



CITY OF NEW YORK  
**OFFICE OF THE COMPTROLLER**  
SCOTT M. STRINGER

MARJORIE LANDA  
DEPUTY COMPTROLLER FOR  
AUDIT

BUREAU OF AUDIT

May 20, 2019

**By Electronic Mail**

Patrick Foye  
Chairman and CEO  
Metropolitan Transportation Authority  
2 Broadway  
New York, NY 10004

**Re: Letter Audit Report on the Telecommunication Services on the Metropolitan  
Transportation Authority Bronx Buses, Phase I (Audit Number SZ19-074AL)**

Dear Chairman Foye:

This Letter Report presents the results of our audit of the installation of Wi-Fi service and Universal Serial Bus (USB) charging ports in the New York City bus system in the Bronx, New York. The objective of this audit was to determine whether the telecommunication services that have been installed in the New York City Metropolitan Transportation Authority's (MTA's) "new-look" buses in the Bronx enable Wi-Fi and USB charging capabilities and are operating effectively.<sup>1</sup> This is the fourth in a series of audits of the ongoing installation of Wi-Fi service and USB charging ports in the New York City bus system.

**Background**

In December 2015, the MTA entered into a contract with Cellco Partnership, doing business as Verizon Wireless, in which the MTA granted Verizon Wireless the right to supply and deliver wireless voice and data services for a period of five years on the MTA bus system.<sup>2</sup> The contract stipulates that Verizon Wireless will provide services, certain hardware, software and other components and data plans in connection with the MTA's project to purchase, install, and integrate an onboard public Wi-Fi system.<sup>3</sup> According to the contract's "Wi-Fi Terms of Service" provision, "the service is provided as a free amenity to New York City Transit Authority (NYCT)

---

<sup>1</sup> The term "MTA buses" refers to the fleets owned and operated by both the New York City Transit's (NYCT's) Department of Buses (DOB) and the MTA Bus Company. Wi-Fi is a wireless networking technology that allows computers and other devices to communicate over a wireless signal. USB, short for Universal Serial Bus, is an industry standard that was developed to define cables, connectors and protocols for connection, communication, and power supply between personal computers and their peripheral devices.

<sup>2</sup> Cellco Partnership, Inc., doing business as Verizon Wireless Inc., provides wireless, residential, and business telecommunications products and services.

<sup>3</sup> NYCT is a subsidiary of the MTA that owns, operates, and repairs the buses. The MTA purchased the new-look buses and has the contract with Verizon Wireless.

customers for entertainment and educational purposes and it's not intended to be a designated public forum." The terms of service provision further states that the service is not supposed to be used for multi-media streaming, continuous data transmission or broadcasts, automatic data feeds, automated machine to machine connections or peer to peer file sharing, voice over internet protocol, or any application that is not made available to customer-users by the NYCT and that uses excessive network capacity. Further, the service is not intended to be used as a substitute or a back-up for private lines or a dedicated data connection.

In March 2016, Governor Andrew Cuomo announced that the MTA would add 2,042 new buses to its transportation fleet over a five-year period. The new buses, which have a distinctive blue-and-gold color scheme (new-look buses), represent a \$1.3 billion investment of capital program resources and will replace almost 40 percent of the pre-existing fleet. The MTA intends that the new buses will include free Wi-Fi hotspots and 35-55 USB charging ports located throughout each bus.<sup>4</sup> The Governor later stated that the "new state-of-the-art buses will better connect passengers who are on-the-go, [and] create a stronger mass-transit system to bring New York into the future."<sup>5</sup>

In May 2016, the MTA began putting the first 75 new-look buses, equipped with Wi-Fi service and USB charging ports, into service.<sup>6</sup> The service began in Queens along four routes; one additional bus was later added, and the 76 buses were in service in Queens by December 2017. In March 2017, the MTA began putting the first 83<sup>7</sup> new-look buses equipped with Wi-Fi and USB charging ports into service in the Bronx along the Bx1, Bx2, Bx6, Bx8, Bx9, Bx11, Bx15, Bx17, Bx21, Bx27, Bx31, Bx32, Bx33, Bx35, and Bx46 routes. Eighteen additional new-look buses were rolled out during the course of the audit along five more Bronx routes. (See Table I below for the periods in which 385 new-look regular and new-look SBS buses in Phase I were deployed in 4 boroughs.)<sup>8</sup>

---

<sup>4</sup> The number of USB ports will range from 35-55 depending on the make and model of the buses.

<sup>5</sup> *Governor Cuomo Announces Roll Out of New Buses with Wifi and USB Charging Ports in the Bronx*, March 21, 2017 press release.

<sup>6</sup> During our previous testing in Queens, one additional new-look bus began operating for a total of 76 new-look buses.

<sup>7</sup> During the course of the audit, additional buses were added to Phase I and the same new look bus that were on the original routes were transferred to different routes and different depots within and outside of the borough.

<sup>8</sup> Select Bus Service (SBS) is New York City Transit's bus service designed to reduce travel time and increase the level of comfort for customers.

**TABLE I**

**Installation of New-Look and SBS Buses on Various Routes throughout the City**

Borough	Date Service Began	Service Completed	Number of Buses	Type of Bus	Routes	Depot(s)
Queens	May 2016	December 2017	76	New-Look	Q10, Q111, Q113 & Q114	JFK and Baisley Park
Queens	March 2017	March 2017	43	New-Look-SBS	Q44-SBS	Casey Stengel
Bronx	March 2017	December 2017	83	New-Look/New Look-SBS	Bx1,Bx2,Bx6, Bx8,Bx9, Bx11,Bx15,Bx17,Bx21,Bx27, Bx31,Bx32,Bx33, Bx35 and Bx46	West Kingsbridge Depot and West Farms
Bronx	March 2017	December 2017	18	New-Look/New Look-SBS	Bx19,Bx36,Bx6-SBS,Bx12-SBS and Bx41-SBS	Gun Hill <sup>9</sup> and West Farms
Brooklyn	April 2017	November 2017	86	New-Look	B4, B8, B9, B11, B16, B35, B37, B43, B61, B63, B67, B68, B69 and B70	Grand Avenue and Jackie Gleason
Manhattan	April 2017	December 2017	79	New- Look	M14, M15, M101, M102 and M103	Tuskegee Airmen
<b>TOTAL</b>			<b>385 buses</b>		<b>44 routes</b>	

The remaining 1,657 new-look buses have been or will be assigned to various routes throughout the five boroughs from 2018 through 2020.

In addition, in 2016, the MTA began the process of upgrading its pre-existing express buses to include Wi-Fi and USB charging ports. As of January 2018, the MTA had 1,019 express buses in operation throughout the five boroughs; by mid-October 2017, according to the MTA, all had been retrofitted with the USB charging ports, and 910 had been retrofitted with Wi-Fi. The MTA also informed us that all express buses were expected to be retrofitted with Wi-Fi and USB charging ports by the end of 2017.<sup>10</sup>

**Audit Findings**

We found that, overall, the telecommunication services provided by Verizon Wireless are generally operating as intended on the MTA's Bronx buses. We tested 101 new-look buses with

<sup>9</sup> The MTA often transfers bus assignments between depots based upon the borough's needs. Therefore, bus assignments to particular routes are subject to change based on those factors. During the course of the audit, the buses that were initially reported to operate from the Kingsbridge Depot along the Bx1, Bx2, or Bx9 routes were assigned to the Gun Hill Depot, which now may be operating as the new-look buses on the Bx12-SBS and Bx41-SBS routes.

<sup>10</sup> The results of our testing of Bronx express buses with Wi-Fi and USBs will be issued in a separate report.

Wi-Fi and USB capability on 13 routes and at the West Farms Depot in the Bronx.<sup>11</sup> Our tests showed that the MTA's Wi-Fi network operated effectively on 74 out of the 101 tested buses (73 percent). On those 74 buses, we were able to connect to the wireless network and browse various websites such as news, entertainment and social media. We also found that the MTA's Wi-Fi network appropriately restricted access to multi-media video streaming websites such as YouTube, Netflix, Hulu, and VuDu. However, as shown in Table II below, we also found that the Wi-Fi network did not operate effectively on 27 of the 101 new-look buses (27 percent).

We tested the USB ports on the same 101 new-look buses for a total of 4,515 ports.<sup>12</sup> We found that 4,475 of the 4,515 USB charging ports we tested (99 percent) were working as intended; in those instances, we were able to connect and charge phones utilizing the tested buses' USB ports. However, we also found that 40 of the 4,515 USB ports (1 percent) on a total of 15 buses were not operational.

**Table II**  
**Testing of the Wi-Fi on the MTA's New- Look Buses in the Bronx**

Route	Type of Bus	Number of Buses	Number of Buses With Working Wi-Fi	Percentage of Buses With Working Wi-Fi	Number of Buses Without Working Wi-Fi	Percentage of Buses Without Working Wi-Fi
Bx6	New-Look	1	0	0	1	100%
Bx11	New-Look	2	2	100%	0	0%
Bx15	New-Look	2	1	50%	1	50%
Bx17	New-Look	2	2	100%	0	0%
Bx19	New-Look	1	1	100%	0	0%
Bx21	New-Look	3	2	67%	1	33%
Bx27	New-Look	1	1	100%	0	0%
Bx33	New-Look	2	1	50%	1	50%
Bx35	New-Look	10	6	60%	4	40%
Bx36	New-Look	4	2	50%	2	50%
Bx6-SBS	New-Look	16	9	57%	7	43%
Bx12-SBS	New-Look	16	11	69%	5	31%
Bx41-SBS	New-Look	14	10	71%	4	29%
Garaged/Parked West Farms Bus Depot13	New-Look	27	26	96%	1	4%
<b>TOTAL</b>		<b>101</b>	<b>74</b>	<b>73%</b>	<b>27</b>	<b>27%</b>

<sup>11</sup> We were able to test the 83 new-look buses from Phase I and 18 additional new-look buses that were rolled out during the course of the audit for a total of 101 buses.

<sup>12</sup> The new-look buses tested in the Bronx were either the New Flyer XN40 CNG model, which average 35 ports per bus (52 X 35=1,820), the New Flyer XN60 CNG model, which average 55 ports per bus (19 X 55=1,045) or the Nova Bus LF60102 model, which average 55 ports per bus (30 X 55=1,650) for a total of 4,515 USB ports tested.

<sup>13</sup> These 27 buses garaged/parked at the West Farms Bus Depot will be assigned to the various routes deemed necessary by the MTA.

During the course of the audit, we notified MTA officials of any Wi-Fi connectivity or USB charging capability malfunction that we found during our field testing. The MTA initiated repair orders, and we observed ongoing repair work. To ensure that the malfunctioning Wi-Fi connectivity and USB charging capabilities were properly repaired and operating, we re-boarded the 39 buses in which we previously found issues and retested the Wi-Fi connectivity and USB charging capability.<sup>14</sup> In all 39 buses, the retesting showed that the issues were resolved. In addition, we observed that the MTA has added as part of its routine maintenance bus checklist the Wi-Fi connectivity and USB charging capability. Thus, the MTA checks the connectivity and charging capabilities daily and the repairs are done as soon as they are found and reported.

### **Recommendation**

We recommend that the MTA and the NYCT continue to periodically perform tests of both the Wi-Fi and charging ports to ensure that their wireless network and USB charging capabilities, once installed, are functioning properly.

### **Scope and Methodology**

We conducted this performance audit in accordance with generally accepted government auditing standards (GAGAS). Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. This audit was conducted in accordance with the audit responsibilities of the City Comptroller as set forth in Chapter 5, §93, of the New York City Charter.

The audit covered the period of October 18, 2017 through February 21, 2019. Our audit tested new-look buses in the Bronx with Wi-Fi and/or USB charging ports that were reportedly operational.

To determine which buses garaged in the depots had Wi-Fi service and/or USB charging ports, we reviewed the requested spreadsheets submitted by MTA that included the bus numbers, bus models, and bus depots in the Bronx with fully operational Wi-Fi connectivity and/or USB charging ports. To determine the reliability of the list provided we tested 101 new-look buses in the Bronx that were listed as having Wi-Fi and/or the 4,515 USB charging ports along the various routes.

To achieve our audit objective, we used cellular phones and USB cables to assist us in testing the Wi-Fi and USB charging ports on the buses in the Bronx along the Bx6, Bx11, Bx15,

---

<sup>14</sup> Twenty-seven buses were without working Wi-Fi plus 15 buses without working USB ports for a sub-total of 42 bus minus three bus that had both issues for a total of 39 buses.

Bx17, Bx19, Bx21, Bx27, Bx33, Bx35, Bx36, Bx6-SBS, Bx12-SBS, and Bx41-SBS bus routes, and buses garaged at the West Farms Depot that were listed by MTA as having Wi-Fi connectivity and/or USB charging ports. Our testing was conducted between October 18, 2017 and February 21, 2019. During our testing, we established a Wi-Fi connection and connected the phones to various USB charging ports on the bus to ensure functionality. On each bus, we took screenshots displaying Wi-Fi connectivity on the phone and a connection to the USB charging port.

To determine access to Wi-Fi hotspots on the bus, the auditors signed into the MTA's Wi-Fi network along bus routes. The auditors logged onto MTA.info and attempted to access news/information, updates to MTA's service status, as well as the MTA's Bus Time and Trip Planner features.

To determine the accessibility of social media websites, the auditors downloaded Yahoo, Google, Facebook, Twitter, and Snapchat to cellular devices and attempted to read e-mail and send messages on the tested MTA buses. The auditors also attempted to access multi-media video streaming websites such as Netflix, Pandora, Hulu, Vudu, and YouTube to determine if it was possible to watch movies, play music, and stream videos on the tested MTA buses.

Testing was performed Monday through Sunday at various times during a full day, 24-hour cycle, to ensure that the Wi-Fi network was available and the USB charging ports were operational at all times. In addition, the auditors tested service in inclement weather to determine the effect on Wi-Fi and cellular service.

MTA and NYCT officials were notified during the audit of any issues we found with Wi-Fi connectivity or USB charging capability, and they initiated repair orders and conducted repairs as we were continuing the audit.

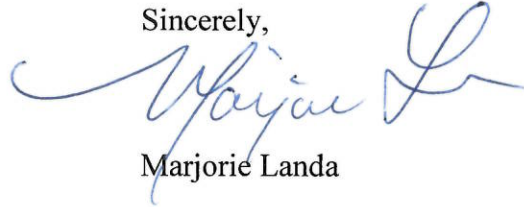
The matters covered in this letter report were discussed with MTA and NYCT officials during and at the conclusion of the audit, and they agreed that an exit conference was not necessary. On April 3, 2019, we submitted a draft letter report to the MTA and the NYCT with a request for written comments by April 17, 2019. This date was extended to April 27, 2019 and then again to May 9, 2019 at the auditees' requests. We received a written response from the MTA and the NYCT on May 9, 2019. In their written responses, MTA and NYCT officials generally agreed with the audit findings.

The NYCT stated, "Buses Management agrees with the audit recommendation to *'periodically perform tests to ensure that their wireless network and USB charging capabilities, once installed, are functioning properly.'*" [Emphasis in original.]

The Chairman and Chief Executive Officer of the MTA responded, stating, "I have requested additional information on the quality assurance and acceptance process for technology on our buses, and the maintenance approach. Buses confirmed a quality control process that includes review of the vendor's work to standards set by the Chief Maintenance Officer's office.

The new maintenance approach includes generating an automated report of buses with issues, which is more proactive than before.”

Sincerely,



Marjorie Landa

- c: Fernando Ferrer, Vice Chair, Office of the Chairman, MTA
- Andy Byford, President, NYCT
- Veronique Hakim, Managing Director, Office of the Chairman, MTA
- Darryl Irick, Senior Vice President, Department of Buses, President MTA Buses
- Craig Cipriano, Executive Vice President, Business Strategies and Operations Support
- Michael Ribosh, Vice President, Chief of Operations
- Michael Ecker, Deputy General Manager
- Zafira Lateef, Chief Officer, Business Strategies
- Sunir Nair, Chief Officer, Customer Information Systems
- David Perez-ACMO Customer Service
- Roy Grey-Stewart, Controller, MTA Bus Company
- Michael J. Fucilli, Auditor General, MTA
- Darren Jurgens, Audit Manager, MTA
- Jeff Thamkittikasem, Director, Mayor's Office of Operations
- George Davis III, Deputy Director, Mayor's Office of Operations



May 9, 2019

Ms. Marjorie Landa  
Deputy Comptroller for Audit  
The Office of the City Comptroller  
Bureau of Audit  
1 Centre Street, Room 1100  
New York, NY 10007

**Re: Draft Letter Report #SZ19-074AL (Telecommunication Services on the MTA Bronx Buses Phase 1)**

Dear Ms. Landa:

This is in reply to your letter requesting a response to the above-referenced draft letter report.

I have attached for your information the comments of Andy Byford, President, MTA NYC Transit, which address this report.

Additionally, I have requested additional information on the quality assurance and acceptance process for technology on our buses, and the maintenance approach. Buses confirmed a quality control process that includes review of the vendor's work to standards set by the Chief Maintenance Officer's office. The new maintenance approach includes generating an automated report of buses with issues, which is more proactive than before.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Pat Foye', written over a circular stamp.

Patrick J. Foye  
Chairman and Chief Executive Officer

cc: Veronique Hakim, MTA Managing Director  
Michael J. Fucilli, Auditor General, MTA Audit Services



# Memorandum



**New York City Transit**

**Date** April 26, 2019

**To** Patrick Foye, Chairman, Metropolitan Transportation Authority

**From** Andy Byford, President

**Re** Response to New York City Comptroller Letter Report #SZ19-074AL

Buses Management agrees with the audit recommendation to *“periodically perform tests to ensure that their wireless network and USB charging capabilities, once installed, are functioning properly”*.

cc: D. Irick  
M. Ribosh  
S. Nair  
J. Higgins  
R. Grey-Stewart