

THE STATE OF TRANSPORTATION

INTERNSHIP FINAL REPORT



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**NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS
PLANNING DIVISION**

REPORT COMPLETED BY MATTHEW COLETTA



How Will COVID-19 Change the Way People Travel? State of Transportation Report

Executive Summary

The transportation sector is expected to change in light of COVID-19 given the downtrend in ridership the sector has and will experience. Over the past couple of years, public bus ridership has been trending downwards due to route cuts and the growing popularity of ride-share. It is expected that more driving of private vehicles will take place as the CDC's guidelines are discouraging the use of public transit. Many public transit agencies aren't expecting to see pre-COVID ridership levels and are forecasting ridership to slowly recover over the next year or two. Although there was tremendous momentum for bike-share and scooter-share before the pandemic, it is unclear what the future holds for bike-share and scooter-share on Long Island. Overall, though, it seems more cities are moving toward implementing bike-share and potentially scooter-share. On a similar focus, there are many initiatives going on to promote complete streets and provide more safety for both pedestrian and bicyclists. Many experts expect biking to become an integral part of cities in the future, given the growing popularity of cycling and bike-share as a whole.

Introduction

COVID-19's effects will be felt across many sectors and fields, but transportation will surely change in light of the pandemic. Before COVID-19, Long Island's car industry was booming. A shift had been emerging among Long Islanders' preference for automobiles, however. As of 2019, 12,833 electric vehicles were registered on Long Island, which represents 30% of the total for New York State, despite having only 15% of the state's population. Although COVID-19 has shut down many cities across the globe, many are taking the opportunity to improve their automobile infrastructure's efficiency and to encourage safer driving. In Austin, Texas, the city retimed many street signals to reduce wait times for drivers along major corridors. It is probable to expect more driving of single occupancy vehicles during the pandemic given the CDC's guidelines, and individuals' hesitancy to take public transportation. The CDC is currently encouraging people to drive to places they need to go, especially workers when commuting to work. It's predicted that many public transportation riders may not return to that way of travel, which may spell disaster. Researchers are forecasting that increased driving will lead to more grid lock and further delays, and in turn decreasing efficiency overall.

Even before COVID-19, public bus ridership had been trending downwards due to route cuts, and the increasing popularity of ride-share, like Uber and Lyft. Public train service ridership had been fluctuating over the past few years. The public transportation sector was hit hard during the pandemic with all modes seeing sharp drop-offs in ridership in March. Some routes recovered more quickly than others, and most routes are beginning to see slow recoveries. Looking ahead, many health experts believe many riders won't use public transit until there is a COVID-19 vaccine. Many public transit agencies aren't expecting to reach 100% pre-COVID levels, and even then, there is still a great deal of uncertainty given consumers changing behavior and attitude toward public transit.



In the months leading up to the pandemic, there was great momentum building for bike-share and scooter-share with many cities beginning to roll out pilot programs. Both modes of transit have great potential to be a viable, alternative means of travel. Citi Bike, New York City's bike-share program was found to be a cheap and efficient way to get around the city. Bike-share has seen tremendous growth during the pandemic as commuters begin to explore other means of transit. However, scooter-share and ride-share have not fared as well, with both suffering extreme ridership declines during COVID-19. Although there may be kinks to work out with bike-share in certain cities, the overall trend is heading toward more bike-share programs being implemented. Ride-share seems to be venturing into other delivery services as ridership still remains very low.

In the months leading up to COVID-19, placemaking and complete streets initiatives were taking place on Long Island. There were clear objectives to improve dangerous roadways and allow for greater diversity of users. New York City's Department of Transit (DOT) has also created many initiatives to improve pedestrian safety, like enhanced crossings, and slow zones. There has also been a great focus on bike lanes. Long Island has nearly 140 miles of bike lanes, and NYC had been building many bike lanes prior to the pandemic. During the coronavirus, Nassau County initiated an Open Streets Pilot Program, allowing people to enjoy the outdoors and conduct business in a safe way. People are exploring the outdoors with bicycles too. There has been a huge jump in bicycle sales during the pandemic, which has resulted in safety measures being implemented by many cities.

Many experts expect to see cycling becoming a more integral part of cities. The boom in cycling may see increased demand if economic factors persist, as bicycles are much cheaper than private vehicles or public transit. Cities across the globe are making changes in favor of bicyclists and pedestrians given the success they've been having.

Pre-COVID 19

a. Single Occupancy Vehicles

Before COVID-19, Long Island's car industry was doing quite well. Car sales and leases on LI were rising as of 2018. Registrations of new cars on Long Island and in New York State (NYS) rose in January 2018 compared with the same month the prior year (2017). In fact, Long Island had a 13.5% increase in car registrations, while NYS rose just 4.7% in the same time period, according to data from the Experian consumer credit reporting agency. Registrations of new cars fell nationwide by 7.5% during the same period.¹

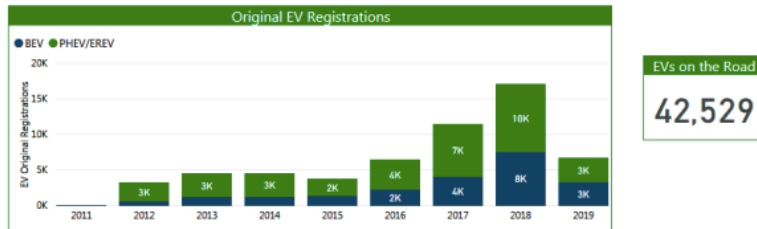
With the number of cars being purchased, it is logical that a large percentage of Long Island residents drive to work. According to the U.S. Green Building Council, 75% of Long Islanders drive alone to work - 70% in Nassau County and 80% in Suffolk County. Breaking down the data even further, households in Nassau and Suffolk Counties have 2.1 and 2.3 vehicles per household,

¹ Tory N. Parrish, "LI Car Sales Rise, Bucking National Trend," Newsday, March 18, 2018, accessed August 04, 2020. <https://www.newsday.com/business/auto-car-sales-long-island-1.17430537>.

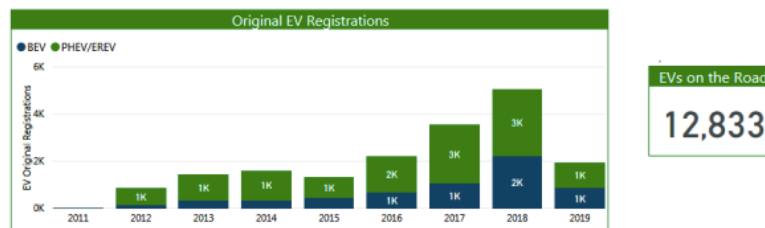


respectively. When compared with the average of NYS (1.3 cars per household), we see that Long Island's average is roughly 40% higher than the NYS's average of 1.3 vehicles per household.²

New York State Electric Vehicle Registrations by Year and Technology



Long Island Electric Vehicle Total Registrations by Year and Technology



NYS V. LI Electric Vehicle Registrations by Year. https://usgbc-li.org/sites/default/files/documents/2019_state_of_the_evs_on_long_island.pdf.

likely to contribute to further growth in Long Island's electric vehicle market in the months and years ahead.

b. Buses and Trains

Before COVID-19, bus ridership across the United States has been trending down. The National Transit Database (NTD) reported that from 2014-2019, fixed-route (FR) ridership declined nationwide.⁵

In Nassau County, the Nassau Inter-County Express (NICE) saw ridership largely follow a similar trend. From 2014 to 2018, NICE saw year over year decreases, starting with 28.38 million passenger trips in 2014, and ending with 22.98 million in 2018. It should be noted that part of the declines in NICE ridership can be attributed to route cuts that took place in 2016 and 2017. In 2016 eight routes were eliminated, and in 2017, an additional three routes were eliminated. NICE also

² "The State of Electric Vehicles on Long Island," September 2019, accessed August 4, 2020. https://usgbc-li.org/sites/default/files/documents/2019_state_of_the_evs_on_long_island.pdf.

³ Ibid.

⁴Tim Levin, "All the Things Carmakers Say They'll Accomplish with Their Future Electric Vehicles between Now and 2030," Business Insider, January 28, 2020, accessed August 4, 2020. <https://www.businessinsider.com/promises-carmakers-have-made-about-their-future-electric-vehicles-2020-1>.

⁵ Jonathan Feldman, and Raymond Mazzeo, "NICE Bus Information," telephone interview by author, July 14, 2020.



reported that ridership declines over this time period can likely be attributed to the increasing popularity of ride share (Uber, Lyft).⁶ In 2019, NICE saw ridership increase to 23.79 million. However, this is mostly attributed to the implementation of a more reliable automatic passenger counting system.⁷ In 2020, there were net increases in ridership for the months of January and February compared to 2019, but sharp declines were observed in March as awareness about COVID had grown. The table below provides greater detail on NICE bus ridership levels.

Year	Unlinked Passenger Trips	Note
2014	28,383,880	
2015	27,180,291	
2016	26,902,007	n2, n8, n14, n17, n46, n50/51, n73 eliminated
2017	25,244,195	n36, n47, n81 eliminated
2018	22,980,391	
2019*	23,791,024	

Nearby in Westchester County, the Bee-Line bus system saw ridership follow similar trends with a decline in ridership over the same time period. In 2013 they saw a peak of 32 million riders, while 2018 ridership was at 26 million.⁸

NYC saw their bus ridership decline as well during the same 2014-2019 time period according to the MTA. Subway ridership fluctuated during this time period.

c. Shared Mobility (Bike share, scooter share, car share, ride share)

There have been two examples of bike-sharing on Long Island, as well. Bethpage Ride launched on September 15th, 2019 and included 100 bikes at 17 stations in Babylon, Patchogue and the Hampton Bays. The program aimed to reduce traffic congestion, and encourage a healthier lifestyle.⁹ Long Beach, NY also implemented their own bike share program: Social Bicycles. While the program ended in 2019, extensive data was received through the program's operation from residents and visitors via their app: Social Cyclist. One unique characteristic about Social Bicycles was that each rider had the ability to share ride routes, check CO₂ burned,



Boston-based Zagster operated Bethpage Ride. Bikes are seen parked in the dock.
<https://www.newsday.com/long-island/suffolk/bike-share-program-coronavirus-bethpage-ride-1.45027554>.

⁶ Jonathan Feldman, and Raymond Mazzeo, "NICE Bus Information," telephone interview by author, July 14, 2020.

⁷ Ibid.

⁸ Naomi Klein, "State of Transportation in Westchester County," telephone interview by author, July 24, 2020.

⁹ Dandan Zou, "Suffolk Launches Ride-share Program with 100 Bikes," Newsday, September 16, 2019, accessed August 04, 2020. <https://www.newsday.com/long-island/suffolk/bethpage-ride-bike-share-bicycles-1.36358953>.



and visualize money saved by not driving.^{10 11} In New York City, Citi Bike stations have grown along with the number of Citi Bike trips. In October of 2018, 2,578 Citi Bikes were recorded in the Midtown Core, compared to 1,673 trips per day in October 2015. Citi Bikes are over one minute faster than taxi trips across all distance categories, according to the City of New York. Additionally, the city reports that Citi Bike trips cost less than 25% of taxi trips for all length categories except 0 to 0.5 miles long.¹²



Two of Lime Bike's e-scooters in NYC.

<https://www.wsj.com/articles/new-york-city-council-kicks-the-tires-on-scooter-sharing-program-11548288639>.

New York State also legalized the use of bikes with electric assist on certain streets and highways as of April 2020, and the use of electric scooters will be legal as of August 2, 2020. These devices can be operated on highways with a posted speed limit of 30 MPH or less, but they cannot be operated on a sidewalk except as authorized by a local law or ordinance.¹³

Many cities have also begun to implement scooter share programs as another alternative means of travel.

One example is Chicago. The city launched their scooter share pilot program from June 15th to October 15th, 2019, in which they reported 821,615 rides in the city. On average, the length of each ride lasted 1.5 miles, and 12 minutes long.¹⁴ Another interesting statistic is that the e-scooters were most frequently used during the evening rush on weekdays and between 3 and 4 pm on weekends. Additionally, nearly half of all e-scooter trips started or ended near public transit.¹⁵

¹⁰ "New Bike-sharing Program to Roll in Long Beach," Herald Community Newspapers, accessed August 04, 2020. https://www.liherald.com/longbeach/stories/new-bike-sharing-program-to-roll-in-long-beach,53752?page=3&content_source=.

¹¹ "Bike Share Is Back In Long Beach!" The City by the Sea, accessed August 04, 2020. <https://www.longbeachny.gov/index.asp?SEC=33BD7D65-42BC-45CB-ABAB-A6E2B4FB1BFB&DE=10BE5E0F-C0F9-4B54-B65A-0BB30972D01F>.

¹² "New York City Mobility Report," NYC Department of Transportation August 2019, accessed August 4, 2020. <https://www1.nyc.gov/html/dot/downloads/pdf/mobility-report-singlepage-2019.pdf>.

¹³ Luke Potoski, "Electric Scooters and Bicycles and Other Unregistered Vehicles" New York DMV, April 29, 2020, accessed August 05, 2020. <https://dmv.ny.gov/registration/electric-scooters-and-bicycles-and-other-unregistered-vehicles>.

¹⁴ City of Chicago, "E-Scooter Pilot Evaluation," City of Chicago - Mayor Lori Lightfoot, January 2020, accessed August 4, 2020. https://www.chicago.gov/content/dam/city/depts/cdot/Misc/EScooters/E-Scooter_Pilot_Evaluation_2.17.20.pdf.

¹⁵ City of Chicago, "E-Scooter Pilot Evaluation Summary," CITY OF CHICAGO — MAYOR LORI LIGHTFOOT, January 2020, accessed August 4, 2020. https://www.chicago.gov/content/dam/city/depts/cdot/Misc/EScooters/Scooter_Evaluation_Executive_Summary_1.29.20.pdf.



Chicago's scooter share program with dock less scooters.
<https://chi.streetsblog.org/2019/05/01/chicago-will-launch-a-pilot-with-2500-dockless-scooters-on-june-15/>

Another city that has had experience with scooter share programs is Seattle, WA. Seattle has placed great emphasis on pedestrian safety, equity, and efficiency. Seattle has broken down the overall process into three phases to ensure the program goes smoothly. As with many communities, Seattle residents expressed the most concern over how e-scooters would affect the sidewalks, parking and right of way. However, some of the immediate benefits are increased mobility, single occupancy vehicle reduction, decrease in carbon emissions, and increased transit connections.¹⁶ As of May 8th, 2019, the city was focusing on making scooter share permanent.¹⁷

Ride-share has recently gained immense popularity due to the convenience and ease with which trips can be booked. On April 10th, 2017, Governor Andrew Cuomo signed the Fiscal Year 2018 State Budget which authorizes ridesharing services such as Lyft and Uber, to operate throughout New York State for the first-time beginning summer 2017.¹⁸ Rideshare trips (Lyft and Uber) are up 90% since 2010, adding 36.9 million trips a year between 2016 and 2017 alone. Additionally, the number of for hire vehicles registrations have more than doubled since 2010. For hire vehicle registrations are continuing to grow, increasing 22.7% from 2016 to 2017.¹⁹

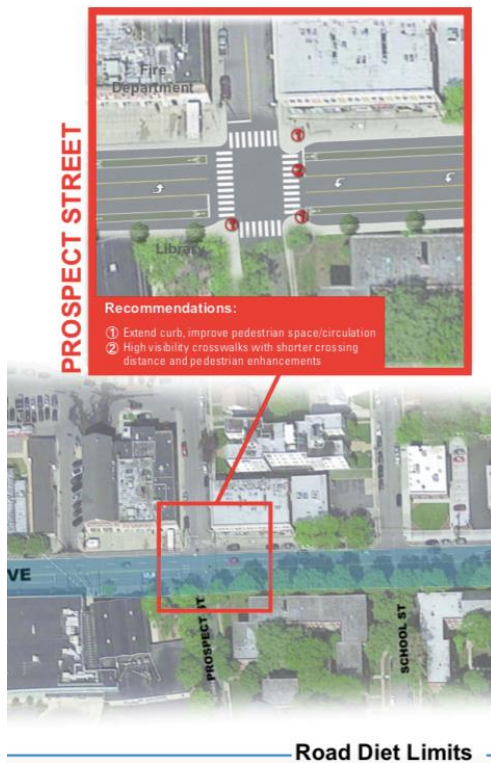
¹⁶ "Year End Scooter Share Update," accessed August 4, 2020.

[http://www.seattle.gov/Documents/Departments/SDOT/TransitProgram/ScooterShare/ScooterShare_YearEnd_Report\(1\).pdf](http://www.seattle.gov/Documents/Departments/SDOT/TransitProgram/ScooterShare/ScooterShare_YearEnd_Report(1).pdf)

¹⁷ Jenny Durkan, "Seattle Mayor Jenny Durkan: Let's Try Scooters, but Let's Do It Right," GeekWire. May 09, 2019, accessed August 04, 2020. <https://www.geekwire.com/2019/seattle-mayor-jenny-durkan-lets-try-scooters-lets-right/>.

¹⁸ "Governor Cuomo Announces New Regulations to Bring Ride Sharing to Upstate and Long Island This Summer," Governor Andrew M. Cuomo, June 07, 2017, accessed August 04, 2020. <https://www.governor.ny.gov/news/governor-cuomo-announces-new-regulations-bring-ride-sharing-upstate-and-long-island-summer>

¹⁹ "New York City Mobility Report," NYC Department of Transportation August 2019, accessed August 4, 2020. <https://www1.nyc.gov/html/dot/downloads/pdf/mobility-report-singlepage-2019.pdf>.



d. Pedestrians, Bikes, Other

Vision Long Island's "Complete Streets Coalition" provides a prime example of where pedestrian and bike safety, transit access, and placemaking initiatives were headed before COVID-19.

Pedestrian safety is the point of emphasis, with clear objectives to improve dangerous roadways, and allow greater diversity of users.²⁰ Some areas of focus by the Coalition have included Baldwin and Hicksville. Baldwin is aiming to create complete streets along Grand Ave.²¹ The Downtown Hicksville Complete Streets Project aims to improve the accessibility and safety for all users, with the final report for the planning phase now available.²² Both projects include bike lane infrastructure, lane reductions, and pedestrian safety initiatives in their recommendations. Grand Ave is moving forward with construction in the near future and coordination in Hicksville is ongoing.²³

One of the recommendations for the Baldwin Complete Streets Plan along Grand Ave.
<https://www.nassaucountyny.gov/DocumentCenter/View/27701/NCDPW-Baldwin-Grand-Ave-Complete-Streets-Study-Final-Report-May-2016>

recommend routes, or general improvements to Suffolk County's network for hiking and biking trails.²⁴

Additionally, Suffolk County Executive, Steve Bellone announced a new website (www.hikebikesuffolk.com) in April of 2019 for a county-wide hike and bike master plan. The site allows users to make specific comments,

In other parts of the region, such as New York City, areas including Brooklyn Bridge Park and the Williamsburg waterfront have undergone extensive efforts to create meaningful public spaces that people want to be in. With outdoor dining gaining more popularity and many people having a

²⁰ "Over 100 Local Officials, Community and Business Leaders Join the 2019 Long Island Complete Streets Summit," Complete Streets Coalition, accessed August 04, 2020. <http://visionlongisland.org/complete-streets-summit>.

²¹ "2016 Grand Avenue, Baldwin Complete Streets Traffic Study," 2016 Grand Avenue, Baldwin Complete Streets Traffic Study | Nassau County, NY - Official Website, accessed August 04, 2020. <https://www.nassaucountyny.gov/4257/Grand-AveBaldwin-Complete-Streets-Traffi>.

²² "Hicksville Complete Streets," Downtown Hicksville Complete Streets Project | Downtown Hicksville, accessed August 04, 2020. <https://downtownhicksvillenyny.com/>.

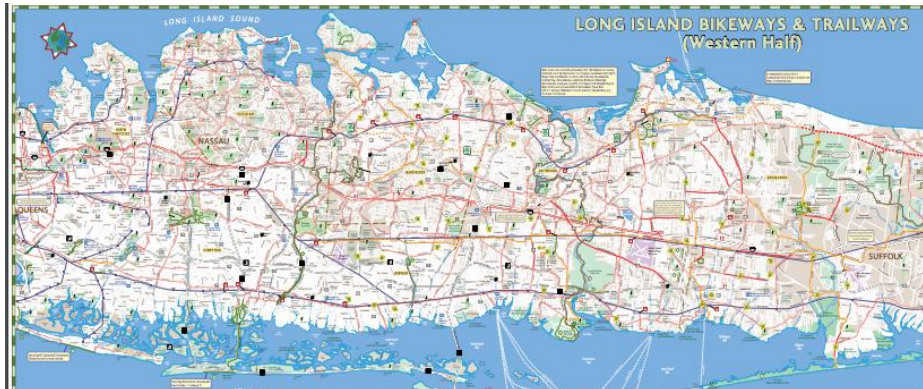
²³ "How Will COVID-19 Change the Way People Travel?" Online interview by author, August 2, 2020.

²⁴ Steve Burkhart, "Suffolk County Executive Bellone Announces Launch of New Website for County-Wide Hike and Bike Master Plan," Suffolk County Government, April 30, 2019, accessed August 05, 2020. <https://suffolkcountyny.gov/News/suffolk-county-executive-bellone-announces-launch-of-new-website-for-county-wide-hike-and-bike-master-plan>.



greater desire to be outdoors, it seems the efforts to implement complete streets, and streets with a greater focus on pedestrian safety are here to stay.

It is worth noting that New York City's Department of Transit (DOT) has also initiated many initiatives to improve pedestrian safety and accessibility. Neighborhood Slow Zones, Enhanced Crossings, and Safe Routes to Transit are a few examples. In addition to these initiatives, DOT has been instituting many Street Design initiatives, like City Bench, Public Plazas, and WalkNYC – all of which aim to make streets, sidewalks, and public spaces more comfortable and multi-use for pedestrians.²⁵



Comprehensive map of bike lanes throughout Long Island.

<https://511nyrideshare.org/documents/50030/50214/Long+Island+Bikeways+and+Trailways/bb9ec2f9-bab9-4fa3-bb17-4d35430f8f6d>

Long Island has nearly 140 miles of biking trails spread all across the island through trails, bike paths, and greenways.²⁶ The NY 25 State Bike Route is one of the longer ones stretching from Smithtown to Orient point for a total of 67 miles.²⁷

NYC has been building many bike lanes and has the largest bicycle network in North America. To keep in line with safe growth, DOT is constructing a system of bicycle routes to connect the five boroughs. In addition to bike lanes, bike parking is also being implemented in order to allow riders to park their bicycles safely.²⁸

Current Conditions:

a. Single Occupancy Vehicles

Across the NY metro region, residents and business owners noticed drastic changes to traffic conditions as stay at home orders were implemented and many workers began working from home. In recent weeks, as the area began reopening, traffic has begun to increase once again. Many cities across the U.S. have taken the opportunity that COVID-19 has provided to make improvements to the more technical aspect of their automobile infrastructure. In Austin, Texas, after stay at home

²⁵ "Pedestrians," NYC DOT – Pedestrians, accessed August 04, 2020.

<https://www1.nyc.gov/html/dot/html/pedestrians/pedestrians.shtml>.

²⁶ "Bicycle Trails and Paths on Long Island," Newsday, October 08, 2019, accessed August 04, 2020.

<https://www.newsday.com/lifestyle/recreation/bike-trails-long-island-nassau-suffolk-1.5232272>.

²⁷ "Long Island Bikeways & Trailways," NY Ride Share, accessed August 4, 2020.

<https://511nyrideshare.org/documents/50030/50214/Long+Island+Bikeways+and+Trailways/bb9ec2f9-bab9-4fa3-bb17-4d35430f8f6d>.

²⁸ "Bicyclists," NYC DOT – Bicyclists, accessed August 04, 2020.

<https://www1.nyc.gov/html/dot/html/bicyclists/bicyclists.shtml>.



orders reduced motor vehicle traffic, Austin retimed signals on multiple major corridors to limit travel delay for all road users by reducing time between signal phases. Another city in the U.S., Los Angeles, CA has adjusted signals throughout the city to “nighttime mode” to encourage safer driving. The adjustment changes signals to red when traffic volumes are low, reducing speed opportunity for cars caused by green waves of signals.²⁹

Although there is not much concrete data on private vehicle use, given the CDC is currently recommending for people to minimize close contact with others including during commuting, and many people’s hesitancy to ride public transportation, more driving is taking place. Many residents of the NY metro area have expressed their desire to steer clear of the public transportation system for the time being, even though it may be faster in some cases, and are instead driving.

b. Buses and Trains

The public transportation sector was hit especially hard in light of COVID-19, which was seen on Long Island and in New York City. The Nassau Inter-County Express (NICE) bus service saw steep declines starting in March of 2020. The Long Island Railroad, and the MTA bus and train service all saw declines as well.

After bottoming out at a 78% loss of pre-pandemic ridership, NICE data shows there has been a notable increase in average weekly ridership from April 2020 to July 2020. The table below illustrates the increases in ridership. Increases in the LIRR ridership (and other transit), have been closely tied with NYS’s phased reopening.³⁰

NICE Bus and LIRR:³¹

Month and Year	NICE bus weekly ridership (riders)
April 2020	17,000 – 18,000
May 2020	21,000
June 2020	33,000
July 2020	37,900

It is observed that many of the riders still using the service are doing so because they have no other choice. This is evidenced by the N4, N6, N40, N41 bus lines, which maintained high counts of ridership during the pandemic. There are many transit-dependent residents who live along these lines, and many continued using transit for necessities, like going to the grocery store. The N40/N41 also serves social service facilities and locations to file for unemployment benefits.³²

Weekend ridership was back to 55% pre-COVID levels by July 2020. This may be attributed to weekend ridership containing a higher percentage of essential workers and those making essential trips. During the week typical trips to the office, school, and doctor could be done remotely.

²⁹ Social Ink, "Rapid Response: Emerging Practices for Cities," National Association of City Transportation Officials, accessed August 04, 2020. <https://nacto.org/covid19-rapid-response-tools-for-cities/>.

³⁰ Jonathan Feldman, and Raymond Mazzeo, "NICE Bus Information," Telephone interview by author, July 14, 2020.

³¹ Ibid.

³² Ibid.



However, this wasn't the case on Saturday and Sunday, and trips had to be made, so ridership rebounded faster.³³

In Westchester County, bus ridership declined drastically during the pandemic. In Yonkers, Mount Vernon and New Rochelle, 75-80% of ridership was lost at the peak of the pandemic. The densest areas of the County saw the quickest return of ridership, with areas such as Yonkers seeing quick returns. It is estimated that the system has seen the return of about two-thirds of its riders.³⁴

Looking at data for the MTA bus and subway service from April 2020 to July 2020, there is a slow, albeit constant increase in ridership from April 2020 to July 2020. Although ridership is down significantly from the prior year, ridership has continued to rebound.³⁵

MTA bus and subway ridership:³⁶

Month and Year	MTA bus and subway ridership compared to 2019 numbers
April 2020	90% decrease
May 2020	88% decrease
June 2020	82% decrease
July 2020	75% decrease

c. Shared Mobility (Bike share, scooter share, car share, ride share)

Bethpage Ride (bike-share) in Suffolk county has been cancelled by the owner and operator, Boston-based Zagster, due to the impacts of COVID-19. No refunds will be given to the 746 members enrolled in the program, and all of the bike stations were removed by June 12th.³⁷ Long Beach's Social bike-share was cancelled before COVID-19 started.

With that being said, data is showing that workers are adjusting their commutes and there has been an increase in cycling and the use of bike-share services altogether. In March of 2020, Citi Bike saw a significant increase of 67% compared to March of 2019.³⁸

In an effort to provide greater access to alternative means of transit, Citi Bike launched The Critical Worker Program and service expansion into upper Manhattan and the Bronx (in light of COVID).³⁹ More than 30,000 critical workers on the frontlines of COVID-19 have been given free Citi Bike memberships for one year as a part of the Critical Workforce Program. This program was created

³³ Jonathan Feldman, and Raymond Mazzeo, "NICE Bus Information," Telephone interview by author, July 14, 2020.

³⁴ Naomi Klein, "State of Transportation in Westchester County," telephone interview by author, July 24, 2020.

³⁵ "Day-By-Day Ridership Numbers," MTA, accessed August 04, 2020. <https://new.mta.info/coronavirus/ridership>.

³⁶ Ibid.

³⁷ Keldy Ortiz, "Bike-share Program Permanently Canceled in Suffolk," Newsday, May 30, 2020, accessed August 05, 2020. <https://www.newsday.com/news/health/coronavirus/bike-share-program-bethpage-ride-zagster-pandemic-1.45060926>.

³⁸ David Z. Morris, "After Coronavirus, Bicycles Will Have a New Place in City Life," Fortune, June 15, 2020, accessed August 04, 2020. <https://fortune.com/2020/06/15/bicycles-coronavirus-cities-lime-citi-bike/>.

³⁹ "De Blasio, Department of Transportation, Lyft Celebrate 100 Millionth Citi Bike Ride," Bicycle Retailer and Industry News, July 21, 2020, accessed August 04, 2020. <https://www.bicycleretailer.com/announcements/2020/07/21/mayor-de-nyc-mayor-blasio-department-transportation-lyft-celebrate-100#.Xx7wgpNKjq0>.



A Citi Bike dock station filled with bicycles.

<https://ny.curbed.com/2019/8/19/20811953/citi-bike-free-month-membership-nycha-snap>

falling by nearly 100%, the most out of any transportation mode. Scooter companies are losing a lot of money right now, with companies like Bird and Lime (the two biggest scooter-share companies) going through massive layoffs. Cities like Denver, Tampa, and San Francisco have classified e-scooter business as essential, with Portland opening up 100 miles of street space to keep e-scooter sharing operations going. Scooter share has a long, uphill battle ahead of it, assuming it can come out of the pandemic.⁴¹

Ride-share platforms, like Uber, Lyft and VIA suffered large losses in March and April of 2020, as riders became more cognizant of the threats of COVID-19. As of March, NYC banned Uber, Lyft and VIA pool rides and ride share, except for riders who are a “real couple,” meaning only one passenger could ride in an Uber vehicle at a time.⁴²

Combined with curfews instituted and shelter-in-place mandates, Uber saw a sharp drop off in ridership. The table below shows Uber’s ridership for March, April, and May compared to the same time last year.

in part, as a response to the increases in ridership seen directly adjacent to hospitals during the pandemic. The Critical Workforce Program has also allowed for greater diversity of users, with the program creating a record high in female bikeshare membership. In NYC, 61.7% of the members of the critical worker program were female as of July 2020. Although bikeshare saw growth during the pandemic, ride-share services saw a tremendous decline.⁴⁰

COVID-19 has brought scooter share to a screeching halt, with spending on scooter rentals

⁴⁰ Citi Bike, "BIG NEWS: Today @NYCMayor Announced That @citi & @mastercard Are Funding a Major Expansion of the Citi Bike Critical Workforce Program. Now, Critical Workers across NYC Can Access Free One Year Citi Bike Annual Memberships, as Opposed to One Month Memberships," Twitter, April 30, 2020, accessed August 04, 2020.

<https://twitter.com/CitiBikeNYC/status/1255865954657095685?s=19status/1255865954657095685?s>

⁴¹ Andrew J. Hawkins, "How the Novel Coronavirus Is Speeding The scooter apocalypse," The Verge, May 13, 2020, accessed August 06, 2020. <https://www.theverge.com/2020/5/13/21257307/electric-scooter-bikeshare-covid-19-bird-lime-uber-subsidies>.

⁴² Will Gleason, "NYC Bans Uber and Lyft Pool Rides," March 17, 2020, accessed August 4, 2020. <https://www.timeout.com/newyork/news/nyc-bans-uber-and-lyft-pool-rides-031720>.



Uber Ridership:⁴³

Month and Year	Uber ridership compared to 2019 numbers
March 2020	- 83%
April 2020	- 80%
May 2020	- 68%

Although financial ride-share services have been hurt, most are implementing some sort of protocol for drivers and passengers to curb the spread of the virus. Starting May 18th, Uber drivers and riders must wear a face mask. Additionally, Uber is spending upwards of \$50 million on protective gear, including 20,000,000 masks that drivers can request directly through the app and 270,000 Clorox wipes that will be available in each New York City Uber vehicle for sanitization purposes. Uber will be sending out 90,000 packages of Clorox wipes a month for the next three months. Riders will be alerted before their ride arrives that wipes are available and that they can sanitize the area upon request.⁴⁴ However, many drivers chose to stay home altogether to avoid the virus, while others signed up for food delivery.⁴⁵ Uber has made updates to its user interface, adding a place where drivers and riders can alert the company if a mask is not being worn. Repeat offenders run the risk of being banned from riding with Uber.



Example of an open streets type set up in Sea Cliff, NY.
Photo Credit: David Viana, Nassau County DPW

d. Pedestrians, Bikes, Other

Nassau County has initiated its own Open Streets Pilot Program in order to safely promote local business recovery and encourage recreation in Nassau's downtowns and business districts. Open Streets Programs allow for safely conducting business, while maintaining social distancing. The program will take advantage of reduced traffic and allow local municipalities to close certain County roadways to vehicular through traffic. As of July 10, 2020, Glen Cove,

Great Neck, Great Neck Plaza, Lynbrook, Sea Cliff, and Valley Stream have all implemented open streets.

Similar to Long Island, many cities across the U.S. have taken initiatives to improve pedestrians', and bicyclists' experiences around their respective cities, towns, and neighborhoods.

⁴³ New York Post, "Coronavirus Drives Uber, Clorox to Strike Deal on 270,000 Wipes for Drivers," Fox Business, June 30, 2020, accessed August 04, 2020. <https://www.foxbusiness.com/lifestyle/coronavirus-drives-uber-clorox-to-strike-deal-on-270000-wipes-for-drivers>.

⁴⁴ Ibid.

⁴⁵ Kate Conger, "Uber and Lyft Are Searching for Lifelines," The New York Times, April 17, 2020, accessed August 04, 2020. <https://www.nytimes.com/2020/04/17/technology/uber-lyft-coronavirus.html>.



Protecting bicyclists is especially important given the huge spike in bicycle purchasing and riding that has occurred. Dan, from Sunrise Cyclery in Massapequa Park, NY, affirmed there was a “huge jump in business for [the] sale of bicycles.”⁴⁶ However, he feels that most of the purchases are for leisurely use, which may mean the shift to commuting via bicycle is not quite there yet.

In response to the huge jump in bicyclists, New York City installed 15 MPH signal progressions that will help reduce the amount of red lights people on bikes face.⁴⁷ Additionally, DOT is installing bike parking at hospitals to serve healthcare workers traveling to/from work by bike during COVID-19.⁴⁸ These are only two examples of the many initiatives taking place right now.



Bicycle parking being installed near a hospital in Elmhurst, Queens.
https://twitter.com/NYC_DOT/status/1258433264731242498?s=19

V. Post COVID-19 Projections:

a. Single Occupancy Vehicles

It is hypothesized that many public transportation riders may not return to that way of travel for a while, with many opting to drive to their desired destinations. If true, this could have disastrous side effects. One of them being increased grid lock. According to Vanderbilt University engineering professor Dan Work, if one out of every four former transit commuters switched to driving, the average car trip would increase by over seven minutes (country-wide), decreasing efficiency a great deal. The situation would be even worse if all of the driving takes place in single-occupancy vehicles.⁴⁹ Unfortunately, this seems like a plausible scenario in the short-term.

Increases in driving is expected to increase in the near future given the CDC’s public “COVID-19 Employer Information for Office Buildings” guidelines, which encourage private vehicle use instead of public transit for workers. When getting takeout from restaurants, this publication goes far enough to say that customers should sit in their cars when getting take-out, or even waiting for a table. It is reasonable to assume that most office buildings, and restaurant goers will follow these guidelines, which are conducive to greater private car use.⁵⁰

⁴⁶ Sunrise Cyclery, “How Has Bike Usage Changed in Light of COVID-19,” telephone interview by author, August 4, 2020.

⁴⁷ Social Ink, “Rapid Response: Emerging Practices for Cities,” National Association of City Transportation Officials, accessed August 04, 2020. <https://nacto.org/covid19-rapid-response-tools-for-cities/>.

⁴⁸ NYC DOT, “DOT Is Installing Bike Parking at Hospitals to Serve Healthcare Workers Traveling To/from Work by #bikenyc during COVID-19, more Info: <https://t.co/uVQR5wWI56>: #BikeCorral Installation at Maimonides Hospital in #Brooklyn and Elmhurst Hospital in #Queens Pic.twitter.com/e3eUAIIIIn6” Twitter, May 07, 2020, accessed August 05, 2020. https://twitter.com/NYC_DOT/status/1258433264731242498?s=19.

⁴⁹ David Meyer, “What Commuting in NYC Will Look like after the Coronavirus,” New York Post, May 20, 2020, accessed August 05, 2020. <https://nypost.com/2020/05/19/how-mta-commuting-in-nyc-will-look-after-the-coronavirus/>.

⁵⁰ “COVID-19 Employer Information for Office Buildings” Centers for Disease Control and Prevention, accessed August 06, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/community/office-buildings.html>.

b. Buses and Trains

Public transportation is expected to be slow to recover, given the uncertainties that still exist with the coronavirus, and consumer patterns to a large extent. Health experts predict many former riders will opt out of using public transportation until there is a coronavirus vaccine. According to NICE Bus, they are expecting to be at 70% pre-COVID ridership by fall 2020. However, NICE isn't expecting to be back at 90% pre-COVID ridership until late 2021 or early 2022. Meanwhile, the MTA expects subway ridership to be at 50-60% of pre-pandemic levels by the end of the year after bottoming out at 90%.⁵¹

Looking toward the future of public transportation, there are likely to be many changes. The MTA already requires riders to wear masks while riding the subway system, but that will likely persist into the future. Wearing masks is much more feasible than socially distancing 6-feet apart from one another. Danny Pearlstein, the policy and communications director of the New York Riders Alliance has affirmed "masks are part of the new normal." There are many ideas that are being thrown out and many are far from being implemented.⁵²



Newly rolled out mask vending machine in a NYC subway station.
<https://nypost.com/2020/06/30/mta-installs-ppe-vending-machines-at-subway-stations/>.

Some of the most prevalent are: cordoning off every other seat, opening windows to bring in more fresh air, splitting trains into "A" and "B" cars so only certain doors open at certain stations, installing hand sanitizer dispensers, creating apps to tell riders if the next train or bus is too full, and tech that can identify people with fevers. In some cases, it is being suggested that riders should reserve their seats in advance, but that's unlikely to gain meaningful traction.⁵³ Sara Kaufman, the associate director of NYU's Rudin Center for Transportation believes technology could be used to alert riders of available transit

options, reaching outside of the subway, like Citi Bikes or ride-sharing apps like Uber and Lyft.⁵⁴

Naomi Klein, head transportation planner for Westchester County, spoke to Nassau County about the restructuring of their public bus system. Specifically, she highlighted some of the efficiency improvements that will likely be made as a result of COVID-19 and ongoing trends experienced before the pandemic. Bus ridership is currently down along many retail corridors, and

⁵¹ David Meyer, "What Commuting in NYC Will Look like after the Coronavirus," New York Post, May 20, 2020, accessed August 05, 2020. <https://nypost.com/2020/05/19/how-mta-commuting-in-nyc-will-look-after-the-coronavirus/>.

⁵² Ibid.

⁵³ Amy Plitt, "The New York City Subway May Work Differently After COVID-19," Condé Nast Traveler May 27, 2020, accessed August 05, 2020. <https://www.cntraveler.com/story/the-new-york-city-subway-may-work-differently-after-covid-19>.

⁵⁴ Ibid.



unfortunately, many of those jobs will not come back as consumers are choosing to shop online. With that being said, Westchester expects micro-transit to become more popular, especially when trying to provide public transit for places where it isn't feasible for a bus route to go to anymore.⁵⁵

Some experts are looking to the past in order to better prepare for the future. Officials are examining the Spanish Flu pandemic of 1918 to explore staggering start times. If you were a grocer during the Spanish Flu pandemic, you would take the subway between 9 and 9:30, for example.⁵⁶ It is also expected that cleaner public transportation will come to be expected by its riders. Polling suggests that riders want the trains cleaned more frequently, and officials from NICE also agree that higher cleanliness standards are likely here to stay.⁵⁷

c. Shared Mobility (Bike share, scooter share, car share, ride share)

On Long Island, it's unclear what the future for bike-share holds. Long Beach, and Suffolk County intend to still pursue bike-share with new operators and Nassau County is evaluating its options as well.⁵⁸

Citi Bike is continuing with their Phase 3 Expansion in light of COVID-19. With a recent partnership from Lyft, Citi Bike is doubling its footprint by 35 square miles and increasing the number of bikes to 40,000. Although COVID-19 may have slowed Citi bike's progress temporarily, they are continuing with their expansion, which is to provide greater access to the upper parts of Manhattan and the Bronx. With the required infrastructure to build docks for the Citi Bikes, and the overall increase in popularity, it seems they are here to stay.⁵⁹

As recently as July 21st, 2020, NYC along with Citi Bike celebrated its 100 millionth bike ride and will install the 1,000th station in August 2020 as a part of the program's Phase 3 expansion. Citi Bike will be adding thousands of bikes through the rest of the year and is expected to break 2019's record with 100,000 rides in one day.⁶⁰

Shared mobility had a bit of a mixed-bag in terms of the kinds of effects the pandemic had on it and what we can expect in the future. Ride-share (Uber and Lyft) saw sharp declines in riders and will likely be a while before pre-COVID ridership resumes. However, bike-share saw large increases in ridership and the volume of rides in light of the coronavirus.

If economic turmoil persists and unemployment remains high, bike-share should see even greater usage. Even cheaper than annual public transportation (\$1,000) and automobile costs (\$9,300) is

⁵⁵ Naomi Klein, "State of Transportation in Westchester County," telephone interview by author, July 24, 2020.

⁵⁶ David Meyer, "What Commuting in NYC Will Look like after the Coronavirus," New York Post, May 20, 2020, accessed August 05, 2020. <https://nypost.com/2020/05/19/how-mta-commuting-in-nyc-will-look-after-the-coronavirus/>.

⁵⁷ Amy Plitt, "The New York City Subway May Work Differently After COVID-19," Condé Nast Traveler May 27, 2020, accessed August 05, 2020. <https://www.cntraveler.com/story/the-new-york-city-subway-may-work-differently-after-covid-19>.

⁵⁸ "How Will COVID-19 Change the Way People Travel?" online interview by author, August 2, 2020.

⁵⁹ Ibid.

⁶⁰ Ibid.



using bike-share. Pricing for bike-share systems vary, but an annual pass for Citi Bike is just \$169, which may become more appealing in the coming months, if cost-cutting persists.⁶¹

Ride-share hasn't had the same success as bike-share in the recent months. For the foreseeable future, ride-share seems to be venturing into other sorts of delivery services, one of the most notable ones being Uber Eats. Many people still have cold feet when it comes to ride-share given the lack of control they have over the situation (when was the car wiped down last, how many riders were in the car today, etc.).⁶²

In April, Uber launched Uber Direct, which allows retailers and sellers of over-the-counter medication to deliver items directly to consumers. Additionally, it launched Uber Connect, which allows user to hail a private car to deliver items to others in the same city. In April, Lyft launched a program called Essential Deliveries, which aims to facilitate the delivery of meals, groceries, hygiene and medical supplies to organizations.⁶³ With commuters continuing to explore other modes of transit (biking, walking, skateboarding etc.), it is likely that ride-share will continue to explore the field of delivering other goods for the near future.

d. Pedestrians, Bikes, Other

Many areas, including Long Island are having tremendous success with Open Streets programs. These programs aim to create more space for people to be outside while practicing social distancing. As mentioned earlier, Glen Cove, Great Neck, Great Neck Plaza, Lynbrook, Sea Cliff, and Valley Stream have all implemented open streets. Another city, Oakland, California, has had great progress with their Slow Streets initiative.



Oakland's Slow Streets Initiative. <https://www.sfgate.com/living-in-sf/slideshow/Heres-what-Oakland-s-slow-streets-look-like-201577.php>

Oakland, which has a population of 433,031, rolled out their initiative in response to problems observed from COVID-19: the city had seen parks and lakes become overcrowded. The city focused on closing residential neighborhood streets with low car volume using soft closure treatments (series of signs approaching the streets) to control spill-over, and unintended congestion. Ryan Russo, the head transportation planner for Oakland, implemented the Slow Streets to many parts of the city, to keep people in their respective

⁶¹ David Z Morris, "After Coronavirus, Bicycles Will Have a New Place in City Life," *Fortune*, June 15, 2020, accessed August 05, 2020. <https://fortune.com/2020/06/15/bicycles-coronavirus-cities-lime-citi-bike/>.

⁶² Faiz Siddiqui, "Coronavirus Is Forcing Uber to Return to Its Start-up Roots," *The Washington Post*, May 26, 2020, accessed August 05, 2020. <https://www.washingtonpost.com/technology/2020/05/26/uber-coronavirus-pivot/>

⁶³ Ibid.



neighborhoods, and ensure no one street would be a “block party” with large congregations of people.⁶⁴

Looking at Oakland’s Slow Streets program, it seems it is largely successful. Oakland is seeing an encouraging diversity of users/uses: families, runners, bicycles, scooters, dog-walking, and leisure walks. Russo has received positive reviews from the people using them, and in some cases, residents are asking if this program can be brought to streets in their neighborhood.⁶⁵

Part of Oakland’s success has to be attributed to their community outreach. In an interview by the National Association of City Transportation Officials (NACTO), Russo mentioned many times that in order for this program to work, it is crucial to have community trust on your side and listen to who is speaking out for/against the program. Oakland used numerous survey instruments to get feedback, including online surveys, and adding an option for feedback on their 311 line.⁶⁶

The decline of car traffic during coronavirus lockdowns has already given many residents a glimpse of clear skies, and a preview of the possible long-term benefits of cycling and other non-motorized uses. This is something many experts and officials see gaining more traction and becoming more integral parts of cities and places across the United States.⁶⁷ Dan from Sunrise Cyclery in Massapequa Park, agrees that the bicycle riding boom taking place currently will continue, but he doesn’t think it will continue to grow how it has in the past few months. In the meantime, he affirmed that shortness in inventory is still driving consumer demand.⁶⁸

According to a poll by research firm Ulucd, 31.5% of locals plan to use transit less, by walking, biking, or driving when lockdowns are lifted.⁶⁹ A continued boom in cycling could be fueled by greater economic deterioration from the coronavirus, Ken McLeod, policy director of the League of American Bicyclists says. Especially with the average annual cost of car ownership in the U.S. is nearly \$9,300 (AAA) and annual public transit costs around \$1,000. Given the initiatives taking place in many cities, and the uncertainties surrounding COVID-19, it is likely a real shift towards walking and biking will occur.⁷⁰

Overall, many cities across the globe are making permanent changes in favor of bicyclists and pedestrians given the success that many places are having with open streets programs. New York City has advanced its efforts to better serve lower income areas of the city, by installing more Citi

⁶⁴ Ryan Russo, "Ryan Russo, Director of the Oakland Department of Transportation, Shares How the City Launched Slow Streets, Adapting Neighborhood Streets across the City for Social Distancing," interview by NACTO, Rapid Response: Emerging Practices for Cities, accessed August 5, 2020. <https://nacto.org/covid19-rapid-response-tools-for-cities/>.

⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ David Z Morris, "After Coronavirus, Bicycles Will Have a New Place in City Life," Fortune, June 15, 2020, accessed August 05, 2020. <https://fortune.com/2020/06/15/bicycles-coronavirus-cities-lime-citi-bike/>.

⁶⁸ Sunrise Cyclery, "How Has Bike Usage Changed in Light of COVID-19," telephone interview by author, August 4, 2020.

⁶⁹ David Meyer, "What Commuting in NYC Will Look like after the Coronavirus," New York Post, May 20, 2020, accessed August 05, 2020. <https://nypost.com/2020/05/19/how-mta-commuting-in-nyc-will-look-after-the-coronavirus/>.

⁷⁰ David Z Morris, "After Coronavirus, Bicycles Will Have a New Place in City Life," Fortune, June 15, 2020, accessed August 05, 2020. <https://fortune.com/2020/06/15/bicycles-coronavirus-cities-lime-citi-bike/>.



Bike docking stations in areas such as northern Manhattan and the Bronx.⁷¹ Paris, France has affirmed that cars will permanently be discouraged from entering the city center, with Milan and Madrid following in Paris' footsteps.⁷²

Conclusion

However clouded the future of transportation may seem, there are some clear trends that will likely persist in the post-COVID era. Driving of single occupancy vehicles is expected to increase as long as there is no vaccine for COVID-19. Conversely, many are expecting to see more traffic and gridlock, given the increase in drivers on the road. Public transit has a bumpy road ahead as it looks towards the future. It is probable that ridership will take another year or two to get to get anywhere close to pre-pandemic ridership. However, frequent cleaning and sanitizing of public transit should be here to stay, as riders are now accustomed to it. Route cuts and overall restructuring of public transit lines shouldn't be ruled out as rider preferences change and shift. Similar to public transit, ride-share will have difficulty staying afloat without a vaccine. Many riders are hesitant to use platforms like Uber, and Lyft. Bike-share has done extremely well in light of COVID-19 and may be rolled out in many more cities in the near future. Lastly, cities are enacting more complete streets and placemaking initiatives to increase safety and mobility for pedestrians and bike riders.

With all of that being said, there will still be a need for local government to invest in transit, perhaps more micro transit or shared mobility services, to better serve areas where it isn't feasible for traditional public transit to go. On the other hand, as governments have suffered from severe budget implications (sales tax revenue declines), they are forced with figuring out where that funding will come from. Many local governments want the federal government to provide additional assistance, particularly through The Heroes Act that congress proposed. It remains to be seen how that plays out, but funding is certainly needed currently.

Surely, one of the most important takeaways is the creativity that is coming out as a result of the pandemic. It has created an opportunity for unique and localized approaches, which favor pedestrian-oriented development, and travel. Such a sharp drop in driving, and pedestrian use has allowed many cities to implement beneficial programs that may not have been possible otherwise.

I think we will see drastic changes in transportation over the next 3-5 years, with a lot of money flowing into shared mobility and micro-transit as a way to create alternative modes of transit. Micro-transit and bike-share hold the key to more equitable movement around cities given they can go where it may not be feasible for public transit to go. It is also more cost-effective for these programs to be rolled out in the first place. Our cities, local and county-wide, will surely emerge from the pandemic better than they entered it.

⁷¹ "De Blasio, Department of Transportation, Lyft Celebrate 100 Millionth Citi Bike Ride." Bicycle Retailer and Industry News. July 21, 2020. Accessed August 04, 2020. <https://www.bicycleretailer.com/announcements/2020/07/21/mayor-de-nyc-mayor-blasio-department-transportation-lyft-celebrate-100#.Xx7wgpNKjq0>.

⁷² Feargus O'Sullivan, "Paris Has a Plan to Keep Cars Out After Lockdown," Bloomberg.com April 29, 2020, accessed August 05, 2020. <https://www.bloomberg.com/news/articles/2020-04-29/paris-has-a-plan-to-keep-cars-out-after-lockdown>.



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