# New York City **NODILITY Report** NYC Department of Transportation NYC Department of Transportation

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# Letter from the Commissioner

Dear New York City Council Members and Fellow New Yorkers:

After a decade of uninterrupted growth in New York City, including record population, jobs, and tourism, several new transportation trends are coming into focus. For the first time since 2010, we saw a slight drop in annual subway riders, largely due to a decline in off-peak ridership. Bus ridership continues its slow decline, falling by 8.5 percent since 2010. Most notably, household vehicle registrations increased for the fifth year running, outpacing population growth. Both for-hire vehicle (FHV) registrations and trips are up significantly, with the former more than doubling since 2010.

Because sustainable modes like transit, walking, and cycling remain the backbone of the City's mobility system – accounting for more than two-thirds of all trips – these new trends create deep concerns as we take steps to better understand and monitor their evolving impact on our transportation system.

In this spirit, I am pleased to issue the 2018 edition of the New York City Mobility Report, DOT's regular report on key demographic and mobility trends that characterize and affect our City's multimodal transportation network. Since our last report, we continue to monitor key transportation indicators, as well as analyze regularly reported data sets, such as taxi GPS and MTA Bus Time information, that help us better understand how travel speeds are changing across the city. I am also excited to share some of the results from our agency's first Citywide Mobility Survey, new annual research that will help us better understand residents' use of, and views on transportation in New York City. This survey establishes benchmarks for difficult-to-measure information, such as mode choice, trip patterns, parking behavior, and household freight deliveries. These results will provide DOT with important insights on how travel choices and attitudes change from year to year, as well as from neighborhood to neighborhood.

Additionally, at the start of 2017, the Second Avenue Subway launched on Manhattan's Upper East Side. This report presents initial analysis underscoring the sheer magnitude and impact of the new subway service: The Q train's arrival on the Upper East Side has not only helped commuters below ground, but also above ground, by reducing vehicle volumes and improving travel speeds on neighborhood streets.

We are now moving more people than ever, and the city has continued to invest heavily in bus lanes, bike lanes, and citywide ferry service to support this growth with sustainable modes. That said, we recognize that the City must innovate in order to address congestion while balancing the growing demands on our City's finite road network. This year we are unveiling several new initiatives that will further aid mobility, including the Mayor's Congestion Plan to improve travel speeds along key corridors, a pilot to increase access to carshare, and a trial of new dockless bike share systems to supplement the existing Citi Bike network. I hope that the data and analysis featured in this annual report will support an engaged dialogue about how to balance the mobility needs of our residents and visitors in the most equitable, sustainable, safe, and efficient ways possible.

Sincerely,

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# **Executive Summary**

# **Understanding Today, Planning for the Future**

The previous Mobility Report put change into context by situating current transportation trends within New York City's broader history of mobility and demographic changes dating back to 1910. That report illustrated the growth of New York City's population, employment, and tourism, and highlighted how high performance modes such as transit, bicycling, walking, and the ferry have facilitiated that growth.

This year's report builds on that same contextual foundation with updated travel trend charts and speed maps. Since 2015, the number of residents, jobs, and annual tourists have continued to grow. Even as the City encourages and facilitates the use of high performance modes, we recognize that the demands on our finite street network are only growing and our roadways are frequently functioning at capacity.

This is especially evident in Manhattan's Central Business District and along key arterial corridors where travel speeds continue to decline. In response to these trends, the Mayor's Congestion Action Plan, announced in October 2017, details new techniques through which DOT will keep roadways and curbs unobstructed during rush hour and focus efforts on recurring traffic hot spots. This report's analysis of citywide bus speeds illustrates how slow travel speeds affect key corridors well beyond the Manhattan core, and that bus speeds in the outer boroughs fell more noticeably between 2015 and 2017 than they did in the CBD. These trends reinforce why the City is investing in roadway projects to improve bus performance and reverse the continued trend of declining bus ridership.

## Constraints on New York City roadways can be measured using some of the following transportation indicators:



Vehicles entering Manhattan south of 60th Street declined further in 2016.

### Average travel speeds in the Manhattan Central Business District dropped

Citywide average bus speeds dipped from 7.47 mph in 2015 to 7.44 mph

New York City added 44,000 for-hire vehicle registrations in 2016 to reach a total that has more than doubled since 2010. This year's report also introduces new analysis about how the January 2017 launch of the Second Avenue Subway—the first new subway service added since 2015's 7 train extension—has improved the mobility of many New Yorkers. This transit expansion has provided tangible benefits to New Yorkers both above and below ground—from expanded mobility options for transit riders to improved travel speeds and reduced vehicle volumes along streets in its vicinity.

After the launch of the Second Avenue Subway, the number of yellow cab trips on the Upper East Side not only dropped dramatically, but significantly more than they did citywide. The effect of the Second Avenue Subway can also be seen in usage patterns for ride-hail services, like Uber and Lyft. While the number of trips made by ride-hail services have steadily increased across the city, the average increase in trips made by ride-hail services between 2016 and 2017 was smaller on the Upper East Side than in Manhattan and the city as a whole. Reduced traffic volumes—and increased travel speeds—on Second Avenue and Lexington Avenues also reflect the effect of new transportation options along the new subway corridor.

Additionally, NYC DOT conducted its first Citywide Mobility Survey in 2017. This online and phone survey of thousands of New Yorkers across all five boroughs aims to help the agency understand the specific factors and experiences that drive transportation choices for City residents. It is our hope that, moving forward, the annual survey will track how transportation preferences and usage patterns differ from neighborhood to neighborhood, across the boroughs, and over time.

### **Citywide Mobility Survey Benchmarks:**

62% of all reported trips were made by sustainable modes (transit, biking, walking).

50% of all ride-hail app users replaced transit trips with a for-hire vehicle.

41% of New Yorkers receive a delivery at their home at least a few times a week.

Citywide, one-third of reported trips were made by private car.

# Declining travel speeds reflect growing demand on the City's finite road network.

5th Ave and W 27th St, Manhattar

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# **Recent Travel Trends**

This section takes a closer look at the main drivers of travel demand in New York City, as well as at the trends in high performance modes, auto use, and travel speeds over the past seven years. Data from 2000, 1990, and 1980 is 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 2016 with the number of tourists increasing the most dramatically by 2.2 million between 2015 and 2016.

- Population is up by over 4% since 2010 and continues to climb, though annual growth slowed between 2015-2016.
- 620,000 jobs have been added since 2010, and employment continued to grow in 2016, up by 2.4% from 2015.
- Tourism continued to increase and New York City saw nearly 12 million more visitors in 2016 than in 2010.

# **High Performance Modes**

Increased demand on the city's transportation system remains the overall trend since 2010. However, after a pattern of consistent increases, growth in subway trips plateaued in 2014 and even dipped slightly between 2015 and 2016.

- Subway ridership remains 9.5% higher than in 2010. However, while rush hour ridership held constant, declining off-peak ridership resulted in an overall drop of just under 1% from 2015.
- With the exception of 2013, bus ridership has fallen each year since 2010 and registered an additional 2% drop between 2015 and 2016.
- The number of daily cycling trips continues to grow, with 10,000 additional daily trips between 2015 and 2016, leading to an 84% increase from 2010 totals.
- After dipping in 2013 and 2014, ferry ridership increased by 14,000 trips a day from 2015, and has increased by 12% since 2010.



# **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 vehicles entering Manhattan south of 60th Street on a daily basis dropped in 2016.
- The number of yellow cab trips dropped 25% since 2010. However, app-based for-hire vehicles, also known as ride-hail services, recorded an all-time high of 92.5 million trips in 2016, more than off-setting the decline in yellow taxi trips.
- The number of household vehicle registrations increased by 8.3% since 2010, resulting in a slight increase in per capita car ownership. 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 actually declined as the population increased.
- The number of for-hire vehicle registrations—which includes taxis, green cabs, black cars and private cab companies—has more than doubled since 2010, even as yellow cab trips decline. New York City has added 44,000 for-hire vehicle registrations since 2010.

# **Travel Speeds**

Travel speeds through Manhattan and across the City have declined consistently since 2012.

- Citywide bus speeds declined marginally in 2016, down 0.4% since 2015 and 2.6% since 2010.
- Travel speeds in the Manhattan Central Business District (CBD) also saw a slight decline between 2015 and 2016, and are down by 21% since 2010.



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

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# Citywide **Bus Speeds**

# **Bus Speeds Weekdays** 4 pm – 6 pm



# **Slow travel** speeds are not confined to the **Manhattan** CBD.

NYC DOT has been using MTA Bus Time data to measure the speeds of individual buses along roadways since 2012. The agency can use bus speeds as a proxy to paint a picture of general travel speeds across the city. The map at right depicts the median speeds of buses traveling through each census tract in the city. Travel speeds in most of Midtown Manhattan range between 6 and 9 mph, with concentrations of slower speeds around Herald Square and north of Times Square. However, concentrations of slower speeds are not confined to the Manhattan CBD, and can also be seen in transit and commercial hubs across the city, including Southern Brooklyn, Jamaica Queens, and the South Bronx.

Census tracts furthest from the Manhattan CBD and those encompassing limited-access roadways such as the Gowanus Expressway, Staten Island Expressway, or the Long Island Expressway tend to be associated with higher speeds.

## **Methodology**

Bus speed data shown in this map are based on GPS data from MTA Bus Time that indicate 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 November 2017, excluding Veterans' Day, Thanksgiving, and the Wednesday prior to Thanksgiving. Individual bus time speed points were spatially joined to census tracts using a 50-foot buffer to account for bus routes that ran along census tract borders. These instantaneous speeds include 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 census tract than faster buses. Speed points less than 0.9 mph are not included.

Median speeds tend to be higher than average (mean) speeds because they are not skewed by the slowest speeds measured in each census tract. As reference, while average citywide bus speeds in 2017 were 7.44 mph, the median citywide bus speed in this analysis was 10.70 mph.



# Citywide Bus Speeds

# Change in Bus Speeds between 2015 and 2017



Bus speeds in large sections of the outer boroughs dropped between 2015 and 2017. Using MTA Bus Time data, NYC DOT can also compare bus speeds from year to year and identify corridors or neighborhoods where speeds have increased or decreased over time. In the map of census tracts to the right, orange and red represent areas where bus speeds have slowed since 2015. Blue indicates that speeds have increased, and tan that they have not changed significantly. Despite increased speeds in select tracts, citywide bus speeds continue to decrease in general.

While Midtown Manhattan consistently registers some of the slowest travel speeds in the city, this data shows that speeds have stabilized in certain census tracts and even slightly improved in Central and Eastern Midtown. In contrast, travel speeds along congested corridors in Brooklyn and Queens fell between 2015 and 2017. When compared to 2015 travel speeds, Staten Island buses slowed down slightly but remained above 10 mph.

# Methodology

Bus speed data shown in this map are based on GPS data from MTA Bus Time that indicate 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 November 2015 and November 2017, excluding Veterans' Day, Thanksgiving, and the Wednesday prior to Thanksgiving. Individual bus time speed points were spatially joined to census tracts using a 50-foot buffer to account for bus routes that ran along census tract borders. These instantaneous speeds include 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 buses naturally report more speed points in any given census tract than faster buses.

November 2017 median speeds were subtracted from November 2015 median speeds to create the speed deltas depicted in the map at right. Speed differentials between 2015 and 2017 have been grouped into two faster categories shown in blue and two slower categories shown in red and orange. Median travel speeds that changed less than 0.5 mph are not considered significant and the associated census tracts are depicted in tan.



# **Manhattan CBD & Midtown Travel Speeds**

While Manhattan south of 60th Street is often referred to as the Central Business District (CBD), the Midtown Core has the greatest concentration of economic activity. Bounded by East River and Ninth Avenue to the east and west, and 59th and 35th Streets to the north and south, the roughly 1.8-square-mile Midtown Core is home to the commercial centers of Broadway, Rockefeller Center, Herald Square, and Times Square. Looking at taxi GPS data as a proxy for travel speeds, the concentration of activity within this zone and its effect on travel speeds becomes clear.



Annual

Taxi

Trips

# **Average Taxi Speeds in** Manhattan CBD and the **Midtown Core** 2010-2017

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



Speeds overlaying

bar chart refer to

annual averages

for Manhattan CBD

and Midtown Core.

- Even as average travel speeds declined in both zones from 2012 onward, average Midtown Core travel speeds are consistently 30% slower than CBD speeds.
- Travel speeds in both zones dropped most sharply between 2012-2013 and 2014-2015, but have since leveled out to current speeds.
- Despite slower speeds overall, basic seasonal travel patterns of faster speeds in January and August, and slower speeds in September and November remain.





**Midtown Core** speeds are consistently 30% slower than **CBD** speeds

# **Second Avenue Subway**

The East Side of Manhattan had once hosted elevated train lines on Second Avenue and Third Avenue in addition to the Lexington Avenue subway line. By 1955, however, the entire neighborhood's transit options were only buses and the Lexington Avenue subway. The Second Avenue Subway had been proposed in the 1920s and again in the 1950s, but no construction occurred either time. By the early 1970s, however, shovels were in the ground and the City of New York had changed its zoning on the East Side of Manhattan to permit the construction of higher, denser residential buildings to take advantage of imminent new subway service. The City's fiscal crisis in 1975 halted Second Avenue Subway construction, but people continued to move into the East Side's new housing developments. For decades, more and more New Yorkers made do with the East Side's limited transit options, either by accepting the overcrowded Lexington Line, or avoiding it through the use of buses, personal cars, or taxis.

The opening of the first phase of the Second Avenue Subway on January 1, 2017, marked the return of rail options to the Upper East Side of Manhattan. New Yorkers can now choose between the Lexington Avenue 4, 5, and 6 lines and the two miles of new rail running from the Upper East Side to Times Square with three new stations at 96th Street, 86th Street, 72nd Street, and an expanded station at 63rd Street / Lexington Avenue. The train service continues along the Q route to Coney Island, Brooklyn.

While the MTA is planning a second phase of construction to extend the line north to East 125th Street, the first phase of the Second Avenue Subway gives New Yorkers new transit options to incorporate into their daily travel patterns. A few months after the launch of the Second Avenue Subway, NYC DOT circled back to see how the new subway service had changed the travel patterns of Upper East Siders and if that had any impact on surface transportation.



# **Ridership Profiles**

NYC DOT conducted intercept surveys of Second Avenue Subway riders asking how they got around before the new subway service opened. The vast majority of riders had changed to the Q from the Lexington Avenue 4, 5, and 6 lines.

# Modes Used Before **Second Avenue Subway**



Bus was the most prevalent mode for Second Avenue Subway riders who hadn't taken the Lexington Avenue subway before. Others had previously walked, hailed taxis, or used a different subway line to reach their destination.

# **Non-Lexington Avenue Subway Riders: Other Modes Used**



\*Respondents could select multiple options

# Methodology

Mode shift data is derived from NYC DOT Rider Intercept Surveys conducted by NYC DOT Street Ambassadors between 11 am-6 pm on Sunday April 23 and Wednesday April 26, where 240 customers were surveyed at the 72nd, 86th and 96th Street Q train stations.

Yellow cab trip data over successive Januarys is compiled by the Taxi and Limousine Commission, which also compiles the annual trip data of ride-hail companies.





# More than 80% of surveyed **Second Ave Subway riders** used to ride the Lexington Ave line.



# **Second Avenue Subway**



# After the launch, yellow cab trips dropped significantly more on the **Upper East** Side than citywide



All across the city, the number of yellow and green cab trips are declining, while

mirrored these citywide trends until the launch of Second Avenue Subway service.

After January 2017, the number of yellow cab trips dropped much more dramatically

ride-hail services such as Uber and Lyft are increasing. The Upper East Side

**Daily Yellow Cab Trips in the Month of January:** 

in the Upper East Side than the rest of the city.

**Percent Change from Year Prior** 

While the number of trips made by ride-hail services such as Uber and Lyft continues to increase on a citywide basis, the increase in ride-hail trips between 2016 and 2017 was smaller on the Upper East Side than in Manhattan and the city as a whole.

### Annual Ride-Hail Pick Ups: Percent Increase from 2016 to 2017



# **Methodology**

Ride-hail and yellow cab trip data comes courtesy of the Taxi and Limousine Commission. Traffic volume data after the launch of the Second Avenue Subway (SAS) was collected during peak morning and evening periods on typical weekdays in April 2017. Pre-SAS launch traffic volume data averages peak period traffic counts collected on typical weekdays in the spring and fall of 2014, 2015, and 2016. Average travel speeds are calculated from yellow cab GPS data collected along Second Avenue between 110th and 42nd Streets from 7 am to 7 pm on all typical weekdays during the months of January 2016, January 2017, and January 2018.

# **Surface Transportation** Effects

In April 2017, NYC DOT collected traffic volumes on city streets around the newly opened Second Avenue Subway and compared them to traffic counts taken during the previous three years (2014-2016). In 2017, southbound traffic volumes on Lexington and Second Avenues decreased in the morning and afternoon peak periods, while northbound traffic volumes on York, First, and Third Avenues increased along some stretches and decreased along others.

# **Traffic Volume Changes After the Launch of** the Second Avenue Subway



Morning peak period volume changes

A comparison of average monthly travel speeds in January 2016, January 2017, and January 2018 shows that travel speeds increased on Upper East Side avenues after the launch of the Second Avenue Subway.

# **Southbound and Northbound Travel Speeds** Along Upper East Side Avenues: 2016 - 2018



2016 Total Ride-hail pick-ups 2017 Total Ride-hail pick-ups





**Travel** speeds increased after the **Second Ave Subway** launched

Evening peak period volume changes

# **Citywide Mobility Survey**

In 2017 NYC DOT launched its first Citywide Mobility Survey, a phone and online questionnaire that was taken by thousands of New Yorkers across all five boroughs. The Citywide Mobility Survey will be repeated annually and allow NYC DOT to:

- Understand the factors and experiences that drive transportation choices for New York City residents
- Assess public views on the current state of transportation within the City
- Establish an ongoing tracking program regarding mobility preferences and usage patterns over time and throughout the City.

Using a 40-question survey instrument, NYC DOT collected data on mode choice, trip patterns, parking behavior, use of ride-hailing apps and carsharing services, and household deliveries.

# **Key Benchmarks:**

- 67% of trips reported citywide were made without the use of a private vehicle
- 35% of New Yorkers report using ride-hailing services
- 8% of survey respondents reported being members of carsharing services
- 53% of car owners reported parking a least one car on street
- 41% of New Yorkers reported receiving a delivery at their home at least a few times a week

# **Trip Profile: New York City**





- never leave their home boroughs.



# Methodology

The survey, which was fielded from May 13, 2017 through July 1, 2017, 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 oneway journey that started in one location and ended in another. A total of 3,603 New York City residents aged 18 and over participated in the survey. The sample size for the trip diary data set is n=6,986 trips, 3,252 of which were captured by phone and 3,734 online. The margin of error for the phone sample is  $\pm 2.3\%$ . For full survey methodology, see appendix.

# **Citywide Mobility Survey**

# **New Mobility**

In the past decade, New York City has seen a significant growth of "new" and shared mobility services. In addition to Citi Bike, the country's largest bike share system, New York City streets are now hosting ride-hail services like Uber, Via, and Lyft as well as popular carsharing services, offered by companies such as Zipcar, Enterprise CarShare, ReachNow, and Car2Go.

Beyond the rising number of for-hire vehicle registrations tracked in this report, substantial growth of ride-hail services is evident in the share of all FHV trips that they now represent. Annual trips by ride-hail services increased by 71% between 2016 and 2017. For the first time, more trips were made by ride-hail than by taxis and overall FHV trips grew by 21%. The Citywide Mobility Survey paints a clearer picture of how residents interact with these services as well as how uptake and usage patterns vary across the City.

### **Ride-Hail Trends:**

- **35% of New Yorkers use ride-hailing services.**
- Ride-hail services are most commonly used for social and recreational trips, although 27% of respondents reported using them at some point for commuting.
- Respondents who reported having a disability are significantly more likely to use ride-hail services several times a week than those who did not report a disability.
- Citywide, 50% of ride-hail users indicated that the service replaces trips previously made by transit.
- In Northern Manhattan and Northern Bronx, 66% of people reported using ride-hail services to replace transit trips.
- In Southern Bronx, Northern Bronx, and Staten Island, over 68% of people reported that ridehail services replace local bus trips.

## **Carshare Trends:**

- Only 8% of respondents report being members of carshare services.
- 20% of carshare users report that they use carshare for trips that they previously would not have taken;
  29% are using carshare to replace transit trips.
- Carshare is most commonly used for social/ recreation and personal errand trips.

### Taxi & Ride-Hail Trips



# **Ride-Hail Mode Shift\***

How would you make this trip if not by ride-hail? n = 616 \*Respondents could select multiple options



# Carshare Membership



# First Mile / Last Mile Trips

Despite new transportation technologies, New York City remains a walking and transit city.

- 95% of New Yorkers walk to transit and 97% walk from transit—taking a for-hire vehicle or a bike to transit remains an outlier.
- The Bronx had the highest percentage of people connecting to or from transit by car, though it remains at only 4%.

# By Zone:

# Percent of Trips Made by Walking

Residents of Manhattan, Inner Brooklyn, and Inner Queens are significantly more likely to make trips on foot.

- In the Manhattan core, nearly 50% of all trips are made by walking.
- 91% of New Yorkers feel safe walking in their neighborhood.
- **83%** of New Yorkers feel safe walking in the City.
- New Yorkers across all 10 zones agree it is important to make crossing the street safer for pedestrians.



Mode	Connecting to Transit	Connecting from Transit
Walk	95.4%	97.2%
For-hire vehicle	0.4%	0.9%
Bicycle	0.3%	0.0%
Car	2.2%	0.6%

All NYC Trips n=543

# **Citywide Mobility Survey**

# **Freight and Home Deliveries**

New York's curbs are in high demand - not only for residential parking, but also for loading and unloading activities: The rising popularity of online shopping leads to growing demand for home and freight deliveries. Asking New Yorkers about their delivery patterns will help DOT better understand trends in delivery-related curb pressures.

## **Delivery Behavior:**

How often do you receive deliveries at home?

# **Parking**

Realities of parking at the curb are not always reflected in car ownership statistics. DOT's mobility survey respondents shed light on how residents who own private vehicles rely on the curb to store their vehicles in varying degrees by borough, often based on neighborhood characteristics, such as the availability of driveways and off-street garages. This data will establish a benchmark for the changing uses of the curb.

# **Parking Behavior:**

Where do you typically park each vehicle?

Parking Locations	AII NYC N=1032 (phone only)
On the street	53%
In a single-family garage/driveway	25%
In a driveway or lot in your apt building	13%
In a shared driveway	8%
In another parking lot or garage	6%

Note: Respondents could select multiple options









# On the whole, 41% of **New Yorkers receive a** delivery at their home at least a few times a week.



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### **CITYWIDE TRENDS** (All data in thousands)

Year	NYC population *	NYC employ- ment	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	4,371	7,812
2015	8,517	4,256	4,406	7,810
2016	8,538	4,346	4,441	7,785

\* 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.

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

\*\*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.

There is no data available for the Williamsburg Bridge in 1991.

The Manhattan Bridge path opened to cycling in 2001.

From 1980 to 2013, a multiplier of between 1.25 and 1.59 was applied to 12 hour 7am-7pm bicycle counts to provide estimated 24-hour counts. This multiplier was developed from the three years of automated count data collected since January 2014 to provide estimated 24-hour counts.

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

#### 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	764 522	
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

### **TRAVEL INTO THE CBD** (All data in thousands)

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	88	731	2,852	21.5	
2015	109	731	2,983	22.1	
2016	123	717	2,981	22.6	

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

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	2,190		
2010	3,690	2,154		
2011	3,611	2,097		
2012	3,634	2,123		
2013	3,669	2,138		
2014	3,640	2,119		
2015	3,674	2,090		
2016	3,725	2,074		

\* 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	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

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	726	703	94	
2010	126	538	728	669	94	
2011	122	520	724	640	92	
2012	123	529	737	642	91	
2013 2014	124	543	742	634	94	
	119	548	735	621	95	
2015	117	539	728	610	96	
2016	117	523	732	607	95	

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

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

\*\* Includes data only from routes that operate exclusively north of 60th Street in Manhattan.

\*\* 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	Strategic Plan 2017: Progress Report	In the year since the published its Strate towards advancing safer and more sub continued to expan those who live in c
Manhattan River Crossings	This report, published annually by DOT since 1972, presents vehicular volumes, classification, and trends for all bridge and tunnel facilities serving Manhattan.	towards adv safer and mo continued to those who liv Strategic Pla	
New York City Bridge Traffic Volumes	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.		Strategic Plan 201 agency's accompl
		Vision Zero DOT and NYPD Accomplishments 2017	This report contair design, enforceme relevant to Vision 2 severe injuries to z
New York City Screenline Traffic Flow Report	This report presents vehicular volumes and historical comparisons across the Bronx-Westchester, Queens-Nassau, Manhattan-New Jersey, Jersey, Staten Island-New Jersey, and Brooklyn-Queens screenlines.	Vision Zero Borough Plans can be found at NY http://www.nyc.gov/visionzero	
Don't Cut Corners: Left Turn Pedestrian and Bicycle Crash Study	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.	Vision Zero Borough Plans	Vision Zero seeks whether on foot, b fatalities down, DC each of which ana and recommends
Protected Bicycle Lanes in New York City	This report contains an analysis of how protected bicycle lanes installed by DOT in Manhattan since 2007 have impacted safety, mobility, and economic vitality.	and recommen- pedestrian safe	
		Mayor's Management Repo http://www.nyc.gov/mmr	ort Updates can be f

Mayor's Management Report

Title

**Strategic Plan 2016:** 

Safe · Green ·

**Smart** · Equitable

**Summary** 

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.

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.

> e the New York City Department of Transportation (DOT) ategic Plan 2016, DOT has made significant progress ing the 105 initiatives in the plan and making our streets sustainable, accessible, and efficient. The agency has also pand transportation options for all New Yorkers, especially n communities currently under-served by transit. This 017 Progress Report tracks the plan's 105 initiatives and the plishments in 2017.

ains summary data describing the annual core outputs (street nent and safety education) and core outcomes (traffic fatalities) n Zero, Mayor de Blasio's initiative to reduce traffic fatalities and o zero.

### YC DOT's Vision Zero page:

ts to eliminate all deaths from traffic crashes regardless of bicycle, or inside a motor vehicle. In an effort to drive these DOT, NYPD, and other agencies developed a set of five plans, nalyzes the unique conditions of one New York City borough is actions to address the borough's specific challenges to y.

### found on the NYC website:

#### **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 Department of Labor.

**Tourism:** The annual number of tourists in New York City. 2016-1990: 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.) For the sake of historical consistency, citywide bus ridership is calculated for New York City Transit local and express bus service, not including MTA Bus Company ridership. 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. 1950-2016: NYC DOT 2016 Manhattan River Crossings.

**Citywide Taxi Trips:** The cited figures are citywide annual totals of TLC yellow cab trips. 2010-2016: 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:** Citywide bus speeds are calculated from total vehicle revenue miles traveled and vehicle passenger hours for NYCT buses, not including MTA Buses. 2000-2016 data is sourced from National Transit Database; 1990 data is sourced from MTA New York City Transit.

**Travel Speed in Manhattan south of 60th Street:** Average travel speeds are calculated from total vehicle revenue miles traveled and vehicle passenger hours captured by GPS devices in TLC yellow cabs in Manhattan south of 60th Street. Data was collected 7 am - 7 pm Tuesday-Thursday the first three weeks in May and November of each year.

### **Citywide Mobility Survey**

The survey, which was fielded from May 13, 2017 through July 1, 2017, 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 3,603 New York City residents age 18 and over participated in the survey. Half 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 half 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=6,986 trips, 3,252 of which were captured by phone and 3,734 online. The margin of error for the phone sample is  $\pm 2.3\%$ .

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=284)
- Northern Manhattan (Zone 2, n=392)
- Inner Brooklyn (Zone 3, n=424)
- Outer Brooklyn (Zone 4, n=431)
- Inner Queens (Zone 5, n=349)
- Middle Queens (Zone 6, n=356)
- Outer Queens (Zone 7, n=303)
- Southern Bronx (Zone 8, n=317)
- Northern Bronx (Zone 9, n=364)
- Staten Island (Zone 10, n=344)

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 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.

## **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, Alexander Keating, Laura MacNeil, Andrew Weeks, 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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