

# **COVID19 IMPACTS ON TRANSPORTATION**

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

June 16, 2020



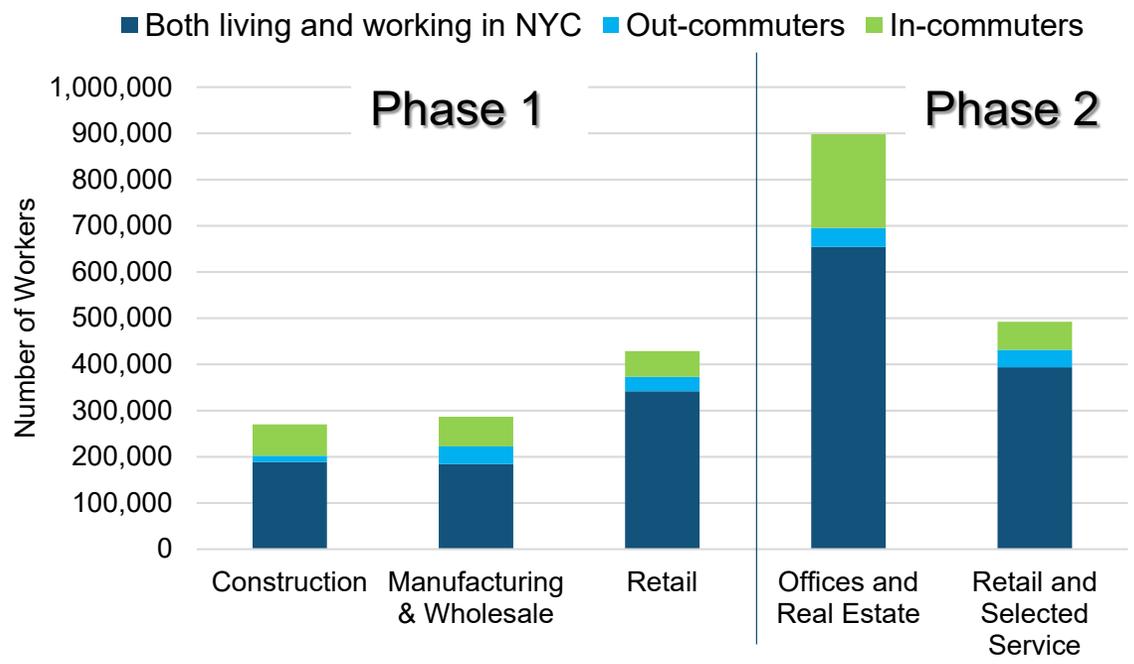
- The NYC Department of City Planning's Transportation Division is compiling data to help understand the effects of COVID19 on the transportation network. This is our twelfth weekly report.
- This week's report includes the following information:
  1. Executive Summary
  2. Citywide Trends and Phase 1 Reopening
  3. Subway
  4. Ferries
  5. Traffic
  6. 311
  7. Citi Bike
  8. SafeGraph Mobility
  9. 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](mailto: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).
- **All modes tracked in this report had substantial increases during the first week of Phase 1 when compared against the previous week.** Good weather, particularly on the weekend, likely contributed to such dramatic increases on NYC Ferry and Citi Bike.
- **Despite gains in mobility across all analyzed modes in the past week, transportation systems are still far below pre-COVID conditions except Citi Bike,** which surpassed the pre-COVID19 ridership by approximately 44% last week.
- **Ridership on subways and buses did not follow a linear increase during the first full week of Phase 1,** but most subway stations in the system saw increases in ridership during the AM peak.
- The first week of Phase 1 saw over 88,000 Staten Island Ferry riders, a 23 percent increase from the previous week. PM peak hour trips shifted to 4:00pm from 5:00pm.
- Average traffic speeds across NYC and within the Manhattan CBD (defined as the area below 60<sup>th</sup> Street) did not change dramatically with the start of Phase 1 on June 8, but **daytime speeds appeared to decline as the week progressed.**
- **A new 311 Complaint Type was created on June 5: “Non-Compliance With Phased Reopening”.** Complaints of this type increased as the week of June 8 progressed, but there were fewer complaints about social distancing than in many previous weeks.
- **Citi Bike ridership was higher during the first week of Phase 1 than previous weeks.** Morning peak hour trips remain low.

# Phase 1 Reopening and Citywide Trends

# 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).
- 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.



## 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

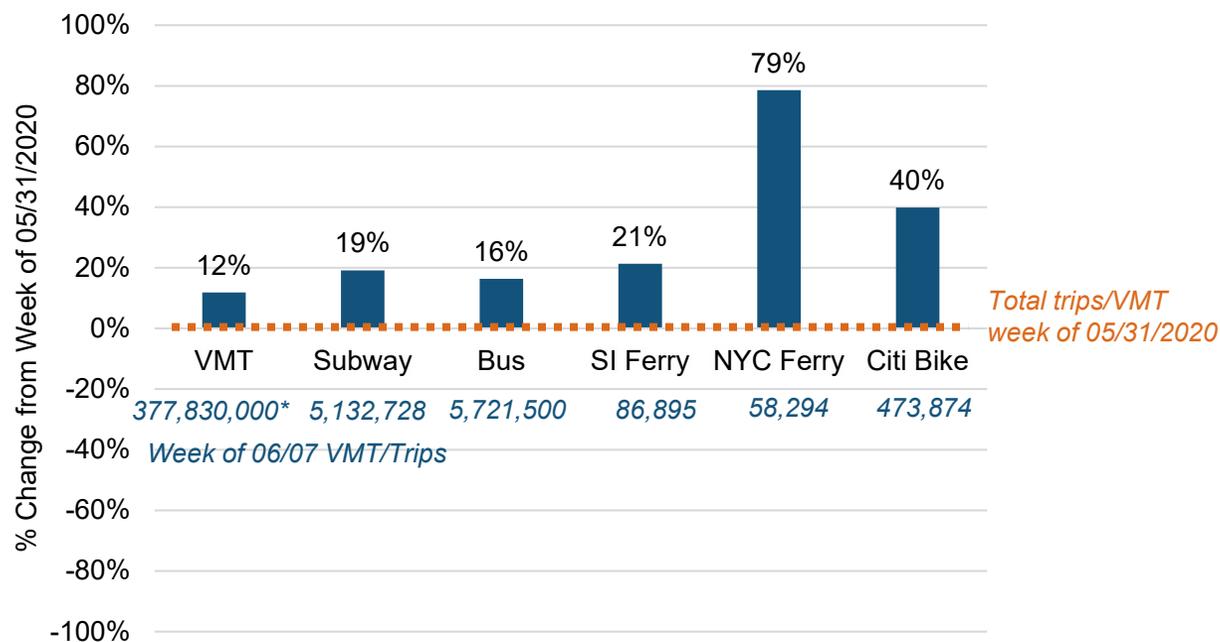
- Offices
- Real Estate
- Commercial Building Management
- Retail (in-store)
- Vehicle Sales, Leases, and Rentals
- Retail Rental, Repair, and Cleaning
- Hair Salons and Barbershops

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

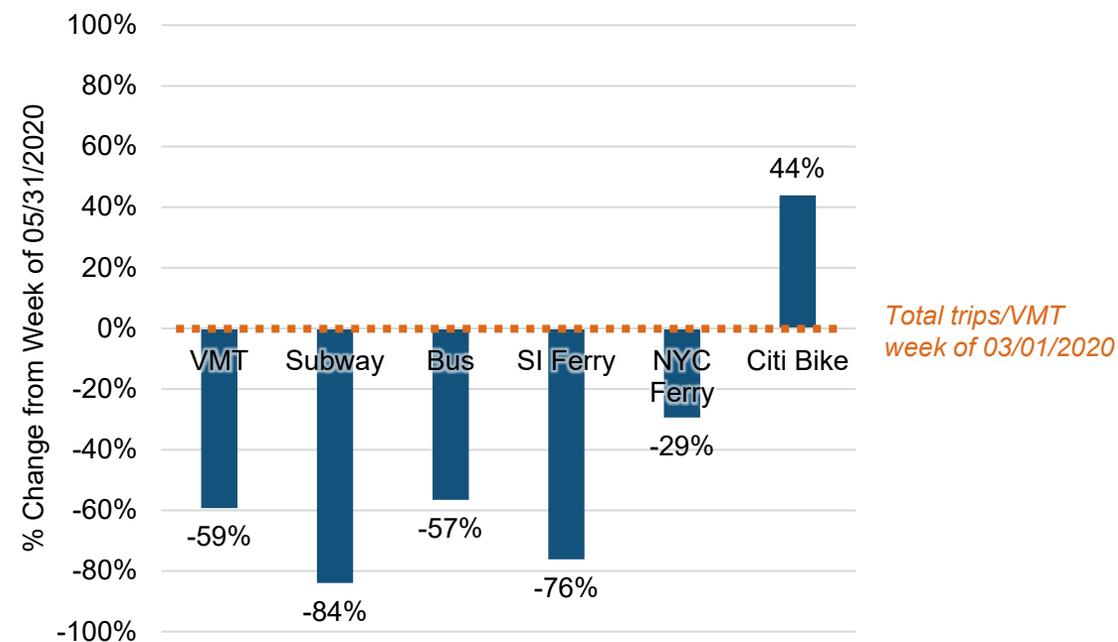
# Citywide Trends

- All modes tracked here had substantial increases during the first week of Phase 1 when compared against the previous week. Good weather, particularly on the weekend, likely contributed to such dramatic increases on NYC Ferry and Citi Bike.
- Despite gains in mobility across all analyzed modes in the past week, transportation systems are still far below pre-COVID conditions except Citi Bike, which surpassed the pre-COVID19 ridership by approximately 44% last week.

### Week of 06/07/2020 Compared to Previous Week



### Week of 06/07/2020 Compared to Week of 03/01/2020

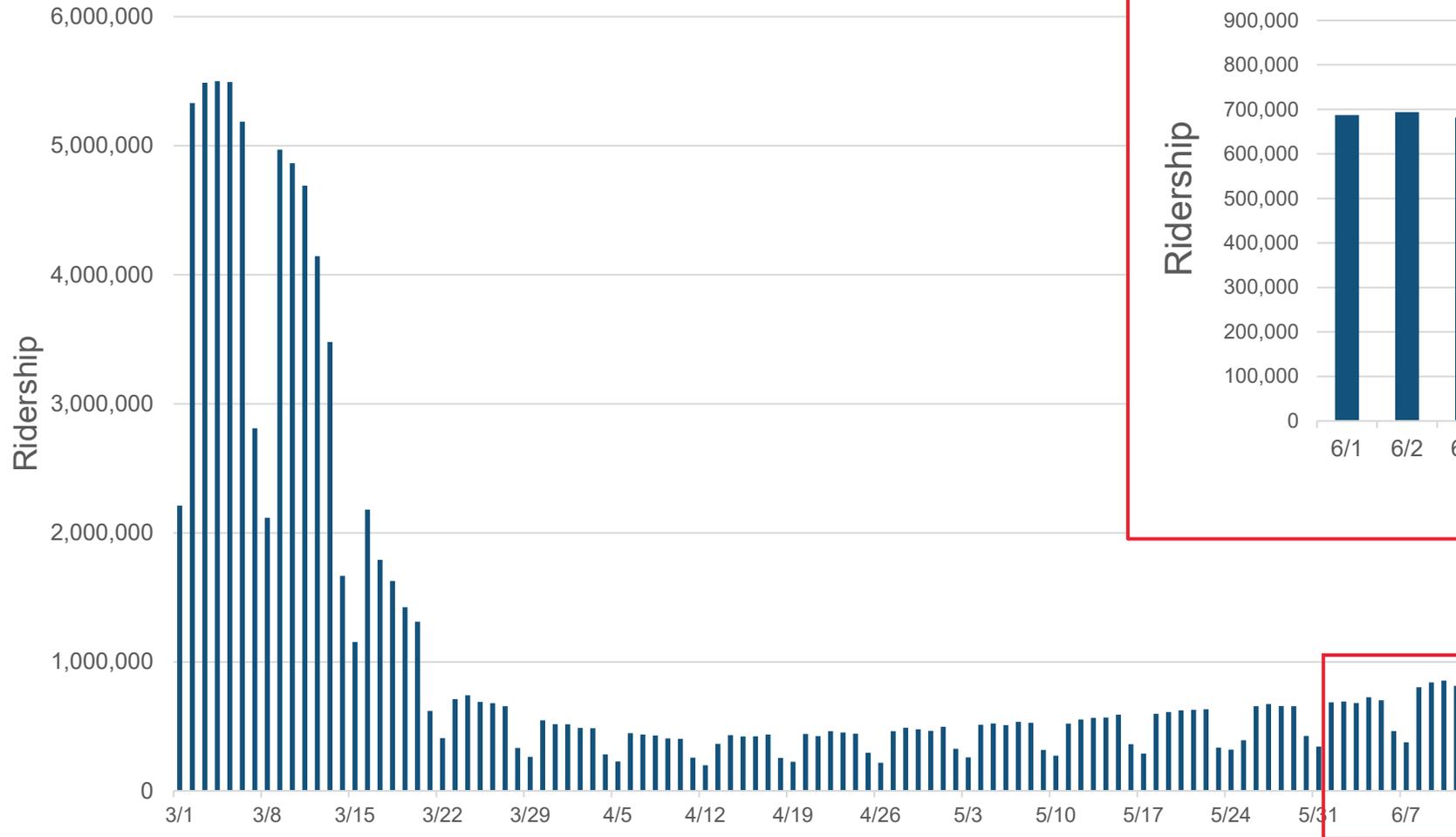


\*Note: VMT for the most recent week is a sum from 06/06/2020 (Sat) to 06/12/2020 (Fri), not the same Sun-to-Sat week period for the other modes, as the VMT on 06/13/2020 is not yet available.  
Data sources: StreetLight (VMT), MTA (Subway, Bus), EDC (NYC Ferry), DOT (Citi Bike, SI Ferry)

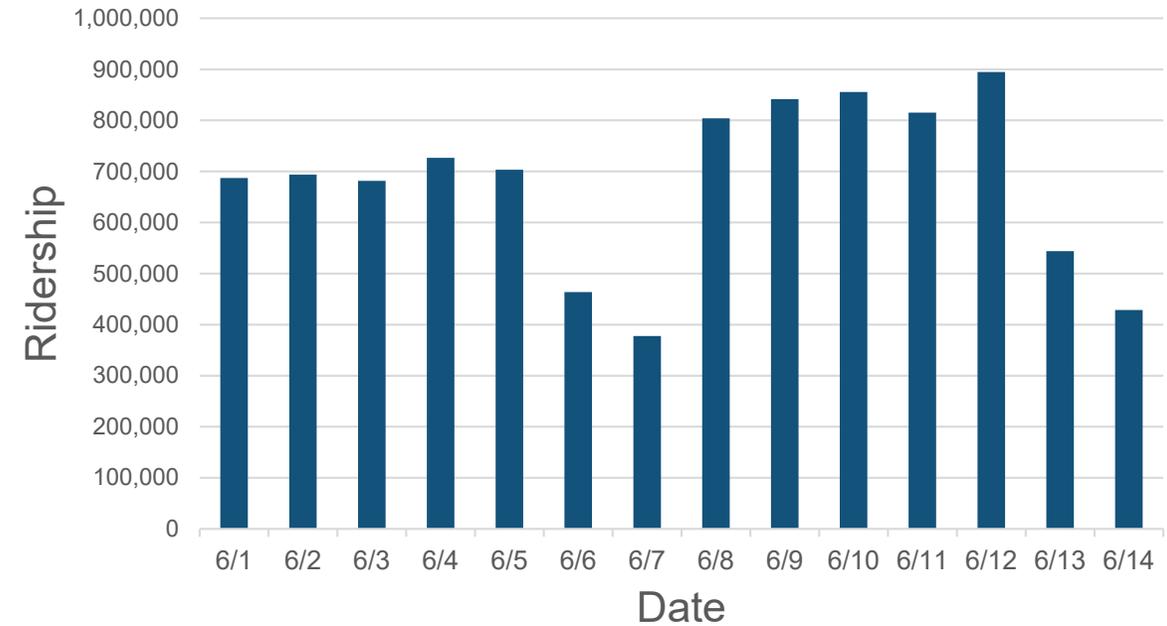
# Subway

# Subway System-wide Ridership Changes

Estimated\* MTA Subway Ridership  
(March 1- June 11, 2020)



June 1- June 14, 2020



- On Monday, June 8, there were about 100,000 more riders than the previous Monday.
- Ridership continued to increase on Tuesday and Wednesday, fell Thursday, and then rose again Friday, with nearly 200,000 more riders than the previous Friday.
- The pattern demonstrates that the return to work under Phase 1 is not likely to be highly linear or predictable.

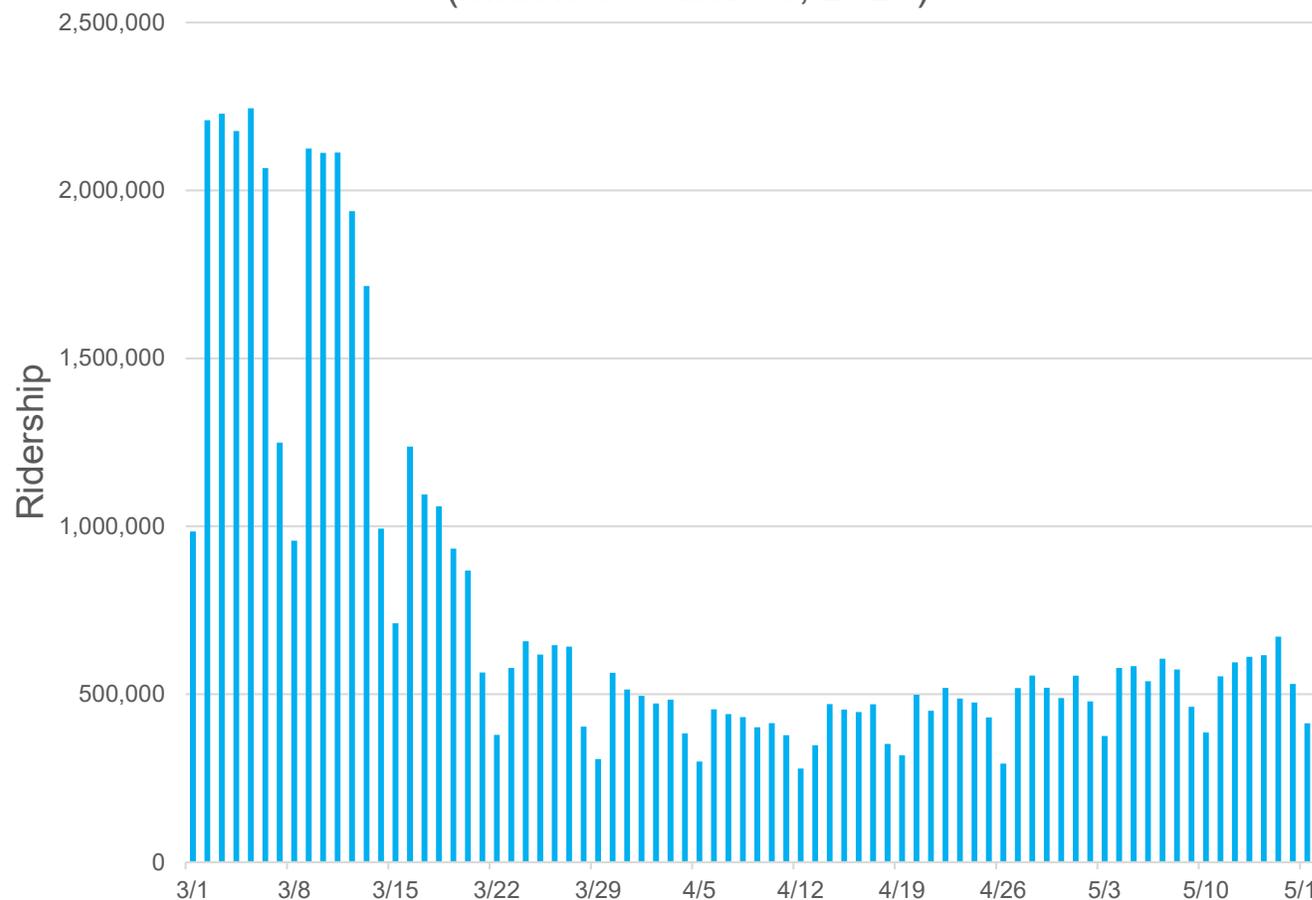
\*From the MTA: Subway ridership figures are determined from MetroCard and OMNY swipes and taps. Figures from recent days may be revised as data reconciliation processes are carried out. Data sources: MTA

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

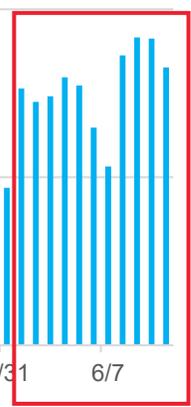
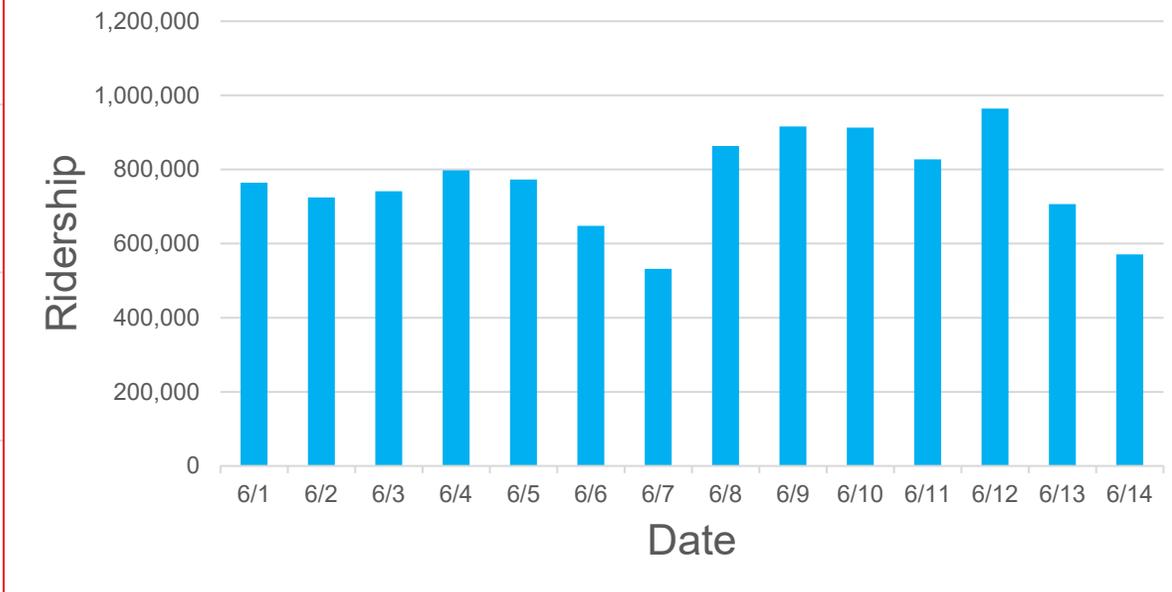


# MTA Bus System-wide Ridership Changes

### Estimated\* MTA Bus Ridership from 2019 Average (March 1- June 11, 2020)



### June 1- June 14, 2020

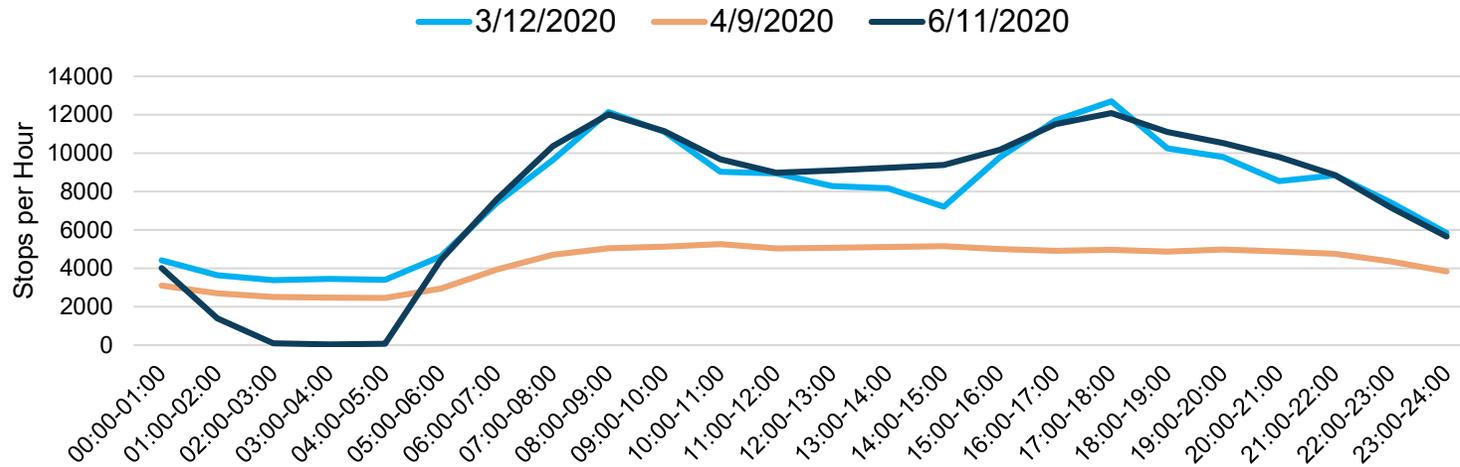


- Bus ridership during the week of June 8 followed a similar pattern to subway ridership, with increasing ridership Monday, Tuesday, and Wednesday, a drop on Thursday, and an increase again on Friday.
- Ridership on Thursday, June 11 was very close to what it was the previous Thursday.
- Nearly 200,000 more people rode on Friday, June 12 than on the previous Friday.

\*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>)

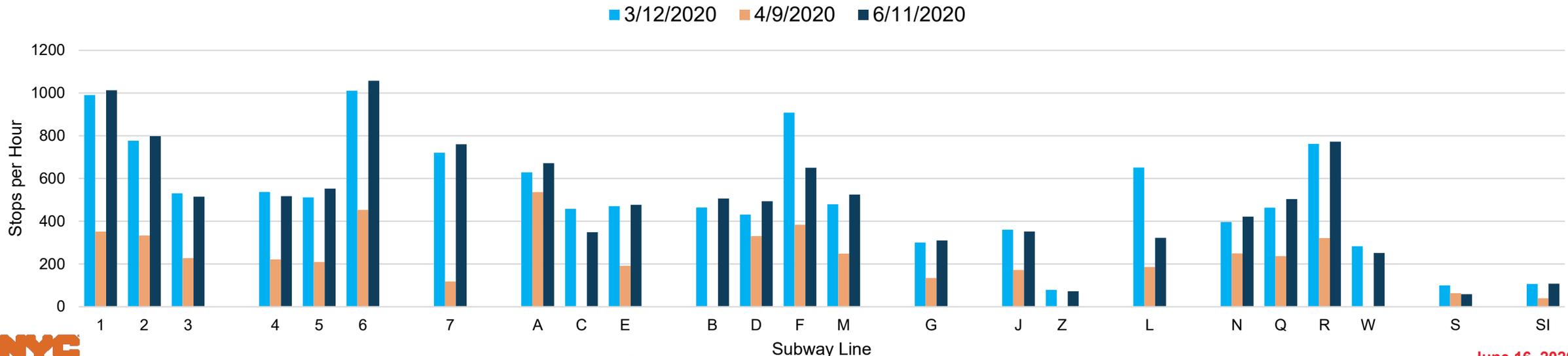
# Subway System Service Changes

## System-wide Weekday Service by Hour



- After more than 3 months of reduced service, MTA resumed normal weekday subway service on most lines on June 8. The subway continues to shut down between 1am until 5am each morning.
- Stops per hour signifies the aggregated number of stops made by every train running (in the system on the top chart, and broken down by line, in the bottom chart). The C, B, Z and W lines temporarily suspended service but have resumed as of June 8.

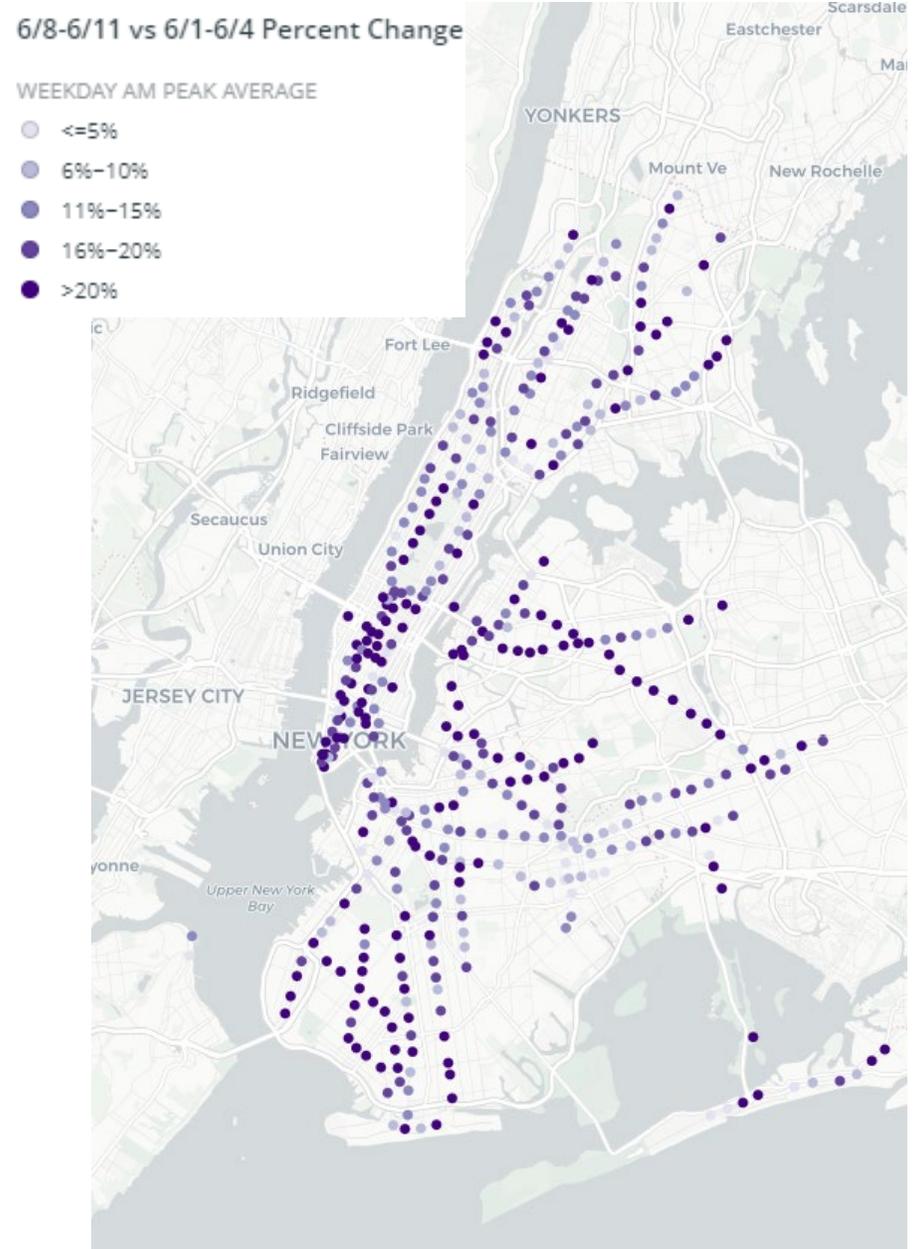
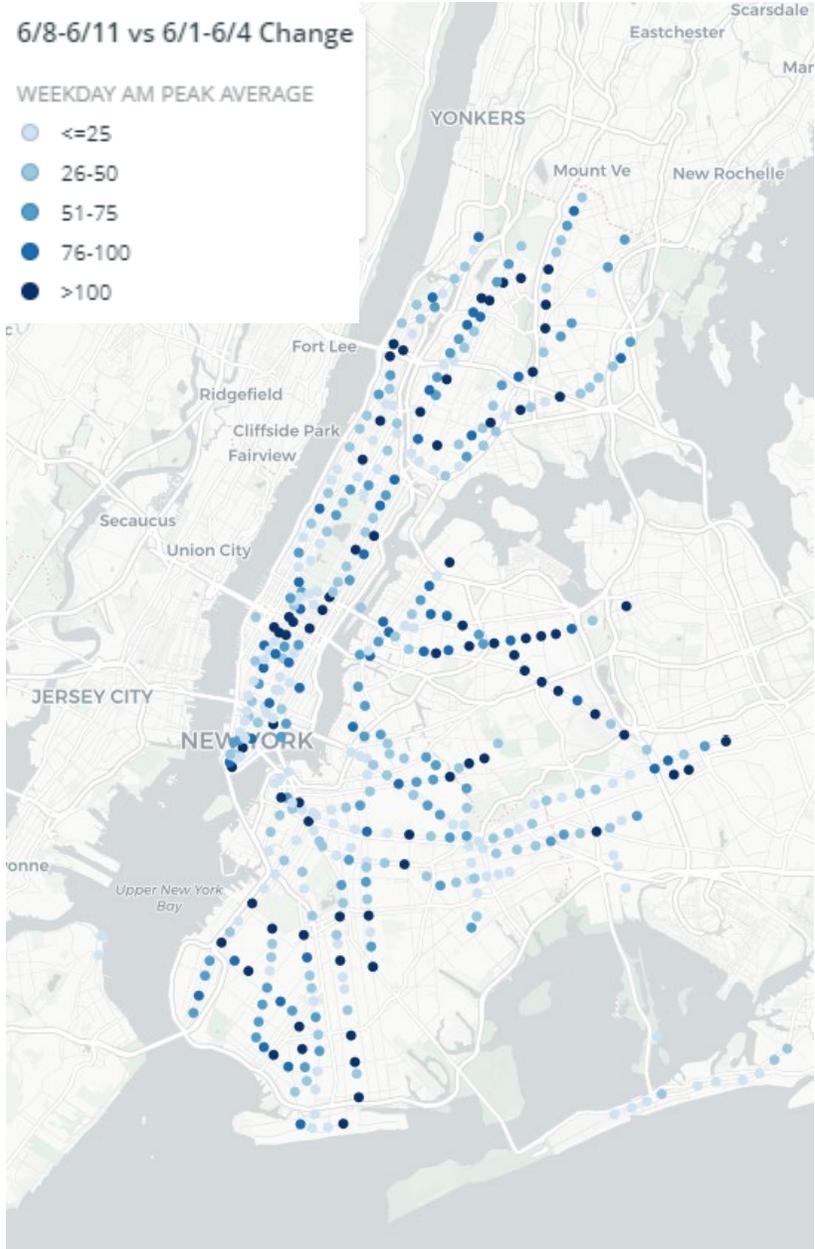
## Weekday Peak Hour Service Change



Data sources: MTA Real Time data (<https://api.mta.info/#/landing>)

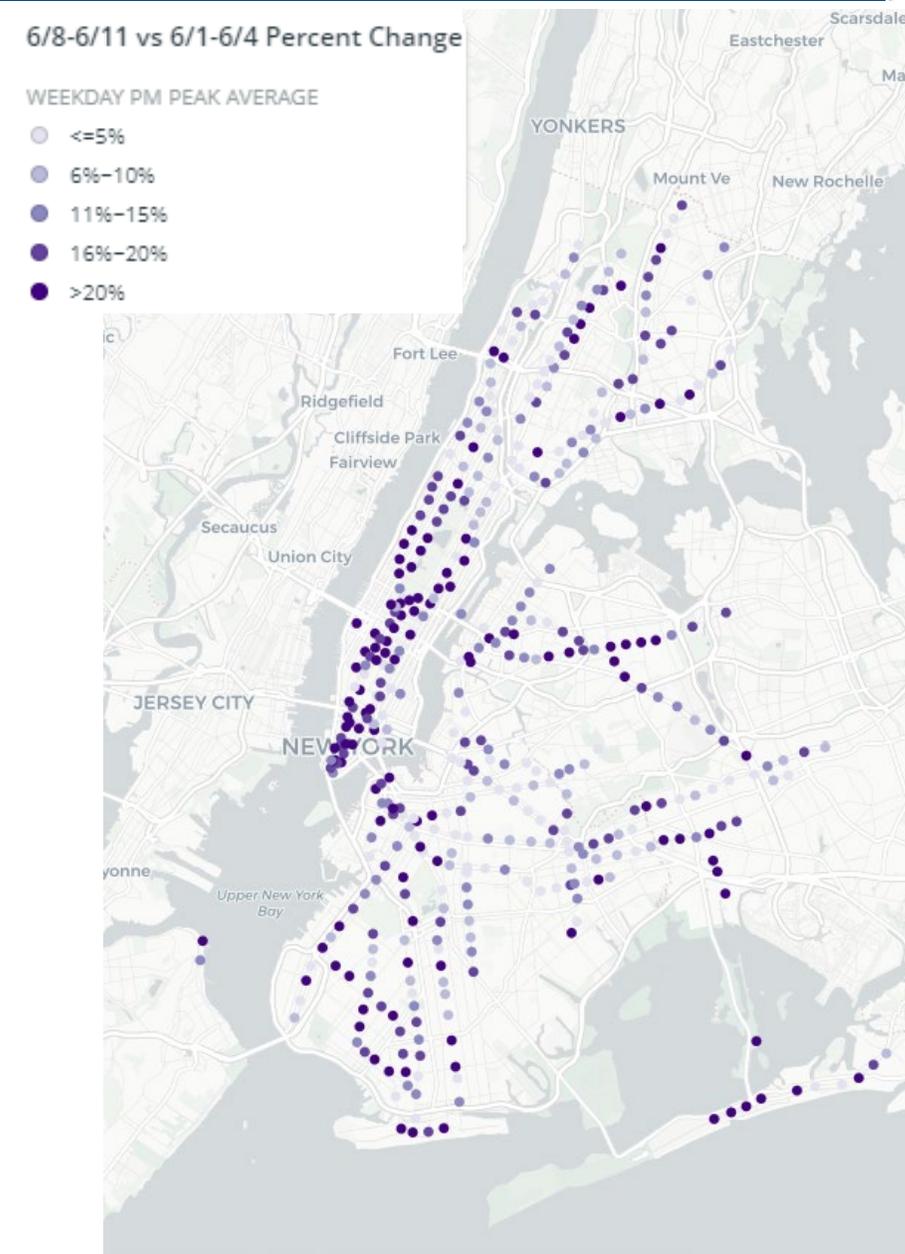
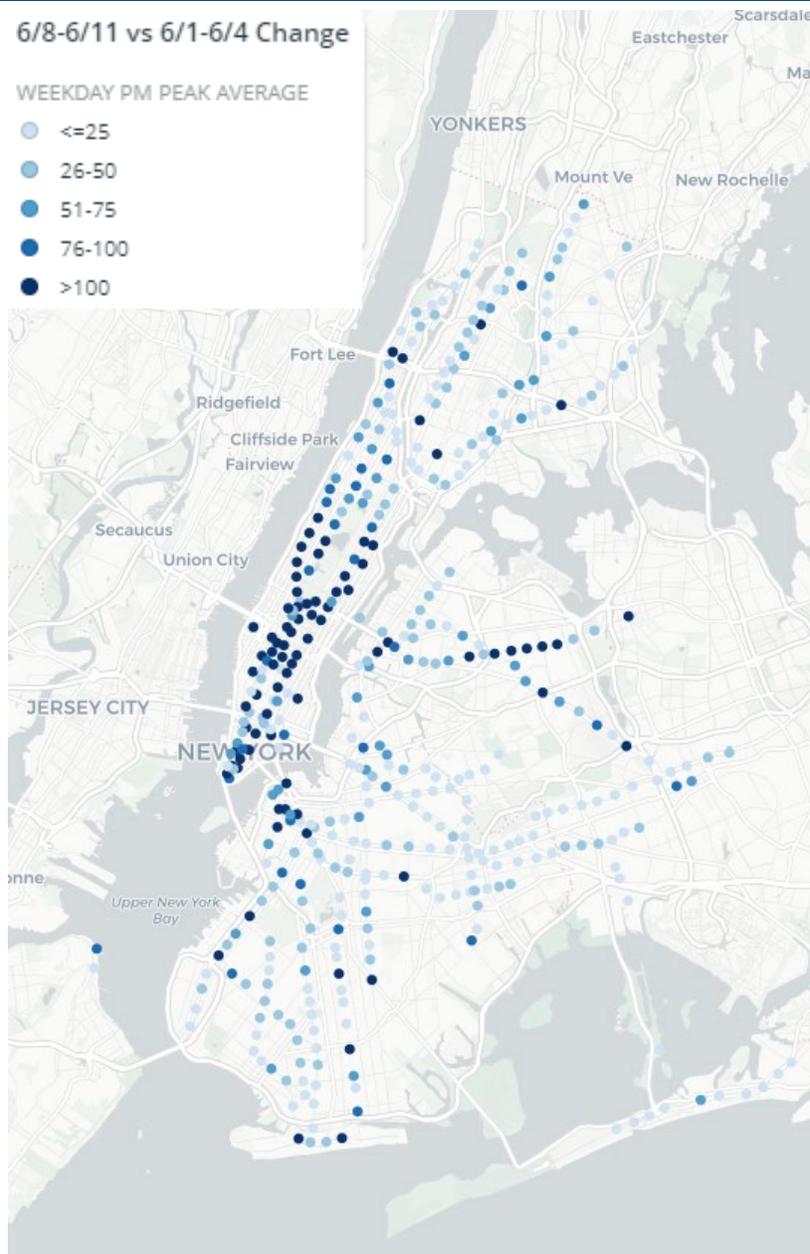
# Weekday AM Peak Turnstile Data

- The maps on the right illustrate changes in AM peak ridership the week of June 8 from the previous week, as measured by turnstile counts.
- Most stations in the system saw increases in ridership during the AM peak during the first week of Phase 1, both in terms of raw totals (on left) and percent increases (on right).
- Neighborhoods with the lowest increases in AM peak riders include northern Manhattan, Park Slope, East New York, and Bed-Stuy, Brooklyn, and several local stations in the Bronx.
- Much of Queens saw increases of more than 20 percent.



# Weekday PM Peak Turnstile Data

- The maps on the right illustrate changes in PM peak ridership the week of June 8 from the previous week, as measured by turnstile counts.
- PM peak trip maps typically highlight neighborhoods where people commute to, as they show what subway stations are used at the end of the workday.
- 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. This is not surprising given the relatively small share of the city's workforce included in Phase 1.

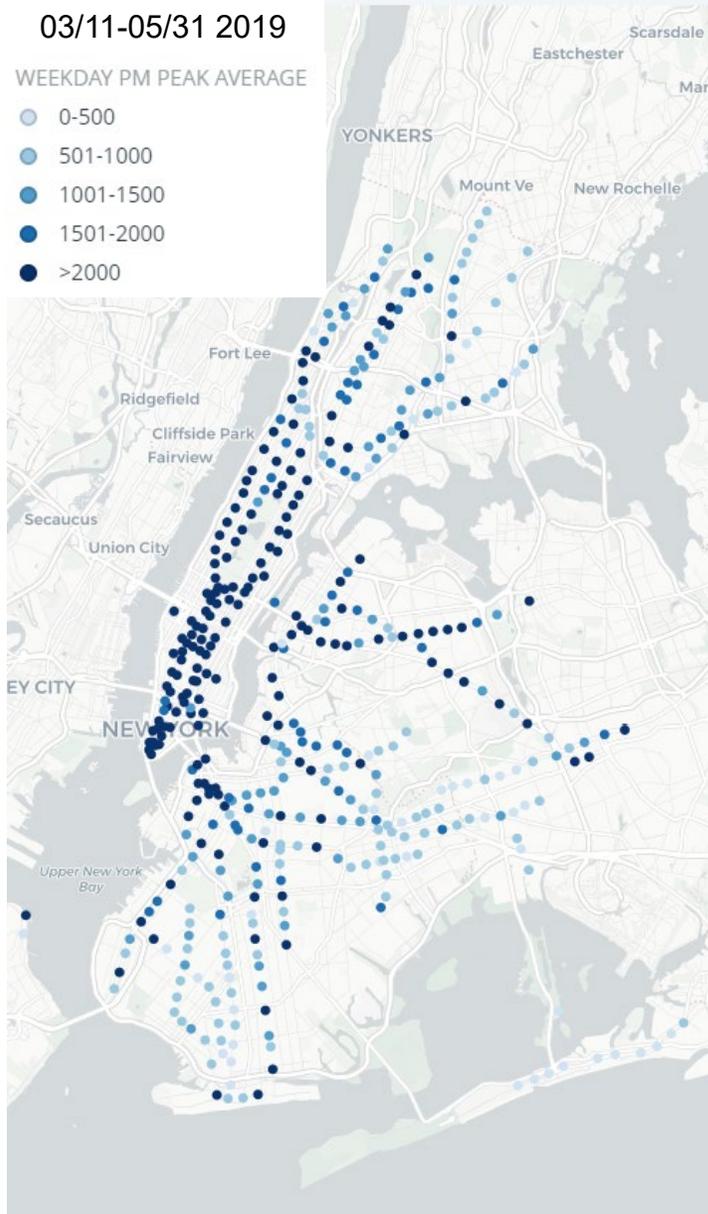


# Weekday PM Peak Turnstile Data

03/11-05/31 2019

WEEKDAY PM PEAK AVERAGE

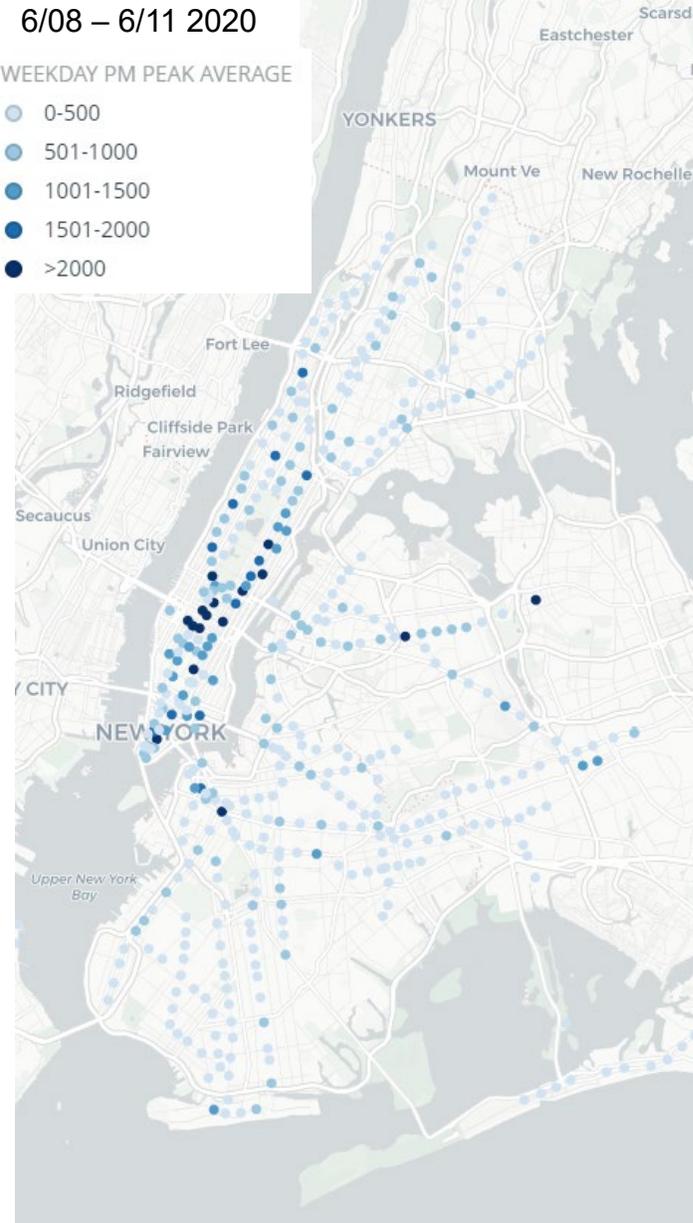
- 0-500
- 501-1000
- 1001-1500
- 1501-2000
- >2000



6/08 – 6/11 2020

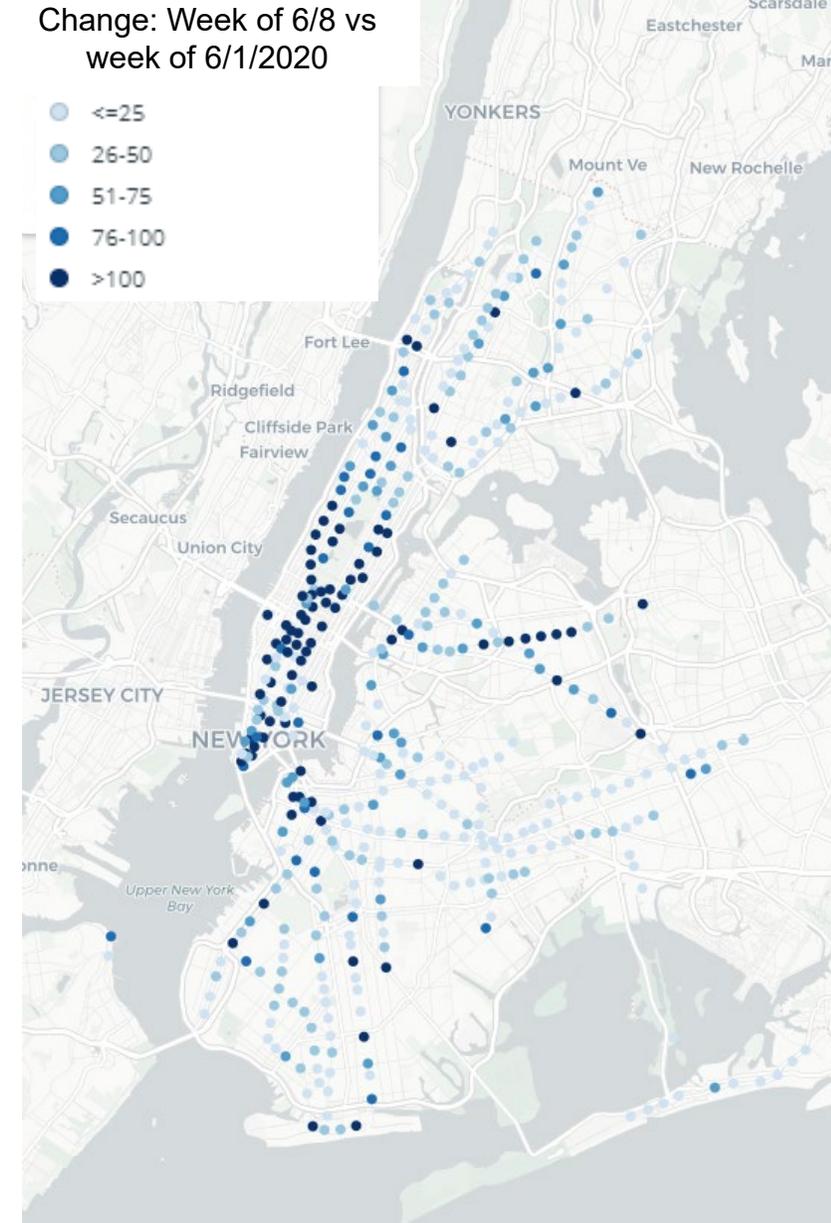
WEEKDAY PM PEAK AVERAGE

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



Change: Week of 6/8 vs week of 6/1/2020

- ≤25
- 26-50
- 51-75
- 76-100
- >100



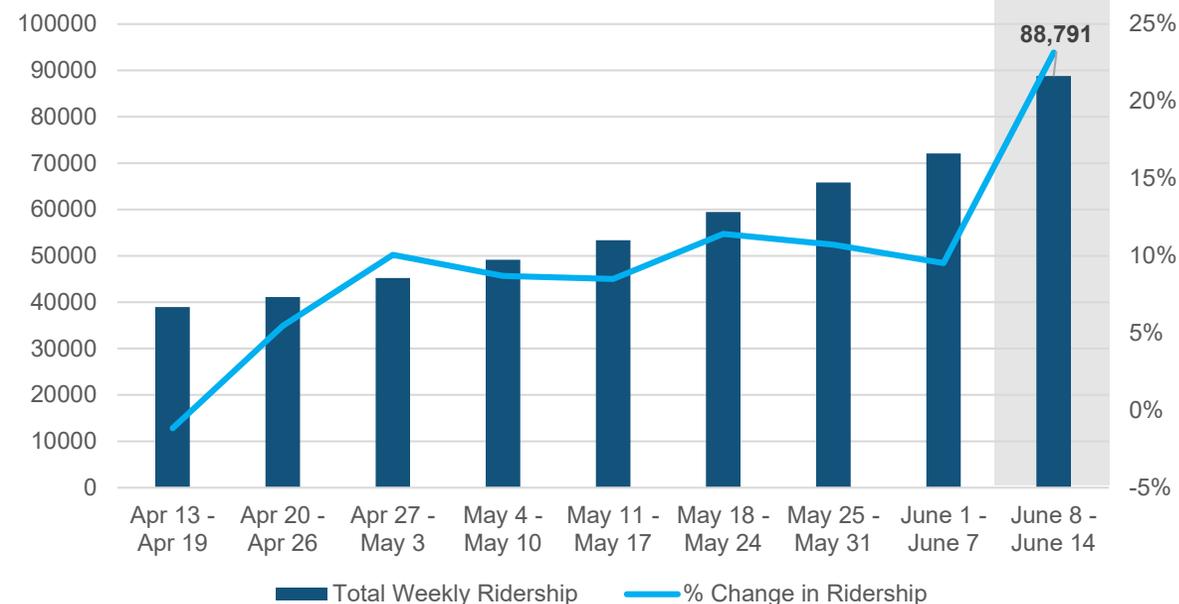
# Ferries

# The Staten Island Ferry and NYC Ferry



### SIF Total Weekly Ridership

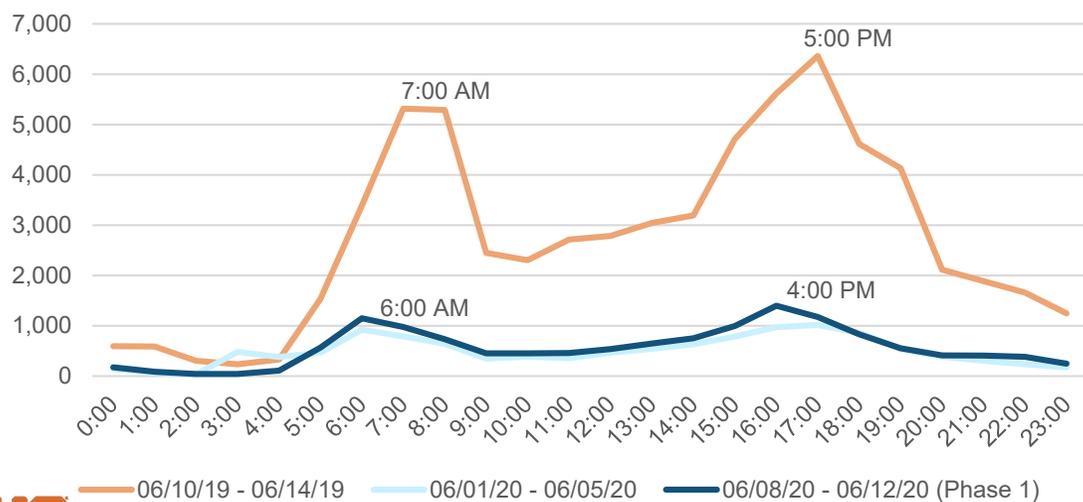
Phase 1



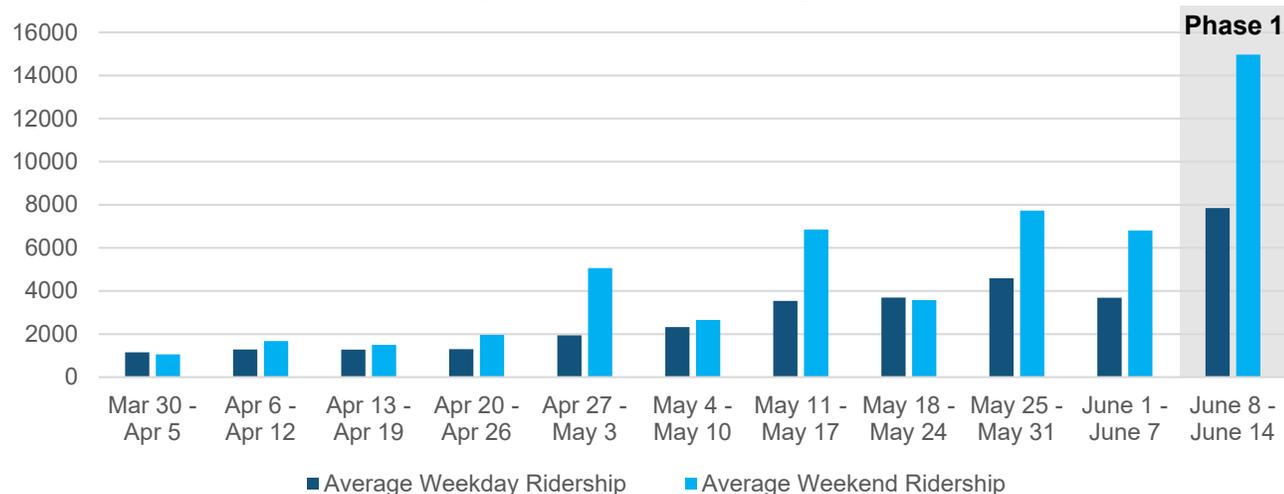
### First Week of Phase 1 Reopening

- The first week of Phase 1 saw over 88,000 Staten Island Ferry riders, the most since the beginning of the PAUSE.
- This represents a 23 percent increase from the previous week, the highest week-to-week increase since the April 20 when ridership first began to increase after the PAUSE was initiated.
- SIF peak hour total ridership remained at 6:00 am for the morning, and has shifted from 5:00 pm to 4:00 pm in the afternoon from the previous week.
- NYC Ferry saw a significant increase in ridership. Both weekend and weekday averages increased by over 100 percent from the previous week.

### SIF Average Weekday Total Ridership Per Hour

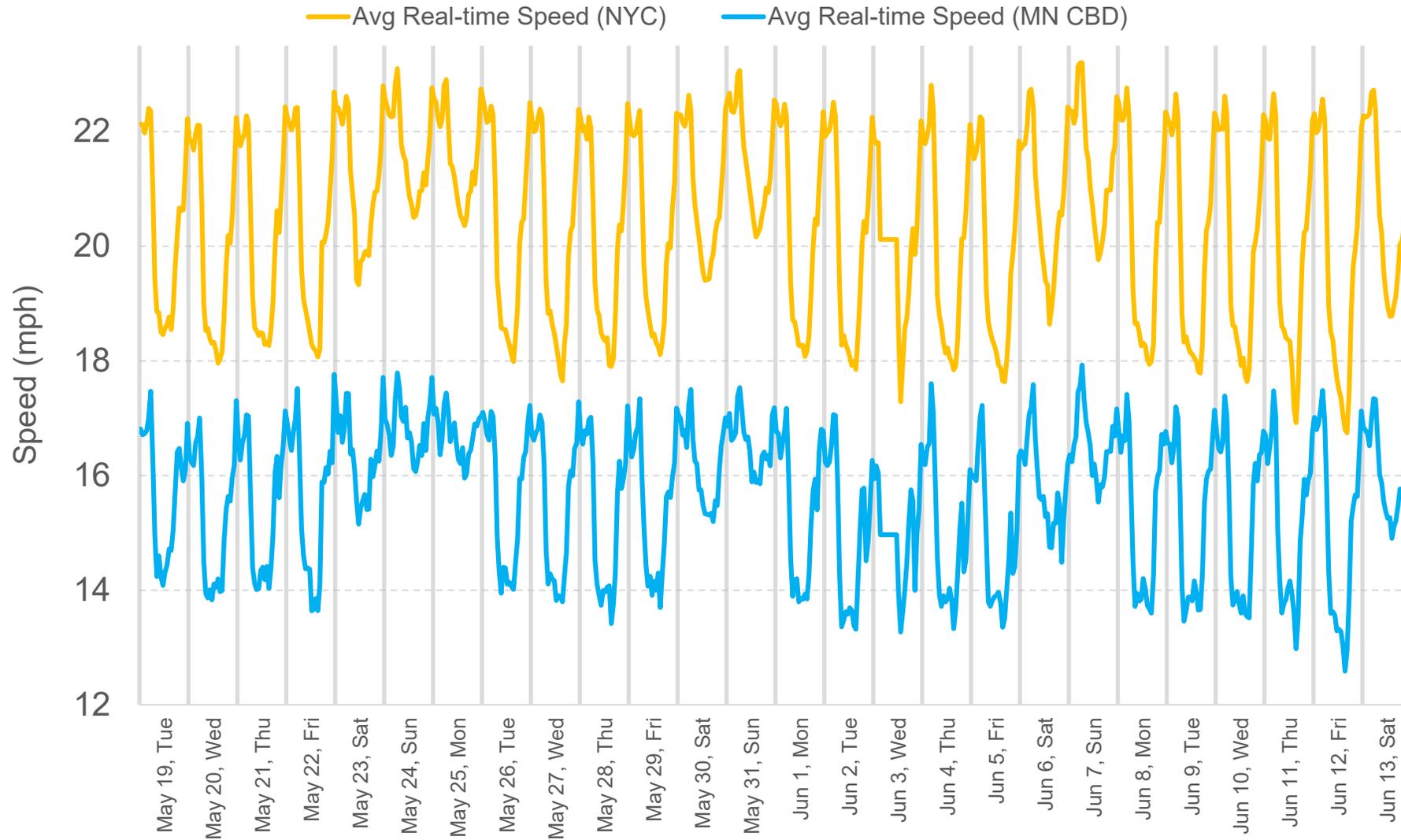


### NYC Ferry Weekly Ridership Weekday vs. Weekend Averages (2020)



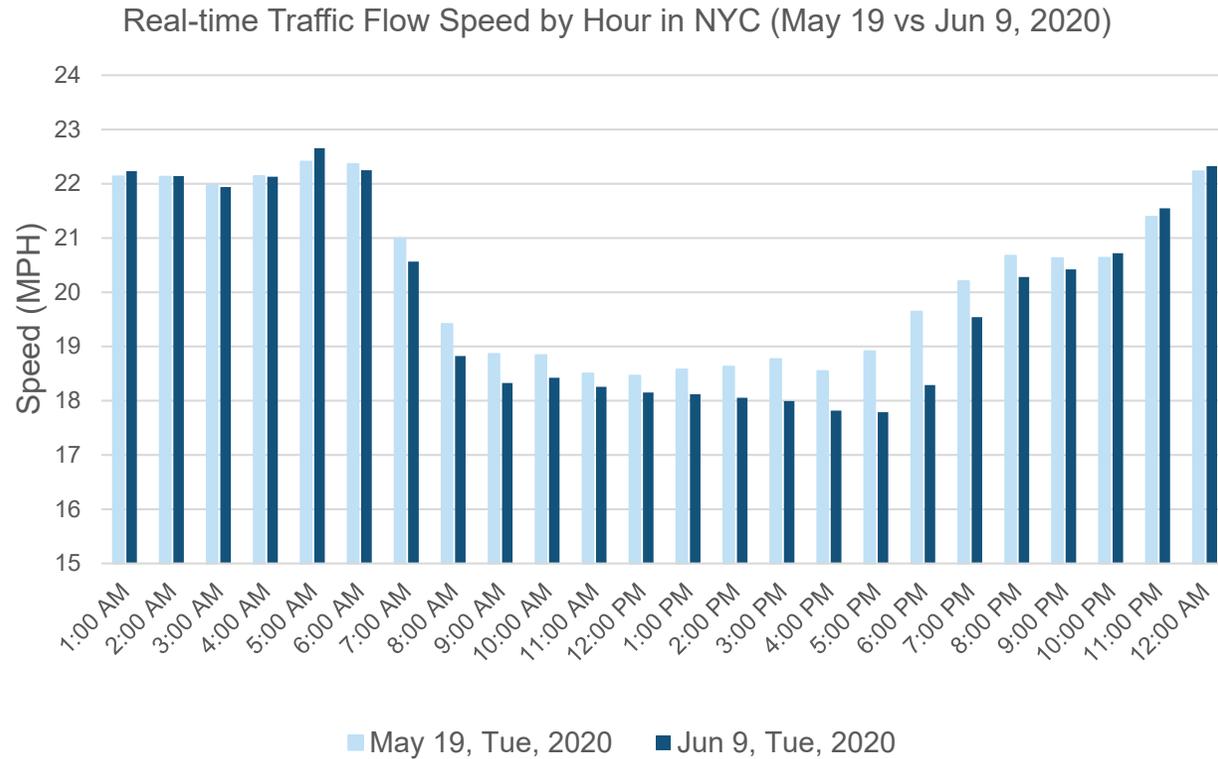
# Traffic

Real-time Traffic Flow Speed by Hour in NYC and MN CBD  
(May 19 -Jun 13, 2020)



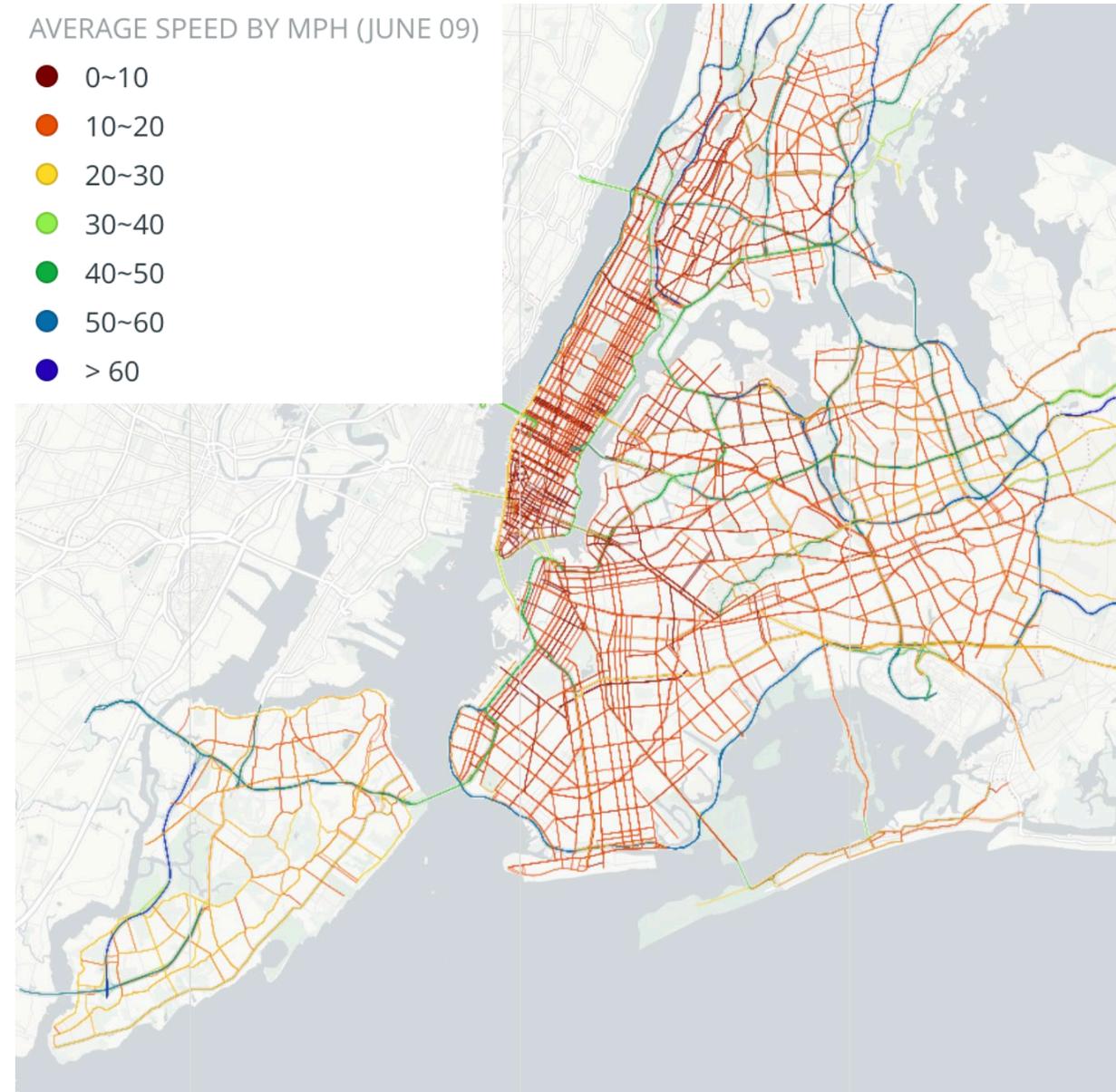
- Average traffic speeds across NYC and within the Manhattan CBD (defined as the area below 60<sup>th</sup> Street) did not change dramatically with the start of Phase 1 on June 8, but daytime speeds appeared to decline as the week progressed.
- Even during the PAUSE, weekend traffic moved considerably faster than weekday traffic. The difference was more pronounced in the Manhattan CBD than in NYC as a whole.
- Speeds were notably higher over Memorial Day weekend (May 23-25).

# NYC Traffic Speeds



AVERAGE SPEED BY MPH (JUNE 09)

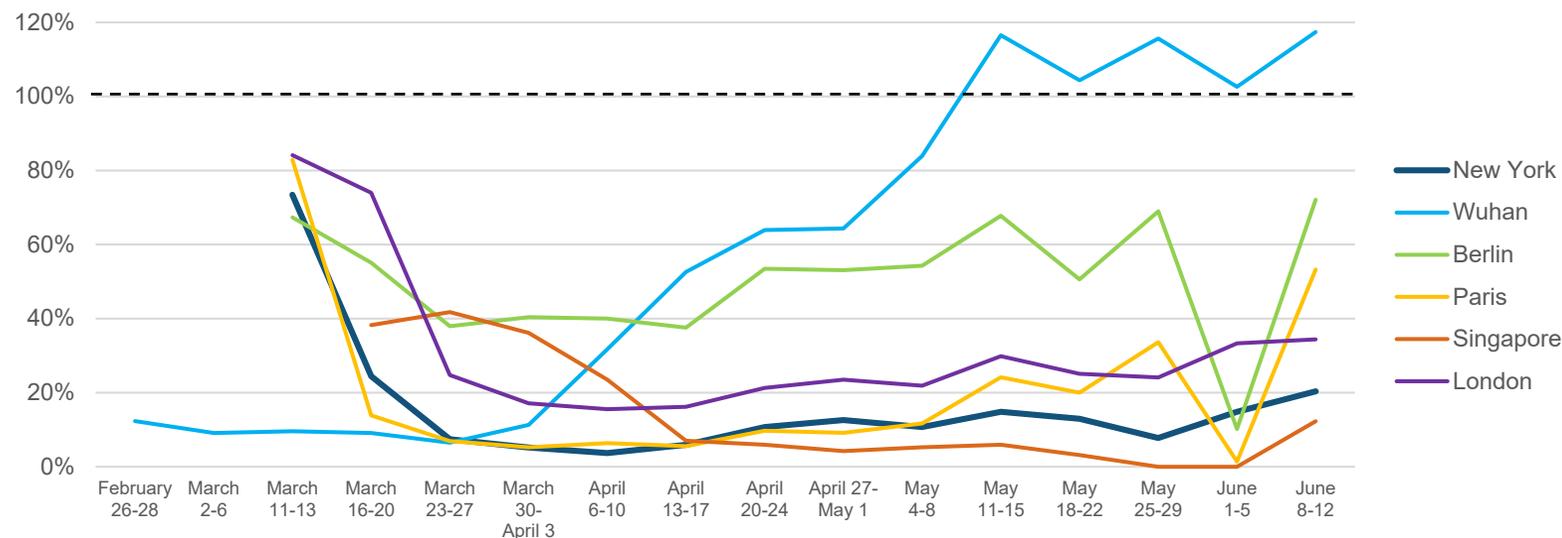
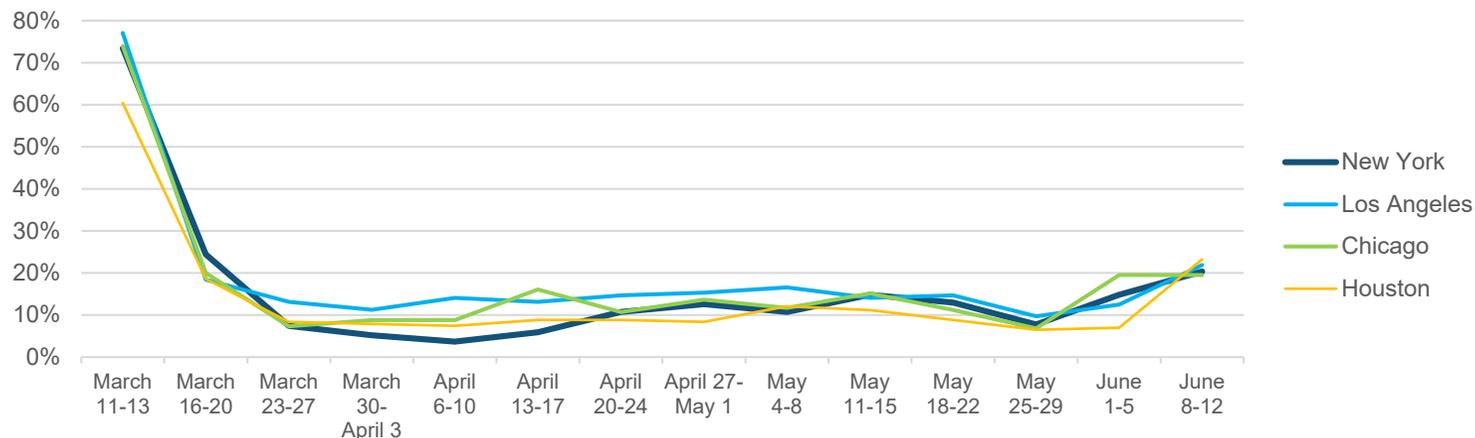
- 0~10
- 10~20
- 20~30
- 30~40
- 40~50
- 50~60
- > 60



- Average traffic flow speeds were lower most hours of the day on Tuesday, June 9, after the start of Phase 1, than they were on a similar Tuesday in May.
- The afternoon peak hours saw the greatest decline in speeds.
- The city's major highways continue to see high average speeds

- 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 slight increases in June.
- On the bottom chart, 100 percent represents 2019 yearly average congestion for each city
- Wuhan, which opened sooner than other world cities, has seen higher than average congestion.

Pandemic Average Weekly Traffic Congestion vs. 2019 Yearly Average\*



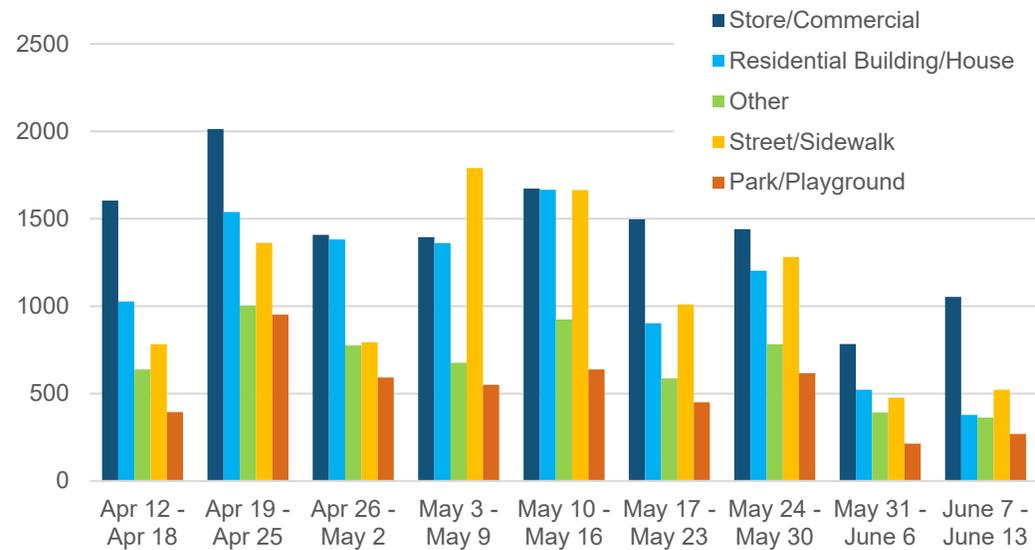
\*Week of June 1-5 contains one data point for several cities; week of June 8-12 contains fewer than five data points for each city

Data source: TomTom Traffic Index ([https://www.tomtom.com/en\\_gb/traffic-index/](https://www.tomtom.com/en_gb/traffic-index/))

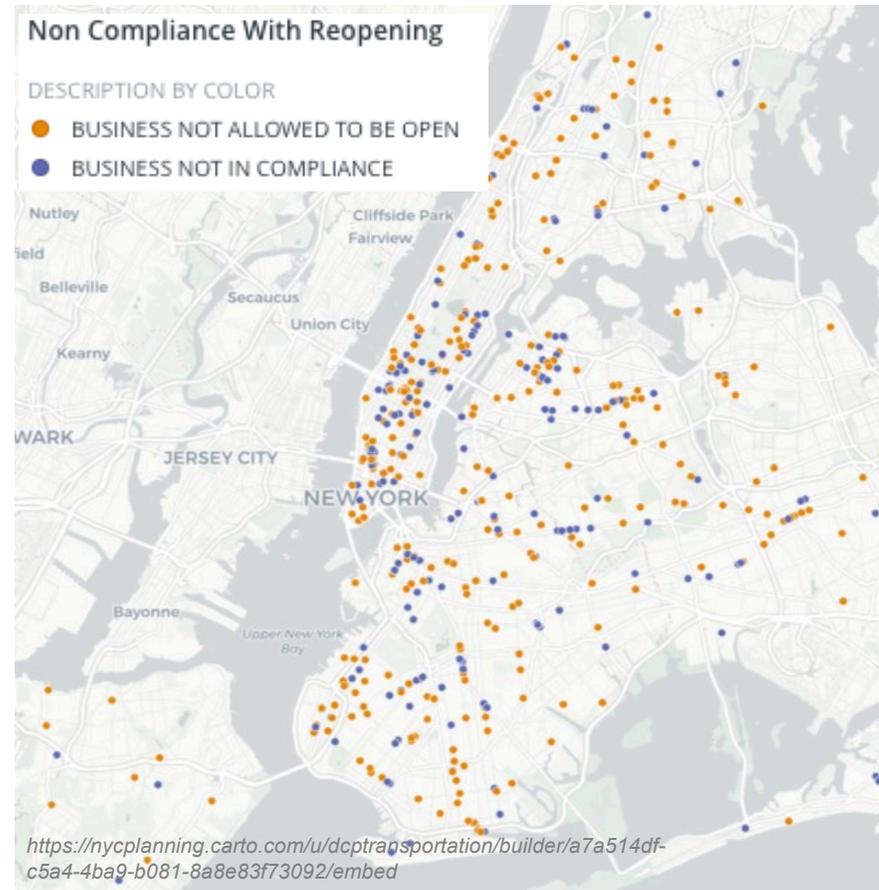
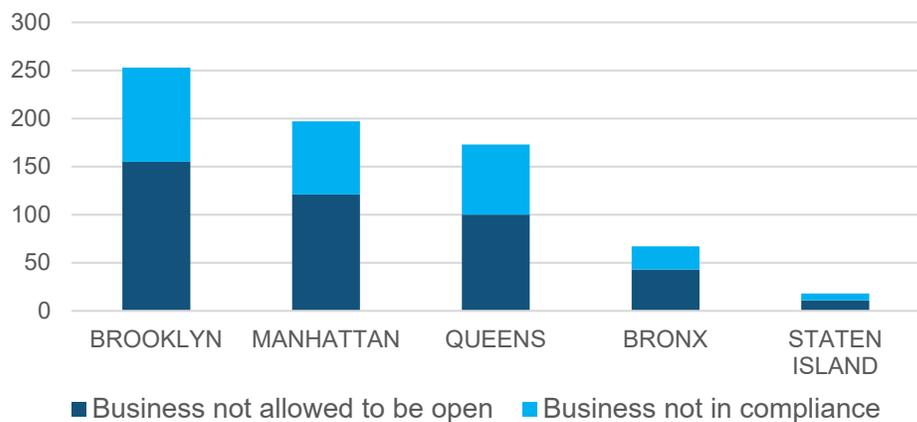
# 311 Complaints

# 311 Social Distance Complaints: 1<sup>st</sup> Week of Phase 1 Reopening (06/07 – 06/13)

Social Distancing Complaint By Location Type  
Weekly Totals



Non-Compliance With Phased Reopening By Borough



- “Social Distancing” remained the **second most common** 311 service complaint during the first week of the reopening.
- **Store/Commercial** location complaints filed under Social Distancing increased during the first week of Phase 1 over the previous week.
- **Saturday, June 13** was the **highest single day total** of 311 complaints since the beginning of NYC’s PAUSE.

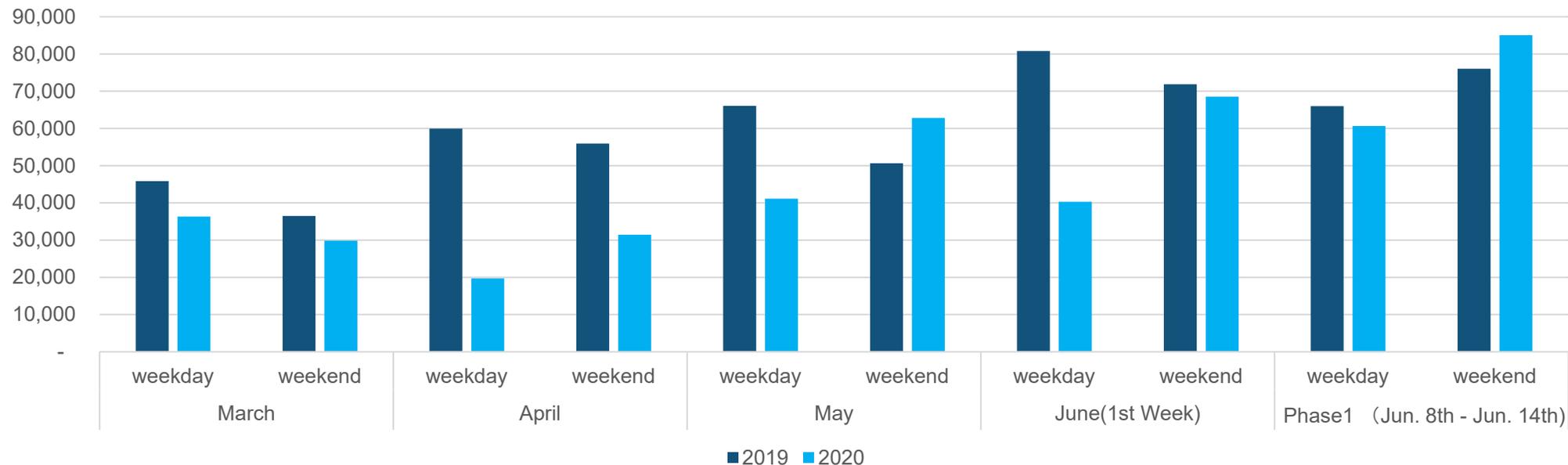
- Complaint Type: “**Non-Compliance With Phased Reopening**” started on June 5 with two description types: **1) Business Not Allowed Open 2) Business Not In Compliance**.
- **Brooklyn** had the most non-compliance 311 complaints for both descriptions.
- **Highest concentrations** were observed in **Lower Manhattan** and **Northwest Queens**.
- “Non-compliance with Phased Reopening” complaints gradually increased as the week progressed.

# Citi Bike

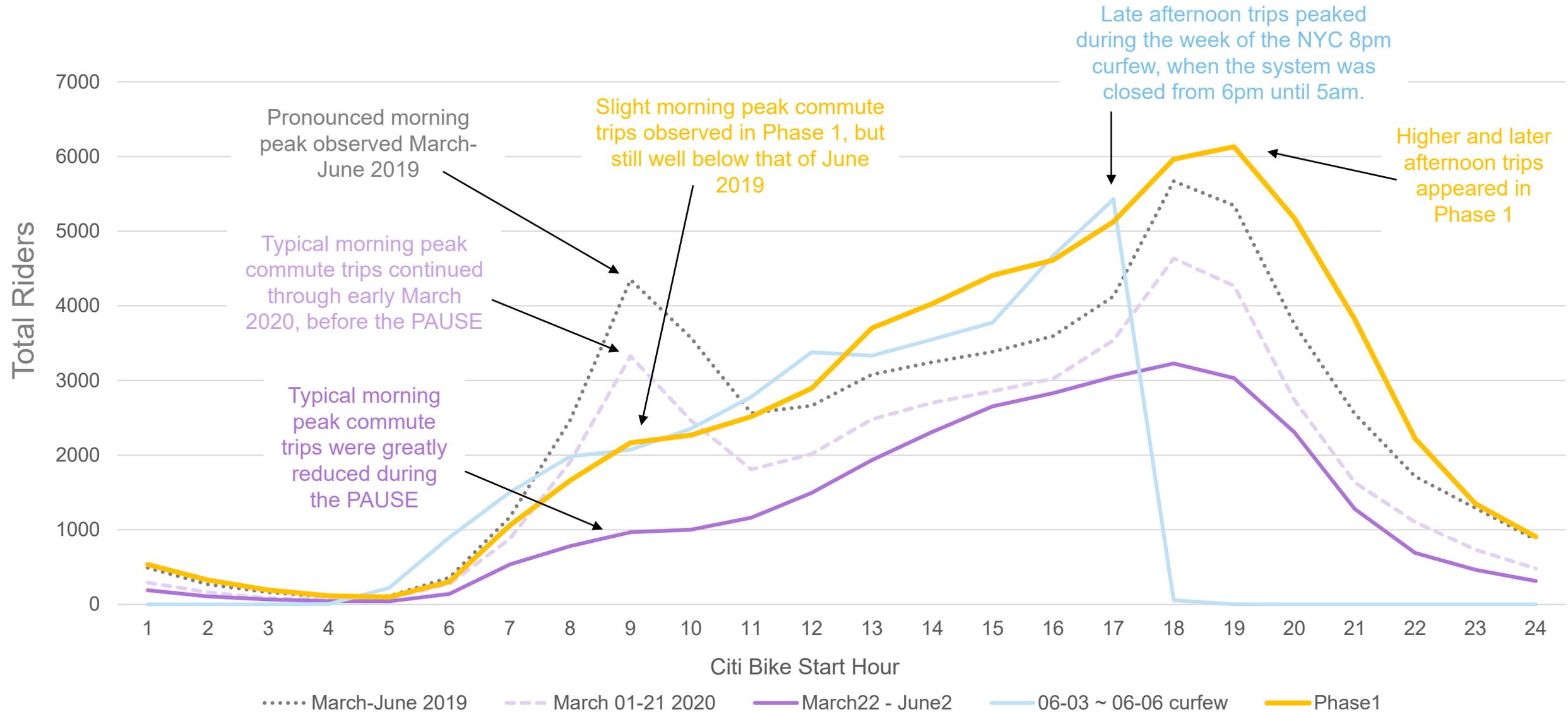
# Citi Bike Ridership Trends

- While ridership in 2019 exceeded ridership in 2020 for both weekdays and weekends in March and April, weekend ridership in May 2020 exceeded ridership in May 2019.
- The first week of June 2020 saw fairly consistent weekday ridership with May 2020. Due to protests throughout NYC during this period, there was a citywide curfew that included the shutting down of the Citi Bike system from 6pm until 5am for 4 nights, starting on June 3.
- Citi Bike ridership was higher during the first week of Phase 1 than previous weeks. Weekday ridership was comparable to weekday ridership during the same week in 2019, and weekend ridership exceeded 2019 trips. Much of this may be attributed to expansions in the overall Citi Bike network over this time period.

Citi Bike Average Daily Trips 2019 vs 2020 (March-June)



# Citi Bike Ridership by Time of Day

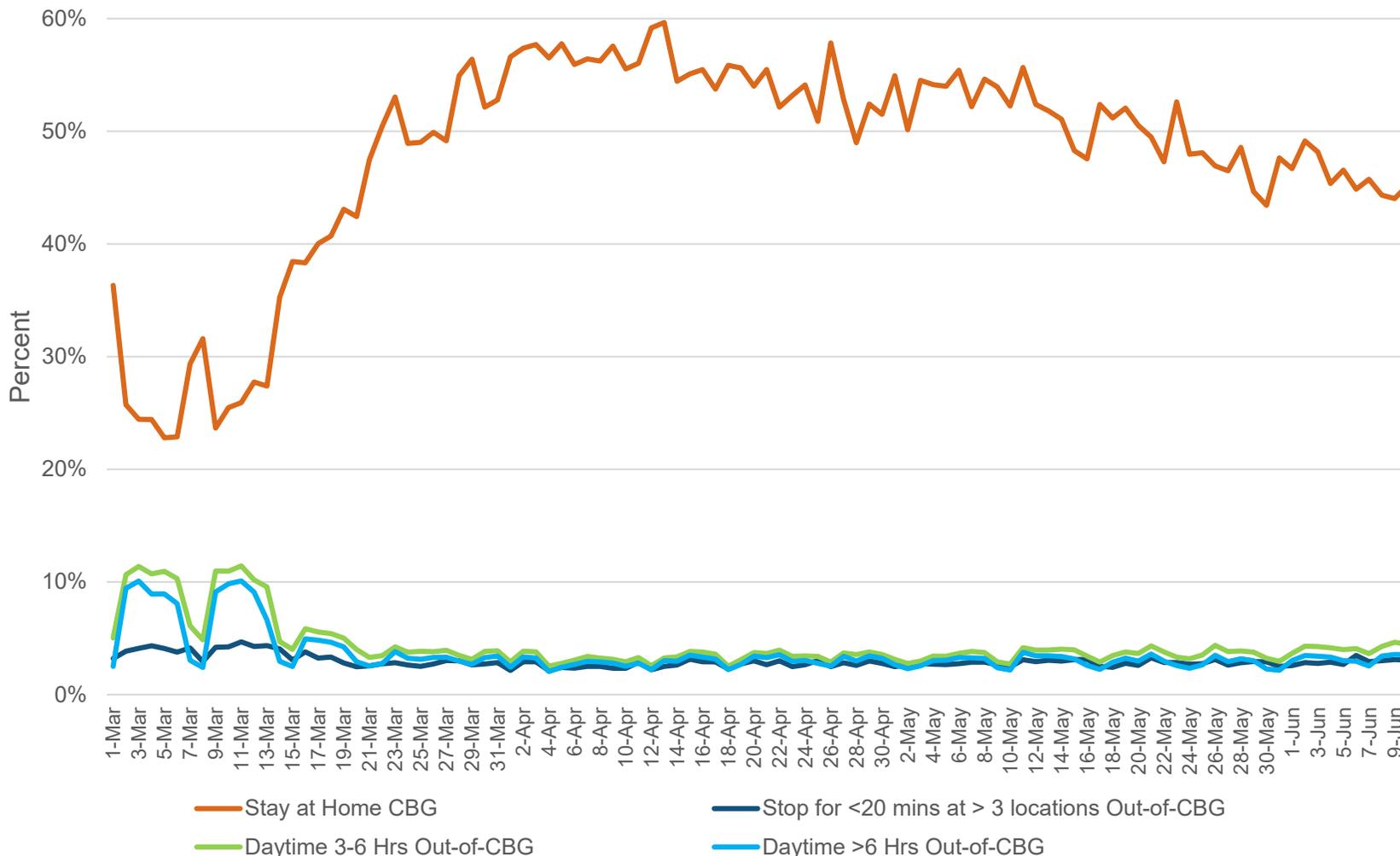


..... March-June 2019    - - - - March 01-21 2020    ——— March 22 - June 2    ——— 06-03 ~ 06-06 curfew    ——— Phase 1

# SafeGraph Mobility

# Measures of Mobility

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

# Timeline



# New York COVID19 Pandemic Timeline

- March 1<sup>st</sup>, 2020: **First confirmed case** in New York <https://www.wsj.com/articles/first-case-of-coronavirus-confirmed-in-new-york-state-11583111692>
- March 7<sup>th</sup>, 2020: Governor Cuomo **declares state of emergency** <https://www.nytimes.com/2020/03/07/nyregion/coronavirus-new-york-queens.html>
- March 12<sup>th</sup>, 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 15<sup>th</sup>, 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 17<sup>th</sup> <https://www.nytimes.com/2020/03/15/nyregion/new-york-coronavirus.html>
- March 18<sup>th</sup>: Governor Cuomo announces that **50% of non-essential employees** must work from home
- March 20<sup>th</sup>: Governor Cuomo announces **statewide stay at home rules**, effective the evening of the 22<sup>nd</sup>. **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 25<sup>th</sup>: MTA announces service reduction to **Essential Service** plan <https://abc7ny.com/6047040/>
- March 27<sup>th</sup>: The Governor halts **non-essential construction** <https://thecity.nyc/2020/03/cuomo-calls-off-non-essential-construction-statewide.html>
- May 1<sup>st</sup>: 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 6<sup>th</sup>: Governor Cuomo enacts nightly 1am-5am subway shutdowns: <https://www.nytimes.com/2020/04/30/nyregion/subway-close-cuomo-coronavirus.html>
- May 22<sup>nd</sup>: 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/>
- June 1<sup>st</sup>: 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 96<sup>th</sup> 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 5<sup>th</sup>: 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 7<sup>th</sup>: 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/>
- June 8<sup>th</sup>: 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 14<sup>th</sup> 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> |