were driving using leased permits. That number has grown to 20% in November. Figure 4 shows the change in leasing behavior by drivers over time as the program progressed and more vehicles hit the road. In the first weeks, the percent of drivers leasing a Boro Taxi oscillated greatly due to the small number of Boro Taxis in operation. However, as more vehicles entered service, the leasing rate has stabilized and a clear increasing leasing trend has emerged.

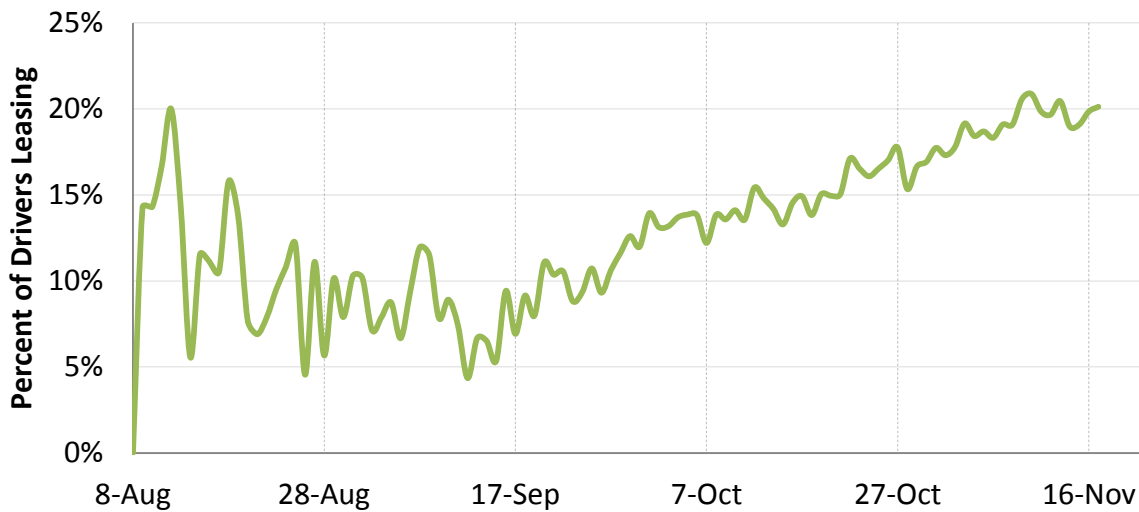


Figure 4: Percent of Boro Taxi Drivers Leasing a Permit

Source: TLC analysis of TLC licensing and Boro Taxi trip-sheet data, August 8 to November 16, 2013.

The existence and growth in leasing shows that there is some demand to operate Boro Taxis from qualified drivers who do not yet own permits themselves. That permit owners are leasing their permits instead of simply transferring them suggests that some Boro Taxi permit owners may view their permits as wealth-generating assets worth owning even while not personally driving.

The high demand for permits from those seeking to provide Boro Taxi service indicates that the individuals who know the market best continue to see consumer demand--and therefore revenue opportunities—that are sufficient to merit their personal investment in the program.

## 2.2 Base Endorsements

In addition to assessing demand for Boro Taxi permits, it is important to assess demand for Boro Taxi base endorsements. The HAIL legislation authorizes the issuance of up to 450 Boro Taxi base endorsements. As of November 27, 2013, there were 139 bases with Boro Taxi endorsements. Boro Taxis have affiliated with 122 out of the 139 bases, which suggests that the number of bases is sufficient to give permit holders a variety of choices for whom to affiliate with. Additionally, nine bases have requested appointments to become Boro Taxi bases and are currently waiting to be processed by TLC's Licensing Division. Because less than one-third of the 450 available Boro Taxi Base endorsements have been purchased, the supply of Boro Taxi base endorsements at this time seems sufficient. This is particularly the case because, since a base may affiliate an unlimited number of Boro Taxis, the number of base endorsements does not limit the number of Boro Taxis that can go into service.

## Chapter 3: Supply and Demand for Boro Taxi Service

Whereas nationwide 91% of households own a car, car ownership is far lower in New York City: 43% in Brooklyn, 38% in the Bronx, 61% in Queens, 82% in Staten Island, and 21% in Manhattan (Boro Taxis serve the northern section of the island).<sup>2</sup> Median household incomes in many parts of the outer boroughs are significantly lower than the New York State average and, for most low- to middle-income New Yorkers, public transportation and walking are still primary methods for navigating the city.<sup>2</sup> However, there are times when getting to work, school, meetings, shopping, or appointments by public transit would be inconvenient, difficult or nearly impossible. It is in these circumstances that New Yorkers turn to for-hire service and benefit from the broad availability of the on-demand, affordably-priced street hail service that Boro Taxis provide.

This chapter analyzes:

1. Current market supply of Boro Taxis
2. Current market demand for Boro Taxi service
3. The need for additional Boro Taxi permits to meet demand

### 3.1 Existing Boro Taxi Service

The first Boro Taxi began accepting passengers on August 8, 2013. After less than four months of service, Boro Taxis have picked up over 487,000 passengers. The typical Boro Taxi makes 10 street hail pickups per day. While this is lower than the number of yellow taxi pickups, it does not include the dispatched trips Boro Taxis also perform. The average Boro Taxi street-hail fare is \$12.75, which is slightly lower than the average yellow taxi fare of \$15.

Boro Taxi pickups are unevenly distributed across the city with 70% of total pickups occurring in just 18 Taxi Zones.<sup>3</sup> Just two of these high-pickup zones are in Brooklyn, and the remaining 16 are split between Queens and Northern Manhattan (see Figure 5). The highest concentrations of pickups occur in the southern half of Northern Manhattan in Morningside Heights and Harlem. However, in Queens the distribution of pickups is more widely distributed with over 5,000 pickups in neighborhoods as far west as Astoria and as far east as Flushing. As of November 24, 2013, 9% of pickups were in the Bronx, 42% were in Northern Manhattan, 35% were in Queens, 14% were in Brooklyn, and less than 1% were in Staten Island.

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<sup>2</sup> 2012 American Community Survey.

<sup>3</sup> Taxi Zones are geographic boundaries TLC designed to aid in the analysis of taxi activity. They often align with NYC neighborhood boundaries.

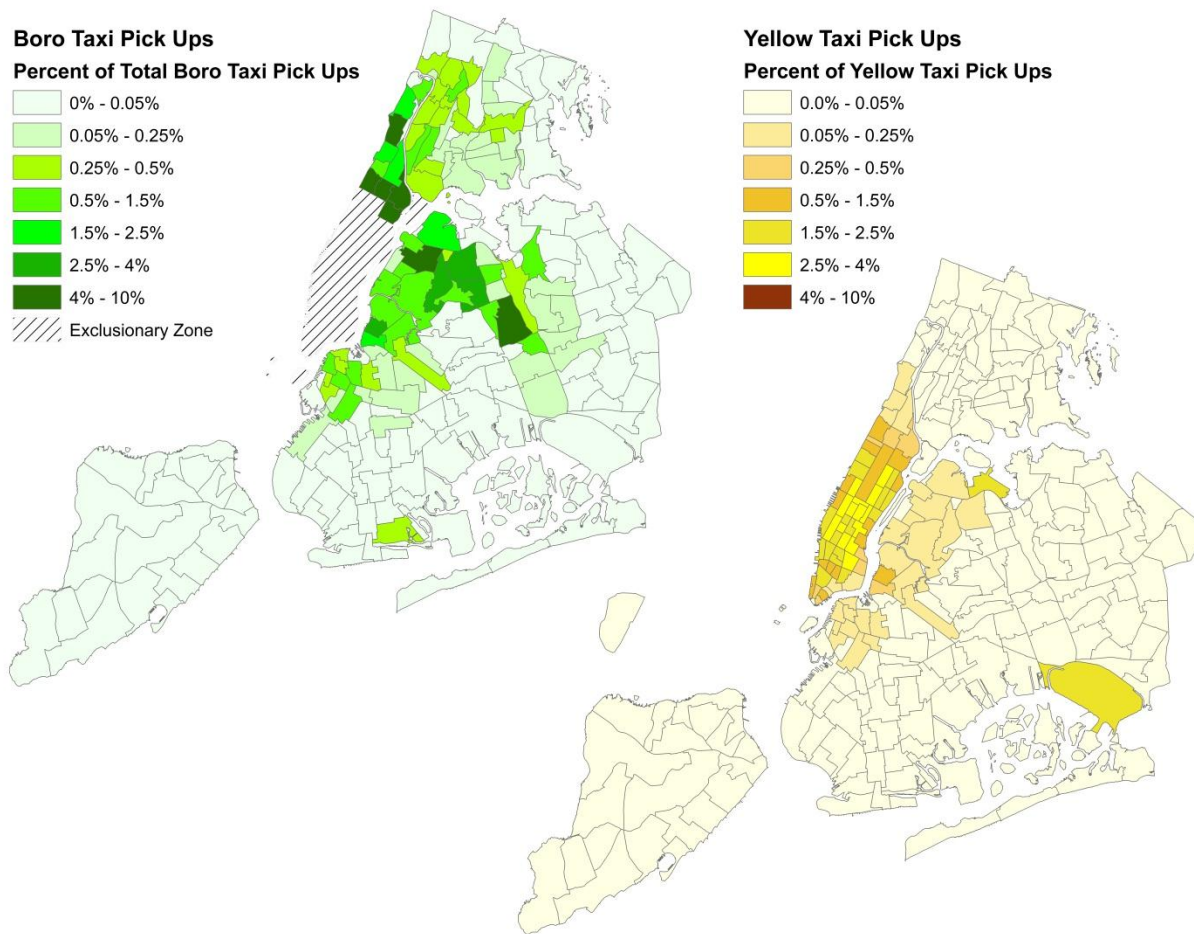


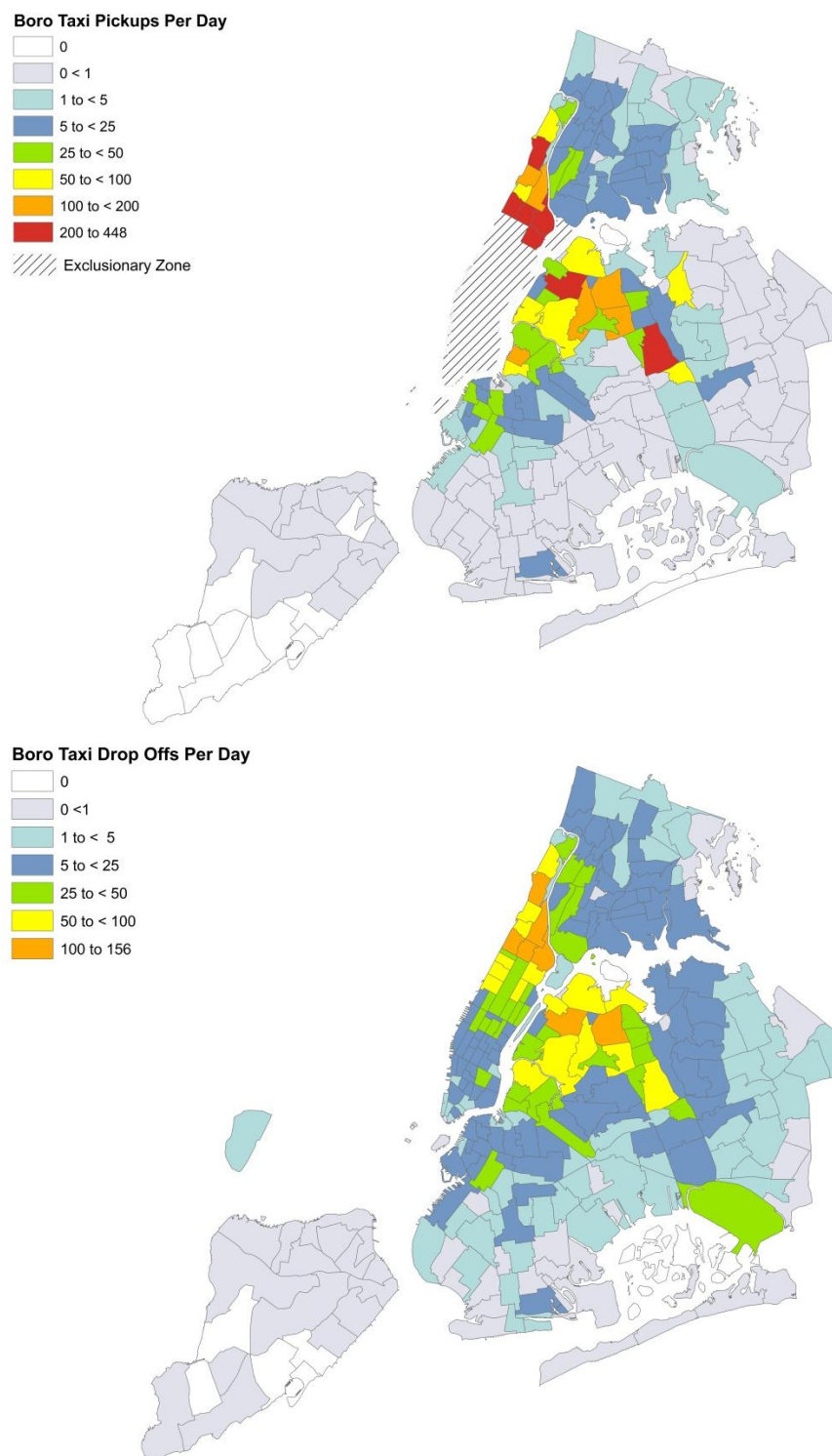
Figure 5: Geographic Distribution of Yellow and Boro Taxi Pickups, August 8 to November 24

Source: TLC analysis of TLC LPEP and TPEP Data, August 8 to November 24, 2013

Boro Taxi drop-offs are distributed more evenly across the city than are pickups. Figure 6 shows that 11% of Boro Taxi drop-offs were in the Bronx, 22% were in Northern Manhattan, 32% were in Queens, 11% were in Brooklyn, and less than 1% were in Staten Island. The other 23% of drop-offs were in the Hail Exclusionary Zone. In these cases the Boro Taxi driver drops off in this area and returns to the Boro Taxi Zone without a passenger. Figure 6 shows that passengers hail Boro Taxis at active pickup locations but use them to travel away from pickups hubs.

### 3.2.1 Transportation Hubs

Some transportation hubs, such as the intersection of the LIRR and subway system in Forest Hills, are prime locations for Boro Taxi street hail pickups. The intersection of Queens Boulevard and Continental Avenue in Forest Hills is a connecting stop between the Long Island Railroad, four subway lines, and three bus lines. 5% of all Boro Taxi pickups take place within 1/10<sup>th</sup> mile of this transit hub (see Appendix B). Only three Taxi Zones had more pickups than this transit hub in Forest Hills. For a more detailed description of how Boro Taxis interact with public transportation systems, see Chapter 6.



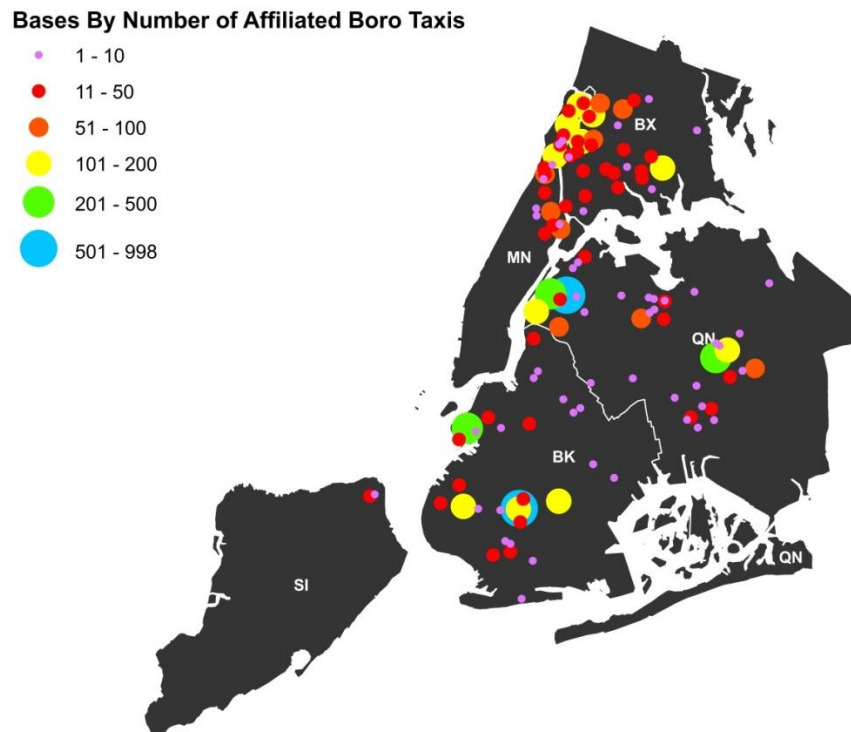
**Figure 6: Distribution of Boro Taxi Drop-offs by TLC Taxi Zone**

Source: TLC analysis of TLC LPEP and TPEP Data, August 8 to November 24, 2013

### 3.1.2 Base Affiliations

Boro Taxi must affiliate with an FHV base in order to operate. As can be expected, Boro Taxi base affiliations are not evenly distributed across the city. Queens has three of the four bases with the largest Boro Taxi fleets. The Boro Taxis based in Queens represent 39% of the entire fleet to date. Brooklyn has the second largest Boro Taxi fleet (26%), followed by the Bronx (19%), Northern Manhattan (16%), and Staten Island (less than 1%). See Figure 7 for a distribution of Boro Taxis by the base to which they are affiliated.

Currently, the location of the Boro Taxi's base does not necessarily predict where it will pick up fares.<sup>4</sup> However, pickup trends may change as more Boro Taxis begin providing service. As more Boro Taxis in street hail-heavy neighborhoods begin providing service, the added competition from local Boro Taxis may encourage drivers to provide service nearer to their bases in order to be available for dispatches.



**Figure 7: Boro Taxi Fleets by Base**

Source: TLC analysis of TLC LPEP and TPEP Data, August 8 to November 24, 2013

<sup>4</sup> See Chapter 6 for a more detailed discussion of driver cruising behavior.

### 3.2 Demand for Boro Taxi Service

About 15,000 passengers a day currently hail Boro Taxis. On Saturday, December 7, 2013, 1,300 Boro Taxis set a record high of 18,500 trips. Unfortunately, there are areas of the city, such as Southern Brooklyn and Eastern Queens (see Figure 5), that currently do not have significant access to Boro Taxi service. Many of these areas of the city are locations where passengers would benefit from Boro Taxi service, such as transit hubs, shopping areas, business districts, and institutions such as hospitals and schools, suggesting that these areas likely have demand but continue to lack access to safe and legal street hail service.

#### 3.2.1 Illegal Taxi Activity

Several months into the rollout of the Boro Taxi program (between October 31, 2013 and November 19, 2013), TLC conducted field observations at 17 locations throughout the Bronx, Brooklyn, Northern Manhattan, and Queens.<sup>5</sup> The goal was to observe areas of the city where residents continue to lack access to legal street hail service by identifying hotspots of illegal street hails. During this field study approximately 12 illegal ride offers were observed per hour per location, and 22% of these ride offers resulted in the passenger's accepting a trip from either a vehicle with no TLC license or a TLC-licensed vehicle that is not authorized to accept street hails (e.g., a livery car).

As expected, the number of illegal offers per hour and the number of resulting trips varied across locations. For example, 20 illegal ride offers were observed over the course of just one hour at the Jamaica Long Island Rail Road station on Archer Avenue in Queens. 30% resulted in the passenger's accepting the offer. At the intersection of 225<sup>th</sup> St. and Exterior St. there was sufficient legal taxi service being offered and passengers did not need to rely on illegal street hails. Overall, there were low levels of Boro Taxi service available at most locations TLC observed. In 88% of the locations, passengers were unable to hail Boro Taxis or yellow taxis and so they hailed illegal taxis. These areas show a demand for on-demand street-hails, but there is an insufficient legal supply.

#### 3.2.2 Unmet Demand

Survey data corroborate these field research findings. TLC conducted surveys on the screens in Boro Taxis and yellow taxis which were answered by over 7,000 passengers between October 25 and November 18. Passengers were asked if they had attempted but were unable to hail a Boro Taxi or a yellow taxi. 51% of passengers who were unable to hail a taxi in the previous month were in Boro Taxi Zone the last time it happened. Additionally, 81% of passengers surveyed would prefer to hail a yellow or Boro Taxi over a car service vehicle, but nonetheless in the last month 20% of that group had hailed another car. This suggests a demand for Boro Taxi service that, at times, is not being met.

#### 3.2.3 Boro Taxi Stands

In addition to the survey data from taxi cab passengers, TLC worked with the non-profit software developer OpenPlans to create a website that allows the public to suggest locations for Boro Taxi stands. The website went live on November 12, 2013 and in the course of two weeks there had already been 4,000 visitors to the website and 841 suggestions for new taxi stands in the Boro Taxi Zone (see map in Appendix C). There were another 1,335 "support clicks" indicating the user's agreement with the location suggested by another user. This level of public engagement signals passenger enthusiasm for the program.

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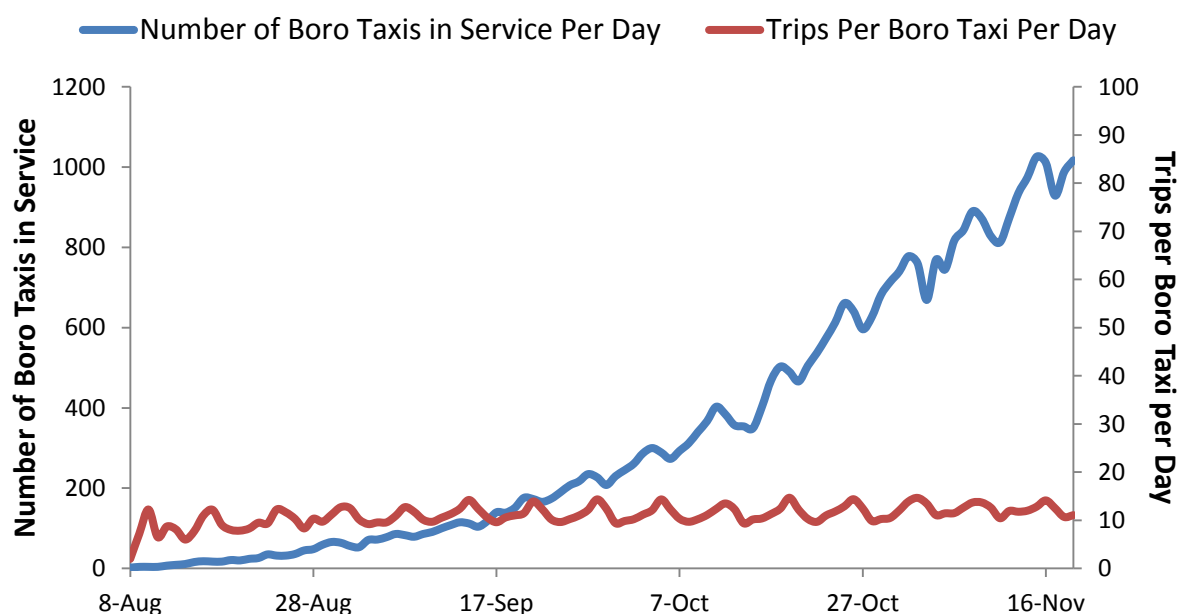
<sup>5</sup> For a full list of locations visited, see Appendix A.



### 3.3 Need for Additional Boro Taxi Permits

LPEP trip data, TLC survey data, and TLC field research demonstrate that Boro Taxis are popular in the areas they already serve, but that there continue to be areas of the city that lack access to safe and legal street hail service.

Even as more Boro Taxis go into service, the average number of trips per day per Boro Taxi has remained steady (see Figure 8).



**Figure 8: The Number of Boro Taxis in Service has no effect on the Number of Trips Each Cab Performs**

*Source: TLC analysis of LPEP trip data, August 8 to November 24, 2013*

That Boro Taxis are not cannibalizing one another's business—rather, ridership keeps growing—shows that there is demand for more Boro Taxis than are currently in service. Of course, at the time of publication of this report, not all 6,000 Boro Taxis from the first issuance had yet gone into active service. However, the size of the potential market they will serve suggests unmet demand even after all 6,000 Boro Taxis from the first issuance are in active service. The yellow taxi supply can help put this in perspective:

- In the Manhattan Core there are approximately 1 million residents<sup>6</sup> served by approximately 13,237 yellow taxis for a ratio 75 residents for every one yellow taxi. With 6,000 Boro Taxis, the approximately 7 million residents<sup>6</sup> who reside in the Boro Taxi Zone currently have a ratio of residents to Boro Taxis of 1,166 residents for every one Boro Taxi. Of course Manhattan residents share their taxis with visitors and commuters in this busy area. However, the stark difference in the ratios suggests that to serve the 7 million Northern Manhattan and outer-borough residents, far more than 6,000 Boro Taxis are necessary.

As was discussed in Chapter 2, the Boro Taxi market's suppliers—for-hire vehicle drivers and owners who invest their own earnings in vehicles, new taxi equipment, and licensing fees—are sending perhaps the clearest signal of the demand for additional Boro Taxi permits. In the first 5 months of the first issuance (which was set by legislation to last for one year), all 6,000 permits were purchased. As of early December 2013, there were already over 2,000 individuals on a waiting list to purchase a permit in the second issuance,

<sup>6</sup> NYC Department of City Planning; <http://www.nyc.gov/html/dcp/html/lucds/cdstart.shtml>



even though each permit will cost twice what it did in the first issuance. The high demand for permits from those seeking to provide Boro Taxi service indicates that the individuals who know the market best continue to see consumer demand--and therefore revenue opportunities—that are sufficient to merit their personal investment in the program.

## Chapter 4: Enforcement

This chapter provides analysis of several enforcement-related topics that are critical to the Boro Taxi Program and the HAIL analysis:

- Analysis of adequacy of enforcement provisions governing Boro Taxis
- Analysis of the adequacy of the HAIL Exclusionary Zone (HEZ)
- Analysis of actions by the TLC on the enforcement of existing laws, rules and regulations governing For-Hire Vehicles, Yellow Taxis, Boro Taxis, and vehicles that operate without a valid license issued by the TLC
- Analysis of actions by the TLC on the allocation of resources for enforcement
- Analysis of actions by the TLC on deterring and punishing individuals who repeatedly violate such laws, rules, and regulations

The Taxi and Limousine Commission’s mission is to enforce TLC rules and regulations to ensure safe, licensed service for the public and to protect those who follow the rules of providing for-hire service legally. Boro Taxi regulations are designed to protect the public, Boro Taxi permit holders and drivers, passengers, and other TLC-regulated taxi and for-hire industries.

Only persons licensed by the TLC are permitted to provide or advertise for-hire transportation services. Before Boro Taxis, yellow taxis were the only vehicles legally permitted to pick up street-hailing passengers in NYC. FHV— including liveries, black cars, and luxury limousines—were the only vehicles providing call-ahead service. The TLC has a set of rules that protect each type of service, and, depending on a licensee’s classification, the TLC has the authority to issue summonses to entities performing service outside of that which they are licensed to perform. TLC refers to violations of this set of rules as “poaching” violations, and they include not only out-of-class operations by TLC licensees but also activities by vehicles or drivers with no TLC license whatsoever (aka. “straight plates”). TLC enforces poaching rules through field operations by its Uniformed Services Bureau (USB), administrative action, and through partnerships with other law enforcement agencies.

Since Boro Taxis are a blended form of for-hire transportation in NYC, accepting both street hails and providing prearranged service, there are special rules that have been created to protect other licensed sectors. To protect the investments made in yellow taxi medallions and to ensure street-hail service is provided in areas outside of the traditional taxi service areas, Boro Taxis are prohibited from picking up any fares in the Hail Exclusionary Zone (HEZ). Boro Taxi service by either street hail or prearrangement is not permitted in this zone. Outside of the HEZ, Boro Taxis may pick up street-hailing passengers or provide prearranged services. At the NYC airports, Boro Taxis may provide service by prearrangement only. Figure 2 breaks down service restrictions for each vehicle type in each zone.

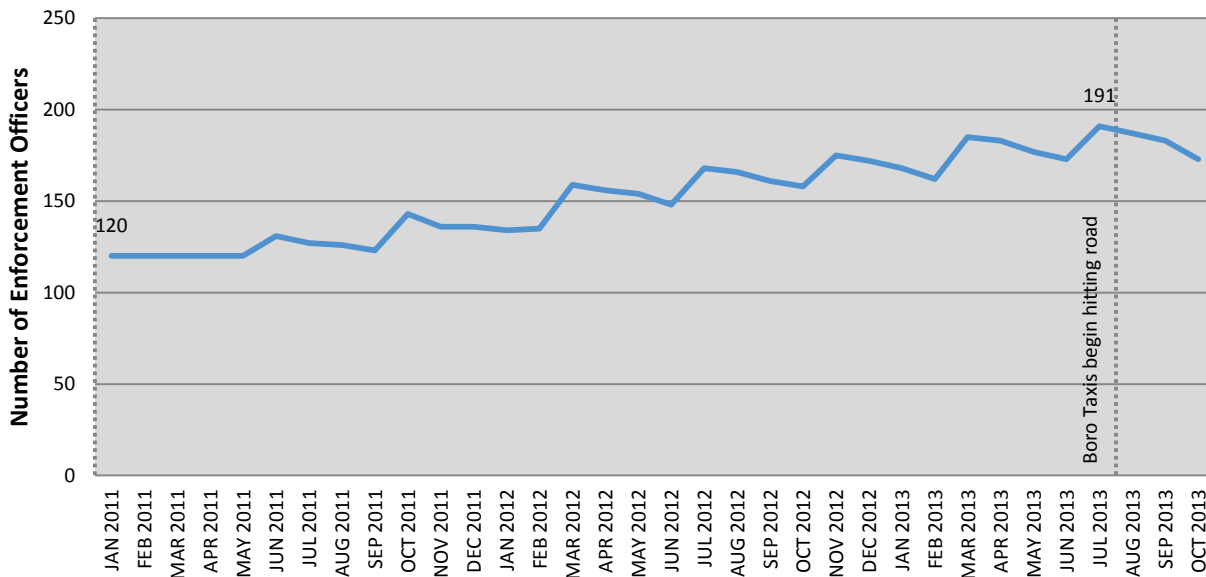
Aside from rules dictating service restrictions within the HEZ, Boro Taxis must comply with all TLC rules and regulations, including, but not limited to, the following:

1. **Licensing** | Boro Taxis must have a valid Boro Taxi permit applied to a TLC-licensed FHV vehicle and must be affiliated with a Boro Taxi base. The base must have a Boro Taxi endorsement.
2. **Insurance coverage** | Licensees must maintain insurance coverage and notify TLC of any changes.
3. **Workers’ compensation** | Licensees must comply with the NYS Workers’ Compensation Law.

4. **Personal conduct laws** | Licensees must be courteous to passengers and cooperate with the TLC and law enforcement.
5. **Rates and tolls** | Licensees must adhere to all TLC Rules regarding fares and cannot overcharge passengers.
6. **Vehicle safety standards** | Boro Taxis must conform to safety and equipment standards set by the TLC.

#### 4.1 Field Enforcement

Currently, USB provides 24/7 field enforcement in the five boroughs. TLC has increased USB staffing considerably since 2010, in part to support the Boro Taxi Program and the increased enforcement efforts necessary to make it work successfully. Figure 9 shows the monthly count of enforcement officer staffing at TLC from January 2011 to October 2013. Over the last two years TLC has graduated five new cadet classes, with each class adding an average of approximately 20 new officers. Starting with 120 officers in January 2011, staff levels peaked at 191 (nearly a 60% increase) in July 2013 before dropping slightly after the graduation of the newest class.



**Figure 9 TLC Enforcement Officer Staffing**

Source: TLC USB Staffing Counts, January 2011 to October 2013

Two types of poaching summonses are commonly issued to help preserve taxi, Boro Taxi, and for-hire vehicle service areas. Table 1 shows the pertinent rules for the two types of summonses TLC field officers issue with the specific penalties related to each violation type. Rules prohibiting illegal street hails cover TLC licensees providing street-hail service in areas where they are unauthorized to do so. This includes Boro Taxis performing street hails in the Hail Exclusionary Zone (HEZ) or FHV's performing street hails anywhere in the city. Rules prohibiting unlicensed operations cover any unlicensed vehicle or operator performing for-hire service.

For illegal street hail violations, fines increase for multiple offenses within a certain time period. Three convictions within a 24-month period by a TLC-licensed driver providing illegal street-hail service will result

in license revocation. For owners, each violation within a license term increases the fine by \$100, discouraging owners from allowing drivers to repeatedly perform illegal street hails.

	Rule #	Party	Fines			Vehicle Seized?
			1st Violation	2nd Violation†	3rd Violation‡	
Illegal Street Hails <i>TLC Licensees</i>	TLC Rules 55-19(a)	Driver	\$500	\$1,500	Revocation	N
	TLC Rules 59A-25(a)(1)	Owner	\$100	\$200	\$300	N
Unlicensed Operations	NYC Administrative Code 19-506B	Owner	\$200 to \$1500	\$200 to \$1500	\$200 to \$1500	Y
	NYC Administrative Code 19-506C	Owner/Driver	\$200 to \$1500	\$200 to \$1500	\$200 to \$1500	Y
	NYC Administrative Code 19-506D	Driver	\$200 to \$1500	\$200 to \$1500	\$200 to \$1500	N

**Table 1 NYC Administrative Code and TLC Rules Related to Poaching Activity**

† 55-19(a), if 2nd violation within 24 months; 59A-25(a)(1), increases \$100 for each violation in same license term up to \$10,000

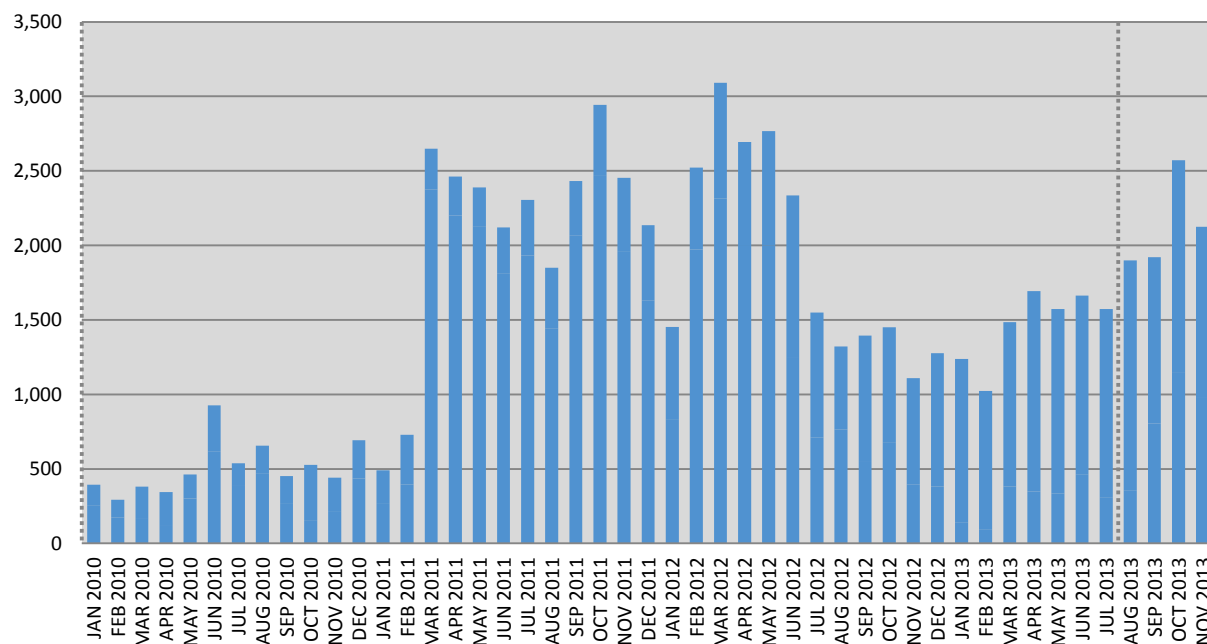
‡ 55-19(a), if 3rd violation within 36 months

Source: NYC Administrative Code and TLC Rules, accessed December 2, 2013

There are two ways in which field teams identify illegal activity: enforcement teams might observe illegal behavior as a third party, such as observing a Boro Taxi driver accepting a street-hail in the HEZ. Alternatively, sometimes enforcement officers hail vehicles themselves in sting operations. Officers will issue a summons to the offender(s) (either the vehicle owner and/or driver). They may also seize the vehicle, depending on the rule that has been violated.

#### 4.1.2 Poaching Summonses

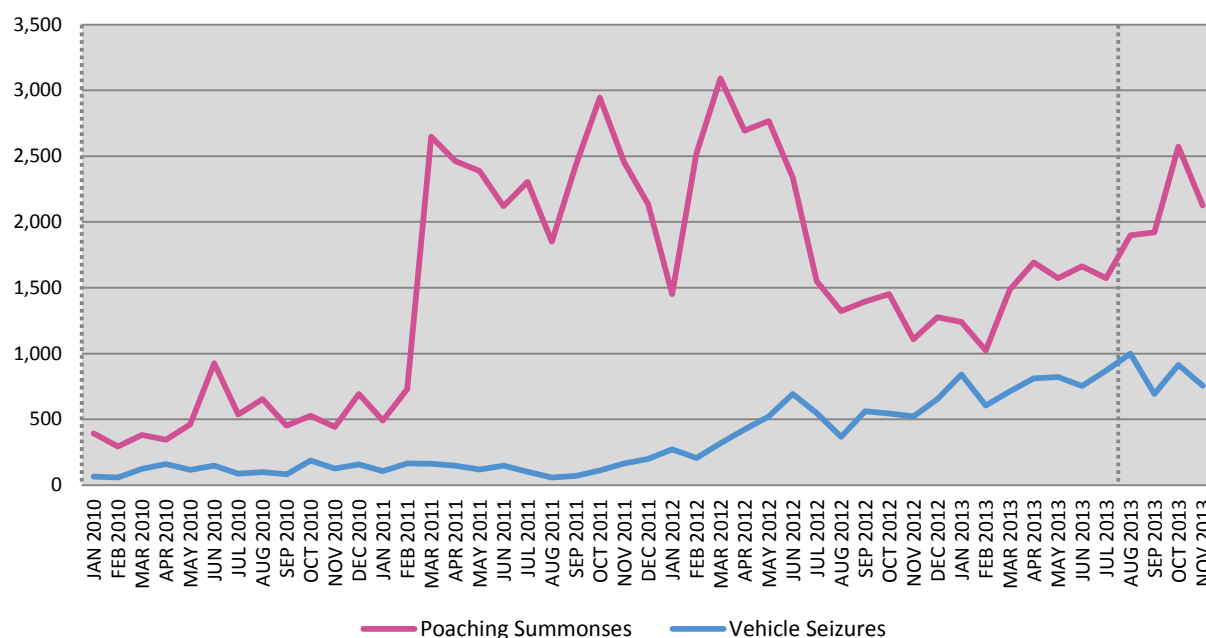
Figure 10 shows the number of poaching summonses issued by month from January 2010 to November 2013. TLC enforcement squads have been issuing poaching summonses at high rates since 2011.



**Figure 10 Poaching Summonses Issued by Month**

Source: TLC Enforcement Data for January 2010 through November 2013, Accessed December 2013

Total illegal street hail summonses in the most recent period are slightly lower than their peaks in March 2011 through May 2012 because TLC is focusing more on seizing unlicensed vehicles (see Figure 11). This is an effective deterrent, but is time-consuming relative to solely issuing summonses.



**Figure 11 Seizures and Poaching Summonses Issued by TLC Enforcement**

Source: TLC Enforcement Data for January 2012 to November 2013, Accessed December 2013

From September 2013 to November 2013, only a small percentage of TLC-licensed owners and drivers who received an illegal street hail summons for operating in the Boro Zone were recidivists over the same period. Table 2 shows the distribution of licensees summonsed once, twice, and three times—the highest number of times—within the three-month period. Over 90% of licensees summonsed were summonsed just once within this period for illegal street hails. Almost another 10% were summonsed twice, and less than 1% were summonsed three times. Due to the penalties associated with these summonses, in which a driver can lose a license or an owner faces escalating fines for each additional violation, rates of repeat offending are low.

Summons Events	Number of Licensees	
	Number	Percent
1	1,888	90.3%
2	201	9.6%
3	1	0.0%

**Table 2 Recidivism among TLC Licensees Receiving Street Hail Summonses in Boro Zone**

Source: TLC Enforcement Data for September to November 2013, Accessed December 2013

During meetings with livery base owners and yellow taxi industry representatives, TLC solicited owners for a list of known places that are active poaching locations, and this list closely aligns with USB's existing priorities of transportation hubs, bus routes, and other locations likely to attract illegal hails.

TLC selects field enforcement locations to target at least one hub in each police precinct. Enforcement officers report that field operations are an effective tool because illegal taxi operations cease and vehicles vacate when TLC patrols enter the area. The experience of field officers suggests that Boro Taxis are hesitant to pick up fares in the HEZ.

TLC also receives complaints regarding illegal taxis using taxi stands and not allowing Boro Taxis to use them. These complaints are generally received by the External Affairs team, which gives a list of problem areas to the Uniformed Services Bureau so they can prioritize operations in these areas.

#### 4.1.3 Partnerships with Other Agencies

TLC enforcement teams work closely with other city and state agencies on enforcement operations. The TLC works with the NYPD, NYC DOT, MTA, the Attorney General's Office, the NYS Sheriff, and the Port Authority of New York & New Jersey. The TLC USB works most closely with the NYPD, engaging in multiple joint operations. Examples of joint operations include traffic stops, illegal vehicle seizures, and safety checks. TLC enforcement staff meets with other agencies to develop joint enforcement strategies based on the strengths of each agency.

### 4.2 New Initiatives

TLC Enforcement operations have expanded using a number of new initiatives including geofencing, handheld devices, and a dedicated TLC tow pound. Constantly improving our enforcement practices allows the TLC to prevent noncompliance before it happens and more effectively and accurately enforce rules and regulations after violations have taken place.

#### 4.2.1 Geofencing

Similar to yellow taxis, every Boro Taxi has a taximeter that is integrated with an LPEP system. Within each LPEP is a GPS tracker. When the GPS tracker detects that the vehicle is within the Hail Exclusionary Zone, the LPEP automatically disables the vehicle's taximeter. Because passengers expect an activated meter when their trips begin, disabling the meter makes it difficult to pick up fares in the HEZ. Rather than relying purely on post-hoc reporting and enforcement, this system proactively prevents Boro Taxis from doing business within the Manhattan Core. The geofencing functionality is double-checked by administrative enforcement staff (data miners) that monitors LPEP trip records for pickups within the HEZ.

One of the two LPEP vendors has an additional feature to deter Boro Taxi street hails in the HEZ. In vehicles equipped with this system, the geofence disables the meter *and* extinguishes the roof light. This makes it clear to passengers, who are familiar with the roof light's signaling abilities from the yellow taxi industry, that the Boro Taxi is not available for a hail. Once the vehicle leaves the HEZ, the roof light is once again able to signal availability and log trips on the meter. TLC thought that the roof light feature is helpful for enforcement purposes and for passengers and drivers. In November 2013 the Commission passed a new rule requiring that all LPEP vendors program the geofence to extinguish the roof light while the vehicle is in the HEZ.

#### 4.2.2 Tow Pound

Seizing and impounding illegally operating vehicles is one of TLC's strongest enforcement tools to protect medallion owners and Boro Taxi permit holders against poaching by unlicensed drivers and to protect passengers from taking rides from unlicensed vehicles and drivers. Originally, impounded vehicles were stored by the NYPD. However, NYPD had limited storage space available, and this limited TLC's ability to enforce against illegal taxis. In 2012, TLC entered into a third party contract with Knights Towing for towing and storage services. With virtually unlimited storage capacity, TLC has stepped up enforcement against unlicensed operations in both the outer boroughs and the Manhattan Core, seizing many more illegal taxis. Figure 11 shows the total number of vehicles seized each month since 2010 alongside the number of summonses issued for poaching. Three years ago, the TLC seized approximately 1,500 vehicles. This year the TLC has seized over 8,000 vehicles. In August 2013 TLC set a new record, impounding 1,000 cars in a single month. Drivers who settle or are found guilty of the violation in court must pay towing and storage fees on

top of any TLC fines from the original summons. If a vehicle has not been claimed after 30 days, it is auctioned to the public.

#### **4.2.3 Electronic Summoning and Administration Program (ESAP)**

The TLC has introduced ESAP, an electronic and mobile information system to automate enforcement and summoning processes. ESAP is used at TLC offices to issue “administrative summonses” based on violations detected through analysis of TPEP, LPEP and administrative records. Because it is a mobile system, ESAP is also used by enforcement teams in the field. Instead of manually filling out and filing paper reports, field teams have handheld devices allowing them to scan a person’s license, check his or her information against TLC’s licensing database, write a summons, and schedule a court date. Automating and integrating the process reduces errors, allows inspectors to issue summonses more quickly and accurately, and allows the enforcement process to respond more flexibly to shifting priorities and policies. ESAP won the New York City Excellence in Technology Award for Best Mobile Project in 2012.

### **4.3 Outreach as Prevention**

Prevention and education are key enforcement tools. While in the field, enforcement teams provide outreach to livery and Boro Taxi drivers, explaining to them the necessary permits and hack-ups necessary to legally operate a Boro Taxi. TLC External Affairs staff have also prioritized outreach to industry stakeholders and the public to educate them about the Boro Taxi Program.

#### **4.3.1 Licensure and Administrative Requirements**

Since the launch of the Boro Taxi Program in June, the External Affairs team has held five information fairs (one in each borough) for potential licensees. Present at the fairs were LPEP vendors, microfinance lenders, and accessible vehicle dealers. At information sessions the TLC explains the Boro Taxi program and its licensing and hack-up requirements.

TLC works with industry members to get the word out about the Boro Taxi Program, including visiting industry associations and bases. In 2012 the TLC held informational meetings at the 50 largest bases to explain the Boro Taxi Program. In the past month, the TLC held two information fairs to further explain licensing requirements along with MTA tax requirements, workers’ compensation, and other insurance issues to livery base owners who needed more information to understand how to comply with the law.

In November 2013, the TLC hosted two meetings with Boro Taxi base owners to provide more information about the \$0.50 MTA tax that must be paid on each street hail fare and the requirement that bases get workers’ compensation insurance for their drivers. This was a change for owners because previously livery bases paid into the Livery Fund, which provided some compensation in the case of catastrophic on-the-job accidents. The NYS Workers’ Compensation Board ruled that Boro Taxi bases must provide more comprehensive workers’ compensation coverage (similar to the yellow taxi industry). If a Base does not provide proof of workers’ compensation insurance, then the TLC will take appropriate action needed to suspend the base license if a current and valid policy is not provided in a timely manner.

#### **4.3.2 Poaching and Illegal Taxis**

Community board visits are a useful opportunity to educate passengers about the Boro Taxi Program. TLC External Affairs staff finds that community boards are generally supportive of the Boro Taxi Program, especially the boards that are closer to Manhattan in denser communities. While visiting community boards, TLC External Affairs staff are finding that many people do not know that livery cabs may not pick up street hails or that hailing straight plates is dangerous because the drivers are not screened, the cars are not inspected, and the vehicle likely does not have sufficient insurance coverage.

The lack of information about illegal taxis among some members of the public provides an opportunity for passenger education campaigns to help decrease poaching by reducing demand. By changing ridership culture in the boroughs towards metered fares and legal taxis, demand for and use of illegal taxis will decline. TLC's passenger education campaign includes new ads on buses and at subway stations throughout the city, speaking at community boards, social media campaigns, press conferences, and passenger brochures.

#### **4.4 Administrative Enforcement**

Boro Taxi owners and drivers are subject to many of the same rules and administrative checks as yellow taxis. For instance, LPEP data are used to identify overcharging by drivers who used the wrong rate code, added extra tolls, etc. These data are also used to identify wheelchair-accessible vehicles being operated by drivers who have not undergone appropriate training and whether non-accessible vehicles are being used by paratransit drivers (who may only drive accessible vehicles). Administrative enforcement staff also checks that Boro Taxi permits are not going more than 60 days without being used. LPEP data confirm the experiences of field officers that Boro Taxis are indeed cruising for passengers in the Boro Taxi Zone.

TLC is actively monitoring for-hire car service in the city in order to protect passengers, drivers, base owners, license owners, and investors using all resources at its disposal. Field operations focus on unlicensed operations and seizures while administrative summonses are issued to licensees using routinely collected data. This combination of enforcement techniques is protecting the Hail Exclusionary Zone while stamping out illegal straight plates while the public becomes accustomed to the Boro Taxi Program. TLC will continue to monitor the effectiveness of existing enforcement practices and rules and will adjust them as needed.



## Chapter 5: Impact on FHV's and Yellow Taxis

This chapter provides an analysis of impacts the Boro Taxi Program may have had on the yellow taxi and FHV industries. In order to assess the state and health of the taxi and FHV industries, the TLC examined changes in:

- medallion sale prices,
- trip volume trends,
- fare revenue trends,
- numbers of licensees,
- rate of base affiliations, and
- passenger mode choice.

There is no evidence that the Boro Taxi Program has had a strongly negative effect on the yellow taxi and FHV industries. In fact, both industries appear to be thriving as Boro Taxis are rolling out.

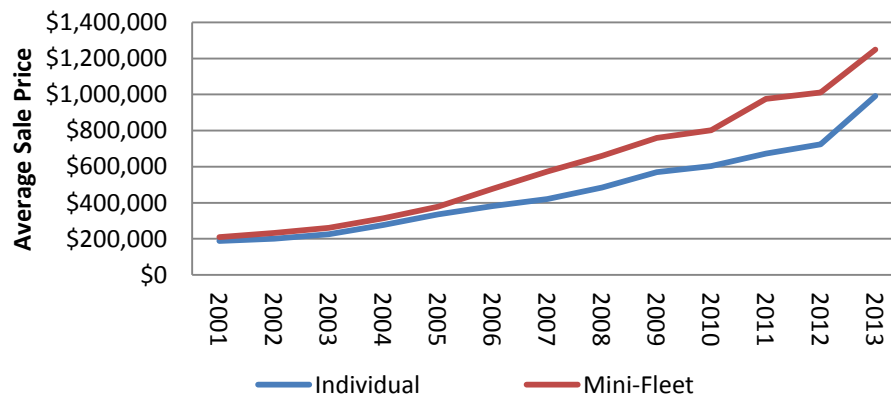
### 5.1 Impacts on the Yellow Taxi Industry

TPEP data demonstrate that approximately 95% of yellow taxi pickups take place in the Manhattan Core or at one of the city's airports. The Boro Taxi Program was designed such that yellow taxis retain the exclusive right to street hail pickups in these areas of the city, and Boro Taxis may only pick up hailing passengers in areas of the city *other than* the Manhattan Core and the airports. Because only 5% of yellow taxi pickups have historically taken place in what is now the Boro Taxi Zone, TLC does not expect significant economic impacts on this industry to occur.

#### 5.1.1 Medallion Prices

Taxi medallion prices are a key indicator of the health of the yellow taxi industry. Medallion prices are based on an investor's expected return on investment, and higher purchase prices indicate that the marketplace sees taxi medallion ownership as a reliable revenue stream. Governor Cuomo signed the Boro Taxi legislation into law on December 21, 2011. Since that date, taxi medallion prices have continued to increase (see Figure 12). Between 2011 and 2013, the average minifleet medallion price increased from \$975,000 to \$1,250,000. The average independent medallion price increased from \$672,000 to \$991,000. The highest transfer price for a minifleet medallion in 2013 reached \$1,320,000 and \$1,050,000 for an independent medallion.

## Independent and Minifleet Medallion Sale Prices



**Figure 12 Taxi Medallion Average Annual Sale Prices**

Source: TLC Transfer Data 2001-2013

Litigation delayed the implementation of the Boro Taxi Program by one year. However, medallion prices have continued to increase even after Boro Taxis have begun rolling out and providing trips. In May 2013 the average minifleet medallion price was \$1,320,000. On November 14, 2013 the TLC held a medallion auction for minifleet medallions that are restricted to use with wheelchair-accessible vehicles. Some might suspect expect that these medallions would yield a lower purchase price than minifleet medallions that are not required to be used with wheelchair-accessible vehicles; however, bid prices at this auction were high. Each of the 200 auctioned medallions sold for between \$1,025,000 and \$1,259,000. These high bid prices indicate that the Boro Taxi Program – which was well underway by the time of this medallion auction – has not dampened seasoned industry investors’ expectations for the future health of the yellow taxi industry.

### 5.1.2 Trip Volumes and Revenue

Yellow taxi trip volumes and revenue from fares are other indicators of the health of the yellow taxi industry. They are especially important to drivers, who are not paid a wage but instead pay a flat amount to lease the taxi and keep all of their fare and tip revenue.

In the four months since Boro Taxis began providing service, daily yellow taxi trip volumes were between 5.1% lower (in August, when relatively few Boro Taxis were on the road) and 4.5% higher than they were in the same months in 2012 (see Figure 13). In October and November 2013, the months with the greatest number of Boro Taxis on the road, there were on average more yellow taxi trips than in the preceding year. Although increases between October and November 2012 and 2013 could have been driven by lower-than-usual 2012 trip volumes due to Hurricane Sandy, the fact that the four months preceding the launch of the Boro Taxi Program all showed 1.8% to 4.8% lower trip volumes as compared to the same period in 2012 suggests that there is no meaningful correlation between the rollout of the Boro Taxi Program and yellow taxi trip volumes.

	April	May	June	July	August	September	October	November
<b>2012</b>	515,910	502,097	503,140	463,784	463,842	484,784	468,377	459,114
<b>2013</b>	503,251	492,964	479,151	455,863	440,052	470,153	483,924	479,528
<b>Percent Change</b>	-2.5%	-1.8%	-4.8%	-3.9%	-5.1%	-3.0%	+3.3%	+4.5%

**Figure 13: Daily Yellow Taxi Trip Volumes**

Source: TPEP trip-sheet data, April through November 2012 and 2013

Given that the only two months to show a year-over-year increase in trips – October and November – are also the only two full months subject to the September 2012 fare increase in both years suggests that the higher fare is the cause of the lower year-to-year trip volumes when comparing April to August 2012 to these months in 2013. When fares are higher, some passengers elect to travel by other methods.

Yellow taxi driver revenue has remained strong since the introduction of the Boro Taxi Program. In the months since the first Boro Taxis hit the road, total yellow taxi revenue was 5.3% higher than in the comparable period in 2012, growing from \$872 million during the 4-month period of August to November 2012 to \$919 million for the same 4-month period in 2013.

### 5.1.3 Yellow Taxi Driver Supply

The supply of yellow taxi drivers, though driven by factors both within and outside of the taxi industry, is another indicator of the health of the yellow taxi industry. If revenue opportunities become scarce relative to earnings opportunities in other professions, there is likely to be a decrease in the supply of taxi drivers. Thus far, this has not occurred in the yellow taxi industry. The number of individuals licensed to work as taxi drivers has remained high as the Boro Taxi Program has rolled out. On June 12, 2012 (one year prior to the issuance of the first Boro Taxi permit) there were 50,396 licensed yellow taxi drivers. Four months after the first Boro Taxis hit the road, there were 52,557 licensed yellow taxi drivers. This 4.3% increase in supply of yellow taxis drivers suggests that the Boro Taxi Program is not perceived as a significant threat by enough yellow taxi drivers to cause an exodus to other professions. TLC has also connected fleets and agents to the NYC Department of Small Business services to assist with driver recruitment. TLC will continue to monitor driver recruitment and retention as Boro Taxi Program implementation continues.

### 5.1.4 Passenger Mode Choice

Additionally, TLC analysis looked to determine the extent to which Boro Taxis are competing with yellow taxis for fares. In an in-vehicle survey taken by passengers in Boro Taxis, riders were asked what mode of transportation they would have taken for that trip had they not been able to get a ride in a Boro Taxi. Only 33% would have otherwise taken a yellow taxi. (This assumes they would have actually been able to find one available.) Overall, this indicates that the majority of passengers are not choosing between Boro Taxis and yellow taxis, but rather are deciding between Boro Taxis and various transportation alternatives.

## 5.2 For-Hire Vehicle Industry Stakeholders

Boro Taxis are part of the existing For-Hire Vehicle industry. At this time, regulations permit, with few exceptions, only existing FHV drivers and bases to obtain permits to become SHL affiliated bases or SHL drivers. The Boro Taxi Program is therefore an opportunity for existing FHV businesses to expand the ways in which they generate revenue. A key element of the Boro Taxi Program is that it is optional. Therefore, only vehicle owners and bases who feel that a Boro Taxi permit or base endorsement would enhance their business opportunities are applying for them. At the same time, the supply of Boro Taxi permits and base endorsements is large enough that, so long as the second and third issuances are allowed to take place, a large number of industry members who wish to participate in the Boro Taxi Program may do so.

### 5.2.1 FHV Licensees

One indicator of the health of the for-hire vehicle industry is the number of individuals who obtain TLC licenses to participate in this industry. Table 3 shows the year-over-year change in the number of individuals or businesses that had base, vehicle, or driver FHV licenses as of November 2013 (four months into the active Boro Taxi Program). The number of individuals choosing to make their livings in this industry has continued to increase, which signals that income prospects remain strong enough to continually attract new entrants. In fact, the growth in FHV vehicles and drivers is stronger between 2012 and 2013 than it was between 2011 and 2012.

	2011	2012	2013	Increase from 2012 to 2013	Percent Increase from 2011 to 2012	Percent Increase from 2012 to 2013
<b>FHV bases</b>	800	840	868	+28	+5%	+3.3%
<b>FHV vehicles</b>	37,810	39,647	44,196	+4,549	+4.9%	+11.5%
<b>FHV drivers</b>	55,799	55,583	59,161	+3,578	-0.4%	+6.4%

**Table 3 Daily Number of TLC FHV Licensees**

*Source: TLC Licensing Records as of last day of November of 2011 through 2013*

### 5.2.2 For-Hire Vehicle Bases

Although revenue models vary from base to base, a common financial structure for FHV bases is for the base to charge each driver an affiliation fee each week and then to allow the driver to keep the fares he or she earns. Therefore, many base owners' revenue is driven by the number of drivers and vehicles affiliated with their bases. Over the course of 2013, the number of FHVs has grown significantly. As Table 4 shows, the number of FHVs—and therefore the number of FHVs paying affiliation fees or otherwise generating revenue for bases—has steadily grown from 40,143 at the start of the year to 44,196 as of November 2013 (an increase of 10.1%). This upward trend has continued even as Boro Taxis have gone into service. This is not surprising because Boro Taxis, like traditional FHVs, must affiliate with bases.

Month	Number of Licensed FHVs
January	40,143
February	40,382
March	40,361
April	41,268
May	41,490
June	41,996
July	42,107
August	42,590
September	42,983
October	43,724
November	44,196

**Table 4 Licensed FHVs**

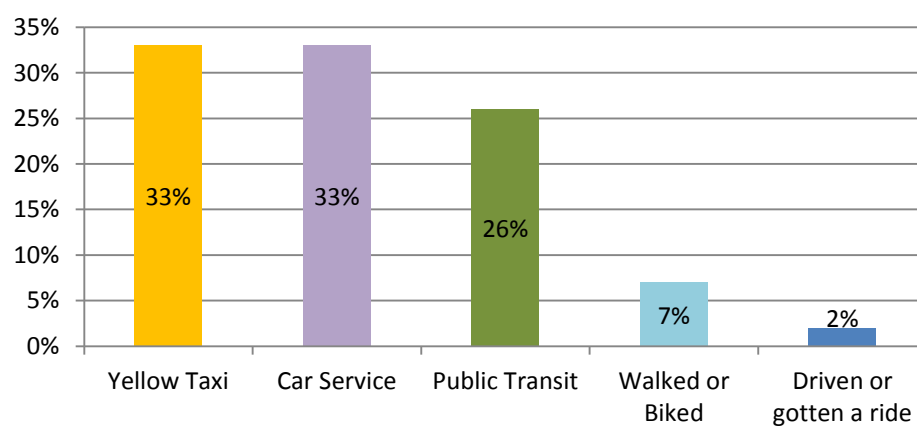
*Source: TLC Licensing Records, January through November 2013*

### 5.2.3 For-Hire Vehicle Drivers

Several factors, such as fare levels, affiliation fee levels, and passenger demand drive income for for-hire vehicle drivers. Because many FHV drivers keep their fares, trip volumes are an important determinant of driver income. Whereas TLC has definitive information on trip volumes in the yellow taxi industry from TPEP data, similar data are not available in the FHV industry. The TLC staff requested FHV trip volume data from each base to compare current trip before and after the implementation of the Boro Taxi Program. However, low response rates and inconsistent reporting prevent TLC from making any conclusions based on the responses.

Instead of analyzing trip volume directly, TLC determined the effect of the Boro Taxi Program on passenger demand for FHV services using passenger surveys. These surveys asked passengers how they would have made their current trip if they had been unable to hail a Boro Taxi (see Figure 14). One-third (33%) of respondents stated that they would have called a car service if a Boro Taxi had not been available to them. Boro Taxi LPEP data show that in recent weeks there has been a daily average of about 15,000 Boro Taxi trips. If 33% of these trips had been taken by FHVs rather than Boro Taxis, this would have resulted in an average of 5,000 additional call-ahead FHV trips per day industry-wide. Distributed amongst the approximately 44,000 licensed FHVs, this equates to 0.11 additional trips per vehicle per day. This suggests that at this time the negative impact of Boro Taxis on call-ahead FHV trip volumes is very low. Of course, the 0.11 trips per FHV “lost” overstates the impact because Boro Taxis also perform dispatch trips. In some cases, a call-ahead trip “lost” was a street-hail trip “gained” by a Boro Taxi, possibly even the same vehicle.

### If you hadn't hailed this taxi, what would you have done instead?



**Figure 14 Trip Mode in the Absence of Boro Taxis**

Source: TLC HAIL Passenger Survey, 2013

## Chapter 6: Traffic and Transit

This chapter analyzes the Boro Taxi Program in the context of New York City’s overall transportation system, including whether Boro Taxis are having a significant impact on traffic congestion or traffic safety and the extent to which they are integrating with the public transit system. The chapter begins with traffic congestion, examining the difference in service provided previously by FHV’s and currently by Boro Taxis as an indicator for possible increases in traffic congestion. It also looks at the change in average traffic speeds as a direct measure of traffic congestion. This chapter examines the drivers operating Boro Taxis to evaluate the traffic safety impacts of the program, looking at both the number of years drivers have been licensed and at the previous safety records of those drivers. In considering the relationship between Boro Taxis and transit, the chapter looks at Boro Taxi trip patterns and passenger survey data to examine the extent to which they are complementing the public transit system.

This chapter consists of the following sections:

1. Boro Taxi impacts on traffic congestion
2. Boro Taxi impacts on traffic safety
3. Integration into the NYC transit system

### 6.1 Boro Taxi impacts on traffic congestion

#### Key Findings:

- Boro Taxi street-hail trip volumes per driver are only slightly higher than previous reports of illegal FHV street-hails.
- 83% of Boro Taxis in operation are operated by individuals who owned FHV’s prior to the Boro Taxi Program.
- Boro Taxis, like yellow taxis, perform mostly short trips
- Boro Taxis are affiliating at the highest rates to bases that are close to first-tier street-hail markets, minimizing commuting between the base and pickup locations.
- Most Boro Taxi trips do not enter the Manhattan Core or cross a major bridge.
- Traffic speeds have not changed in any noticeable way due to the introduction of Boro Taxis.

One concern some have cited about the Boro Taxi Program is that it would induce “18,000 new taxis to begin cruising NYC streets.” TLC did not anticipate this would happen for two primary reasons:

- The Boro Taxi Program is primarily a legalization of pre-existing hybrid street-hail/call-ahead service in neighborhoods outside the Manhattan Core.
- The HAIL legislation restricted the population eligible for Boro Taxi permits, ensuring that most Boro Taxi drivers would be individuals who already worked in the FHV industry providing this service.

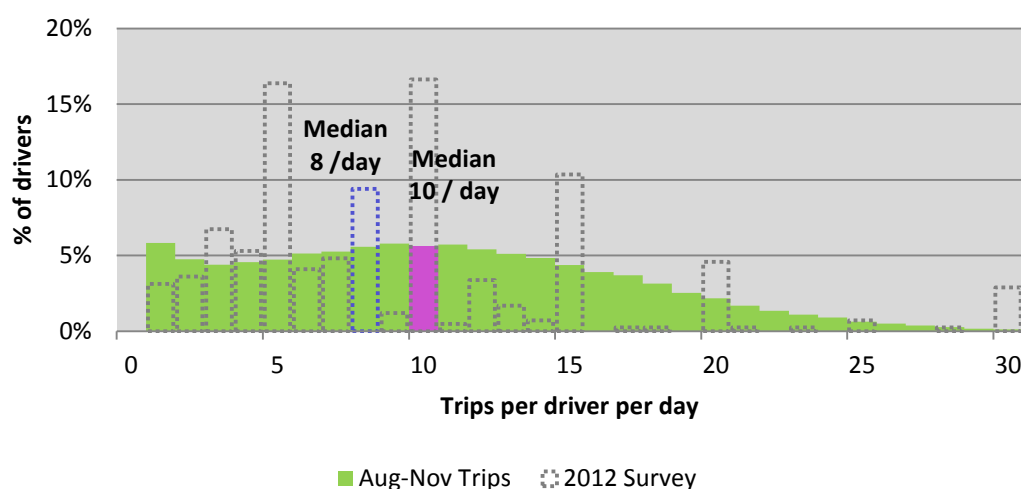
#### 6.1.1 Boro Taxi Trip Volumes

One main goal of the HAIL legislation was to legitimize an existing illegal behavior among FHV drivers: the cruising for and acceptance of street hails in the area outside of the Manhattan Core. FHV’s have historically provided street hail service, alongside call-ahead service, in this area due to insufficient yellow taxi supply.

TLC therefore anticipated that Boro Taxis would operate in a manner that is similar to how FHV's operated prior to the program's introduction, except that Boro Taxis would serve slightly more street hails than before because they are no longer illegal and more passengers would be able to identify the vehicles as legally-operating taxis.

Analysis of program data supports this prediction. Current daily street-hail volumes per Boro Taxi driver are only slightly higher than per-driver FHV street-hail volumes before the Boro Taxi's existence. Figure 15 shows the distribution of trips per day for Boro Taxis on the road between August 7, 2013 and November 11, 2013. Overlaid on the distribution are the results of a 2012 survey of FHV licensees where TLC asked drivers to estimate the average number of street hail trips they performed each day.<sup>7</sup>

From Boro Taxi trip data so far, the median number of street hail trips per driver per day is ten; from the 2012 survey, the median number of street hail trips per FHV driver per day was eight. As non-yellow street-hail activity has become legitimized in the Boro Taxi Zone, a slightly higher number of street hail trips are being performed, on average, by Boro Taxi drivers than were previously reported by FHV's. This comparison of existing Boro Taxi street hail volumes to previous FHV street hail volumes demonstrates that the Boro Taxi Program represents primarily a legalization of the pre-existing hybrid street-hail/call-ahead service rather than a program that has induced FHV's to cruise the streets of the outer boroughs and Northern Manhattan for the first time.



**Figure 15 Distribution of Trips per Day for Boro Taxis and Pre-Boro Taxi FHV's**

*Source: TLC analysis of LPEP trip-sheet data, November 2013*

### 6.1.2 New Vehicles Resulting from Boro Taxi Program

Since per-vehicle trip volumes do not appear to have dramatically changed, the next step for understanding traffic impacts is to measure whether the number of vehicles has changed. Both the design of the HAIL legislation and TLC program data suggest that the number of vehicles cruising NYC streets for fares has not increased.

The HAIL legislation restricted the population that may obtain Boro Taxi permits to, with few exceptions, individuals who already owned and/or operated an FHV for at least one year. Any individual or entity may

<sup>7</sup> Results from 2012 TLC FHV Financing Survey, administered in person at TLC's Licensing facility in Long Island City, at FHV base locations, and online. Median based on FHV drivers who reported performing street hails, the group we believe is most likely to have converted their vehicles to Boro Taxis. Responses greater than 50 per day were filtered out of the median. Results from this survey are not strictly representative because the survey was voluntary and drivers may have underreported their street-hail activity because it was illegal at the time the survey was administered

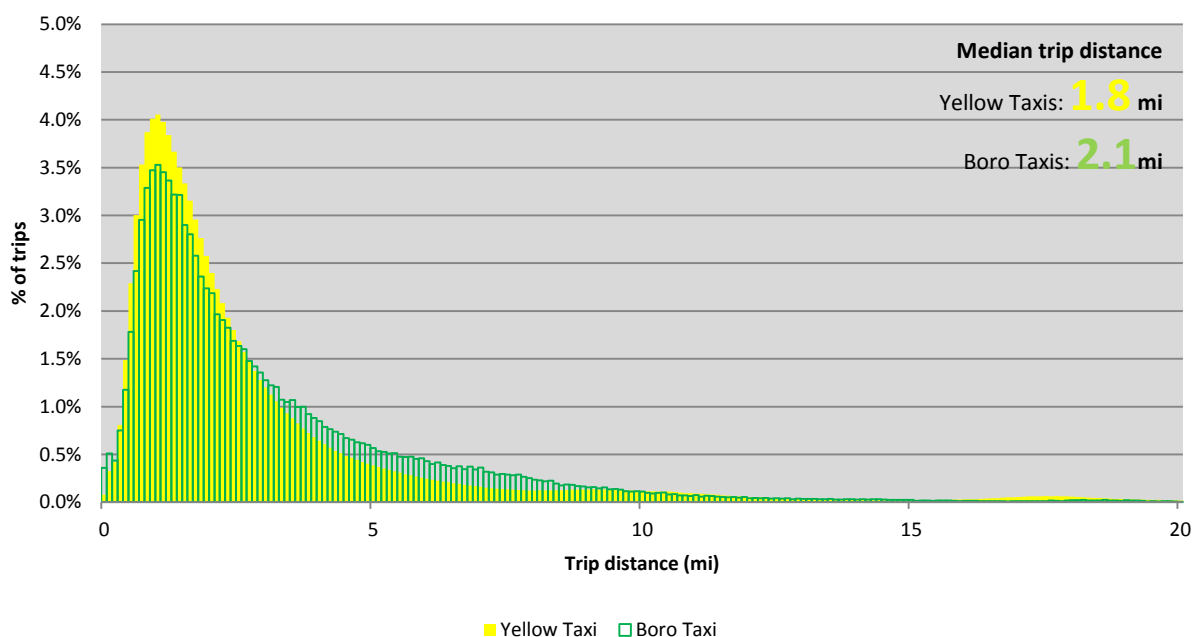


only have an ownership interest in one Boro Taxi permit or five accessible Boro Taxi permits, preventing the establishment of the fleet model seen in the yellow taxi industry. This program design ensured that most Boro Taxi permit holders would be individuals who already worked in the FHV industry providing this service. In addition, TLC required that permit holders add the permit to an underlying FHV vehicle license. Although an existing FHV driver could, in theory, obtain a Boro Taxi permit and then obtain a new FHV vehicle license to join with the permit, a majority of FHV vehicles are owned by licensed FHV drivers. Therefore TLC anticipated that most Boro Taxis would actually be converted from existing FHV.

Program data confirm the prediction that most Boro Taxis would be operated by individuals who previously operated FHV. Of the 1,941 Boro Taxi permits that have been added to an underlying FHV license in the three months from August 2013 to November 2013, 83% of permits were applied to FHV already in service as liveries, black cars, or luxury limousines before TLC began issuing permits in June 2013; only 335 (17%) of the permits were added to new FHV. To put this number into perspective, over 2,500 new FHV (*excluding* Boro Taxis) were added to the total fleet in the 10 months between January and November 2013 alone. Therefore Boro Taxis represent primarily a conversion by some owners from operating traditional FHV to operating Boro Taxis. In addition, the number of vehicles being newly added to the road as Boro Taxis is small compared to the general growth that the FHV industry is experiencing.

### 6.1.3 Boro Taxi Trip Length

Traffic congestion is potentially impacted by not only the number of vehicles on the road and number of trips per vehicle, but also the length of each trip. If Boro Taxis were typically performing longer trips than illegally-street-hailed FHV, then it could increase traffic congestion. Although TLC does not have data on the typical trip length of street-hailed FHV, GPS data from Boro Taxis shows that their trips are fairly short. The distribution of trip lengths does not differ much from the distribution of yellow taxi trip lengths. Figure 16 shows the distribution of trips by distance traveled for both types of taxis in the month from October 7 to November 6, 2013.



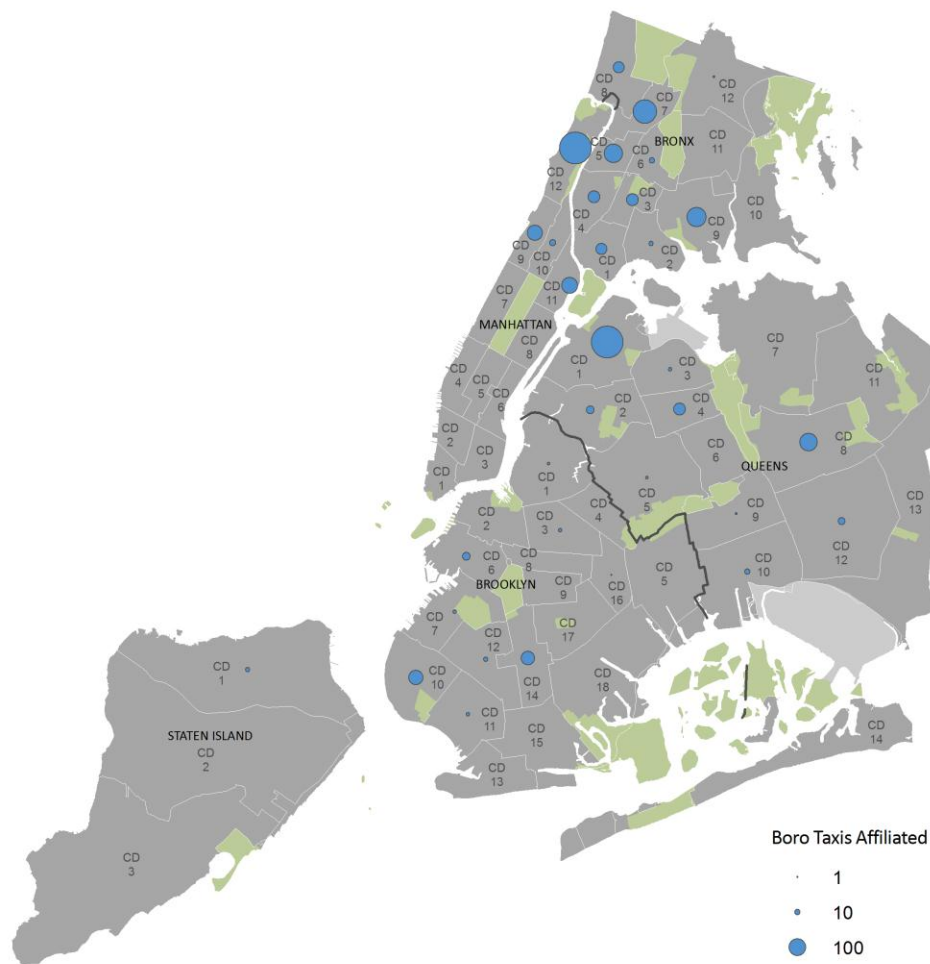
**Figure 16 Distribution of Trips by Distance, Yellow vs. Boro Taxis**

Source: TLC analysis of TPEP and LPEP trip-sheet data, October 7 to November 6, 2013

The median yellow taxi trip distance in October was 1.8 miles, meaning half of all trips are less than 1.8 miles. For Boro Taxis, the median was only slightly higher, at 2.1 miles. This difference of .3 miles is equivalent to only six city blocks. From the distributions, it seems that Boro Taxis are serving the same types of short trips as have traditionally been performed by yellow taxis and that were likely performed by illegally-street-hailed FHV's.

#### 6.1.4 Boro Taxi Base and Service Locations

Another element to consider in assessing the impact of Boro Taxis on traffic is whether Boro Taxis are commuting a significant distance between their bases and the neighborhoods in which they cruise for street hails. To assess this, we looked at the geographic distribution of Boro Taxi bases relative to the neighborhoods they predominantly serve. Figure 17 shows the total number of affiliated Boro Taxis tallied by Community District (CD).



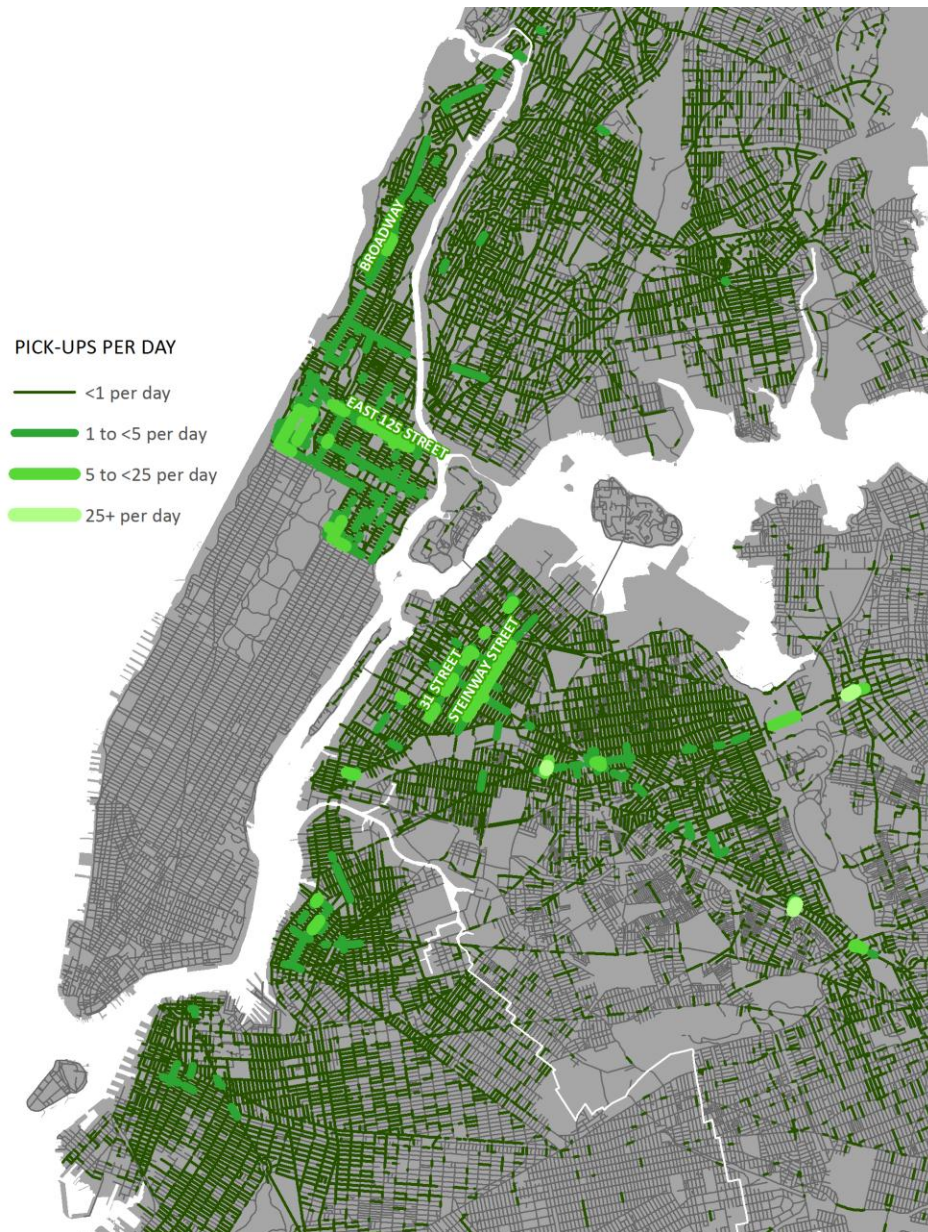
**Figure 17 Total Affiliated Boro Taxis by Community District**

*Source: NYC TLC Licensing Data, June 2013 to November 2013*

A large number of Boro Taxis have affiliated to bases in a few select areas of the city. Around 18% of Boro Taxis have affiliated to bases in CD 12 in Manhattan—the area representing Washington Heights and Inwood. An equal share of Boro Taxis has affiliated to bases in CD 1 in Queens (Astoria). These two areas have nearly double the number of Boro Taxis of any other CD in the city. While over 350 Boro Taxis have affiliated to bases in Manhattan CD 12 since June, the number of total FHV's (including Boro Taxis) in this

district has remained nearly unchanged over the same time period. This suggests that there has been a one-for-one conversion of FHV's to Boro Taxis in this area. In Astoria (Queens CD 1), an increase in total FHV's accompanies the proliferation of Boro Taxis; however, over half of the change in total FHV's here can be attributed to pre-existing FHV's changing affiliation from bases in other parts of the city and becoming Boro Taxis. This shift is most likely market-driven, in which Boro Taxi supply is shifting to meet areas with the highest densities of street-hail demand. It also suggests that many Boro Taxis are not commuting long distances between their bases and the areas where they cruise for fares.

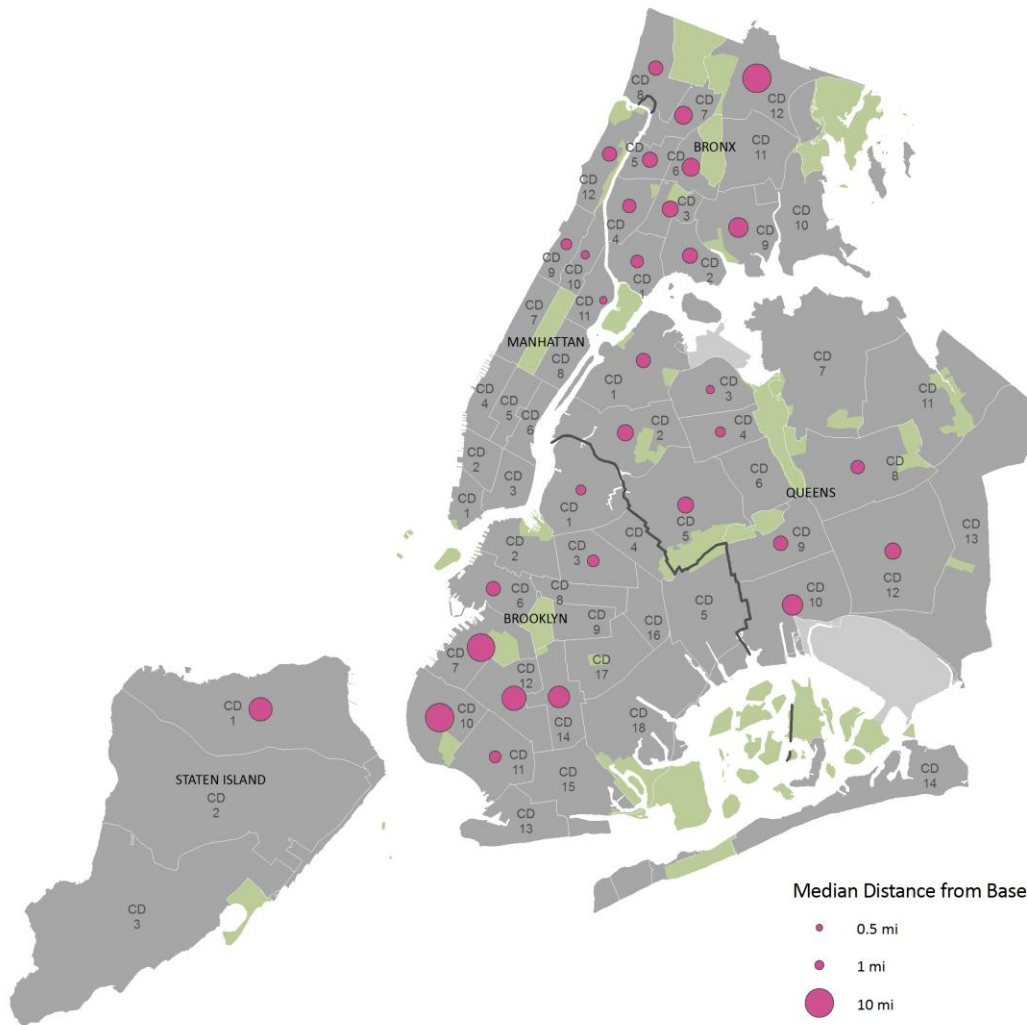
Figure 18 shows the average density of Boro Taxi pickups per block from August to November 2013. So far, corridors in both Northern Manhattan and Astoria are seeing heavy concentrations of Boro Taxi pickups, especially on Broadway and 125th Street in Northern Manhattan and on Steinway and 31st Streets in Astoria. Existing FHV's are affiliating as Boro Taxis in bases close to these areas, and, as a result, these taxis are meeting demand for street-hail service with less additional traffic than if they were traveling from other areas of the city to the most street-hail dense neighborhoods.



**Figure 18 Average Number of Boro Taxi Pickups per Day**

*Source: NYC TLC analysis of LPEP trip-sheet data, August 7 to November 10, 2013*

The concentration of a large number of Boro Taxis at bases close to the street-hail market decreases the amount of street congestion, as it reduces the amount of incidental mileage drivers must log to go between the base and the primary service area. Figure 19 shows the median distance of street-hail pickups by vehicles associated with each base from the base itself, aggregated at the CD level.



**Figure 19 Median Distance of Pickup Locations from Bases**

*Source: NYC TLC Licensing Data, June 2013 to November 2013*

There is a clear correlation between a base's distance from the Manhattan Core and median distance of street-hail trips from that base location. This is due to the fact that the most fare-rich street-hail market—though not the only street-hail market—thus far exists in the denser areas of the city just outside of the Manhattan Core. Median distances between the base and street-hail pickups range from .75 miles for vehicles affiliated to bases in Manhattan CD 11 (East Harlem, one of the areas adjacent to the border of the Hail Exclusionary Zone) to nearly 10 miles for vehicles in Brooklyn CD 10 (Bay Ridge, an area in the outer ring of the Boro Zone). The median distance for vehicles affiliated to bases in Manhattan CD 12 and Queens CD 1, the two CDs with the largest number of Boro Taxis, is about 2.5 miles. This means half of the trips from Boro Taxis start less than 2.5 miles away from the vehicle's base location. Vehicles affiliated to bases close to the highest densities of street-hail demand are able to cruise for fares close to their base locations. Base proximity to the street-hail market also allows Boro Taxi drivers to provide dispatch service in the neighborhood of the base without having drivers log considerable mileage traveling between two separate service areas. From a traffic perspective, this locational trend is more efficient than locational trends in the yellow taxi industry today. Currently, many yellow taxi garages are in locations distant from the primary street-hail areas in Manhattan. This leads to many non-revenue trips in which yellow taxis must cross the East River from Queens or Brooklyn to Manhattan (and back) in order to change shifts and go into service. Boro Taxis can be affiliated



and stored at bases close to the areas of demand, decreasing the amount of unnecessary traffic congestion associated with commuting between base and service area.

### 6.1.5 Boro Taxi Bridge Crossings and Travel in the Manhattan Core

Another factor to consider in assessing the impact of Boro Taxis on traffic congestion in NYC is whether they seem to be traveling extensively in those areas of the city where traffic congestion problems are most prevalent, such as bridge crossings and the Manhattan Core. Analysis of GPS data confirms that most Boro Taxi trips both begin and end outside of the Manhattan Core because drivers are not allowed to pick-up street-hail *or* dispatch passengers in this area. Although Boro Taxis may drop passengers off in the Hail Exclusionary Zone, these types of trips make up only 23% of all drop-offs. Table 5 shows the breakdown of Boro Taxi trips by their pick-up and drop-off locations.

	Pick-ups	Drop-offs
<b>Boro Zone</b>	<b>100%</b>	<b>74%</b>
Northern Manhattan	43%	23%
Bronx	9%	12%
Brooklyn	14%	11%
Queens	33%	28%
Staten Island	0%	0%
<b>Yellow Zone</b>	<b>0%</b>	<b>23%</b>
Airports	0%	2%
<b>Outside NYC</b>	<b>0%</b>	<b>0%</b>

**Table 5 Distribution of Boro Taxi Pickups and Drop-offs by Geography**

*Source: NYC TLC LPEP trip-sheet data, October 18 to November 17, 2013*

Most trips that took place in the first three months of the program originated in Northern Manhattan (43%), followed by Queens (33%) and Brooklyn (14%). Less than one-quarter of all Boro Taxi trips end in Manhattan south of the Hail Exclusionary Zone boundary. In addition, bridge crossings make up only a small portion of Boro Taxi trips so far: about 9% of trips involve crossing the East River via a bridge or tunnel.<sup>8</sup> In fact, most trips do not even cross borough boundaries. 82% of all trips begin and end in the same borough. Therefore Boro Taxis are not likely to be significantly impacting traffic congestion in the Manhattan Core or at bridge crossings.

### 6.1.6 Change in Speeds Between Zones

Boro Taxis add minimal traffic to the city and, as such, do not have a strong impact on traffic speeds. Table 6 shows a direct measure of the traffic impact of the Boro Taxi Program, as calculated by average speeds between zones before and after the roll-out of Boro Taxis using TPEP and LPEP trip-sheet data. Each data record includes the travel time and distance between the pick-up and drop-off locations, allowing us to calculate, in the aggregate, the average travel speed between zones. The table shows a comparison of the average speeds over each month after Boro Taxis began rolling out (August, September, and October 2013) to the same months from 2012 with the pick-ups zones presented on the left and drop-off zones presented along the top.<sup>9</sup> Zones without at least 25 trip events in either 2012 or 2013 were filtered out of the calculations. The change in speed from 2012 to 2013 for trips between zone pairs ranges from a decline in

<sup>8</sup> Calculation made from trips which flow between Manhattan and all other boroughs, except the Bronx.

<sup>9</sup> Other months show similar changes between the two years. See the Appendix for the year-over-year change in speeds for August and September.

speed of 6.2 mph for trips between Southwest Queens and Northwest Brooklyn to an increase in speed of 10.0 mph for trips between Southern Brooklyn and East Midtown. Despite this range, most zones barely show a difference in average speeds between the two years. The average change across all zones is 0.3 mph, a barely net positive change. In addition, no noticeable decline in traffic speeds has occurred even in areas of the city that are the highest-volume neighborhoods for Boro Taxi activity, such as Northwest Queens and Harlem. Therefore preliminary traffic speed data suggest that Boro Taxis are not significantly impacting traffic speeds in New York City.

		Central Midtown	Central Park	Downtown	East Midtown	Greenwich Village	Manhattan Harlem	Lower East Side	Roosevelt Island	Upper East Side	Upper West Side	Washington Heights/Inwood	West Midtown	Bronx North Bronx	South Bronx
Manhattan	Central Midtown	(0.7)	(0.5)	(0.2)	(0.4)	(0.6)	(0.3)	(0.2)	(0.2)	(0.4)	(0.3)	(0.3)	(0.6)	(0.2)	0.5
	Central Park	(0.6)	(0.2)	(0.1)	(0.3)	(0.5)	(0.1)	(0.1)	(2.4)	(0.1)	(0.0)	0.1	(0.5)	1.0	0.2
	Downtown	(0.7)	(0.8)	(0.4)	(0.4)	(0.2)	(0.4)	(0.0)	(0.9)	(0.1)	(0.6)	(0.6)	(0.8)	(0.9)	(0.1)
	East Midtown	(0.5)	(0.5)	0.4	(0.3)	(0.4)	(0.2)	0.4	(0.5)	(0.1)	(0.3)	(0.0)	(0.7)	(0.0)	1.0
	Greenwich Village	(0.6)	(0.6)	0.1	(0.3)	(0.3)	(0.2)	(0.0)	(0.6)	(0.3)	(0.6)	(0.4)	(0.6)	(0.1)	0.4
	Harlem	0.1	0.4	0.2	0.1	(0.1)	(0.4)	0.2	(1.2)	0.2	0.5	(0.2)	0.7	(0.5)	(0.3)
	Lower East Side	(0.6)	(0.3)	0.4	(0.2)	(0.5)	0.8	(0.4)	0.5	0.3	(0.0)	(0.0)	(0.6)	0.6	1.3
	Roosevelt Island	(0.9)			0.6	(0.5)	1.4	(1.0)	(0.4)	0.1	0.3		0.4		
	Upper East Side	(0.5)	(0.4)	0.4	(0.3)	(0.4)	(0.3)	0.1	(0.6)	(0.3)	(0.3)	(0.4)	(0.3)	0.1	(0.1)
	Upper West Side	(0.3)	0.3	(0.1)	(0.2)	(0.4)	0.1	(0.2)	(1.3)	(0.1)	0.2	0.5	0.1	0.1	0.3
	Washington Heights/Inwood	1.2	2.6	0.2	1.9	0.3	0.4	(0.5)		1.5	3.4	(1.2)	2.2	(0.5)	(0.7)
	West Midtown	(0.5)	(0.3)	(0.2)	(0.5)	(0.4)	0.2	(0.3)	0.0	(0.2)	(0.2)	0.2	(0.5)	0.3	0.6
Bronx	North Bronx	2.9			(0.8)		(1.6)			1.4	1.1	(0.8)	1.0	1.9	(1.6)
	South Bronx	1.7	1.2	(2.2)	3.2	0.3	1.2	(0.3)		2.8	2.8	(2.7)	2.9	(3.1)	(1.3)
Brooklyn	Central Brooklyn	4.2		(0.4)	5.3	1.3	1.5	1.8		4.4	6.0		0.7		
	Northern Brooklyn	0.1	1.0	0.4	0.8	0.4	0.6	1.1	(0.0)	1.1	0.6	1.2	0.1	0.0	3.3
	Northwest Brooklyn	(0.2)	0.3	(0.7)	0.0	(0.4)	0.5	(0.5)	1.4	0.5	0.4	1.0	(0.7)	1.4	0.2
	Southeast Brooklyn	2.0		6.3		3.2									
	Southern Brooklyn	8.6			10.0								1.9		
Queens	Central Queens	2.1	2.2	0.2	3.0	0.8	1.3	(0.5)	1.2	3.6	2.3	1.2	1.3	(2.8)	(0.7)
	Northeast Queens	2.4		1.5	4.4	0.3	5.7	3.8		4.5	5.4		2.8		
	Northwest Queens	0.1	0.9	(0.4)	0.3	(0.4)	(0.1)	0.3	(0.2)	0.3	0.6	(0.1)	(0.2)	1.5	(0.5)
	Rockaways														
	Southeast Queens	0.7	(0.3)	2.3	0.9	0.4	(0.6)	0.9		1.6	1.8	1.0	0.0		
	Southwest Queens	1.6		0.1	5.3	2.1		0.6		6.5	3.5		2.5		
Staten Island															
LGA		(0.3)	(0.7)	0.1	(0.2)	(0.5)	0.5	(0.4)	(0.1)	0.2	(0.0)	0.0	(0.6)	(1.5)	(0.0)
JFK		0.9	0.2	1.2	1.2	0.9	1.7	1.4	(0.2)	2.1	1.7	1.5	0.7	(0.6)	(0.3)

Table 6a. Change in Average Speeds between Zones (mph)

Source: NYC TLC Analysis of TPEP and LPEP trip-sheet data, October 2012 to October 2013



		Brooklyn					Queens								
		Central Brooklyn	Northern Brooklyn	Northwest Brooklyn	Southeast Brooklyn	Southern Brooklyn	Central Queens	Northeast Queens	Northwest Queens	Rockaways	Southeast Queens	Southwest Queens	Staten Island	LGA	JFK
Manhattan	Central Midtown	(0.0)	(0.3)	0.1	(0.2)	0.4	(0.2)	(0.2)	(0.3)	2.0	(0.2)	(0.6)	0.7	(0.3)	0.3
	Central Park	0.4	0.1	1.0	(2.2)	2.2	(0.4)	(3.4)	0.0		2.6	0.5		0.5	0.6
	Downtown	(0.2)	(0.3)	(0.3)	(1.3)	(0.1)	(0.8)	(0.3)	0.1	3.0	(1.1)	0.4	(0.5)	(0.3)	0.2
	East Midtown	0.5	0.2	1.1	0.1	0.9	(0.3)	(0.4)	(0.4)	2.6	0.2	(0.5)	1.5	0.3	0.6
	Greenwich Village	(0.1)	(0.5)	(0.2)	(0.4)	0.2	(0.6)	(0.6)	(0.3)	(0.9)	0.0	(0.4)	0.5	(0.2)	0.1
	Harlem	0.7	0.9	0.9	0.9	2.6	0.2	0.1	0.1		(1.9)	2.2		0.5	0.2
	Lower East Side	0.3	(0.1)	0.4	0.8	0.6	(0.4)	0.0	(0.0)		(0.8)	(0.3)	1.6	0.1	0.2
	Roosevelt Island		0.5				(0.6)		0.5						
	Upper East Side	0.4	(0.0)	1.4	(0.3)	0.5	(0.6)	(0.8)	(0.8)		(1.4)	(1.2)	1.2	0.2	0.5
	Upper West Side	0.8	0.1	0.7	0.4	0.2	(0.1)	(0.3)	(0.0)		0.5	(0.3)	(0.6)	0.4	0.7
	Washington Heights/Inwood	1.4	1.0	1.8			3.9	3.2	1.7					0.6	(0.5)
	West Midtown	0.0	(0.3)	0.1	(0.2)	(0.1)	(0.6)	0.4	(0.1)	1.2	(0.1)	(0.8)	(0.1)	(0.1)	0.2
	Bronx	North Bronx													
South Bronx			3.9	1.7			(0.6)		2.3					0.2	(3.9)
Brooklyn	Central Brooklyn	0.9	0.5	1.9	(0.6)	0.7	(0.8)		1.8					(2.5)	(0.2)
	Northern Brooklyn	(0.7)	(0.2)	(0.5)	(0.3)	0.5	(0.7)	(1.8)	(0.0)		(0.4)	(0.4)	1.6	0.3	0.5
	Northwest Brooklyn	(0.2)	(0.4)	(0.2)	(0.4)	0.9	(0.1)	(0.4)	0.5		(4.3)	(1.9)	2.3	(0.0)	(0.8)
	Southeast Brooklyn	1.1	0.7	1.0	(0.5)	0.7						6.9			(0.1)
	Southern Brooklyn	2.1	(0.3)	3.6	1.7	2.1									
Queens	Central Queens	(0.1)	(1.6)	(1.2)	(2.0)	(2.0)	(1.4)	(2.9)	1.9		(1.5)	(2.9)		0.1	(1.7)
	Northeast Queens		(0.0)	(3.8)			(1.1)	(1.3)	3.3		(3.6)	(1.3)		1.2	(1.9)
	Northwest Queens	0.5	(0.0)	(0.9)	(1.4)	1.4	(0.6)	(0.8)	(0.3)		(0.8)	(2.0)		0.6	(0.6)
	Rockaways									0.8					
	Southeast Queens		0.5	2.6			2.2	(4.4)	2.9		2.8	(4.0)		2.2	(1.1)
	Southwest Queens			(6.2)	0.1		(0.4)	(0.5)	3.5		(0.6)	(2.5)			(0.6)
Staten Island												6.2			
LGA		(1.4)	(0.7)	(1.2)	(1.6)	(0.8)	(0.7)	(2.3)	(0.3)	(1.3)	(1.9)	(2.2)	(0.5)	1.6	(2.1)
JFK		(0.9)	(0.3)	(0.7)	(0.7)	(0.9)	(0.0)	(0.3)	0.1	0.5	(0.0)	0.4	(0.9)	(0.8)	(0.7)

Table 6b. Change in Average Speeds between Zones (mph)

Source: NYC TLC Analysis of TPEP and LPEP trip-sheet data, October 2012 to October 2013

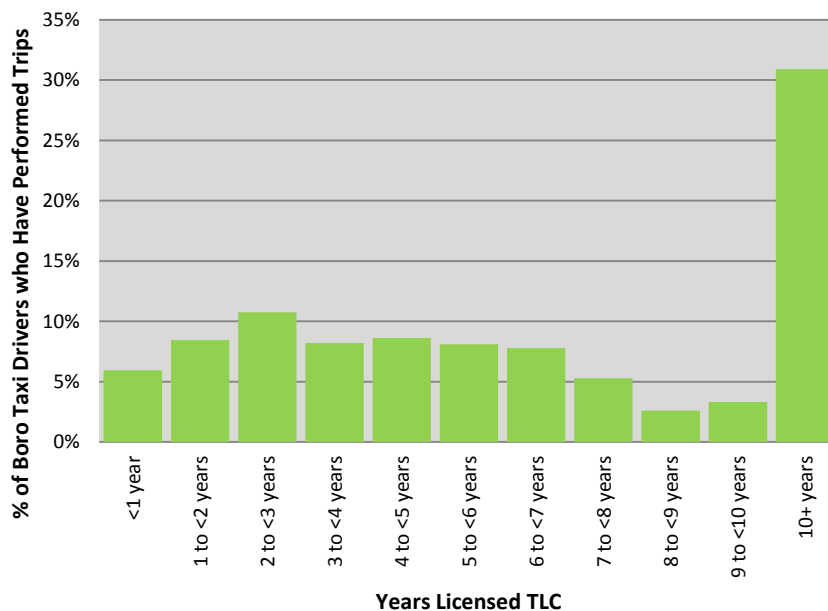
From the analyses comparing (1) Boro Taxi operations to both FHV and yellow taxi operations and (2) average travel speeds after the roll-out of Boro Taxis to travel speeds over a similar time period from 2012, there is no evidence that the Boro Taxi Program significantly impacts traffic congestion in NYC. TLC will continue to monitor the program for potential traffic impacts.

## 6.2 Boro Taxi Impacts on Traffic Safety

TLC expected that, just as new Boro Taxi owners would be primarily existing FHV owners, most Boro Taxi drivers would be primarily existing TLC-licensed drivers and would therefore be experienced at transporting fare-paying passengers around NYC. To explore the impact of the program on traffic safety, TLC reviewed its own licensing and enforcement records and DMV enforcement records to see the experience and safety record of Boro Taxi drivers.

### 6.2.1 Length of Licensure

Drivers currently behind the wheels of Boro Taxis are mostly long-established and experienced drivers. As a group they are more experienced than other groups of TLC-licensed drivers. Less than 2% of Boro Taxi drivers have become TLC licensees since the Boro Taxi program began rolling out. The median number of years a Boro Taxi driver has been licensed is 5.9 years. As a comparison, the median for all TLC-licensed drivers is 5.6 years, making Boro Taxi drivers slightly more experienced than all drivers taken together. Almost a third (31%) of Boro Taxi drivers have been licensed as FHV or yellow taxi drivers for 10 or more years (see Figure 20). For comparison, 28% of all yellow taxi drivers and 22% of all FHV drivers have been driving 10 or more years.



**Figure 20 Distribution of Boro Taxi Drivers by Years Licensed**

*Source: NYC TLC Licensing Data*

### 6.2.2 Collision Information

Examining collision rates is a more direct method of determining safety of Boro Taxi drivers. TLC has driver accident histories, but a data-reporting lag prevents analysis of very recent events. Fortunately, most Boro Taxi drivers have a long history as TLC-licensed drivers. Table 7 shows the distribution of Boro Taxi drivers by the frequency at which they get into a collision. Three-quarters of all Boro Taxi drivers have not had a collision since January 2010. Another 24% of drivers have had a collision, but at a frequency of less than one per year. On the high end of the spectrum, less than 1% of drivers have had one or more collisions each year.

Frequency of Collisions	Boro Taxi Drivers	
	Number	Percent
Zero per year	1404	75.4%
Less than one per year	443	23.8%
One or more per year	15	0.8%

**Table 7 Distribution of Boro Taxi Drivers by Frequency of Collisions**

*Source: NYS DMV License Event Notification Services (LENS) data, January 2010 to July 2013*

### 6.2.3 Driver Quality/ Safety Programs

Unsafe drivers can also be identified through two driver quality/safety programs at TLC: the Critical Driver and Persistent Violator programs. Each of these programs monitors the number of point-able offenses accumulated by drivers within a 15-month lookback period. If a driver obtains 6 or more points in this time period, he or she can be heavily fined or have his or her license suspended for 30 days. Drivers with 10 or more points in any 15-month period have their licenses revoked under these programs. The Critical Driver program looks at DMV-issued points for traffic violations, and the Persistent Violator Program looks at those points issued due to violations of TLC Rules. Only 9% of Boro Taxi drivers have *ever* paid a fine or had a license suspended under either of these programs (133 drivers under the Critical Driver program and just 14 drivers under the Persistent Violator program). Less than 1% of drivers were recidivists under either of these programs, with only two drivers receiving three program-related summonses since the programs began over ten years ago.

Compared to drivers as a whole, Boro Taxi drivers are relatively experienced. Particularly considering the high number of miles they drive, the collision rates for 99% of Boro Taxi drivers are very low. In addition, 91% of these drivers have never been suspended by TLC for an excessive accumulation of points from either the DMV or TLC. For these reasons, it is unlikely that there has been an adverse impact on traffic safety associated with the Boro Taxi Program.

Whereas drivers of “straight plates” vehicles are not subject to TLC licensing standards, the Boro Taxi Program steers more passengers towards riding with TLC-licensed drivers. TLC closely monitors all TLC-licensed drivers’ records for repeat safety infractions and performs regular drug testing. TLC will continue to uphold Boro Taxi drivers to the same safety and licensing standards as all drivers licensed by the TLC.

## 6.4 Integration into the NYC Transit System

Boro Taxis, just like yellow taxis and other for-hire vehicles, are becoming a key component of the NYC public transportation network. They are integrating with the NYC transit system in two primary ways:

- (1) providing transportation to and from public transit stops, and
- (2) providing transportation between destinations that are not conveniently connected by public transit, including New York City’s airports.

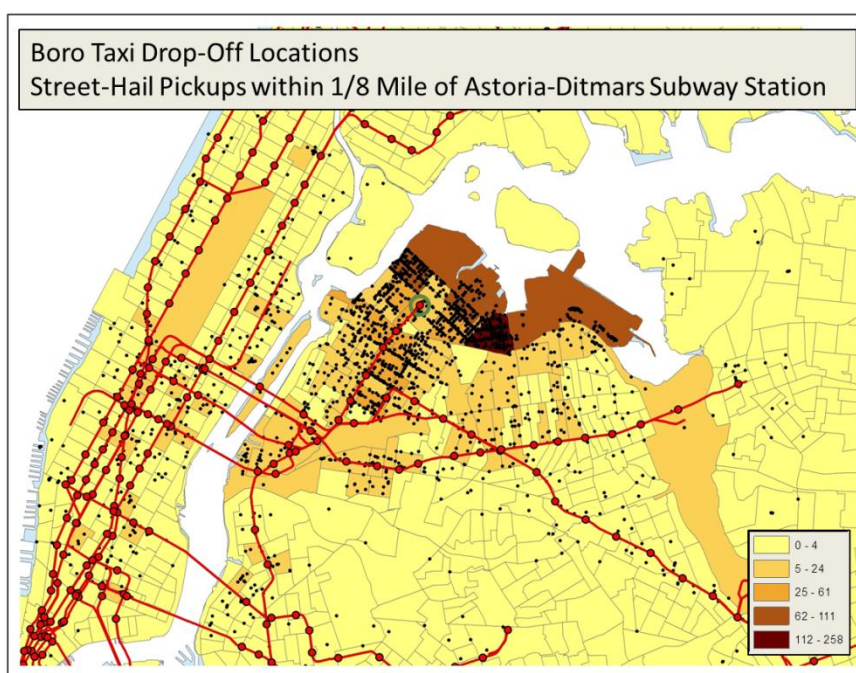
### 6.4.1 Transportation to and from Public Transit

Sometimes for-hire vehicles provide the “last mile” connection for someone who is able to make his or her trip primarily, though not entirely, by transit. There is some evidence that residents are using Boro Taxis for these types of trips. 52% of pickups and 28% of drop-offs take place within 1/8 mile of a subway, Metro-North or Long Island Railroad station. (When the radius is expanded to 1/4 mile, locations near train stations account for 82% of pickups and 61% of drop-offs.)<sup>10</sup> Of course, transit and rail stations are not the only factors drawing people to these areas. Transit and rail stations are also often hubs of commercial or institutional activity. However, the high rate of pickup and drop-off activity suggests that many passengers are likely using Boro Taxis to connect with public transit. The higher share of pickups than drop-offs taking place near transit may mean that there is a passenger tendency to take transit (or a combination of walking and transit) on one leg of a trip (e.g., on the way to shopping, a night out, or errands), but to take a Boro Taxi for a final leg of the return trip home.

Of the trips that started near a transit station, many appeared to be expanding the reach of transit by transporting the passenger to or from an area where that subway line did not reach. For example, Western Queens is a very popular area for Boro Taxi pickups. Within 1/8 mile of the Astoria-Ditmars Blvd. train station in Ditmars/Steinway (the terminus of the N and Q subway lines), 2,851 passengers had already street-hailed Boro Taxis as of November 11, 2013. The highest concentrations of drop-offs resulting from pickups made at this subway station (which are represented by darker colors and black dots on the map) were in areas north and east of the subway station (Figure 21).

LaGuardia Airport was among these popular drop-off destinations. This suggests that passengers may be riding the subway to this station and then making the last legs of their trips home or to the airport by Boro Taxi.

Several public transit stations, such as the Forest Hills subway station at 71<sup>st</sup> Avenue in Queens, the areas surrounding the subway and Metro-North stations at 125<sup>th</sup> St. in Northern Manhattan, and the areas surrounding the 74<sup>th</sup> St.-Broadway and Jackson Heights-Roosevelt Avenue stops in Jackson Heights, Queens, were particularly popular pickup points for Boro Taxi passengers. Table 8 shows the top fifteen transit stations for Boro Taxi pickups and drop-offs.



**Figure 21. Distribution of Dropoffs for trips Originating at Astoria-Ditmars Station**

Source: TLC analysis of Boro Taxi LPEP Street Hail Pickups 8/8/13 through 11/11/13.

<sup>10</sup> TLC analysis of 318,265 street-hail Boro Taxi trips that took place between 8/8/13 and 11/11/13.

In combination, pickups near these fifteen transit stations comprised 30% of all Boro Taxi street hails during the first three months of the program. As more Boro Taxis go into service, TLC will monitor these trends to see if additional transit stations become high-volume pickup points for Boro Taxis. As is the case with Boro Taxi pickups, stations in Northern Manhattan and Queens are the most popular drop-off stations.

Top 15 Transit Stations for Pickups			Top Fifteen Transit Stations for Drop-Offs		
Transit Station	Borough	Pickups	Transit Station	Borough	Drop-Offs
Forest Hills - 71st Ave. subway	Queens	16,958	125th St. Metro-North	N. Manhattan	3,465
125th St. Metro-North	N. Manhattan	8,851	125th St. 4-5-6 subway	N. Manhattan	3,279
125th St. 4-5-6 subway	N. Manhattan	8,462	125th St. A-B-C-D subway	N. Manhattan	1,642
74th St. - Broadway 7 subway	Queens	7,628	21st St. G subway	Queens	1,365
Jackson Heights-Roosevelt Ave. subway	Queens	7,577	96th St. 1-2-3 subway	N. Manhattan	1,362
Woodside - 61st St. 7 subway	Queens	6,104	125th St. 2-3 subway	N. Manhattan	1,278
Woodside LIRR	Queens	5,685	Jackson Heights-Roosevelt Ave. subway	Queens	1,176
116th St. - Columbia University 1 subway	N. Manhattan	5,041	Cathedral Parkway (110th St.) 1 subway	N. Manhattan	1,172
168th St. - Washington Heights 1 subway	N. Manhattan	5,027	86th St. 4-5-6 subway	N. Manhattan	1,171
Washington Heights - 168th St. A-C subway	N. Manhattan	4,690	74th St. - Broadway 7 subway	Queens	1,163
Bedford Ave. L subway	Brooklyn	4,446	116th St. B-C subway	N. Manhattan	1,087
Flushing - Main St. LIRR	Queens	4,432	116th St - Columbia University 1 subway	N. Manhattan	1,047
Flushing-Main St. subway	Queens	4,330	168th St - Washington Heights 1 subway	N. Manhattan	950
Cathedral Pkwy (110th St.) 1 subway	N. Manhattan	3,972	Woodside - 61st St. 7 subway	Queens	903
30th Ave. subway	Queens	3,920	Washington Heights - 168th St. A-C subway	N. Manhattan	882

**Table 8 Top Fifteen Transit Stations for Boro Taxi Pickups or Drop-Offs.**

Stations appearing in both lists are color coded

Source: TLC analysis of Boro Taxi LPEP Street Hail Pickups 8/8/13 through 11/11/13. A pickup or drop-off was counted as near a transit station if it took place within 1/8 mile of the station.

Boro Taxi drop-offs are significantly less concentrated near particular transit stations than are Boro Taxi pickups. Whereas 30% of Boro Taxi pickups took place near one of the fifteen transit stations, only 7% of Boro Taxi drop-offs took place in one of the top fifteen drop-off station areas. This is consistent with the theory that passengers may be taking transit (or a combination of walking and transit) on one leg of a trip and then taking a Boro Taxi for a final leg of the return trip home.

The higher concentration of Boro Taxi street-hail pickups rather than drop-offs at transit stations also suggests that areas near transit stations are successful locations for Boro Taxis to cruise for passengers and for passengers to look for a ride. When a passenger is in a less-dense area of the city, such as a residential street, he or she may be more likely to call a car service for a pickup since Boro Taxis are less likely to be found cruising for fares in these areas.

TLC passenger surveys conducted on the screens in the back of Boro Taxis confirm the strong relationship between Boro Taxis and public transit. 44% of passengers who responded to the survey reported that, in addition to the Boro Taxi ride they were currently taking, they were also using the subway, a bus or a train on that same trip. In this way, Boro Taxis essentially expand the reach of public transit beyond the radius of individuals who can walk to a specific bus, subway or train station.

### 6.4.2 Transportation on Trips that Are Not Convenient by Public Transit

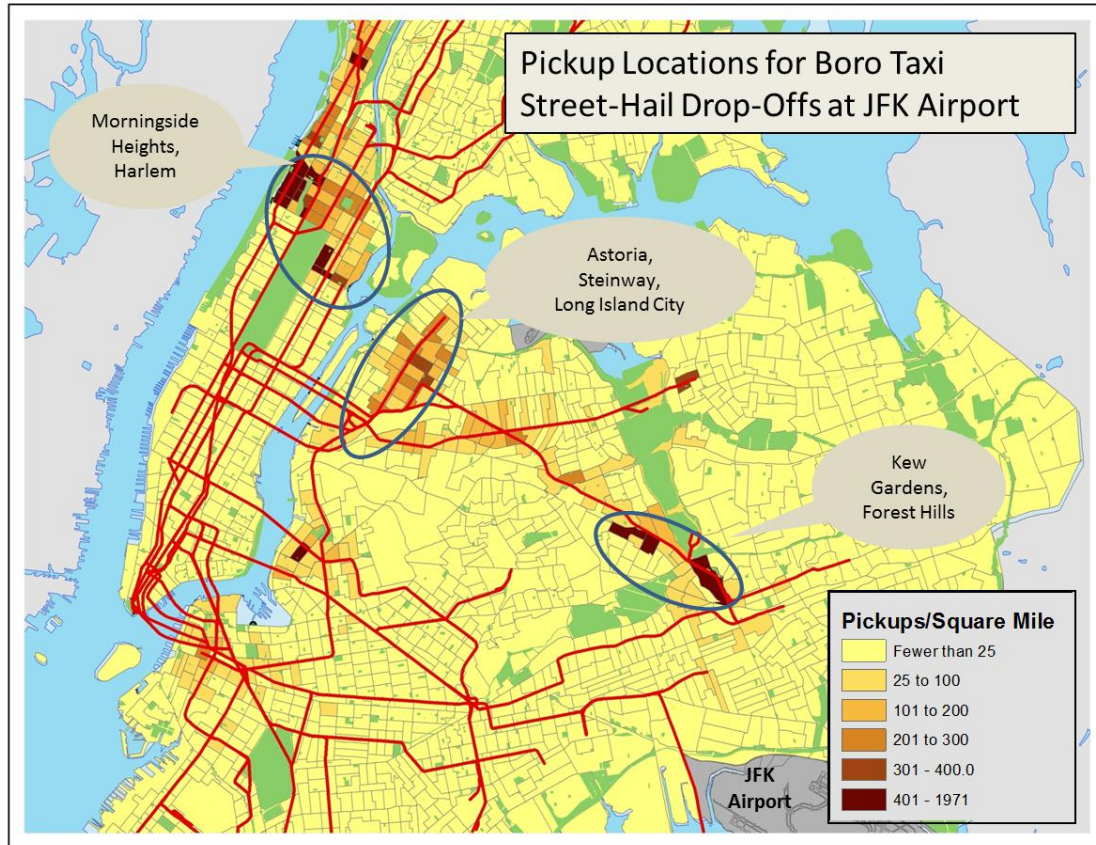
Sometimes for-hire vehicles provide transportation between locations where transit connections are inconvenient. In these cases, passengers benefit from the convenience and time savings of taking a Boro Taxi rather than public transit.

JFK Airport is an example of a popular destination that is not always convenient to reach by transit. Although JFK is accessible by bus and by train, via a connection to the JFK Airtrain, these routes can sometimes be time-consuming. For example, according to Google Maps:

- To reach JFK from Morningside Heights by public transit would take about an hour and a half. The passenger would take the JFK Airtrain plus at least one subway (and often a combination of Airtrain, subway and Long Island Rail Road). To complete this same trip by Boro Taxi on a random weekday afternoon, even accounting for traffic, would take closer to forty-five minutes.
- A trip from Long Island City to JFK by transit would take about an hour through a combination of Airtrain and subway or subway and Long Island Rail Road. It would take about half that amount of time by Boro Taxi.
- A trip from the Steinway section of Western Queens to JFK by transit would take about 1 hour and fifteen minutes by transit (Airtrain plus multiple subways or a combination of subway and Long Island Rail Road), or 20 to 30 minutes by Boro Taxi.

Figure 22 shows the concentration of Boro Taxi pickup points for drop-offs made at JFK Airport. The darker-colored areas represent sections of the city with high concentrations of pickups bound for JFK Airport. The red lines represent the subway.





**Figure 22 Common Origins for Boro Taxi Trips made to JFK, August 8 to November 11 2013**

*Source: TLC analysis of Boro Taxi LPEP Street Hail Pickups*

There are significant concentrations of passengers traveling to JFK Airport from locations like Morningside Heights, Harlem and Western Queens. For these passengers, Boro Taxis offer significant time savings for getting to the airport. There is also a significant concentration of passengers traveling to JFK Airport from the area surrounding the subway and the Long Island Rail Road stations in Kew Gardens and Forest Hills.

Although the program is in its early stages, there is evidence that Boro Taxis are successfully integrating into the NYC public transportation network. They are providing transportation to and from public transit stops as well as providing transportation between destinations that are not conveniently connected by public transit. TLC will continue to monitor Boro Taxi pickup and drop-off patterns to expand understanding of how these vehicles are integrating into the overall transportation network.

## Chapter 7: Adequacy of Existing Regulatory Framework

On April 19, 2012, the Taxi and Limousine Commission passed a set of rules to govern the implementation of the Street Hail Livery (SHL) or Boro Taxi Program. TLC began with the framework established by the legislation passed at the state level and used the rulemaking process to fill in the details for how the program would operate. The rules covered the purpose of the program, definitions for new terminology, vehicle requirements, accessibility, driver and service requirements, service options, enforcement, base requirements, and technology vendor requirements. The rule changes were organized as follows:

- Amendment to Definitions (Chapter 51) to incorporate Street Hail Liveries
- Amendment to For-Hire Service (Chapter 59B) to outline requirements for base stations authorized to affiliate Street Hail Liveries
- New chapter on Street Hail Livery Service (Chapter 82) outlining licensing, service and vehicle requirements
- Amendments to Medallion Taxicab Drivers (Chapter 54) to incorporate requirements for drivers of Street Hail Liveries
- New chapter (Chapter 83) on Technology Vendors creating a new licensee type for vendors of taxicab technology for Street Hail Liveries.

### 7.1 Summary of the Boro Taxi Rules

The full text of these rules is available on the TLC website under “TLC Rules and Local Laws.” This chapter summarizes some key components of those rules.

#### 7.1.1 Customer Service Rules

TLC rules include several elements to ensure that the public receives good customer service in Boro Taxis. These rules include:

- Metered fares for street-hail trips, which are currently set equal to the rate of fare in yellow medallion taxis. This provides predictability for passengers, builds trust between drivers and passengers, and prevents price gouging. For prearranged trips, Boro Taxi drivers may charge a fare set by their bases.
- A requirement that drivers of Accessible Street Hail Liveries take a Wheelchair Passenger Sensitivity Course.
- Conduct requirements that align with many of those in place for yellow taxi drivers, such as a prohibition on service refusals, a requirement to comply with reasonable passenger requests, and prohibitions on tampering with the meter, the LPEP or the roof light equipment.
- Permission for Boro Taxis to provide both prearranged and street hail service, which enables drivers to adapt to meet customers' demand for each of these types of service (e.g., prearranged airport drop-offs in the early morning and street-hail rides late at night).

#### 7.1.2 Rules for Drivers

TLC rules created several measures to ensure that Boro Taxi drivers operate safely and effectively. These measures include:

- A requirement that Boro Taxi drivers be either (1) existing licensed for-hire vehicle drivers, (2) existing licensed yellow taxi drivers, or (3) existing licensed paratransit drivers (for accessible vehicles). Drivers who did not fall into any of these categories at the time of program implementation are required to obtain a yellow taxi driver's license to operate a Boro Taxi.
- A requirement to maintain proper insurance.



- Clearly-defined rules on which areas of the city Boro Taxis may and may not make street-hail and prearranged pickups. No Boro Taxis may make pickups of any kind in the Manhattan Core (south of W. 110<sup>th</sup> St. and E. 96<sup>th</sup> St.). Boro Taxis may make only prearranged pickups at the airports.
- Penalties for violators of TLC rules for Boro Taxi owners and drivers (e.g., penalties for picking up in the Exclusionary Zone).
- A requirement to maintain accurate prearranged and street-hail records using the LPEP system.

### 7.1.3 Rules for Vehicles

TLC rules created several important vehicle requirements to ensure that Boro Taxi vehicles are safe and convenient for passengers and drivers. This includes:

- Distinguishing markings (i.e., a uniform “big apple green” color scheme and specific text markings) so that passengers know they are entering a legal car with a licensed driver.
- Required equipment:
  - Roof lights so passengers can identify when a Boro Taxi is or is not available. This makes it easier to locate an available Boro Taxi and reduces horn-honking by drivers soliciting passengers.
  - Meters calculating a uniform fare for street-hail trips.
  - Credit and debit card readers, which make it easier for passengers to pay their fares and reduce the amount of cash drivers carry.
  - A partition or security camera to promote driver safety
- Twice-yearly vehicle safety and emission inspections performed by TLC inspectors.
- GPS locators to assist with locating lost property and to assist TLC enforcement with preventing Boro Taxis from making illegal pickups.
- Rules for LPEP (the technology system similar to TPEP in yellow taxis), which provides Boro Taxis with electronic trip-sheets, GPS tracking, electronic payment, driver messaging, and passenger entertainment.

State legislation requires that each Boro Taxi affiliate with a base that is specially licensed to affiliate Boro Taxis. The rules outline the process for bases to become licensed to affiliate Boro Taxis, along with these bases' responsibilities. Examples of these responsibilities include ensuring that their affiliated Boro Taxi vehicles and drivers comply with TLC rules and transmitting the 50 cent MTA surcharge on each street-hail ride to the MTA.

## 7.4 Resolved Issues

As TLC and the for-hire industry have implemented the program, several issues came to light that required supplementary changes or additions to existing regulations. On several of these issues, TLC has already taken action to remedy the issue.

- *Revising Implementation Dates.* The first supplementary amendment that the TLC required arose due to delays caused by litigation. The rules that TLC adopted to implement the Boro Taxi legislation in early 2012 contained specific dates for various implementation steps. Implementation of the program was significantly delayed by litigation that challenged the state legislation. Following the court's decision in the City's favor, which permitted implementation of the Boro Taxi Program, on September 12, 2013 TLC amended its rules to update certain dates in the original rules to account for the passage of time, eliminate unneeded definitions, and correct some penalties to reflect recently-enacted local laws.
- *Rules for FHV Colors.* The second supplementary amendment that the TLC issued on October 17, 2013 clarified that only Boro Taxis, and no other for-hire vehicles, may be any shade of apple green.

This prevents the public from becoming confused about which vehicles can legally be hailed and which vehicles have customer amenities such as metered fares and electronic payment.

- *Wheelchair Accessibility Training.* To increase the universe of drivers who are properly trained and available to drive accessible Boro Taxis and yellow taxis, TLC enacted a rules change that mandated wheelchair passenger assistance training for all new taxicab drivers. TLC also removed the requirement that taxicab owners pay for such training and made paying for this training a driver responsibility.
- *Paratransit License Term.* TLC passed a rule change that increased the paratransit base license period to three years. This creates a convenience for base owners because paratransit bases with SHL endorsements can now have both their paratransit and SHL renewals take place on the same schedule.
- *Permit Transfer Process.* Boro Taxi permits are transferable. However, when Boro Taxi permits were initially issued, the process for doing so was not yet in place. TLC recently finalized the process for transferring Boro Taxi permits and has begun processing inquiries from individuals wishing to transfer their permits. The primary type of transfer request submitted to TLC thus far has been from individuals who wish to transfer their permits to a corporation in which they are the sole principal.
- *Boro Taxi Technology.* Several issues have arisen related to the Boro Taxi Technology System (LPEP). TLC based the LPEP system requirements upon the rules used for the Medallion Taxi Technology System (TPEP). Since the creation of the LPEP system, however, TLC released updated TPEP 2.0 rules that address many new features and requirements for TPEP vendors (e.g., the inclusion of visual accessibility features and increased survey capabilities). In order to bring the LPEP systems up to these new standards and into alignment with TPEP, TLC staff created an LPEP “clean-up” rules package. The Commission voted to approve these rule updates in November 2013.

## 7.5 Remaining Issues to Address

There are also some issues that the City has not yet addressed, but that staff is currently engaged in addressing.

- *Renewal Fee.* One issue that still must be addressed is setting a permit renewal fee. Boro Taxi permits expire after 3 years, so the first Boro Taxi permits will be coming up for renewal in July 2016. TLC staff will work with the Commission to ensure that a rule is enacted setting a renewal fee well before that time.
- *Wheelchair-Accessible Boro Taxi Data Reporting.* Another issue TLC staff are working on relates to capturing data regarding Wheelchair Accessible Vehicles (WAVs). Currently, there are no reporting requirements for bases to tell TLC how many WAV requests and trips exist. Finding a way to collect and compile this information will prove instrumental in understanding how wheelchair-accessible Boro Taxis assist the MTA Access-a-Ride program to meet the needs of passengers who use wheelchairs in New York City.

TLC will continue to closely monitor the Boro Taxi Program for issues or possible improvements. As TLC, the public, or members of the industry identify issues with the program, TLC staff will take the necessary steps to address them through internal policy changes, rules change, or legislative changes.

## Chapter 8: Conclusion and Recommendations

Before the Boro Taxi Program, yellow taxis were the only vehicles that could be legally hailed in New York City. Yellow taxis' metered fares, credit/debit card payment, and clear markings made them popular with passengers, but their reach did not expand beyond the Manhattan Core. With the introduction of the Boro Taxi Program, outer borough and Northern Manhattan residents finally have access to safe, legal, convenient street-hail service. As more and more Boro Taxis hit the streets each day, passengers are eagerly taking advantage of the new service.

The service is particularly important to New Yorkers who use wheelchairs. Before the Boro Taxi Program, there were 231 yellow taxis that were accessible to wheelchair users and only a handful of livery vehicles that were accessible to wheelchair users. In its first year, the Boro Taxi Program will put 1,200 wheelchair-accessible Boro Taxis on the road. Wheelchair users will be able to hail or call ahead for these vehicles and pay the same fare as other passengers, providing them with unprecedented access to on-demand, rapid transport to get to work, meetings, appointments, or social activities.

Members of the for-hire vehicle industry consider Boro Taxi permits worthwhile investments. TLC sold all 6,000 permits it was authorized to sell in the first issuance year—including 1,200 wheelchair-accessible permits—in the first six months of the program. There is already an approximately 2,000-person long waiting list of individuals who want the opportunity to purchase a permit in the second issuance. Continuing to issue permits until service providers no longer wish to join the industry (or until the legislatively-determined cap is reached) gives market forces the opportunity to signal the number of vehicles needed to serve the public.

The rapid sale of the first 6,000 permits and the already-forming waitlist for the next 6,000 are not surprising. The investments of purchasing Boro Taxi permits and properly equipping vehicles are paying off for licensees. Boro Taxis are in high demand by riders, and ridership is highest in Northern Manhattan and Queens. There are also some rides taking place in southwestern Bronx and Brooklyn north of Prospect Park. However, residents in many neighborhoods, particularly those farther away from Manhattan, still have relatively little access to legal street-hail service. In some quiet residential neighborhoods there may never be demand for street-hail service, but there are many communities and business districts that demand safe and legal street-hail service but still do not have access to it.

Boro Taxis, which are in limited supply, are congregating in the most fare-dense neighborhoods in the Boro Taxi Zone. This phenomenon is very similar to what occurs with yellow taxis, which cluster in the Manhattan Core not because that is the *only* area with demand for hails, but rather because it is the *densest* area with demand for hails and the market has not yet been saturated. Neighborhoods that already have Boro Taxi service have not yet reached their maximum capacities for street-hail service. As TLC issues more Boro Taxi permits and the most fare-dense neighborhoods have their demand more fully met, drivers seeking fares will begin to serve other communities and business districts where the demand for safe and legal street hail service remains unmet.

TLC staff are also monitoring the impacts of the Boro Taxi Program on the yellow taxi and FHV industries, traffic circulation, traffic safety and the transit system. Thus far the agency has not detected any significant negative impacts in these areas:

- Yellow Taxi.** The Boro Taxi Program has expanded service in Northern Manhattan and the outer boroughs without adding competition in the areas of the city where the yellow taxi industry earns nearly all of its revenue. From 2012 to 2013 taxi trips and total revenue from taxi fares have increased year-over-year for the months of October and November. Furthermore, medallion prices have been increasing steadily for the past decade and have continued to climb to record levels even as the Boro Taxi Program has rolled out.

- **FHV.** Boro Taxis have expanded revenue opportunities for members of the FHV industry. As Boro Taxis expand the legal reach of the FHV industry to include street hails, the traditional dispatch FHV industry remains strong. The number of for-hire vehicles, drivers and bases has continued to grow. Only about one third of Boro Taxi passengers would have called a car service in the absence of the Boro Taxi, suggesting that direct competition between Boro Taxis and members of the FHV industry who choose not to participate in the program is low.
- **Traffic Congestion.** The Boro Taxi Program has not resulted in a substantial increase in the number of cars on the road or an increased number of miles being driven by those cars. Most Boro Taxi trips begin and end in the same borough. They rarely cross the major bridges, which often suffer from congestion. Only one quarter of Boro Taxi trips end in the Manhattan Core, the area with the most traffic congestion. The volume of additional cars on the road and miles being driven is not currently, and is unlikely to become, large enough to impact traffic speeds.
- **Traffic Safety.** Drivers currently behind the wheels of Boro Taxis are mostly long-established and experienced TLC drivers. Three-quarters of all Boro Taxi drivers have not had a collision since January 2010. Another 24% of drivers have had a collision, but at a frequency of less than one per year. Only 9% of Boro Taxi drivers have *ever* paid a fine or had a license suspended under either of TLC's driver quality/safety programs.
- **Transit.** Boro Taxis are integrating well with the transit system. 44% of Boro Taxi trips involved a connection with either a bus or the subway to complete the trip. Trip records show that 52% of pickups occurred very close to subway or commuter rail stations. This suggests that some riders take subways as far as they can go, then complete their trips by transferring to Boro Taxis.

TLC is continuing to follow through on efforts to continually improve the enforcement of the agency's rules and regulations. The TLC Uniformed Services Bureau is partnering with the NYPD and the Port Authority Police Department to enforce the HAIL Exclusionary Zone, which protects yellow taxi drivers and owners from poaching by vehicles that are not licensed to pick up street-hails in the Exclusionary Zone. These enforcement agencies are also working every day—both on the ground and through technology and data-driven enforcement—to enforce rules against street hail pickups anywhere in the city by vehicles other than Boro Taxis and yellow taxis. This protects both the public from unsafe, unlicensed operators and the investments of participants in these industries.

The Boro Taxi Program has expanded access to safe, convenient, and legal taxi service to parts of the city that were not being served by yellow taxis. Releasing the next issuance of permits will expand coverage even farther, serving more passengers and giving more drivers the freedom to move out of the shadows and into the legal market. The Taxi and Limousine Commission should plan to release the second issuance of permits as soon as is permitted by law. The TLC will continue to monitor the industry and its effects on the city and adjust rules and agency priorities as necessary to provide safe, reliable transportation in all five boroughs.

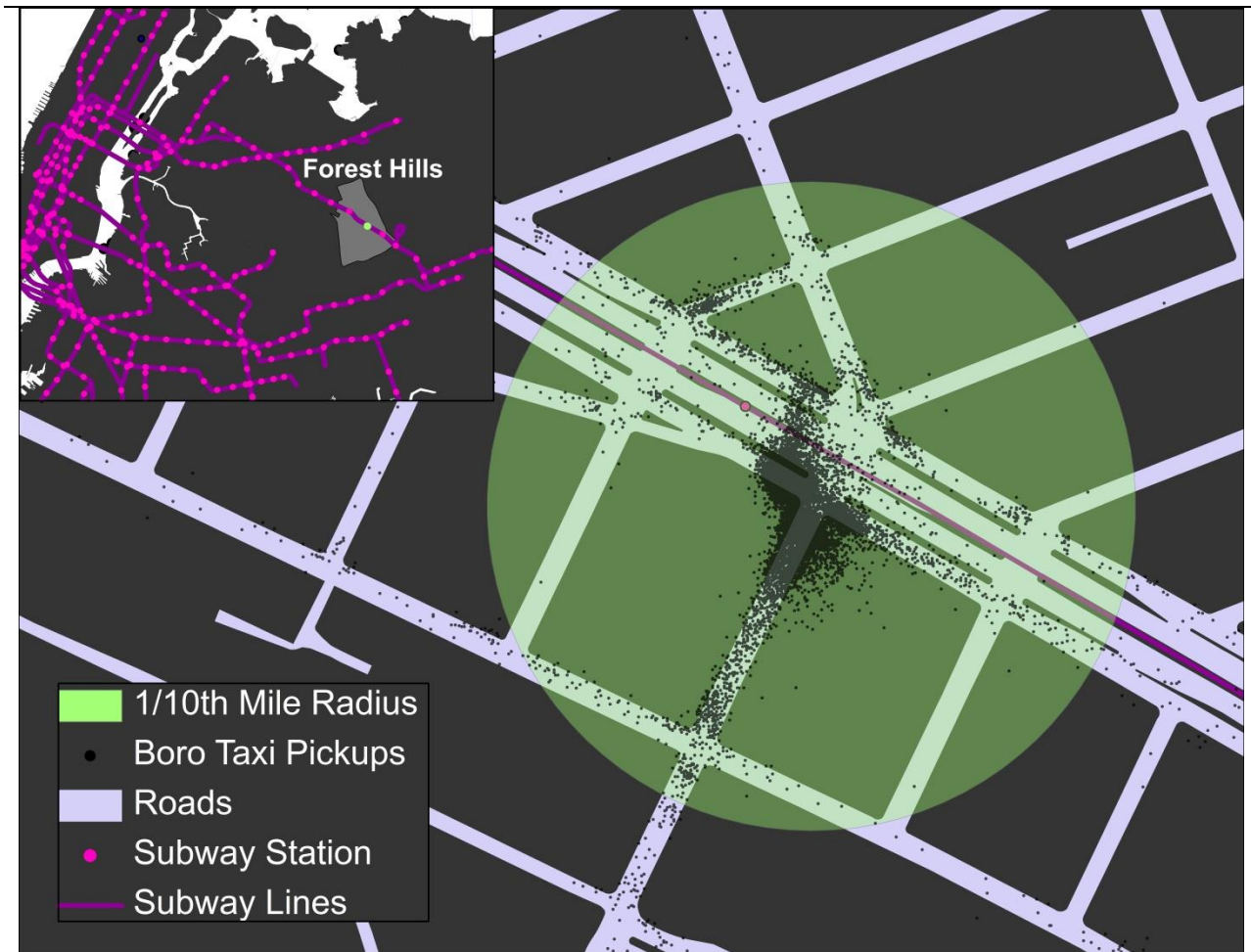
## Appendix A- Street Hail Field Study

### Street Hail Field Study Results, 1-Hour Observations

Date of Observation	Start Time of Observation:	Location	Unauthorized Street Hail Providers		Boro Taxis	
			Ride Offers	Rides Accepted	Ride Offers	Rides Accepted
10/31/2013	6:00 PM	Broadway and Grand	10	3	3	1
11/1/2013	5:00 PM	Roosevelt and Main St.	9	1	7	1
11/4/2013	8:00 AM	61st and Roosevelt	6	2	3	0
11/4/2013	8:00 AM	1500 Sheepshead Bay Rd.	5	2	0	NA
11/4/2013	10:00 AM	Nostrand and Flatbush	12	4	1	0
11/4/2013	5:00 PM	Stillwell and Mermaid	3	1	0	NA
11/5/2013	9:00 AM	Lefferts and Liberty	12	3	0	NA
11/5/2013	4:30 PM	Jamaica LIRR	20	6	2	0
11/5/2013	8:00 AM	Flatbush and Ave. V	4	1	0	NA
11/6/2013	4:30 AM	Exterior and 225th	10	0	2	0
11/7/2013	5:00 PM	E. Fordham and Webster	20	4	4	0
11/7/2013	5:00 PM	Broadway and Junction	28	6	1	0
11/9/2013	10:30 AM	149th and Morris	15	4	3	0
11/12/2013	6:00 PM	Westchester and St. Paul	1	0	0	NA
11/12/2013	3:30 PM	125th and Lexington	15	4	2	0
11/13/2013	9:00 AM	Nostrand and Fulton	13	1	6	1
11/19/2013	4:30 PM	131st and 7th	16	1	3	1

Source: TLC Field Study, October-November 2013.

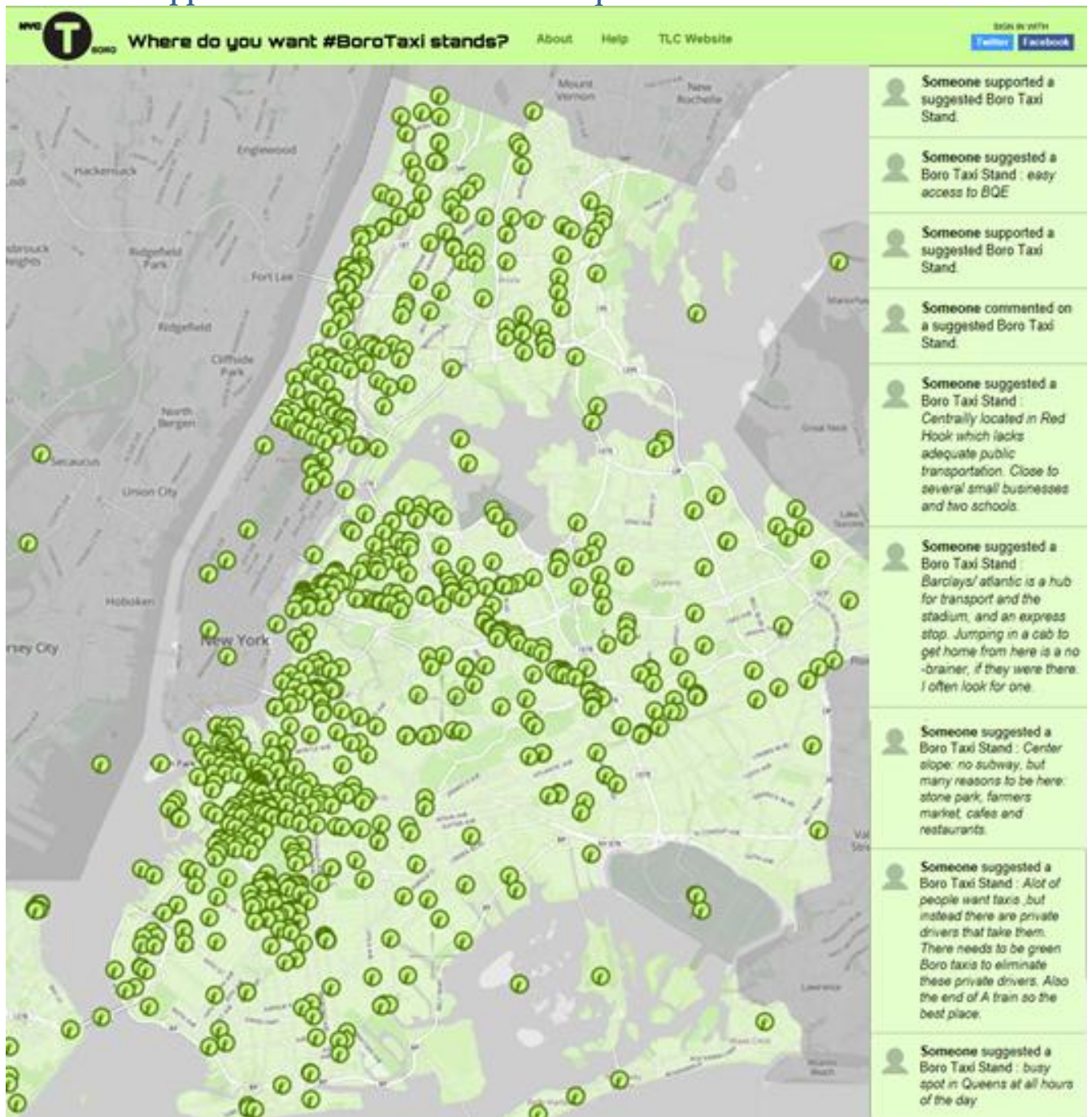
## Appendix B- Forest Hills Transit Hub



Source: TLC analysis of TLC LPEP Data As of 11/17/2013



## Appendix C – Boro Taxi Stand Requests from the Public



Source: TLC Boro Taxi Stand Tool powered by OpenPlans - <http://www.borotaxis.org/>

## Appendix D – Social Media Responses to the Boro Taxi Program

### Twitter

- 
- 

**Nily Rozic** @nily 13 Nov  
Big fan of all that wasabi green in Eastern Queens:  
[#tumblr.co/ZNPKjw\\_DRhcZ](https://www.tumblr.com/ZNPKjw_DRhcZ) #queenslove #borotaxi  
Retweeted by [David Yassky](#)  
Expand [← Reply](#) [↻ Retweet](#) [★ Favorited](#) [... More](#)
- 
- 

**Colleen Clark** @CbCDRUMS 13 Nov  
Trying out this hot little green #taxi on the way to JFK! Loving it! @nyctaxi @MikeBloomberg #NYC  
Expand [← Reply](#) [↻ Retweet](#) [★ Favorited](#) [... More](#)
- 
- 

**Andy Cochran** @andycochran 12 Nov  
New Yorkers, suggest #BoroTaxi stand locations (Bklyn, Brnx, Qns, SI, or Manhattan > 96th) w/ this map by @OpenPlans.  
[borotaxis.org](http://borotaxis.org)  
Expand [← Reply](#) [↻ Retweet](#) [★ Favorited](#) [... More](#)
- 
- 

**Today in NYC** @TodayinNYC 7 Nov  
In my first #greencab! #applecab #borotaxi Queens to BK just got a lot easier  
Expand [← Reply](#) [↻ Retweet](#) [★ Favorite](#) [... More](#)
- 
- 

**Karen Towns** @kbt278 21 Nov  
Today I saw for the first time one of the green taxis. They look great. Congrats @nyctaxi and Commissioner @DavidYassky  
[📍 from Manhattan, NY](#) [← Reply](#) [↻ Retweet](#) [★ Favorite](#) [... More](#)
- 
- 

**Janet Caputo Karp** @janetcap 11 Oct  
I'm in a #greentaxi! Hailed it via @Uber\_NYC  
Expand
- 
- 

**Aparna Mukherjee** @aparnamuk 30 Sep  
First time out in a @NYCTaxi green cab [mob.li/\\_oFaRI](http://mob.li/_oFaRI)  
[📷 View photo](#) [← Reply](#) [↻ Retweet](#) [★ Favorite](#) [... More](#)
-



## Instagram



**Alex**  
@dearmrjack



.@nyctaxi - beautiful green taxis and in the #bronx! #BoroTaxi  
[pic.twitter.com/bY8KG1T19A](http://pic.twitter.com/bY8KG1T19A)

← Reply ↻ Retweet ★ Favorite ... More



5:46 PM - 20 Aug 13

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**Julie Wood**  
@juliewood



There are so many legal @nyctaxi street hails happening in Flushing! Green cabs everywhere [pic.twitter.com/dy4ujE9reK](http://pic.twitter.com/dy4ujE9reK)

← Reply ↻ Retweet ★ Favorite ... More



2

RETWEETS



6:22 PM - 26 Aug 13

Flag media



**Andrew Torres**  
@amtortes80



Spotted in Brooklyn: an apple green @nyctaxi 5 boro taxi. Woman opened the door and asked, "Is this metered?" #yes  
[pic.twitter.com/XMVDwFDL4J](http://pic.twitter.com/XMVDwFDL4J)

← Reply ↻ Retweet ★ Favorite ... More



1

FAVORITE



8:41 PM - 27 Aug 13

Flag media



**Claire Moses** @clairemoses

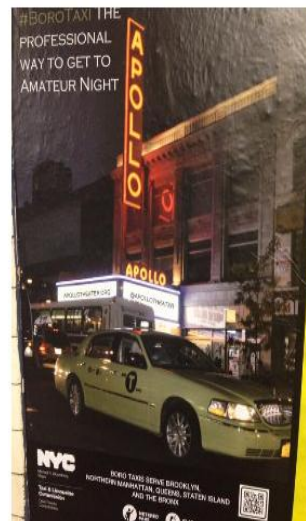
20m

Never seen this before: ad for a #borotaxi (at the 2nd ave subway station in LES) [pic.twitter.com/ScddnoadN](http://pic.twitter.com/ScddnoadN)

Followed by New Yorkers 4 Parks

Hide photo

← Reply ↻ Retweet ★ Favorite ... More



1:25 PM - 6 Dec 13 - Details

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## Appendix E – Traffic and Transit

		Central Midtown	Central Park	Downtown	East Midtown	Greenwich Village	Manhattan Harlem	Lower East Side	Roosevelt Island	Upper East Side	Upper West Side	Washington Heights/Inwood	West Midtown	North Bronx	South Bronx
Manhattan	Central Midtown	(0.7)	(0.7)	(0.1)	(0.5)	(0.2)	(0.4)	(0.2)	(2.1)	(0.7)	(0.3)	0.0	(0.4)	(0.1)	0.3
	Central Park	(0.1)	(0.3)	0.2	(0.3)	(0.0)	(0.2)	(0.4)	(3.3)	(0.4)	(0.1)	0.3	(0.0)	0.6	(1.6)
	Downtown	(0.7)	(1.2)	(0.6)	(1.1)	0.2	0.0	0.0	(2.5)	(1.0)	(0.4)	0.1	(0.6)	(1.8)	(1.6)
	East Midtown	(0.6)	(0.7)	0.5	(0.9)	(0.1)	(0.5)	(0.2)	(2.0)	(0.9)	(0.5)	(0.3)	(0.6)	(0.7)	0.1
	Greenwich Village	(0.6)	(0.6)	0.0	(0.3)	(0.2)	(0.1)	(0.0)	(0.6)	(0.5)	(0.4)	(0.1)	(0.4)	0.5	0.6
	Harlem	(0.1)	(0.4)	0.0	(0.3)	0.6	(0.5)	0.4	(2.3)	(0.1)	(0.2)	(0.2)	0.2	0.1	0.3
	Lower East Side	(0.3)	(0.6)	0.6	(0.3)	0.3	0.6	(0.5)	(0.1)	(0.4)	(0.1)	0.2	(0.0)	(0.0)	0.2
	Roosevelt Island	0.7		1.2	(0.4)	0.1			0.3	(0.4)	(0.6)		(1.0)		
	Upper East Side	(0.3)	(0.6)	0.6	(0.5)	0.2	(0.7)	0.0	(1.9)	(0.7)	(0.3)	(0.2)	(0.2)	(1.0)	(0.4)
	Upper West Side	(0.1)	(0.2)	(0.1)	(0.2)	0.1	(0.0)	(0.1)	(1.7)	(0.2)	(0.0)	0.2	0.1	0.7	0.8
	Washington Heights/Inwood	(0.3)	(0.8)	0.7	(0.2)	0.4	(0.1)	0.1		0.0	(0.3)	0.0	(0.1)	(0.4)	0.0
	West Midtown	(0.3)	(0.4)	(0.2)	(0.4)	(0.1)	0.0	(0.3)	(2.1)	(0.4)	(0.1)	0.0	(0.1)	0.4	0.8
	West Midtown	(0.3)	(0.4)	(0.2)	(0.4)	(0.1)	0.0	(0.3)	(2.1)	(0.4)	(0.1)	0.0	(0.1)	0.4	0.8
Bronx	North Bronx	(1.6)			4.0		(0.4)			0.5		(0.1)		3.8	0.2
	South Bronx	(0.3)	(0.7)	(3.3)	0.0	1.0	(0.6)	(1.5)		(0.5)	(0.3)	(0.7)	(0.4)	2.0	(0.4)
Brooklyn	Central Brooklyn	0.4		1.1	0.1	(0.3)	0.8	(0.7)		(1.1)	(0.5)		(0.9)		
	Northern Brooklyn	(0.1)	(0.4)	(0.1)	0.1	0.2	0.4	0.0	0.2	0.2	(0.1)	0.4	0.3	1.4	1.6
	Northwest Brooklyn	(0.6)	(1.5)	(0.2)	(0.9)	0.1	(0.3)	(0.6)	(0.5)	(1.0)	(0.4)	(0.1)	(0.6)	0.0	1.4
	Southeast Brooklyn	(0.8)		1.6											
	Southern Brooklyn	(2.3)		0.5									1.5		
Queens	Central Queens	0.9	(0.1)	1.2	0.3	1.7	1.0	0.8	1.3	0.4	0.8	1.0	0.1	(0.3)	(0.0)
	Northeast Queens	1.7		4.7	1.7	2.3	4.9	1.7		(0.2)	2.0		(0.4)	5.6	
	Northwest Queens	(0.3)	(0.9)	0.4	(0.2)	0.3	0.0	0.0	0.5	(0.5)	(0.1)	0.3	(0.0)	1.2	1.4
	Rockaways														
	Southeast Queens	1.4	2.5	3.1	1.8	2.4	1.5	2.5		2.9	2.2	2.5	0.4		
	Southwest Queens	0.7		(0.5)	1.3	3.0		(2.5)		3.5			1.2		
Staten Island															
LGA		(0.8)	(1.2)	(0.0)	(0.8)	(0.1)	0.4	(0.7)	(0.1)	(0.1)	(0.1)	0.2	(1.0)	(1.6)	0.3
JFK		1.8	1.5	1.9	2.2	2.0	3.1	1.8	3.7	2.8	2.6	3.4	1.3	0.8	1.9

Table E1a. Change in Average Speeds between Zones, August 2012 to August 2013 (mph)

Source: NYC TLC Analysis of TPEP and LPEP trip-sheet data

		Brooklyn					Queens					Staten Island	LGA	JFK	
		Central Brooklyn	Northern Brooklyn	Northwest Brooklyn	Southeast Brooklyn	Southern Brooklyn	Central Queens	Northeast Queens	Northwest Queens	Rockaways	Southeast Queens	Southwest Queens	Staten Island	LGA	JFK
Manhattan	Central Midtown	0.4	(0.7)	(0.0)	(0.5)	1.1	(1.3)	(1.1)	(1.7)	(1.0)	0.4	(0.2)	0.4	(0.7)	1.4
	Central Park	2.0	(1.3)	1.0		2.9	(2.9)	(4.0)	(2.3)		(2.7)	(3.4)		(0.6)	1.5
	Downtown	0.9	(0.6)	(0.9)	(0.1)	1.5	(0.4)	0.2	(1.0)	(0.8)	1.0	0.8	1.8	(0.8)	1.4
	East Midtown	1.5	(0.9)	1.1	0.5	1.4	(1.2)	(1.1)	(1.8)	(1.5)	(0.7)	(0.2)	1.2	(0.8)	1.7
	Greenwich Village	0.0	(0.4)	(0.4)	(0.6)	0.6	(0.7)	0.6	(1.0)	1.9	(1.1)	0.4	1.6	(0.5)	1.1
	Harlem	0.3	(0.5)	0.8	0.9	3.4	(0.5)	(0.6)	(0.7)		1.0	4.5		(0.6)	1.7
	Lower East Side	0.7	(0.5)	0.4	0.1	1.0	(0.5)	0.2	(0.6)	0.2	(0.1)	0.2	(0.1)	(0.5)	1.1
	Roosevelt Island		0.6				3.7		0.2						
	Upper East Side	1.2	(1.6)	1.5	0.9	1.4	(1.4)	(0.9)	(2.4)	(0.1)	0.0	(1.2)	2.0	(1.3)	1.1
	Upper West Side	0.7	(0.9)	0.2	(0.5)	1.2	(0.9)	(0.2)	(1.4)		0.2	(0.8)	2.4	(0.5)	1.3
	Washington Heights/Inwood	4.7	(1.5)	0.7			(0.8)		(1.5)					0.4	2.1
	West Midtown	0.3	(0.6)	(0.3)	(0.4)	0.4	(1.1)	(0.6)	(1.4)	1.6	(0.5)	(0.2)	0.1	(0.7)	1.1
Bronx	North Bronx														
	South Bronx			(0.7)			2.2		1.3					2.4	4.1
Brooklyn	Central Brooklyn	0.5	(1.2)	0.3	(0.1)	1.3	(1.8)		(0.3)					1.6	(0.6)
	Northern Brooklyn	(0.1)	(0.3)	(0.5)	0.6	0.5	(0.4)	0.7	(0.1)		(2.3)	(1.5)	4.3	(0.2)	1.3
	Northwest Brooklyn	0.4	(0.4)	(0.3)	(0.3)	2.4	(0.5)	1.0	0.3		(0.8)	(1.5)	(0.0)	0.3	0.2
	Southeast Brooklyn	0.1	0.7	(2.3)	2.4	1.8						(2.2)			(4.2)
	Southern Brooklyn	0.3	5.2	1.5	3.5	1.7									
Queens	Central Queens	(0.4)	0.4	(0.1)	(0.1)	1.3	(0.6)	0.1	(0.2)		2.9	0.6		1.9	1.4
	Northeast Queens		3.5	(3.0)			0.2	1.4	(2.0)		(0.1)	3.2		5.6	(1.0)
	Northwest Queens	1.2	(0.4)	(0.7)	2.6	1.4	(0.0)	(0.0)	(0.5)		1.1	(0.1)		0.5	1.9
	Rockaways									2.7					
	Southeast Queens		(1.4)	(1.0)			5.5	1.0	3.4		5.0	1.0		(2.5)	0.4
	Southwest Queens		0.4	2.3	1.4		(0.4)	1.5	1.4		3.6	1.9		3.3	4.8
Staten Island												7.0			
LGA		1.2	(0.4)	(0.6)	0.0	2.8	(0.4)	(1.4)	(0.2)	(0.7)	(0.3)	(0.4)	1.0	1.3	0.7
JFK		(0.8)	0.7	(0.0)	(0.1)	(0.2)	1.6	1.8	1.9	0.6	0.7	0.8	(0.4)	2.7	0.6

Table E1b. Change in Average Speeds between Zones, August 2012 to August 2013 (mph)

Source: NYC TLC Analysis of TPEP and LPEP trip-sheet data

		Central Midtown	Central Park	Downtown	East Midtown	Greenwich Village	Manhattan Harlem	Lower East Side	Roosevelt Island	Upper East Side	Upper West Side	Washington Heights/Inwood	West Midtown	Bronx North Bronx	South Bronx
Manhattan	Central Midtown	(0.7)	(0.6)	(0.1)	(0.5)	(0.5)	(0.7)	(0.3)	(1.7)	(0.5)	(0.5)	(0.8)	(0.7)	(0.4)	(0.4)
	Central Park	(0.4)	(0.5)	0.2	(0.2)	(0.3)	(0.2)	(0.2)	(1.4)	(0.0)	(0.1)	(0.4)	(0.4)	(0.7)	(0.6)
	Downtown	(0.6)	(1.2)	(0.4)	(0.7)	0.1	(0.6)	(0.0)	(2.0)	(0.7)	(0.8)	(1.2)	(0.8)	(0.3)	(0.7)
	East Midtown	(0.5)	(0.7)	0.9	(0.7)	(0.1)	(0.7)	(0.1)	(2.3)	(0.5)	(0.4)	(0.7)	(0.7)	(0.9)	(0.4)
	Greenwich Village	(0.5)	(0.6)	(0.0)	(0.3)	(0.2)	(0.6)	(0.1)	(0.9)	(0.5)	(0.7)	(0.4)	(0.6)	(0.2)	(0.0)
	Harlem	(0.3)	(0.2)	0.0	(0.5)	0.0	(0.3)	(0.3)	(1.3)	(0.1)	(0.2)	(0.6)	(0.3)	(0.0)	0.1
	Lower East Side	(0.3)	(0.8)	0.8	(0.3)	0.2	0.2	(0.7)	(1.3)	(0.4)	(0.3)	(0.0)	(0.2)	0.2	0.1
	Roosevelt Island	(0.8)			(0.7)	(0.2)	(5.7)	(0.8)	(0.9)	0.9	(0.4)		(0.8)		
	Upper East Side	(0.3)	(0.3)	0.9	(0.4)	0.0	(0.3)	(0.3)	(2.3)	(0.1)	(0.1)	(0.4)	(0.2)	(0.8)	(0.7)
	Upper West Side	(0.1)	0.1	(0.1)	(0.2)	(0.3)	0.0	(0.2)	(1.4)	0.0	0.1	(0.3)	(0.0)	(0.1)	0.6
	Washington Heights/Inwood	(1.0)	0.9	(1.7)	(1.0)	(0.7)	(0.2)	(1.5)		0.4	(0.3)	(0.2)	(1.6)	0.6	0.1
	West Midtown	(0.4)	(0.5)	(0.2)	(0.4)	(0.4)	(0.5)	(0.3)	(1.1)	(0.3)	(0.6)	(1.0)	(0.5)	(0.3)	(0.1)
Bronx	North Bronx	0.4			2.2		0.8			(3.5)	(2.0)	(1.6)		3.1	(1.4)
	South Bronx	(0.2)	(0.3)	1.3	(0.2)	1.4	(0.6)	1.7		0.4	(0.3)	(0.3)	(0.7)	(0.4)	0.2
Brooklyn	Central Brooklyn	(0.2)		1.6	0.5	(0.2)	(0.7)	(1.4)		0.9	(1.2)		(1.5)		
	Northern Brooklyn	(0.5)	(0.7)	(0.6)	(0.7)	(0.4)	0.2	(1.4)	(0.4)	(0.2)	(0.3)	(1.1)	(0.6)	(0.3)	2.0
	Northwest Brooklyn	(0.6)	(1.0)	(0.5)	(1.0)	(0.6)	(0.5)	(1.2)	0.1	(1.0)	(0.6)	(0.8)	(0.7)	(0.7)	(0.7)
	Southeast Brooklyn	(2.4)		6.1	(0.9)										
	Southern Brooklyn	0.6		0.6	(2.2)			(0.5)					1.0		
Queens	Central Queens	0.3	(1.1)	0.5	0.1	0.3	(0.1)	(1.5)	(0.2)	0.3	1.2	(0.5)	(0.7)	(1.4)	0.5
	Northeast Queens	0.0		(0.2)	1.9	(0.6)	0.7	(0.8)		1.5	3.5		0.6	7.1	
	Northwest Queens	(0.5)	0.1	(0.1)	(0.4)	(0.4)	(0.3)	(0.7)	0.2	0.1	(0.0)	(0.4)	(0.6)	0.6	(0.3)
	Rockaways														
	Southeast Queens	0.8	(1.4)	2.4	1.1	1.6	2.6	0.6		1.3	1.8	(0.3)	0.3		
	Southwest Queens	(0.4)		(0.4)	(1.2)	1.0				(0.0)			0.8		
Staten Island															
LGA		(0.4)	(0.6)	0.3	(0.2)	(0.0)	0.6	(0.6)	(0.2)	0.7	0.3	0.7	(0.5)	(0.9)	(0.3)
JFK		0.7	0.5	1.3	0.9	1.1	1.6	0.6	1.5	1.6	1.5	2.3	0.3	(0.3)	(0.2)

Table E2a. Change in Average Speeds between Zones, September 2012 to September 2013 (mph)

Source: NYC TLC Analysis of TPEP and LPEP trip-sheet data

		Brooklyn					Queens					Staten Island	LGA	JFK	
		Central Brooklyn	Northern Brooklyn	Northwest Brooklyn	Southeast Brooklyn	Southern Brooklyn	Central Queens	Northeast Queens	Northwest Queens	Rockaways	Southeast Queens	Southwest Queens	Staten Island	LGA	JFK
Manhattan	Central Midtown	0.5	(0.6)	0.3	0.3	0.8	(1.1)	(1.4)	(1.7)	1.5	(0.6)	(0.9)	0.1	(0.4)	0.6
	Central Park	0.8	(1.5)	1.1	3.4	0.6	(1.0)	(2.4)	(1.4)		(0.6)	(2.6)		0.2	1.1
	Downtown	0.8	(0.4)	(0.4)	(0.4)	0.3	(1.0)	(1.6)	(1.1)	1.6	0.6	(0.3)	0.3	(0.2)	1.0
	East Midtown	1.5	(0.7)	1.7	1.4	2.2	(1.2)	(1.0)	(1.9)	(2.3)	(0.6)	(0.7)	1.9	(0.1)	0.9
	Greenwich Village	0.1	(0.6)	(0.3)	(0.1)	(0.2)	(1.0)	(0.7)	(1.1)	(3.0)	(2.0)	(1.2)	(0.3)	(0.5)	0.2
	Harlem	1.1	0.7	1.2	(0.1)	0.7	(0.1)	(0.1)	(0.5)		0.4	(0.8)		1.1	1.1
	Lower East Side	0.8	(0.5)	0.6	0.0	0.9	(1.2)	(1.4)	(1.0)	1.7	(1.8)	0.5	0.9	(0.8)	0.1
	Roosevelt Island		(0.2)	(1.0)			(0.0)		0.9					(0.6)	
	Upper East Side	2.0	(1.1)	2.1	0.7	0.9	(1.7)	(1.4)	(2.2)	0.1	(0.9)	(2.9)	0.0	(0.2)	1.0
	Upper West Side	1.2	(0.6)	0.7	(0.5)	0.5	(1.1)	(2.2)	(1.7)		(1.5)	(0.2)	(0.2)	0.0	0.8
	Washington Heights/Inwood	1.0	0.1	2.3			(0.4)	2.4	(2.0)					1.7	0.7
	West Midtown	0.4	(0.6)	0.1	0.2	0.1	(1.0)	(0.5)	(1.4)	0.2	(0.1)	(0.4)	(0.3)	(0.3)	0.7
Bronx	North Bronx														
	South Bronx		1.1	(3.3)			0.0		0.3					3.7	1.0
Brooklyn	Central Brooklyn	0.6	(1.2)	(0.4)	(1.5)	0.3	(1.3)		(3.4)					2.1	(0.6)
	Northern Brooklyn	(0.6)	(0.6)	(0.9)	(0.4)	(0.8)	(1.4)	0.6	(0.7)		1.5	(0.4)	(0.5)	0.4	(0.5)
	Northwest Brooklyn	0.1	(0.9)	(0.1)	0.4	0.7	(1.5)	(0.5)	(0.5)		(2.9)	(0.8)	2.0	(0.1)	0.1
	Southeast Brooklyn	(0.5)	0.4	(0.1)	1.4	0.2						0.7			2.2
	Southern Brooklyn	2.0	(0.3)	0.7	3.8	4.1									
Queens	Central Queens	(2.2)	(1.3)	(0.9)	0.1	(3.3)	(0.8)	(1.6)	(0.6)		(2.0)	(1.6)		1.7	(0.8)
	Northeast Queens		0.1	(7.1)			0.3	0.0	(1.2)		0.1	(2.1)		5.4	3.0
	Northwest Queens	0.5	(0.5)	(1.3)	0.4	(2.9)	(0.8)	(0.8)	(0.3)		(1.0)	(2.3)		0.7	0.3
	Rockaways														
	Southeast Queens		(3.1)	1.9			(1.6)	2.1	2.6		4.6	(1.1)		0.6	2.6
	Southwest Queens	(0.2)	0.7	(1.5)	5.6		(0.6)	(0.0)	2.5		3.2	(0.9)			1.3
Staten Island												9.9			
LGA		(0.1)	(0.2)	(0.5)	(0.8)	(0.2)	(1.2)	(3.1)	(0.1)	(0.8)	(2.1)	(2.0)	(1.1)	1.7	(0.6)
JFK		(0.2)	(0.2)	(0.2)	0.6	1.1	(0.2)	(0.3)	(0.3)	1.1	(0.1)	(0.2)	(0.3)	(0.8)	1.8

Table E2b. Change in Average Speeds between Zones, September 2012 to September 2013 (mph)

Source: NYC TLC Analysis of TPEP and LPEP trip-sheet data



**Figure E1. Zones Used to Calculate Traffic Speeds**