COVID19 IMPACTS ON TRANSPORTATION

Produced by the NYC Department of City Planning's Transportation Division

July 14, 2020





Introduction

- The NYC Department of City Planning's Transportation Division is compiling data to help understand the effects of COVID19 on the transportation network. This is our sixteenth weekly report.
- This week's report includes the following information:
 - 1. Executive Summary
 - Citywide Trends
 - Subway and Bus
 - 4. Ferry
 - Traffic
 - Citi Bike
 - Airports
 - 8. Cell Phone-based Mobility
 - 9. 311 Data
 - 10. Timeline
- We continue to expand the content of these weekly reports as new data become available to us, and are prioritizing work around understanding how mobility trends relate to the economic and employment landscape.
- This report may serve to help in pandemic response and longer-term recovery. We are eager for feedback in how to make this more useful. Feel free to reach out to Laura Smith (Ismith@planning.nyc.gov) with questions or comments.



Executive Summary

- New York City entered Phase 3 on Monday, July 6. All modes of travel are up substantially over early June.
- As of the week of July 5, subway ridership was up 60 percent, and bus ridership up 40 percent, from early June. Vehicle Miles Traveled (VMT) is also up nearly 50 percent over this same period.
- Total subway ridership the week of July 6th was up 7 percent over the previous week. Total bus ridership the week of July 6 was up 2 percent over the previous week.
- The start of Phase 3 saw about 115,000 Staten Island Ferry riders. This represents a 3 percent increase, or about 3,650 additional riders, from the previous week. This is the slowest week-to-week rate of increase since ridership started increasing in late April.
- After a steep decline in total inbound vehicles into the Manhattan CBD in the week leading up to the PAUSE, entries have been increasing since mid-April. Over the same time period, weekday daytime speeds in Midtown have been steadily declining, with weekday speeds in early July comparable to pre-PAUSE speeds.
- Citi Bike trip destinations vary substantially by time of day. While hub-bound trips represent only a small share of total trips, Manhattan destinations (from any point of origin) predominate during the morning and evening hours.
- Tracking cell-phone based mobility, the majority of devices remain at home, but that share has been declining since mid-April.
- Face Covering Violation saw zero 311 complaints during the first week of Phase 3. Social Distancing Complaints, saw its lowest weekly total since the start of its category. Noncompliance with Phased Reopening complaints increased by more than 300 percent during the first week of Phase 3, compared to the previous week.



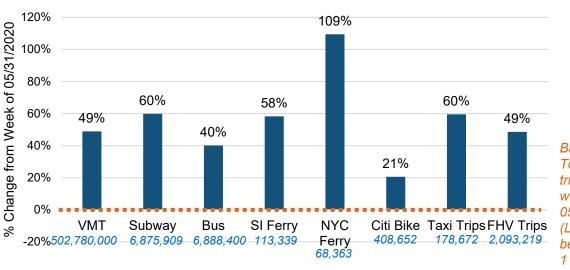
Citywide Trends



Citywide Trends

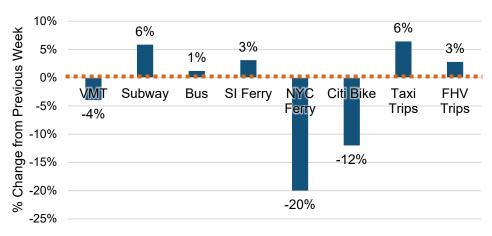
- New York City entered Phase 3 on Monday, July 6. Use of all modes of travel was up substantially over early June.
- As of the week of July 5, subway ridership was up 60 percent, and bus ridership up 40 percent, from early June. Vehicle Miles Traveled (VMT) is also up nearly 50 percent over this same period.

Week of 07/05/2020 Compared to Week of 05/31/2020



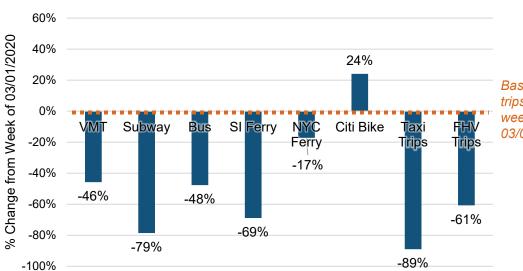
Baseline: Total trips/VMT week of 05/31/2020 (Last Week before Phase 1 Reopening)

Week of 07/05/2020 Compared to Previous Week



Baseline: Total trips/ VMT week of 06/28/2020

Week of 07/05/2020 Compared to Week of 03/01/2020



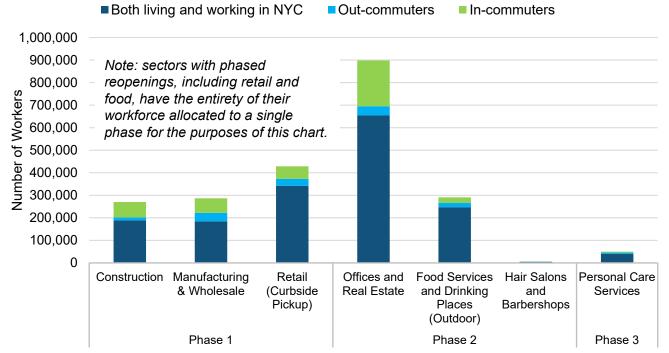
Baseline: Total trips/ VMT week of 03/01/2020



*Note: VMT for the most recent week is a sum from 07/04/2020 (Sat) to 07/10/2020 (Fri), not the same Sun-to-Sat week period for the other modes, as the VMT on 07/11/2020 is not yet available. Data sources: StreetLight (VMT), MTA (Subway, Bus), EDC (NYC Ferry), DOT (Citi Bike, SI Ferry)

Reopening Analysis Introduction

- On June 8, New York City entered Phase 1 of its economic reopening, followed by Phase 2 on June 22 and Phase 3 on July 6.
- Workers associated with each phase may join essential workers across all industries who
 have been permitted to work through the PAUSE, with certain limitations around occupancy.
- Pre-COVID19 Census data indicate that approximately 1 million workers who either live or
 work in NYC were allowed to return to work in Phase 1, and 1.7 million in Phase 2. These
 phases are not mutually exclusive, as retail workers appear in both. An additional 50,000
 workers associated with personal care services not included in prior phases may be added
 as part of Phase 3.
- These are not estimates of who might be commuting to work as a result of the phased reopening.



Phase One June 8

Construction

Manufacturing

Wholesale Trade

Retail - (Limited to curbside or in-store pickup or drop off)

Agriculture, Forestry, Fishing and Hunting (n/a in NYC)

Phase Two June 22

Offices

Real Estate

Commercial Building Management

Food and Dining (outdoor)

Retail (in-store)

Vehicle Sales, Leases, and Rentals

Retail Rental, Repair, and Cleaning

Hair Salons and Barbershops

Phase Three

Beauty Salons

Nail Salons and Other Personal Care Services

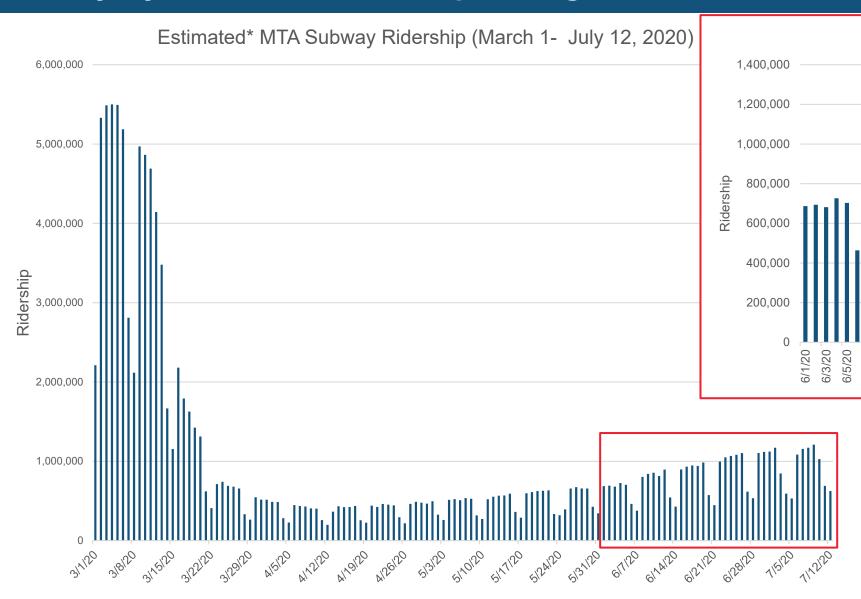
Source: NY Forward. https://forward.ny.gov

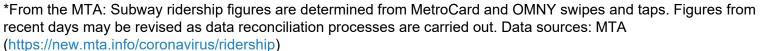


Subway and Bus



Subway System-wide Ridership Changes







June 1- July 12, 2020

6/23/20 6/25/20

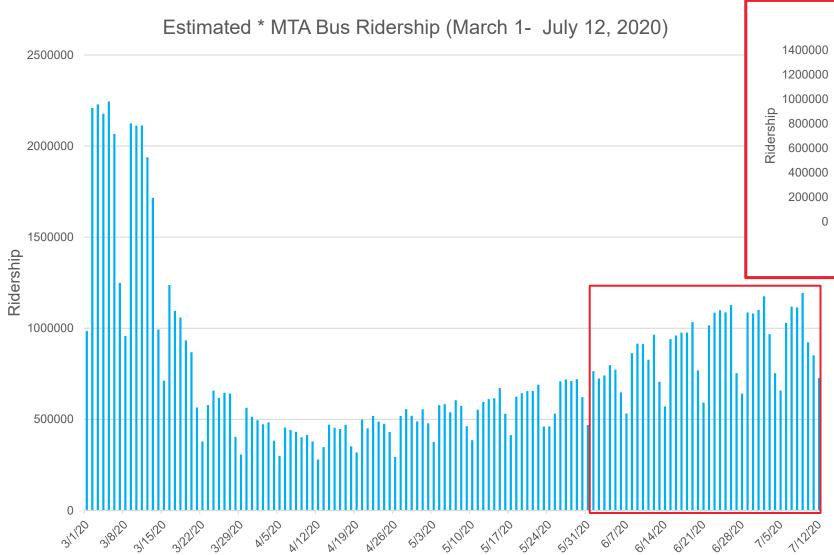
week due to the July 4th holiday.

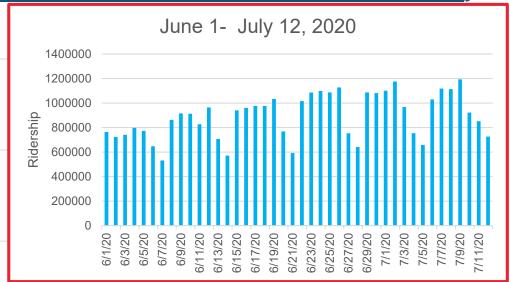
Weekday subway ridership for the week of

July 6 was up 5 percent over the previous week while the weekend ridership was up 17 percent. Much of this increase may be attributed to lower ridership the previous

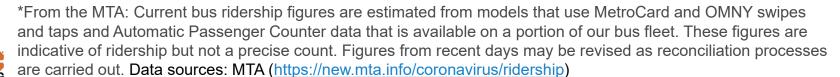
6/29/20

MTA Bus System-wide Ridership Changes





Weekday ridership the week of July 6th was fairly steady over the previous week, while weekend ridership was up 11 percent.

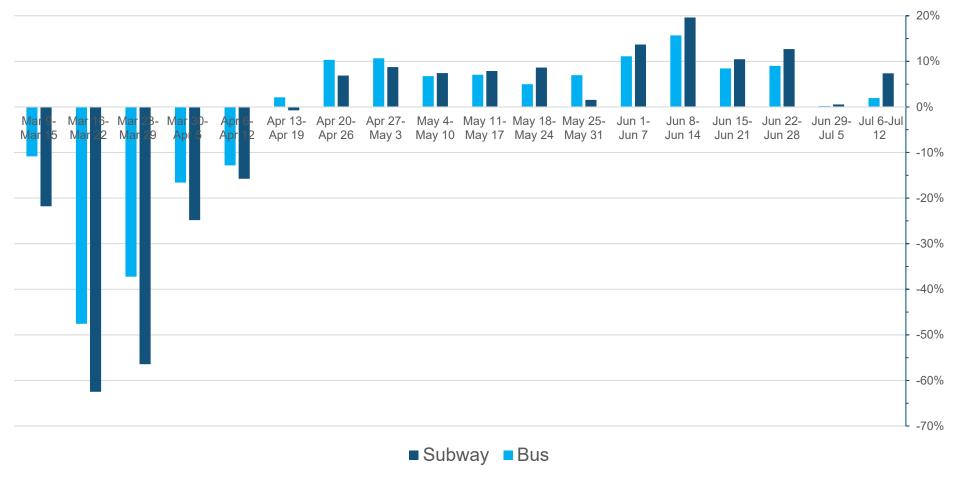




MTA Subway & Bus System-wide Ridership Changes



Percent Change of Estimated* MTA Subway & Bus Weekly Ridership (March 1- July 12, 2020)



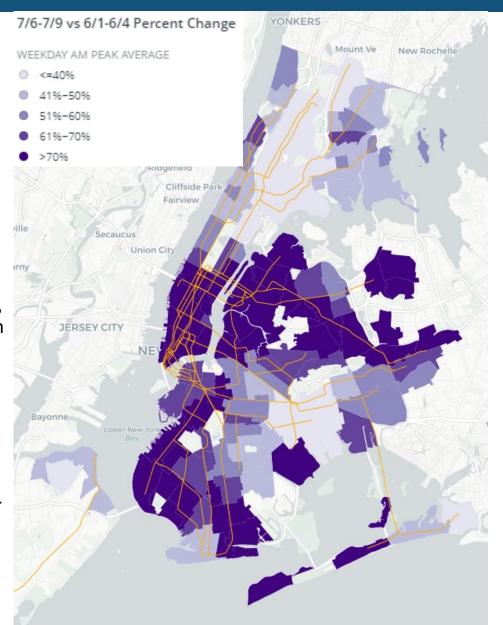
- Subway and bus ridership has been increasing weekover-week since mid-April. The greatest percent increase in ridership for both modes over the previous week occurred the week of June 8th, the first week of Phase 1.
- Total subway ridership the week of July 6th was up 7 percent over the previous week.
- Total bus ridership the week of July 6 was up nearly 2 percent over the previous week.

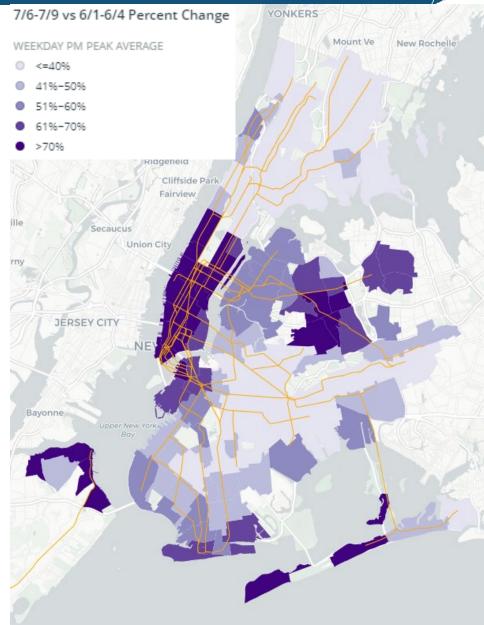
*From the MTA: Current bus ridership figures are estimated from models that use MetroCard and OMNY swipes and taps and Automatic Passenger Counter data that is available on a portion of our bus fleet. These figures are indicative of ridership but not a precise count. Figures from recent days may be revised as reconciliation processes are carried out. Data sources: MTA (https://new.mta.info/coronavirus/ridership)



Weekday AM and PM Peak Turnstile Data – Comparisons with early June

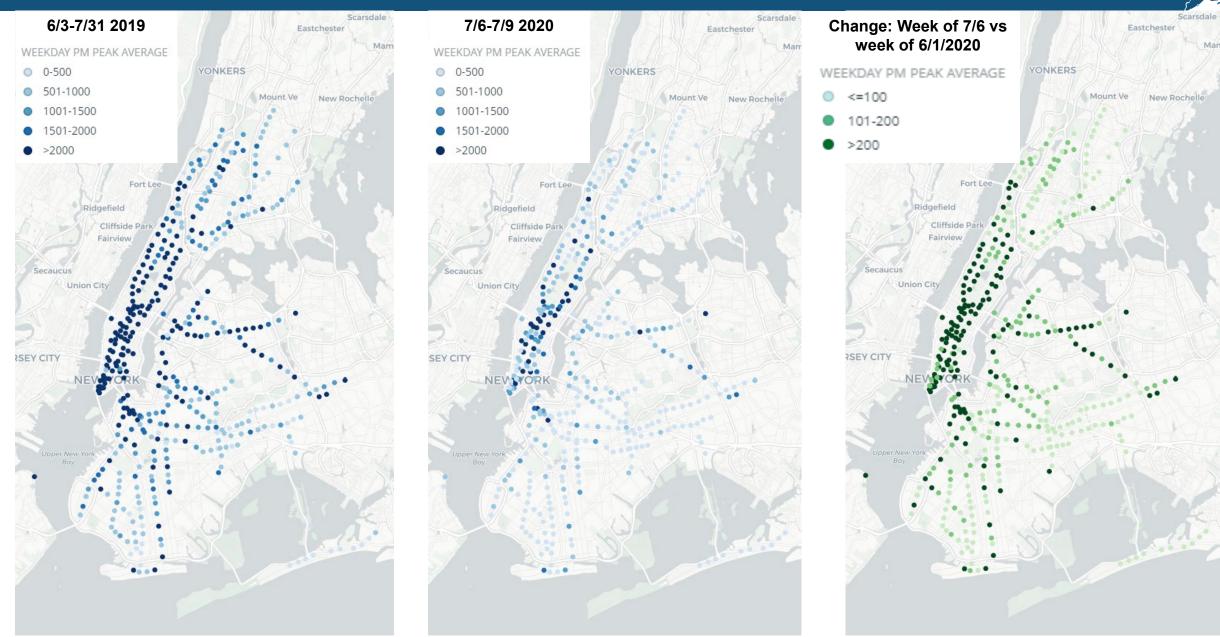
- The maps on the right illustrate changes in AM and PM peak ridership by neighborhood during the week of July 6 compared to the first week in June.
- AM peak ridership has increased by more than 70 percent since the start of June in some neighborhoods, including the Manhattan CBD, much of Queens, and western and southern Brooklyn.
- PM peak ridership an indicator of where people are commuting home from increased by more than 70 percent in the Manhattan CBD, Downtown Brooklyn, St. George Staten Island, and Rego Park.







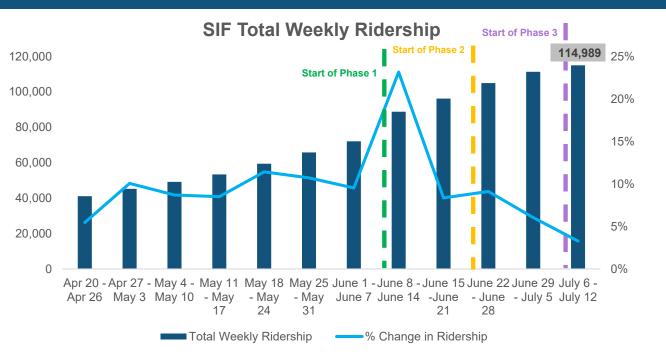
Weekday PM Peak Turnstile Data



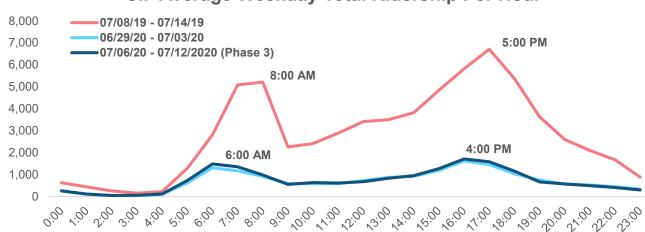
Ferry



The Staten Island Ferry and NYC Ferry

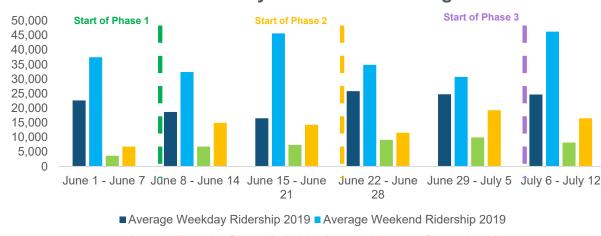


SIF Average Weekday Total Ridership Per Hour



- On July 6th, rush hour service returned to the Staten Island Ferry, with boats running every 15 or 20 minutes during the busiest commuting times.
- The start of Phase 3 saw about 115,000 Staten Island Ferry riders. This represents a 3 percent increase, or about 3,650 additional riders, from the previous week. This is the slowest week-to-week rate of increase since ridership started increasing in late April.
- Weekday peak hour ridership remained at 6:00 am for the morning and 4:00 pm in the afternoon. Morning trips saw the highest increase in ridership with an average increase of 14 percent between 3 am to 8 am, compared to the previous week.
- NYC Ferry weekly ridership decreased by 16 percent, or by about **14,300 riders** compared to last week.
- Since the start of the phased reopenings, NYC Ferry ridership has been increasing by an average of 21 percent.

NYC Ferry Weekly Ridership Weekday vs. Weekend Averages



■ Average Weekday Ridership 2020 ■ Average Weekend Ridership 2020

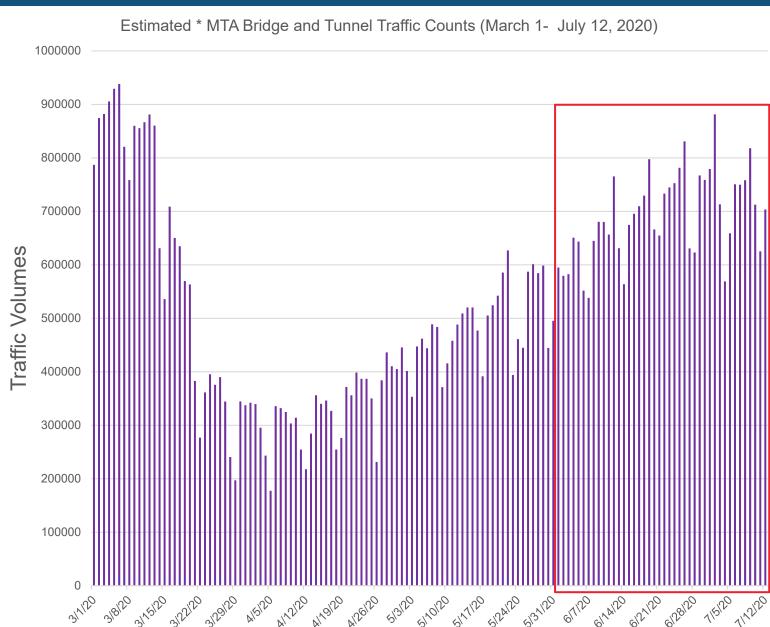


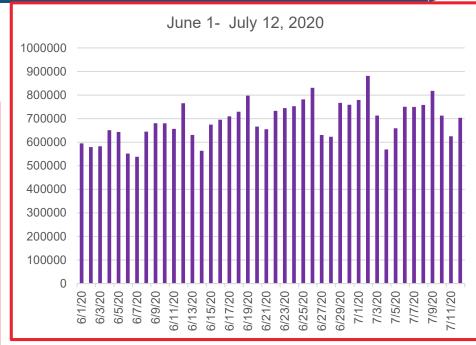
Data sources: NYCDOT; EDC

Traffic



MTA Bridge and Tunnel Traffic Volumes





Total weekday traffic counts during the week of July 6th were down nearly 3 percent over the previous week. Weekend traffic counts were up 8 percent.

MTA crossings include:

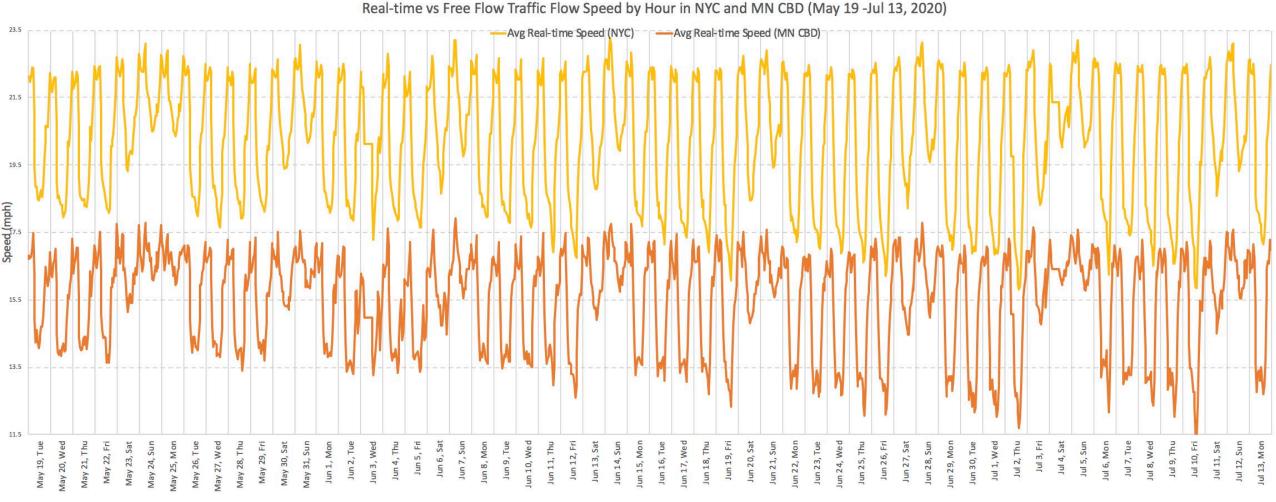
- Bridges: Robert F. Kennedy, Throgs Neck, Verrazzano Narrows, Bronx-Whitestone, Henry Hudson, Marine Parkway-Gil Hodges Memorial, and Cross Bay Veterans Memorial bridges.
- Tunnels: the Hugh L. Carey Tunnel and the Queens Midtown Tunnel.



*Data sources: MTA (https://new.mta.info/coronavirus/ridership)

NYC Traffic Speeds





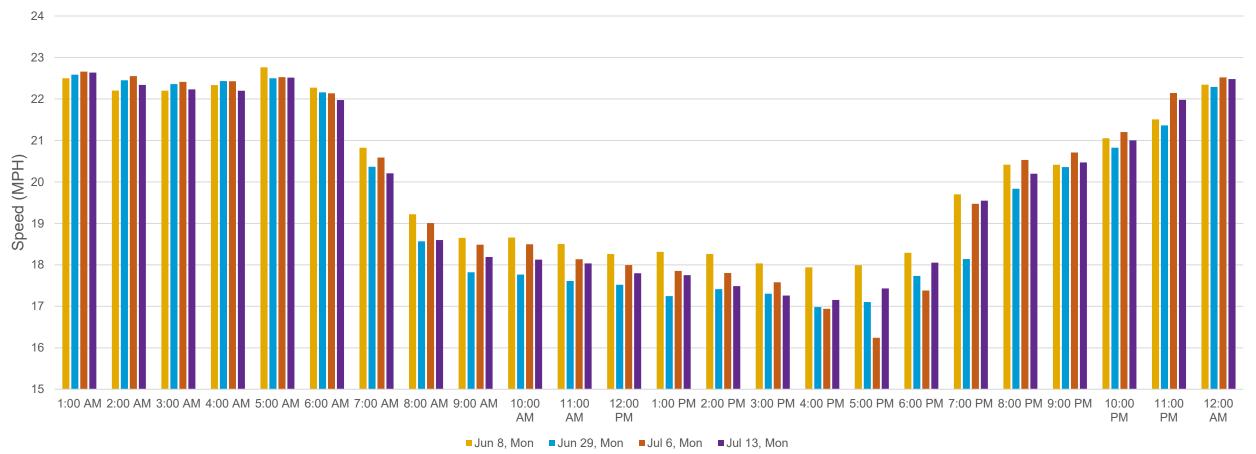
- Average traffic speeds across NYC and within the Manhattan CBD continue to decline.
- Since June 8th, weekday traffic speeds have followed a consistent trend of slowing as the week progressed.



NYC Traffic Speeds





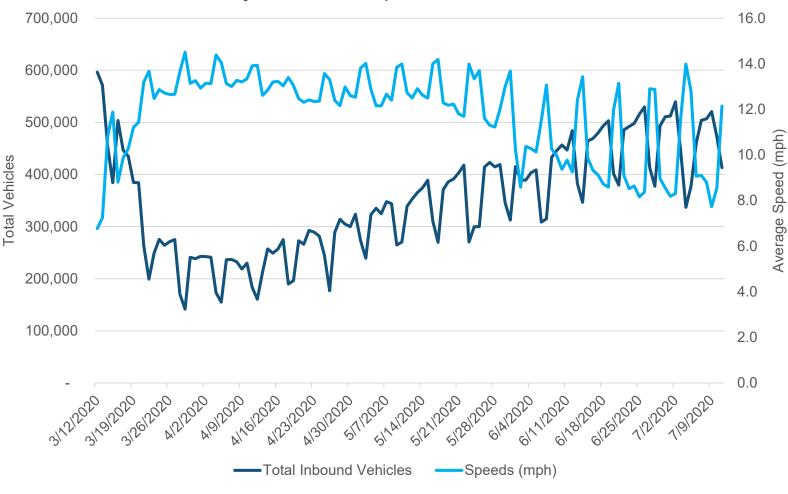


• Compared to earlier weeks, average hourly traffic flow speeds on Monday, July 13 were generally consistent with the previous week, with some afternoon fluctuations.



Manhattan Inbound Traffic

Average vehicles entering CBD via river crossings & average daytime travel speeds in Midtown



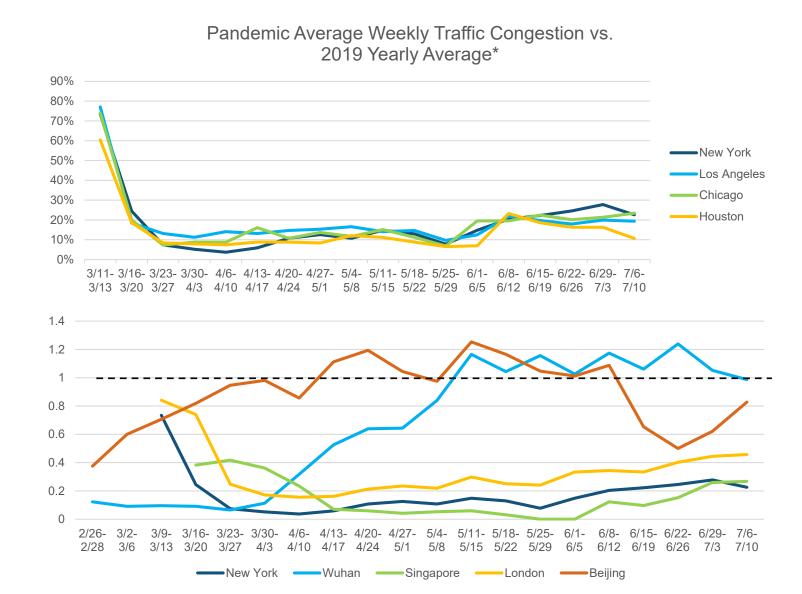
- After a steep decline in total inbound vehicles into the Manhattan CBD in the week leading up to the PAUSE, entries have been increasing since mid-April.
- Over the same time period, weekday daytime speeds in Midtown have been steadily declining, with weekday speeds in early July comparable to pre-PAUSE speeds.

Source: NYCDOT, NYCTLC, Port Authority, Triborough Bridge and Tunnel Authority



Traffic Congestion

- Congestion is a measure of the average amount of additional travel time needed to get to a destination anywhere in a city compared to free flow conditions. Zero percent represents free flow speeds.
- After a significant initial decline in congestion in March, all four U.S. cities measured here saw increases in June.
- On the bottom chart, 100 percent represents 2019 yearly average congestion for each city.
- Wuhan and Beijing, which opened sooner than other world cities, have seen higher than average congestion. Congestion has subsequently fallen under Beijing's second outbreak.



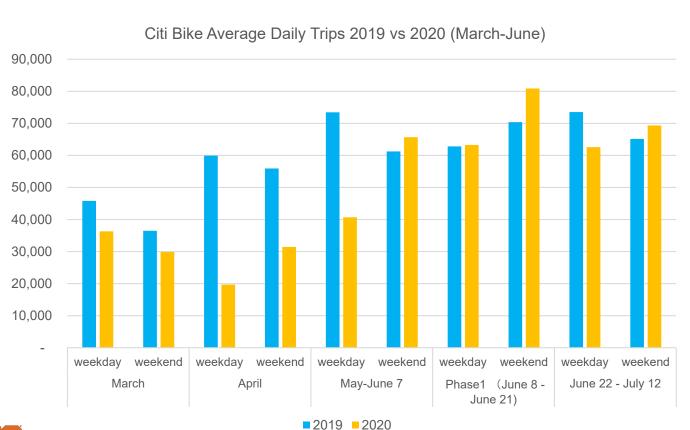


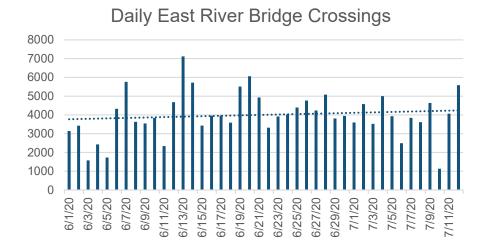
Citi Bike



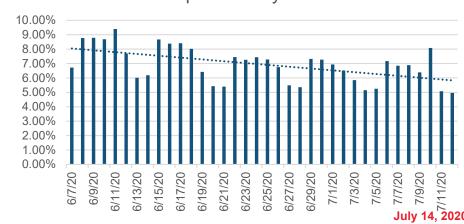
Citi Bike Ridership Trends

- Citi Bike ridership in June 2020 has fluctuated compared to ridership volumes for June 2019. Much of this inconsistency may be attributed to weather.
- Citi Bike ridership on East River bridge crossings has been fairly steady since early June 2020, with peak travel occurring on weekends.
- The percentage of trips taken by Critical Workers has been declining.





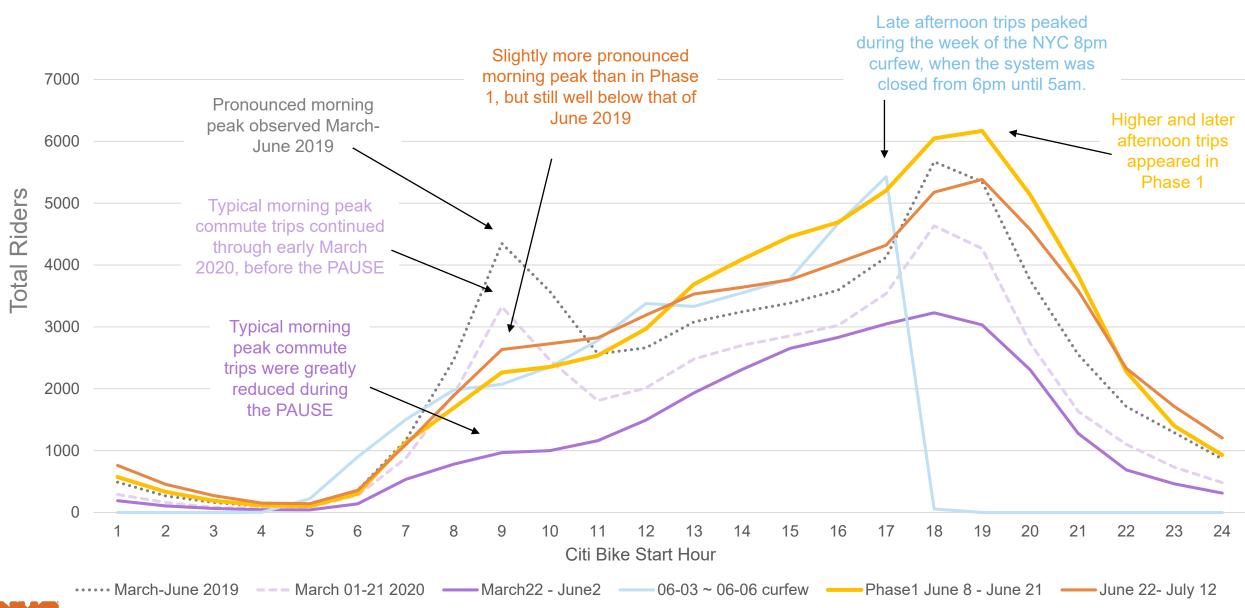
Percent of all trips taken by Critical Workers





Data sources: DOT Citi Bike Data

Citi Bike Ridership by Time of Day



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Data sources: DOT Citi Bike Data 23

Citi Bike Ridership Trends – Hub Bound Travel

Legend

NTA HUB

Average Daily

> 500

100 - 300 50 - 100

<= 50

300 - 500 ersey City

Trips

Hub Bound Daily Average Trips By NTA

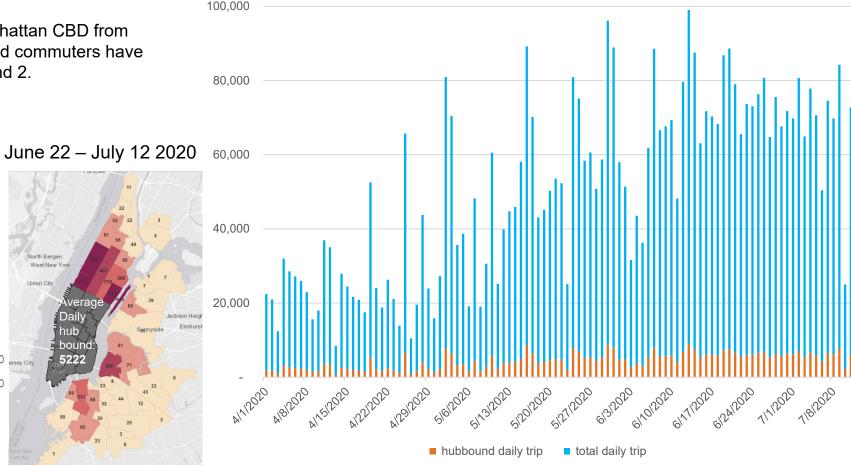
Average Hub Bound Daily Trips

by time of day 6/22-7/12

Trip Start Hour

12 14 16 18 20 22

- While overall Citi Bike ridership has been high through May and June, the number of trips* starting outside of the Manhattan CBD and ending within it remain low.
- The low percentage of Citi Bike trips to the Manhattan CBD from outside of it imply that only a few new hub-bound commuters have been using Citi Bike to commute in Phases 1 and 2.



Hub Bound Daily Trips vs Total Daily Trips

ending within it remain low.
The low percentage of Citi Bike trips to the Manhattan CBD from

• *Hub-bound trips: trips originating outside the hub and ending inside the hub, where trip duration is greater than 1.5 min and less than 45 mins



600

500

400

300

Data sources: DOT Citi Bike Data

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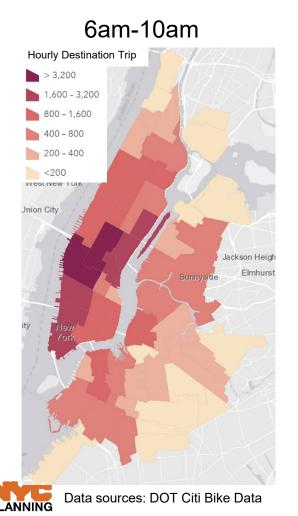
120.000

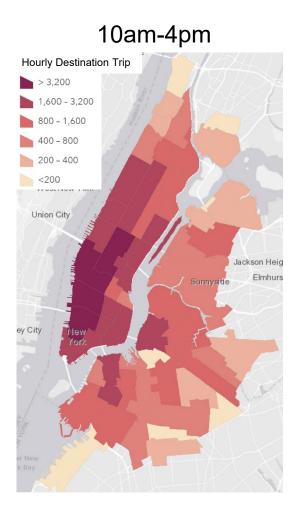
Citi Bike Destination Ridership By Time of Day Trends

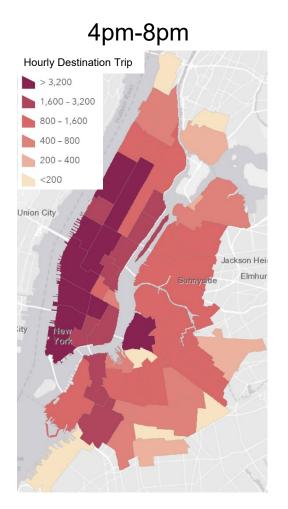


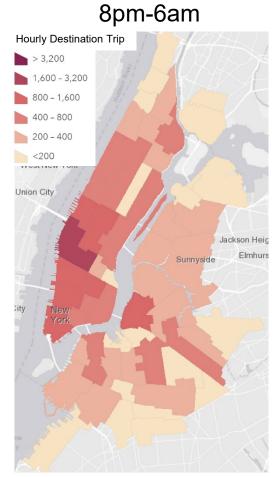
Average Hourly NTA Destination Trips by time of day 6/22-7/12

- Citi Bike trip destinations vary substantially by time of day.
- Manhattan destinations predominate during the morning and evening hours. Unlike the hub-bound analysis on the previous slide, these trips include any trip that ends in Manhattan, regardless of origin. Williamsburg, Brooklyn, is also a common evening destination.









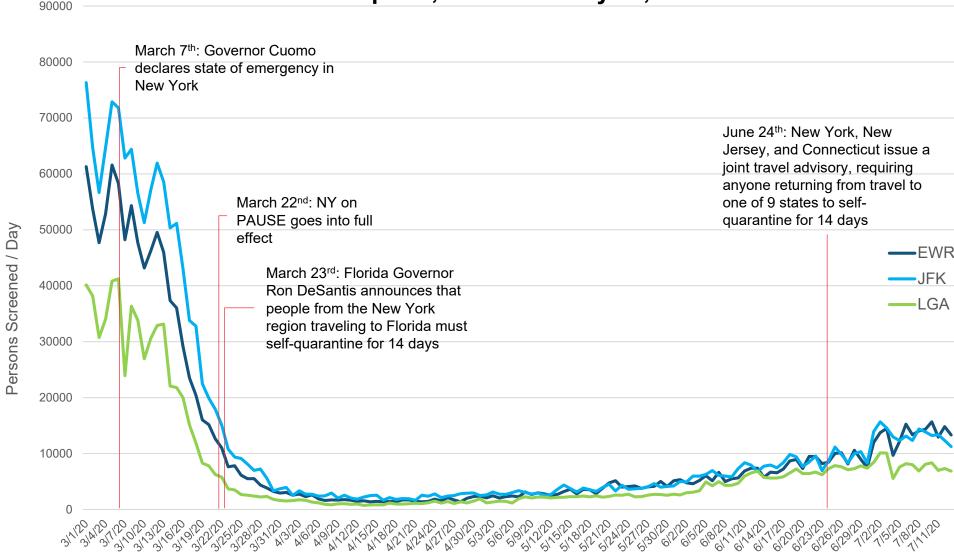
Airports



Changes in Regional Airport Usage

- Airport passenger screening volumes are slowly increasing week over week, but remain low.
- Approximate percentage difference, year over year:
 - EWR: 80% JFK: -88%
 - LGA: -84%
- In recent weeks, the tristate area governments have issued quarantine restrictions, requiring anyone returning from certain states with high infection rates to quarantine for 14 days.

Estimated* Daily Passenger Throughput at Major New York City-Area Airports, March 1 – July 13, 2020





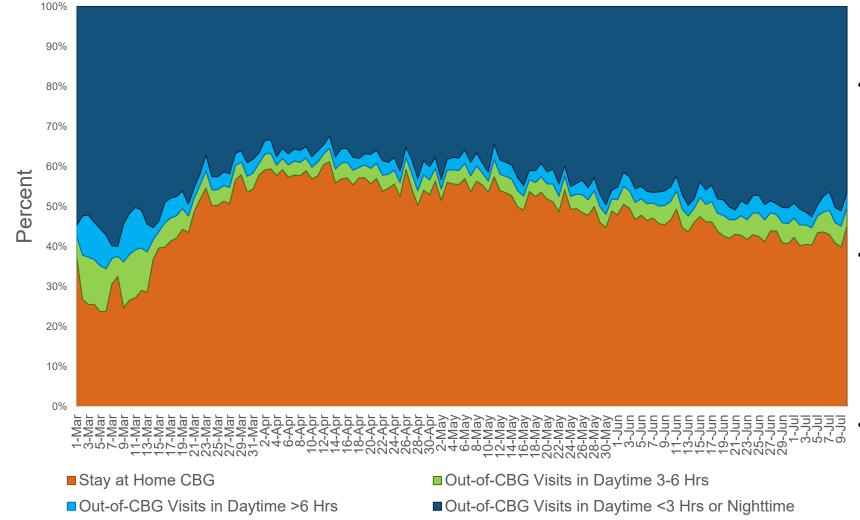
*These figures represent all people screened each day at each airport by the TSA, including airline and airport employees. Actual passenger throughput tends to be approximately 1.5% lower than shown.

Cellphone-based Mobility



Measures of Mobility – Cell Phone Locations

Percent of Devices Out-of-Census-Block-Group (CBG) Visits & Staying at Home in NYC (March 1- July 10, 2020)

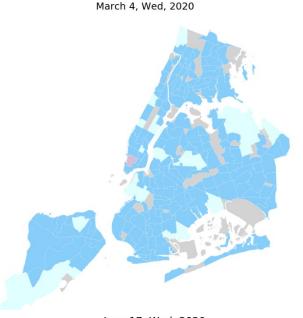


- Mobility patterns are based on data from SafeGraph, a company that generates data by pinging mobile devices throughout the day to determine their locations.
- Based on typical location of devices overnight, assumptions are made about a device's "home" census block group, and interpretations are made about travel based on device location at different points throughout the day.
- SafeGraph data shown here provides information on general duration of trips. The orange area indicates devices that stayed entirely within their home CBG; dark blue area indicates devices that left for less than 3 hours that day, or during the night.
- The percent of devices remaining in their "home" census block group has been trending slightly down since mid-May 2020, with short trips trending up at the fastest rate.

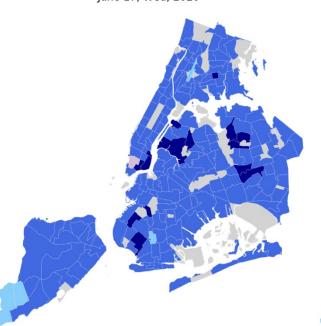
Data sources: SafeGraph, https://www.safegraph.com/. a data company that aggregates anonymized location data from numerous applications in order to provide insights about physical places. To enhance privacy, SafeGraph excludes census block group information if fewer than five devices visited an establishment in a month from a given census block group. SafeGraph collects a semi-random sampling of data throughout the day. "Stay at Home CBG" indicates the devices did not leave the Geohash-7 in which their home is located during the time period that SafeGraph attempted to ping them. The same analysis is applied to each category July 14, 2020 29



Measures of Mobility - Percent of Devices Dwelling at Home in All Observed Time

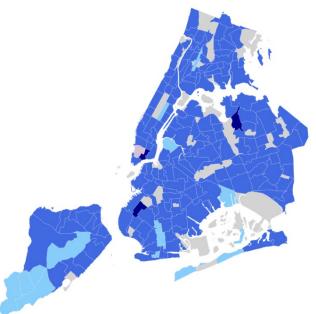


June 17, Wed, 2020



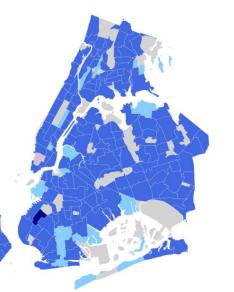
April 15, Wed, 2020

June 24, Wed, 2020



- Among the universe of devices tracked by SafeGraph, there was a significant increase in the share of devices (and, presumably, their owners) that "stayed at home", or which didn't leave their home census block group, between March and April. Manhattan and portions of Brooklyn showed slightly lower rates of staying at home.
- Data from mid- and late-June indicate increasing mobility across the city, with most neighborhoods demonstrating a greater share of devices leaving their home block group, though still at much lower rates than observed in early March. There was no clear increase in mobility between June 24 and July 8.

July 08, Wed, 2020

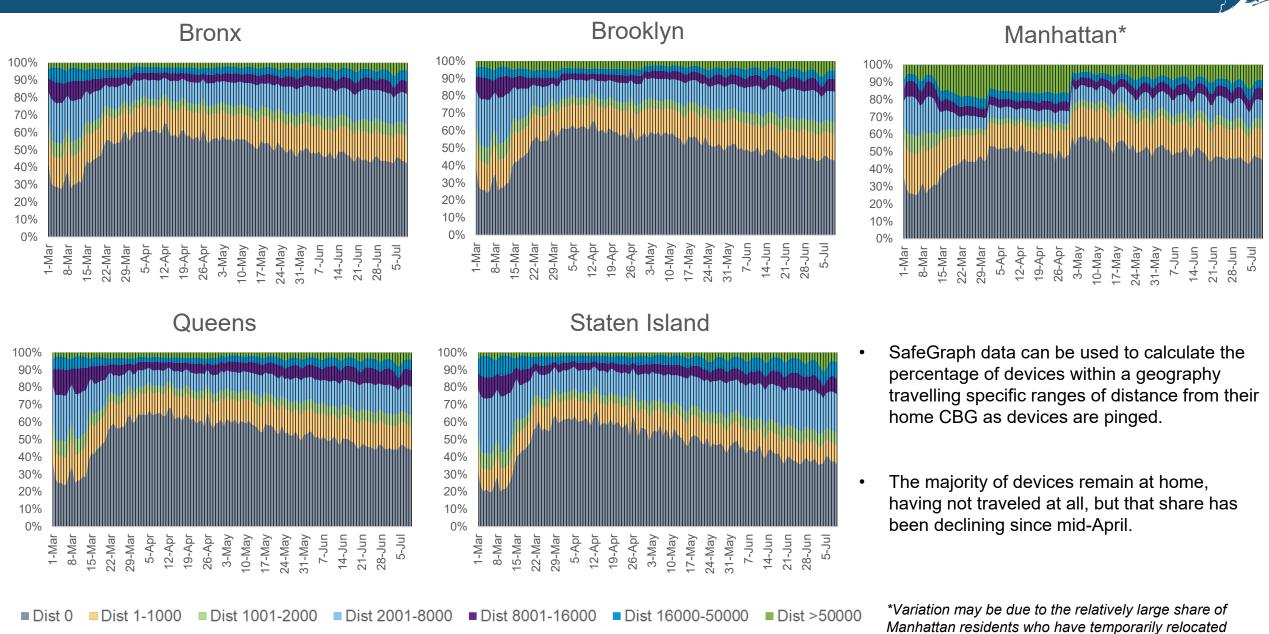


Percent of Devices Dwelling at Home in All Observed Time

- 0~20%
- 20~35%
- 35~50%
- > 50%
- Invalid*
- Parks & Airports & Islands

*GPS data issues result in some neighborhoods being over-indexed. Data from Tribeca in Manhattan appears invalid as a result.

Measures of Mobility – Distance Traveled (Meters) March-July5 2020





July 14, 2020 31

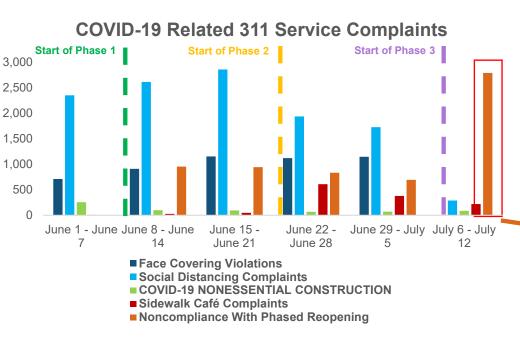
outside the city.

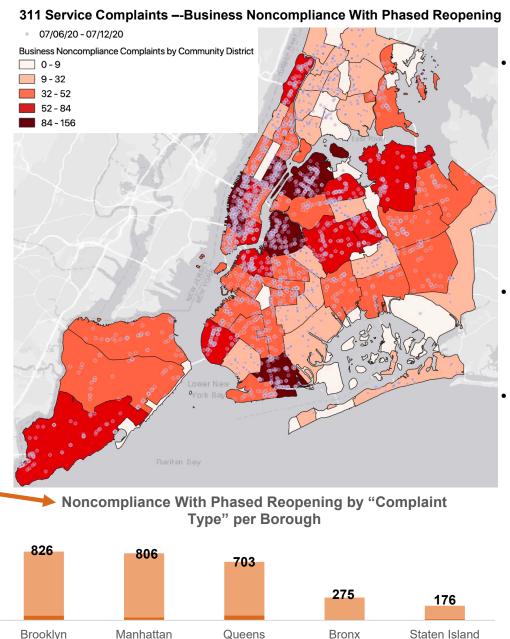
311 data



311 Complaints

- Face Covering Violation saw zero complaints during the first week of Phase 3. Social Distancing Complaints, saw its lowest weekly total since the start of its category. Social distancing complaints decreased by over 80 percent compared to the previous week.
- **Noncompliance with Phased Reopening** complaints increase by more than 300% in during the first week of Phase 3, compared to the previous week.





Business not in compliance

■ Business not allowed to be open

- The highest complaint concentrations of "business noncompliance with phased reopening" were in: Northwest Queens. **Upper East Side** Manhattan, North Brooklyn, Lower Manhattan, and parts of South Brooklyn.
- **Queens** had the highest number of complaints for "business not allowed to be open."
- **Brooklyn and Manhattan** had the highest number of complaints for "business not in compliance."

Source: NYC Open Data: 311 Service Requests

Timeline



New York COVID19 Pandemic Timeline: First Case to End of PAUSE

- March 1st, 2020: First confirmed case in New York https://www.wsj.com/articles/first-case-of-coronavirus-confirmed-in-new-york-state-11583111692
- March 7th, 2020: Governor Cuomo declares state of emergency https://www.nytimes.com/2020/03/07/nyregion/coronavirus-new-york-queens.html
- March 12th, 2020: Governor Cuomo announces restrictions on mass gatherings, directing events with more than 500 people to be cancelled or postponed and any gathering with less than 500 people in attendance to cut capacity by 50 percent. https://www.governor.nv.gov/news/during-novel-coronavirus-briefing-governor-cuomo-announces-new-mass-gatherings-regulations
- March 15th, 2020: NYC school closures announced. https://www.nytimes.com/2020/03/15/nyregion/nyc-schools-closed.html DeBlasio announces the closure of schools, bars, and restaurants (except takeout/delivery) effective the morning of the 17th https://www.nytimes.com/2020/03/15/nyregion/new-york-coronavirus.html
- March 18th: Governor Cuomo announces that 50% of non-essential employees must work from home
- March 20th: Governor Cuomo announces statewide stay at home rules, effective the evening of the 22nd. 100% of non-essential workers must stay home. https://www.npr.org/sections/coronavirus-liveupdates/2020/03/20/818952589/coronavirus-n-y-gov-cuomo-says-100-of-workforce-must-stay-home, travel on transit only when necessary
- March 25th: MTA announces service reduction to **Essential Service** plan https://abc7ny.com/6047040/
- March 27th: The Governor halts non-essential construction https://thecity.nvc/2020/03/cuomo-calls-off-non-essential-construction-statewide.html
- May 1st: Mayor de Blasio announces first seven miles of streets in Open Streets NYC program. https://gothamist.com/news/de-blasio-reveals-first-batch-open-streets-primarily-centered-parks
- May 6th: Governor Cuomo enacts nightly 1am-5am subway shutdowns: https://www.nytimes.com/2020/04/30/nyregion/subway-close-cuomo-coronavirus.html
- May 22nd: Mayor de Blasio announces 45 miles of open streets, the most in the nation, with the City to eventually reach 100 miles, https://www.6sqft.com/nyc-full-list-of-open-streets-summer-2020/
- May 26th: New York Stock Exchange reopens trading floor after 2 month closure. https://www.npr.org/sections/coronavirus-live-updates/2020/05/26/862082828/new-york-stock-exchange-reopenstrading-floor-after-2-month-closure
- May 29th: Governor Cuomo announces that New York City is expected to begin Phase 1 of reopening on Monday, June 8th. https://www.nytimes.com/2020/05/29/nyregion/coronavirus-new-york-liveupdates.html
- June 1st: Governor Cuomo announces overnight curfew in NYC after a weekend of protests due to the death of George Floyd. No-non local vehicles permitted in Manhattan below 96th street, and Citi Bike is shut down during curfew hours. https://deadline.com/2020/06/new-york-city-curfew-andrew-cuomo-george-floyd-protests-1202948548/
- June 5th: The MTA lays out its 13-point "Action Plan For a Safe Return" in preparation for New York City's reopening. https://new.mta.info/document/17751
- June 7th: Mayor de Blasio announces the end of protest-related curfews ahead of schedule, effective immediately, https://www.cbsnews.com/news/nyc-mayor-announces-curfew-has-ended-aheadof-schedule-2020-06-07/



New York COVID19 Pandemic Timeline: Phase 1 to Present

- June 8th: New York City begins Phase 1 of re-opening. Manufacturing, non-essential construction, and non-essential retail via curbside pickup can resume operations https://www.nytimes.com/2020/06/08/nyregion/coronavirus-nyc-reopen-phase-1.html
 - The Staten Island Ferry begins moving to a 20-minute rush hour schedule beginning with the 3:30 PM trip from St. George. https://www1.nvc.gov/html/dot/html/ferrybus/siferryschedule.shtml#SIschedule
 - Mayor De Blasio announces five new busways to be created throughout the city, modeled after the 14th Street Busway, which will be made permanent. More bus lanes will be added along major corridors, https://www.politico.com/states/new-vork/albany/story/2020/06/08/as-city-reopens-de-blasio-expands-transit-options-1291796
- June 14th: Governor Cuomo issues a statement that the state may reverse the reopening process in regions where the state's reopening plan—particularly social distancing and mask use—are not being followed.
- June 18th: Mayor de Blasio announces guidance for the City's Open Restaurants program, which allows qualifying restaurants and bars to expand outdoor seating on sidewalks, curb lanes, backyards, patios, plazas, and Open Streets. https://www1.nyc.gov/office-of-the-mayor/news/449-20/open-restaurants-new-york-city-prepares-phase-2-reopening-mayor-de-blasio-announces
- June 19th: Governor Cuomo holds his final daily coronavirus briefing, saying "We have done the impossible." He will continue to monitor the situation and hold press conferences as needed. https://www.cbsnews.com/news/andrew-cuomo-new-vorkers-united-coronavirus-pandemic-crisis/
- June 22nd: New York City begins Phase 2 of re-opening, including in-store retail, offices, hair salons and barbershops, house of worship, and car sales. Social distancing and hygiene guidelines remain in place. https://www.nv1.com/nvc/all-boroughs/news/2020/06/21/what-exactly-does-phase-two-reopening-mean-for-new-vork-city-
 - Governor Cuomo says he is actively talking to Governor Murphy of NJ and Governor Lamont of Connecticut, and that the three governors are "seriously considering" implementing a 14-day isolation protocol for visitors from Florida, which could be extended to travelers from Arizona, Texas, and several other stats who are experiencing a rapid rise in Covid cases. https://nypost.com/2020/06/22/gov-cuomo-talks-to-nj-connecticut-about-florida-quarantine-rules/
 - According to a survey conducted by the Partnership for New York City, while Phase 2 allows office workers to return to their offices, respondents from 60 companies predicted that only 10% of their employees would return to the office by August 15th. Rudin Management Company said that, across its 14 offices in New York that reopened on Monday, it reached a collective 5.2 percent occupancy rate. https://www.nytimes.com/2020/06/22/nyregion/nyc-phase-2-reopening-coronavirus.html
- June 24th: The state governments of New York, New Jersey, and Connecticut issue self-quarantine restrictions on travelers returning from a list of 9 states with high infection rates, with the ability to add more as the situation changes. https://coronavirus.health.ny.gov/system/files/documents/2020/06/interimquidance traveladvisory.pdf
- June 29th: Mayor de Blasio announces that, while outdoor dining is "working" in New York City and that the city is moving on track for Phase 3 of reopening on July 6th, the reopening of indoor dining may be delayed due to ongoing coronavirus concerns. Governor Cuomo echoed these concerns. https://abc7ny.com/indoor-dining-in-nyc-new-york-city-reopen-coronavirus/6280941/
- July 6th: New York City begins Phase 3 of re-opening. Originally, this was to include indoor dining at restaurants, but this element has been postponed in light of outbreaks in other states.
 - The Staten Island Ferry resumes regular rush-hour service, with boats running every 15 minutes from 7:00 am 9:00 am and 5:00 pm 7:00 pm. https://mms.tveyes.com/PlaybackPortal.aspx?SavedEditID=ea13aec9-00c3-46cf-998e-a31fa521b891

