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Patrick J. Foye
Chairman and Chief Executive Officer

Metropolitan Transportation Authority
State of New York

January 6, 2021

Honorable Andrew M. Cuomo
Governor of New York State
NYS State Capitol Building
Albany, NY 12224

Honorable Thomas P. DiNapoli
Office of the State Comptroller
59 Maiden Lane, 31st Floor
New York, NY 10038

RE: Response to Final Report #2018-S-72– New Customer-Focused Subway Metrics

Gentlemen:

On January 17, 2020, the Office of the State Comptroller issued the above referenced audit report. As required by Section 170 of the Executive Law, I am providing you with the attached response which addresses the recommendations contained in the report.

Additionally, I will be working with staff to ensure that management is following up on and enforcing the audit's recommendations, where appropriate, and requesting regular, interim reports to that effect.

A copy of the final audit report is attached for your convenience.

Sincerely,

Patrick J. Foye
Chairman and Chief Executive Officer

c: Anni Zhu, Chief of Staff to the MTA Chairman and Chief Executive Officer
Michele Woods, Auditor General, MTA Audit Services

Attachment

Memorandum

New York City Transit

Date December 22, 2020

To Patrick J. Foye, Chairman, Metropolitan Transportation Authority

From Sarah Feinberg, Interim President, MTA New York City Transit

Re **180-day Follow-up to the New York State Comptroller's Audit Report "New Customer-focused Subway Metrics" 2018-S-72**

New York City Transit (NYCT) welcomes outside review of its performance metrics and is continuously seeking to improve both metric calculation methodologies and communication of metrics to stakeholders. NYCT has taken actions in response to the Office of the State Comptroller's (OSC) findings and recommendations, including those found in the OSC's Audit Report on New Customer-focused Subway Metrics (2018-S-72).

Below is our follow-up response on actions taken in response to the OSC's key recommendation.

Comptroller Key Recommendation: Evaluate whether APT, ATT, and CJTP meet the goals of the plan and disclose the assumptions and margin of error for each assumption.

As NYCT stated in its initial response to the draft report, NYCT has evaluated Additional Platform Time (APT), Additional Train Time (ATT), and Customer Journey Time Performance (CJTP), and determined that they meet the goals of the Subway Action Plan. Furthermore, as the OSC report noted, NYCT is now legally required to report these metrics, with the definitions written into law, making further reevaluations less productive.

With respect to disclosing assumptions, NYCT acted on feedback from the OSC prior to release of the final report. NYCT revised and expanded material explaining customer-focused metrics. Definitions on the subway performance dashboard (http://dashboard.mta.info/) were rewritten to include the distinctions the OSC report highlighted as important (e.g., the separate calculation of metrics for each leg of a trip). In addition, the help section of the subway performance dashboard was expanded, with considerable additional content added under the question "How are each of the indicators calculated?"

NYCT committed to further revising these materials as the metric calculation methodology changed and followed through on that commitment. In August 2020, NYCT revised the dashboard metric definitions and help section a second time,

conveying changes made to the metric calculation process, including the planned integration of OMNY (One Metro New York) payment data and adaptations to the process prompted by the COVID-19 pandemic.

NYCT also committed to clarifying the definitions in the NYCT Committee materials within space constraints, and to do so in early 2020. NYCT followed through on this commitment, which can be verified by comparing page 29 of the December 2019 NYCT Committee Materials (https://new.mta.info/document/12466) with page 31 of the January 2020 NYCT Materials (https://new.mta.info/document/13821).

Despite being transparent about assumptions and processes, NYCT will not be able to include a margin of error corresponding to each assumption. As NYCT noted in our initial response, margins of error are commonly used to quantitatively describe the uncertainty resulting from using a sample to represent a population (e.g., surveying a small random group of likely voters to represent everyone who will vote on election day). Many of the assumptions used in this model are procedural (e.g., the rules for inferring trip destinations) and hence are not compatible with traditional statistical methods for computing margins of error. In order to address the spirit of this recommendation in a technically feasible manner, NYCT committed to performing a sensitivity analysis to evaluate the impact of the day selected for defining the set of unlinked trips on metric results.

This sensitivity analysis calculated the APT, ATT, and CJTP for a single week, November 4-8, 2019, using 12 different ridership input days: the day in October 2019 used for reporting November 2019 (10/16), and the 11 days used for reporting the 11 months preceding November 2019. This can be considered a "stress test" of the metrics' sensitivity to the ridership input, as the variability in ridership across an entire year is generally greater than that among weekdays in a single month. The variance (expressed in terms of standard deviation and range) in the metric results for the 12 ridership inputs is then calculated. The variance results can be considered upper estimates of the sensitivity of APT, ATT, and CJTP to the ridership assumptions used in this model. These variance results were then compared with the week-to-week variance in reported APT, ATT, and APT, for the 12 weeks from 9/30-12/20 2019. The combined results are summarized in the table below:

	APT (sec)		ATT (sec)		CJTP	
	Std. Dev.	Range	Std. Dev.	Range	Std. Dev.	Range
11/4-8, different ridership inputs	1.3	4.6	0.7	2.6	0.17%	0.64%
9/30-12/20, by week	6.3	25.0	8.5	25.3	1.37%	8.20%

These results show the metrics to be much less sensitive to different ridership input days than week-to-week performance trends. The standard deviation, for instance, is 5, 12, and 8 times higher in the week-to-week results for APT, ATT, and CJTP, respectively. These findings indicate that the uncertainty introduced by the assumptions and

limitations of NYCT's ridership model is generally much smaller than the reported trends in the metrics over time, which in turn implies that trends in reported APT, ATT, and CJTP are meaningful indicators of subway performance as experienced by NYCT's customers.

Astute observers may point out that ridership variability within a month has increased markedly during the COVID-19 pandemic. That is why adjustments were made to the metric calculation process. During the most pronounced ridership changes in the spring of 2020, days were excluded from reporting (and clearly communicated as being excluded in Board materials). Later, the process for selecting ridership input days was altered to use more up-to-date ridership. Given the dynamic nature of the COVID-19 pandemic, NYCT will continue to monitor ridership trends and data issues and respond appropriately.

Conclusion

NYCT appreciates the feedback provided by the OSC and has acted on the OSC's key recommendation. NYCT strives to make performance metric definitions and calculation methodologies transparent and will continue to provide high-quality performance metrics to stakeholders inside and outside of NYCT.

Enclosure

cc: Judith McClain