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To: Professor Yinger

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Re: New York City Metropolitan Transportation Authority and Coronavirus

Introduction

Coronavirus has brought the world to a halt since the early 2020. New York City has been in lockdown for over a year now, which has led to severe financial burden on businesses, citizens and government entities. The already weak New York City Metropolitan Transportation Authority is “facing its worst budget crisis in history”, losing billions of dollars due to extreme ridership drop (Penny). Figure 1 shows daily ridership numbers of the subways, bridges, and tunnels for the months of April and May and the percentage change pre pandemic. The MTA reached \$38 billion in long term debt in 2020 and is projected to reach \$47 billion by 2023. McKinsey & Co has estimated ridership may not fully rebound until 2024. (Kaske). The M.T.A. has received \$14 billion in federal aid, including the \$6 billion they will receive from Biden’s new plan (Goldman and Pranshu). After receiving the second round of federal aid in January, transit officials scrapped plans to cut subway services by 40% and revived plans to modernize the system (Goldman and Pranshu). As the United States continues to fight the pandemic, the MTA needs to review current pandemic policy and implement changes as the city continues to open up.

Recommendation

The M.T.A bus and subway system is an essential part of how NYC citizens travel. In 2019 the daily ridership was 5,493,875 and 1,770,394 for the subway and buses respectively (MTA). Keeping the city’s buses and subways operating has been crucial for transporting essential workers and medical staff throughout the pandemic (Penney). It is necessary the transit system stays fully operational now and after the pandemic. In order to maintain necessary service levels, the M.T.A. needs to follow in other transit systems footsteps and convert to an One Person Train Operation (OPTO) system. This will allow them to save millions on personnel costs. The M.T.A should also delay its capital plan, as the New York State Comptroller has reviewed their debt and determined they can no longer afford the plan. Our third proposal is delaying fare hikes so current passengers can still afford to take the Metro and to encourage more ridership. Lastly, the M.T.A should review its COVID-19 pandemic response and plan for future crises.

Analysis

Part II: Convert to One Person Train Operation (OPTO) System

The M.T.A. is billions of dollars in debt due to low ridership from the state-wide lockdown. Prior to the pandemic, the M.T.A carried 8.3 million riders on an average weekday (MTA). Ridership dropped a considerable amount but has begun to rise as restrictions are lifted (Figure 2). The M.T.A spent \$371 million on pandemic-related costs in 2020 and expects to spend the same amount each year through 2024 (Penney). With low ridership, extreme debt, and added pandemic safety spending, the M.T.A. needs to review its spending and make sure it is efficient.

One place the M.T.A. can cut costs is by cutting personnel costs by changing the subway operation to the One Person Train Operation (OPTO) system.

The M.T.A.'s current agreement with the Transportation Union requires there be two operators on the subway. One operator is in charge of driving the train, while the other is the conductor responsible for opening and closing the door. However, conductors are rare outside of New York City. The London Underground, Washington Metro, Chicago L, and Boston T have no conductors. The Paris Metro operates without conductors and has completely automated two lines. The union workers argue that the two drivers keep the passengers safe. The union leader Tony Utano said it “ensures no one is caught between a train’s closing doors and dragged down a platform—not to mention evacuating riders in a critical emergency” (Harris). However, these safety benefits are questionable. There have been several accidents over the last few years. “Since 2012, New York’s subway has averaged 1.54 injuries or deaths per 1 million passenger trips—worse than Boston’s (1.44) and Washington’s (1.36)” who both operate with only a driver (Harris).

Converting to the OPTO system will allow the M.T.A to save money. The Boston Metro saved \$1.6 million annually converting to an OPTO system (Annear). The NYC M.T.A will save much more due to the size difference. The M.T.A will have to negotiate with the union to change the contract to be one operator per train instead of two. Although there may be some pushback from the union due to the change in the number of hours each employee will receive, the MTA is expanding its hours and running more trains at the end of May. The M.T.A also has plans to expand the subway in the future creating more lines and adding more subway cars which will increase the number of drivers needed. Having one driver can also be a safety measure to help ensure the health and safety of employees. The focus of any cuts ought to be to minimize the impact on service levels. For example, reducing how often the subways or buses run would be disruptive while having only one driver/conductor on each subway would halve the personnel costs there while bringing the subway more in line with similar operations in comparable systems. Discontinuing service to certain lines while ensuring that there are still other lines nearby is somewhere between these two options.

Part III: Delay in Capital Projects

The M.T.A's 2020-2024 Capital Program is its largest-ever capital plan with an unprecedented investment of \$51.5 billion (See Figure 3) (MTA). It is 70% larger than the 2015-2019 Plan. Highlights of the program include more frequent service on 6 line segments, 70 new ADA-accessible stations, over 1,900 new subway cars, 2,400 new busses, and funding the Phase 2 of the Second Ave Subway (MTA). It plans on funding the project through capital generated from new revenues (\$25B), federal funds (\$10.7B), New York State and New York City capital (\$6B), and M.T.A bonds and PAYGO (\$9.8B). Figure 4 shows a more detailed breakdown of the funding plan.

As of December 2020, only 100 out of the 517 projects had been completed or begun and most of the other projects were suspended due to the pandemic (OSE). Early 2020, the MTA set a goal of committing \$13.5 billion of capital work, they were able to commit \$5.4 billion in 2020, most funding came from the federal government and in-house capital work (OSE). The NYS Comptroller Thomas DiNapoli released his annual report of the MTA's debt in April. He

concluded that the MTA can no longer afford its original \$9.8 billion commitment to the capital program (OSE). The authority is faced with either cutting the program by \$2.9 billion or issuing the debt and making the debt burden higher (OSE).

We recommend that the M.T.A. push back its capital budget plan. The M.T.A. ought to review planned capital projects and decide whether those projects can be delayed or funded through other means such as the proposed Federal infrastructure plan rather than issuing more bonds. The M.T.A already had a problem with the amount of debt it had, and the pandemic caused budget deficits through loss of ridership and tax base which may continue into the future depending on how people react as NYC loosens lock-down and other pandemic related restrictions.

State legislation committed New York state and New York City to provide \$3 billion to the 2020-2024 program. The state has appropriated its full commitment and expects to issue \$10 billion of its own bonds to fund this and prior commitments. However, there is a risk that the state will decide to not bond the full amount, due to the state's own strains under the state's debt-reform limit. NYC only appropriated \$200 million so far and faces its own fiscal challenges. The MTA is supposed to get \$10.7 billion in federal support for the 2020-2024 capital program, but this is not certain. The MTA may also receive more federal funding from Biden's infrastructure plan. Once the MTA figures out how much funding it will for sure be getting from the city, state, and federal government they can reassess its capital plan. The MTA was only funding \$9.8 billion out of a \$51 billion plan. While the delay in the capital plan may not be ideal it is in the best interest of the MTA to not take on any more debt. They should structure their plan around the other funding it will receive.

Part IV: Delay in Fare Hikes

In January of 2021, the M.T.A.'s board decided to delay the planned fare hikes. The M.T.A. has raised fares every two years and a fare hike that would yield a 4% revenue increase was planned for 2021. The M.T.A hoped to raise \$79 million from the subway and bus fare hike, \$21 million from commuter rail fare hikes, and \$48 million from increasing tolls on bridges and tunnels for a total of \$148 million in 2021 (MTA Fare and Toll Policy Review). Every month the M.T.A. delays the fare hike it loses \$5 million (Meyer, 26 Jan). However, one Danny Pearlstein from the Rider's Alliance noted this was a relatively small amount compared to the billions the M.T.A. received in aid due the pandemic and the billions it needs over the next few years (Meyer, 18 Jan). Even a full fare hike would not close the \$500 million deficit projected for 2021 (Meyer, 26 Jan). As of yet, there are no firm plans for when the planned fare hikes will occur.. Allowing for some economic recovery before instituting the fare hikes would potentially allow for ridership to recover some as well and people would be more able to pay the increased fare. However, budgetary needs may not allow for the fare hike to be delayed as long as might be useful for recovery. The M.T.A. continued with the 7% increase on tolls citing the increase in vehicle traffic to near pre-pandemic levels that were not seen in subway and bus ridership (Meyer 18 Feb).

The M.T.A. should continue to postpone fare hikes as long as is feasible as many of the riders are facing financial difficulties. Although ridership has fallen drastically, the decline has not fallen equally, subway stations in higher income areas have seen greater declines in ridership than lower income neighborhoods (Figure 5) (Penney). Many of the riders are essential workers

that need to use public transportation to get to work. These riders also come from homes with more people of color and families with lower income than most parts of Manhattan (Figure 6) (Penney). Thus, an increase in fare would be regressive, falling disproportionately on those who are least able to afford it or avoid it as they are required to go into work. Delaying several months would give ridership time to recover as the M.T.A. works to restore faith in the safety of public transportation and increase ridership.

There are other ways the M.T.A. could increase revenue from fares. The decision to delay the fare hikes came, at least in part, out of a series of public hearings the M.T.A. held at the end of 2020. In these hearings, the M.T.A. brought up ideas such as eliminating or raising the price of 7- and 30-day passes, eliminating or raising the price of single ride tickets for buses, and condensing zones into two types: city and suburban, reducing the number of different fares (MTA Fare and Toll Policy Review).

Part V: Pandemic Response

The M.T.A. implemented a [13-Point](#) action plan for dealing with the Coronavirus Pandemic. This action plan includes an increase of service to provide space, clean and disinfect procedures, mandate face coverings, enhanced safety and security, and a continued contactless payment system (MTA). The M.T.A. disinfects the subway and buses every 24 hours. They clean terminals during the day and overnight and clean overnight in yards and bus depots (MTA). The M.T.A. has also been testing new cleaning technologies such as Antimicrobial biostats, ultraviolet lights, electrostatic sprayers and innovative air filters. The M.T.A. also issued a “traveling safely during the pandemic” guide for riders to follow. The steps include knowing how your train/bus operates, adjusting your travel time if possible, wearing face coverings, cleaning your hands, and giving yourself space. The M.T.A. also offers free masks to people who do not have one while fining people who refuse to wear masks. Continuing the mask mandate is important as it is difficult to determine who has or has not been vaccinated. The C.D.C. still recommends that people wear masks during transit even for people who are fully vaccinated (CDC).

As of May 17, the M.T.A. plans to return to full 24 hour service and discontinue the nightly decontamination procedures for buses and subway cars (MTA). As early as May of 2020 scientists warned that deep cleaning subway cars and buses was not cost-effective (Wright). The M.T.A., however, continued the nightly decontamination as a way to reassure riders of the precautions the M.T.A. was taking. The M.T.A. has not been upfront about how much the cleaning has cost but estimates that it spent \$300 million on cleaning due to the pandemic in 2020 (Meyer, 26 Jan). The nightly closures early on in the pandemic, from 1 AM to 5 AM, also did not save any money as the subways still ran but only allowed police officers and transit workers to board (Guse). Front-door boarding and fare collection on local buses has also resumed and most station booths are not taking any reduced-fare MetroCard transactions (MTA).

Part VI: Looking Forward

Ridership for buses, subways, and trains are still well below where they were pre-pandemic and plateaued in early 2021 not making the recovery that vehicular transit has (Figure 1). People may still be wary of using public transportation, and ridership may not fully recover to pre-pandemic

levels, but the M.T.A should conduct an outreach campaign explaining how safe public transportation is to encourage people to use public transportation. By September 2020, there was little evidence that the coronavirus spread easily in public transit. This is probably due to air circulating more frequently than in other enclosed spaces; fewer interaction between people that are likely to cause more virus to enter the air, such as talking; and people are usually there for shorter periods of time (Schive). As more people are vaccinated, the safer public transit and other excursions will be so the M.T.A. ought to encourage people to resume using buses and subways. Almost half of New Yorkers have been vaccinated (Figure 7). Providing information on the safety of public transit is important; 75% of riders said that the daily decontamination was important to their choice to use the subway despite the virus being much less likely to be transmitted via contact than air (Meyer, Jan 26). Reassuring riders through unnecessary and costly decontamination measures added to the financial strain the pandemic caused.

Another way the MTA could increase ridership is to use the contactless payment system, OMNY, currently set up in most of the subways and some of the buses now to set fare caps instead of having 7- or 30-day passes. The only fare option with OMNY currently is full fare per ride. The London Underground has these caps which encourage people to ride public transit by capping the amount a person pays in fare per day or per month (Barone). These caps also address the concern that some people who use public transit are unable to pay the upfront costs of the weekly or monthly passes.

The M.T.A. needs to do a thorough systematic review of the effectiveness of this 13-point plan. It will be beneficial to see if these measures are making a positive impact on promoting rider/staff safety and stopping the spread of coronavirus. They can do this by implementing (1) surveys asking about rider and employee confidence in measures taken, (2) tracking how quickly PPE was used and how quickly it was restocked (complaints from workers about not getting PPE, lagging national response led to shortages not prepared for in the pandemic response plan made after the H1N1 outbreak) (Martinez), and (3) tracking how well MTA policy matched public health best practices throughout the pandemic. The M.T.A. can take this information and revise the pandemic response plan for future use. Reviewing the effectiveness of the response to the current pandemic can help the M.T.A. refine their messaging for any future health crises, be more prepared so passengers and staff are safer, and coordinate better with other government agencies and community organizations. Updating the pandemic response plan should be done in conjunction with New York City's Office of Emergency Management to ensure that any response is cohesive city-wide.

Conclusion

The coronavirus pandemic has considerably worsened the M.T.A.'s already fragile financial condition, adding costs, reducing ridership, and introducing much uncertainty. The M.T.A. has already taken some steps toward addressing some of the most pressing concerns such as delaying capital projects where possible, delaying fare hikes to encourage ridership, and discontinuing decontamination procedures which will decrease costs and increase revenue. However, they could do more outreach to encourage people to resume using public transportation and structuring fares so as to encourage ridership. The M.T.A. also ought to evaluate their response to the current pandemic and use that information to update their pandemic preparedness plan. There is still a considerable amount of uncertainty regarding funding from both the state and

federal level as well as whether ridership will recover to pre-pandemic levels in the near future. Ridership will likely continue to be slow in recovering and the M.T.A. ought to monitor ridership and the general recovery of the city and make appropriate adjustments to plans as the new normal becomes apparent.

Appendix

Figure 1

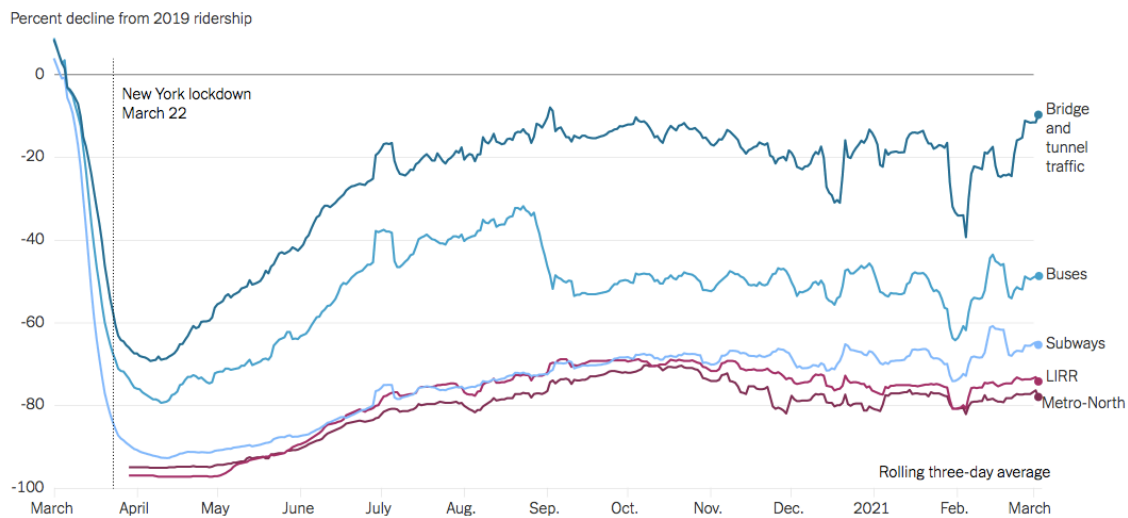
Subway including Staten Island Railway

Date	Total Estimated Ridership	% Change From Pre-Pandemic Equivalent Day
Sunday, 5/9/21	1,104,706	-46.7%
Saturday, 5/8/21	1,443,067	-55.2%
Friday, 5/7/21	2,239,500	-60.3%
Thursday, 5/6/21	2,202,594	-62.6%
Wednesday, 5/5/21	2,077,319	-64.6%
Tuesday, 5/4/21	2,123,851	-63.5%
Monday, 5/3/21	1,974,501	-65.0%
Sunday, 5/2/21	1,153,363	-50.5%
Saturday, 5/1/21	1,515,107	-53.1%
Friday, 4/30/21	2,163,025	-62.3%

Bridges and Tunnels

Date	Total Traffic	% Change From Pre-Pandemic Equivalent Day
Sunday, 5/9/21	854,809	0.3%
Saturday, 5/8/21	854,156	-13.9%
Friday, 5/7/21	936,747	-8.1%
Thursday, 5/6/21	905,604	-8.3%
Wednesday, 5/5/21	841,968	-12.5%
Tuesday, 5/4/21	851,039	-9.1%
Monday, 5/3/21	828,506	-10.7%
Sunday, 5/2/21	809,865	1.6%

Figure 2



By Veronica Penney • Source: The M.T.A.'s day-by-day ridership numbers. | Percent change is calculated as a comparison with the preceding-year equivalent day, with the exception of the commuter rail systems, which are compared with the 2019 monthly weekday/Saturday/Sunday average. The M.T.A. began reporting data for the LIRR and Metro-North on April 1, 2020.

Figure 3

Proposed 2020-2024 Capital Program

Investing in the future of New York

Agency*	(\$m)
NYCT Subways	\$ 37,303
Buses	\$ 3,512
Long Island Rail Road	\$ 5,714
Metro-North Railroad	\$ 4,689
Other	\$ 254
CPRB Capital Program Total	\$ 51,472

Bridges & Tunnels**	\$ 3,327
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* Includes capacity projects budgeted in MTACC
 ** B&T does not require CPRB approval

Figure 4

Funding the Capital Program

We will deliver the proposed 2020-2024 Capital Program through a combination of State, City, Federal and local resources.

Program Funding Plan	(\$m)
Capital from Central Business District Tolling	\$ 15,000
Capital from New Revenue Sources	\$ 10,000
MTA Bonds & PAYGO	\$ 9,792
Federal Formula	\$ 7,500
State of New York	\$ 3,000
City of New York	\$ 3,000
Federal New Starts (Second Ave Subway Ph. 2)	\$ 2,905
Federal Flexible	\$ 275
CPRB Capital Program Total	\$ 51,472

Bridges & Tunnels Self-Funded	\$ 3,327
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Capital Generated from New Revenues (\$25B)

- Central Business District (CBD) Tolling (\$15B)
 - 80% NYC Transit/Bus; 10% LIRR; 10% MNR
- New Revenues (\$10B)
 - Progressive Mansion Tax
 - Elimination of the Internet Tax Advantage

Federal Funds (\$10.7B)

- Federal Formula & Flex – based on recent levels (\$7.8B)
- Federal New Starts for SAS Ph. 2 – (\$2.9B)

NYS/ NYC Capital (\$6B)

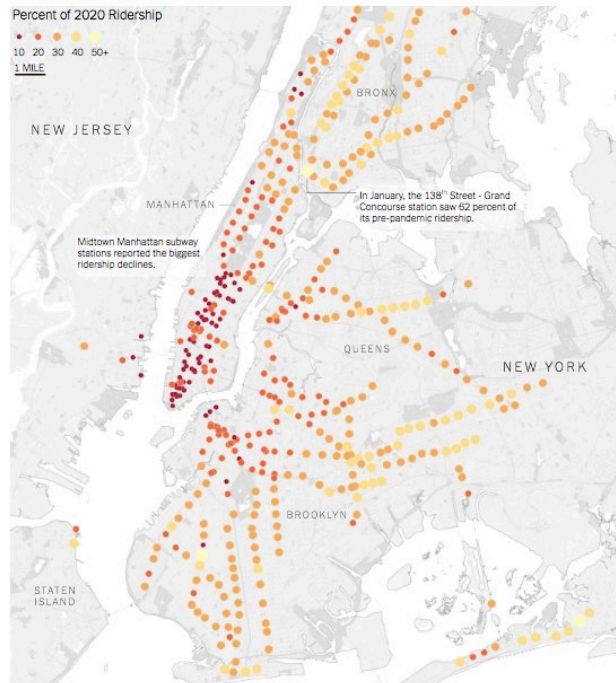
- State of New York (\$3B)
- City of New York (\$3B)

MTA Bonds & PAYGO (\$9.8B)

B&T Self-Funded (\$3.3B)

Figure 5

Ridership Recovered Unevenly

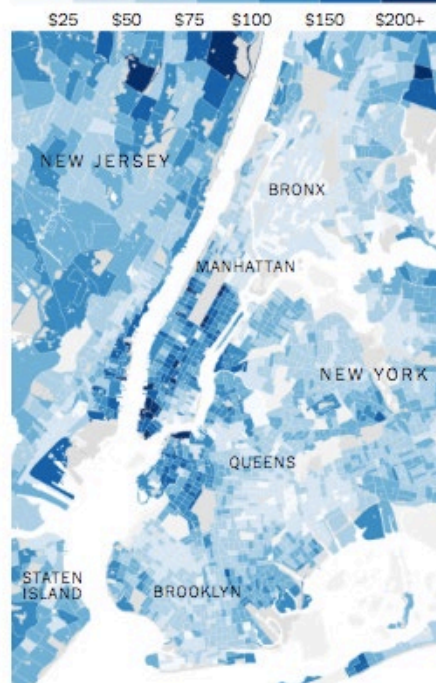


By Veronica Penney - Source: M.T.A. turnstile data compiled by [qd.io](#). | Note: Percentage change is a comparison of January 2020 with January 2021 subway turnstile entries by station.

Figure 6

Annual Household Income

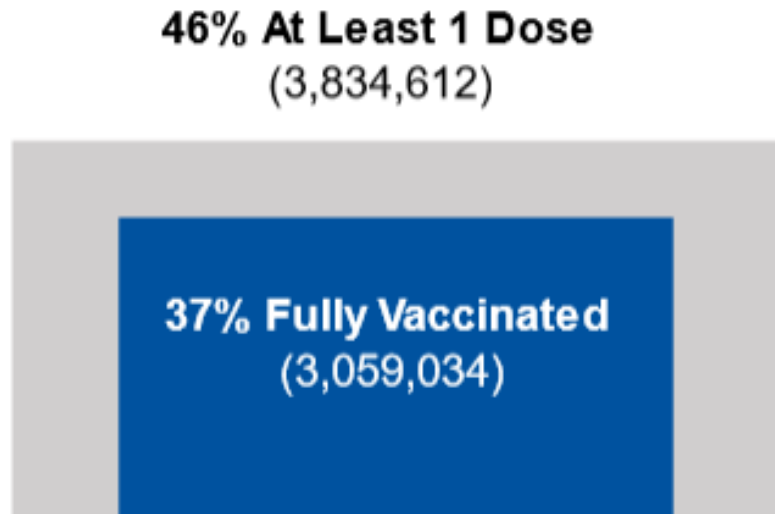
In thousands:



By Veronica Penney - Source: American Community Survey (2019) five-year estimate of median annual household income.

Figure 7

NYC Vaccination Coverage



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