

New York City

Mobility Report

NYC Department of Transportation

August 2019





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Letter from the Commissioner



Dear New York City Council Members and Fellow New Yorkers:

New York is entering a new era of mobility. Over the last decade, the city's population, as well as the number of jobs and tourists all grew markedly. The ways we have managed that growth and moved more people has changed as well -- and not always for the better. Our roadways are more congested than ever. The number of cars entering Manhattan's central business district continued to drop, but empty for-hire vehicles (FHVs) circling the area brought no relief from congestion. Meanwhile, vehicle registrations Citywide have increased, while freight traffic and home deliveries also continued to rise.

To make matters worse, for the second year in a row, the MTA saw a decline in overall subway ridership, a decline unlike any other year in its recent history. Between 2016 and 2017, weekend ridership declined, which has been a trend since 2015. Far more concerning: as the report recounts, weekday ridership has now also declined.

These recent trends are unsustainable. Despite these developments, New York City relies on and continues to believe in sustainable transportation, and several recent developments offer promise for the future. The majority of trips recorded across the city are made using a sustainable mode – walking, biking or mass transit. The NYC Ferry service launch helped to continue the growth in ferry ridership this past year. With expansion into the Bronx this year and future expansion to come, we expect continued growth in ferry ridership. New York citizens continue to report walking as their primary mode of travel and bike trips continue to increase.

Perhaps most exciting, DOT is working closely with the MTA on the creation of the Central Business District Tolling Program. Just passed this year and going into effect in 2021, this exciting first-in-the-nation program -- better known as “congestion pricing” -- will create the resources to rebuild and grow the MTA's critical but aging subway and bus systems. In addition to congestion pricing, the de Blasio Administration has at the same time announced ambitious new policies that will help rein in the CBD congestion caused by FHVs.

As we tackle all of these challenges, we need to better understand our transportation network – and how effective policy solutions can improve transit and reduce congestion.

With that goal in mind, we herein present the 2019 edition of the New York City Mobility Report, DOT's annual look at the mobility measures that define transportation in our city. This year we are highlighting our historic data collection and the new ways in which we analyze data to increase our understanding of the City's mobility. Our yearly count program focuses on the Central Business District and interborough trips, but as new job and residential centers emerge, the report recognizes how we will also need to expand our collection program to better capture new movement patterns.

Again, we have a lot to be proud of. This year, DOT continued making New York a safe and efficient place to travel. To that end, we began a dramatic expansion of Citi Bike, worked to improve the travel speeds of buses, and implemented programs to create more accessible curbs for all New Yorkers. However, with traffic fatalities up so far in 2019, we are continuing our strong pursuit of Vision Zero goals that helped us drive down fatalities for five straight years. We are again this year undertaking a record number of safety projects – with more pedestrian refuge islands, enhanced crossings, pedestrian head starts and as part of the just-released Green Wave plan, better and expanded bicycle infrastructure around the city.

More people are traversing the city than at nearly any other time in history, but we must take action to better understand this new mobility, relieve congestion, and improve our transit system. I am excited about this new era of transportation and look forward to planning, evaluating and building this new mobility. Let this report serve as the next step in improving our transportation network for all New Yorkers.

Sincerely,

A handwritten signature in black ink that reads "Polly Trottenberg". The signature is written in a cursive, flowing style.

Polly Trottenberg



Executive Summary

New York's New Mobility

The Mobility Report is DOT's yearly statement on the status and trends of how people move around New York City. The report serves as a compilation of transportation data collected by DOT and other transportation agencies in the region. That data is analyzed and summarized into an account of where people are going and how they are getting there.

In the 2018 iteration of the report, we began to explore the beginnings of the shift in travel that is now quite apparent. That report highlighted the first annual subway ridership decline since 2010 and increasing demands for space on the street network. Additionally, the report included reference to the positive impacts of the Second Avenue subway and continued city population and job growth. Many of the data and analyses presented in the 2018 report are included again this year. For some of the repeated analyses, this year we explore the themes that were considered just an anomaly last year.

In this report, DOT continues to highlight the trends that describe mobility in New York City. There continues to be growth in the population, the number of jobs, and the number of tourists. Measures that have been traditionally correlated with that growth, such as vehicle traffic into the CBD and subway ridership, have instead begun to decline. For many years the roadway volume decline made sense; the subway ridership was growing and absorbing those trips. The data now shows that at some of the busiest times of day the subway may be nearing capacity.

Analyses of data from the screenlines and bridges across New York were added to this year's report to provide information about citywide traffic and transportation conditions. DOT continues to explore the central business district (CBD) trends by comparing the taxi GPS speeds in the CBD to those in the Midtown Core. Speed in both areas continued to decline, although at a lesser degree than in past years. The correlations between the speeds in the two areas also remained consistent with past years. This speaks to the reliability of the analysis and its use as a repeated measure in this report and other DOT projects.

Key Transportation Indicators:



Citywide bus speeds declined to 7.58 mph, the lowest average speeds recorded in the last decade.



At over 2.5 billion yearly riders, the 2017 annual ridership on MTA bus and subway is still near the all time high.



The number of for-hire vehicle registrations has continued to grow, a 22.7% increase between 2016 and 2017.

This year the report includes work that goes beyond speed to include other traffic data such as classification, trip cost, and trip time of day. DOT used video based technology to collect vehicle classification data at 51 locations around Manhattan, Inner Queens, and Downtown Brooklyn. This technology produced a total vehicle count at each location and also was able to record the number of trucks, buses and other specific classes. Due to their tendency to circulate, taxis and for-hire vehicles account for much of the traffic in Lower and Midtown Manhattan. Private vehicles represent as low as a 33% of vehicles in midtown and as high of 65% in Downtown Brooklyn.

Citi Bike and Taxi trip data are used to create a comparative analysis for trips that occur in the Midtown Core and also a larger geography encompassing parts of Queens and Brooklyn. Observations show that taxi trips greatly outnumber Citi Bike trips in the Manhattan Core geography and the opposite occurs in the selected Queens and Brooklyn geographies.

Lastly, the report presents results from the 2018 DOT Citywide Mobility Survey. The survey allows us to collect public behaviors and opinions that relate to mobility in the City. New to the survey this year was the travel diary component. The travel diary was able to provide DOT with more detailed information about where people are going and for what reason. New York remains a city of walkers and users of sustainable modes of transportation—biking, bus or subway. 64.1% of reported trips through the survey were made by sustainable mode. As we look to the future of mobility in New York, we must continue the work that allows for continued growth in sustainable and safe transportation for all New Yorkers.

City Wide Mobility Survey Highlights:

 **44.9 % of New Yorkers received a delivery at home at least once a week.**

 **64.1% of trips reported were made by sustainable mode.**

 **96% of New Yorkers walk to transit and 94% walk from transit.**



Strain on the transportation network and changing mobility patterns are resulting in fewer trips into the CBD.

Recent Travel Trends

The charts to the right take a closer look at the main drivers of travel demand in New York City, as well as the trends in high performance modes, auto use, and travel speeds over the past seven years. Data from 2010, 2000, 1990, and 1980 are provided for context.

Drivers of Travel

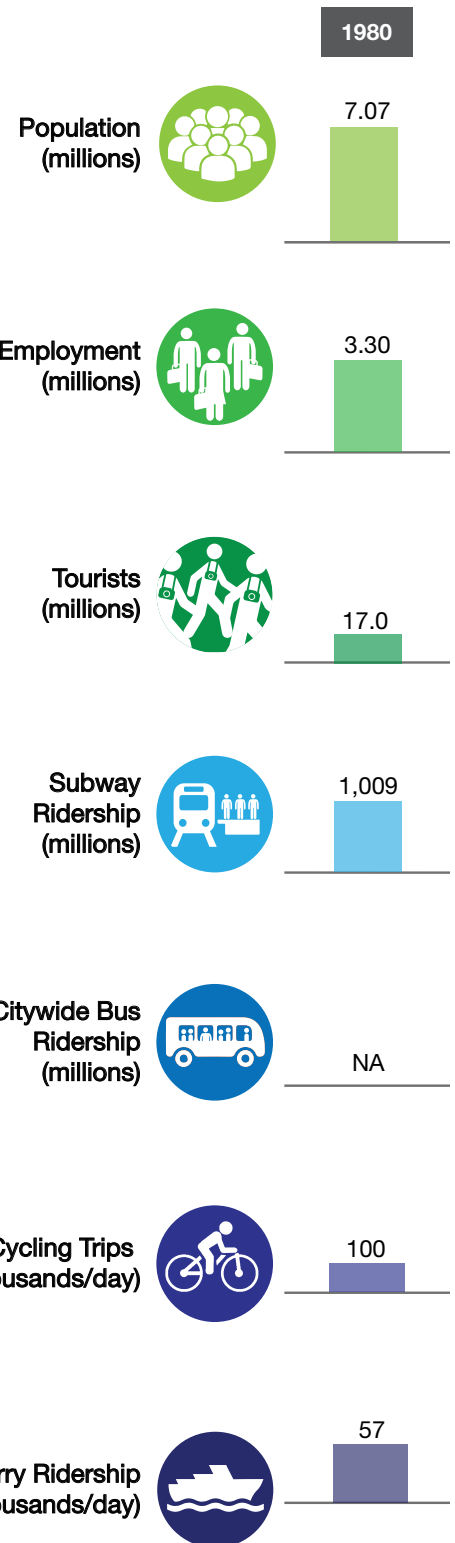
Travel demand is propelled in New York City by the number of residents, jobs, and visitors. All three of these indicators have continued to grow in 2017 with the number of yearly tourists increasing the most dramatically for the second year in a row; up by 2.1 million between 2016 and 2017.

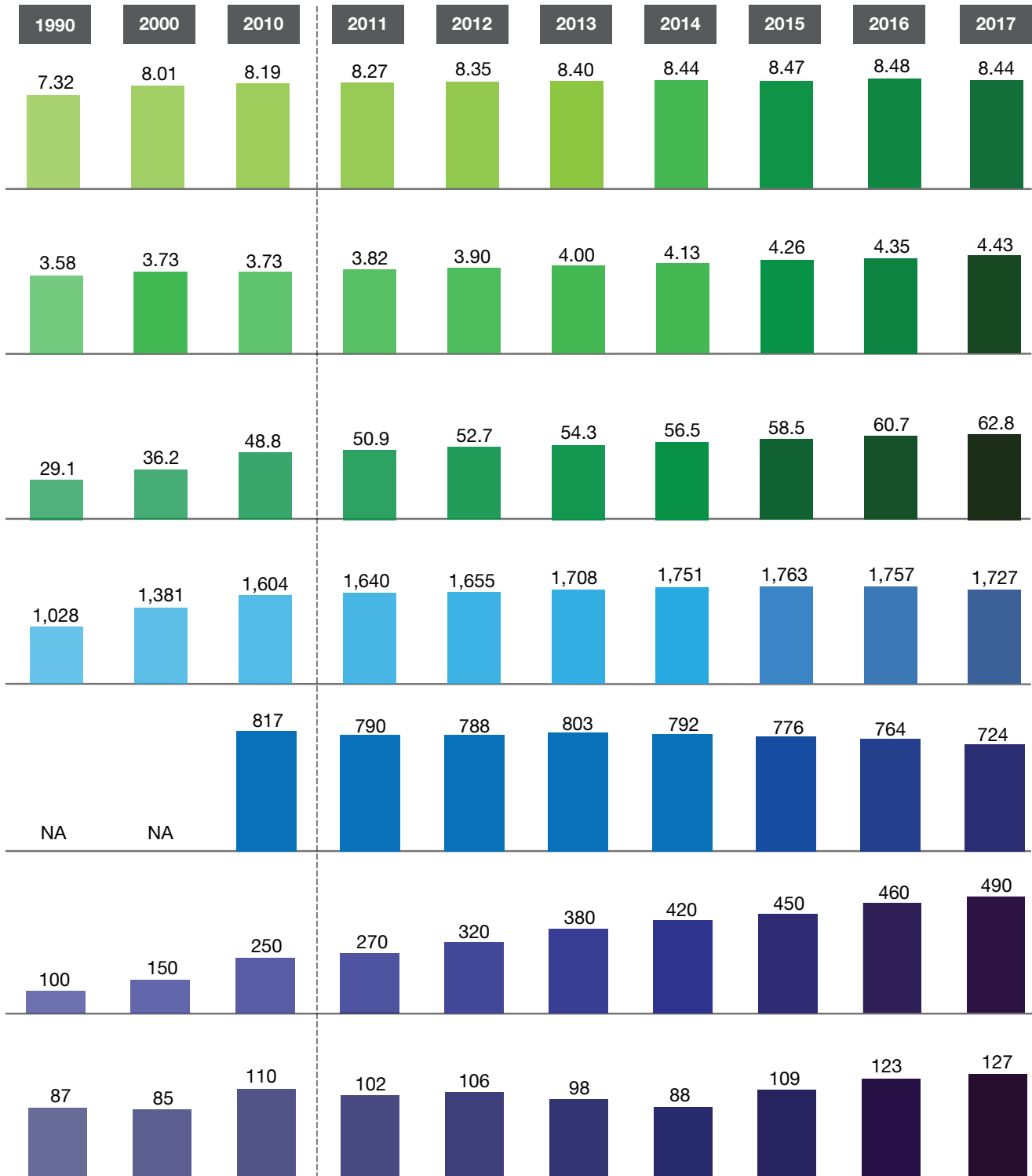
- Population is now up by over 5% since 2010 and continuing a trend of slow but steady growth.
- With the addition of another 80,000 jobs between 2016 and 2017, NYC has now added 700,000 jobs since 2010.
- Growth in tourism showed no sign of slowing as the total number of visitors to NYC increased by over 2 million

High Performance Modes

While NYC's core public transportation system continues to account for the vast majority of trips in the City—with over 2.5 billion combined trips made on MTA's subways and buses in 2017—subway and bus trips registered slight declines again in 2017. Cycling and ferry trips on the other hand continued to grow, in line with the increases in population, tourism, and jobs, and the continued expansion of bicycle facilities and the roll-out of the Citywide Ferry network.

- In 2017, subway ridership was at its lowest since 2013, down just under 2% since 2016. Despite the drop, subway ridership remains at a near all-time high, up by more than 7.5% since 2010 and 25% since 2000.
- Bus ridership continued its trend of annual decline since 2013, down an additional 5% between 2016 and 2017.
- The number of daily cycling trips continues to grow, with 30,000 additional daily trips between 2016 and 2017, having now nearly doubled since 2010.
- Bolstered by the expansion of the citywide ferry service, ferry ridership increased by another 4,000 trips a day from 2016, and has increased by over 15% since 2010.





*N/A means data is not available.
For detailed methodology, see appendix.*

Recent Travel Trends

Auto Use

The City's post-recession growth in population and employment has not been uniformly mirrored in indicators of auto use.

- The number of household vehicle registrations increased by 8.8% since 2010, resulting in a slight increase in the ratio of vehicle registrations to the total number of New Yorkers— from .215 to .223. While this continues the City's car-light growth pattern, it is in contrast to its previous period of growth (between 1990 and 2000), when per capita car ownership declined as the population increased.
- The number of vehicles entering Manhattan south of 60th Street on a daily basis dropped again in 2017.
- Having previously only reported on Yellow Taxi trip totals, this year's Mobility Report has combined all Taxi and For-Hire Vehicle trips in order to better account for the immense growth in FHV trips citywide since 2010. As a result of continued increase in trips made by app-based ride-hailing services like Uber and Lyft, overall FHV trips are up by nearly 90% since 2010, adding 36.9 million trips a year between 2016 and 2017 alone.
- The number of for-hire vehicle registrations—which includes taxis, green cabs, black cars and private cab companies—has more than doubled since 2010. New York City has added just under 60,000 for-hire vehicle registrations since 2010.

Travel Speeds

Travel speeds through Manhattan and across the City have declined consistently since 2012, though the rate of decline has been slowing since 2015.

- Citywide bus speeds declined marginally in 2017, down 0.7% since 2016 and 3% since 2010.
- Travel speeds in the Manhattan Central Business District (CBD) also saw a slight decline between 2016 and 2017, and are down by 22% since 2010.

1980

Vehicles Entering Manhattan south of 60th St (thousands/day)



N/A

Citywide Taxi & FHV Trips (millions)



126.2

Household Vehicle Registrations (thousands)



1,448

Taxi & For-Hire Vehicle Registrations (thousands)



20.2

Citywide Bus MTA Bus & NYCT Speed (mph)



N/A

Travel Speed in Manhattan south of 60th St (mph)



N/A

Annual MTA Bridge & Tunnel & Port Authority NYNJ Freight Trips (million)



N/A



N/A means data is not available.
 For detailed methodology, see appendix.

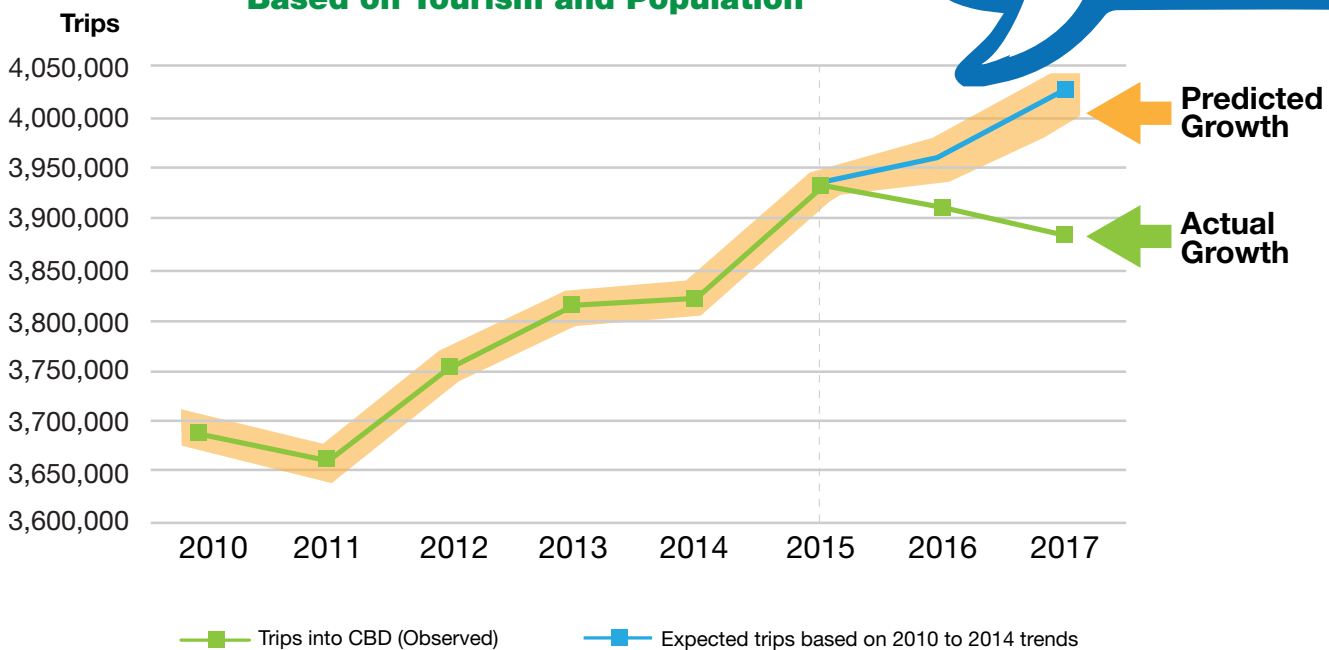
Central Business District Data

The New York City Central Business District (CBD) is bounded by the Hudson River, the East River and 60th Street in Manhattan. Over the last decade, New York City has seen growth across a number of metrics. Population, jobs and trips made by sustainable mode—walking, bicycle, or mass transit—have increased to record levels. Last year DOT noticed that the previously observed trends might be changing. Based on the relationship between tourism, population and trips into the CBD seen each year between 2010 and 2014, the expected number of weekday trips into the CBD would have increased to over 4 million in 2017. Instead the average number of weekday trips into the CBD peaked in 2015, which was followed by a decline to less than 3.9 million weekday trips in to the CBD in 2017. While still operating at near record levels, this trend means we must seek to better understand the new mobility of New York.

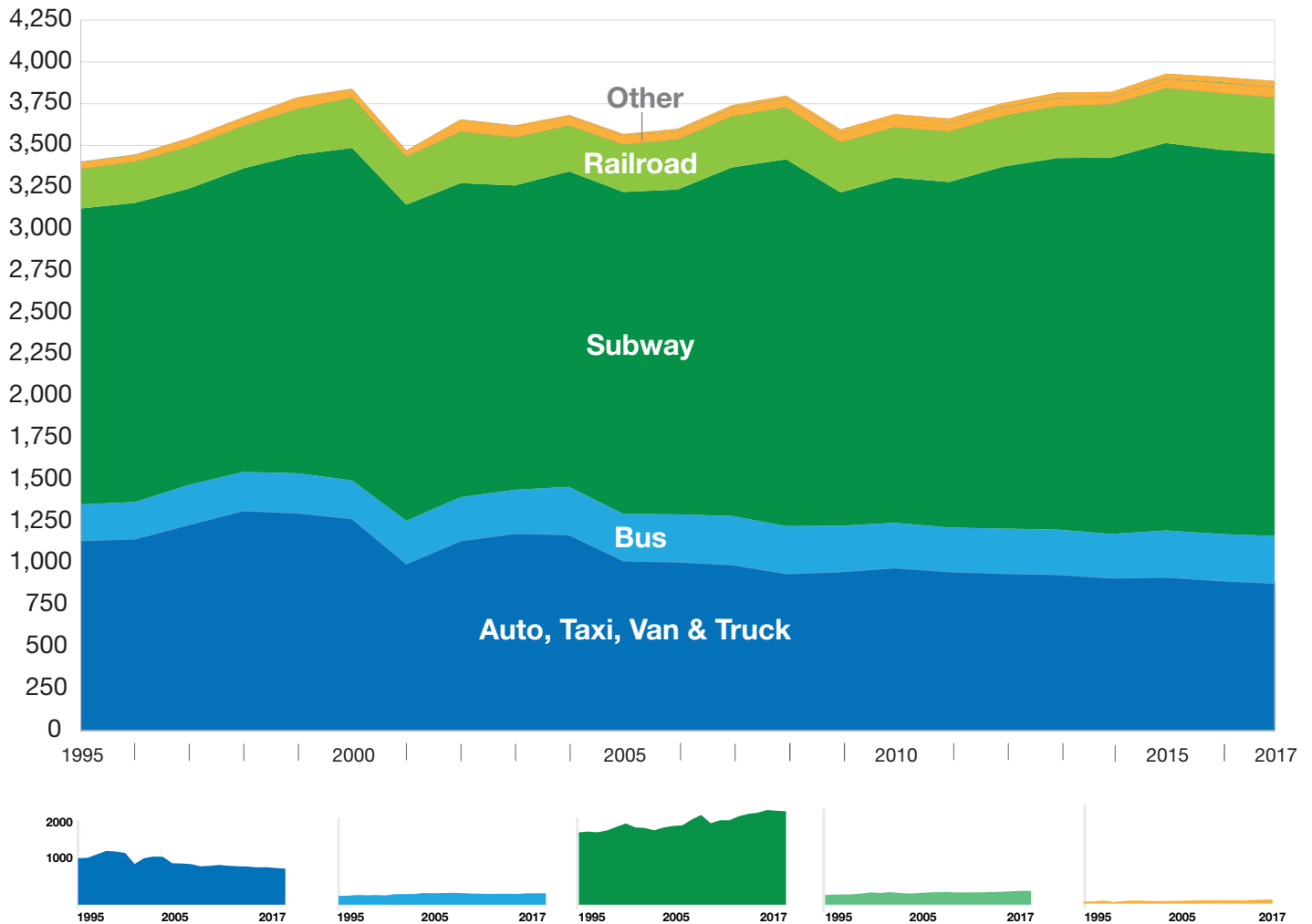
Some of this change may be related to altered work travel behavior, where telecommuting and secondary work locations may be substituting what was before a trip into the CBD. Other portions of the decline may be related to tourism increasingly occurring outside of the CBD. We must also consider that some portion of the trend may indicate that at peak times our streets and transit system maybe be approaching operational capacity. For New York’s growth to persist, we need to continue working on how to use our streets more efficiently, and to support the MTA’s efforts to improve capacity within the transit system.

The question is:
 Why have trips into the Central Business District **decreased** when all signs indicate that they would **increase**?

Expected & Actual Trip Growth into the CBD Based on Tourism and Population



Persons Entering into CBD By Mode Per Day 1995 to 2017 (in Thousands)



The highest percentage decline occurred in the vehicular movement into the CBD

Trips into the CBD in 2017 were still 4.5% greater than they were prior to the 2008 recession

In 2017, 78% of the trips made into the CBD were made via a sustainable transportation mode

Between 1995 and 2017 trips into the CBD made by sustainable mode increased by 32.4% while automobile and truck trips declined by 22.5%

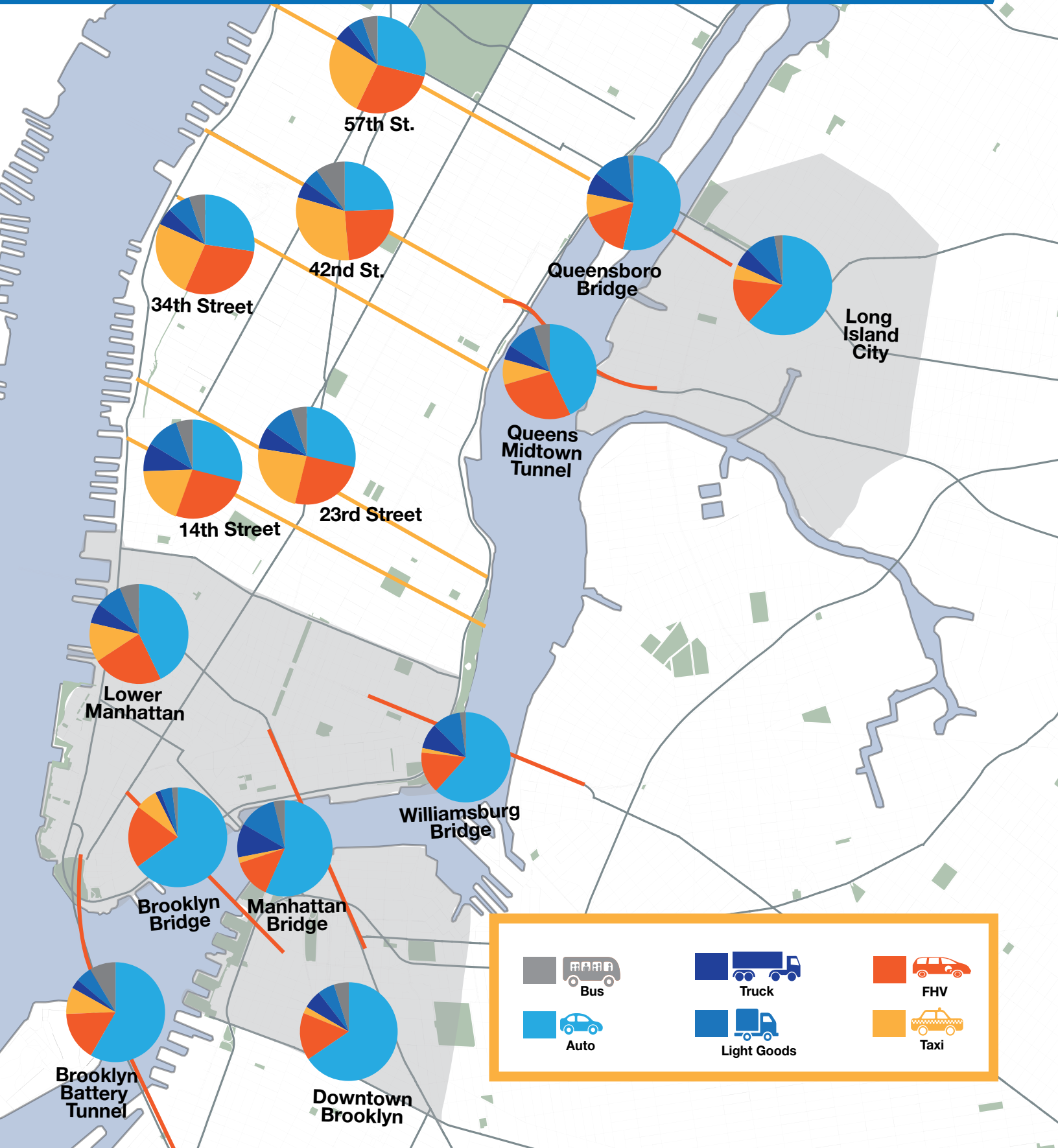
Central Business District Data

In Midtown, taxis and FHVs represent over 50% of the total traffic counted.

In order to better understand the types of vehicular movement within the Central Business District (CBD), DOT conducted a series of vehicle classification counts at 51 locations along five key roads within the CBD, in three heavily traveled zones, and at six crossings from either Brooklyn or Queens. The results of this exercise provide a better understanding of the types of vehicles that occupy the roadway; allowing us to make better decisions about curb and roadway operations.

- Private autos accounted for only 56% of all vehicles crossing into the CBD.
- Of the total number of vehicles counted outside the CBD, in Downtown Brooklyn and Long Island City, only 60% were private autos, with FHVs representing the second largest category, at 20% of the total traffic.
- North of 14th street, private automobiles represented less than a third of the traffic counted.
- Along 34th, 42nd, and 57th St there are relatively few private automobiles, the large volume of yellow taxis and app-based FHVs traveling makes them by far the largest sector of traffic, representing over 50% of the total traffic.
- The highest percentage of private automobiles were observed in downtown Brooklyn and on the Brooklyn and Williamsburg bridges. Even here they did not represent more than 65% of traffic.
- FHVs outnumber yellow and green taxis as a percentage of overall traffic at the Downtown Brooklyn and Long Island City, Queens count zones.
- 42nd St in Midtown Manhattan was the only location where yellow and green taxi volumes combined were a greater portion of traffic than FHVs.
- All trucks make up only a small fraction of the total vehicle volume at all count locations observed, and average 13% of traffic in Midtown.
- The Manhattan Bridge was the location with the highest percentage of freight and light goods vehicles, at 24% of the total volume.

Vehicle Classification



Manhattan CBD & Midtown Travel Speeds

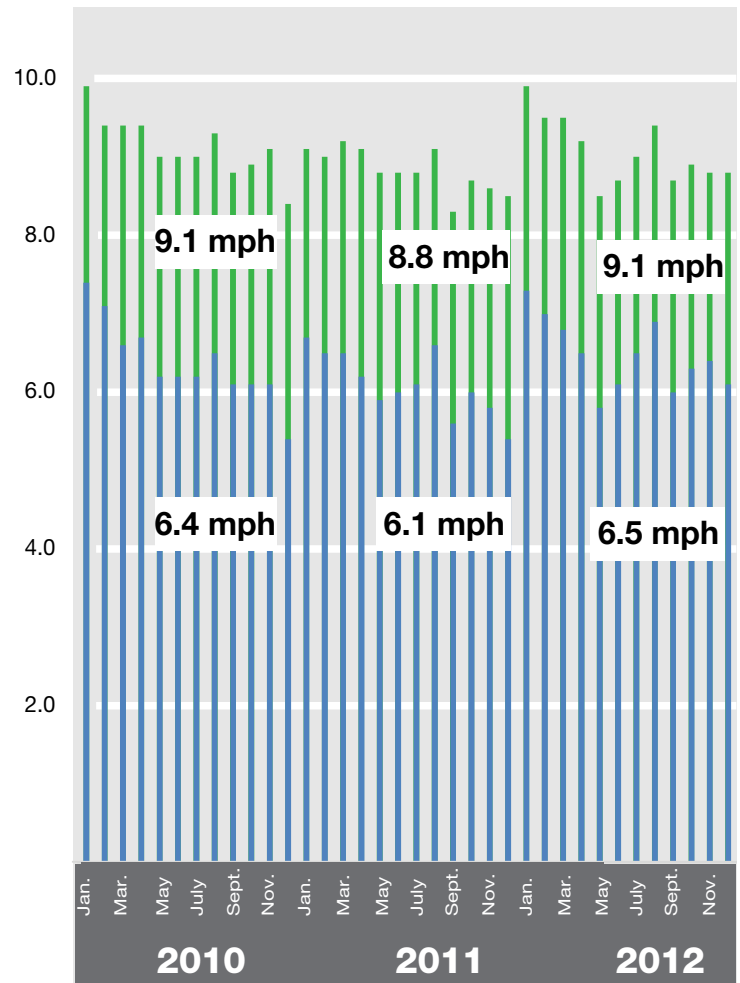


The Central Business District (CBD) and the Midtown Core are two geographies commonly used by DOT. They have been historically included in many of the agency's reports as some of the heaviest traveled parts of the city. The CBD of New York is inclusive of Manhattan south of 60th and the Midtown Core is defined as a smaller geography within the CBD. It is bounded by the East River and Ninth Avenue to the east and west, and 59th and 35th Streets to the north and south. The Midtown core is roughly 1.8-squaremiles and is home to many large commercial centers including Broadway, Rockefeller Center, Herald Square and Times Square. All but one MTA subway lines enters the CBD geography as well as many other transit routes, including the Metro North, the Long Island Rail Road and the Port Authority Trans Hudson Train. These geographies are also home to thousands of residents and jobs.

Average Taxi Speeds in Manhattan CBD and the Midtown Core 2010-2018

Speeds overlaying bar chart refer to annual averages for Manhattan CBD and Midtown Core.

■ Taxi speeds in Manhattan CBD (south of 60th Street)
■ Taxi speeds in the Midtown Core

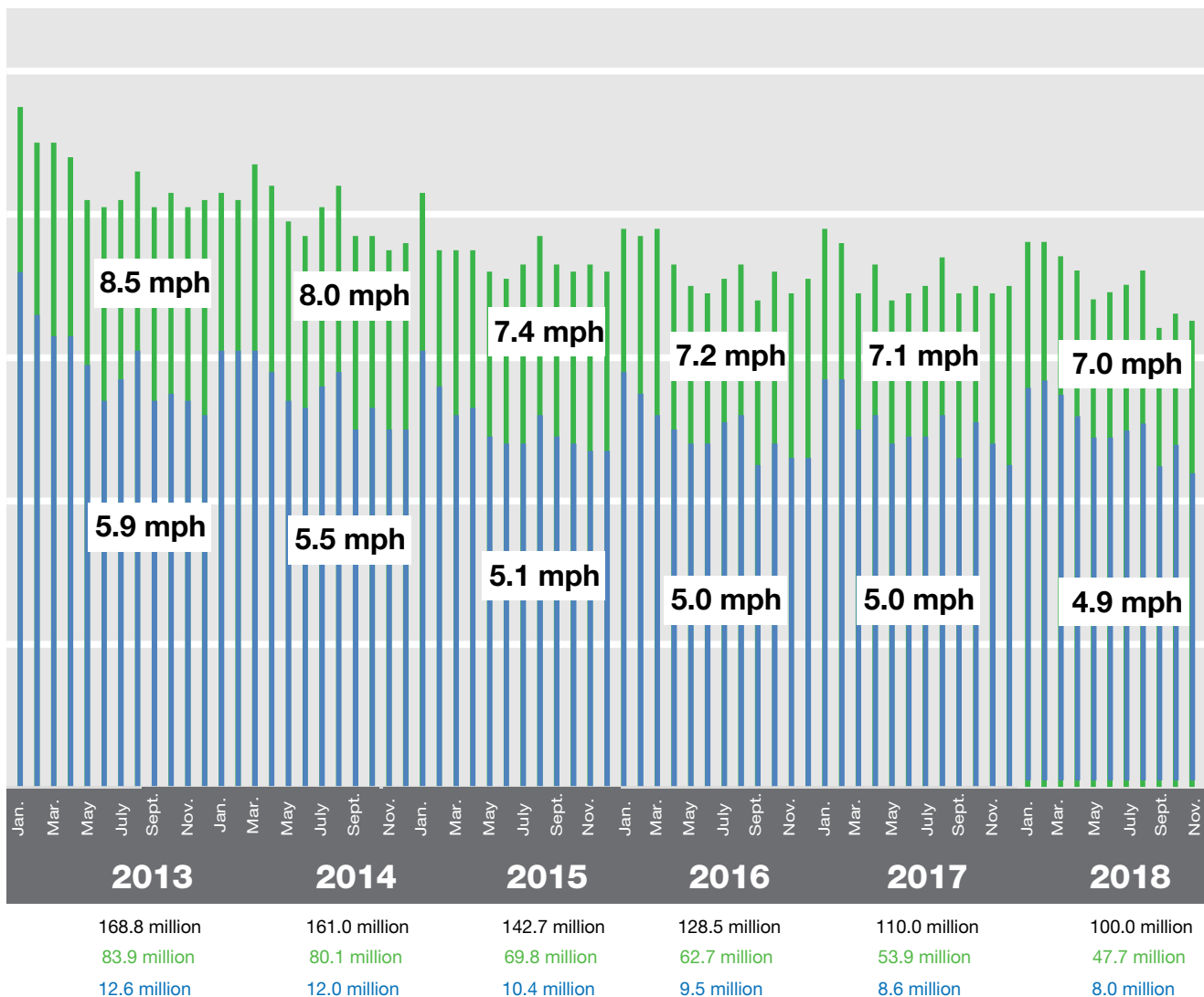


Category	2010	2011	2012
Annual Citywide	172.2 million	171.5 million	170.5 million
Annual CBD	86.2 million	86.0 million	84.6 million
Annual Midtown Core	13.6 million	13.1 million	12.6 million



Midtown Core speeds are consistently 30% slower than CBD speeds

The graphic below uses GPS data, collected from yellow taxis, as a proxy for travel speeds in both the Midtown Core and the CBD each month since 2010. This year speeds declined at a slower rate than in previous years. This year's declines were equal in both the CBD and the Midtown Core, 0.1 mph, though the Midtown core remained over 3 mph slower than the CBD. This shows a clear correlation between the two zones but also indicates that the Midtown core has a consistently higher degree of congestion than the CBD as a whole.



Citi Bike & Taxis in Midtown



The Midtown core is bounded by the East River and Ninth Avenue to the east and west, and 59th St and 35th St to the north and south. This area is one of the most visited areas of Manhattan, and the entire city. This area was also host to 84 Citi Bike stations in 2018.

The Midtown core is home to a number of large commercial centers including the Broadway theater district, Rockefeller Center, Herald Square and Times Square. This area attracts millions of tourists each year and thousands of workers each day. It is also the location of Grand Central Station, and Penn Station is located on its southern border. Many of the City's subway, rail and bus routes pass through this geography. Because of the many attractions within the Midtown core, it is often congested.

In 2013, with the launch of the Citi Bike program a new tool was added to the many transportation options afforded to New Yorkers. All of the stations at launch were below 59th St in Manhattan in the CBD, and many were in the Midtown Core. The data collected from Citi Bike trips helps DOT to better understand mobility in these key areas. Combined with the Taxi GPS data and trip records we are able to gather insights into the movement in congested sections of the City.

The bar charts to the right provide a comparison of the duration and cost of Citi Bike trips to taxi trips. The results are categorized based on the trip length. Additionally, the trip count per hour is displayed on the lower right of the facing page. Green bars represent the combined trips for both green and yellow taxis and the blue bars represent Citi Bike trips.

As the number of Citi Bike stations has grown throughout the city so have the number of Citi Bike trips. An average of 2,578 Citi Bike trips per day were recorded in the Midtown Core, in October 2018 compared to 1,673 trips per day in October 2015.

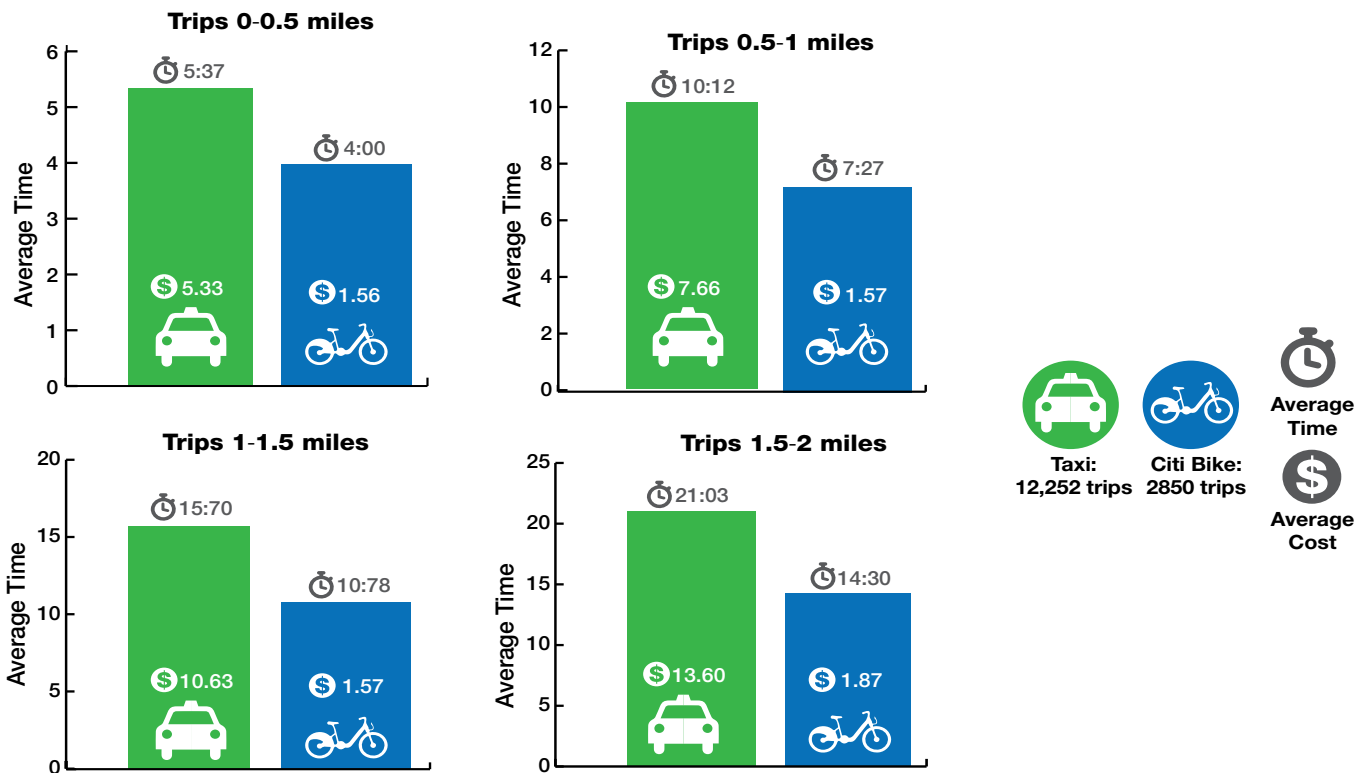
Taxis continue to be the dominant mode of transportation in the Midtown Core despite the fact that they are slower and more expensive when compared to Citi Bike trips.

Citi Bikes are over a minute faster than taxi trips across all distance categories, within the Midtown Core.

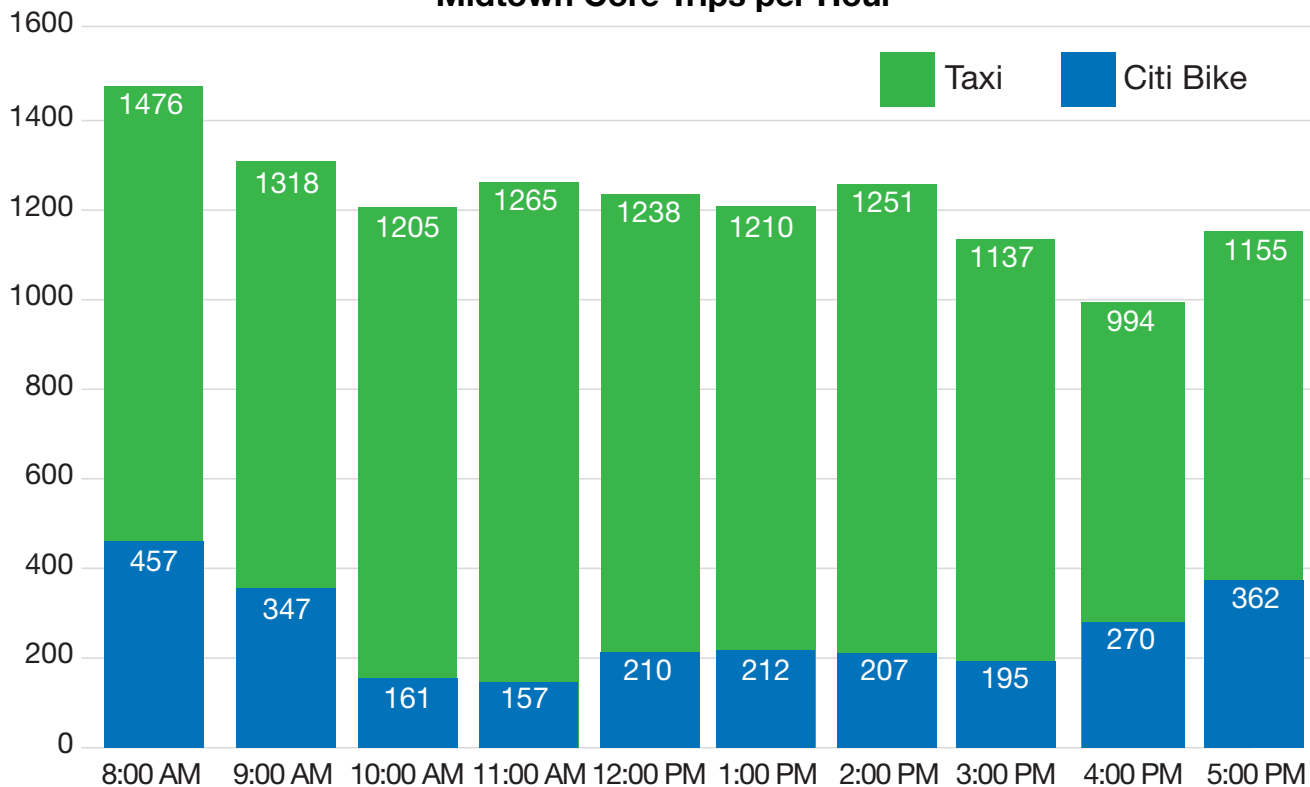
Citi Bike trips cost less than 25% of taxi trips for all trip length categories except those that were 0 to 0.5 miles long.

Methodology

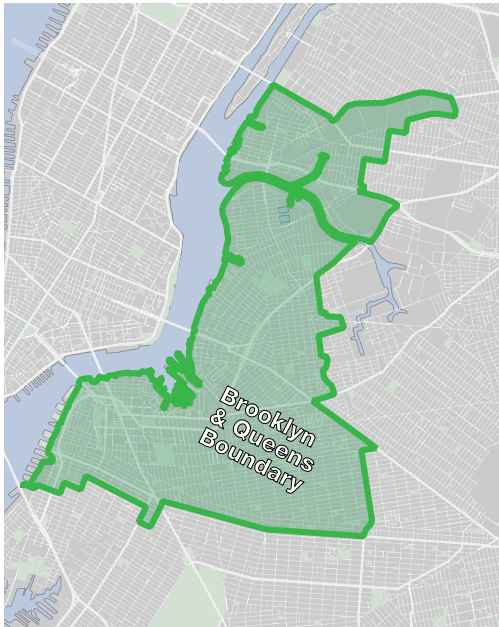
Taxi data was collected from GPS devices within taxis on typical weekdays, Tuesday through Thursdays, between 8 a.m. and 6 p.m., excluding major holidays in October 2018. Citi Bike trips are based on trips records for the month of October 2018. Citi bike trips that started and ended at the same station were excluded. Distances were calculated based on start and end stations. The analyses only considered trips that were totally contained in the Midtown Core geography.



Midtown Core Trips per Hour



Citi Bike & Taxis in Queens & Brooklyn



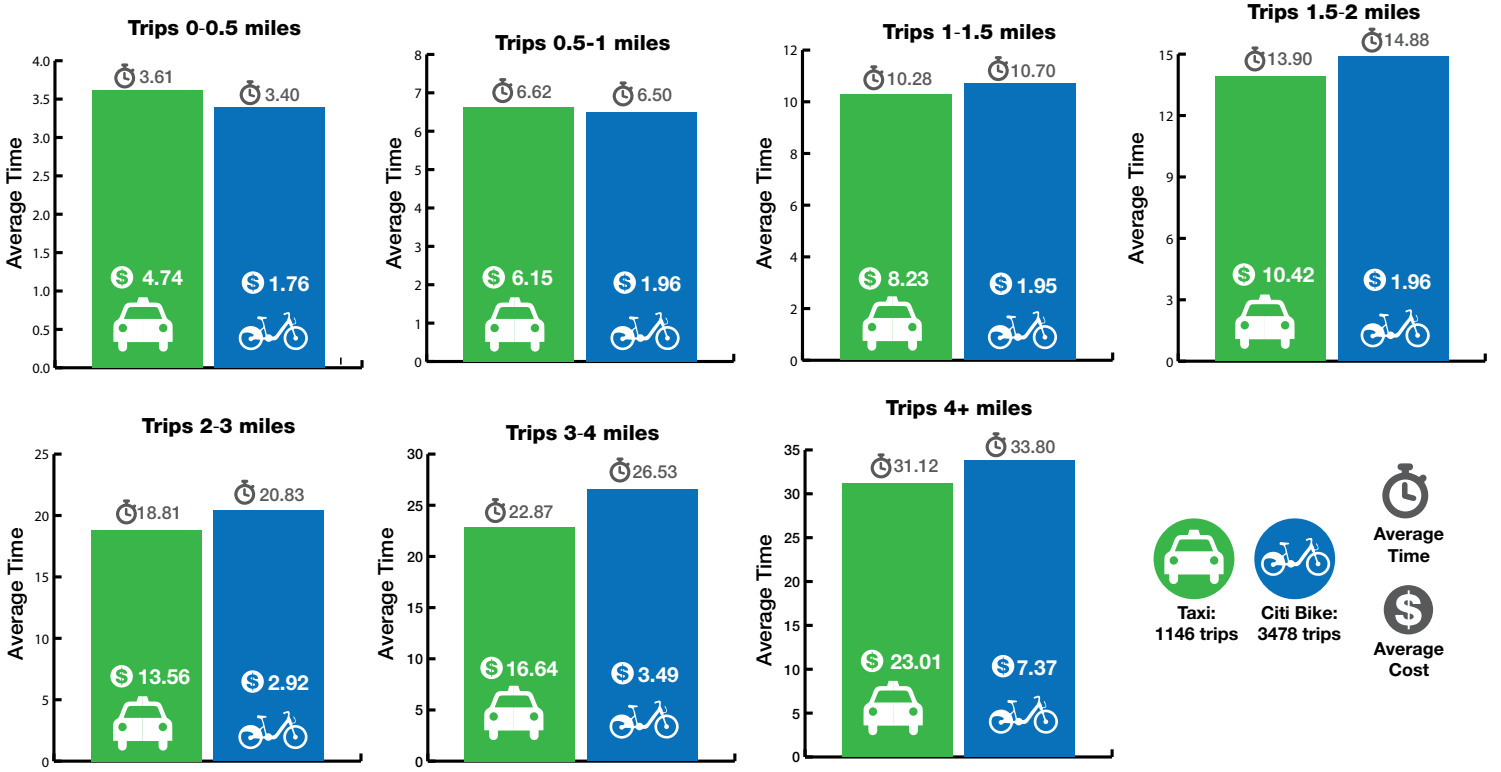
This year we are comparing Citi Bike trips to taxi trips (both Green & Yellow) in a new geography along with the Midtown Core. This area was modeled to include many of the new Citi Bike stations in Brooklyn and Queens. The area contained 222 Citi Bike stations in 2018 and is bounded by Queens Plaza and Northern Blvd. on the north, Cobble Hill to Bedford-Stuyvesant to the South, the East River to the west, and includes Sumner Homes, Williamsburg, and the Brooklyn Navy Yard. This area is also a popular destination for recreational activities and tourism.

The bar charts to the right provide a comparison of the duration and cost of Citi Bike trips and taxi trips. The results are categorized based on the trip length. Additionally, the trip count per hour is displayed on the lower right. Green bars represents the combined trips for both green and yellow taxis and the blue bars represents Citi Bike trips.

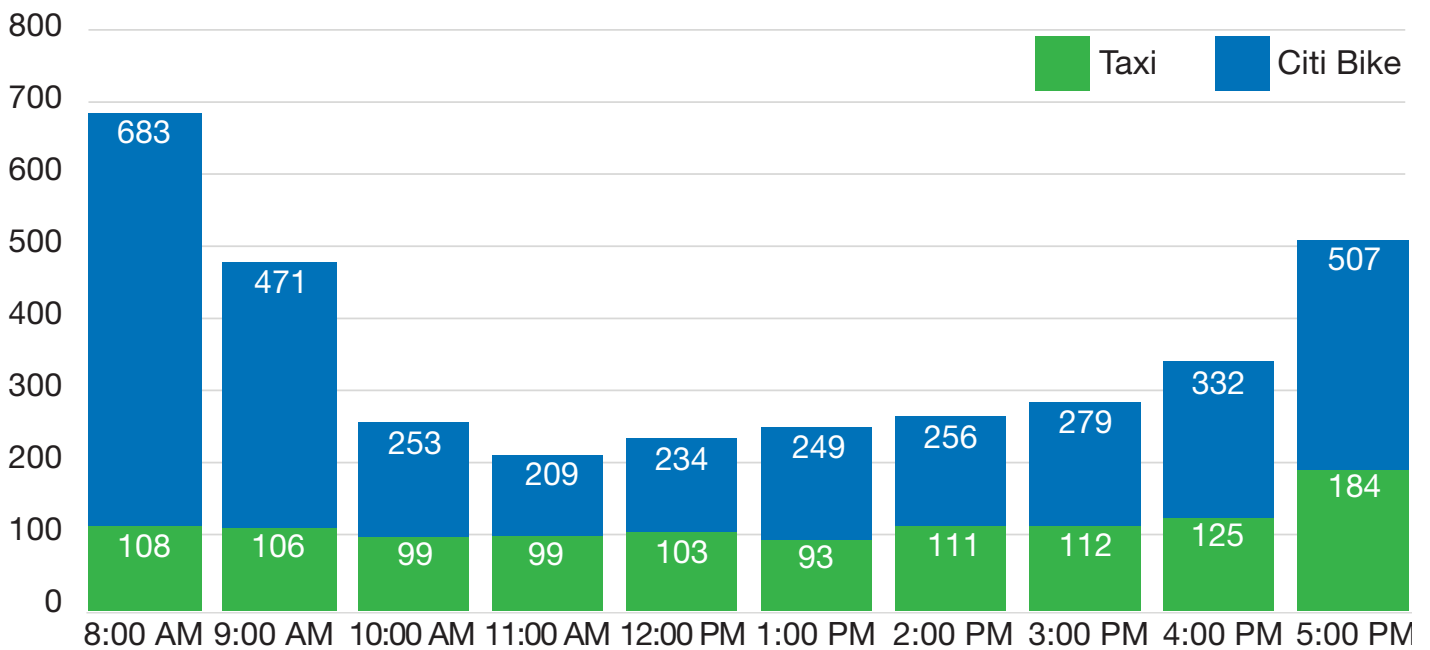
- ▶ **There are over two times as many Citi Bike trips as there are taxi trips in this area.**
- ▶ **In this geography Citi Bike trips cost less than 35% of taxi fares for all but the smallest distances.**
- ▶ **For trips less than 2 miles long Citi Bike trips are at most only two minutes slower than taxi trips.**

Methodology

Data was collected from GPS devices within taxis on typical weekdays, Tuesday through Thursdays, between 8 a.m. and 6 p.m., excluding major holidays in October 2018. Citi Bike trips are based on trips records for the month of October 2018. Distance was calculated based on the start and end station. Citi bike trips that started and ended at the same station were excluded. This analysis only considered trips that started and ended within the Brooklyn & Queens geography.



Brooklyn-Queens Trips per Hour



Citywide Bus Speeds



Slow travel speeds are not confined to the Manhattan CBD.

Median Bus Speeds

The MTA began collecting Bus Time data in 2012. The data is collected by the MTA but serves as a tool for many City agencies. The GPS data produced by the MTA buses is an excellent transportation planning data set because it allows the DOT to continually calculate and utilize bus speeds as a proxy for general traffic speeds around the city. The data set has been used for both project planning and evaluation.

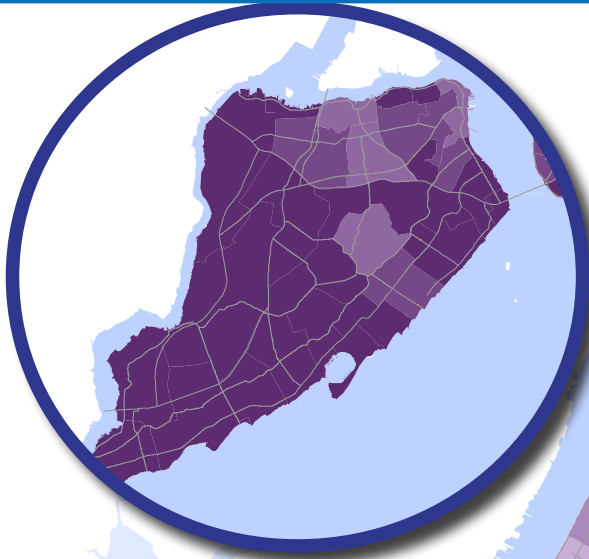
The map on the right displays the median bus speeds in each transit analysis zone (TAZ) based on Bus Time data from October of 2018. The TAZ is a geography that is used in transportation planning to understand spatial trends in relation to transit hubs and other common destinations. The TAZs shown here are comprised of census tracts and area designed to be of similar area.

The darker colored zones are those that have higher speeds and the lighter colored zones have lower speeds. The highest speeds in the city occur on Staten Island and along TAZs that contain limited-access roadways. The average speed across all of the TAZs is 12.20 mph. Manhattan has the lowest average speed, 9.22 mph, while Staten Island has the highest average speed of 18.56 mph.

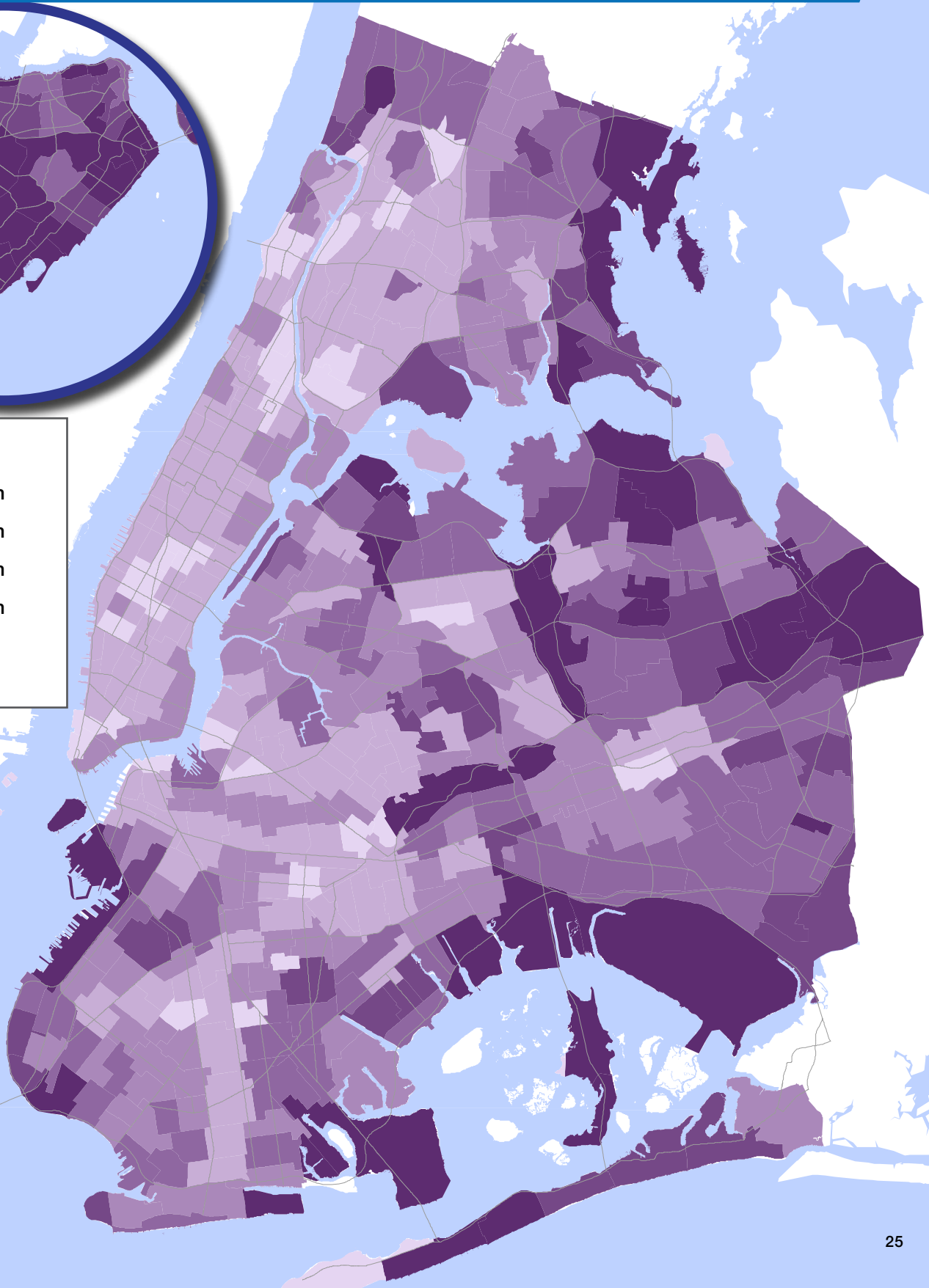
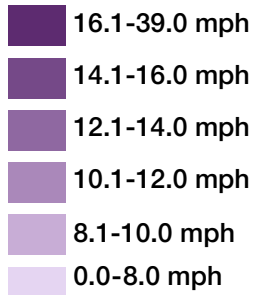
Methodology

Bus speed data shown in this map are based on GPS data from MTA Bus Time that indicates the location of individual buses over time on their routes. Data was collected between 4 p.m. and 6 p.m. every typical weekday (Tuesday-Thursday) in October 2018. Individual bus time speed points were spatially joined to TAZs. The median speed was taken in each TAZ. Median speeds tend to be higher than average (mean) speeds because they are not skewed by the slowest speeds measured in each TAZ. These instantaneous speeds **exclude** time stopped at bus stops or traffic lights, and so will register slower in areas with heavy ridership and frequent traffic signals. Because speed points are reported at regular intervals, slower moving buses naturally report more speed points in any given TAZ than faster buses. Speed points less than 0.9 mph are not included.

Median Bus Speeds 2018



2018 Median Bus Speeds



Citywide Bus Speeds



**Bus speeds
in large
sections
Brooklyn,
Queens and
the Bronx
dropped
between
2016 and
2018.**

Change in Bus Speeds, 2016-2018

The breadth and consistency of the MTA Bus Time data set allows DOT to compare bus speeds in different parts of the city and also in different time periods. Knowing both where and when speeds have changed is pivotal in understanding how effective our projects are and also where we may look to do to target street improvements.

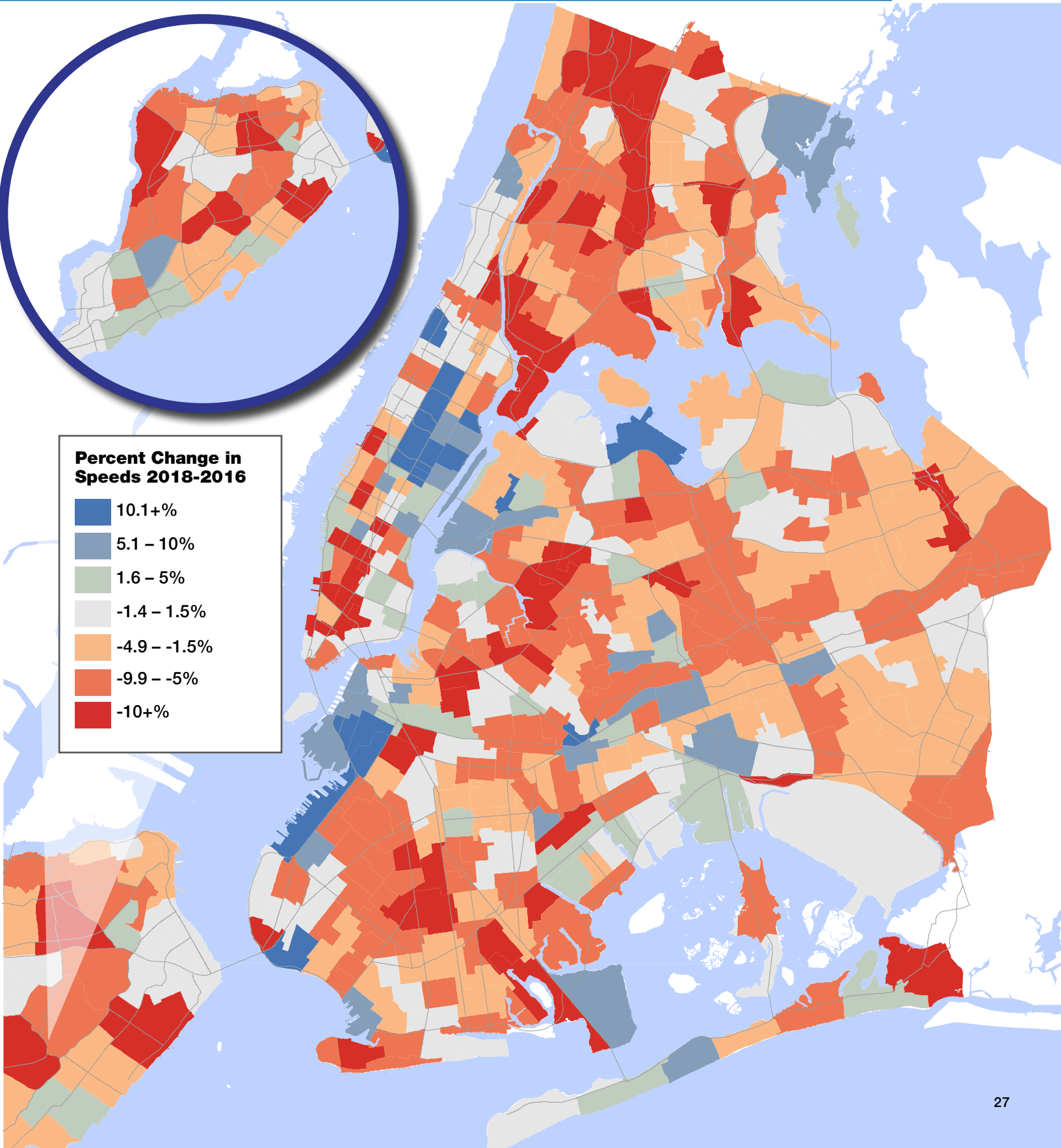
The map on the right represents the percentage change in the median bus speeds between 2016 and 2018. The map presents data in the same unit as the Median Bus Speeds map (page 25), transit analysis zones (TAZ). The blue colored zones represent locations where there has been an increase in speeds while the red colored zones represent zones that have seen a decrease in speeds.

On average the speeds per TAZ dropped by 3.5% between 2016 and 2018. The speed increases on the Upper East Side observed last year continued to show up this year in close proximity to the new Second Ave subway stations. The opposite occurred in the Bronx. The Bronx had the largest percentage decrease in speed, at 6.3%. For these and other reasons the MTA initiated the Bronx bus network redesign. The new route plan is due later this year and will bring improved service to the borough.

Methodology

Bus speed data shown in this map are based on GPS data from MTA Bus Time that indicates the location of individual buses over time on their routes. Data was collected between 4 p.m. and 6 p.m. every typical weekday (Tuesday-Thursday) in October 2018. Individual bus time speed points were spatially joined to TAZs. The median speed was taken in each TAZ. Median speeds tend to be higher than average (mean) speeds because they are not skewed by the slowest speeds measured in each TAZ. These instantaneous speeds **exclude** time stopped at bus stops or traffic lights, and so will register slower in areas with heavy ridership and frequent traffic signals. Because speed points are reported at regular intervals, slower moving buses naturally report more speed points in any given TAZ than faster buses. Speed points less than 0.9 mph are not included.

Change in Bus Speeds between 2016-2018



Citywide Traffic Screenline Trends

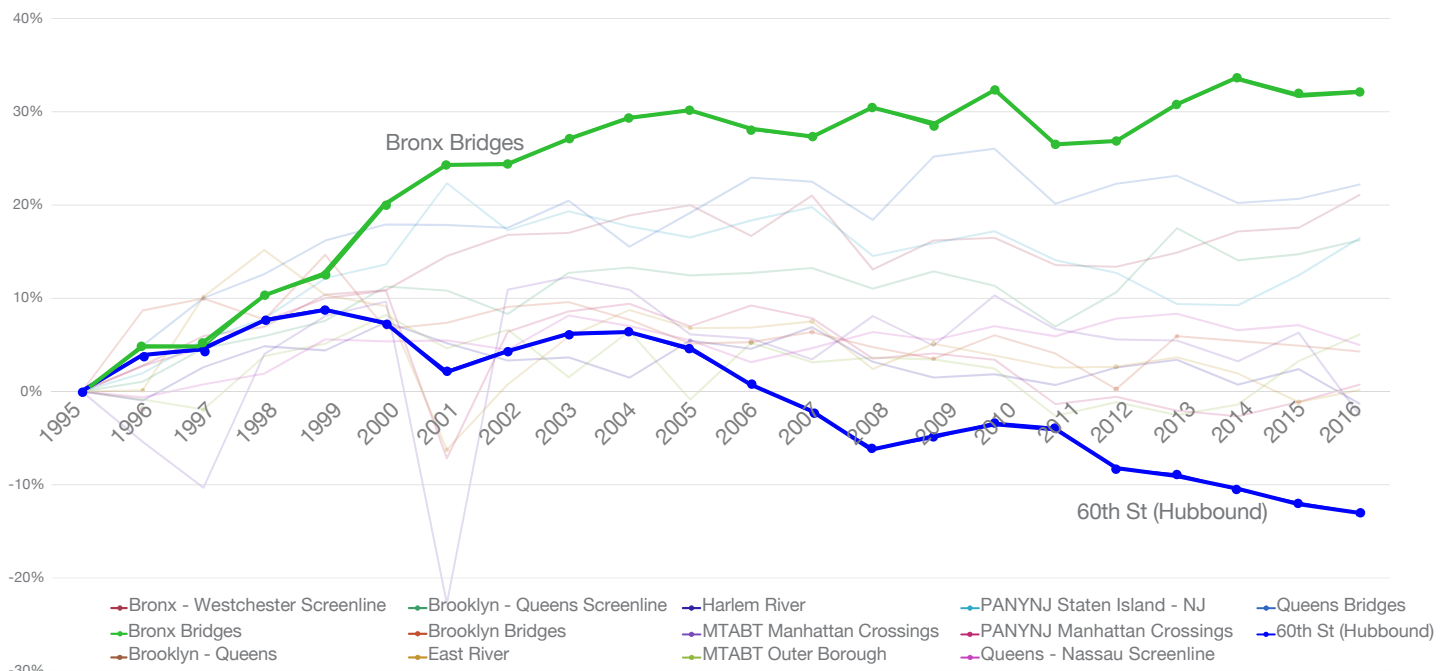
Each year DOT collects and reports the average daily traffic volumes at 97 locations around the city. For some locations this data goes back as far as 1963. Some of the count data is collected by other transportation agencies such as the Port Authority of New York and New Jersey (PANYNJ) or the Metropolitan Transportation Authority Bridges and Tunnels (MTABT). We collect and compile this data in order to understand the trends in vehicular movement. The locations are categorized into 14 groups to better understand flows between different areas of the city and across different tolled and non-tolled facilities. The crossing groups are:

- Bronx – Westchester Screenline
- Bronx Borough Bridges
- Brooklyn – Queens Bridges
- Brooklyn – Queens Screenline
- Brooklyn Borough Bridges
- East River Bridges
- Harlem River Bridges
- MTABT Manhattan Bridges and Tunnels
- MTABT Outer Bridges
- PANYNJ Manhattan Bridges and Tunnels
- PANYNJ Staten Island Bridges
- Queens – Nassau Screenlines
- Queens Borough Bridges
- 60th Street Screenline

The chart below shows the historic change in trips across the 14 crossing groups. The change is indexed to the traffic volume at each crossing in 1995. The growth in the Bronx and Queens Bridges crossing groups is representative of the change in travel trends discussed earlier. In the past the travel of New Yorkers has been centered on the central business district, new movement patterns and jobs centers are emerging that are driving increases in intraborough traffic.

Though much attention has historically been given to the crossings that surround the central business district, since 1995 the growth has been most substantial at the crossings between Queens, Brooklyn and the Bronx. All crossings into the CBD are either flat or have decreased. All other crossings, except the Brooklyn-Queens Bridges and the MTABT Outer Bridges, have increased by more than 10% since 1995.

Percentage change in Crossing Volume (Indexed to 1995)





- Crossing Groups**
- Bronx-Westchester Screenline
 - Bronx Bridges
 - Brooklyn-Queens
 - Brooklyn-Queens Screenline
 - Brooklyn Bridges
 - East River
 - Harlem River
 - MTABT Manhattan Crossings
 - MTABT Outer Borough
 - PANYNJ Manhattan Crossings
 - PANYNJ Staten Island-NJ
 - Queens-Nassau Screenline
 - Queens Bridges
 - 60th Street Screenline



Citywide Mobility Survey

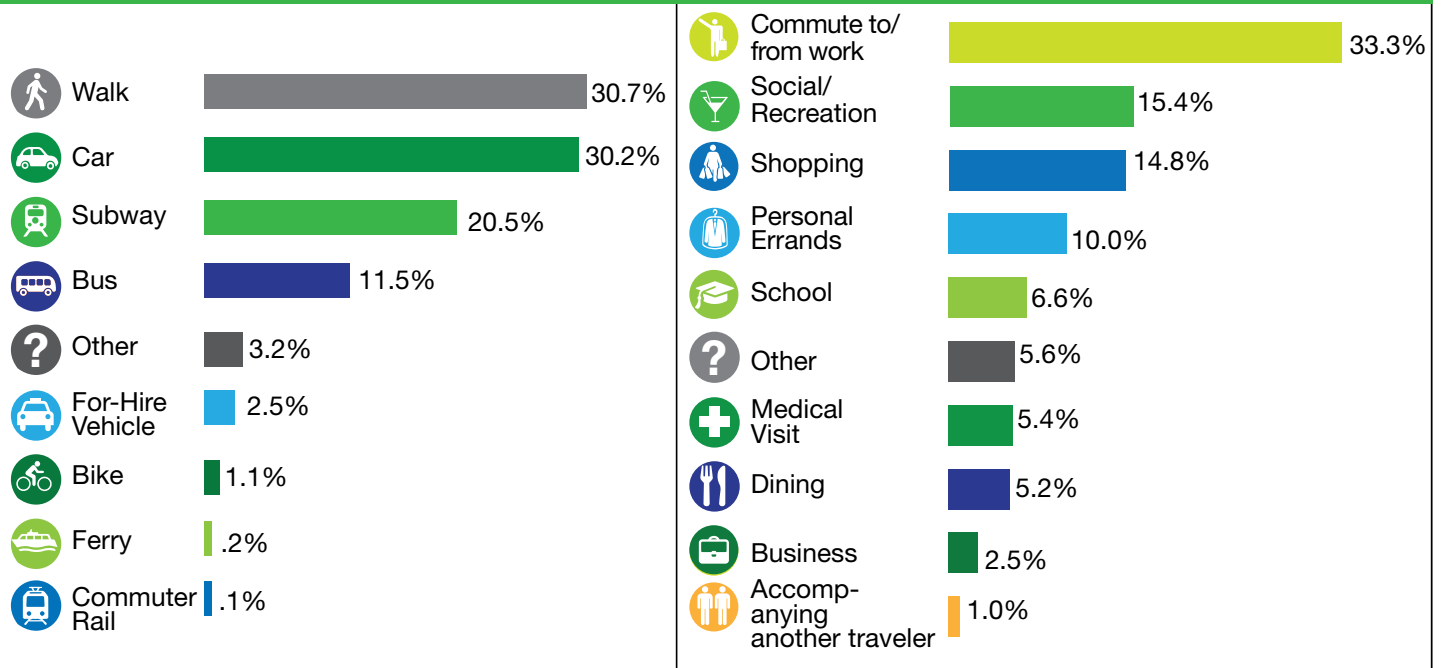
The DOT conducts the Citywide Mobility Survey each year to assess public sentiment and travel behaviors in the city. The survey is administered by phone and through an online questionnaire to thousands of New Yorkers throughout all five boroughs. Topics range from trip travel choice to the state of transportation in the city. This year's process consisted of a 37 question survey and a travel diary. The addition of the trip diary questionnaire allows DOT to better understand travel patterns around the city.

Takeaways

- ▶ **30.7% of New Yorker's trips were walking trips, the highest of any mode.**
- ▶ **22% of trips taken from Inner Queens are to another borough. This is the highest of any region measured in the survey.**
- ▶ **33.3% of trips were for the purpose of commuting.**
- ▶ **44.9% of New Yorkers reported receiving a delivery at their home at least once a week.**

Trip Profile: New York City

Based on Trip Diary Phone Responses

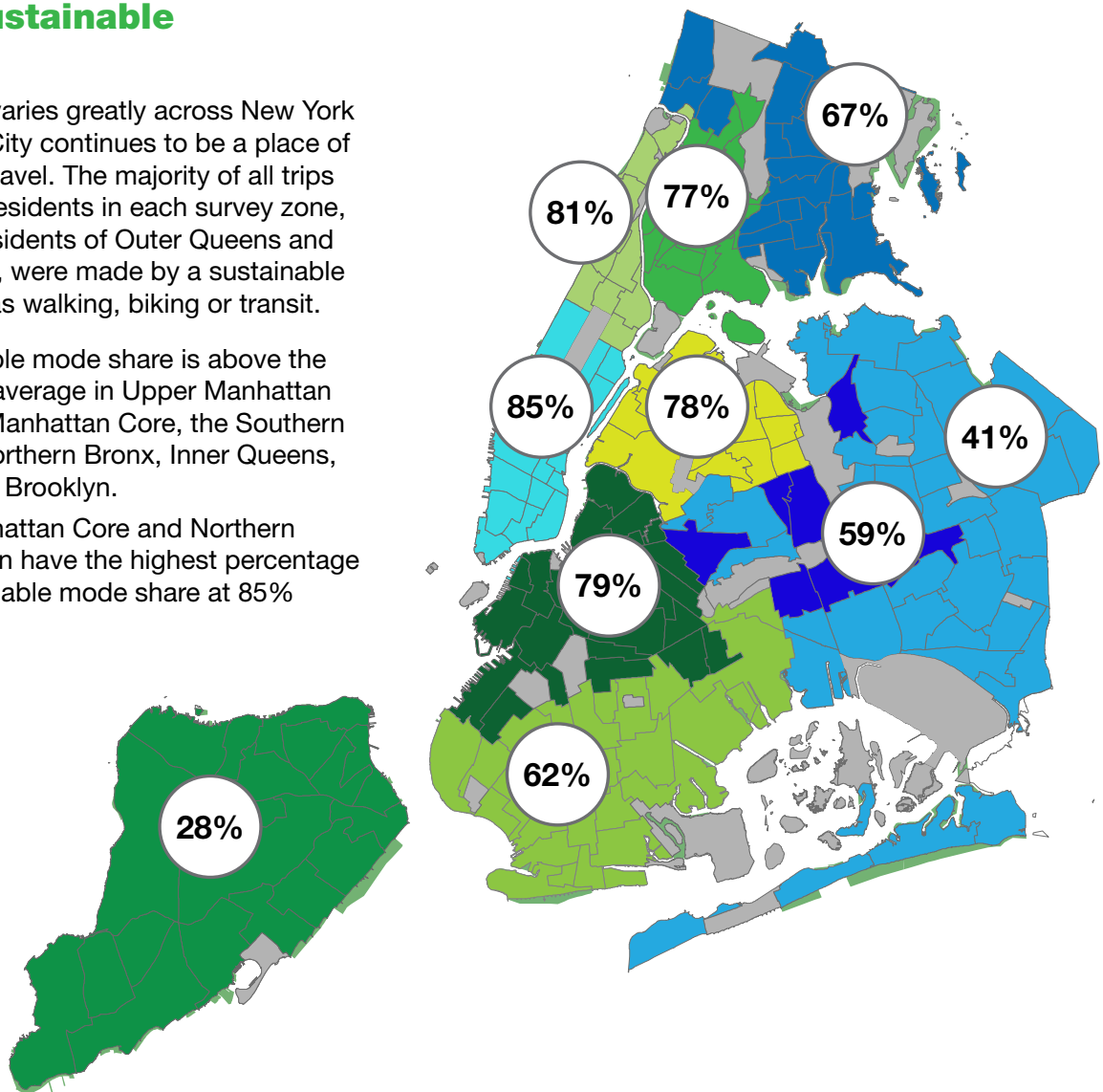


By Zone:

Percent of Trips Using Sustainable Modes

Mode share varies greatly across New York City but the City continues to be a place of sustainable travel. The majority of all trips reported by residents in each survey zone, except for residents of Outer Queens and Staten Island, were made by a sustainable mode, such as walking, biking or transit.

- Sustainable mode share is above the citywide average in Upper Manhattan and the Manhattan Core, the Southern Bronx, Northern Bronx, Inner Queens, and Inner Brooklyn.
- The Manhattan Core and Northern Manhattan have the highest percentage of sustainable mode share at 85% and 79%.



Methodology

The 2018 survey, which was fielded from May 3, 2018 through June 24, 2018, was divided into two sections: the main survey and the trip diary. The main survey assessed behaviors, attitudes, and perceptions of transportation throughout New York City. The trip diary recorded each trip that respondents had taken the previous day. A trip was defined as any one-way journey that started in one location and ended in another. A total of 3,301 New York City residents aged 18 and over participated in the survey. The sample size for the trip diary data set is $n=7,977$ trips, 6,063 of which were captured by phone and 1,914 on-line. The margin of error for the phone sample is $\pm 1.96\%$. For full survey methodology, see appendix.

Citywide Mobility Survey

It is immensely important for the DOT to understand walking trips around the city. Over the past decade New York City has worked to upgrade the City's pedestrian facilities and public spaces. New York City wants that work to continue but need data to support those projects. With the travel survey component the City was able to determine detailed information about when people were walking and how it fit into larger trips. Below we present data on the modes that people used to connect to transit and to the right are the percentages of trips that were walking trips in each borough subsection.

By Mode: First Mile/Last Mile Trips

New York continues to be a city of walkers.

- 96% of New Yorkers walk to transit and 94% walk from transit.

First Mile/Last Mile Trips, n=1995

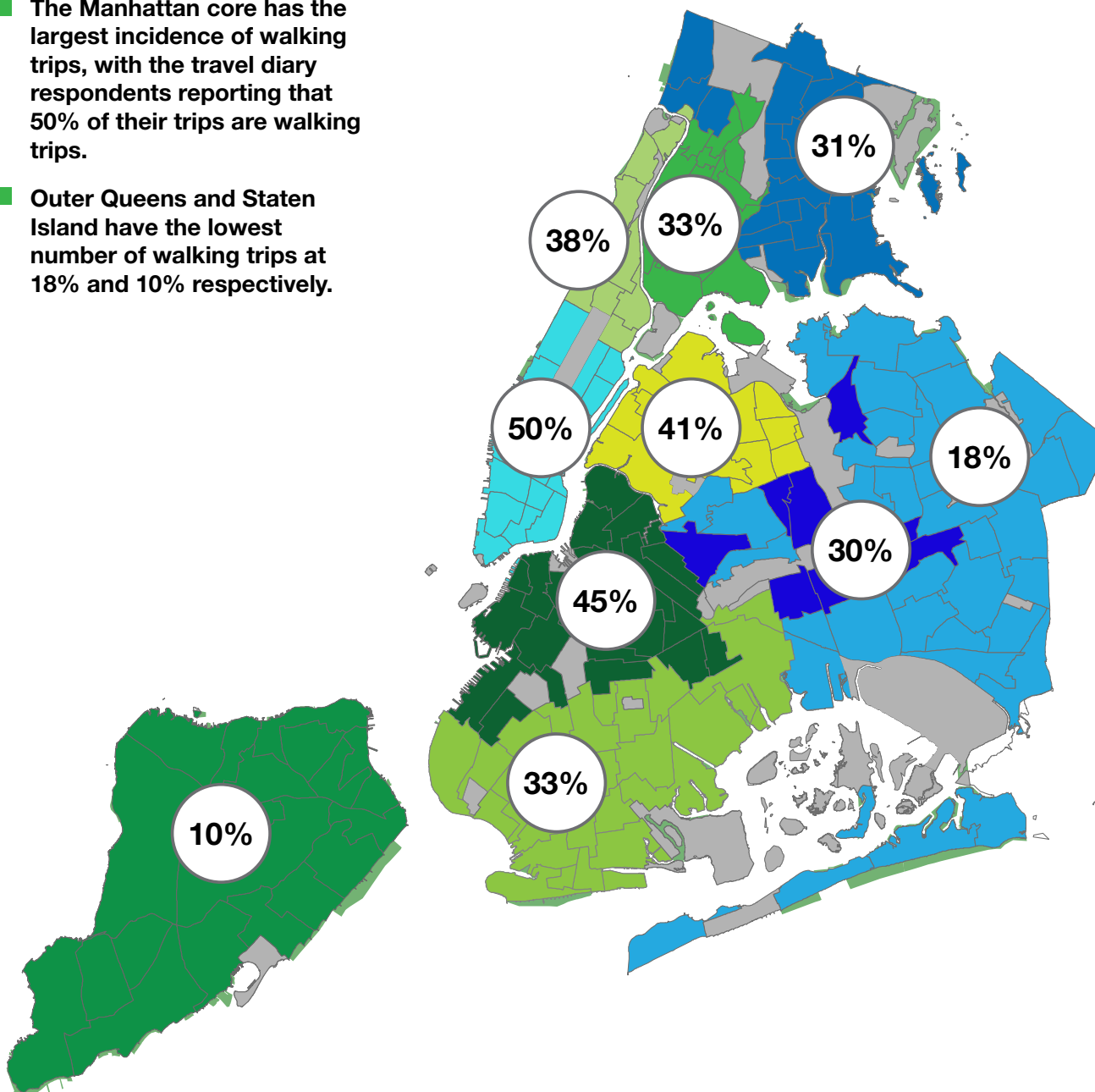
Mode	Connecting to Transit	Connecting from Transit
Walk	96.0%	94.1%
Car	1.3%	1.0%
For-hire vehicle	0.6%	0.8%
Bicycle	0.2%	0.2%



By Zone: Walking Trips

Not only do most of our trips take place on sustainable modes, but a large percentages of those trips are walking trips.

- The Manhattan core has the largest incidence of walking trips, with the travel diary respondents reporting that 50% of their trips are walking trips.
- Outer Queens and Staten Island have the lowest number of walking trips at 18% and 10% respectively.

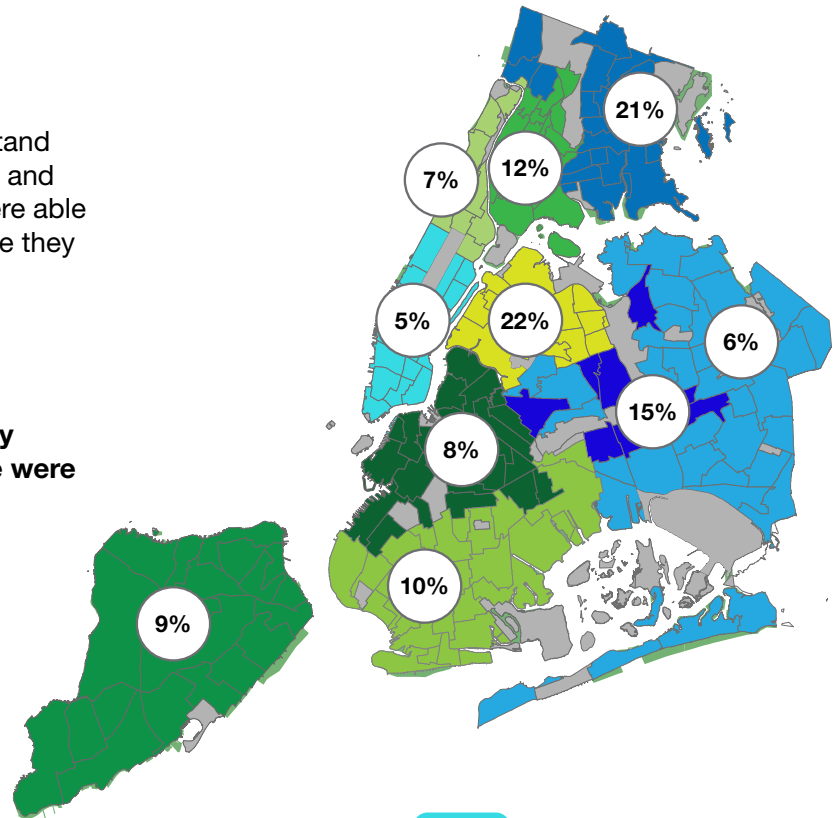


Citywide Mobility Survey

By Zone: Interborough Trips

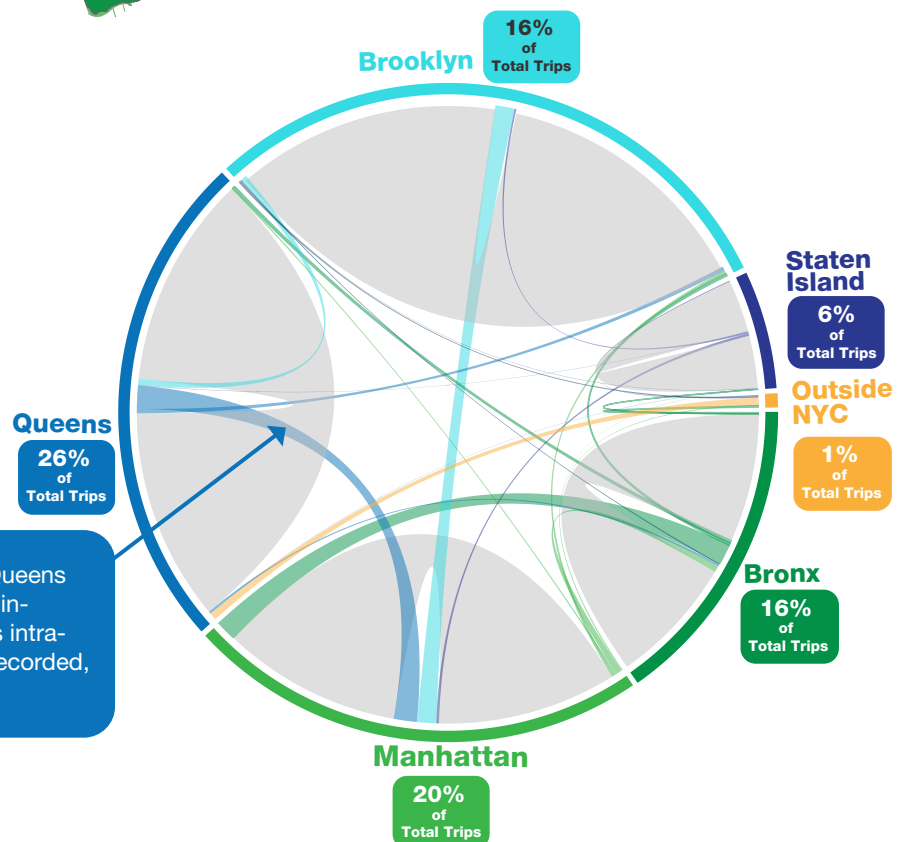
The Mobility Survey also allows the DOT to understand how people are traveling through the five boroughs and the region. This year through the travel diary we were able to catalog specifically where trips started and where they ended.

- Inner Queens had the highest percentage of interborough trips at 22%.
- Only 5%, the lowest of all boroughs, taken by New Yorkers who live in the Manhattan Core were interborough trips.



Interborough Trips Chord Diagram

The chord diagram below is a representation of the trip data collected during the Mobility Survey this year. The traffic diary provides precise origin and destination pairs for survey participants. The chord diagram below visualizes that data. Chord represent the relative volume of trips with the colors matching the trip origins. Trips that started and ended in the same borough are filled grey.



2.4% of Trips recorded by the trip diary started in Queens and ended in Manhattan. This was the greatest origin-destination pair for inter-borough trips. But Queens intra-borough trips represented the 22% of the total trips recorded, the greatest of all origin-destinations pairs.

Freight and Home Deliveries

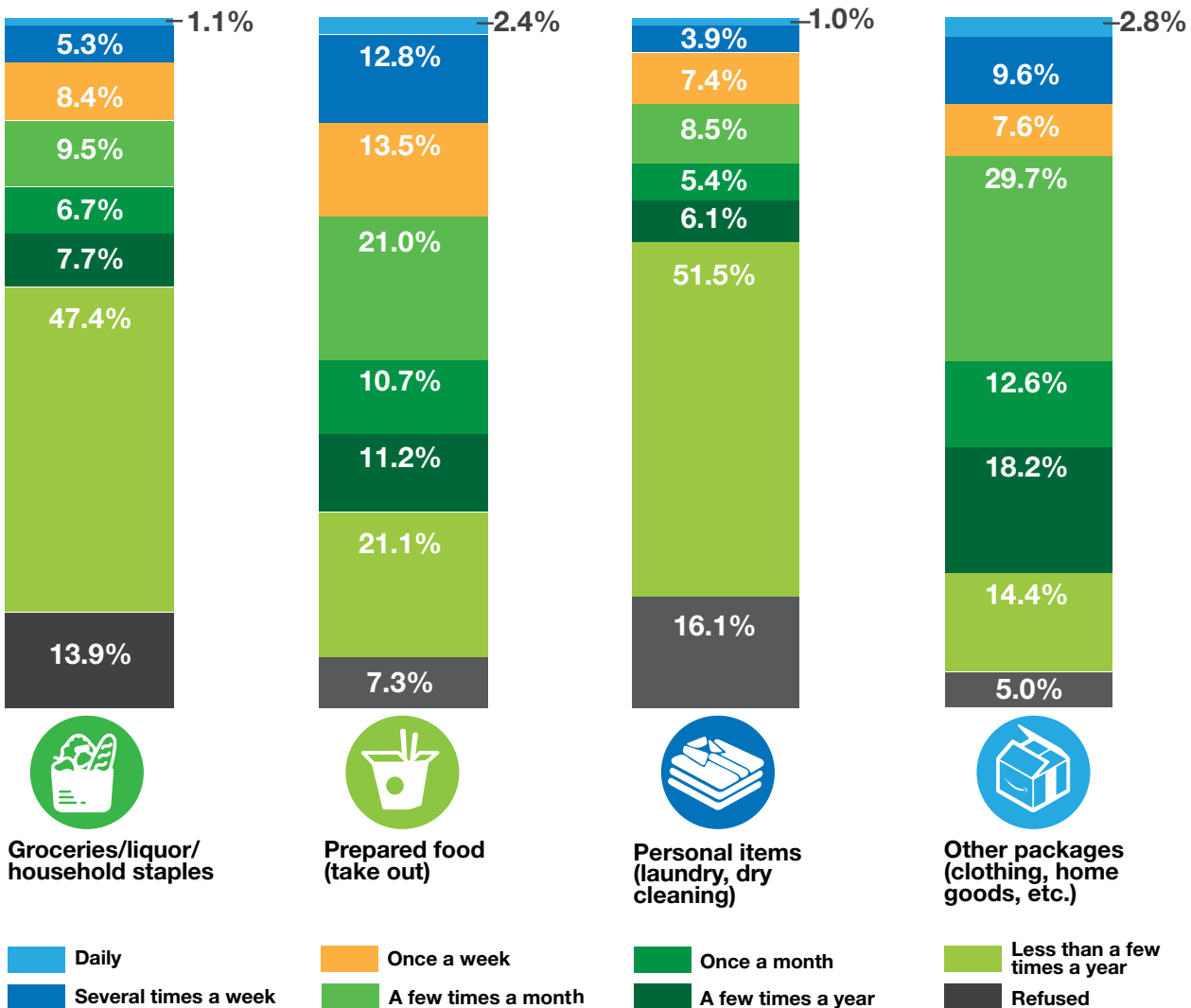
The curb in New York, just like in many other cities, has many competing needs. We dedicate much of our curb space to parking and also to loading zones for commercial freight activity. Over the past 10 years, there has been a rise in the number of at-home deliveries, creating additional need for dedicated curb access. The mobility report asks about the deliveries received by respondents to better understand this new curb demand.

- Other packages was the popular delivery item, with 62% of respondents reporting having received a package of clothing, home goods or similar items at least once a month.
- Prepared food delivery was more popular than grocery/liquor delivery. 60% of respondents received prepared food compared to 31% received groceries, at least once a month.

Delivery Behavior:

How often do you receive deliveries at home?

44.9% of New Yorkers reported receiving a delivery at their home at least once a week.





Appendices

- 38 Traffic & Transit Trends**
- 42 Related Reports**
- 44 Methodology**
- 48 List of Abbreviations / Credits**

Appendix: Traffic and Transit Trends

CITYWIDE TRENDS				
<i>(All data in thousands)</i>				
Year	NYC population*	NYC employment	Citywide traffic**	Transit Ridership***
1990	7,323	3,575		5,206
1991	7,375	3,383		5,047
1992	7,429	3,291		4,977
1993	7,506	3,300	4,066	5,086
1994	7,570	3,331	4,089	5,236
1995	7,633	3,349	4,137	5,259
1996	7,698	3,380	4,192	5,187
1997	7,773	3,453	4,292	5,424
1998	7,858	3,541	4,408	5,893
1999	7,948	3,633	4,503	6,335
2000	8,018	3,732	4,535	6,737
2001	8,071	3,704	4,430	6,921
2002	8,094	3,597	4,502	6,979
2003	8,144	3,547	4,566	6,801
2004	8,184	3,565	4,589	6,919
2005	8,214	3,619	4,541	7,069
2006	8,251	3,684	4,523	7,205
2007	8,275	3,761	4,505	7,401
2008	8,364	3,812	4,407	7,638
2009	8,392	3,712	4,428	7,446
2010	8,175	3,730	4,468	7,419
2011	8,284	3,818	4,376	7,450
2012	8,361	3,905	4,385	7,628
2013	8,422	3,999	4,416	7,726
2014	8,472	4,130	4,365	7,812
2015	8,517	4,256	4,406	7,810
2016	8,538	4,346	4,438	7,785
2017	8,623	4,426	4,538	7,593

* Populations for interim years between the decennial census (1990, 2000, 2010) are estimates, which may trend higher than populations ultimately reported by the decennial census.

** Sum of all daily weekday traffic volumes at Borough and City boundaries.

*** Sum of average daily boardings on NYCT subways (excluding students and seniors using return trip coupons) and buses, MTA Bus local routes, and privately operated local buses. Senior return trip tickets were discontinued at the end of 2013 and replaced with a Reduced Fare Round Trip MetroCard.

TRAVEL INTO THE CBD				
<i>(All data in thousands)</i>				
Year	Ferry riders to/ from CBD	Daily vehicles into CBD *	Daily transit riders into CBD	Cyclists crossing into CBD **
1990	87	745	2,174	2.2
1991	84	759	2,154	2.6
1992	81	776	2,127	3.2
1993	81	760	2,157	3.3
1994	82	754	2,206	3.6
1995	82	772	2,210	4.9
1996	84	787	2,237	5.5
1997	84	817	2,249	5.2
1998	85	842	2,294	4.1
1999	103	842	2,431	4.4
2000	85	835	2,517	3.0
2001	n/a	700	2,390	3.7
2002	129	797	2,441	4.6
2003	119	832	2,392	6.6
2004	102	825	2,454	6.4
2005	100	810	2,472	7.0
2006	97	806	2,566	9.7
2007	101	795	2,683	9.3
2008	105	759	2,743	12.2
2009	105	770	2,586	15.6
2010	110	776	2,662	16.8
2011	102	764	2,662	18.9
2012	106	751	2,762	19.1
2013	98	747	2,826	20.9
2014	99	731	2,852	21.5
2015	109	731	2,983	22.1
2016	123	717	2,981	22.6
2017	127	705	2,970	22.4

1. Count is on a single mid-summer weekday from 1980, and 1985-2006, on three separate weekdays in May, July, and September 2007, and from April to October after 2007.
2. There is no data available for the Williamsburg Bridge in 1991.
3. The Manhattan Bridge path opened to cycling in 2001.
4. From 1980 to 2013, a multiplier of between 1.25 and 1.59 was applied to 12 hour 7am-7pm bicycle counts and provides an estimated 24 hour counts. This multiplier was developed from the three years of automated count data collected since January 2014 and provides an estimated 24 hour count.
5. From January 2014 onward, data was primarily automated and is an average of each month excluding holidays and days with precipitation.

**DAILY VEHICLE TRAFFIC INTO THE CBD,
BY SECTOR OF ENTRY** * (All data in thousands)

Year	New Jersey	60th Street	Queens	Brooklyn
1990	101	350	104	191
1991	98	357	104	200
1992	101	382	108	185
1993	102	370	107	182
1994	104	358	107	185
1995	104	361	117	189
1996	106	378	120	183
1997	107	380	132	197
1998	109	388	139	207
1999	112	393	135	203
2000	112	390	132	201
2001	67	371	128	134
2002	104	380	134	179
2003	110	396	140	186
2004	110	385	134	196
2005	108	379	134	188
2006	110	366	142	187
2007	110	356	137	192
2008	103	341	133	182
2009	104	346	138	182
2010	105	351	134	186
2011	100	349	138	177
2012	100	334	139	179
2013	98	332	132	186
2014	96	326	131	178
2015	97	320	137	177
2016	95	317	126	179
2017	94	303	123	185

* Any discrepancies between these figures and those in previous SSI and NYMTC Hub Bound reports are due to revised methods of performing vehicle class counts.

**DAILY TRANSIT RIDERS INTO THE CBD,
BY SECTOR OF ENTRY** (All data in thousands)

Year	New Jersey	60th Street	Queens	Brooklyn
1990	264	754	521	598
1991	257	764	522	579
1992	250	747	503	594
1993	254	755	515	601
1994	272	790	521	593
1995	269	800	525	587
1996	283	799	525	601
1997	299	785	534	601
1998	292	795	552	624
1999	312	866	571	645
2000	332	877	596	682
2001	325	843	553	668
2002	335	869	559	645
2003	333	857	526	647
2004	350	864	535	674
2005	356	876	553	656
2006	372	911	557	695
2007	390	926	597	738
2008	388	977	596	746
2009	385	889	565	711
2010	405	902	580	738
2011	401	906	583	737
2012	400	944	601	778
2013	409	968	616	799
2014	412	978	613	820
2015	465	983	636	841
2016	461	972	626	841
2017	469	986	614	830

Appendix: Traffic and Transit Trends

TRAVEL OUTSIDE THE CBD

(All data in thousands)

Year	Daily vehicle traffic *	Daily bus ridership **
1990		
1991		
1992		
1993	3,305	
1994	3,335	
1995	3,366	
1996	3,410	
1997	3,478	
1998	3,566	1,749
1999	3,660	1,883
2000	3,704	1,983
2001	3,734	2,080
2002	3,710	2,131
2003	3,749	2,062
2004	3,767	2,077
2005	3,736	2,115
2006	3,722	2,160
2007	3,714	2,192
2008	3,651	2,240
2009	3,657	2,179
2010	3,690	2,139
2011	3,611	2,076
2012	3,634	2,101
2013	3,669	2,115
2014	3,640	2,096
2015	3,674	2,067
2016	3,722	2,050
2017	3,833	1,945

* Sum of all daily traffic volumes at borough and city boundaries, excluding volumes at points entering the Manhattan CBD.

** Sum of all average daily boardings on local bus routes operated by NYCT, MTA Bus, and private operators. During years for which complete data are only available for NYCT local routes (2002-2005), private and MTA Bus local route data are estimates.

DAILY VEHICLE TRAFFIC OUTSIDE THE CBD, TWO-WAY VEHICLE VOLUMES AT BOROUGH OR CITY BOUNDARIES

(All data in thousands)

Year	George Washington Bridge	Westchester-The Bronx	Staten Island-NJ	Queens-Brooklyn
1990	273			
1991				
1992	268		145	
1993	261	506	141	519
1994	260	516	144	537
1995	266	532	144	547
1996	275	548	147	554
1997	282	555	152	580
1998	297	566	157	587
1999	318	584	167	595
2000	318	591	165	614
2001	309	607	177	612
2002	311	620	179	592
2003	319	620	175	612
2004	315	627	174	615
2005	304	633	172	615
2006	312	625	176	601
2007	291	636	170	601
2008	293	599	166	590
2009	290	609	166	592
2010	292	617	168	597
2011	280	602	170	574
2012	277	605	164	592
2013	278	610	158	608
2014	281	620	156	596
2015	295	622	163	595
2016	290	642	169	592
2017	292	624	175	632

DAILY VEHICLE TRAFFIC OUTSIDE THE CBD, TWO-WAY VEHICLE VOLUMES AT BOROUGH OR CITY BOUNDARIES
(All data in thousands)

Year	Nassau-Queens	The Bronx-Manhattan	The Bronx-Queens *	Verrazano Narrows Bridge
1990		540		
1991				
1992		537	272	183
1993	892	542	266	178
1994	897	526	274	181
1995	893	522	277	185
1996	896	531	273	185
1997	907	547	272	183
1998	920	560	286	195
1999	947	563	291	195
2000	940	579	295	203
2001	947	569	294	219
2002	944	552	300	212
2003	969	550	299	206
2004	966	552	312	206
2005	959	561	297	194
2006	935	557	309	207
2007	952	558	304	201
2008	952	539	309	204
2009	956	544	299	202
2010	964	550	298	204
2011	958	545	289	195
2012	964	547	293	193
2013	970	558	294	192
2014	963	538	299	187
2015	960	531	311	198
2016	959	541	327	203
2017	984	541	327	203

* Sum of two-way daily traffic on the Throgs Neck, Bronx-Whitestone, and Triboro Bridge (Bronx toll plaza only)

DAILY BUS RIDERSHIP OUTSIDE THE CBD, BY BOROUGH * (All data in thousands)

Year	Upper Manhattan**	The Bronx	Queens	Brooklyn	Staten Island
1990					
1991					
1992					
1993					
1994					
1995					
1996					
1997					
1998	96	453	515	602	83
1999	109	483	556	648	89
2000	116	505	589	680	93
2001	122	528	614	721	96
2002	128	535	623	749	96
2003	126	515	599	728	93
2004	131	523	593	737	93
2005	132	529	620	741	94
2006	130	543	647	744	96
2007	130	545	685	736	97
2008	129	551	729	733	97
2009	127	539	715	703	94
2010	126	538	713	669	94
2011	122	520	703	640	92
2012	123	529	715	642	91
2013	124	543	720	634	94
2014	119	548	713	621	95
2015	117	539	705	610	96
2016	117	523	709	607	95
2017	103	484	691	576	91

* Average daily boardings on NYCT, MTA Bus, and private local bus routes.

** Subset of Manhattan Local routes which operate above 60 St only (M18, M60, M66, M72, M79, M86, M96, M100, M106, M116)

NYC DOT continually evaluates and publishes the performance of its major transportation projects throughout the city in accordance with Local Law 90 of 2009.

Project updates and evaluations can be found at NYC DOT's Major Transportation Projects site: <http://www.nyc.gov/html/dot/html/about/major-transportation-proj.shtml>

Additional related documents and publications through which NYC DOT reports on its efforts to reduce congestion and promote high performance modes are listed below.

Find the latest NYC DOT reports: <http://www.nyc.gov/html/dot/html/about/dotlibrary.shtml>

Title	Summary
<p>Manhattan River Crossings</p>	<p>This report, published by DOT since 1972, presents vehicular volumes, classification, and trends for all bridge and tunnel facilities serving Manhattan.</p>
<p>New York City Bridge Traffic Volumes</p>	<p>Since 1948, DOT has monitored traffic flows on 47 bridges throughout the five boroughs. This report summarizes vehicular volumes, classification data, and trends for the 47 bridges that cross over water, as well as the nine bridges and tunnels operated by the Metropolitan Transportation Authority and the six bridges and tunnels operated by the Port Authority of New York and New Jersey.</p>
<p>New York City Screenline Traffic Flow Report</p>	<p>This report presents vehicular volumes and historical comparisons across the Bronx-Westchester, Queens-Nassau, Manhattan-New Jersey, Staten Island-New Jersey, and Brooklyn-Queens screenlines.</p>
<p>Don't Cut Corners: Left Turn Pedestrian and Bicycle Crash Study</p>	<p>DOT took an exhaustive look at the problem of left turn pedestrian and bicyclist injuries (including fatalities) in New York City. The study relies on these findings to provide recommendations for additional engineering, planning, and education efforts to prevent and mitigate injuries. DOT prepared this study pursuant to Local Law 21 of 2014.</p>
<p>Better Buses Action Plan</p>	<p><i>The Better Buses Action Plan</i> is a comprehensive effort to address slow and unreliable bus service, which prevents New Yorkers of all kinds from getting where they need to go, and has contributed to a 13% decrease in ridership in the past four years. To accomplish the ambitious goal of speeding up buses by 25%, NYC DOT with NYPD and MTA is implementing a range of proven and pilot measures,</p>
<p>The Green Wave, A Plan for Cycling in New York City</p>	<p>A plan for Cycling in New York City presents a long-term citywide vision for improving cycling safety and the riding experience for cyclists, married with a slate of more immediate improvements. DOT, along with NYPD and other partners citywide, has committed resources to ensure that this plan is not only adopted but accomplished.</p>
<p>OneNYC 2050</p>	<p>A strategy to secure our city's future against the challenges of today and tomorrow. With bold actions to confront our climate crisis, achieve equity, and strengthen our democracy, we are building a strong and fair city. Created under the requirements of Local Law 84 of 2013, <i>OneNYC 2050</i> is New York City's long-term strategic plan.</p>

Title	Summary
Strategic Plan 2016: Safe · Green · Smart · Equitable	New York City is bigger and more bustling than ever and the strains on our transportation system are evident to all who live, work, and visit here: Sidewalks are overflowing, subway trains are packed, and our streets are full of pedestrians, cyclists, cars, trucks, and taxis. This plan is our response to these and other challenges. The plan reiterates our commitment to improving traffic safety and public health, expanding travel choices for all New Yorkers, supporting the City's efforts to fight climate change, doubling cycling, and maintaining our streets and bridges in a state of good repair.
Strategic Plan 2017: Progress Report	In the year since the New York City Department of Transportation (DOT) published its Strategic Plan 2016, DOT has made significant progress towards advancing the 105 initiatives in the plan and making our streets safer and more sustainable, accessible, and efficient. The agency has also continued to expand transportation options for all New Yorkers, especially those who live in communities currently under-served by transit. This Strategic Plan 2017 Progress Report tracks the plan's 105 initiatives and the agency's accomplishments in 2017.
Vision Zero DOT and NYPD Accomplishments 2017	This report contains summary data describing the annual core outputs (street design, enforcement and safety education) and core outcomes (traffic fatalities) relevant to Vision Zero, Mayor de Blasio's initiative to reduce traffic fatalities and severe injuries to zero.
Vision Zero Borough Plans can be found at NYC DOT's Vision Zero page: http://www.nyc.gov/visionzero	
Vision Zero Borough Plans	Vision Zero seeks to eliminate all deaths from traffic crashes regardless of whether on foot, bicycle, or inside a motor vehicle. In an effort to drive these fatalities down, DOT, NYPD, and other agencies developed a set of five plans, each of which analyzes the unique conditions of one New York City borough and recommends actions to address the borough's specific challenges to pedestrian safety.
Mayor's Management Report Updates can be found on the NYC website: http://www.nyc.gov/mmr	
Mayor's Management Report	The Mayor's Management Report (MMR), which is mandated by the City Charter, serves as a public account of the performance of City agencies, measuring whether they are delivering services efficiently, effectively and expeditiously. The MMR is released twice a year. The Preliminary MMR provides an early update of how the City is performing four months into the fiscal year. The full-fiscal MMR, published each September, looks at the City's performance during the prior fiscal year.

Recent Travel Trends

Decade statistics are not averages of each decade, but statistics for that specific year.

Population: United States Census Bureau

Employment: Total non-farm employment in New York, NY. New York State Dep't. of Labor 2018.

Tourism: The annual number of tourists in New York City. 1990-2017: NYC & Company (1991 data is substituted for 1990.) 1980-1970: "Are Casinos Worth the Gamble?" New York Magazine, June 15, 1981.

Subway Ridership: Metropolitan Transportation Authority New York City Transit (MTA NYCT)

Bus Ridership: The Metropolitan Transportation Authority operates buses under two divisions: New York City Transit and MTA Bus Company. (The MTA Bus Company was created in September 2004 to assume the operations of seven bus companies that operated under franchises granted by the New York City Department of Transportation.) 1990-2016: MTA New York City Transit; 1980: NYC DOT records.

Estimated Daily Cycling Trips: Conservative estimate of trips taken per day by bicycle. Number is rounded to nearest 10,000 and based on the American Community Survey three-year rolling average count/sample of workers who commute by bicycle. These workers take two trips by bicycle per day. For 2014, the 41,900 bicycle commuters take 83,600 bike trips per day. Only 18% of travel in New York City consists of commutes to and from work. If the ratio of general commute to non-commute travel held in relation to bicycle travel, these 83,600 bicycle trips would extrapolate to 464,444 bicycle trips per day (83,600/.18). The provided estimate uses 20% as the percentage of bicycle travel that is commute-related. The results appear quite conservative as a 2011 Physical Activity Study conducted by the NYC Department of Health & Mental Hygiene yielded an estimated 310,000 bike trips per day in 2011; using the commute adjustment method yields only 250,000 trips per day in 2011.

Ferry Ridership: Based on ridership in and out of the Manhattan Central Business District on a typical fall day. Hub Bound Travel, New York Metropolitan Transportation Council.

Vehicular River Crossings to/from Manhattan: River crossings are one of the measures of auto use that dates back the furthest in New York City records. The counts are of vehicular traffic flow on the bridges and tunnels heading to and from Manhattan on an average day. 1950-2017: New York City Department of Transportation, Metropolitan Transportation Authority, and Port Authority of New York and New Jersey records.

Citywide Taxi Trips: The cited figures are citywide annual totals of TLC yellow cab trips. 2010-2017: TLC Taxi GPS data. 1980-2000: The New York City Taxicab Fact Book, Schaller Consulting (1977 data is substituted for 1980.)

Household Vehicle Registrations: Passenger vehicle registrations issued by New York State Department of Motor Vehicles.

Taxi & For-Hire Vehicle Registrations: "Vehicle Registrations in Force," Archive of Statistical Summaries, New York State Department of Motor Vehicles.

New York City Transit Bus Speed: New York City Transit Bus Speed: Citywide bus speeds are calculated from total vehicle revenue miles traveled and vehicle passenger hours for all NYCT buses, 2000-2017 data is sourced from National Transit Database; 1990 data is sourced from MTA New York City Transit and New York City Department of transportation records.

Expected & Actual Trip Growth: The relationship between the combined NYC population and the annual number of tourists that visited New York City (New York & Co.) and the number of recorded trips into the CBD was assumed to be linear between 2010 and 2015. This model was this used to predict the number of trips into the CBD in 2016 and 2017.

Person Entering Into the CBD: The graphs are based on the data from the 2017 Hub Bound tables. These tables incorporate data from the vast majority of all transportation agencies in the region.

Travel Speed in Manhattan South of 60th Street: Data was collected from GPS devices within TLC yellow cabs on weekdays between 8 a.m. and 6 p.m., excluding major holidays. Travel speeds are annual averages of GPS data from TLC yellow cabs based on the calendar year. The Midtown Core is bounded by 59th to 35th Streets and 9th Avenue to the East River, inclusive. Midtown Core data is incorporated into the analysis of Manhattan south of 60th Street data.

Citywide Mobility Survey

The 2018 survey, which was fielded from May 3, 2018 through June 24, 2018, was divided into two sections: the main survey and the trip diary. The main survey assessed behaviors, attitudes, and perceptions of transportation throughout New York City. The trip diary recorded each trip that respondents had taken the previous day. A trip was defined as any one-way journey that started in one location and ended in another. These two sections yielded separate data sets, which were analyzed independently.

A total of 3,301 New York City residents age 18 and over participated in the survey. Approximately three-fourths of the sample was recruited over the phone using random digit dialing (RDD) dialing based on area code and a purchased sample list. The other fourth was recruited online via sample lists vetted by DOT's consultant team and identified by zip code. Of the phone sample, 60% of interviews were completed via landline and 40% via cell phone.

The sample size for the trip diary data set is $n=7,977$ trips, 6,063 of which were captured by phone and 1,914 online. The margin of error for the phone sample is $\pm 1.96\%$.

The phone sample was weighted to match the 5-year American Community Survey (ACS) average based on the following factors: age, gender, ethnicity, educational attainment, and geography. The online sample is an oversample of populations in certain neighborhoods that are difficult to reach by phone, and is in line with the demographics of each of those neighborhoods, but is not representative of New York City at the overall city level.

Using these online oversamples to supplement the phone survey allows the agency to reach a readable sample size in 10 geographical zones based on census-derived Neighborhood Tabulation Areas (NTAs):

- **Manhattan Core** (Zone 1, $n=341$)
- **Northern Manhattan** (Zone 2, $n=332$)
- **Inner Brooklyn** (Zone 3, $n=482$)
- **Outer Brooklyn** (Zone 4, $n=514$)
- **Inner Queens** (Zone 5, $n=210$)
- **Middle Queens** (Zone 6, $n=236$)
- **Outer Queens** (Zone 7, $n=432$)
- **Southern Bronx** (Zone 8, $n=275$)
- **Northern Bronx** (Zone 9, $n=252$)
- **Staten Island** (Zone 10, $n=202$)

Citywide Traffic Screenline Trends: Data is collected by DOT yearly at the 97 location distributed across the five borough. The goal of our yearly count program is to understand the traffic flows in the city. The data presented represents average daily total volumes for each site. Indexing was done by measuring the percentage change for each count location from the value in 1995.

Citi Bike & Taxi Data: The Citi Bike data is comprised of average weekday usage for the month of October 2018. Trips that began and ended at the same station were removed. Trip distances were calculated based upon the trip start and end stations. Trip times were calculated based upon the trip start time and the end time. The average time and distance were are plotted per distance bin. Trip costs were calculated based on the average of the member and non-member unweighted median trip cost per distance bin. Median trip cost for Citi Bikes for the non-member are based on the trips distances and times. For the members they were calculated using the full-price of annual members and the actual number of trips taken over the subscription period (to minimize distortions due to seasonal variations and incomplete subscription periods).

The Taxi data is comprised of GPS data collected by the Taxi and Limousine Commission during the month of October 2018 between 8 a.m. and 6 p.m. Trip distances were calculated based upon pickup and drop off location. The trip durations were based on the trip start and end time. The trip costs were obtained from trip records.

Manhattan CBD & Midtown Travel Speeds

Data was collected from GPS devices within TLC yellow cabs on weekdays between 8 am and 6 pm, excluding major holidays. Travel speeds are of annual averages of GPS data from TLC yellow cabs based on the calendar year. Citywide taxi trips are annual totals of TLC yellow cab trips. Midtown Core data is incorporated into the analysis of Manhattan south of 60th Street data.

Vehicle Classification: Classification data was collected in October and November of 2018. Video based turning movement counts and manual counts were taken at 51 locations for five time periods each day. The additional manual counts were taken at each location to identify yellow taxis, green taxis, and for-hire vehicles. Nine total classes were identified. The 51 locations were combined into 14 regions and corridors by adding. Some categories were combined to aid in the data display. Each pie chart is an independent measure of the relative classification volumes in that group.

Central Business District Data: The persons entering the central business district data is based upon the 2017 Hub Bound tables. Data is compiled from the transit and transportation agencies across the region. The category of other includes ferry trips and tram trips.

The relationship between the combined NYC population (United States Census Bureau), and the annual number of tourist that visited New York City (New York & Co.) and the number of recorded trips into the CBD was assumed to be linear between 2010 and 2015. This model was then used to predict the number of trips into the CBD in 2016 and 2017.



9P93

8J50

7N41

PREVOST

Reliance

RM

201

ONE WAY

List of Abbreviations

- **CBD** Manhattan Central Business District: The CBD is the same area as defined by NYMTC for their Hub Bound Travel report, covering Manhattan south of 60th Street, river to river.
- **DOT** New York City Department of Transportation (NYC DOT)
- **FHV** For-hire vehicles
- **GPS** Global Positioning System
- **MTA** Metropolitan Transportation Authority
- **NYCT** New York City Transit, an agency within MTA
- **NYMTC** New York Metropolitan Transportation Council
- **TLC** New York City Taxi and Limousine Commission
- **SBS** Select Bus Service

Credits

New York City Department of Transportation:

Polly Trottenberg: Commissioner

Eric Beaton: Deputy Commissioner, Transportation Planning and Management

This report was developed by the New York City Department of Transportation's Division of Transportation Planning and Management. Deputy Commissioner Eric Beaton directed the project team which consisted of Charles Ukegbu, Justin Romeo, Karin Sommer, Hector Hernandez, Alexander Keating, Melanie Dieg, Laura MacNeil, Andrew Weeks, Kyle Yakal-Kremiski, Andrew Leszko, and Zamir Alam. David Moidel, Kim Sillen, and Sigurjon Gudjonsson of NYC DOT Creative Services are responsible for all of the graphic elements and general production of this report.

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MEN'S W... HOUSE

WEST HALL SEVENTH

NO TURN

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Kars

Skilman Av
SPEED LIMIT
25
PHOTO ENFORCED

34 St



TO RACK
TO RACK
TO RACK

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