

COVID19 IMPACTS ON TRANSPORTATION

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

June 23, 2020



- 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 thirteenth weekly report.
- This week's report includes the following information:
 1. Executive Summary
 2. Phase 2 Reopening and Citywide Trends
 3. Subway and Buses
 4. Ferries
 5. Traffic
 6. Citi Bike
 7. SafeGraph Mobility
 8. 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 (lsmith@planning.nyc.gov) with questions or comments.

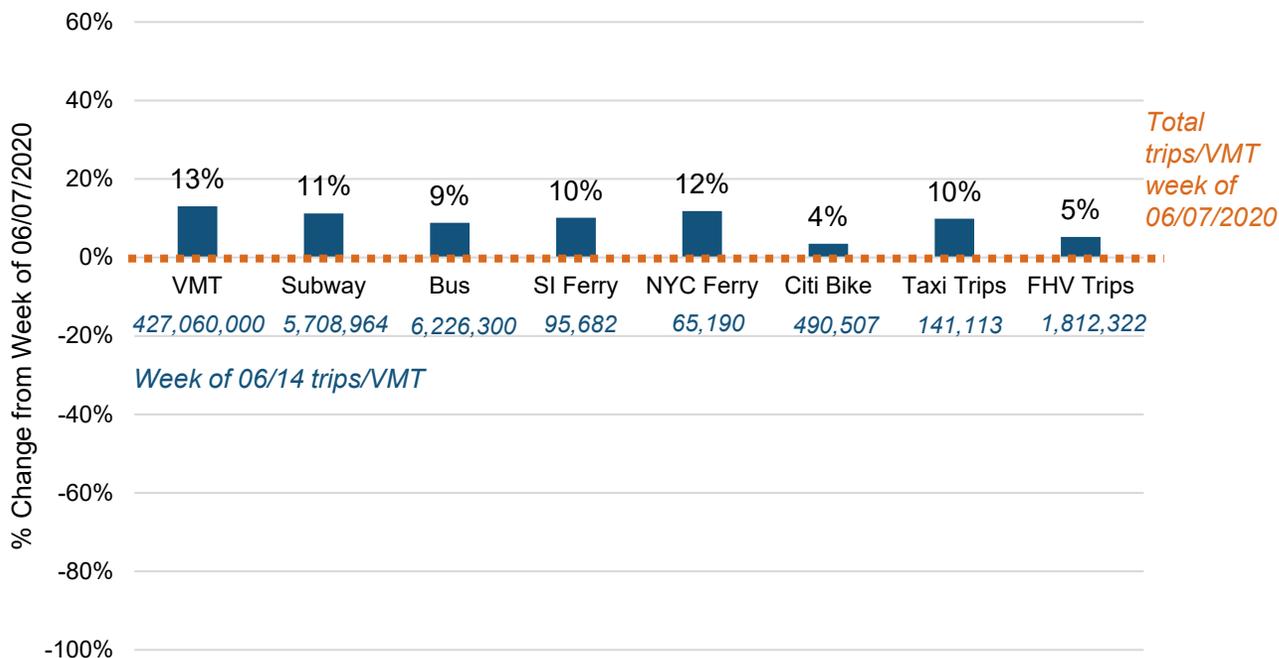
- **On June 8, New York City entered Phase 1 of its economic reopening.** Phase 1 includes nonessential workers in Construction, Manufacturing & Wholesale Trade, and Retail (limited to curbside or in-store pickup or drop off).
- **On June 22, New York city entered Phase 2 of its economic reopening.** Phase 2 includes nonessential workers in retail, food, selected services including barbershops and nail salons, and offices.
- **Total weekday subway ridership for the week of June 15 was up 11.7 percent over the previous week.** Weekend ridership was up 5.13 percent. The first day of Phase 2, Monday, June 22, saw ridership again approaching 1 million.
- **AM peak subway ridership increased by more than 40 percent** in many neighborhoods, including the Manhattan CBD, south Brooklyn, Greenpoint, and parts of Queens including Astoria, Flushing, and Jamaica.
- **As of the week of June 14, bus ridership was at almost 50 percent of pre-COVID ridership,** from a low of 25 percent. Subway was still more than 80 percent down from pre-COVID. Total weekday bus ridership the week of June 15 was up 9.0 percent over the previous week. Weekend ridership was up 6.5 percent.
- **The second week of Phase 1 saw over 96,000 Staten Island Ferry riders,** the most since the beginning of the PAUSE. This represents an 8 percent increase, or over 7,000 additional riders, from the previous week. **NYC Ferry saw a 3 percent increase** in weekly ridership compared to the previous week.
- **Average traffic speeds across NYC and within the Manhattan CBD continue to decline.** During both weeks of Phase 1, average traffic speeds slowed as the week progressed.
- **Daytime traffic volumes on DOT East and Harlem River bridges were higher during the first week of Phase one than during the same period last year.**
- **Citi Bike ridership during the first 2 weeks of Phase 1 has been close to or exceeding ridership over the same period in 2019.** As of June 22, the critical worker program has nearly 16,000 unique members who have taken more than 250,000 trips.
- An indicator of mobility as measured by cell phone locations has been trending slightly down since mid-May 2020.

Phase 2 Reopening and Citywide Trends

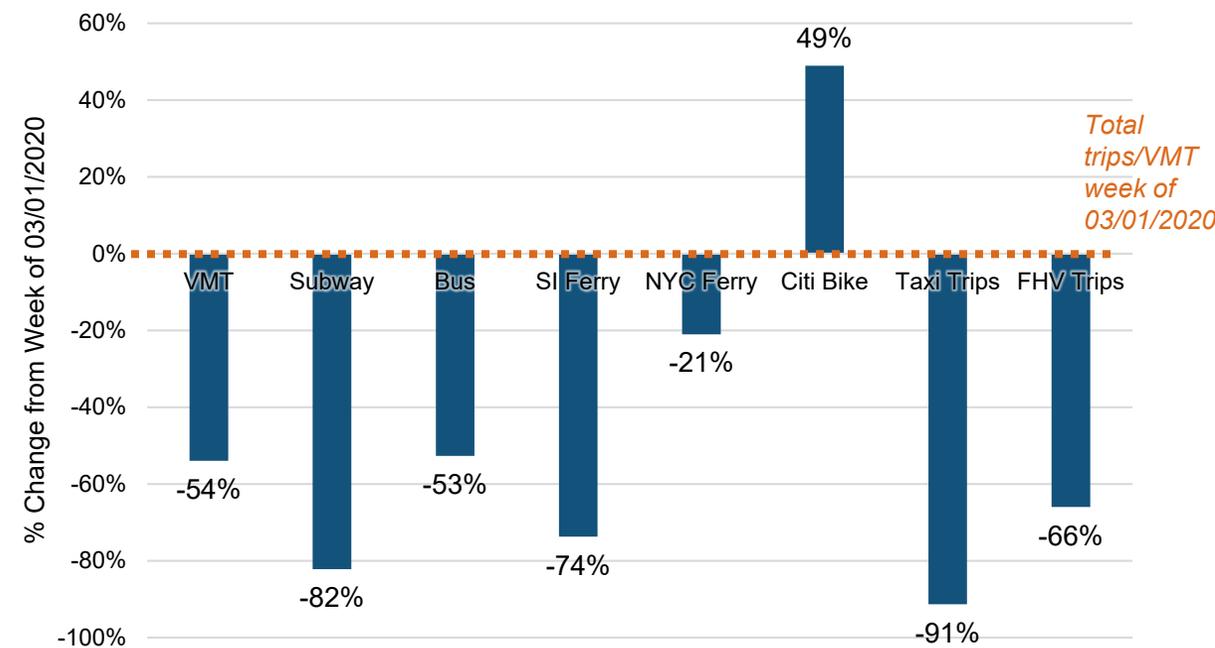
Citywide Trends

- New York City entered Phase 2 on Monday, June 22. Very limited data are available around Phase 2 mobility, but all modes tracked here indicate increasing mobility during the second week of Phase 1.
- As of the week of June 14, bus ridership was at almost 50 percent of pre-COVID ridership, from a low of 25 percent. Subway was still more than 80 percent down from pre-COVID.
- Citi Bike surpassed the pre-COVID19 ridership by nearly 50 percent.

Week of 06/14/2020 Compared to Previous Week



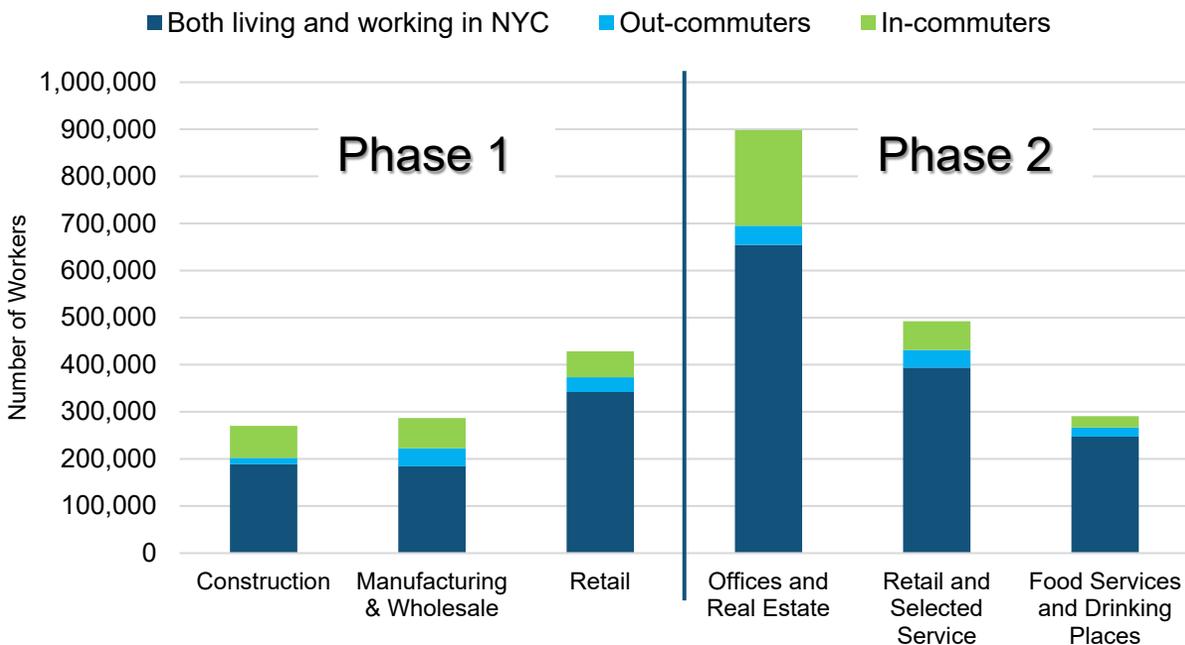
Week of 06/14/2020 Compared to Week of 03/01/2020



*Note: VMT for the most recent week is a sum from 06/13/2020 (Sat) to 06/19/2020 (Fri), not the same Sun-to-Sat week period for the other modes, as the VMT on 06//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. Phase 1 includes nonessential workers in Construction, Manufacturing & Wholesale Trade, and Retail (limited to curbside or in-store pickup or drop off).
- On June 22, New York City entered Phase 2 of its economic reopening. Phase 2 includes nonessential workers in retail (in-store shopping), dining (outdoor), and office sectors.
- These workers may join essential workers across all industries who have been permitted to work through the PAUSE.
- 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. This is also not an estimate of who might be commuting during Phase 1 or Phase 2.



Phase One

(Start Date: 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

Offices

Real Estate

Commercial Building Management

Retail (in-store)

Food and Dining (outdoor)

Vehicle Sales, Leases, and Rentals

Retail Rental, Repair, and Cleaning

Hair Salons and Barbershops

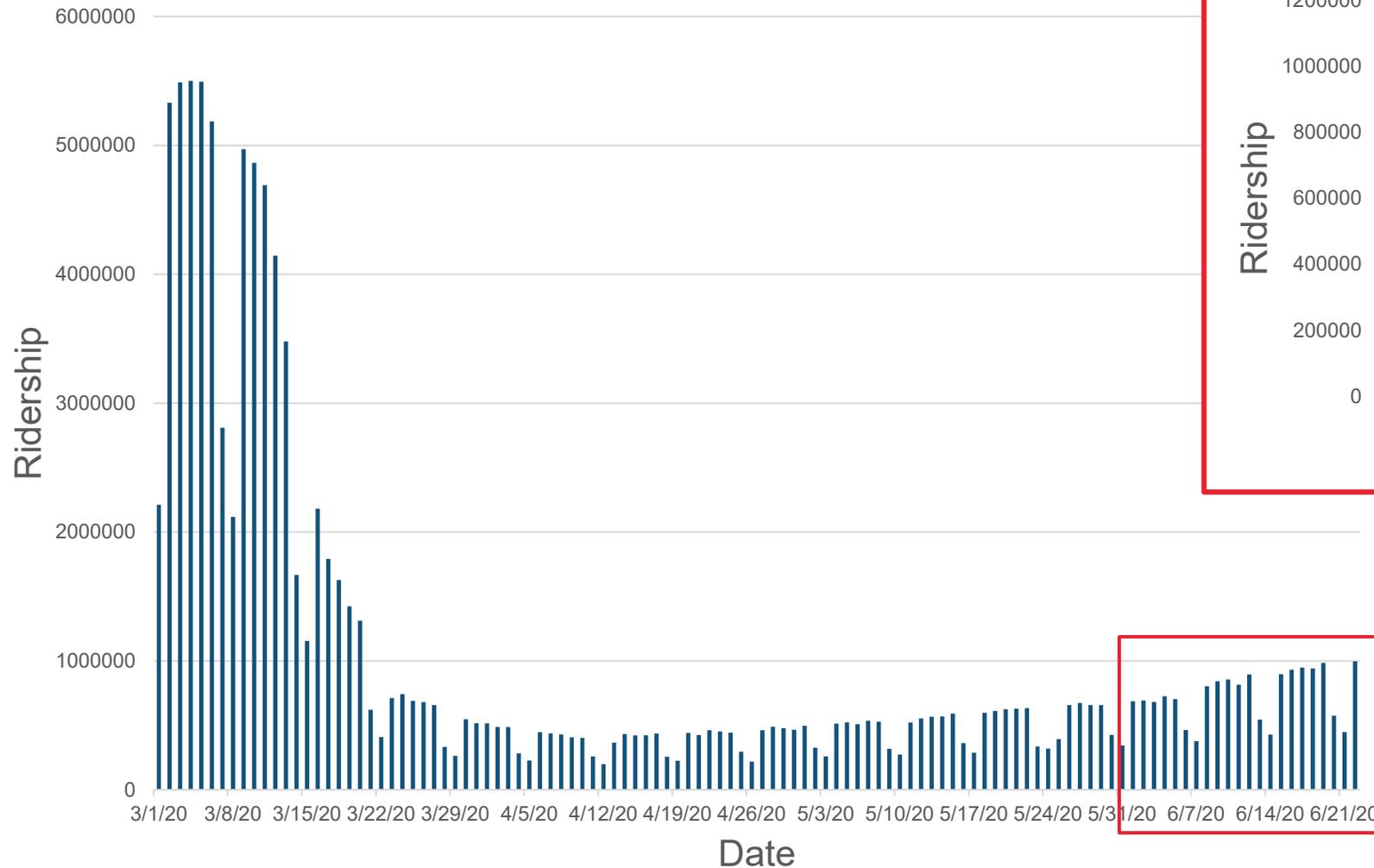
Source: NY Forward. <https://forward.ny.gov>

Subway

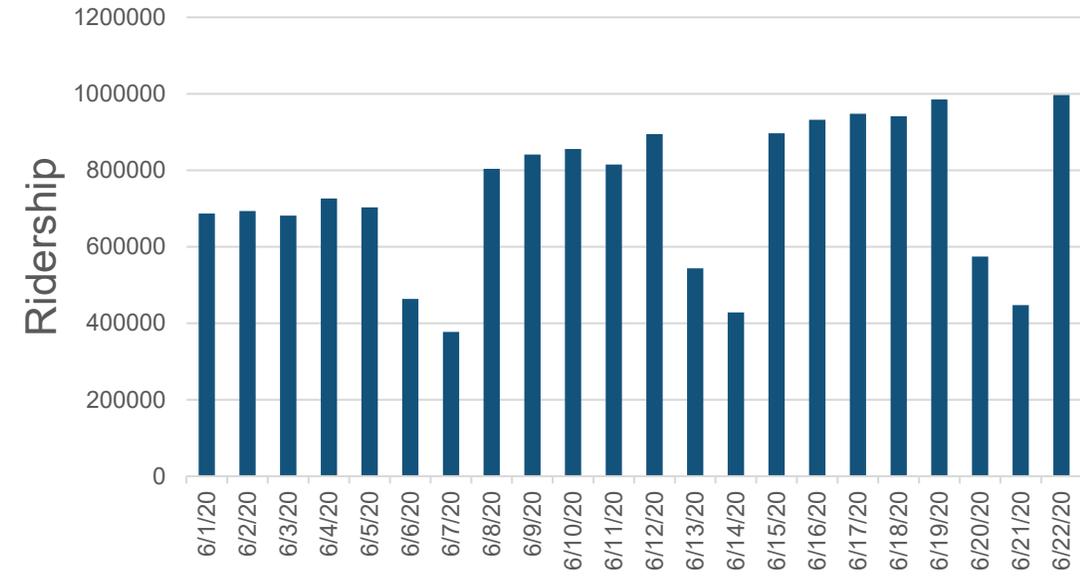
Subway System-wide Ridership Changes



Estimated* MTA Subway Ridership (March 1- June 22)



June 1- June 22, 2020



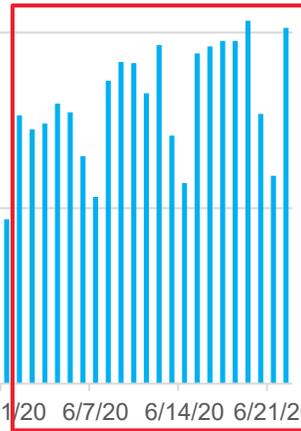
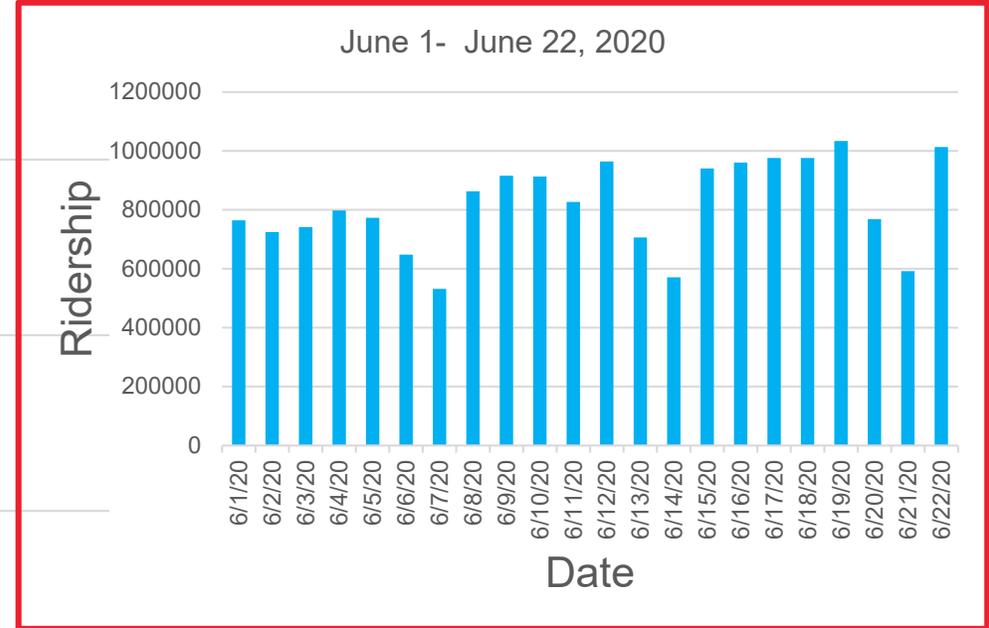
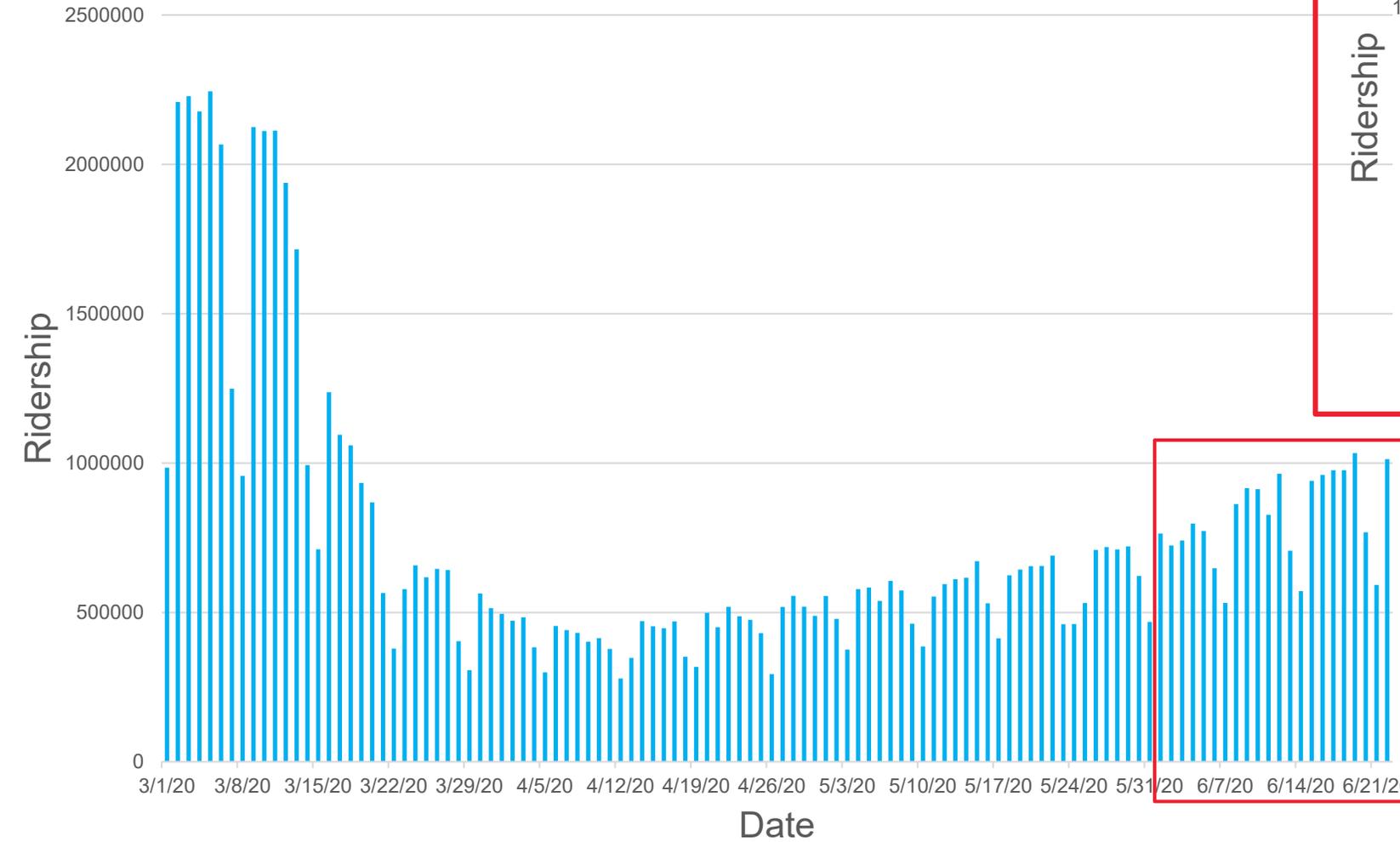
- Total weekday ridership for the week of June 15 was up 11.7 percent over the previous week. Weekend ridership was up 5.13 percent.
- There were nearly 1 million trips on Friday, June 19, likely a function of discretionary trips as peak hour trips (not shown here) were lower than day than on previous days in the week.
- The first day of Phase 2, Monday, June 22, saw ridership again approaching 1 million.

*From the MTA: Subway ridership figures are determined from MetroCard and OMNY swipes and taps. Figures from recent days may be revised as data reconciliation processes are carried out. Data sources: MTA

(<https://new.mta.info/coronavirus/ridership>)

MTA Bus System-wide Ridership Changes

Estimated * MTA Bus Ridership (March 1- June 22, 2020)

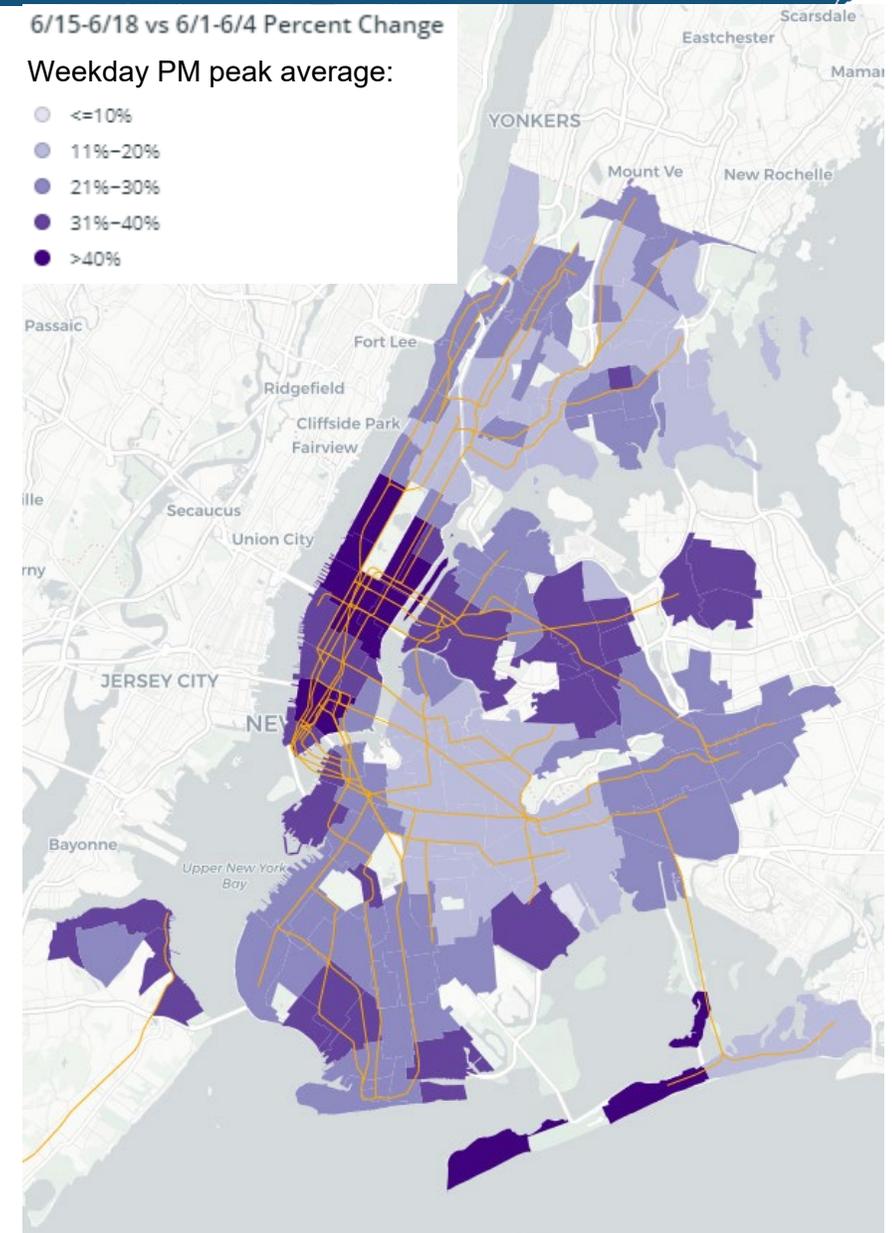
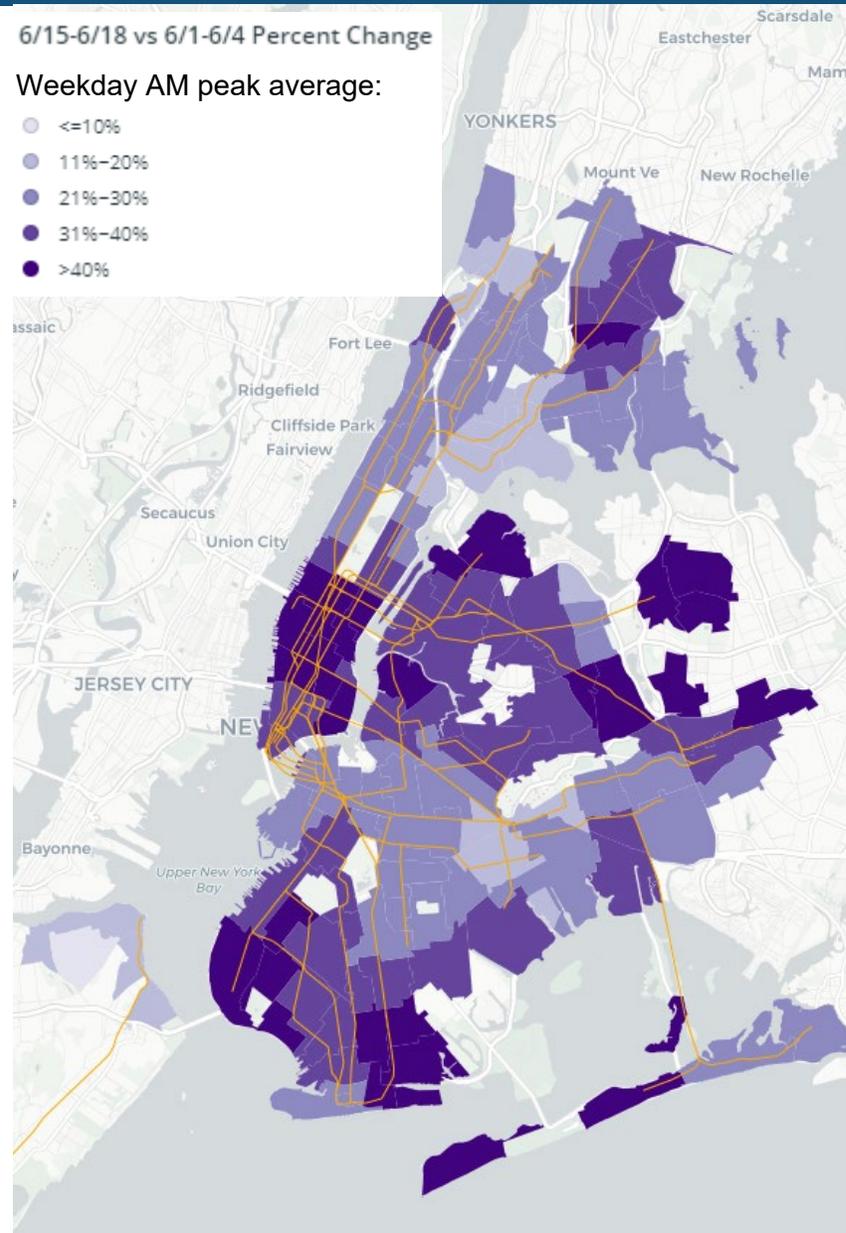


- Total weekday ridership the week of June 15 was up 9.0 percent over the previous week. Weekend ridership was up 6.5 percent.
- Ridership increased more continuously during the week of June 15 than it did during the previous week.
- There were more than 1 million bus trips on Friday, June 19 and on Monday, June 22, both increases 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>)

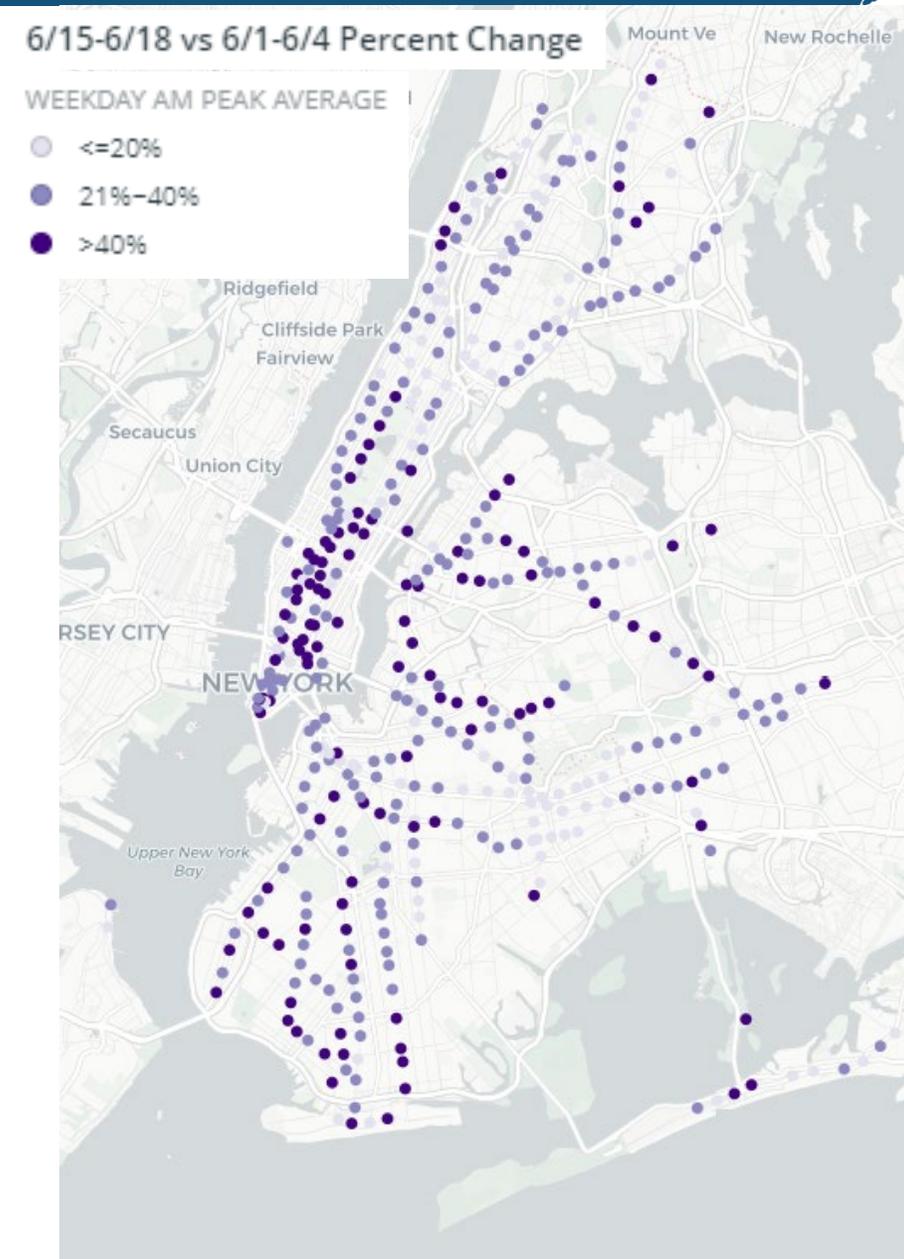
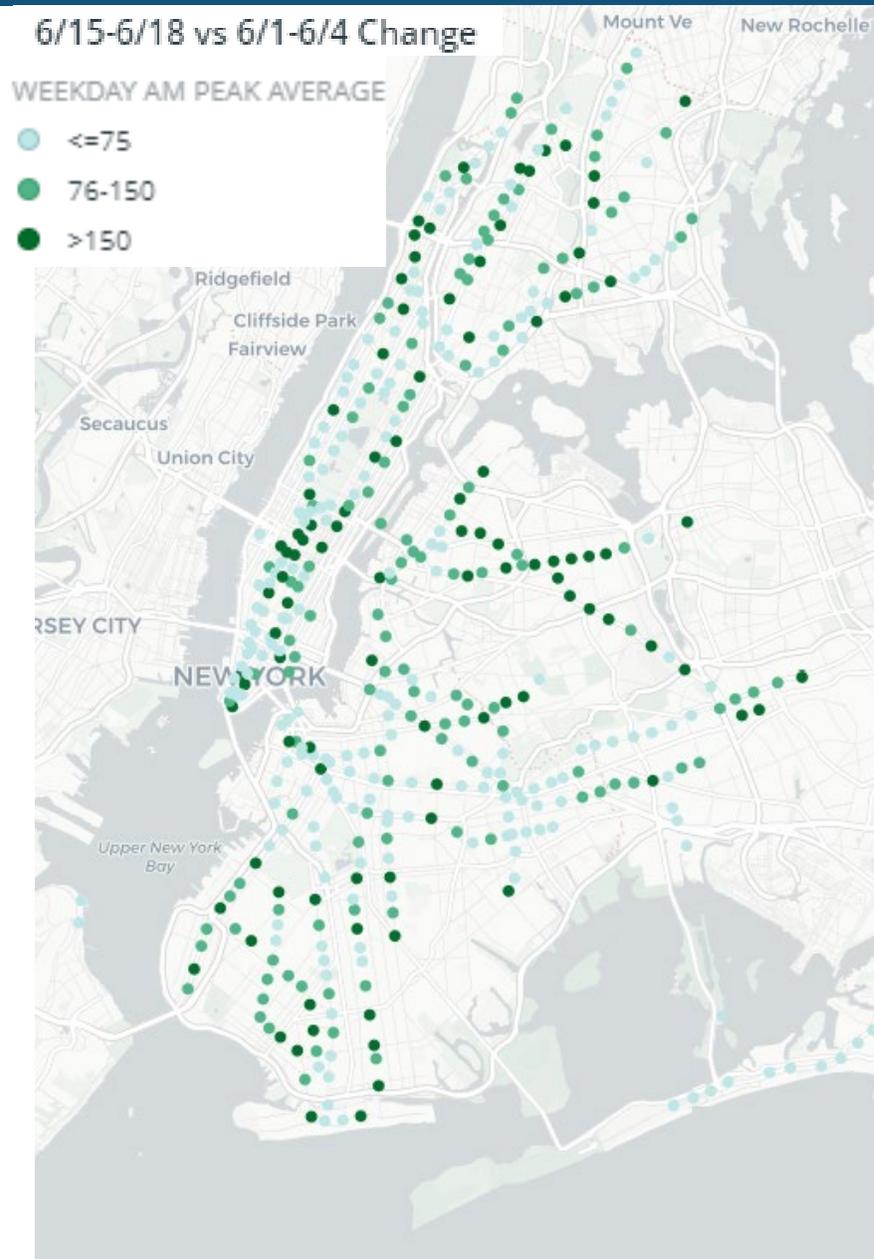
Weekday AM and PM Peak Turnstile Data - Neighborhood

- The maps on the right illustrate changes in AM and PM peak ridership by neighborhood during Phase 1 compared to the first week in June.
- AM peak ridership increased by more than 40 percent in the Manhattan CBD, south Brooklyn, Greenpoint, and parts of Queens including Astoria, Flushing, and Jamaica.
- PM peak ridership – an indicator of where people are commuting home from – increased by more than 40 percent in the Upper East and Upper West sides, East Bronx, Sheepshead Bay, Canarsie, Long Island City, Jackson Heights, and Flushing.



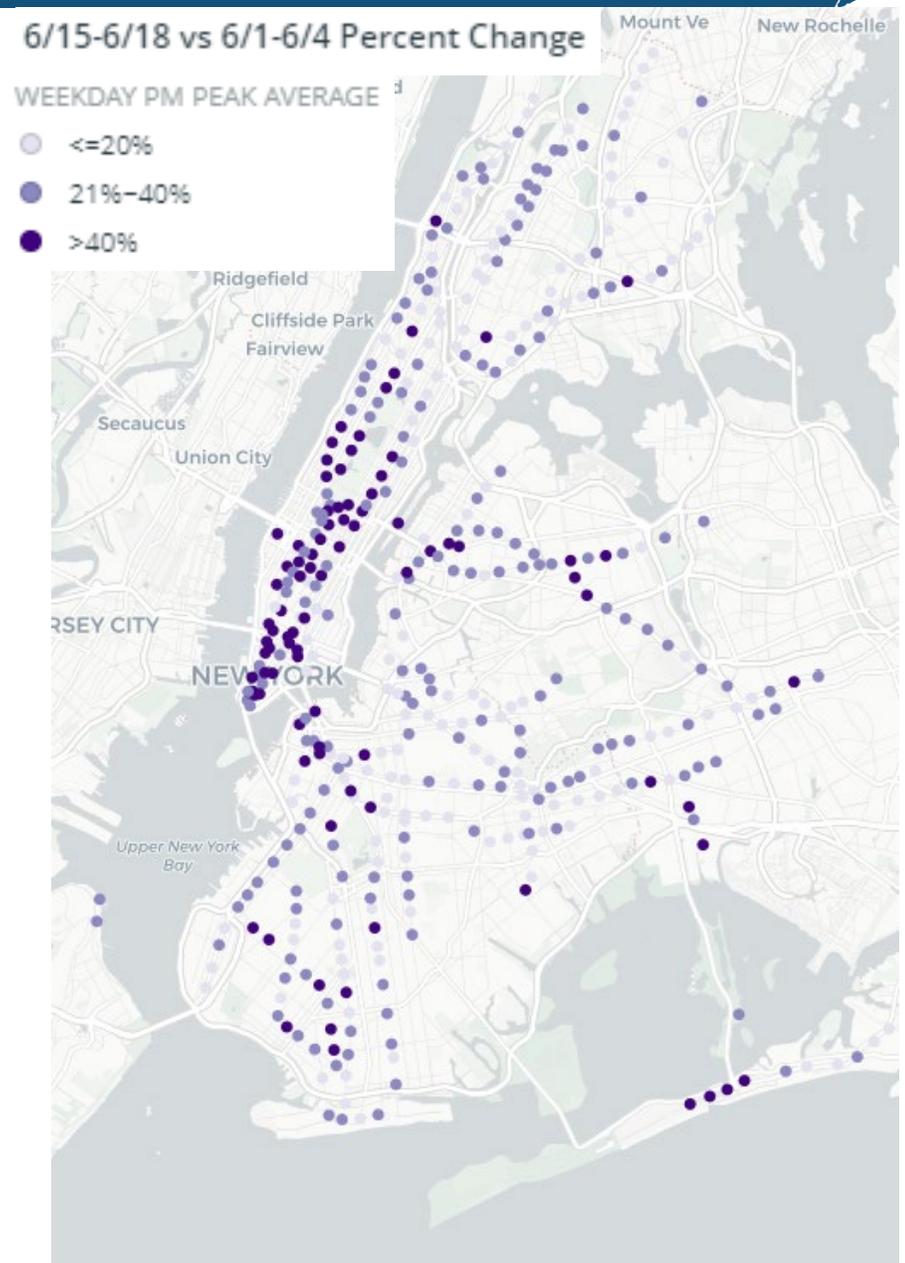
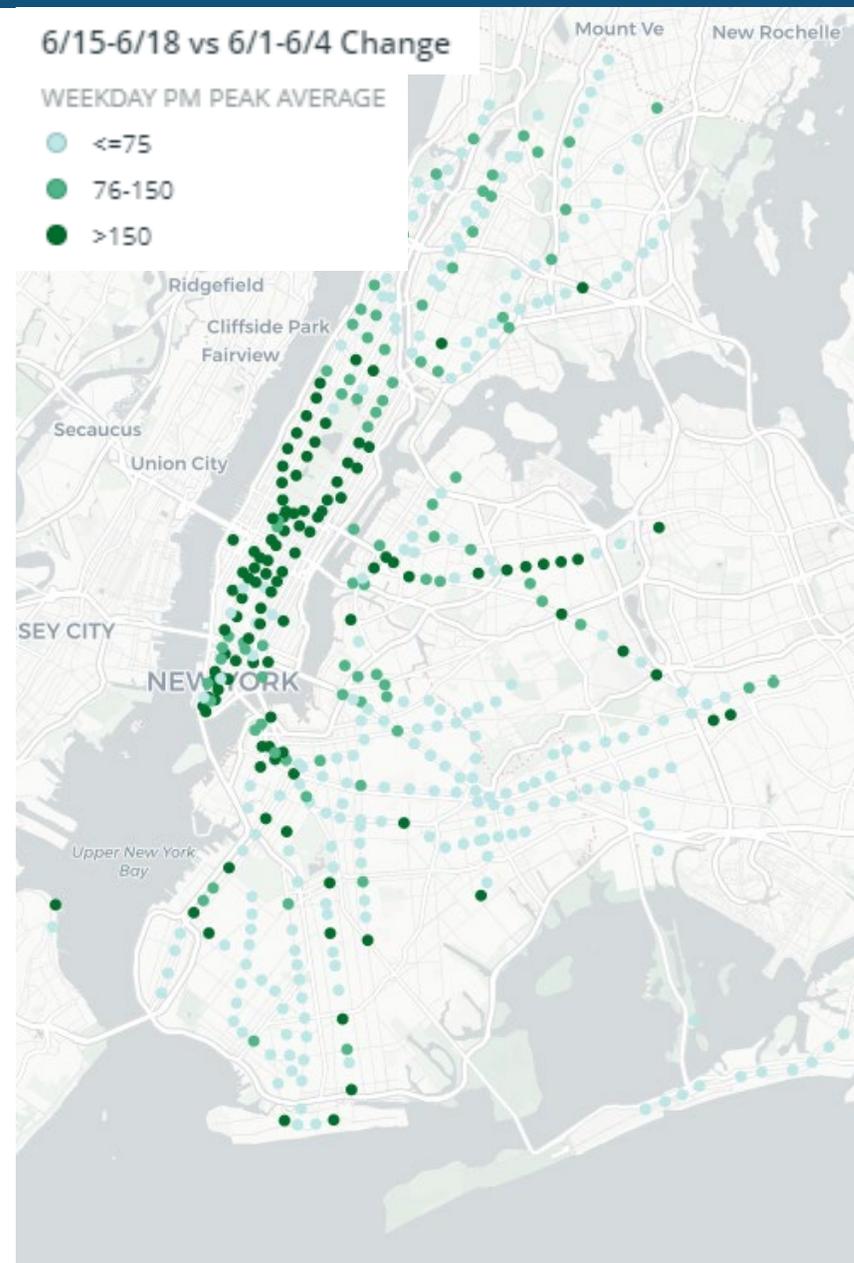
Weekday AM Peak Turnstile Data

- The maps show changes in AM peak ridership from the 4-day period beginning June 1, to the 4-day period beginning June 15, measured by turnstile counts.
- Most stations in the system saw increases in ridership during the AM peak, both in terms of raw totals (on left) and percent increases (on right).
- Neighborhoods with the lowest percentage increases in AM peak riders include northern Manhattan, southern Bronx, and eastern Brooklyn.
- Many stations in the Manhattan CBD and Queens saw increases of more than 40 percent.



Weekday PM Peak Turnstile Data

- These maps show changes in PM peak ridership from the 4-day period beginning on June 1, to the 4-day period beginning on June 15, measured by turnstile counts.
- PM peak trip maps typically highlight neighborhoods where people commute to, as opposed to where they live.
- The geographic pattern of where station turnstile entries increased most dramatically differs somewhat from the stations seeing the most entries during the PM peak hour pre-COVID19, as illustrated on the next slide.



Weekday PM Peak Turnstile Data

03/11-05/31 2019

WEEKDAY PM PEAK AVERAGE

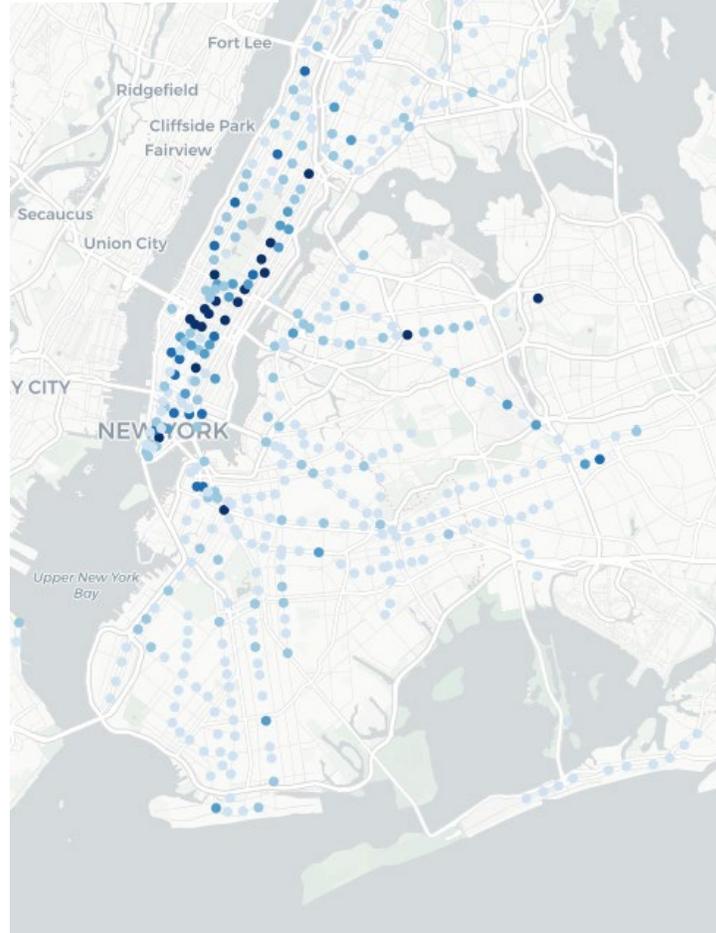
- 0-500
- 501-1000
- 1001-1500
- 1501-2000
- >2000



6/15 – 6/18 2020

WEEKDAY PM PEAK AVERAGE

- 0-500
- 501-1000
- 1001-1500
- 1501-2000
- >2000



Change: Week of 6/15 vs week of 6/1/2020

WEEKDAY PM PEAK AVERAGE

- ≤75
- 76-150
- >150

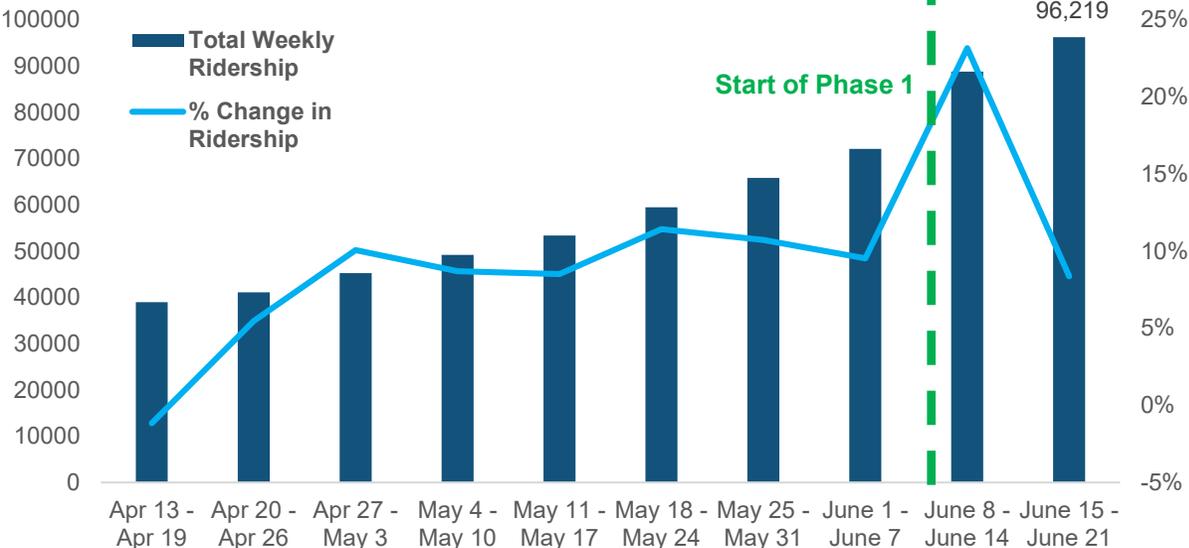


Ferries

The Staten Island Ferry and NYC Ferry



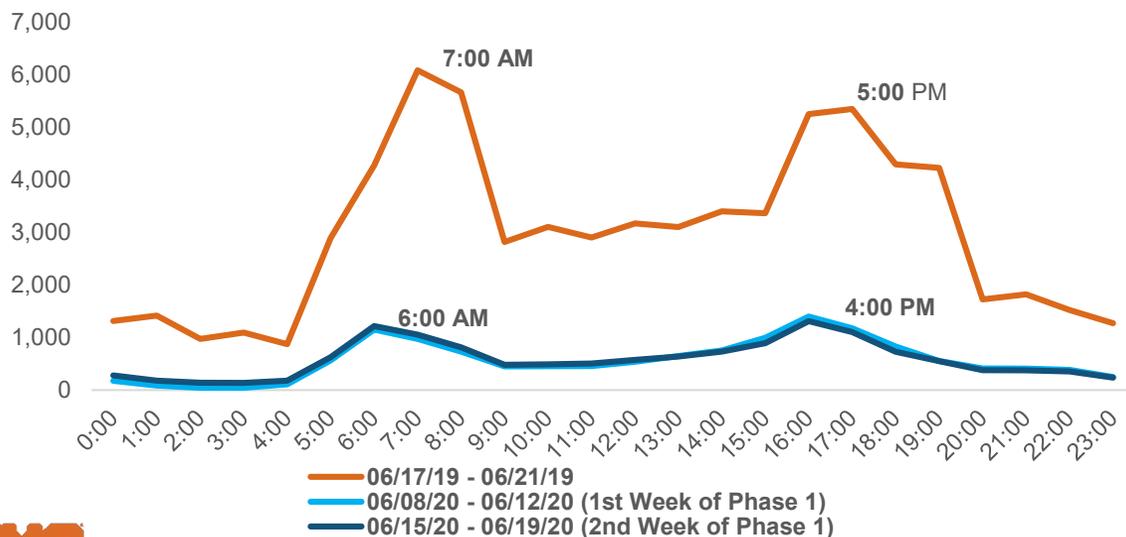
Total Weekly Ridership



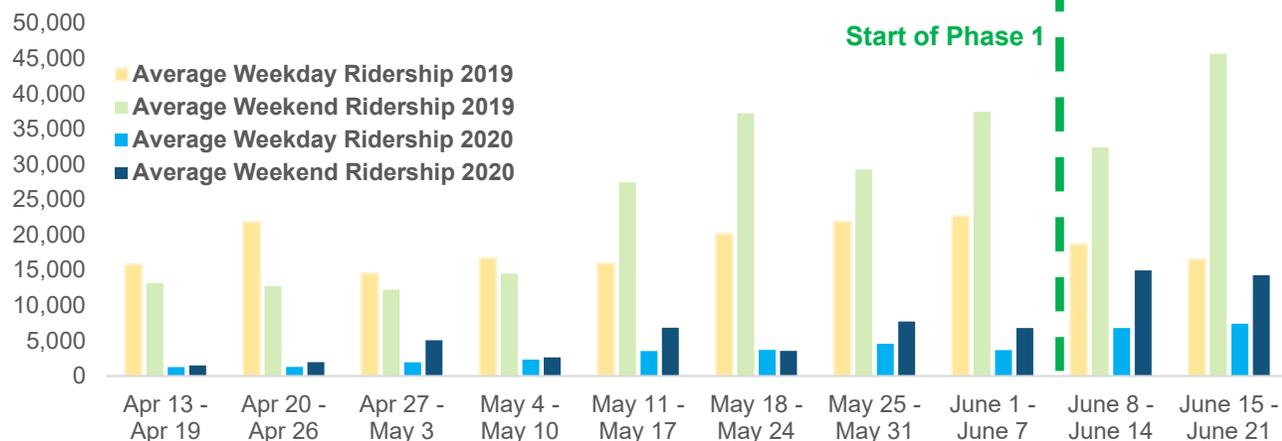
Second Week of Phase 1 Reopening

- The second week of Phase 1 saw over 96,000 Staten Island Ferry riders, the most since the beginning of the PAUSE. This represents an 8 percent increase, or over 7,000 additional riders, from the previous week.
- SIF peak hour total ridership remained at 6:00 am for the morning and remained at 4:00 pm in the afternoon, compared to first week of the Phase 1 reopening.
- NYC Ferry saw a 3 percent increase in weekly ridership compared to the previous week. NYC Ferry average weekday ridership increased, and, while average weekend ridership decreased slightly, it remains notably higher than weekday.
- Compared to the same time last year, the first two weeks of Phase 1 shows NYC Ferry ridership regaining about 40% of its average weekend and weekday ridership, respectively.

SIF Average Weekday Total Ridership Per Hour



NYC Ferry Weekly Ridership Weekday vs. Weekend Averages

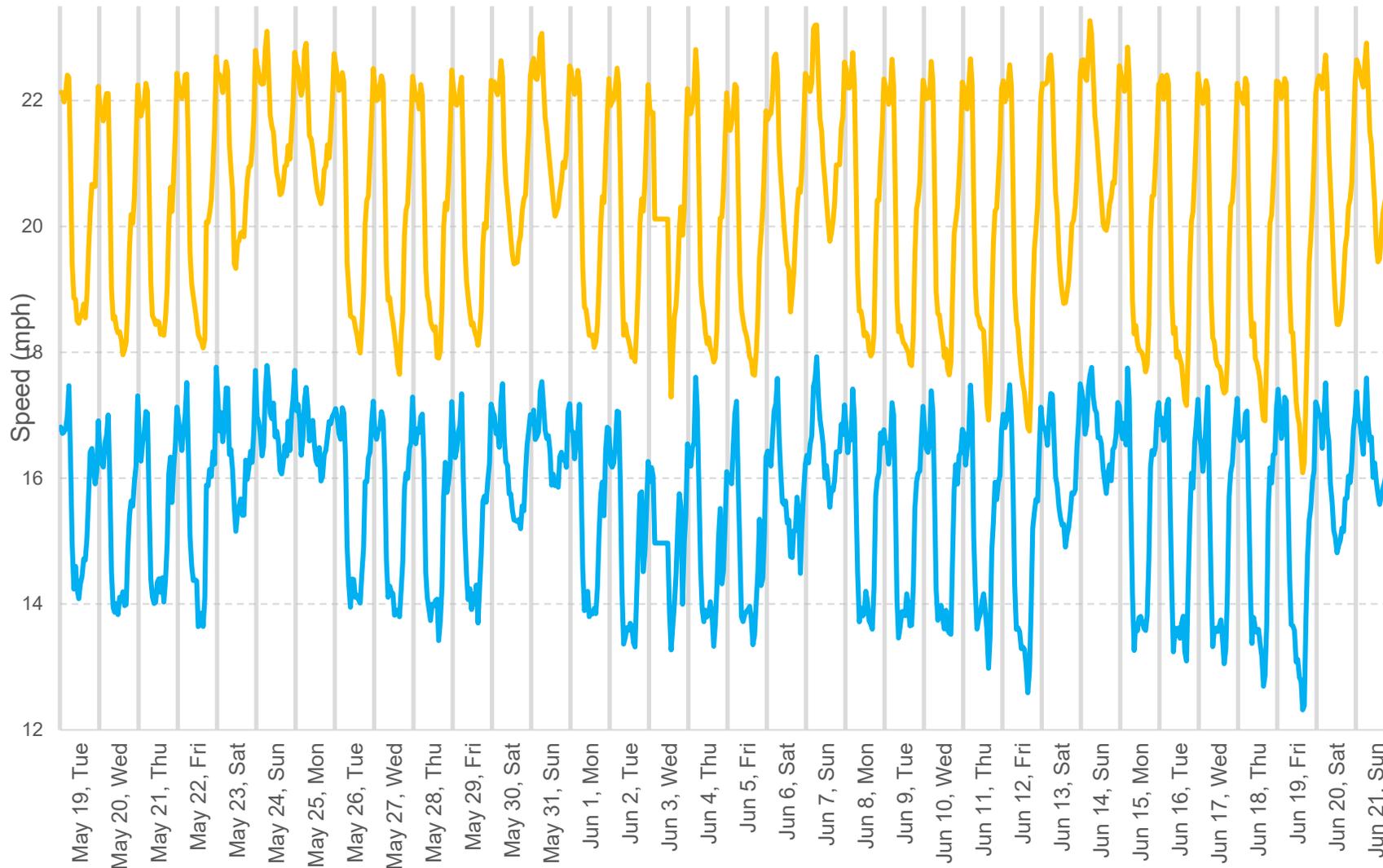


Traffic

NYC Traffic Speeds

Real-time Traffic Flow Speed by Hour in NYC and MN CBD (May 19 -Jun 21)

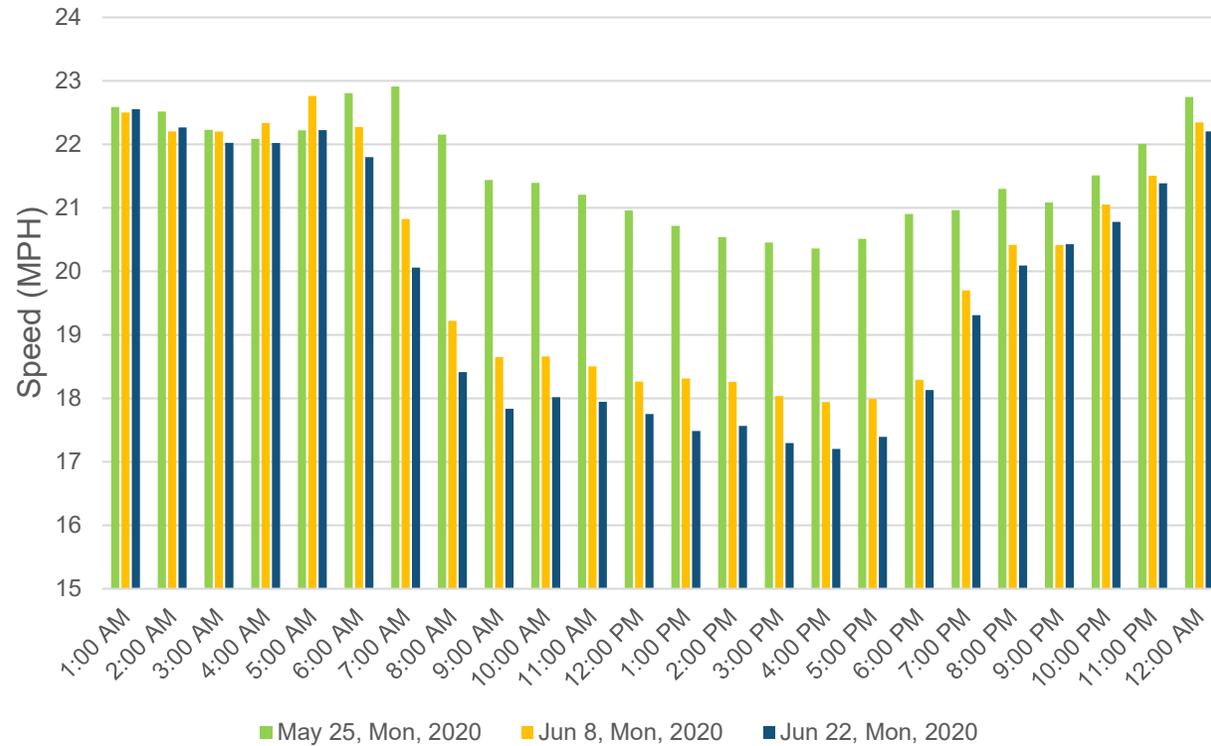
— Avg Real-time Speed (NYC) — Avg Real-time Speed (MN CBD)



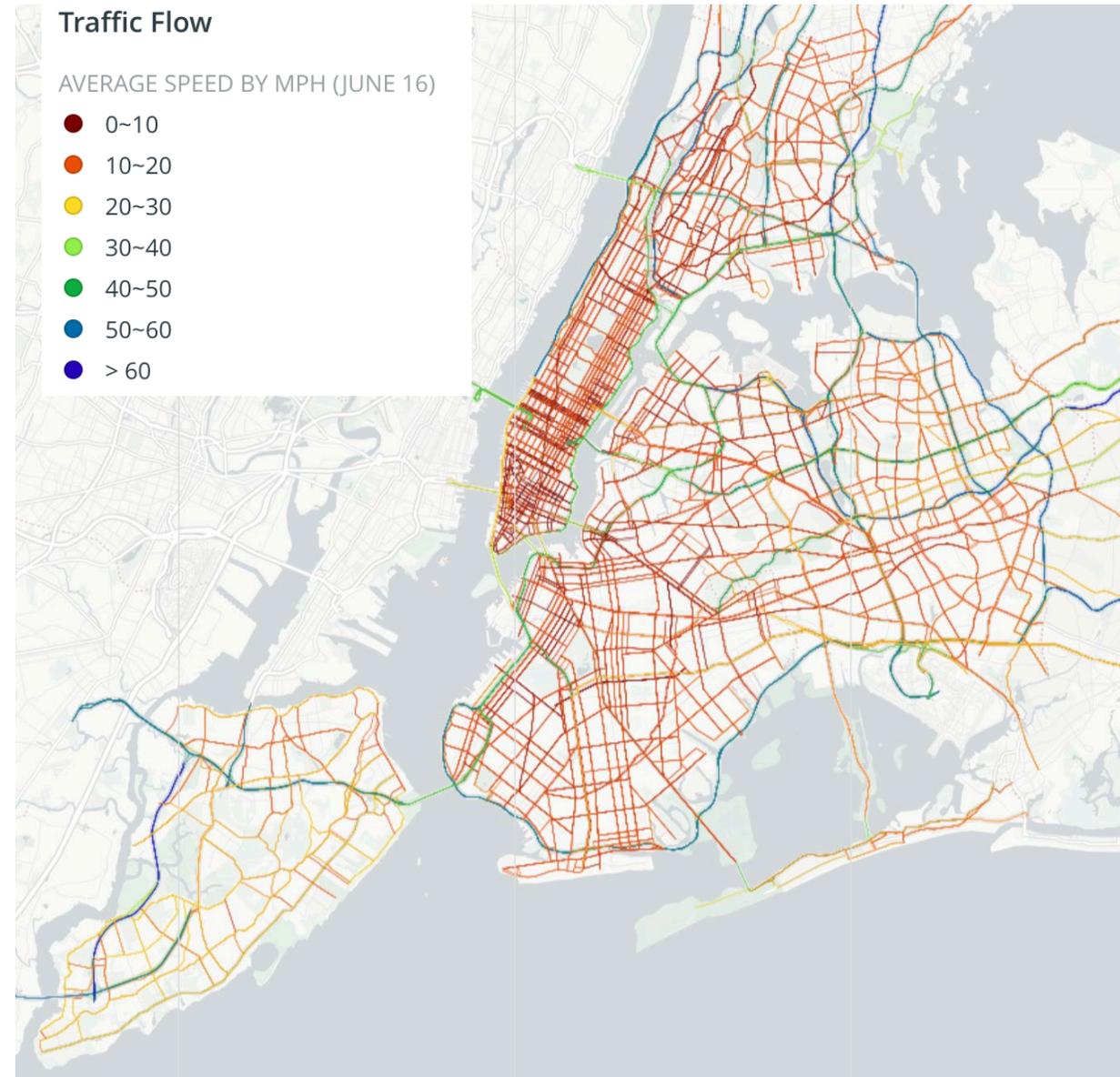
- Average traffic speeds across NYC and within the Manhattan CBD (defined as the area below 60th Street) continue to decline.
- During both weeks of Phase 1, average traffic speeds slowed as the week progressed.

NYC Traffic Speeds

Real-time Traffic Flow Speed by Hour in NYC (May 25 vs Jun 8 vs Jun 22, 2020)

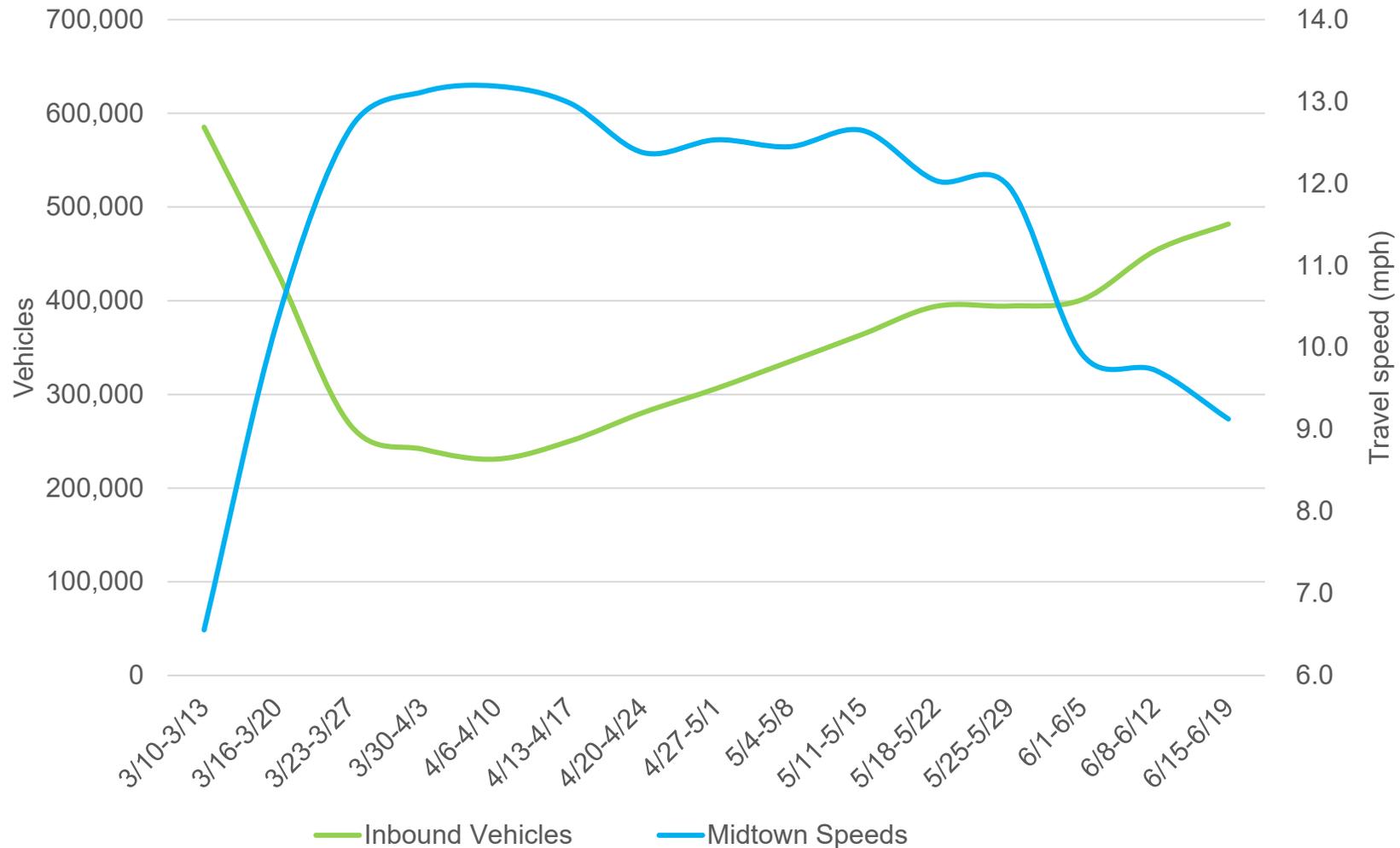


- Average traffic flow speeds were lower most hours of the day on Monday, June 22 - the first day of Phase 2 - than they were on the first day of Phase 1, or earlier in May.
- The afternoon peak hours saw the greatest decline in speeds.
- The city's major highways continue to see high average speeds.



Manhattan Inbound Traffic

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



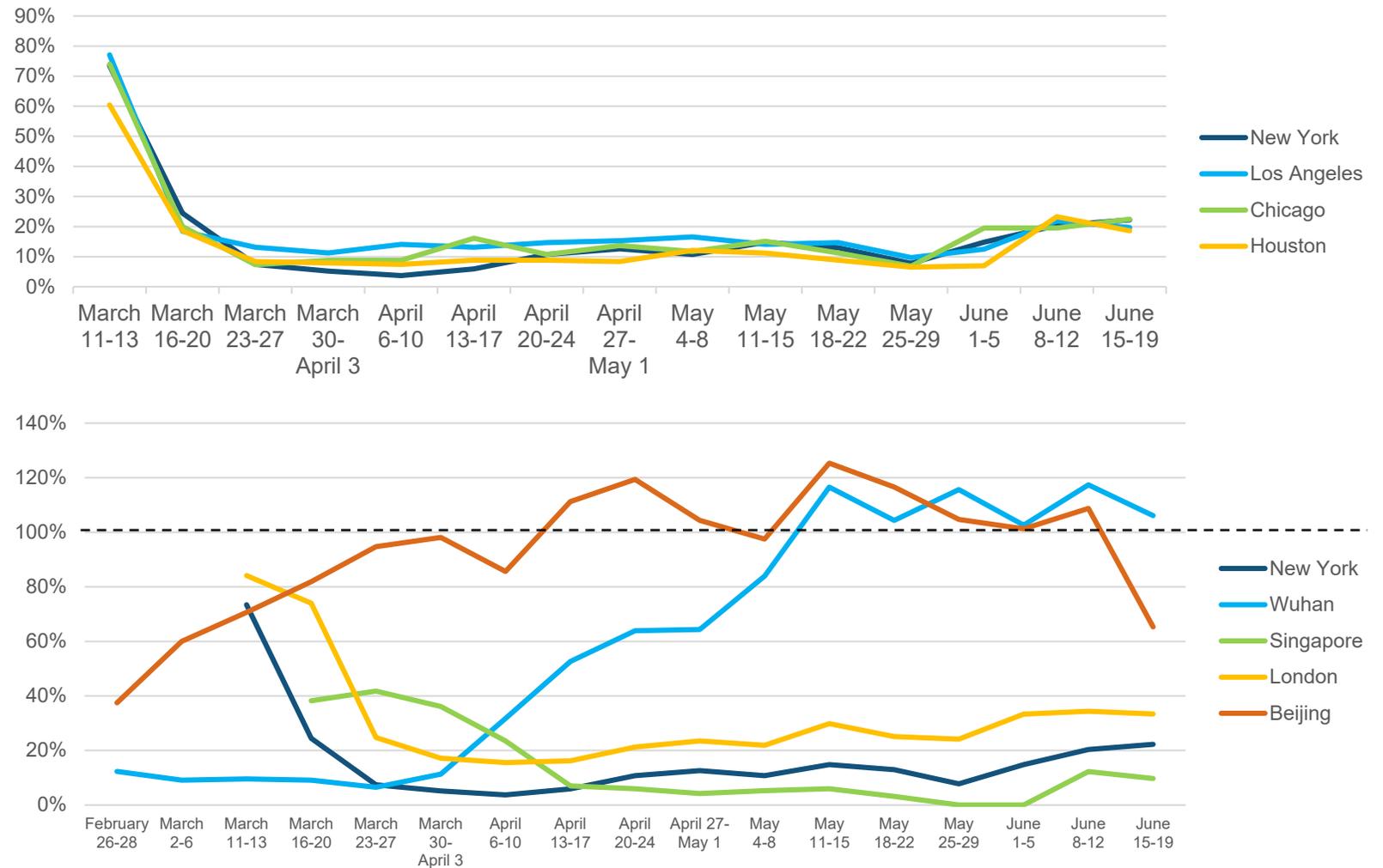
- During the week of June 8, traffic volumes on East and Hudson River crossings passed 75% of pre-COVID-19 levels during first week of Phase 1.
- Daytime (7am-7pm) volumes on DOT East and Harlem River bridges were higher during the first week of Phase one than during the same period last year.

Source: NYCDOT, NYCTLTC, 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 have seen 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.

Pandemic Average Weekly Traffic Congestion vs. 2019 Yearly Average*



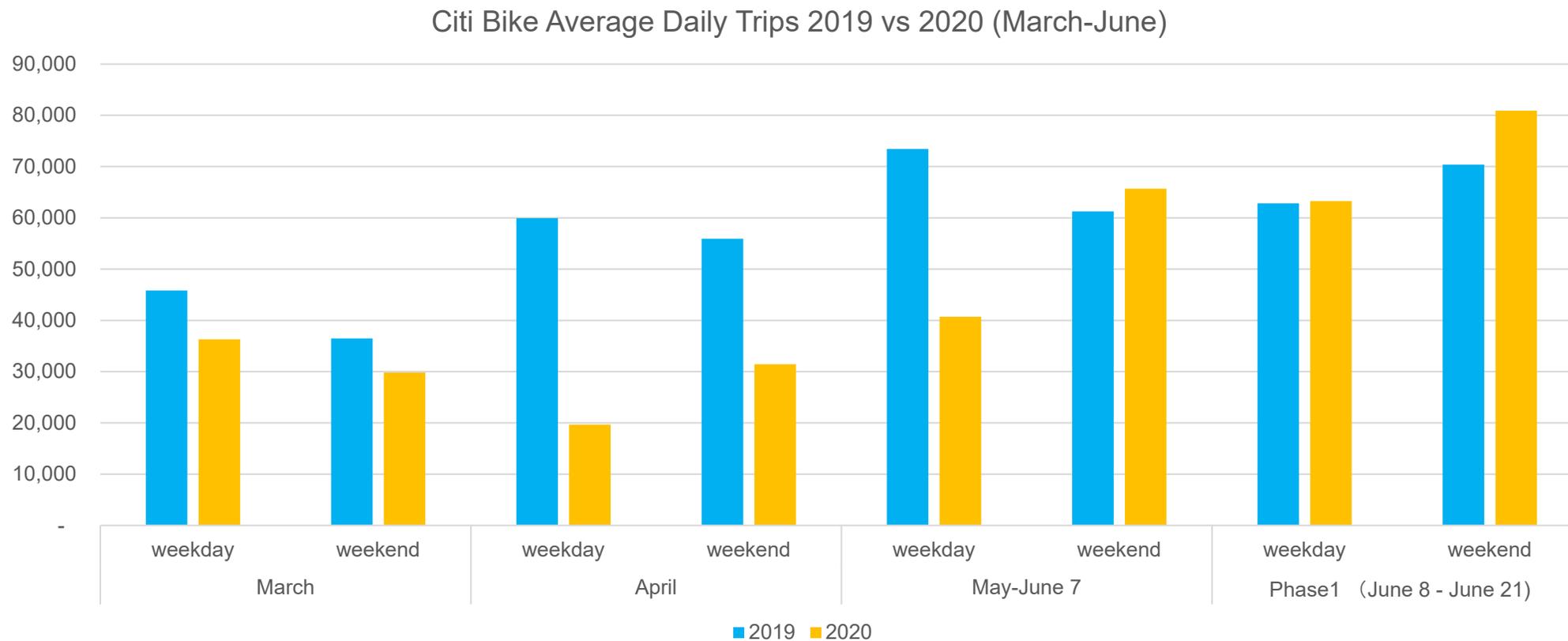
*Week of June 1-5 contains one data point for several cities; week of June 8-12 contains fewer than five data points for several cities

Data source: TomTom Traffic Index (https://www.tomtom.com/en_gb/traffic-index/)

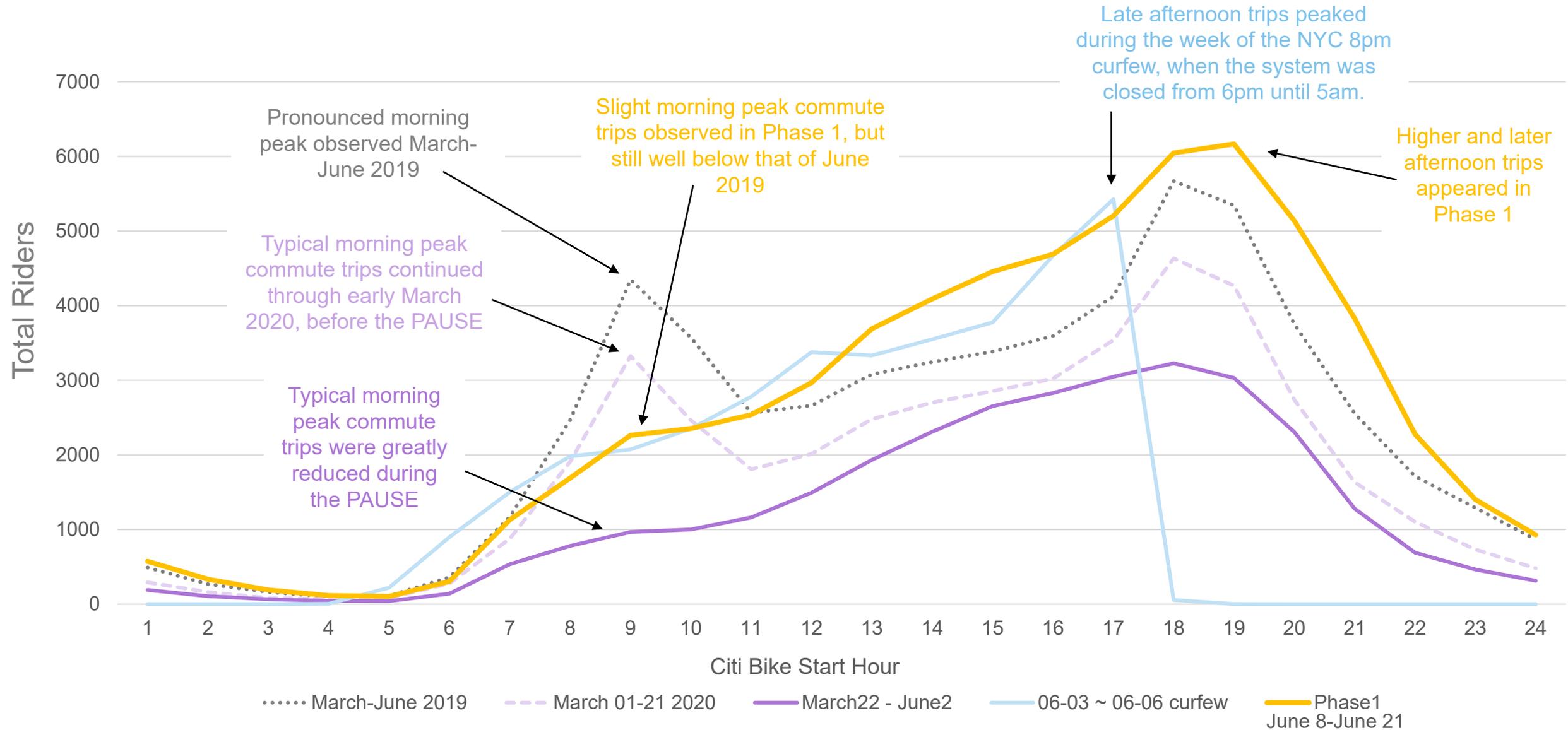
Citi Bike

Citi Bike Ridership Trends

- Citi Bike ridership during the first 2 weeks of Phase 1 has been close to or exceeding ridership over the same period in 2019. Much of this may be attributed to program expansion and nice weather.
- As of June 22, the critical worker program has nearly 16,000 unique members who have taken more than 250,000 trips.



Citi Bike Ridership by Time of Day

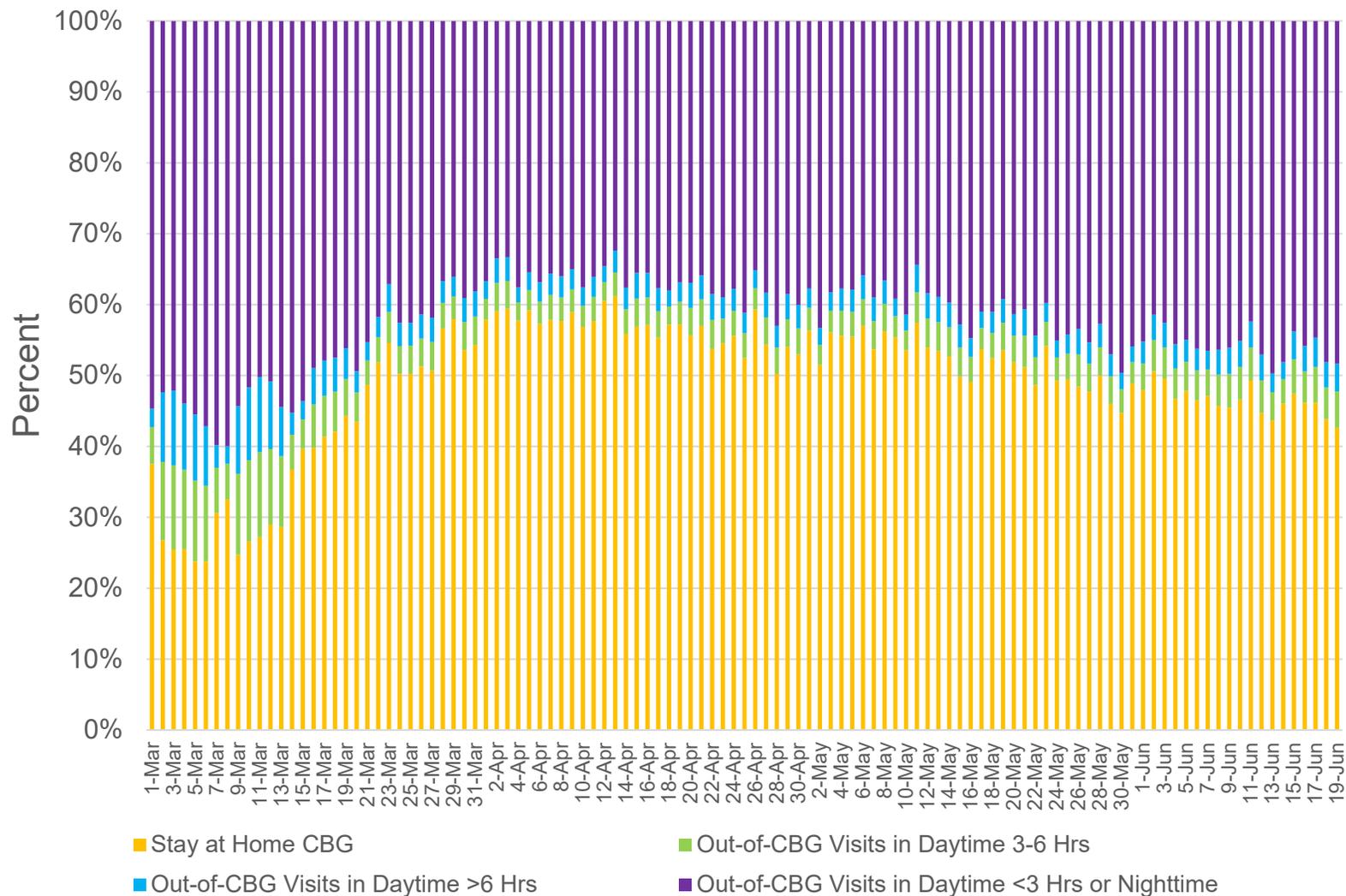


SafeGraph Mobility

Measures of Mobility – Cell Phone Locations



Percent of Devices Out-of-Census-Block-Group (CBG) Visits & Staying at Home in NYC
(March 1- June 19, 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.
- Data on devices in NYC show the decline in device mobility immediately before and during the PAUSE, as shown in orange.
- The percentage of devices remaining in their “home” census block group has been trending slightly down since mid-May 2020.

Data sources: SafeGraph, <https://www.safegraph.com/>

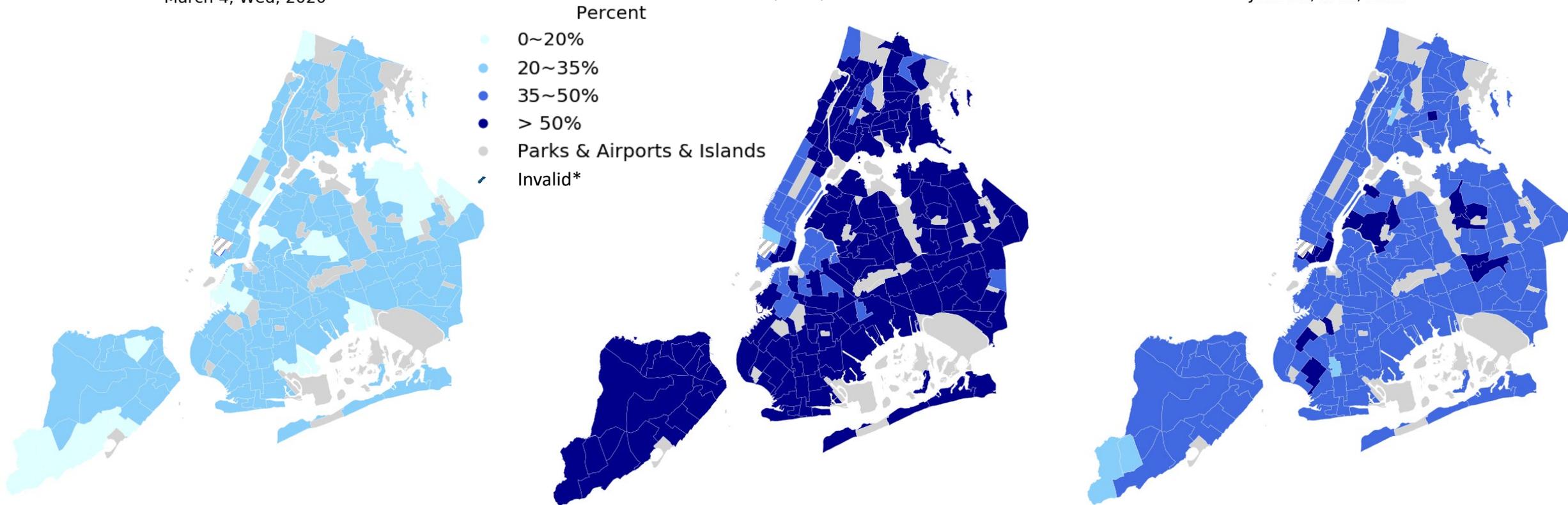
SafeGraph collects a semi-random sampling of data throughout the day. “Stay at Home CBG” indicates the devices did not leave the Geohash-7 in which their home is located during the time period that SafeGraph attempted to ping them. The same analysis is applied to each category

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

March 4, Wed, 2020

April 15, Wed, 2020

June 17, 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-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.

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

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.ny.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-live-updates/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.nyc/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-reopens-trading-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-live-updates.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-ahead-of-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.nyc.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-york/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-yorkers-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.ny1.com/nyc/all-boroughs/news/2020/06/21/what-exactly-does-phase-two-reopening-mean-for-new-york-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 states 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>