COVID19 IMPACTS ON TRANSPORTATION

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

May 26, 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 ninth weekly report.

- This week's report includes the following information:
  1. Executive Summary
  2. Citywide Trend: Increasing Travel
  3. Subway
  4. Phase 1 Reopening: Retail, Construction, Manufacturing & Warehousing
  5. 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. We have moved much of the material from previous weeks into an appendix, which is no longer attached to this report.

- 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, or if you would like to see this week's appendix slides.

Executive Summary

- Subway ridership continues its fourth week of increases, and **total MetroCard swipes during the week of May 9-15 were higher than each of the previous six weeks.**

- **Queens and South Brooklyn experienced the greatest increases in** ridership since the week of April 11-17 (when we saw the fewest total riders).

- **All other modes**, and particularly NYC Ferry and Citi Bike trips, **continue to see significant increases in ridership** week over week.

- **New York City is preparing for a Phase 1 reopening, allowing nonessential workers in retail, construction, and manufacturing & warehousing to return to work.**

  - Pre-COVID19, about 340,000 New Yorkers worked in the retail sector, with 46 percent of total retail jobs in Manhattan. But, as with most workers, retail workers are more likely to live in the borough in which they work than in any other borough.

  - Pre-COVID19, 160,000 New Yorkers worked in the construction sector; 45 percent commuted via subway and 35 percent by car to job sites dispersed across the five boroughs.

  - Pre-COVID19, about 207,000 New Yorkers worked in manufacturing & warehousing. Nearly 50 percent commuted via subway and 10 percent by bus.

Citywide Trend: Increasing Travel

Citywide Trend: Increasing Travel

- More than eight weeks into New York City's Stay at Home order, and seven weeks into analysis of travel under the PAUSE, we're now seeing steady increases in transportation ridership.

- As we begin to prepare for an unPAUSE and a return to work for more New Yorkers, we're trying to get a better understanding of what's behind the current increases in travel in order to help us anticipate travel in the coming weeks and months.

Week Over Week Changes

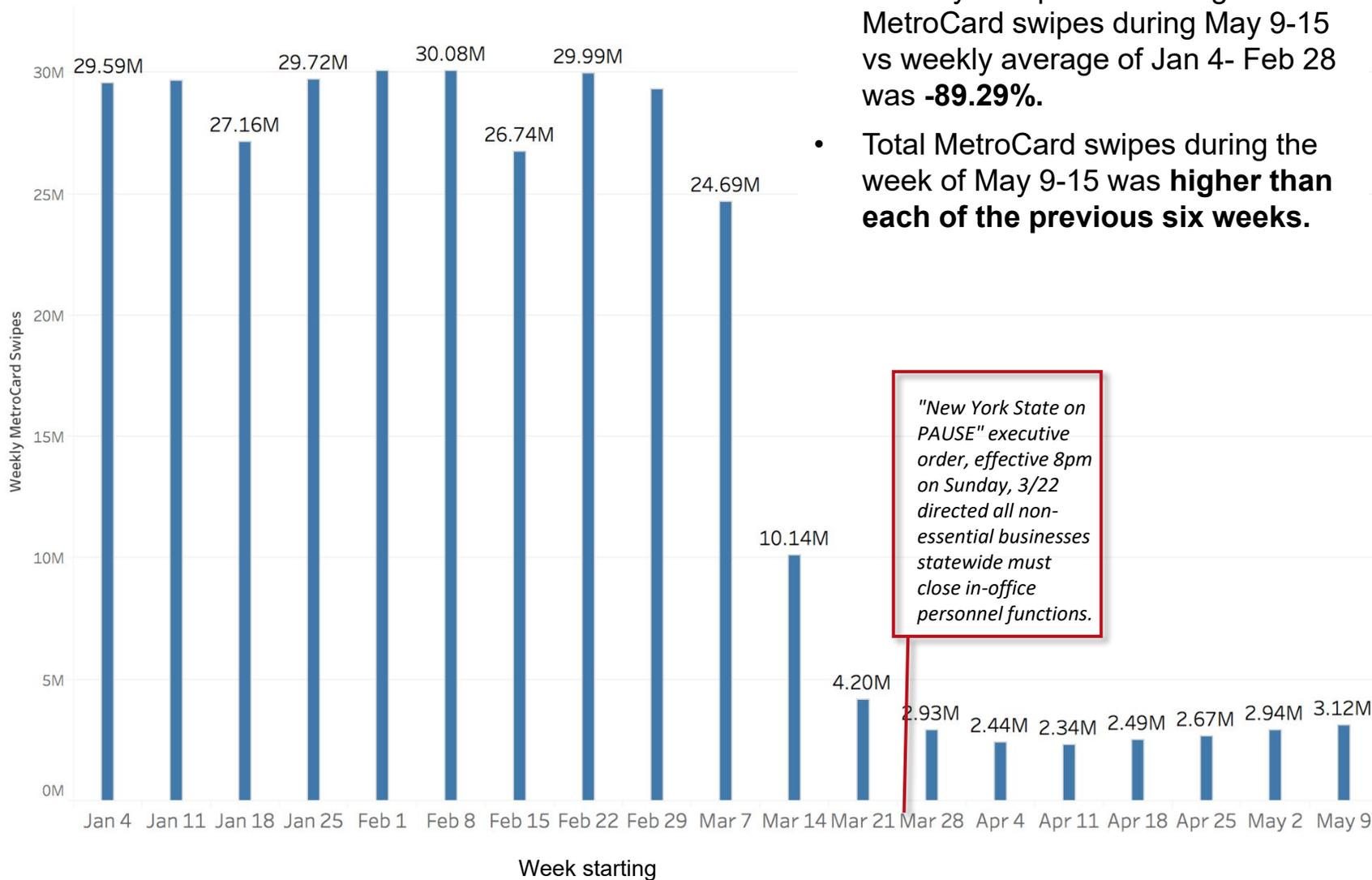Legend: ■ Subway ■ VMT ■ SI Ferry ■ NYC Ferry ■ Citi Bike
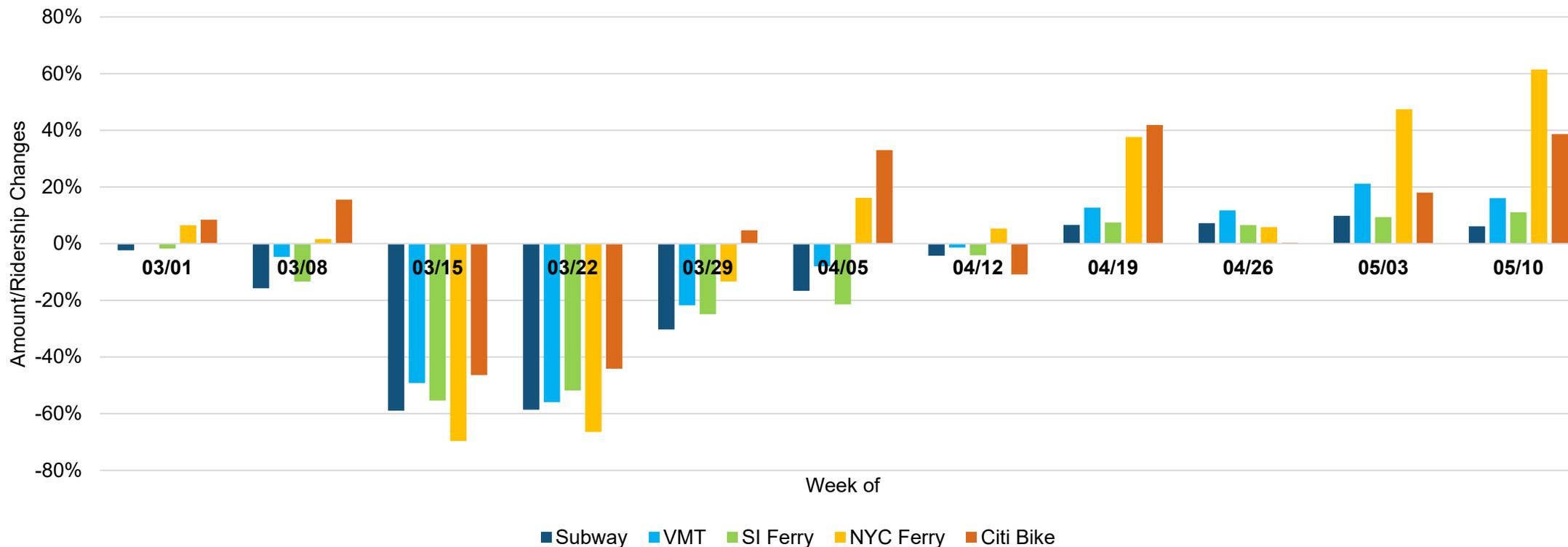
Note: 1. Subway data is released on a Sat-to-Fri weekly basis; NYC Ferry data is released on a Mon-to-Sun basis, not the same Sun-to-Sat week period as the other modes are. 2. VMT week-over-week change is not available for the week starting from 03/01.
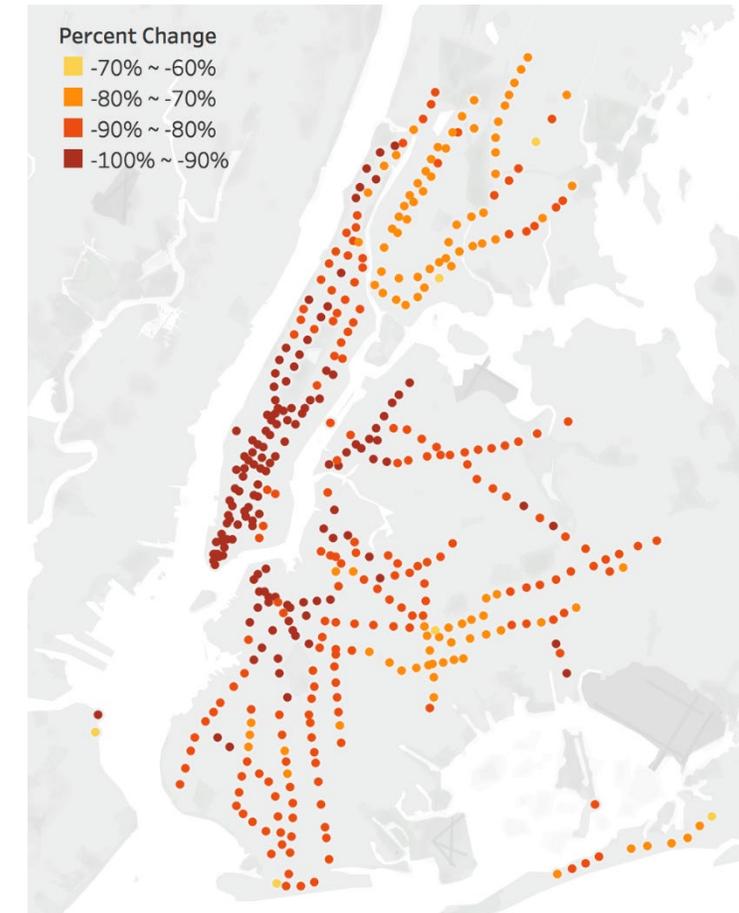
May 26, 2020   5

Subway

Weekly MetroCard Swipe Trends (Jan 4 - May 15)

- The citywide percent change of MetroCard swipes during May 9-15 vs weekly average of Jan 4- Feb 28 was **-89.29%**.

- Total MetroCard swipes during the week of May 9-15 was **higher than each of the previous six weeks.**

"New York State on PAUSE" executive order, effective 8pm on Sunday, 3/22 directed all non-essential businesses statewide must close in-office personnel functions.

Percent Change of Swipes (May 9-15 2020 vs. Weekly Average of Jan 4 to Feb 28 2020)

Percent Change
- -70% ~ -60%
- -80% ~ -70%
- -90% ~ -80%
- -100% ~ -90%

Notes: Holidays might lead to low subway swipes in the pre-COVID19 period. (Jan 18,2020: Martin Luther King Jr. Day; February 17, 2020: Presidents Day)

May 26, 2020   7

MetroCard Swipe Change May 9-15 vs May 2-8 2020

Percent Change in MetroCard Swipes
(May 9-15 2020 vs April 11-17 2020)

Category
- Inconsistent increase
- Increasing since Apr 4
- Increasing since Apr 11
- Increasing since Apr 18
- Increasing since Apr 25
- Increasing since May 2

Percent Change
- <= 0%
- 0% ~ 25%
- 25% ~ 50%
- 50% ~ 75%
- 75% ~ 100%
- >= 100%
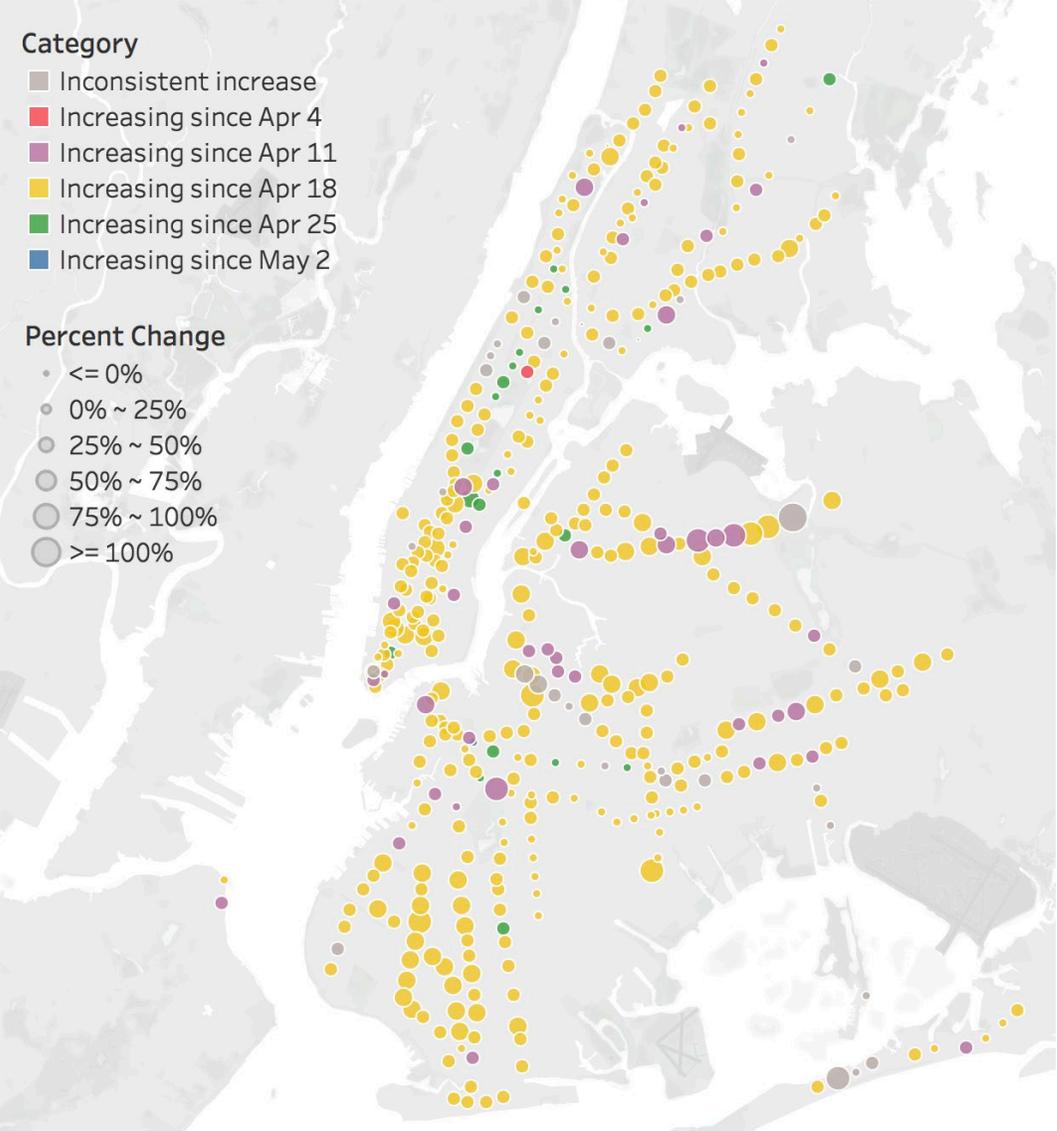
- Almost every station in the system continues to see increasing ridership over the previous week, and the growth rate is increasing.
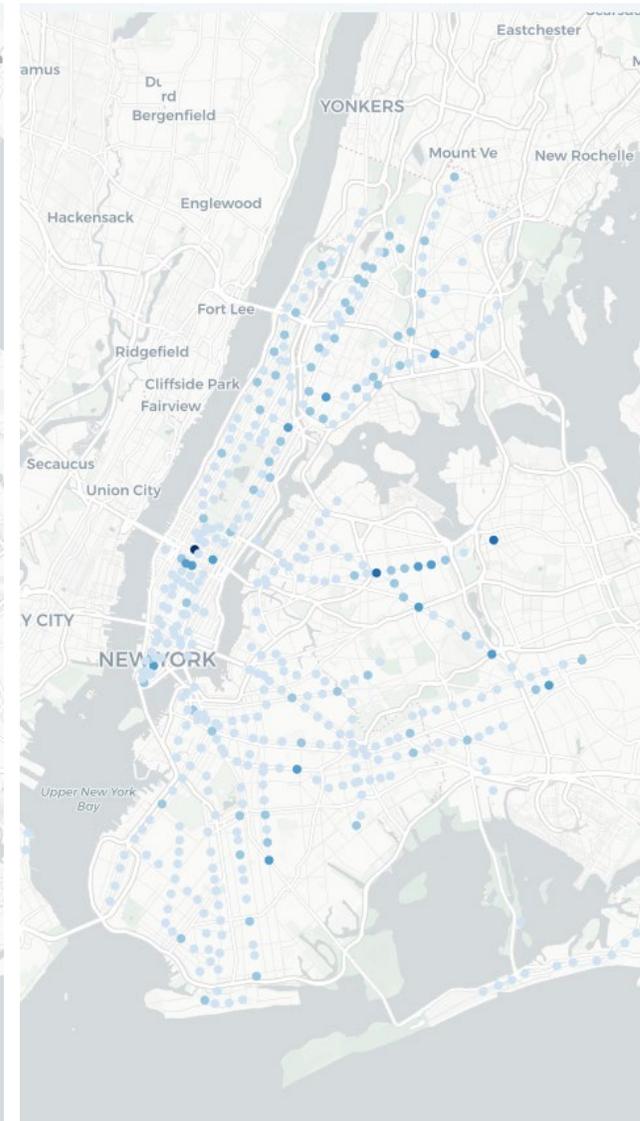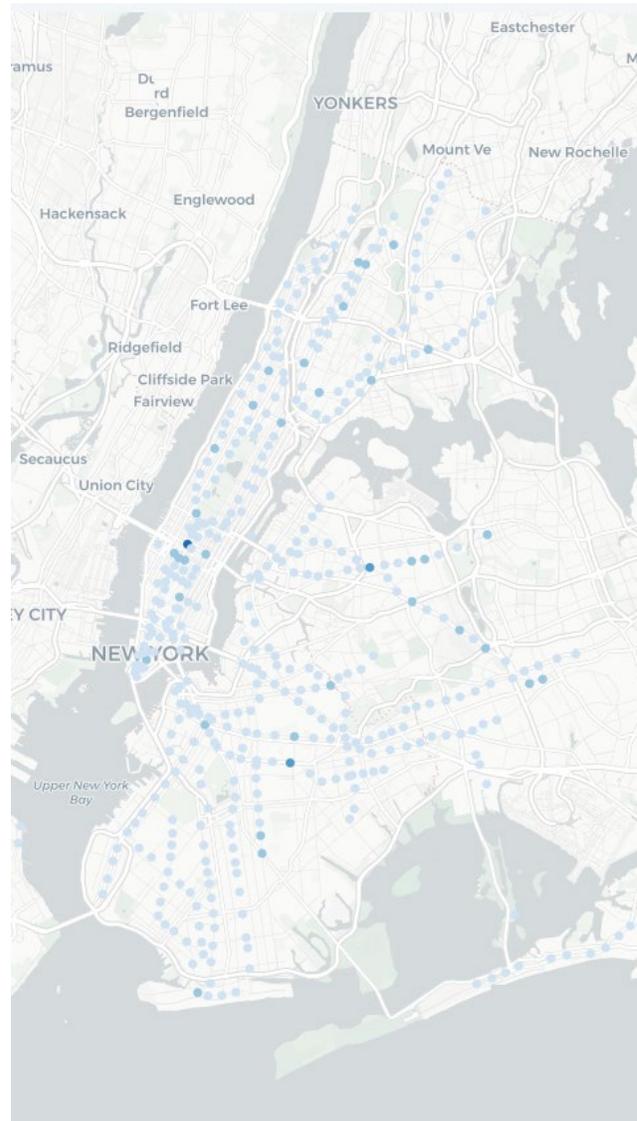
Interactive dashboard link:
https://public.tableau.com/profile/dcptransportation#!/vizhome/MetroCardSwipes-IncreasingTrends/IncreaseTrends

Weekday AM Peak Turnstile Data

03/11-05/31 2019

04/14-04/17 2020

05/18-05/21 2020

AM peak hour trips generally indicate where people are commuting *from*:

- The largest AM peak ridership declines were observed in the Manhattan Core and Inner Ring, and along the B/Q and E train lines.

- The peak low week of April 14th shows only a handful of stations with AM peak ridership of more than 1000 people.

- The week of May 18th, the most recent data available, shows increases across the city and especially in Queens.
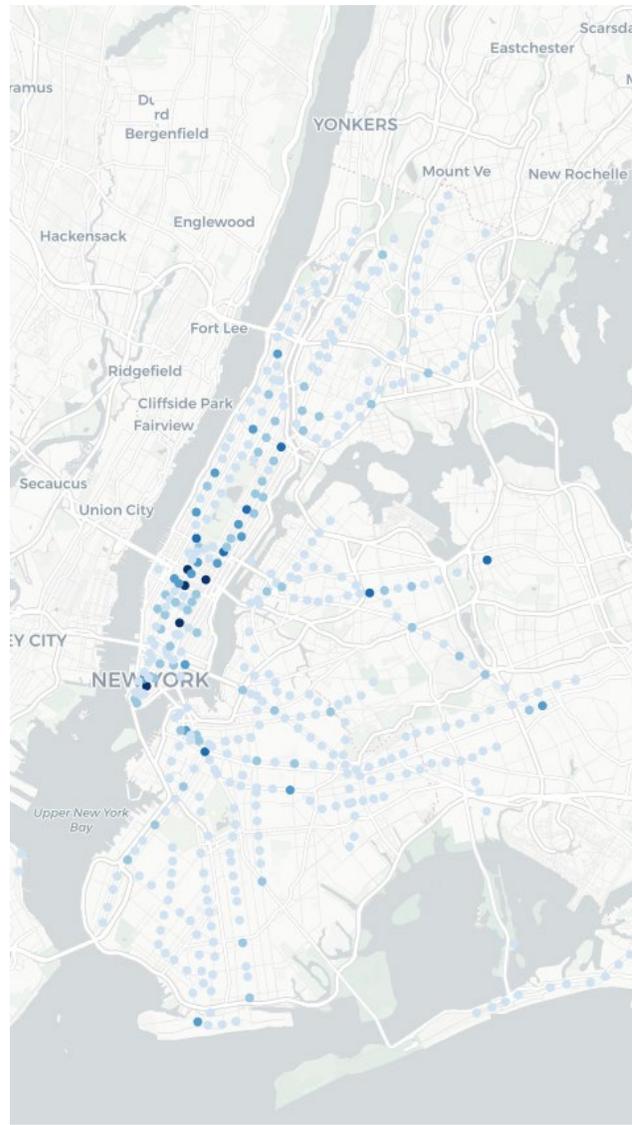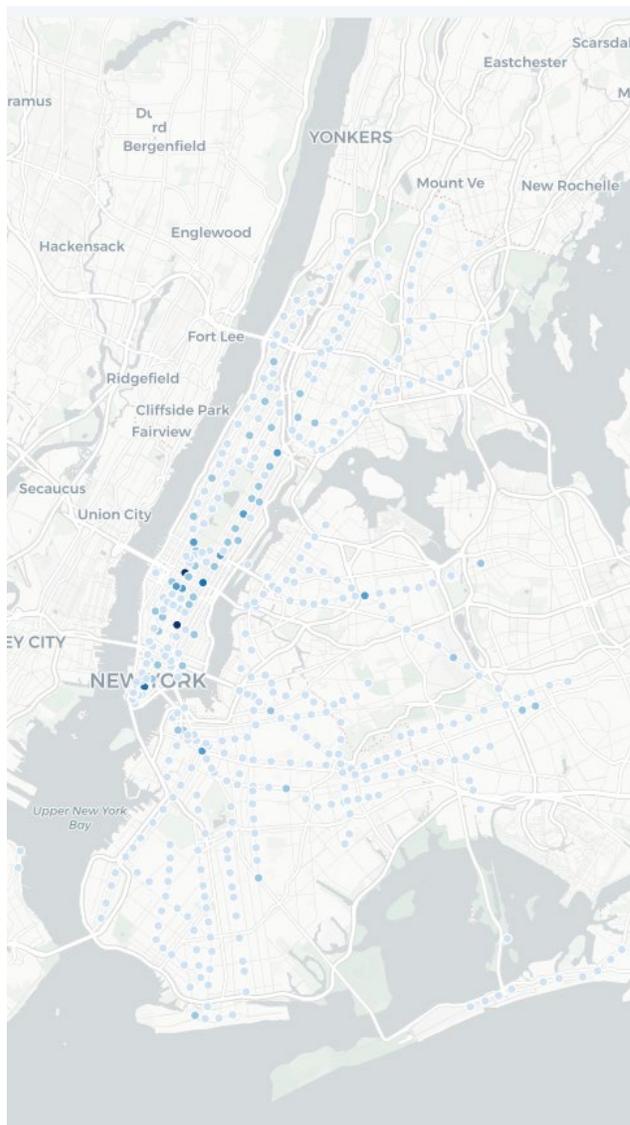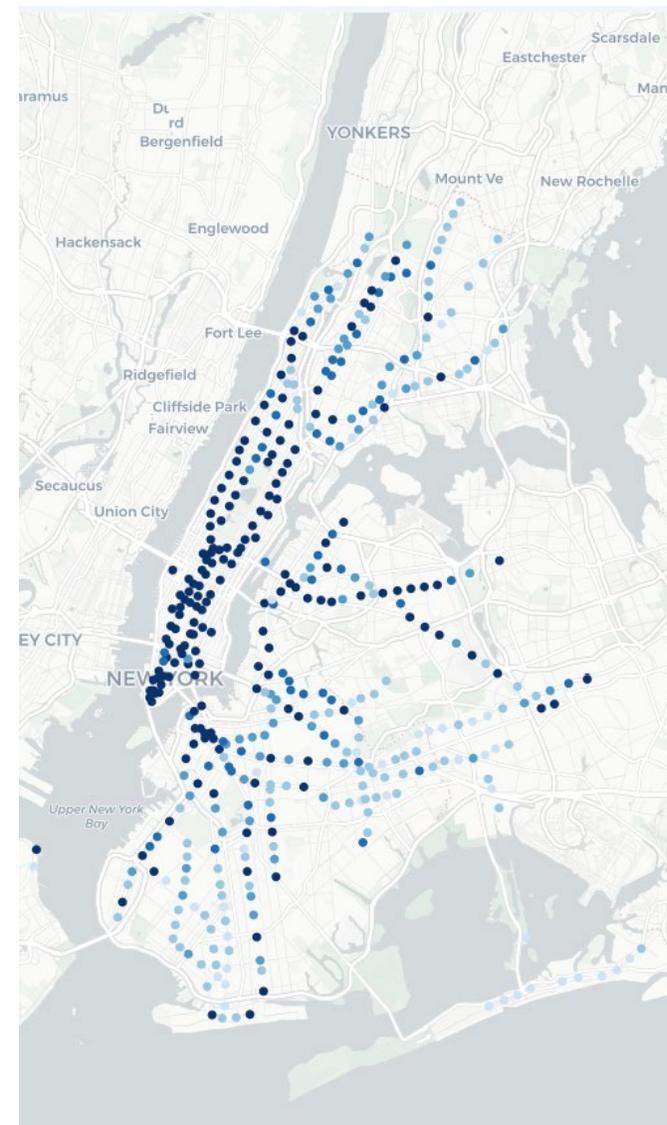
WEEKDAY AM PEAK AVERAGE

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

Weekday PM Peak Turnstile Data

03/11-05/31 2019

04/14-04/17 2020

05/18-05/21 2020

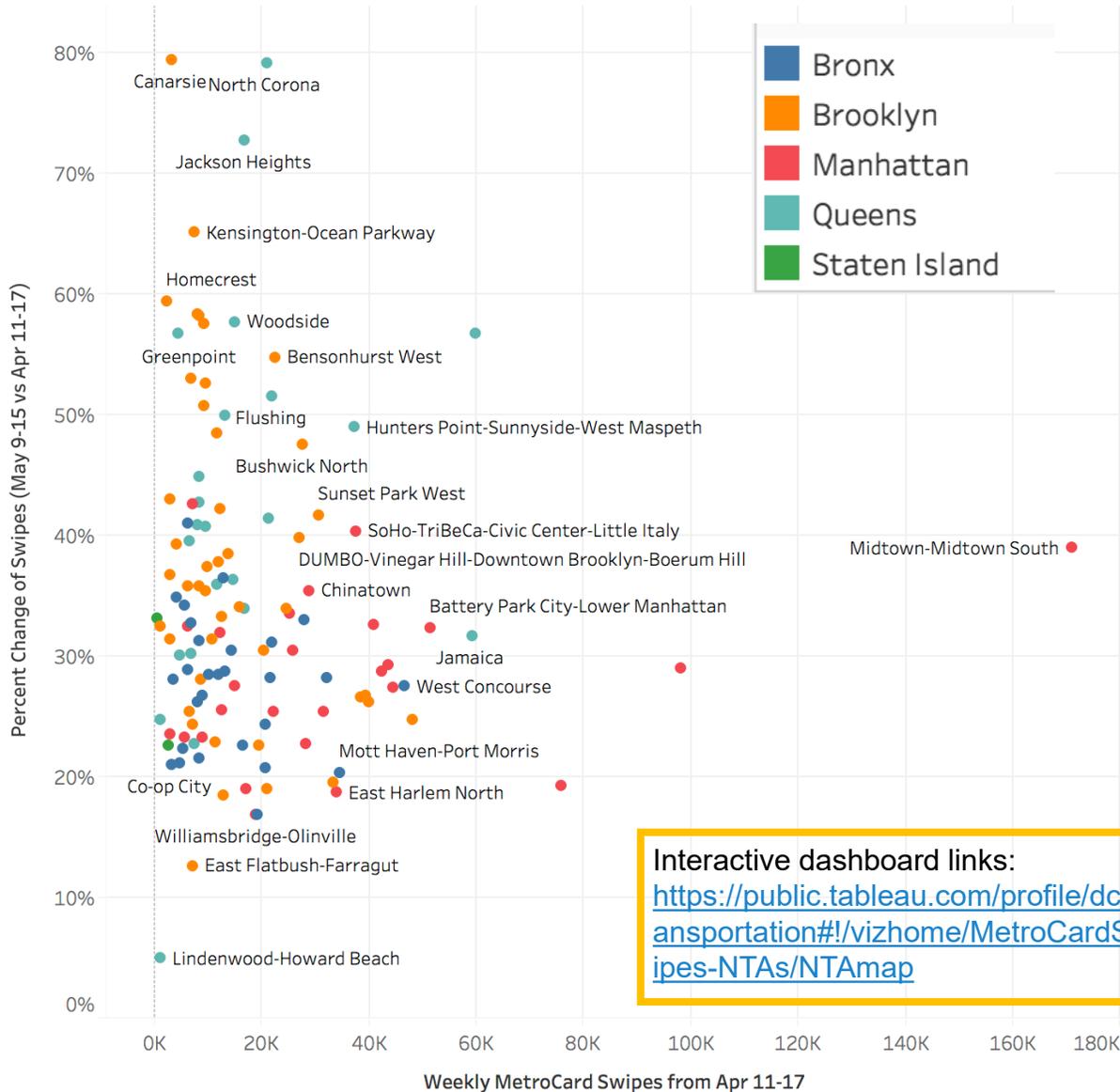**PM peak hour trips generally indicate where people are commuting *to*:**

- The largest PM peak ridership declines were observed in the Manhattan Core, where the majority of jobs are located.

- The trough week of April 14th shows some Manhattan Core activity, and some larger transit hubs in Brooklyn and Queens.

- The week of May 18th, the most recent data available, shows dramatic ridership increases across much of Manhattan, Downtown Brooklyn, Jackson Heights, Flushing, and Jamaica.
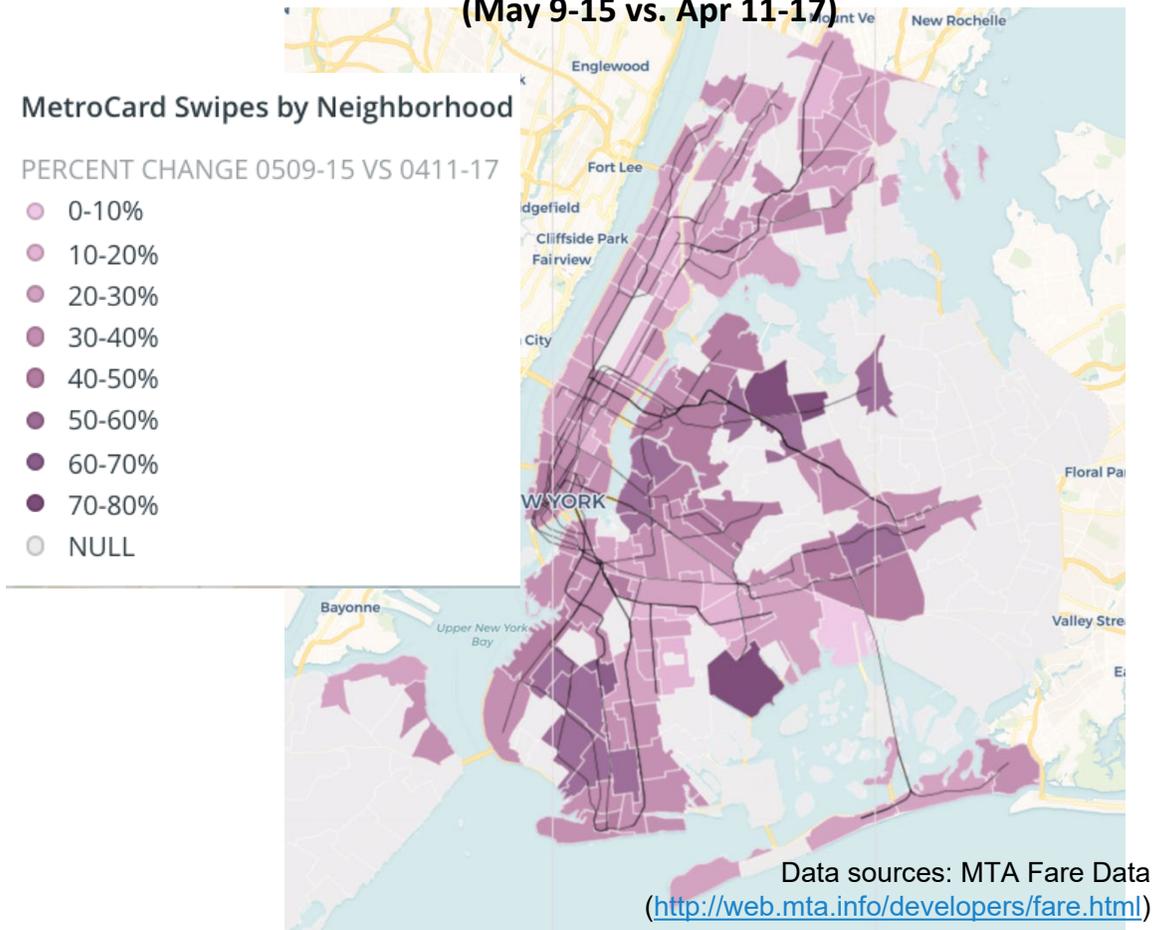
WEEKDAY PM PEAK AVERAGE

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

Data sources: MTA Turnstile data (http://web.mta.info/developers/turnstile.html)

MetroCard Swipe Changes since lowest point

Percent Change of MetroCard Swipes by Station (May 9-15 vs. Apr 11-17)

Legend:
- Bronx
- Brooklyn
- Manhattan
- Queens
- Staten Island

Station labels: Canarsie, North Corona, Jackson Heights, Kensington-Ocean Parkway, Homecrest, Woodside, Greenpoint, Bensonhurst West, Flushing, Bushwick North, Hunters Point-Sunnyside-West Maspeth, Sunset Park West, SoHo-TriBeCa-Civic Center-Little Italy, DUMBO-Vinegar Hill-Downtown Brooklyn-Boerum Hill, Midtown-Midtown South, Chinatown, Battery Park City-Lower Manhattan, Jamaica, West Concourse, Co-op City, Mott Haven-Port Morris, East Harlem North, Williamsbridge-Olinville, East Flatbush-Farragut, Lindenwood-Howard Beach

Y-axis: Percent Change of Swipes (May 9-15 vs Apr 11-17)
X-axis: Weekly MetroCard Swipes from Apr 11-17

Interactive dashboard links:
https://public.tableau.com/profile/dcptransportation#!/vizhome/MetroCardSwipes-NTAs/NTAmap

Percent Change of MetroCard Swipes by Neighborhood (May 9-15 vs. Apr 11-17)

MetroCard Swipes by Neighborhood
PERCENT CHANGE 0509-15 VS 0411-17
- 0-10%
- 10-20%
- 20-30%
- 30-40%
- 40-50%
- 50-60%
- 60-70%
- 70-80%
- NULL

Data sources: MTA Fare Data
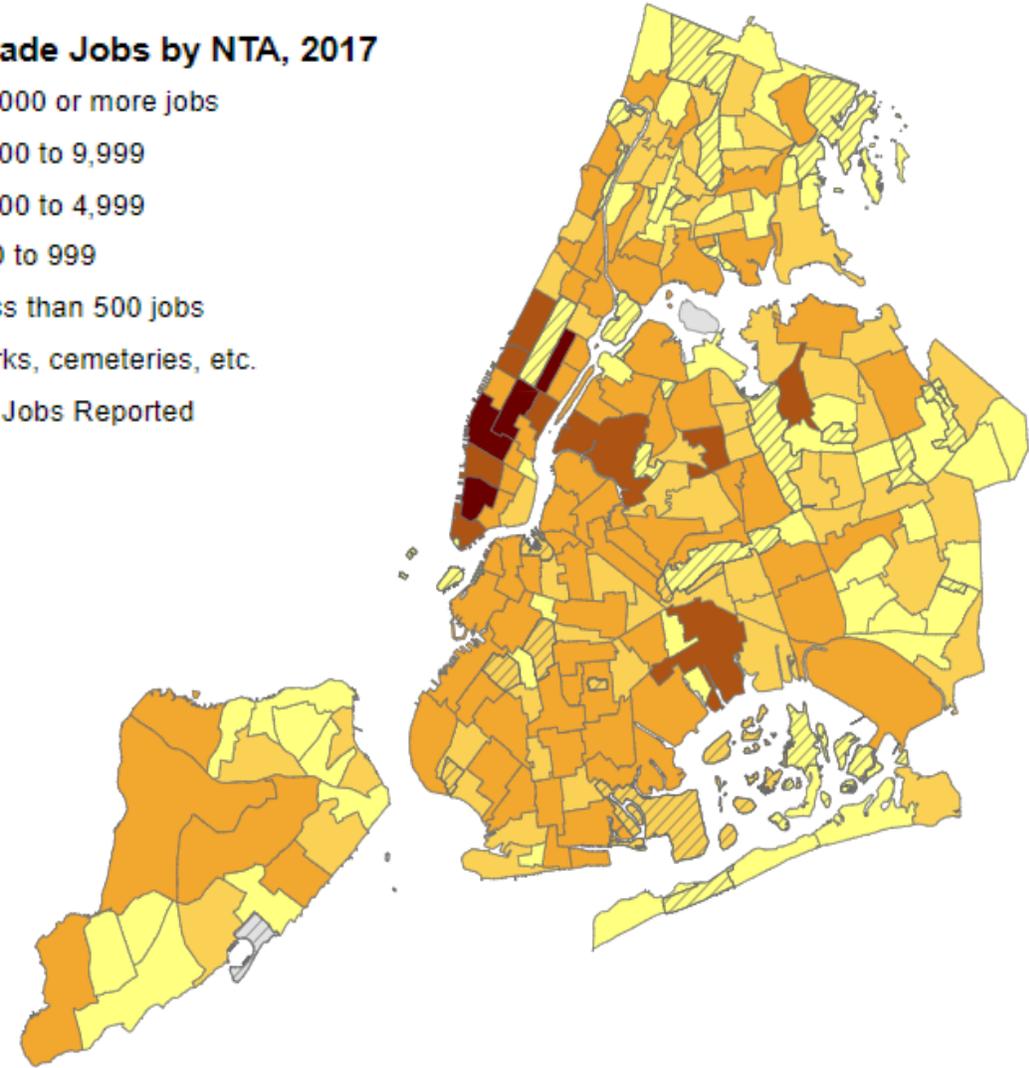(http://web.mta.info/developers/fare.html)

- Stations with fewer total MetroCard swipes during the week of April 11 are generally seeing greater percent increases in ridership, and are mostly in Brooklyn and Queens.

- As seen by aggregating station-level changes to the neighborhood (NTA) level, Queens and South Brooklyn experienced the greatest increases in ridership since the week of April 11-17 (when we saw the fewest total riders).

Preparing for a Phase 1 Reopening:
Retail

- Retail jobs are found citywide, along local retail corridors, at major shopping centers like Gateway in East New York Brooklyn, and in regional retail destinations like Soho and Flushing.

- Many retail establishments depend on tourists, visitors, and office workers, and are likely to see a slow pace of reopening. This is especially true of businesses in the Manhattan CBD
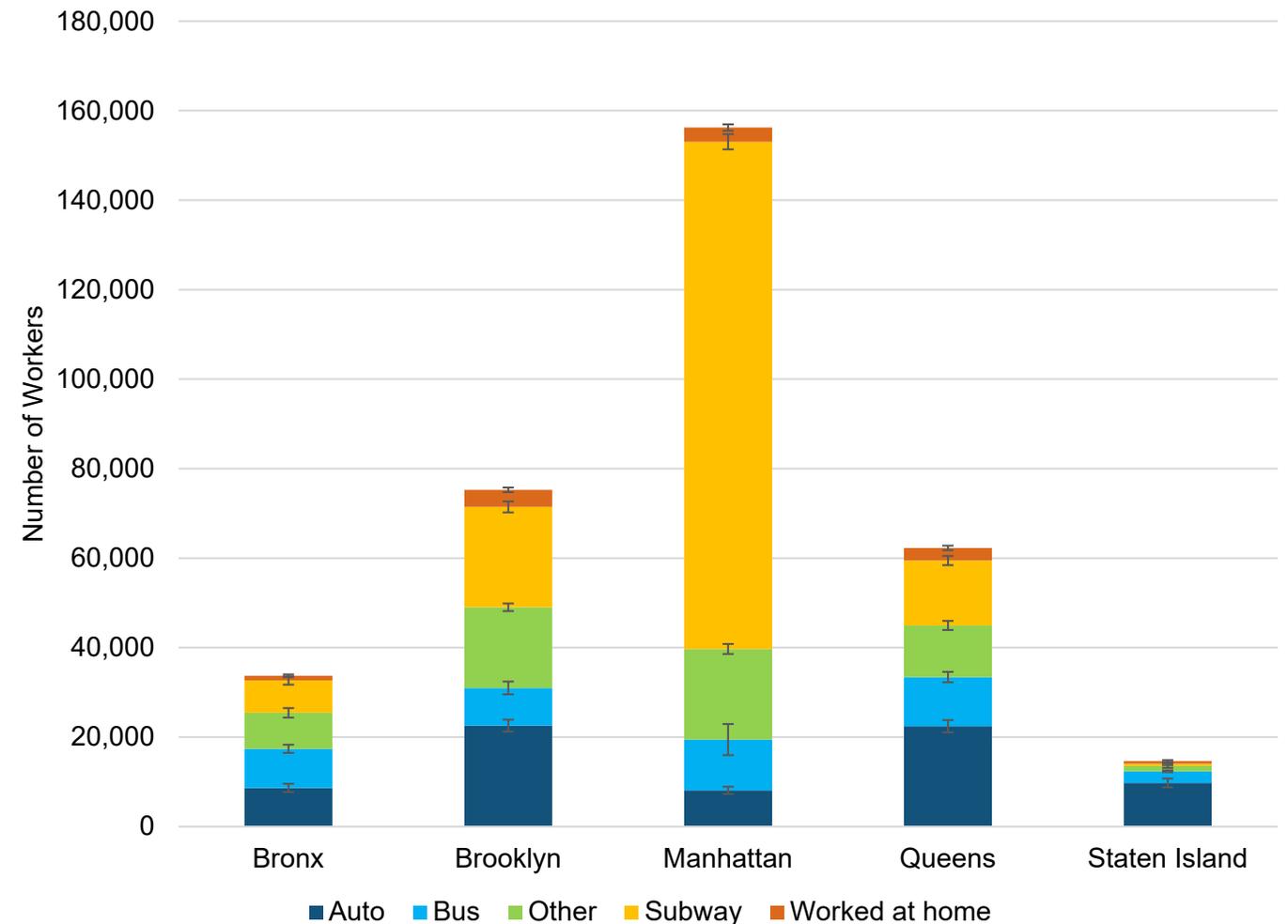
Retail Trade Jobs by NTA, 2017

- 10,000 or more jobs
- 5,000 to 9,999
- 1,000 to 4,999
- 500 to 999
- Less than 500 jobs
- Parks, cemeteries, etc.
- No Jobs Reported

Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics, All Private Jobs (JT02), 2017

- Pre-COVID-19 workforce: about 340,000 New Yorkers work in the retail sector, with 46 percent of total retail jobs in Manhattan.

- Pre-COVID-19 commuting: 46 percent commute via subway and 12 percent by bus.

- Forty percent of total retail workers are in "essential" categories and have thus been permitted to work during the Stay at Home order. Sixty percent of total retail workers are in "non-essential" categories eligible to return to work under Phase 1.
  - Essential retail businesses include grocery stores, pharmacies, gas stations, food & beverage, convenience stores, farmer's markets, and hardware stores.
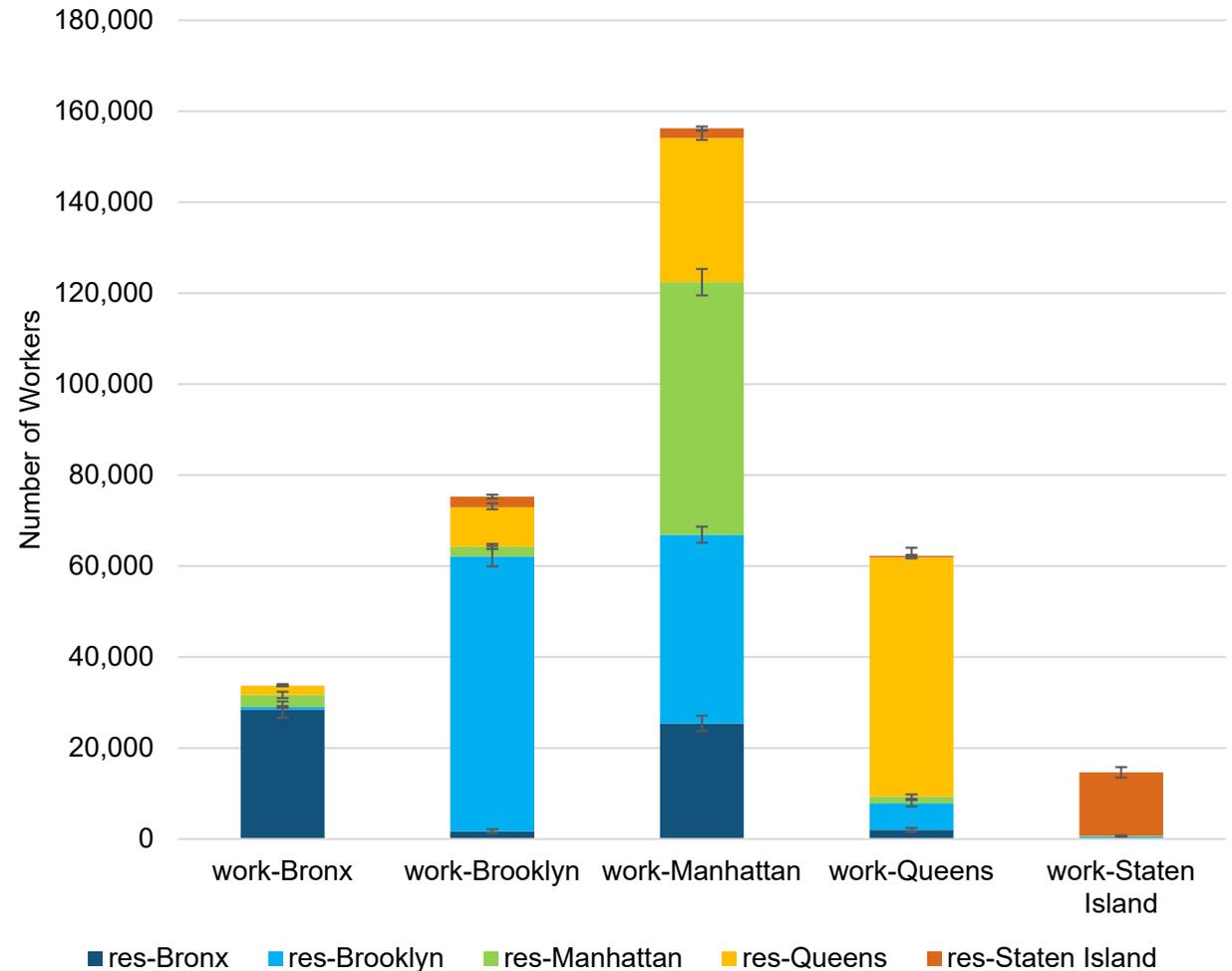
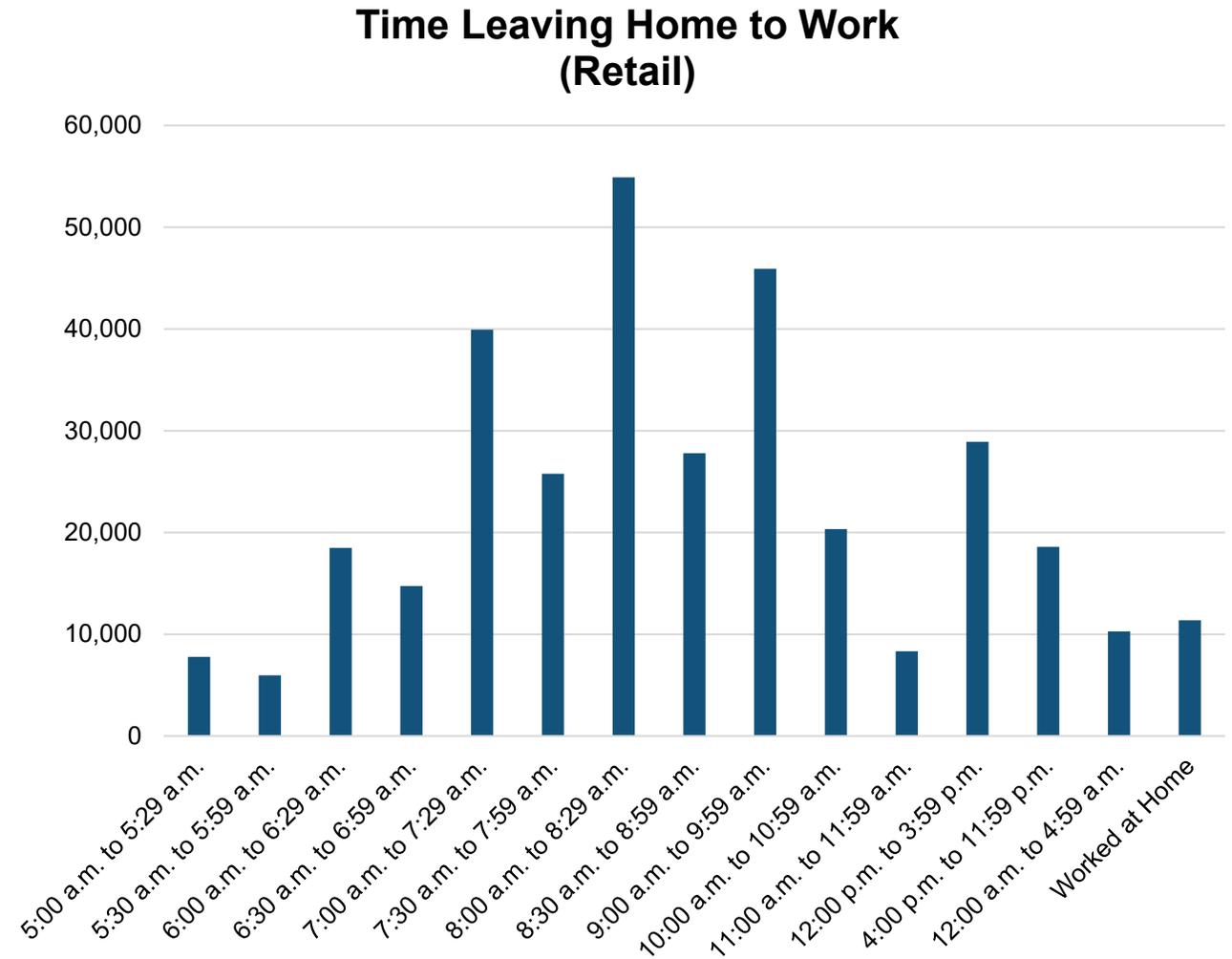**Means of Transportation to Work by Place of Work Borough for Retail Workers**

Other modes include streetcar, rail, ferry, taxi, motorcycle, bicycle, walked and other method.

Data source: U.S. Census Bureau, 2014-2018 American Community Survey-- Public Use Microdata Sample

- As with most workers, retail workers are more likely to live in the borough in which they work than in any other borough.

- Outside of their home borough, retail workers are most likely to work in Manhattan.

Residence and Workplace of Essential and Non-Essential Retail Workers

Legend: res-Bronx, res-Brooklyn, res-Manhattan, res-Queens, res-Staten Island

Data source: U.S. Census Bureau, 2014-2018 American Community Survey-- Public Use Microdata Sample

- As with all sectors that employ large numbers of people working in New York City, the ability to work from home and/or stagger commute times will play a role in how strained the transportation system is by an economic reopening.

- Retail workers have relatively dispersed commute hours compared to other more "9am to 5pm" sectors, but the 8am-9am time band is still the most common commute hour.

- Prior to the pandemic, 3.4 percent of retail workers reported working from home.

Time Leaving Home to Work (Retail)

Preparing for a Phase 1 Reopening:
Construction

Phase 1: Construction Workers

- Pre-COVID-19 workforce: about 160,000 New Yorkers work in the construction sector.

- Pre-COVID-19 commuting: 45 percent commute via subway and 35 percent by car.

- Although Manhattan is a significant cluster, jobs are dispersed across the five boroughs.

Means of Transportation to Work by Place of Work Borough for Construction Workers
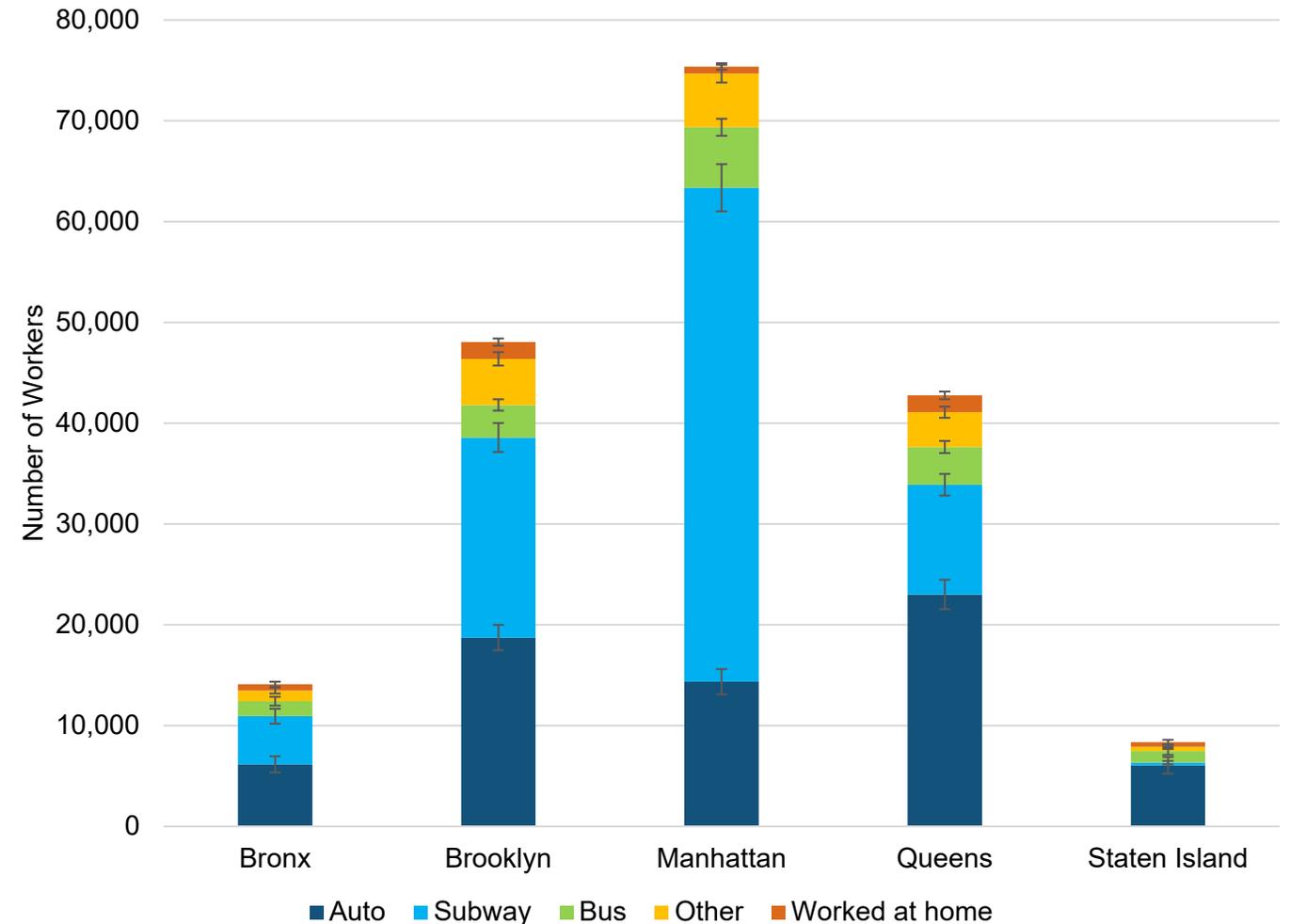
Other modes include streetcar, rail, ferry, taxi, motorcycle, bicycle, walked and other method.
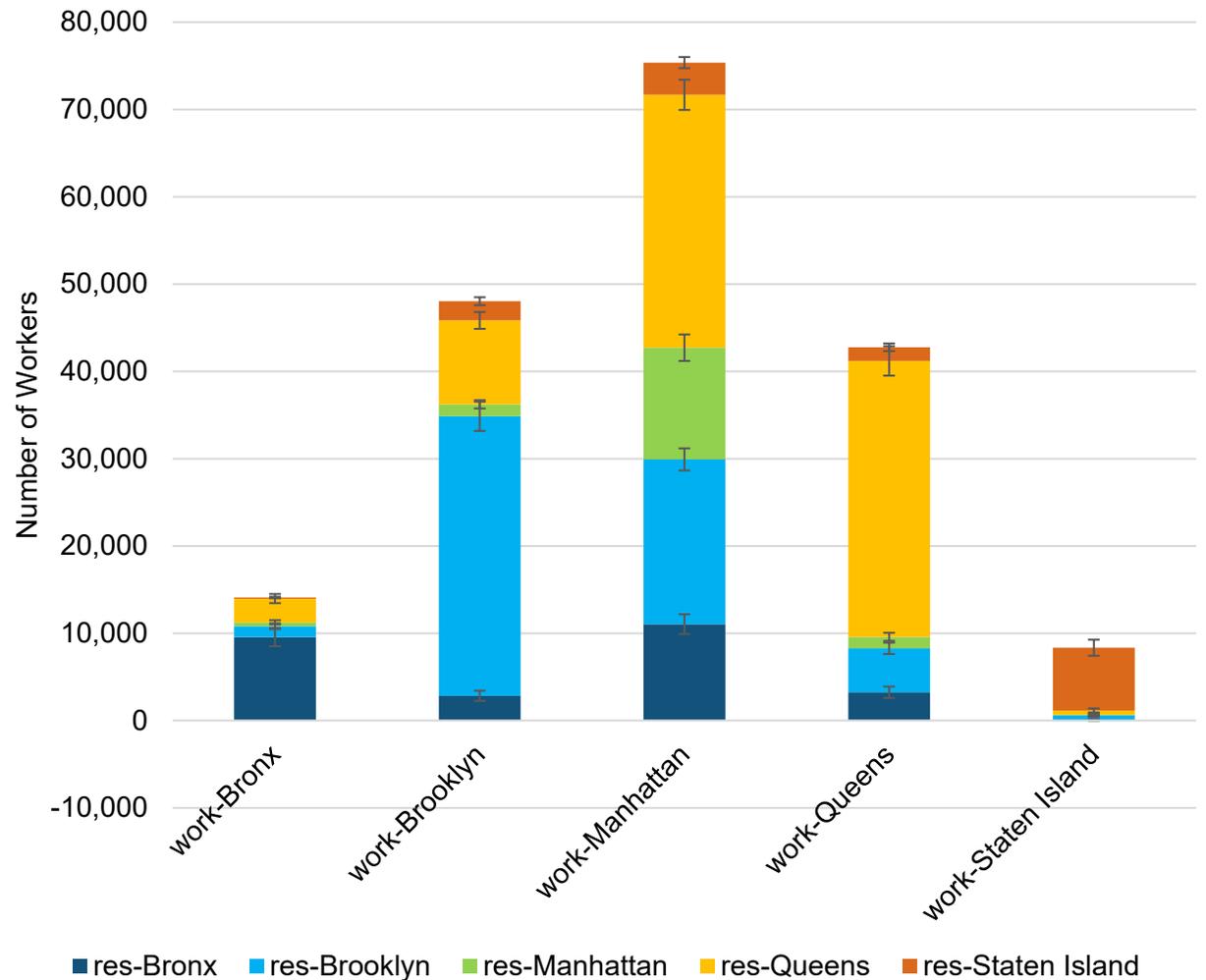
Phase 1: Construction Workers

- Ten percent of construction permits and 37 percent of permitted square feet are in Manhattan

- Although Manhattan is a significant cluster for construction, jobs in the construction industry are dispersed across the five boroughs.

	Total Job Sites	Percent Total Job Sites	Total Square Feet Under Construction	Percent Total Square Feet Under Construction
Bronx	560	8%	18,154,619	10%
Brooklyn	2,555	37%	56,566,626	30%
Manhattan	692	10%	70,407,313	37%
Queens	2,236	32%	37,735,921	20%
Staten Island	871	13%	5,584,492	3%
Grand Total	6,914	100%	188,448,971	100%

https://www1.nyc.gov/assets/buildings/html/nyc-active-major-construction.html

Phase 1: Construction Workers

- As with most workers, construction workers are generally more likely to live in the borough in which they work than in any other borough.

- Outside of their home borough, construction workers are most likely to work in Manhattan.

- The exception is construction workers who live in the Bronx; slightly more Bronx residents work in Manhattan than in the Bronx.

Residence and Workplace of Construction Workers

Legend: res-Bronx, res-Brooklyn, res-Manhattan, res-Queens, res-Staten Island

Y-axis: Number of Workers (-10,000 to 80,000)

X-axis: work-Bronx, work-Brooklyn, work-Manhattan, work-Queens, work-Staten Island

- Commute times among construction workers tend to be earlier than 8am-9am peak, with most departing between 6am-7:30am.

- There may be opportunities in this sector to encourage staggered work hours and commute times.

- Prior to the pandemic, 2.7 percent of construction workers reported working from home.

**Time Leaving Home to Work
(Construction)**
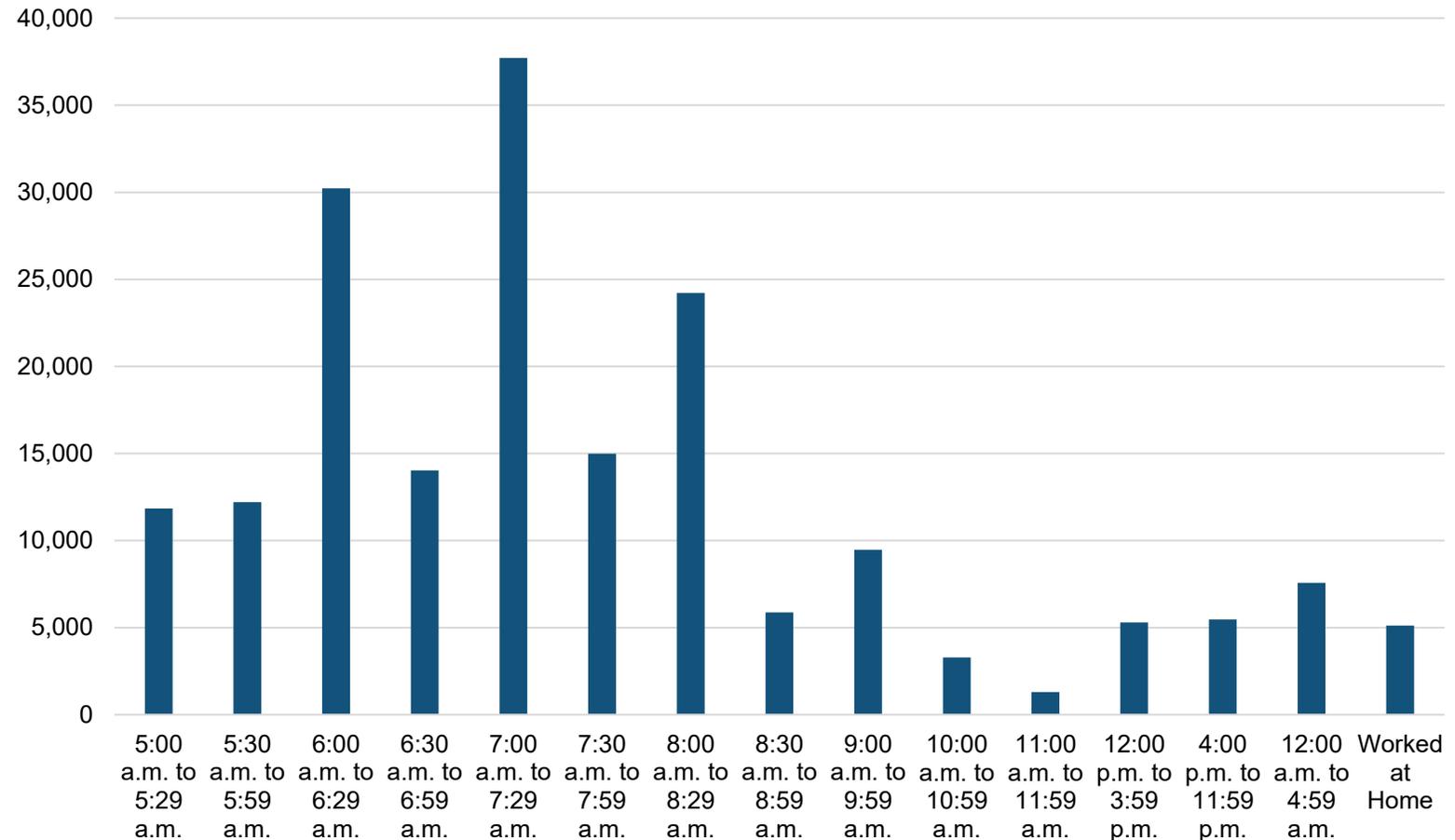
Preparing for a Phase 1 Reopening:
Manufacturing and Warehousing

- Pre-COVID-19 workforce: about 207,000, with majority in warehouse trade.

- Pre-COVID-19 commuting: nearly 50 percent commute via subway and 10 percent by bus.

- The largest proportion of jobs in this industry reported in Manhattan (approximately 45 percent) are primarily headquarters and other office jobs, and are likely to continue telework or remote reporting.

- Among workers in this industry not commuting to Manhattan, 24 percent commute by subway.

**Means of Transportation to Work by Place of Work Borough for Manufacturing & Warehouse Workers**
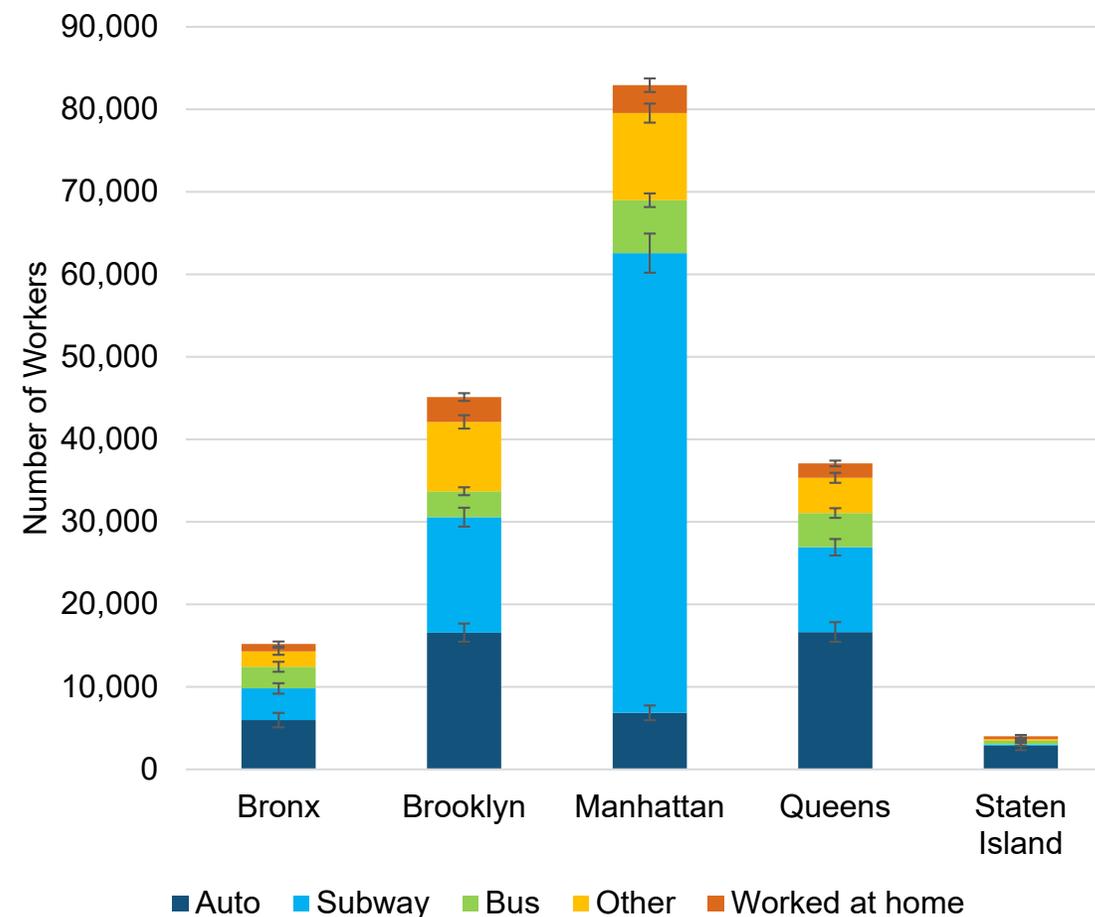
Other modes include streetcar, rail, ferry, taxi, motorcycle, bicycle, walked and other method.

Data source: U.S. Census Bureau, 2014-2018 American Community Survey-- Public Use Microdata Sample

- Job clusters in this industry are in Industrial Business Zones (e.g., Hunts Point, LIC/Maspeth, Sunset Park).

- Workers in locations outside Manhattan are highly likely to live in the borough where they work

**Residence and Workplace of Manufacturing & Warehouse Workers**
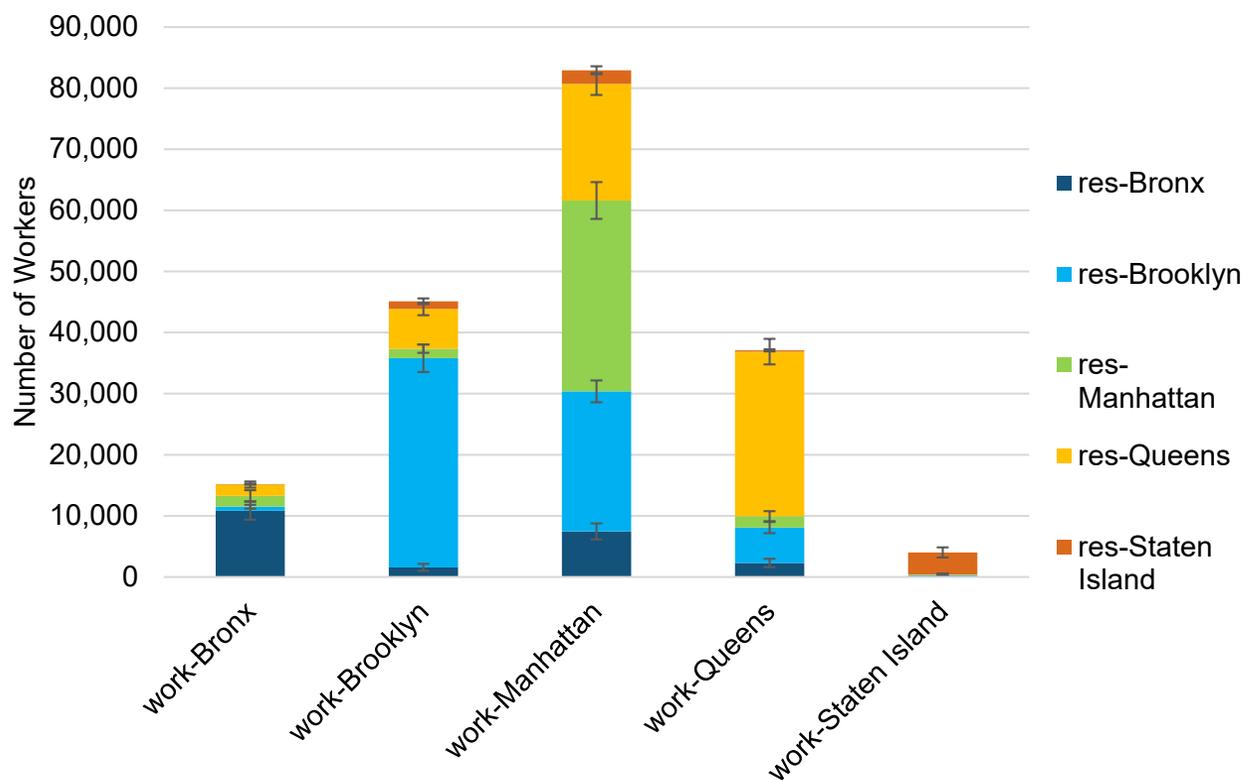
NYC Department of City Planning, January 2016

- As shown on previous slides, 50 percent of workers in this sector commute by subway, and 10 percent commute by bus.

- Manufacturing and Warehouse workers are oriented around the peak commute hour of 8-9am.

- Prior to the pandemic, 5.1 percent of manufacturing and warehouse workers reported working from home.

**Time Leaving Home to Work
(Manufacturing & Wholesale)**

Data source: U.S. Census Bureau, 2014-2018 American Community Survey-- Public Use Microdata Sample
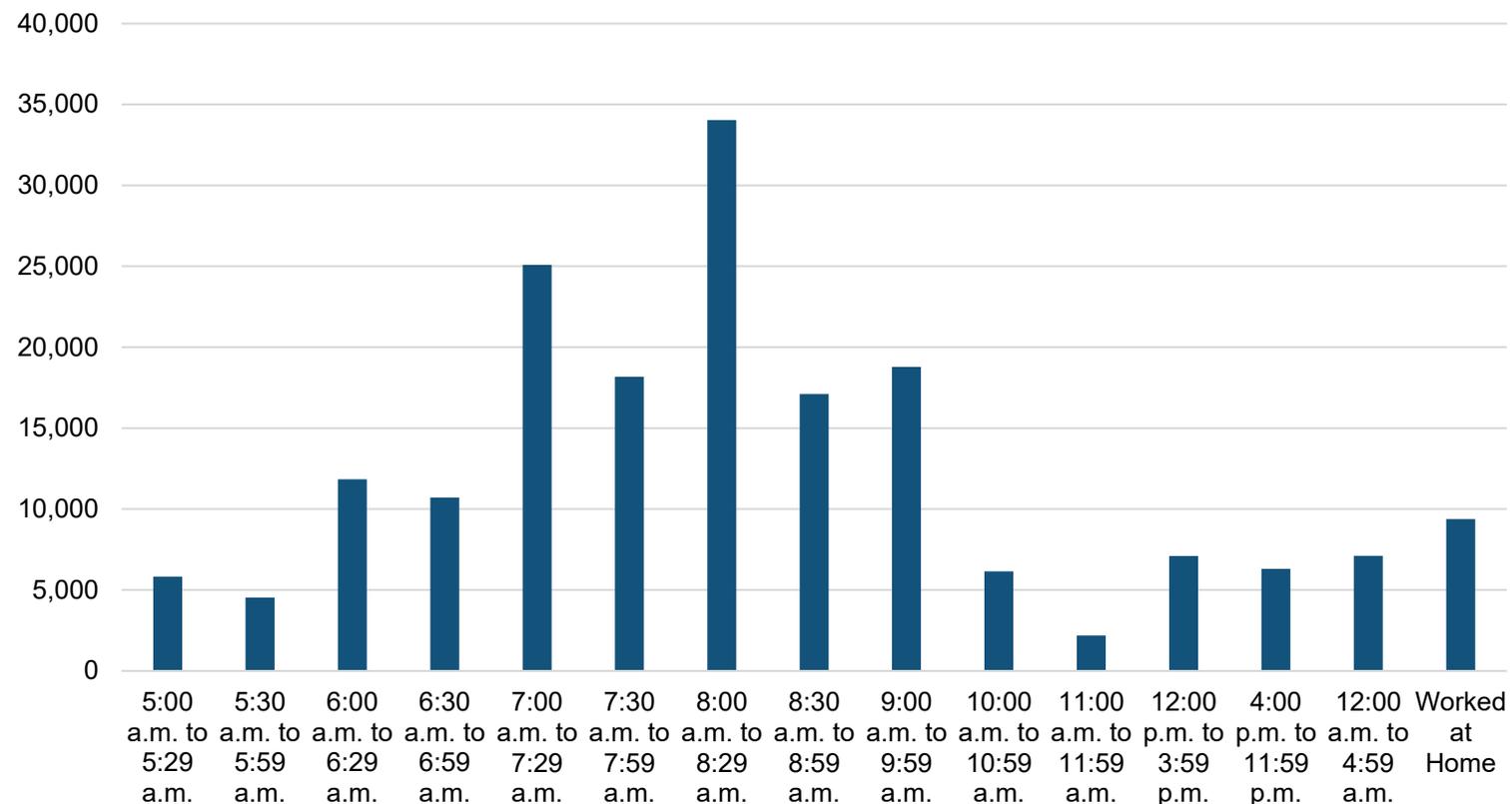
Timeline

New York COVID19 Pandemic Timeline

- March 1st, 2020: **First confirmed case** in New York (Manhattan healthcare worker) https://www.wsj.com/articles/first-case-of-coronavirus-confirmed-in-new-york-state-11583111692

- March 5th, 2020: Mayor De Blasio says that virus fears shouldn't keep New Yorkers off the subway https://www.nydailynews.com/coronavirus/ny-coronavirus-bill-de-blasio-coronavirus-subway-20200305-vmjdxjudbndlrjekashqs3hfou-story.html

- March 7th, 2020: Governor Cuomo **declares state of emergency** https://www.nytimes.com/2020/03/07/nyregion/coronavirus-new-york-queens.html

- March 8th, 2020: City and State implement **new travel guidelines**, asking sick people to stay off transit https://www.nbcnewyork.com/news/local/nyc-issues-new-commuter-guidelines-to-combat-coronavirus-spread/2317584/

- March 10th, 2020: Governor Cuomo declares **containment zone in New Rochelle** from March 12th through 25th https://www.nytimes.com/2020/03/10/nyregion/coronavirus-new-york-update.html

- March 11th, 2020: Governor Cuomo announces **closures of CUNY and SUNY schools** from March 12th-19th, moving to online classes after that for the rest of the semester

- 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. In addition, only medically necessary visits would be allowed at nursing homes. **Broadway theaters** were also shut down effective that night. 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 19th: The Governor announces that **75% of non-essential employees** must work from home. https://www.thestreet.com/lifestyle/health/ny-governor-cuomo-workers-must-stay-h

- 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 23rd: NYC Ferry modifies weekday service

- 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

- March 30th: Staten Island Ferry reduces service to every hour

- April 30th: Governor Cuomo announces **impending overnight subway shutdowns** from 1:00am – 5:00am for enhanced sanitization procedures. https://www.nytimes.com/2020/04/30/nyregion/subway-close-cuomo-coronavirus.html

- May 6th: Nightly 1am-5am subway shutdown begins