

# The Track to Fiscal Stability: Operations Reforms for the MTA

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**T**he COVID-19 pandemic and consequent recession have severely worsened the Metropolitan Transportation Authority's (MTA) already precarious financial outlook. COVID-19 likely will cost the MTA as much as \$25 billion over the 2020-2024 period in pandemic-related spending and lower revenues from fares, tolls, dedicated taxes and subsidies.<sup>1</sup> In response, the federal government has provided the MTA with significant support. Since July 2020, near-term budget gaps have been closed with \$14.5 billion in federal aid and \$2.9 billion in operating debt secured through the Municipal Liquidity Facility (MLF) of the Federal Reserve Board. In addition to federal aid and the MLF, the MTA also used \$1.4 billion in one-time fund diversions to balance its budget.

One-time federal aid from the American Rescue Plan will close the pandemic-related gap through at least 2023 but will not address the MTA's long-term fiscal imbalance. In fact, the MTA projects a \$2.4 billion shortfall in 2024, when the region is expected to have recovered from the acute phase of the pandemic, with transit ridership approaching but still 20 percent below its 2019 level.<sup>2</sup> Still, budget balance through at least 2023 provides the time for the MTA to phase in reforms that reduce recurring expenses, bringing them closer in line with recurring revenues—a smooth transition from the current financial crisis to long-term financial sustainability.



Reforms should be implemented in four areas: operation and maintenance productivity improvement, spatial bus productivity (bus speed increases), conductor operating reform (one person train operation on subways and fare payment modernization on commuter rail), and health care savings. These reforms could yield annual savings totaling up to \$2.9 billion and allow a workforce reduction of nearly 13,000 by 2024.<sup>3 4</sup> (See Table 1.)

These reforms are based on benchmarking the productivity of MTA’s operations to the median of other large transit systems and equalizing them within the MTA itself, adopting specific conductor operating practices from peer agencies, and aligning health insurance policy to other public employees in New York. Comparisons and benchmarks to a representative sample of national transit systems have been obtained from the National Transit Database (NTD). While there are differences in operations and staffing in other systems that are omitted from NTD data, such as outsourced or contracted services, the benchmark group provides a reasonable overall comparison to MTA policies and operations.<sup>5</sup> Other suggested changes would implement advancements other system implemented years ago, like One Person Train Operation (OPTO) on subways or modernized

**Table 1: Summary of Recommendations with 2024 Forecast**

(dollars in millions)

|   | <b>2024 Annual Savings</b> | <b>Headcount Impact</b> |
|---|----------------------------|-------------------------|
| <b>Operation &amp; Maintenance Productivity</b>                             |                            |                         |
| Subway Facility Maintenance Improvement (NYCT)                              | \$981                      | 6,185                   |
| Bus Vehicle Operations, Facility and Vehicle Maintenance Improvement (NYCT) | \$367                      | 1,793                   |
| LIRR Vehicle Operations & Maintenance Productivity Alignment with MNR       | \$242                      | 1,114                   |
| 15% Speed Increase on Local Bus (NYCT)                                      | \$268                      | 1,278                   |
| <b>Subtotal</b>   | <b>\$1,858</b>             | <b>10,177</b>           |
| <b>Conductor Operating Reform</b>   |                            |                         |
| NYCT Subway One Person Train Operation Expansion                            | \$221                      | 1,582                   |
| LIRR Commuter Rail Proof of Payment   | \$154                      | 699                     |
| MNR Commuter Rail Proof of Payment  | \$138                      | 573                     |
| <b>Subtotal</b>   | <b>\$512</b>               | <b>2,853</b>            |
| <b>Health Care Savings</b>  |                            |                         |
| Retirees: Premium Cost Sharing Parity                                       | \$263                      | n/a                     |
| Active Workforce: Premium Cost Sharing Parity                               | \$130                      | n/a                     |
| Value-Based Plan Redesign   | \$270                      | n/a                     |
| <b>Subtotal</b>   | <b>\$663</b>               | <b>n/a</b>              |
| <b>PROJECTED SAVINGS TOTAL</b>  |                            |                         |
| Adjustment for Interaction of All Options                                   | (\$162)                    | (192)                   |
|   | <b>\$2,871</b>             | <b>12,838</b>           |

**Source:** CBC staff calculations of U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (2019), "2019 Annual Database Service," "2019 Annual Database Operating Expenses," and "2019 Annual Database Transit Agency Employees," (accessed Dec. 15th, 2020) [www.transit.dot.gov/ntd/ntd-data](http://www.transit.dot.gov/ntd/ntd-data); Empire Center, "SeeThroughNY Payrolls" (accessed June. 6th, 2020), [www.seethroughny.net/payrolls](http://www.seethroughny.net/payrolls); and Metropolitan Transportation Authority, *2021 Final Proposed Budget, November Financial Plan 2021-2024* (November 2020), Volume 1, p. II-2 , <https://new.mta.info/document/24126>.

fare collection on commuter rail. Savings for health care benefits are estimated by benchmarking the MTA within itself, to New York State and New York City. Savings for 2024 were estimated by calculating their value in 2019 and inflating them by projected MTA spending growth.<sup>6</sup>

Implementing these reforms will be challenging. Some require investments that may be significant. Others require support, active participation and changes by New York City and other stakeholders. Still, comparing the MTA's average unit costs versus other large, legacy US rail transit providers in high-cost labor markets confirms the net achievable savings should be substantial.<sup>7</sup>

The most important challenge to meet will be collaborating with labor to improve productivity, since reforms often will require the workforce to shrink and work rules to change. Phasing in changes over the next 30 months will allow this collaboration and time for design and implementation. Collaboration can identify the work rules that need to be modified and then negotiated. For much of the needed workforce reduction, there is sufficient time to leverage natural attrition. However, where attrition is insufficient other strategies may need to be explored, including retraining, redeployment, and gainsharing. These can reduce the potential savings but may be appropriate given the dire fiscal need.

Success also will depend on operational flexibility, such as periodic partial or full line (FASTRACK) closures to allow for overnight maintenance track availability. (See Appendix 1.) Furthermore, several proposed reforms have been attempted previously but have not found traction. For example, despite having been implemented by all US transit systems outside New York, OPTO has not been adopted broadly even though MTA management considered it as early as 1962.

Given the implementation challenges, saving the full \$2.9 billion by 2024 may not be likely. Still, significant changes should be pursued—and achieved—if the MTA is to be on a fiscally sustainable path. The alternatives to reform are deeply problematic. Saving \$2 billion annually would require, for example, a 28 percent increase in fares and tolls above what is planned, service cuts 50 percent greater than the MTA's mid-pandemic 'doomsday' scenario, or a 26 percent increase in the dedicated taxes and subsidies. The federal aid gives the MTA the opportunity to address its structural imbalance over several years; this time should not be wasted. Operating reform is the best reasonable path to a more sustainable future for the MTA.

## **Operation and Maintenance Productivity Improvement**

Productivity is measured by the ratio of inputs to service outputs. For transit, this is calculated as how many worker hours in facility maintenance, vehicle operations, and vehicle maintenance are necessary to provide one vehicle hour of service to passengers ("vehicle revenue hour"). The MTA's subway facility maintenance, bus facility maintenance and bus operations productivity lags other large transit systems. Increasing the MTA's productivity to the median productivity of its national peer group would save nearly \$1.9 billion annually, without reducing individuals' compensation.<sup>8</sup>

## Subway Facility Maintenance Improvement

New York City Transit (NYCT) facility maintenance is far less productive than other transit systems. Per physical mile of track, NYCT employs double the number of workers as Port Authority Trans-Hudson (PATH), and roughly quadruple the benchmarked national median subway system per track-mile. However, each mile of the NYCT rail system experiences more wear and tear than other systems because of NYCT's high-frequency and 24-hour service. To account for this service intensity, employee facility maintenance hours were assessed against total vehicle revenue hours of service, not subway system miles of track. This shows that NYCT subway facility maintenance productivity is 44 percent lower than the national median. (See Table 2.)

Increasing subway facility maintenance productivity from 0.76 vehicle hours of revenue service per facility maintenance worker hour worked to the national peer median of 1.36 would allow NYCT to continue delivering 19.4 million vehicle revenue hours of subway service with 44 percent fewer total facility maintenance hours worked.<sup>9</sup> Applying the estimated percent reduction in total facility maintenance hours to spending data in the NTD and escalating them to 2024, the savings in subway facility maintenance hours and headcount yield \$981 million annually by 2024 and a corresponding headcount reduction of 6,185.<sup>10</sup> There are significant implementation challenges when improving subway facility maintenance productivity, including, changes in overnight maintenance practices, flagging rules, and investments in track crossovers and signals to support partial rather than complete line closures. (See Appendix 1.)

**Table 2: Facility Maintenance Labor Productivity, Large US Heavy Rail Systems**

|                                 | <u>Vehicle Revenue Hours per<br/>Facility Maintenance Hour Worked</u> |
|---------------------------------|---|
| CTA (Chicago)                   | 2.37  |
| MBTA (Boston)                   | 1.59  |
| BART (San Francisco)            | 1.58  |
| PATH (NYC-Newark, NJ)           | 1.43  |
| SEPTA (Philadelphia)            | 1.41  |
| WMATA (Washington, DC)          | 1.32  |
| MARTA (Atlanta)                 | 1.15  |
| MDT (Miami)                     | 1.06  |
| LACMTA (Los Angeles)            | 0.90  |
| <b>MTA NYCT (New York)</b>      | <b>0.76</b>   |
| <b>Median, Selected Systems</b> | <b>1.36</b>   |

**Source:** CBC staff calculations. See: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (2019), "2019 Annual Database Service," "2019 Annual Database Operating Expenses," and "2019 Annual Database Transit Agency Employees," (accessed Dec. 15th, 2020) [www.transit.dot.gov/ntd/ntd-data](http://www.transit.dot.gov/ntd/ntd-data).

## Bus Vehicle Operations, Facility and Vehicle Maintenance Improvement (NYCT)

Bus service productivity is typically defined by the ratio of inputs needed per one of two industry standard dimensions—per-hour and per-mile.<sup>11</sup> The first dimension of bus service productivity, on an hourly basis, varies with how many vehicle operator, vehicle maintainer, and facility maintainer employee-hours are needed to deliver a vehicle-revenue-hour of service.

Bus operators in all systems spend at least some of their paid time not operating an in-service vehicle. Some time is spent in training or while traveling without passengers, usually to or from a garage. This non-service time varies across systems. For example, systems that use part-time drivers or split the shifts of full-time drivers between the morning and evening peak service do not have to pay drivers during off hours when they are not working. At the most efficient system, NJ Transit, 75 percent of bus operators' paid hours are spent in revenue service, far higher than the 60 percent at NYCT local bus. Only Washington Metropolitan Area Transit Authority's (WMATA) local bus operations are less productive than NYCT Bus among major local bus operators in the selected peer group. (See Table 3.)

Table 3 shows the ranking and changes for vehicle operators, vehicle maintainers and facility maintainers for local bus. If each NYCT bus mode—rapid bus, local bus, and commuter express bus—increased hourly productivity to at least the national peer benchmarks in each sub-mode and all three operating employee categories, MTA could save \$367m annually by 2024. Of the three types of bus modes, NYCT local bus constitutes the bulk of the total savings.<sup>12</sup> Achieving these levels of productivity would require 1,793 fewer employees. Implementation challenges for this policy proposal include collective bargaining on work rule changes like split shifts or allowing part-time drivers to serve peak hours.

**Table 3: Hourly Labor Productivity by Operating Activity, Large US Local Bus Systems**

|                            | <b>Vehicle Revenue<br/>Hours per Vehicle<br/>Operator Hour</b> | <b>Vehicle Revenue<br/>Hours per Vehicle<br/>Maintainer Hour</b> | <b>Vehicle Revenue<br/>Hours per Facility<br/>Maintainer Hour</b> |
|----------------------------|--|--|---|
| NJT (New Jersey)           | 0.75   | 2.46   | 28.40   |
| MARTA (Atlanta)            | 0.71   | 3.59   | 18.32   |
| CTA (Chicago)              | 0.70   | 3.49   | 25.53   |
| METRO (Houston)            | 0.69   | 2.39   | 9.97  |
| LACMTA (LA County)         | 0.67   | 1.94   | 18.12   |
| MBTA (Boston)              | 0.67   | 4.18   | 157.47  |
| SEPTA (Philadelphia)       | 0.67   | 2.58   | 3.55  |
| KCM (Seattle)              | 0.67   | 2.95   | 8.41  |
| <b>MTA NYCT (New York)</b> | <b>0.60</b>  | <b>2.33</b>  | <b>11.21</b>  |
| WMATA (Washington, DC)     | 0.57   | 2.44   | 169.45  |
| <b>National Median</b>     | <b>0.67</b>  | <b>2.52</b>  | <b>18.22</b>  |

**Source:** CBC staff calculations. See: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (2019), "2019 Annual Database Service," "2019 Annual Database Operating Expenses," and "2019 Annual Database Transit Agency Employees," (accessed Dec. 15th, 2020) [www.transit.dot.gov/ntd/ntd-data](http://www.transit.dot.gov/ntd/ntd-data).

## LIRR Vehicle Operations and Maintenance Productivity Alignment with MNR

Long Island Railroad (LIRR) and Metro-North Railroad (MNR) operate similar services with similar rolling stock. CBC's [2018 study comparing LIRR and MNR found that](#) adopting MNR's work rules and operating and maintenance practices would lower LIRR's operating and maintenance employee hours per vehicle-hour to the level of MNR and would lower costs commensurately.

In 2019, MNR delivered 0.57 vehicle-hours of service per employee hour worked in vehicle operations, which is 14 percent more than the 0.50 vehicle-hours at LIRR. MNR delivered 0.79 vehicle-hours per vehicle maintenance employee hour worked. If LIRR matched MNR on both metrics, the improvements would allow staffing reductions of 13 percent in vehicle operations and 39 percent in vehicle maintenance. Total hours worked at LIRR would decline by about 2.3 million hours without reducing service. These reductions would save up to \$242 million annually by 2024, and would allow a headcount reduction of 1,114.<sup>13</sup>

The primary implementation challenge is the LIRR's long established bargaining precedents for more generous work rules and compensation than MNR workers. Bargaining conflict differs somewhat with railroad workers than transit workers: The former may strike under federal railroad law after mediation, while the latter enjoy NYS Taylor Law protection of the contract in exchange for a prohibition on striking.<sup>14</sup>

## Spatial Bus Productivity (15% speed increase on NYCT Local Bus)

Spatial bus productivity measures how many miles of service are delivered by the scheduled hours of service. When buses go faster, fewer buses are needed to provide the same service frequency on the same route; equivalently, more miles of service could be delivered by the same number of buses. Increasing bus speeds can reduce cost, especially if the improvements are large enough for vehicles to be taken out of operations without sacrificing service frequency.

In New York City, spatial bus productivity is affected by the actions of both the New York City Department of Transportation (NYCDOT) and MTA. Improvements in spatial bus productivity are not simply the purview of the MTA alone but depend on collaboration and joint action. NYCDOT has final say on bus lane installation and enforcement and bus stop structure, while MTA determines bus stop spacing, boarding and fare payment procedure, and bus dispatching and related quality control.

NYCDOT's Better Buses Action Plan and MTA's ongoing bus network resign initiative have jointly targeted an aggressive 25 percent increase in local bus speed in the combination of a once-in-a-generation network redesign citywide, system wide all-door bus boarding enabled by One Metro New York (OMNY) fare collection, plus bus priority treatments in key locations.<sup>15</sup> On individual Select Bus Service upgrades without a network redesign, MTA reports that by investing in bus lanes, level boarding bus bulbs, all-door boarding, prioritized signals, and best-practice reduced

bus stop spacing, bus speeds increase by 10 to 20 percent.<sup>16</sup> These investments may be significant if combined with full road reconstruction and also would require significant changes to traffic and signal patterns.<sup>17</sup> Associated policy implementation and infrastructure costs would offset the identified savings below—though the costs of bus lane reconfiguration are borne by NYCDOT, not the MTA.

A 25 percent increase in bus speeds may be very ambitious. A more attainable 15 percent increase in bus speed would permit an average reduction of 13 percent of vehicle-hours while still delivering the same total number of vehicle-miles and system wide average bus stop frequencies. Applying the 13 percent reduction to the cost of bus operations yields annual savings of \$268 million by 2024 with a corresponding headcount reduction of 1,278.<sup>18</sup>

Changes smaller than one bus headway still can generate savings—extra schedule recovery time short of one headway reduces unplanned overtime during disrupted operations and facilitates headway rebalancing. A 15 percent increase in NYCT bus speeds from the pre-pandemic baseline would be a meaningful improvement and offset the speed losses from rising vehicle congestion over the last 30 years, rendering them slightly faster than their 1990 average speeds.<sup>19</sup>

## Conductor Operating Reform

Changes to conductor operating procedures also can improve productivity and reduce costs. These include incrementally upgrading subway service to one-person subway train operation (OPTO) and modernizing the commuter rail networks' fare collection methods so that fewer conductors are needed. Together these changes could save up to \$512 million annually.

### NYCT Subway One-Person Train Operation Expansion

OPTO—operating a train by one operator alone, instead of with a conductor who controls only the doors—has been gradually adopted by Chicago, Boston, and Philadelphia since the late 1980s.<sup>20</sup> Today, the MTA uses OPTO on six lines, but only during nights and weekends when ridership is lowest.<sup>21</sup> Nevertheless, New York City still hosts the last two rail rapid transit operators in the US that employ two-person train crews: NYCT subway and PATH. A system wide adoption of OPTO would reduce the need for train conductors and bring agency operations in line with its national peer systems.

Eventually, technological improvements may eliminate the need for both subway conductors and operators altogether.<sup>22</sup> For now, CBC recommends no change in the number of subway train operators but a 50 percent reduction in conductors by 2024, which recognizes US peer experience that converting to OPTO is likely to be a gradual process. This would save half of total projected subway conductor spending (\$221 million of \$442 million) by 2024 and result in a headcount reduction of 1,582.

This staffing reduction may be achievable by attrition. NYCT subway attrition was about 9 percent



over the 2019-2021 period.<sup>23</sup> If external hires of train operators were frozen and new operators were hired only from the conductor pool, the conductor separation rate could be even higher.<sup>24</sup>

Earlier attempts to implement OPTO in 2005 and 2012 were challenging due to objections from labor. After several months of OPTO on the L train in 2005, an arbitrator determined the MTA had not properly bargained for the work rule change; in 2012, the MTA removed its OPTO bargaining request for the L and 7 trains without publicly disclosing the reason. OPTO conversion elsewhere has involved a mix of layoffs and attrition: Chicago, for example, used a mix of attrition and layoffs between 1997 and 2000.<sup>25</sup>

OPTO expansion also will require operator training and deployment of closed-circuit television (CCTV) feeds or mirrors where appropriate on select curved platforms for safety. This cost would offset some of the savings but is likely small, per Chicago's experience in 1997 and the MTA's own projected net savings in OPTO conversion of the L and 7 trains in 2012.<sup>26</sup>

### **Commuter Rail Proof of Payment**

Like most US commuter railroads, LIRR and MNR conductors still collect fares on board. In Europe, conductors are deployed only on intercity trains. Most European commuter rail-style systems have adopted fare payment practices from rapid transit, where fares are either paid at turnstiles or before boarding and enforced by random spot checks.<sup>27</sup> Such system without closed turnstiles or with turnstiles only at the busiest stations, where pre-payment is enforced by random spot checks, is called "proof-of-payment."<sup>28</sup> Though most common in Europe, proof-of-payment without turnstiles also is used by some US transit systems, including Buffalo's LRT subway and MTA's current Select Bus Service routes.<sup>29</sup> <sup>30</sup> Boston's commuter rail system is planning a hybrid system with turnstiles only at the three busiest central business district stations.<sup>31</sup> This is a plausible model for MNR and LIRR; in fact, LIRR considered labor-saving, transit-style turnstiles as early as 1964.<sup>32</sup>

Proof-of-payment would require significantly fewer conductors, thus yielding significant savings. A roughly 50 percent reduction in conductors after first achieving LIRR-MNR operating parity would leave sufficient staff to ensure one conductor per train during all shifts.<sup>33</sup>

Savings achieved will depend on fare evasion and the costs of fare gates at key commuter rail stations (if such an option is chosen). Conductors on commuter rail cannot yet be fully eliminated. Until all MTA commuter rail stations are accessible with high-level platforms or automatic door traps for low platforms, one conductor per train generally will continue to be needed to assist passengers at low platforms and conduct high rates of random proof-of-payment inspections. To conduct spot checks, one conductor per train seems sufficient to deliver a high rate of fare validation based on experience in all other developed-world rail systems.

Implementing proof-of-payment would allow MNR to reduce its conductor workforce by roughly 573, half the 2019 conductor payroll, yielding annual savings of \$138 million by 2024.<sup>34</sup> Implementing proof-of-payment would allow LIRR also to reduce its conductor headcount by half, a 699 person reduction, saving \$154 million annually by 2024.<sup>35</sup> This staff reduction would be



challenging to achieve by attrition alone. Alternative strategies including retraining and internal job transfers or priority internal hiring may be needed.

Any necessary capital investments would offset the savings generated if a hybrid option is chosen in the future. If MNR and LIRR were to follow the proposed Boston hybrid turnstile model, they may need to install OMNY faregates at Penn Station, Jamaica, Barclays Center, Long Island City, Grand Central, Harlem 125<sup>th</sup>, and possibly other in-city stations.

## Health Care Savings

### Retirees: Premium Cost Sharing Parity

MTA retirees do not contribute to their health care premiums. The agency could apply the State's current cost-sharing agreement for retired New York State employees to its own retired workforce. State workers who retired from salary grade 10 titles earning more than \$44,312 in 2019 pay 16 percent or 31 percent of premiums for individual and family coverage, respectively.<sup>36</sup> By retirement age, nearly all MTA employees earn more than New York State salary grade 10. If retired MTA retirees contributed to their health care premiums at the rate of retired State workers, the MTA would save \$263 million annually by 2024.

### Active Workforce: Premium Cost Sharing Parity

The MTA also could increase its active employee premium cost-sharing and modifying its health plan design.<sup>37</sup> Currently, represented MTA employees pay 2 percent of their salary for health insurance, equivalent to approximately 9 percent of average premiums in 2019, while non-represented staff pay on average 18 percent of their premium costs.<sup>38</sup> If the MTA were to increase the represented employees' share of premium contributions to the 18 percent level paid by non-represented employees, the agency could save \$130 million annually by 2024.<sup>39</sup> Notably, the 18 percent average premium target is significantly lower than the nearly 30 percent paid by New York State employees at or above salary grade 10. Fully 98 percent of the MTA's health and welfare eligible workforce earn salaries exceeding State salary grade 10.<sup>40</sup>

In addition, a [value-based plan redesign](#), modeled on the NYC Municipal Labor Committee's target savings of approximately 12 percent of projected health spending, would save approximately \$270 million by 2024.<sup>41</sup>

## Conclusion

MTA ridership and revenues have declined dramatically during the COVID-19 pandemic, exacerbating the MTA's already challenging fiscal situation. The agency has pursued cuts to spending on administration, overtime, contractors, and consultants before and during the pandemic. Though important and welcome, with the exception of overtime these efforts have not addressed the

unsustainable costs of operations. With the receipt of billions of dollars in federal aid, the agency has the runway to phase in changes to operations that would reduce the MTA's long run structural financial imbalance.

In order to put the MTA on a fiscally sustainable track, the MTA must improve the productivity of its operations. This will require changes to work rules and operating practices, and modest changes to health benefits. Some of the proposed reforms will be challenging to implement. Every recommendation affects represented workers. Some would be the subject of negotiations, possibly including changes to work rules and strategies for workforce reduction, retraining or redeployment. Attrition alone may not be sufficient to achieve the recommended reductions. Implementing the full range of savings actions would reduce the MTA's planned headcount by nearly 13,000 full time positions—roughly 18 percent—by 2024. Management and labor will have to collaborate to achieve these savings. This will likely be challenging. Gainsharing, which would reduce savings, may be a needed strategy to achieve success.

The current fiscal path is simply unsustainable. The underlying structural fiscal imbalance exceeds \$2 billion. While the path to achieving operating savings is hard, it is much preferable to phase in these savings than to have massive fare and toll increases, economically damaging service cuts, or significant increases in dedicated taxes and subsidies.

## **APPENDIX I: SUBWAY FACILITY MAINTENANCE DETAIL**

New York's high facility maintenance spending and staffing are the biggest single productivity opportunity in the MTA system. Simply cutting facility maintenance faces real tradeoffs unless procedural changes are made.

Improving subway facility maintenance productivity to the national median is most plausible with regular, rolling "FASTRACK"-style closures of large segments of night-time service to maximize uninterrupted "time-on-tools" and reduce the need to staff as many "flagger" positions.<sup>42</sup> (FASTRACK is what the MTA calls its night closure program for subway maintenance). When trackworkers are inspecting or cleaning active overnight tracks, they must cease activity at least every 20 minutes to let a train pass. During maintenance on active tracks, and on inactive tracks paralleling an active track since a 2007 rule change, "flaggers" are needed to enforce slow zones and alert oncoming trains and the trackworker teams of each other's presence.<sup>43</sup> For safety, flaggers do not assist with maintenance while watching for oncoming trains.

Track closures—including closing parallel tracks or installing safety barriers to separate active and inactive parallel tracks—are the only way to provide uninterrupted time and reduce the operational overhead of slow zones and flaggers. Peer experience suggests significant track segments would need to close every night on a regular rolling basis.<sup>44</sup>

The optimal mix of immediate and long-term maintenance mitigations deployed on a detailed operating level over time is beyond the scope of this paper. Potential decisions include:

- The ideal timing and length of FASTRACK closures overnight and some weekends;
- Consideration of modular track barriers to enable safe 2-track parallel service on 4-track lines without flaggers; and
- Investment in new track crossovers and signal upgrades to enable more single-tracking on 2-track lines.

Each of those potential investments must be weighed against the offsetting costs of shuttle buses or lost customers when two-tracking express or single-tracking local track segments during maintenance is infeasible. All of these options must be evaluated in detail on a line-by-line, project-by-project basis.

These changes are possible. NYCT has used occasional FASTRACK closures since 2012 to increase work time by trackworkers and expanded the overnight closure program significantly during the Subway Action Plan of 2017-2019.<sup>45</sup> Reducing facility maintenance expenditures while maintaining the state of good repair achieved by the Subway Action Plan will mean expanded FASTRACK as a normal feature of overnight service, rather than a temporary one.

## ENDNOTES

- [1] The Office of the State Comptroller estimated a COVID loss to MTA of \$16.8 billion for 2020-2023 based on 2020 July Plan figures; adding the November 2020 worst-case farebox update and extending that analysis to 2024 raises the total forecast to roughly \$25 billion for 2020-2024. This excludes any further potential long-term losses beyond the plan period resulting from any lasting COVID-induced changes in the economy. See: Office of the New York State Comptroller, *Financial Outlook for the Metropolitan Transportation Authority* (October 2020), [www.osc.state.ny.us/files/reports/osdc/pdf/report-5-2021.pdf](http://www.osc.state.ny.us/files/reports/osdc/pdf/report-5-2021.pdf).
- [2] The MTA's last official financial plan update, in February 2021, projected a 2024 cash shortfall of \$2.4 billion. Subsequently, with the passage of the American Rescue Plan the MTA announced that it would reverse planned service cuts and lift its wage freeze. While these would increase the 2024 shortfall, the MTA also has indicated that revenues are trending higher and expenditures trending lower than the February 2021 Financial Plan, effectively returning the long-term projection close to that plan's \$2.4 billion shortfall. CBC's assessment of the interim announcements affecting the February Plan, pending an official update in the July Financial Plan, is that the MTA's rolling cash balance may last long enough to cover some of the projected 2024 operating loss, pushing the full \$2.4 billion or more structural operating deficit to 2025.
- [3] The headcount estimates come from two sources: FTA data for hourly productivity benchmarking, and the Empire Center's SeeThroughNY payroll database for conductor staffing estimates. The FTA data represents the summary year-end employee count for 2019 reported by MTA. The STNY payroll database, by contrast, includes all individuals who were on payroll in the conductor job titles at any time in 2019. Some new hires who may not have completed their training, and some long-time employees who retired in 2019, are likely included in the payroll headcount for conductors. See: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (2019), [www.transit.dot.gov/ntd/ntd-data](http://www.transit.dot.gov/ntd/ntd-data).
- [4] MTA Bus Company savings that accrue to NYC rather than the MTA are excluded. Annual savings to the City in reduced subsidy with the same benchmarks applied would total \$170 million annually.
- [5] NTD data presents a comprehensive picture of total staffing and spending. The database allows for comparison of high-level operating choices, such as directly operated versus contracted bus operations. However, cost differences of specific support services, such as in-house versus outsourced station cleaning, are not disaggregated and cannot be analyzed or accounted for.
- [6] The overall budgeted growth factor before interaction is 1.20 from 2019 to 2024. After removing health care savings to avoid double-counting, the growth factor to 2024 is 1.14. See: Metropolitan Transportation Authority, *2021 Final Proposed Budget, November Financial Plan 2021-2024* (November 2020), Volume 1, p. II-2, <https://new.mta.info/document/24126>.
- [7] For example, NYCT subway's average operating cost—\$268 per vehicle revenue hour—is 75 percent higher than Chicago, 34 percent higher than Boston, and 25 percent higher than Philadelphia.
- [8] Peer group consists of top 10 agencies in service by vehicle hours in each mode for which employee hours are reported to the NTD.
- [9] The reduction in hours worked corresponds to a headcount decrease of 6,185 full-time positions based on NTD data. See: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (2019), [www.transit.dot.gov/ntd/ntd-data](http://www.transit.dot.gov/ntd/ntd-data).
- [10] This is based on the MTA's most recent (2019) reporting to the Federal Transit Administration of hours, headcount, and total labor and fringe spending for facility maintenance. The 2019 value of that spending is

inflated to its 2024 value by the MTA's planned budget growth for labor and fringe spending in the MTA's November 2020 Financial Plan. The total in Table 1 nets out the health insurance savings proposed in this paper from the 2024 projected health and welfare spending growth. See: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (2019), [www.transit.dot.gov/ntd/ntd-data](http://www.transit.dot.gov/ntd/ntd-data); Metropolitan Transportation Authority, *2021 Final Proposed Budget, November Financial Plan 2021-2024* (November 2020), Volume 1, p. II-2, <https://new.mta.info/document/24126>.

- [11] The third dimension of transit productivity is passenger carriage productivity, measured in the cost per passenger trip or per passenger-mile. It depends in part on passenger demand. It is influenced by fare policy, land use regulations, road pricing policy, and other typical determinants of mode choice and capacity utilization of scheduled service. Even the best run bus system per hour and per mile, with best practice work rules, perfect scheduling, 400 meter stop spacing and other ITDP Gold design standards, could have high per-passenger costs if, for example, stringent land use regulations or suboptimal fare policy deter riders from using the service.
- [12] Local bus service is the bulk of the bus savings (\$296 million out of \$367 million). Commuter bus had a larger percentage change, but on a smaller volume of service, with a 28 percent and 36 percent decrease in vehicle operations and vehicle maintenance hours worked at median productivity, respectively (yielding \$65 million). Rapid bus productivity is mostly on par with other large systems that report their employee hours to NTD, with only \$6 million in savings—from a 4 percent decrease in vehicle operations and 17 percent decrease in vehicle maintenance hours at median productivity.
- [13] Estimates are based on Empire Center payroll data for 2019 and escalating costs based on MTA budgetary growth assumptions. See: Empire Center, “SeeThroughNY Payrolls” (accessed June 6, 2020), [www.seethroughny.net/payrolls](http://www.seethroughny.net/payrolls); Metropolitan Transportation Authority, *2021 Final Proposed Budget, November Financial Plan 2021-2024* (November 2020), Volume 1, p. II-2, <https://new.mta.info/document/24126>.
- [14] The Taylor Law governs covered public employee labor relations in New York State. Though the law does not allow covered employees to strike, the “Triborough Amendment” of the Taylor Law requires public employers in New York to continue all terms of a prior contract until a new contract is negotiated. Private employers can unilaterally change expired contract terms and private unions can unilaterally strike, and federal Railway Labor Act employers and employees are delayed but not fully prohibited from those options. However, Taylor Law public employers cannot unilaterally impose new contract terms (like OPTO) and Taylor Law public employees cannot unilaterally strike. See: Angela M. Blassman, “The Triborough Doctrine and Statute: A Catalyst or Hindrance to Harmonious Labor Relations?” (paper presented at The Taylor Law at 50 Conference, Albany, NY, May 10th, 2018) [https://nysba.org/NYSBA/Coursebooks/Spring%202018%20LPM%20Coursebooks/Taylor%20Law%20at%2050/11\\_Outline%20-%20Concurrent%20%20-%20300%20pm%20UPDATED%205.8.18.pdf](https://nysba.org/NYSBA/Coursebooks/Spring%202018%20LPM%20Coursebooks/Taylor%20Law%20at%2050/11_Outline%20-%20Concurrent%20%20-%20300%20pm%20UPDATED%205.8.18.pdf).
- [15] The Better Buses Action Plan is NYCDOT's companion initiative with the MTA's ongoing bus network redesigns. The combined initiatives should improve spatial bus productivity, but those benefits currently are intended to be redeployed in combination with revenue-neutral bus network redesigns.
- [16] MTA says Select Bus Service treatments typically save customers between 10 percent and 20 percent of travel time. See: Metropolitan Transportation Authority, “Improving bus service across New York City”, (accessed November 15, 2020), <https://new.mta.info/projects/bus-improvements>.
- [17] Paint for simple lane reconfiguration is a negligible expense. Still, some Select Bus Service corridors are packaged with a full rebuild of the underlying right of way and extensive subsurface utility work, triggering both NYCDOT and New York City Department of Design and Construction (NYCDDC) involvement. For example, Phase II of Woodhaven Boulevard SBS is forecast to cost nearly \$300 million if it eventually wins federal funding. See: Larry Penner, “No federal money this year for NYC DOT Woodhaven Blvd. SBS Phase 2”, *Mass Transit Magazine*

*Infrastructure Blog* (June 19, 2020), <https://www.masstransitmag.com/bus/infrastructure/blog/21142830/no-federal-money-this-year-for-nyc-dot-queens-woodhaven-blvd-select-bus-service-phase-2>.

- [18] This calculation increases total 2019 NTD-reported NYCT Local Bus vehicle revenue miles per vehicle revenue hour by 15 percent. It then calculates how many revenue hours of service could be reduced at the new, higher average revenue service speed while keeping total revenue miles constant on average across all routes—approximately 13 percent of current total scheduled hours. The final summed value of the savings is then inflated to 2024 while removing the interaction with hourly productivity and health insurance reform proposals.
- [19] New York City Department of Transportation, *NYC Mobility Report 2016* (October 2016), <http://www.nyc.gov/html/dot/downloads/pdf/mobility-report-2016-screen-optimized.pdf>.
- [20] J.A. Hoess and P.J. Murphy, Conversion to One-Person Operation of Rapid-transit Trains. National Cooperative Transit Research & Development Program (Transportation Research Board, December 1986), <http://onlinepubs.trb.org/Onlinepubs/nctrp/rpt13/13.pdf>.
- [21] Metropolitan Transportation Authority, "One-Person Train Operation" (accessed January 15, 2021), <http://web.mta.info/nyct/service/opto.htm>.
- [22] In 2012, Siemens' CBTC technology was certified for fully automated "zero person train operation" (ZPTO) on Line 1 in the Paris Metro. Line 1, a legacy-era subway opened in 1900 now has a decade of fully automated ZPTO service. See: Caroline Sallé, "La ligne 1 du métro parisien se met en pilotage automatique", *Le Figaro* (March 11th, 2011), <https://www.lefigaro.fr/actualite-france/2011/11/01/01016-20111101ARTFIG00511-la-ligne1-du-metroparisien-se-met-en-pilotage-automatique.php>.
- [23] Jose Martinez, "Subway Workforce Dwindles as Pandemic and Hiring Freeze Take Toll", *The City* (April 18, 2021), <https://www.thecity.nyc/2021/4/18/22390464/nyc-subway-workforce-dwindles-as-pandemic-takes-toll>.
- [24] Of the 8,047 train operators and conductors on payroll in 2019, 2,157 were hired before 2001, meaning they will have 25 years of service by the end of 2024; retirement or other attrition by 2,157 train operators and conductors would exhaust 55 percent of the 2019 conductor pool by 2024. This hiring practice has precedent; operators in the past were drawn only from the conductor workforce, and even today conductors still enjoy preference for train operator jobs. See: Empire Center, "SeeThroughNY Payrolls" (accessed June 6, 2020), [www.seethroughny.net/payrolls](http://www.seethroughny.net/payrolls).
- [25] Before Chicago's OPTO conversion in 1997, Chicago Transit Authority publicly expected to save on net about \$13.8 million by expanding OPTO system-wide beyond the Yellow and Orange lines, or about 9 percent of its total heavy rail vehicle operations spending in 1997. Retrospectively, the gross vehicle operating cost per revenue-hour in Chicago fell by 23 percent from 1997 to 1998, of which OPTO savings were plausibly a significant contributor. Still, even with layoffs, Chicago ultimately decided to retain a small number of conductors through 2000. See: Jon Hilkevitch, "CTA to leave train conductors at the station", *Chicago Tribune* (June 24th 1997), <https://www.chicagotribune.com/news/ct-xpm-1997-06-24-9706240319-story.html>; U.S. Department of Transportation, Federal Transit Administration, 1998 *Table 30: Directly Operated Service - Cost Efficiency and Cost Effectiveness*, (February 10th 2021), <https://www.transit.dot.gov/ntd/data-product/1998-table-30-directly-operated-service-cost-efficiency-and-cost-effectiveness>; and U.S. Department of Transportation, Federal Transit Administration, 1997 *Table 29: Directly Operated Service - Cost Efficiency and Cost Effectiveness*, <https://www.transit.dot.gov/ntd/data-product/1997-table-29-directly-operated-service-cost-efficiency-and-cost-effectiveness>.
- [26] Past arbitration negotiations on the net value of OPTO expansion on the L and 7 trains alone valued at roughly 0.5 percent of a TWU-wide annual wage increase in 2012. See: NYCTA & MaBSTOA & MTA Bus Company v. TWU Local 100, PERB Case No. TIA2008-022, NYS Public Employment Relations Board (August 12, 2009),

<https://www.perb.ny.gov/wp-content/uploads/2018/04/Tia2008-021-022.pdf>.

- [27] J.G. Allen, "From Commuter Rail to Regional Rail: Operating Practices for the 21st Century," *Transportation Research Record: Journal of the Transportation Research Board*, vol. 1623, no. 1 (October 1998), pp. 127–134.
- [28] *Ibid.*
- [29] Per MTA officials, fare evasion summons revenue accrues to the jurisdiction of the summons rather than the MTA. Though fare evasion summonses are valuable mostly for their deterrent effect, a guarantee of revenue neutrality to MTA's budget (analyzed parochially, not as a consolidated public balance sheet) would require a revenue-sharing agreement with MTA-area municipalities akin to the Automated Bus Lane Enforcement camera revenue-sharing agreement with NYC, or a change in state law.
- [30] Niagara Frontier Transportation Authority, "How to Ride" (accessed December 10, 2020), <https://metro.nfta.com/programs/how-to-ride-metro>.
- [31] Installation of the commuter rail faregates was delayed by the pandemic and contract renewal uncertainty with Keolis but is scheduled to proceed in 2021 with the recent contract extension for Keolis. See: Nik DeCosta-Klipa, "Why the MBTA reversed course on its commuter rail contract with Keolis," *Boston.com* (June 16, 2020), <https://www.boston.com/news/local-news/2020/06/16/mbta-commuter-rail-contract-keolis>.
- [32] William Borders, "L.I.R.R. Turnstiles Are Putting a Halt To Cheating on Fare," *New York Times* (July 7, 1964), <https://www.nytimes.com/1964/07/07/archives/lirr-turnstiles-are-putting-a-halt-to-cheating-on-fare.html>.
- [33] MTA does not publish detailed data on staff per train, although MTA officials have noted that up to 5 conductors may be used on board each train at the busiest times. Absent detailed staffing data, average staffing ratios are estimated from public payroll conductor headcount and NTD-reported vehicles operated in maximum service. LIRR employed 1,145 conductors in 2019 and operated 1,135 vehicles in maximum service; MNR employed 1,397 conductors with 1,046 vehicles operated in maximum service. If LIRR and MNR conservatively average 8-car trains, then they run 142 peak simultaneous trains on LIRR and 128 on MNR. Dividing the total headcount per imputed peak train, LIRR and MNR currently employ roughly 11 and 8 total conductors per rush-hour train, respectively. To develop a conservative estimate with the available data, we modeled the schedule as if both railroads run full peak service 24/7 on weekdays. Reducing the number of conductors by half on each railroad would still leave at least 4 total conductors per simultaneous rush hour train. If peak service were operated 24/7, that would be enough conductors to cover all 3 shifts at one per train plus one in reserve. Since actual off-peak and overnight service is much lower than peak service, the actual headcount reserve would exceed 1 in 4 conductors. Thus, a 50 percent reduction in conductors at each railroad would allow sufficient staff for proof of payment. Implementation with greater reductions may be possible, but data to estimate that level of reduction are not available. See: CBC staff calculations on Empire Center, "SeeThroughNY Payrolls" (accessed June 6, 2020), [www.seethroughny.net/payrolls](http://www.seethroughny.net/payrolls)
- [34] See Footnote 33.
- [35] See Footnote 33.
- [36] NYS Department of Civil Service Employee Benefits Division, *NYSHIP 2019 Rates & Information* (December 2018), <https://www.cs.ny.gov/employee-benefits/nyship/shared/publications/rates/2019/ny-retiree-rates-2019.pdf>.
- [37] If both options were implemented together, the value-based care redesign would reduce the future value of premiums shared; their interacted value is about \$388 million, which is reflected in the final global total.
- [38] CBC staff analysis of Metropolitan Transportation Authority, 2021 Final Proposed Budget, *November Financial Plan 2021-2024* (November 2020), Volume 2, <https://new.mta.info/document/24131>; Empire Center, "SeeThroughNY Payrolls" (accessed June 6, 2020), [www.seethroughny.net/payrolls](http://www.seethroughny.net/payrolls).



- [39] Previous CBC research also used MTA management as the benchmark for active represented employees but NYS employees for retiree health care. If NYS employees were used as the benchmark for active represented employees, the annual savings to MTA would be approximately \$119 million higher. See: Citizens Budget Commission, “Reform at the Bargaining Table” (April 30th 2019), <https://cbcny.org/research/reform-bargaining-table>.
- [40] This is measured from the count of 2019 hourly payroll jobs excluding part-time, temporary, contingent, intern, and college aid positions, all of which are ineligible for health and welfare benefits. See: Empire Center, “SeeThroughNY Payrolls” (accessed June 6, 2020), [www.seethroughny.net/payrolls](http://www.seethroughny.net/payrolls).
- [41] Some value-based changes estimated to save \$27 million annually were introduced for TWU workers in the January 2020 contract. This proposal would be incremental to that initiative and apply to all represented workers. See: Citizens Budget Commission, “TWU Contract: Productivity Not a Done Deal” (February 18th 2020), <https://cbcny.org/research/twu-contract>.
- [42] Community of Metros, *Innovations to Optimise Overnight Maintenance* (December 18, 2020), <https://cometandnova.org/research-innovations-to-optimise-overnight-maintenance/>.
- [43] Since a 2007 rule change, flaggers and slow zones have been required on active parallel tracks unless a physical barrier separates the track. See: Metropolitan Transportation Authority, *MTA NYC Transit Puts New Track Safety Initiatives in Place* (May 17, 2007), <https://www.mta.info/press-release/nyc-transit/mta-nyc-transit-puts-new-track-safety-initiatives-place>.
- [44] Peer European systems, for example, shut down every night with few exceptions. Transport for London’s (TfL) recent Night Tube expansion is an exception that proves the rule: TfL has begun to operate limited overnight service only on weekends, not weeknights. TfL’s pre-Pandemic cost-benefit analysis found Night Tube service a winner, but still planned not to expand weekend Night Tube service to 4 more lines until major capital works are complete in 2023. See: Transport for London, “Night Tube is even bigger success than predicted, new figures show” (August 17, 2018), <https://tfl.gov.uk/info-for/media/press-releases/2018/august/night-tube-is-even-bigger-success-than-predicted-new-figures-show>.
- [45] Amy Plitt, “MTA’s subway repairs could mean more overnight service shutdowns”, *Curbed NY* (July 31, 2017), <https://ny.curbed.com/2017/7/31/16068078/nyc-subway-repairs-fastrack-mta>.

## The Track to Fiscal Stability: Operations Reforms for the MTA

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