



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

MARJORIE LANDA  
DEPUTY COMPTROLLER FOR  
AUDIT

BUREAU OF AUDIT

April 12, 2016

**By Electronic Mail**

Thomas F. Prendergast  
Chairman and Chief Executive Officer  
Metropolitan Transportation Authority  
2 Broadway  
New York, NY 10004

Re: **Letter Audit Report on Phase II of the Wireless Voice and Data Service in New York City's Subway System as Provided by Transit Wireless (Audit Number SZ16-086AL)**

Dear Chairman Prendergast:

This Letter Report contains the findings of our audit of the Wireless Voice and Data Service in New York City's Subway System as provided by Transit Wireless ("TW"). The audit's objective was to determine whether the wireless voice and data communication system installed by TW within certain New York City subway stations (including platforms, mezzanines and various points within public access passageways) operates effectively. This audit is the second in a series of audits of the ongoing installation of cellular and wireless services in the New York City subway system. We found that the wireless voice and data communications system installed in the 29 Phase II underground Queens subway stations we tested operates as intended.

**Background**

In 2007, following a request for proposals process, the Metropolitan Transportation Authority's ("MTA") Board awarded a license agreement to TW that granted an exclusive license to provide commercial cellular/PCS and Wi-Fi service in 277 underground subway stations. Under the agreement, TW acts as a neutral host, constructing the distributed antenna system within the stations (excluding the tunnels between stations) and sub-licenses rights to use that system to cellular carriers, Wi-Fi providers, and other network users.

TW installs equipment and antennas at each underground station to provide cellular and Wi-Fi coverage throughout public areas. The in-station equipment and antennas are linked by fiber optic cables to TW trunk fiber optic cables, which run through the streets and connect back to a base station hotel (hub) that houses the head-end equipment for TW, the cellular carriers, Wi-Fi providers, and New York City Transit ("NYCT").

TW installed the wireless network in 47 underground subway stations in Manhattan as part of Phase I (previous Audit Number SZ15-062AL), including major station complexes such as Times Square and Grand Central, and had stated it had installed the wireless network in 29 stations in Queens (the subject of this audit). Phase III is underway and includes stations located mostly in Manhattan. All 277 underground stations in New York City are contractually required to be in service by the end of 2017.

## **Conclusion**

We found that the wireless voice and data communication system currently installed by TW within the 29 Phase II subway stations we tested (including platforms, mezzanines and various points within public access passageways) operates as intended. In addition, on January 8, 11 and 26, and February 7 and 23 of this year, we revisited the 47 stations tested in Phase I and found these to still be operational. Furthermore, we found that there was an immediate Wi-Fi connection. We recommend that the MTA, NYCT and TW continue their current plan to provide voice and data service to the remaining 201 underground New York City subway stations.

## **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 scope period of this audit was September 28, 2015, through February 27, 2016. Our audit reviewed all 76 stations that were reportedly operational in our scope period.

To meet our objective, auditors equipped with laptops and cellular phones visited the 76 stations that were listed on NYCT and TW websites as having Wi-Fi service, established a Wi-Fi connection, and completed cellular calls (911 service was not tested). At each station location, auditors took screenshots showing Wi-Fi connectivity on the laptop and emailed them to Comptroller email addresses. Initial visits to the 29 Phase II stations took place on October 29 and December 21, 2015. Subsequent visits to stations were completed as of February 27, 2016.

To determine whether the voice (cellular) service was active, the auditors made phone calls to the Comptroller’s office and either spoke to other employees or left voice messages.

To determine whether the text messaging features were available, the auditors sent text

messages to other cellular devices while in the train stations and on the train (if the next station was listed as being equipped with service).

To determine the accessibility of social media websites, the auditors downloaded Yahoo, Google and Facebook to cellular devices and attempted to read mail and send messages. The auditors also accessed Netflix and Pandora to determine if it was possible to continue watching movies, playing music and streaming video. The auditors also used laptops to test social media applications and video streaming while in the subway stations and on platforms.

In order to determine which stations had been chosen to have wireless service during our scope period, we reviewed the MTA Board Action Items and station listings, as well as the MTA's and TW's websites.

Testing was performed Monday through Sunday at various times from 6 a.m. to 12 a.m. to ensure that Wi-Fi and cellular service were available. In addition, the auditors tested service in inclement weather to determine the effect on Wi-Fi and cellular service. (See Appendix I, Appendix II, and Appendix III for listing of stations and services available.)

Based on our positive conclusion, we recommend that the MTA, NYCT and TW continue their current plan to provide voice and data service to the remaining 201 underground New York City subway stations. On March 3, 2016, we submitted a draft letter report providing MTA and NYCT officials with the opportunity to formally respond. The MTA's and NYCT's responses were received on April 6, 2016. In their written responses, the MTA and NYCT agreed with the report.

The full text of the MTA's and NYCT's comments are included as addenda to this report.

Sincerely,











Marjorie Landa

c: Veronique Hakim, President, NYCT  
Michael J. Fucilli, Auditor General, MTA  
Darren Jurgens, Audit Manager, MTA  
Mindy Tarlow, Director, Mayor's Office of Operations  
George Davis III, Deputy Director, Mayor's Office of Operations

TRANSIT WIRELESS

List of 29 Phase II Stations Tested

	Station Name	Line Tested	Dates Tested	Cellular Voice*	Cellular Voice	Social Media	Wi-Fi	Music/Video Streaming
1	21st St	F	12/21/2015	YES	YES	YES	YES	YES
2	179th St	F	10/29/2015	YES	YES	YES	YES	YES
3	169th St	F	10/29/2015	YES	YES	YES	YES	YES
4	Parsons Blvd	F	10/29/2015	YES	YES	YES	YES	YES
5	Sutphin Blvd	F	10/29/2015; 2/6/2016	YES	YES	YES	YES	YES
6	Van Wyck Blvd	E F	10/29/2015; 2/6/2016	YES	YES	YES	YES	YES
7	Union Turnpike	E F	10/29/2015; 2/6/2016	YES	YES	YES	YES	YES
8	75th Ave	E F	10/29/2015; 2/6/2016	YES	YES	YES	YES	YES
9	71st Ave	E F M R	10/29/2015; 2/6/2016	YES	YES	YES	YES	YES
10	67th Ave	M R	10/29/2015	YES	YES	YES	YES	YES
11	63rd Drive	M R	10/29/2015	YES	YES	YES	YES	YES
12	Woodhaven Blvd	M R	10/29/2015	YES	YES	YES	YES	YES
13	Grand Ave	M R	10/29/2015	YES	YES	YES	YES	YES
14	Elmhurst Ave	M R	10/29/2015	YES	YES	YES	YES	YES
15	Roosevelt Ave	E F M R	10/29/2015	YES	YES	YES	YES	YES
16	65th St	M R	10/29/2015	YES	YES	YES	YES	YES
17	Northern Blvd	M R	10/29/2015	YES	YES	YES	YES	YES
18	46th St	M R	10/29/2015	YES	YES	YES	YES	YES
19	Steinway St	M R	10/29/2015	YES	YES	YES	YES	YES
20	36th St	M R	10/29/2015	YES	YES	YES	YES	YES
21	Queens Plaza	E M R	10/29/2015	YES	YES	YES	YES	YES
22	Ely Ave-23rd	E M	10/29/2015	YES	YES	YES	YES	YES
23	Parsons Blvd	E J Z	10/29/2015; 2/7/2016	YES	YES	YES	YES	YES

24	Sutphin Blvd	  	10/29/2015; 2/7/2016	YES	YES	YES	YES	YES
25	Jamaica-Van Wyck		10/29/2015; 2/7/2016	YES	YES	YES	YES	YES
26	Court Square		10/29/2015	YES	YES	YES	YES	YES
27	21st St/Van Alst Ave		12/21/2015	YES	YES	YES	YES	YES
28	Hunters Point		10/29/2015	YES	YES	YES	YES	YES
29	Vernon-Jackson		10/29/2015	YES	YES	YES	YES	YES

**\*This listing includes stations that have AT&T, T-Mobile Verizon Wireless, and Sprint service.**

List of 47 Phase I Stations Retested

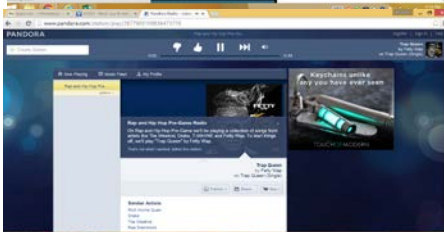
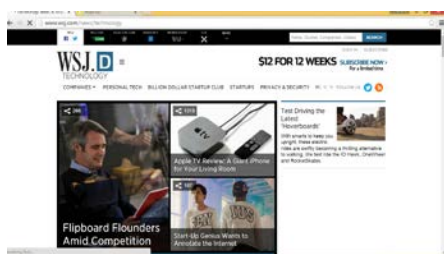
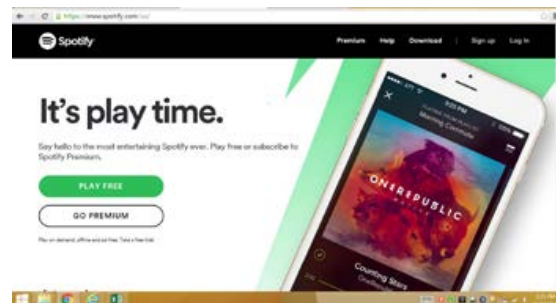
	Station Name	Line Tested	Dates Tested	Cellular Voice*	Cellular Voice	Social Media	Wi-Fi	Music/Video Streaming
1	8th Av	L	1/8/2016; 1/26/2016	YES	YES	YES	YES	YES
2	6th Av	1 2 3 L F M	1/8/2016; 1/26/2016	YES	YES	YES	YES	YES
3	23rd St	C E	1/8/2016; 1/26/2016	YES	YES	YES	YES	YES
4	14th St	A C E	1/8/2016; 1/26/2016; 2/26/2016	YES	YES	YES	YES	YES
5	14th St	F M	1/8/2016; 1/26/2016; 2/26/2016	YES	YES	YES	YES	YES
6	14th St	1 2 3	1/11/2016; 2/23/2016	YES	YES	YES	YES	YES
7	5th Ave	N	1/11/2016	YES	YES	YES	YES	YES
8	57th St	N Q	1/11/2016	YES	YES	YES	YES	YES
9	49th St	N Q	1/11/2016	YES	YES	YES	YES	YES
10	Times Square	N Q R	1/11/2016	YES	YES	YES	YES	YES
11	28th St	R	1/11/2016	YES	YES	YES	YES	YES
12	23rd St	R	1/11/2016	YES	YES	YES	YES	YES
13	96th St	B C	1/8/2016; 2/6/2016	YES	YES	YES	YES	YES
14	86th St	B C	1/8/2016; 2/6/2016	YES	YES	YES	YES	YES
15	81st St	B C	1/8/2016; 2/6/2016	YES	YES	YES	YES	YES
16	72nd St	B C	1/8/2016; 2/6/2016	YES	YES	YES	YES	YES
17	59th St	A B C	1/26/2016; 2/7/2016	YES	YES	YES	YES	YES
18	50th St	C E	1/8/2016; 1/26/2016	YES	YES	YES	YES	YES
19	42nd St	A C E	1/8/2016; 1/26/2016;	YES	YES	YES	YES	YES
20	57th St	F	1/26/2016	YES	YES	YES	YES	YES
21	47-50 St Rock Ctr	B D F M	1/11/2016; 1/26/2016	YES	YES	YES	YES	YES
22	5th Ave	E	1/11/2016; 2/7/2016	YES	YES	YES	YES	YES
23	7th Ave	B D E	1/11/2016; 1/26/2016	YES	YES	YES	YES	YES
24	96th St	1 2 3	1/8/2016; 1/26/2016; 2/23/2016	YES	YES	YES	YES	YES
25	86th St	1	1/8/2016; 1/26/2016	YES	YES	YES	YES	YES

26	79th St	1	1/8/2016; 1/26/2016	YES	YES	YES	YES	YES
27	72nd St	1 2 3	1/8/2016; 1/26/2016	YES	YES	YES	YES	YES
28	66th St	1	1/8/2016; 1/26/2106	YES	YES	YES	YES	YES
29	59th St	1	1/8/2016; 1/26/2016	YES	YES	YES	YES	YES
30	50th St	1	1/8/2016; 1/26/2016	YES	YES	YES	YES	YES
31	Times Square	1 2 3	1/8/2016; 2/23/2016	YES	YES	YES	YES	YES
32	28th St	1	1/8/2016	YES	YES	YES	YES	YES
33	23rd St	1	1/8/2016	YES	YES	YES	YES	YES
34	18th St	1	1/8/2016	YES	YES	YES	YES	YES
35	Times Square	7	1/11/2016	YES	YES	YES	YES	YES
36	Times Square	S	1/11/2016	YES	YES	YES	YES	YES
37	34th St	N Q R	1/11/2016; 1/26/2016	YES	YES	YES	YES	YES
38	42nd St	B D F M	1/11/2016; 1/26/2016	YES	YES	YES	YES	YES
39	34th St	B D F M	1/11/2016; 1/26/2016	YES	YES	YES	YES	YES
40	23rd St	F M	1/11/2016; 1/26/2016	YES	YES	YES	YES	YES
41	Grand Central	4 5 6	1/11/2016; 2/23/2016	YES	YES	YES	YES	YES
42	33rd St	6	1/11/2016; 2/24/2016	YES	YES	YES	YES	YES
43	28th St	6	1/11/2016; 2/24/1016	YES	YES	YES	YES	YES
44	23rd St	6	1/11/2016; 2/24/2016	YES	YES	YES	YES	YES
45	Grand Central	7	1/11/2016	YES	YES	YES	YES	YES
46	5th Ave	7	1/26/2016	YES	YES	YES	YES	YES
47	Grand Central	S	1/11/2016	YES	YES	YES	YES	YES

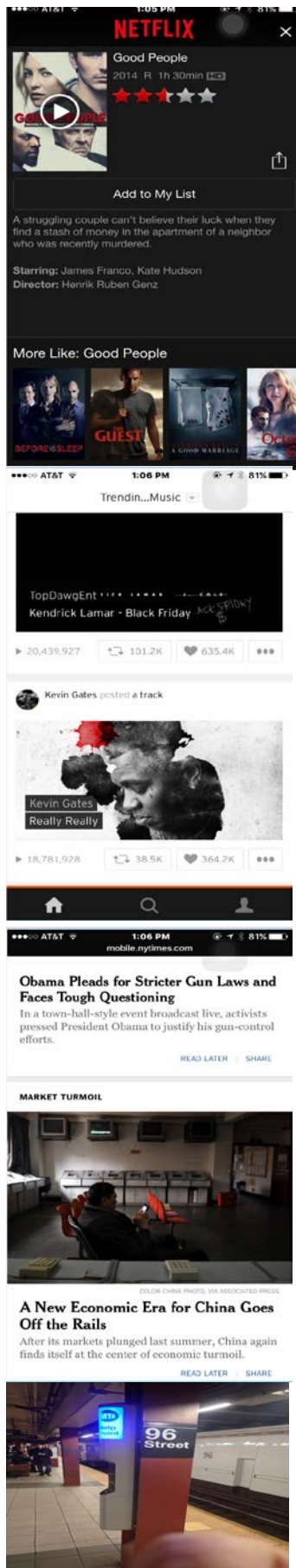
\*This listing includes stations that have AT&T, Verizon Wireless, and Sprint service.

# Transit Wireless Phase II

## Screenshot Examples of Wi-Fi Connectivity, Email Communications, and Social Media







2 Broadway  
New York, NY 10004  
212 878-7000 Tel

**Thomas F. Prendergast**  
Chairman and Chief Executive Officer



## Metropolitan Transportation Authority

State of New York

April 6, 2016

Ms. Marjorie Landa  
Deputy Comptroller for Audit  
The Office of the City Comptroller  
1 Centre Street  
New York, NY 10038

**Re: Draft Letter Audit Report #SZ16-086AL (Phase II of the Wireless Voice and Data Service in New York City's Subway System as Provided by Transit Wireless)**

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 Veronique Hakim, President, NYC Transit, which address this report.

Sincerely,

A handwritten signature in blue ink, appearing to read "T. Prendergast", written over a horizontal line.

Thomas F. Prendergast  
Chairman and Chief Executive Officer

C: Donna M. Evans  
MTA Chief of Staff

Attachment

*The agencies of the MTA*

MTA New York City Transit  
MTA Long Island Rail Road

MTA Metro-North Railroad  
MTA Bridges and Tunnels

MTA Capital Construction  
MTA Bus Company



March 9, 2016

Mr. Thomas F. Prendergast  
Chairman and Chief Executive Officer  
Metropolitan Transportation Authority  
2 Broadway, 20<sup>th</sup> Floor, Room A20.30  
New York, New York 10004

Re: Draft Letter Audit Report on Phase II of the Wireless Voice and Data Service in  
New York City's Subway System as Provided by Transit Wireless (Audit Number  
SZ16-086AL)

Dear Chairman Prendergast:

MTA New York City Transit acknowledges and accepts the conclusion of the attached draft audit by the New York City Comptroller of NYCT's Wireless Voice and Data Service, which found that the wireless voice and data communications system installed in 29 Phase II underground Queens subway stations operates as intended. The audit also positively notes that the system continues to operate as intended at the 47 stations at which it was previously installed during Phase I.

Please note that we also acknowledge the continuation of the New York City Comptroller's testing of the availability of wireless connections as we continue to install this service at the remaining 201 underground stations.

Sincerely,

A handwritten signature in blue ink that reads "V. Hakim".

Veronique Hakim  
President

cc: Michael J. Fucilli  
Darren Jurgens  
Mindy Tarlow  
George Davis III  
John F. O'Grady