



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

MARJORIE LANDA
DEPUTY COMPTROLLER FOR
AUDIT

BUREAU OF AUDIT

June 27, 2018

By Electronic Mail

Commissioner Samir Saini
New York City Department of
Information Technology and Telecommunications
255 Greenwich Street, 9th Floor
New York, NY 10007

**Re: Letter Audit Report on the Installation of LinkNYC Kiosks in New York City as
Provided by CityBridge, LLC (Audit # SZ17-139AL)**

Dear Commissioner Saini:

This Letter Report presents the results of the New York City Comptroller's audit of the installation of LinkNYC Kiosks (Kiosks) in New York City as provided by CityBridge, LLC (CityBridge). LinkNYC is a new communications network that is replacing New York City pay phones with state-of-the-art Kiosks. The objective of this audit was to determine whether CityBridge installed the Kiosks with the required key features. According to the City's agreement with CityBridge, the installation of Kiosks will be broken down into eight phases for the installation of over 7,500 Kiosks across the five boroughs. This audit was conducted of Phase I of the installation of the Kiosks and is the first in a series of audits of the ongoing installation of Kiosks.

Background

The Department of Information Technology and Telecommunications (DoITT) was established to, among other things, provide for the sustained, efficient and effective delivery of information technology (IT) services, infrastructure, and telecommunications to enhance service delivery to the City's residents, businesses, employees, and visitors. DoITT serves 120 City agencies, boards, offices, and more than 8 million City residents and 300,000 employees. It aims to provide New Yorkers and the agencies that serve them with innovative and accessible technology solutions.

On December 10, 2014, the Franchise and Concession Review Committee (FCRC) unanimously approved a non-exclusive franchise agreement that authorizes CityBridge to install, operate, and maintain public communications Kiosks.¹

The key features of the Kiosks include functionalities that will:

- Enable users to use their personal devices to connect to LinkNYC's free Wi-Fi;
- Provide access to City services, maps and directions from a touch screen tablet;
- Enable users to make free phone calls to anywhere in the U.S. by using the Vonage app on the tablet or the tactile keypad and microphone, and to plug in their personal headphones for privacy;
- Provide a dedicated red 911 button for use in the event of an emergency;
- Enable users to charge their personal devices, using the Kiosk's power-only Universal Serial Bus (USB) port;² and
- Provide two 55" HD displays for public service announcements and advertising.³

Built at no cost to taxpayers, the five-borough LinkNYC network is projected to, through advertising proceeds, generate more than \$500 million in revenue for the City over the initiative's first 12 years. According to DoITT, by replacing an aging network of public pay telephones with state-of-the-art Kiosks, CityBridge will transform the physical streetscape with a sleek design, enhance New Yorkers' access to information, and create new local jobs for the development, service, and maintenance of the Kiosks.

Over an eight-year period, CityBridge will install over 7,500 Kiosks across the five boroughs as detailed in Table I below. Section 1.2.3 of the Public Communication Structure Franchise Agreement, *Attachment SRV-Services* sets forth the schedule for the minimum cumulative number of Kiosks required to be in operation per year, per borough, beginning on July 21, 2015. In Phase I, a total of 510 Kiosks were scheduled to be installed, as detailed in Table II.

¹ According to the Mayor's Office of Contracts website, "[t]he FCRC is composed of six members: members represent the Mayor, the Law Department, the Office of Management and Budget (OMB), the City Comptroller, and representatives of the five Borough Presidents who share one vote, which is allocated according to the location of the franchise or concession at issue." See City Charter Chapter 14, § 373.

² 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.

³ Upon initial release, the tablets were equipped for Internet browsing; however, this feature was subsequently restricted due to community concerns and feedback.

In this audit, we observed whether the 510 Kiosks were installed and whether they incorporated the required key features.

Table I

Breakdown of Total Kiosks Being Installed in New York City

Borough	Total Number of Kiosks
Brooklyn	1,346
Bronx	736
Manhattan	3,900
Queens	1,239
Staten Island	279
Total	7,500

Table II

Breakdown of the Phase I Kiosks Installed in New York City

Borough	Total Number of Kiosks
Brooklyn	62
Bronx	29
Manhattan	322
Queens	77
Staten Island	20
Total	510

Audit Findings

We observed that all 510 Phase I Kiosks have been installed as provided by the franchise agreement. In addition, we found that the Kiosks installed in Phase I contained the required key features and generally, with some exceptions noted below, were at the time of sampling operating as intended. Specifically we found that:

- 420 of 510 tablet screens (82 percent) were operating as intended;
- 384 of 510 Kiosks (75 percent) enabled users to make phone calls;
- 483 of 510 Kiosks (95 percent) were able to connect to LinkNYC free Wi-Fi;
- 484 of 510 Kiosks (95 percent) had operable USB charging ports that could charge cellular devices; and

- 486 of 510 left-side advertising screens (95 percent) and 482 of 510 right-side advertising screens (95 percent) were operating on the Kiosks.

Table III below is a breakdown of the functionality of the key features of the Kiosks by borough.

Table III

Breakdown of the Operational Status for Phase I Kiosks

Borough	Status	Tablet Screen	Phone Calls	Wi-Fi	USB	Advertising (Left)	Advertising (Right)
Bronx	Operational	27	24	29	29	28	28
Brooklyn		52	50	59	57	56	55
Manhattan		261	233	301	305	309	309
Queens		60	59	75	73	75	72
Staten Island		20	18	19	20	18	18
Subtotal		420	384	483	484	486	482
Bronx	Not Operational	2	5	0	0	1	1
Brooklyn		10	12	3	5	6	7
Manhattan		61	89	21	17	13	13
Queens		17	18	2	4	2	5
Staten Island		0	2	1	0	2	2
Subtotal		90	126	27	26	24	28
Overall Total		510	510	510	510	510	510

According to the franchise agreement between CityBridge and DoITT, the Kiosks shall be accessible 24 hours per day, seven days per week, and will be nonoperational only when necessary for maintenance, repairs and upgrades. The franchise agreement also requires that the Wi-Fi connectivity be available for at least 97 percent of its operating capacity (also referred to as a 97 percent uptime level). When we asked DoITT about the key features of the Kiosks that were not operational during our testing, DoITT stated that, except for the Kiosks' Wi-Fi connectivity, CityBridge has a repair program whereby appropriate CityBridge personnel will physically repair the functions that do not operate. Regarding the Wi-Fi connectivity, its functionality is assessed and upgraded remotely by CityBridge.

Overall, we found the following percentages of Kiosks with operational Wi-Fi connectivity during our testing: 100 percent in the Bronx; 97 percent in Queens; 95 percent in Staten Island; 95 percent in Brooklyn; and 93 percent in Manhattan. While we tested the operability of each Kiosk's

Wi-Fi connectivity at a specific point in time rather than the uptime level of the Wi-Fi connectivity by individual Kiosk or across all Kiosks, the results of our tests, particularly in the four boroughs where less than 100 percent of the Kiosks had Wi-Fi connectivity, raise the question of whether the Wi-Fi connectivity of the Kiosks installed during Phase I of the LinkNYC program is meeting the minimum 97 percent uptime benchmark established in the agreement. For this audit, we have not reviewed CityBridge’s repair program.

The following are the Kiosks’ locations and our observations by borough.

In the Bronx, we observed and tested 29 Kiosks located along Kingsbridge Road between Webb Avenue and Creston Avenue, along Fordham Road between both Loring Place N and Webster Avenue and Webster Avenue and East 188th Street, and along Grand Concourse between East 183rd Street and East 184th Street. As a result of our testing in the Bronx, we found that 27 of 29 tablet screens (93 percent) were operating as intended. We also found that 24 of 29 Kiosks (83 percent) enabled users to make phone calls. We were able to make a connection to LinkNYC’s free Wi-Fi and to charge cellular devices with the USB charging ports at all 29 Kiosks tested (100 percent). In addition, for 28 of 29 Kiosks (97 percent) both the right and left advertising screens were operating.

Bronx Kiosks						
Status	Tablet Screen	Phone Calls	Wi-Fi	USB	Advertising (Left)	Advertising (Right)
Operational	27	24	29	29	28	28
Not Operational	2	5	0	0	1	1
Total	29	29	29	29	29	29

In Brooklyn, we observed and tested 62 Kiosks located along Fulton Street between Elderts Lane and Arlington Place, along Nostrand Avenue between Fulton Street and Linden Boulevard, along Church Avenue between Raleigh Place and Brooklyn Avenue, and along Flatbush Avenue between Cortelyou Road and Church Avenue. We found that, in our Brooklyn tests, 52 of 62 tablet screens (84 percent) were operating as intended and that 50 of 62 Kiosks (81 percent) enabled users to make phone calls. We were able to connect to LinkNYC free Wi-Fi on 59 of 62 Kiosks (95 percent). We were also able to charge cellular devices through the USB charging ports on 57 of 62 Kiosks (92 percent). Our testing also found that 56 of 62 left-side advertising screens (90 percent) and 55 of 62 right-side advertising screens (89 percent) on the Kiosks were operating.

Brooklyn Kiosks						
Status	Tablet Screen	Phone Calls	Wi-Fi	USB	Advertising (Left)	Advertising (Right)
Operational	52	50	59	57	56	55
Not Operational	10	12	3	5	6	7
Total	62	62	62	62	62	62

In Manhattan, we observed and tested 322 Kiosks located along 2nd Avenue from East 15th Street to East 64th Street, along 3rd Avenue between East 9th Street and East 125th Street, along 10th Avenue (which becomes Amsterdam Avenue) from West 46th Street to West 70th Street, along Broadway and West 71st Street, and all Kiosks located below 14th Street. We found that, in our Manhattan tests, 261 of the 322 of tablet screens (81 percent) were operating as intended. Additionally, 233 of 322 of the Kiosks (72 percent) enabled users to make phone calls. We were able to make a connection to the LinkNYC free Wi-Fi on 301 of 322 Kiosks (93 percent) and were able to charge cellular devices using the USB charging ports on 305 of 322 Kiosks (95 percent). We found that 309 of 322 Kiosks (96 percent) had both the right-side and left-side advertising screens operating.

Manhattan Kiosks						
Status	Tablet Screen	Phone Calls	Wi-Fi	USB	Advertising (Left)	Advertising (Right)
Operational	261	233	301	305	309	309
Not Operational	61	89	21	17	13	13
Total	322	322	322	322	322	322

In Queens, we observed and tested 77 Kiosks located along Queens Boulevard between 33rd Street and 67th Drive, along Broadway between Corona Avenue and 75th Street, and along Roosevelt Avenue between 72nd Street and Aske Street. In our Queens tests, we found that 60 of the 77 tablet screens (78 percent) were operating as intended and that 59 of 77 of the Kiosks (77 percent) enabled phone calls. We connected to the LinkNYC free Wi-Fi on 75 of 77 Kiosks (97 percent). We were able to charge cellular devices using the USB charging ports on 73 of 77 Kiosks (95 percent). We also found that 75 of 77 left-side advertising screens (97 percent) and 72 of 77 right-side advertising screens (94 percent) on the Kiosks were operating as intended.

Queens Kiosks						
Status	Tablet Screen	Phone Calls	Wi-Fi	USB	Advertising (Left)	Advertising (Right)
Operational	60	59	75	73	75	72
Not Operational	17	18	2	4	2	5
Total	77	77	77	77	77	77

In Staten Island, we observed and tested 20 Kiosks located along Hylan Boulevard between Woodlawn Avenue and Reno Street. Our testing found that 20 of 20 of tablet screens and USB charging ports (100 percent of both) were operating as intended. We also found that 18 of 20 (90 percent) of the Kiosks enabled phone calls. We were able to connect to LinkNYC free Wi-Fi on 19 of 20 Kiosks (95 percent). In addition, we found that 18 of 20 Kiosks (90 percent) had both the right and left-side advertising screens operating.

Staten Island Kiosks						
Status	Tablet Screen	Phone Calls	Wi-Fi	USB	Advertising (Left)	Advertising (Right)
Operational	20	18	19	20	18	18
Not Operational	0	2	1	0	2	2
Total	20	20	20	20	20	20

Recommendations

1. DoITT should ensure that CityBridge fulfills its contractual obligations by ensuring that the Kiosks' Wi-Fi feature is functioning at the level required by the agreement.
2. DoITT should ensure that CityBridge repairs the key features that were not functioning during our tests.

In its response, DoITT stated that, "We are pleased with your finding that, overall, the kiosk services generally operated as intended." DoITT further states, "DoITT agrees with the recommendations and will continue to work with CityBridge to meet the LinkNYC Wi-Fi levels of availability with respect to the agreement. We will also verify the operability of key features not functioning during your tests."

Scope and Methodology

We conducted this performance audit in accordance with generally accepted government auditing standards. 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 June 1, 2017 through April 5, 2018. Our audit determined whether the 510 Phase I Kiosks were installed and included the required key features.

We obtained a list of the Kiosks in Phase I that were supposed to have been installed, functional, and readily available for public use. This list identified 510 kiosks, located throughout the five boroughs. To determine the reliability of the list of Kiosks provided to us, we visited all 510 Kiosks' listed locations to test whether the Kiosks were operational and included all the required key features. During the observations, which were conducted from July 25, 2017 through April 5, 2018, we tested the operating effectiveness of the LinkNYC free Wi-Fi. We also tested whether the other features were operational including the operating effectiveness of the touchscreen tablet, the ability to make phone calls, the effectiveness of charging devices in a power-only USB port, and the advertising screens displays.

To achieve our audit objective, we were equipped with cellular devices, USB cables, an updated lists of the Kiosks in Phase I, and a checklist to record the functionality of each feature when testing the Kiosk. This process enabled our auditors to determine whether the cellular devices and touchscreen tablets could connect to the LinkNYC free Wi-Fi network, whether the USB ports would charge devices, and whether the ability to place phone calls within the U.S was available.

To determine whether there was access to the Wi-Fi hotspots, auditors signed into the LinkNYC free Wi-Fi. To determine whether the Kiosks' capacity to enable phone calls within the U.S. was active, auditors dialed operating phone numbers on the touchscreen tablet and attempted to make a connection with other phones. To determine whether the USB charging ports were operating effectively, auditors plugged USB cords into the USB port to establish a charge to the cellular devices. The auditors also made a visual check of the advertising screens located on the left and right sides of each Kiosk to ensure that the displays were functioning appropriately. We took photos of the Kiosks, saved screenshots of the USB connection and recorded our results on a checklist to document our findings.

Testing was performed Monday through Sunday at various times during the 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 the

Commissioner Saini

June 27, 2018

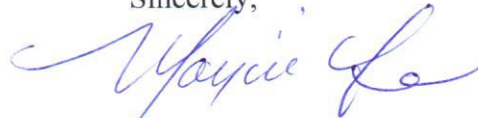
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Wi-Fi and cellular service.

The matters covered in this draft letter report were discussed with DoITT officials during and at the conclusion of this audit. A preliminary letter report was sent to DoITT and discussed at an exit conference on June 7, 2018. On June 8, 2018, we submitted a draft report to DoITT with a request for comments. We received a written response from DoITT on June 22, 2018.

The full text of DoITT's comments is included as addendum to this report.

Sincerely,



Marjorie Landa

- c: Michael Pastor, Deputy Commissioner and General Counsel
- Andrew M. Manshei, Assistant Commissioner, Franchise Administration
- William Harris, Director, Franchise Audits and Revenue, Franchise Administration
- Denise Raymond, Program Quality Oversight Lead, Quality Assurance Office
- Emily Newman, Acting Director, Mayor's Office of Operations
- George Davis III, Deputy Director, Mayor's Office of Operations



June 22, 2018

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

Re: Draft Letter Audit Report the Installation of LinkNYC Kiosks in New York City as provided by CityBridge, LLC (Audit # SZ17-139AL)

Dear Deputy Comptroller Landa:

This letter addresses the findings and recommendations contained in the New York City Comptroller's Draft Letter Audit Report ("Report"), dated June 8, 2018, on the above subject matter.

As your Report notes, LinkNYC installs kiosks to enable users to use their personal devices to connect to free-WiFi, access City services, maps and directions from a touch screen tablet, make free phone calls in the U.S., contact 911 for emergency services, charge personal devices in a USB port, and access City services, maps and directions from a touch screen tablet. LinkNYC also provides two 55" HD displays for public service announcements and advertising. The agreement with the franchisee, CityBridge, calls for installation of 7,500 kiosks across the five boroughs over eight years. Your Report notes that kiosks were tested in all five boroughs and that the Kiosks installed contained the required key features and operated as intended with some exceptions noted. We are pleased with your finding that, overall, the kiosk services generally operated as intended.

In reference to the Report's recommendations:

Recommendation 1: DoITT should ensure that CityBridge fulfills its contractual obligations by ensuring that the Kiosk' Wi-Fi feature is functioning at the level required by the agreement.

Recommendation 2: DoITT should ensure that CityBridge repairs the key features that were not functioning during our tests.

DoITT agrees with the recommendations and will continue to work with CityBridge to meet the LinkNYC Wi-Fi levels of availability with respect to the agreement. We will also verify the operability of key features not functioning during your tests.

DoITT wishes to thank you and your audit staff for the time and effort devoted to completing this Report.

Sincerely,

A handwritten signature in black ink, appearing to be 'Saini', with a long horizontal flourish extending to the right.

Samir Saini