# Preferred ISP Vendor Certification Program

**OPERATIONAL PLAN**

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## ABOUT THE TECH EXECUTIVE LEADERSHIP INITIATIVE

The Tech Executive Leadership Initiative (TELI) is a skills-building initiative to prepare experienced technology leaders to engage effectively with public sector challenges.

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# Executive Summary

In 2020, New York City released its Internet Master Plan (IMP), which aims to provide quality broadband to the 40% of New York City households who do not have either home or mobile broadband.[1] To enable the vision outlined in the IMP, the City is looking for creative ways to encourage Internet Service Providers (ISPs) to account for digital inclusion when building broadband infrastructure, including what levers it currently has available. This playbook proposes a model by which the City may establish an ISP Preferred Vendor Certification Program (the Certification Program) to incentivize ISPs providing **affordable, quality** internet to low-income, underserved communities.

This playbook describes a 3-phased approach the City can adopt to gain momentum, pilot, and scale this Certification Program:

▸ Phase 0 proposes a public pledge and public relations (PR) campaign to generate awareness and excitement among interested ISPs around the City's commitment to equitable broadband access to low-income NYC households.

▸ Phase 1 includes a detailed proposal on how to pilot a multi-tiered certification program, including metrics that ISPs participating in the program's pilot would need to report to qualify for certification and incentives the City could offer across the program's 3 proposed certification levels.

▸ Phase 2 provides a plan for how the City could publicly launch the Certification Program at scale across New York's ISPs based on learnings from the Phase 1 pilot.

# Introduction

The mission of the NYC Mayor's Office of the Chief Technology Officer (MOCTO) is to ensure that technology is inclusive, accessible, human-centered, and works for all New Yorkers. One of MOCTO's key areas of investment is enabling access to universal broadband technology, which is a critical tool for realizing the Mayor's vision of making New York City the fairest big city in America.

As MOCTO has recognized, the internet is essential for citizens' full participation in government-provided essential services and the economy. MOCTO has committed that every New Yorker will have a world-class internet connection and be able to benefit fully from that access. The proposed Certification Program seeks to help MOCTO in realizing this commitment by addressing the following MOCTO's focus areas:

▸ "Promote the buildout of high-quality internet service for everyone, everywhere;

▸ Promote affordable internet access; and

▸ Promote digital inclusion to make the internet a just and equitable platform."[2]
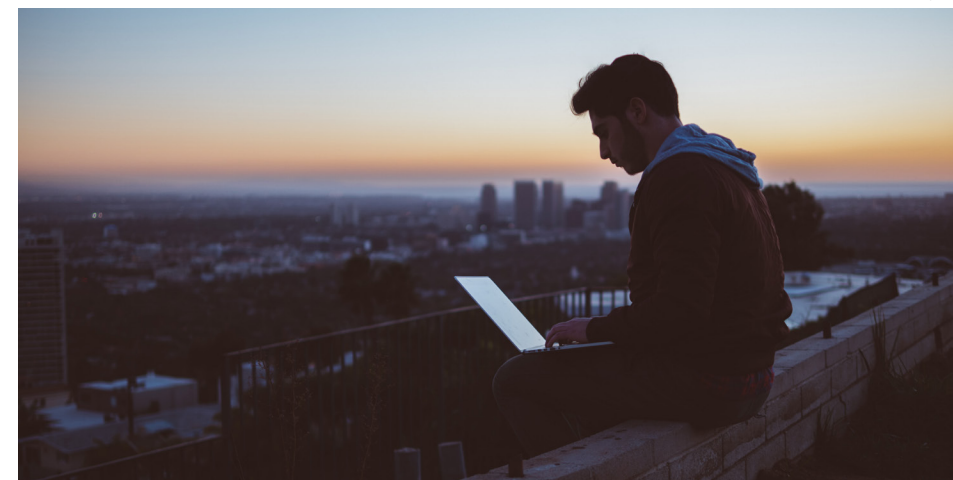
The Certification Program is designed to incentivize ISP vendors to align with MOCTO's vision for providing equitable and affordable broadband access. As proposed, the program offers 3 levels of Certification (Level 1, Level 2, and Level 3) with each level having its own set of requirements and benefits to ISP vendors. These levels are designed as a progression that drives ISP vendors to deepen their investment in MOCTO's vision over time. Level 1, the program's lowest certification level, is intended to attract a wide array of ISP vendors to the program with its only requirement being signing a public pledge acknowledging the ISP vendor's commitment to MOCTO's vision and providing quality affordable broadband in New York. Level 2 and Level 3 require ISP vendors to report metrics tied to key indicators of broadband access' equity—such as cost and performance—with specific thresholds that ISP vendors must meet to be certified at these levels.

The Certification Program will incentivize ISP vendors to publicly report verifiable data that demonstrate their commitment to providing equitable and affordable broadband access. In order to achieve the highest level of certification, ISP vendors will be asked to report metrics that include:

▸ the vendor's business operations targeted at underrepresented, underserved, low- income, or NYC targeted neighborhoods;

▸ service price points;

▸ reliability and quality of service; and

▸ customer satisfaction.

As ISP vendors progress through the program's certification levels, they will receive more significant benefits such as expanded access to City assets and property, City contractual opportunities, and dedicated point of contact to help navigate New York's agencies and procurement processes.

*Image by Luis Quintero at Unsplash*



# Overview

This playbook proposes a 3-phased approach to implementing the Certification Program. These 3 phases are designed to enable MOCTO to take a lean approach to the program's implementation, allowing MOCTO to first verify there is an audience and interest in the program, and then pilot the program with a select set of vendors before launching at scale to ISP vendors across New York. The following are the 3 recommended phases that MOCTO pursue to test and iterate on in the Certification Program:

▸ **Phase 0: Broadband Pledge and Marketing Push** – Assess the audience size for the program by cultivating interest and building momentum with New York's ISP vendors, soliciting vendors to sign a public pledge committing to equitable and affordable broadband access. This pledge will allow MOCTO to pilot Level 1 of its Certification Program and signal the number of ISP vendors across New York who would be interested in the program if/when launched at scale.

▸ **Phase 1: Pilot and Metric Calibration** – Pilot the Certification Program with the first round of Request for Expressions of Interest (RFEI) vendors who received executed license agreements, specifically Starry, Sky Packets, Silicon Harlem, Flume, Block Power, and NYC Mesh. This pilot will allow MOCTO to validate the quality and feasibility of the reporting process and selected metrics that are central to Levels 2 and 3 of the Certification Program.

▸ **Phase 2: Scaled Certification Program** – Based on the results of Phase 1, launch the full Certification Program to all eligible ISP vendors providing service in NYC. Phase 2 will include a PR campaign during which MOCTO can leverage the pipeline of interested vendors who participated in Phase 0's public pledge to jumpstart the program's kick off.

Implementing this 3-phased approach provides MOCTO with the flexibility to gradually invest in and gauge the efficacy of the program, optimizing both the potential success of the effort and minimizing risks to MOCTO.

*Image by Robynne Hu at Unsplash*

# Phase 0: Broadband Pledge and Marketing Push

## Overview

In Phase 0, MOCTO should launch a Digital Equity Pledge for ISPs to commit to the City's vision for a society that enables all to benefit from broadband and technology.[3] The success of the Certification Program will hinge on establishing Certification Levels and Standards that are robust, but achievable. This balance is especially critical to reflect in the public pledge as the on-ramp to ISPs joining the program at Level 1. The goal of this pledge is to develop a coalition of ISPs that both validates the market for a Certification Program and cultivates a ready pipeline of potential program participants. By signing the Digital Equity Pledge, an ISP vendor will achieve the first of the Certification Program's certification levels, Level 1. In recognition of an ISP making this public commitment alongside MOCTO, the ISP Vendor will receive a Level 1 online badge, which the ISP vendor can use across its online presence.

During Phase 0, MOCTO should use the announcement of the Digital Equity Pledge to launch a public awareness and PR campaign for the Certification Program. This campaign will raise visibility on MOCTO's efforts to address the digital divide and spotlight the pledging ISPs. Vendors selected by the RFEI such as [Silicon Harlem](#) and [NYC Mesh](#)—ISPs who are focused on addressing internet access inequities—lack the market share or brand recognition of ISPs such as Verizon that dominate the New York market.[4] Through a lightweight social media campaign, MOCTO can use the pledge to create a platform for

pledging ISPs to share their organization's stories and impact.

In the first 6 months of the pledge, MOCTO should aim to identify at least 15 pledging ISPs and announce these pledging ISPs during at least 2 staggered moments across its public awareness campaign. Following this 6-month period, MOCTO should continue to promote new waves of pledging ISPs with press releases, and plan for a more significant PR push alongside the Certification Program's public announcement during Phase 2.

## Implementation

1. **Develop Digital Equity Pledge and Level 1 Online Badge.**
   a. **Drafting the Digital Equity Pledge:** Appendix A offers a draft of the pledge, pre-populated with the RFEI ISP vendors as signatories. This current draft is designed to ensure pledging ISP vendors make a clear commitment to the City's vision and 5 principles of Equity, Performance, Affordability, Privacy, and Choice. MOCTO should refine this language and validate with a representative set of ISPs whether the language strikes a balance between robustness and accessibility to encourage a wide range of ISP vendors to participate.
   b. **Finalizing the Online Badge:** MOCTO should design an online badge (see Appendix B) that ISPs can display on their websites and social media accounts that acknowledge they have achieved Level 1 of Certification by signing the pledge.

2. **Secure first waves of pledging ISPs and announce pledge alongside public media push.**
   Prior to launching the pledge, MOCTO should secure 5-8 ISPs to be the

first ISPs to commit to the pledge, including all the RFEI vendors. Once these pledges are secured, MOCTO should prepare a press release with a public statement announcing the pledge. Alongside this announcement, MOCTO should partner with the pledging ISPs to launch a social media campaign that profiles each of the signatories for 1 week. Throughout this first wave, MOCTO should reinforce that interested ISPs can contact a designated email if they are interested in joining the pledge.

3. **Secure second wave of signers and announce these ISPs to press.**

    After securing at minimum an additional 5-10 pledging ISPs, MOCTO should announce this second wave of pledging organizations, ideally within 2 to 3 months following the end of the first wave of PR and social media engagement. While the first wave may consist of the RFEI vendors, MOCTO should use the second wave to engage ISPs that diversify in the following respects:

    a. are not yet affiliated with an IMP initiative;

    b. represent both for profit and nonprofit models; and

    c. operate in a range of disadvantaged communities across New York, including but not limited to New York City Housing Authority (NYCHA) developments.

Alongside a press release and PR push, MOCTO should again partner with pledging ISPs to drive a social media campaign that profiles each signer.

4. **Focus ongoing PR on pledging ISPs, including milestones in RFEI execution.**

    a. **Announcing New Waves of Pledging ISPs:** After the pledge's first 6 months, MOCTO should reduce the cadence of its announcing new waves of pledging ISPs to a quarterly or bi-annual press release and social media push. For these later press releases, MOCTO should incorporate stories of the impact of previous pledging ISPs, including the RFEI vendors.

    b. **Phase 2 Launch and PR Push:** MOCTO should continue this lighter touch public awareness campaign throughout Phase 1 of the Certification pilot. If MOCTO pursues Phase 2, this campaign should be used as a launching point for a larger PR effort to announce the scaled launch of the Certification program. The coalition of pledging ISPs and the content produced to profile them throughout Phase 0 and 1 can be used with the launch of Phase 2 to jumpstart the program with a ready pipeline of Certification participants.

# Phase 1: IMP ISP Pilot and Standards Calibration

## Overview

The ISP Preferred Vendors Certification Program should be rolled out as a year-long pilot program. Participation in this pilot program should be restricted to the selected 5 vendors who are the finalists selected from the City's Request for Expressions of Interest (RFEI) issued in partnership with the NYC Economic Development Corporation (EDC) in June 2020.

The ISP Preferred Vendors Certification Program pilot program should have 3 levels based on a vendor meeting certain requirements:

▸ **Level 1 –** Vendor has signed the public pledge to help bridge the digital divide by committing to provide affordable broadband access;

▸ **Level 2 –** Vendor has met the minimum standards for certification and their data has been independently verified; and

▸ **Level 3 –** Vendor has met the second level of certification, their data has been independently verified, and the vendor publishes the data on a publicly accessible dashboard.

Incentives—such as press releases, invitations to workshops, access to City-funded construction contracts, prioritized access to City assets, etc.—are similarly tiered and activated upon achievement of each respective level during the pilot. These incentives are described in detail under the 'Benefits of Certification' section.

The RFEI requires vendors to report on several metrics around affordability, speed, performance, reliability, support, etc. that are described in Appendix C – Certification Standards, which also details the standards they need to meet for the 3 levels of certification. Since the scope of the pilot is limited to the RFEI, these metrics would apply to the 13 NYCHA developments and 30,000 residents. The data reported by the vendors should be validated by collecting feedback from the NYCHA residents.

During the pilot phase, MOCTO should utilize the data reported by the vendors to calibrate the certification metrics. The proposed metrics may be aspirational and require more robust infrastructure, human capital, and organizational maturity, or they may be less ambitious. In any event, the metrics should be adjusted to ensure progressive certification standards. MOCTO should utilize the data collected during the pilot phase to make adjustment before scaling to Phase 2.

This phase can also be used to take a closer look at the benefits associated with certification and broaden the scope of the incentives offered.

In addition, this pilot period should be used to build momentum around a public campaign to activate other New York ISPs to pledge to the City's vision for quality affordable internet for all New Yorkers and validate the broader opportunity size for certification.

The level of participation and engagement by the selected vendors, the effort and resources required to run the pilot, feedback from customers, and the effectiveness of the incentives can all be used to evaluate the pilot and deter-mine what adjustments should be made before scaling the program.

*Image by Nextvoyage at Unsplash*

## Implementation

1. In order to get certified, vendors will need to self-report on a subset of metrics required by the RFP. The vendors will need to report every quarter as required by the RFP. The metrics and the goals for attaining Levels 1 & 2 are detailed in Appendix C.  An application that can be used by the vendors to self-report the data required for certification is added in Appendix D. This application automatically calculates the level of certification based on the data entered. MOCTO could roll out this ready-made application for a license of $20/month. See a screenshot of the sample form below. The full application form can be found here.



**ISP Preferred Vendor Certification Program [Sample Form]**

Please have one contact from your ISP fill out the below information.

All questions are required, with the exception of download/upload speeds. For those, answer for all services you provide (wireless, wired, or both).

For any static figures, please use the most up-to-date number that you have, no later than 1 month old.

For any averages that don't otherwise specify should be calculated over the previous 12 months.

For any questions, please email cto@cto.nyc.gov

BACKGROUND

Submitter's First Name *

Submitter's Last Name *

ADOPTION

Total Number of Subscribers *

Number of subscribers receiving discounted or free services *

Number of subscribers who canceled their service or were disconnected in the past year *

Image 1: Screenshot of start of sample application form

Image 2: Screenshot of Privacy Policy section of sample application form

2. We recommend that the information self-reported by the vendors should be validated by collecting both qualitative and quantitative feedback from the consumers they are servicing.

   a. MOCTO should use a survey to calculate the Net Promoter Score for each vendor. A short survey like this one produced by Project Loop at the Aspen Tech Policy Hub could be used to collect feedback from consumers periodically and used to validate the self-reported data.[5]

   b. MOCTO could also use a tool like Broadband Together Initiative & Internet Fairness to collect consumer data on speed, cost, and availability that can ensure that the self-reported data is accurate and complete.

3. Vendors would need to maintain the thresholds associated with the level of certification and a failure to do so would drop them to a lower level. Violation of any terms in the RFP or a failure to meet the requirements of the certification would result in revocation of the certification and all the incentives associated with it.



Image by John Schnobrich at Unsplash

## Benefits of Certification

Modeled after existing programs for Minority & Women-owned Business Enterprises (M/WBE), Emerging Business Enterprises (EBE) and Locally-based Business Enterprises (LBE), the incentives for getting certified will include access to preferential contractual opportunities and reserved assets as well as indirect benefits such as assistance in applying for City programs.[6] Level 2 includes opportunities that come at (nearly) no cost to the City. Level 3 includes all of the perks of Level 2 plus additional benefits. Appendix B provides images of all of the sample badges.

**Level 1**

Firms that sign the pledge should be recognized via a press release and use of a Preferred Vendor Digital Equity badge indicating to consumers the level of certification achieved and that they are aligned with the City's vision of delivering affordable broadband service. Each time a firm ascends to another level, they will get another press release and a new badge reflecting the achieved level.

**Level 2**

The NYC Department of Small Business Services (SBS) runs broad training and workshops for M/WBE, EBE, and LBE businesses to navigate the system.[7] All certified firms should be invited to relevant workshops.

Providers that reach this level of certification should also be given expanded criteria to qualify as an LBE. LBE-certified firms get exclusive access to City-funded construction contracts. To qualify for these contracts, an LBE must have average yearly construction revenue for the past 3 years of under $2 million. City law already empowers the Mayor, through the regulatory process, to set income maximums for qualifying as an LBE up to $5 million.[8] The Mayor should use this power to raise income limits for firms that meet certification, making it easier for more of them to qualify for additional contracts.[9]

**Level 3**

SBS also runs 1-on-1 certification sessions and application review sessions for additional city programs, targeted at M/WBEs, EBEs, and LBEs.[10] ISPs that reach Level 3 should get access to these 1-on-1 and customized sessions, as well as an SBS coordinator to help in applying for contracts.

Second, MOCTO has already coordinated with NYC agencies to make more than 100K City assets (e.g., building roofs, light poles, etc.) accessible to certain contractors in order to install equipment tied to specific contracts.[11] These assets should be automatically made available to contractors certified in this program for use in infrastructure (e.g., wireless access points) that helps them provide affordable internet.

*Image by Ales Nesetril at Unsplash*



# Phase 2: Scaled Certification Program

## Overview

In Phase 2, and upon successful completion of the pilot, the certification program should be finalized and publicly launched. MOCTO should publicize the success of the pilot program, highlighting the commitment and work done by the participating ISPs to provide affordable broadband service and bridge the digital divide. Additionally, the benefits of certification should be promoted as a way to garner interest and incentivize participation by other ISPs that provide broadband service to NYC residents. The program should continue a feedback loop lifecycle where reported metrics, advances in technology and standards, and direct feedback from program participants are considered and integrated into each new iteration.

## Implementation

The ISP Preferred Vendors Certification Program should be managed by SBS with development, support, coordination, and marketing efforts from MOCTO. The SBS is currently responsible for M/WBE, LBE, and EBE certifications and their process and know-how should be leveraged to run the certification program.

1.   **Finalize standards for certification.**

     MOCTO should finalize standards for the certification program by incorporating feedback from the pilot ISP vendors. Specifically, considerations should be given to reported and verifiably achieved metrics by the participating ISP vendors. In instances where reported and verified metrics are significantly below or above standards, MOCTO should consider lowering or raising the standards, respectively. This should be done in partnership not only with the ISP vendors, but also with counsel from national standard bodies such as the National Institute of Standards and Technology. Moreover, these standards should be adjusted over time to ensure that they reflect advances in technology. For example, as ISP bandwidth capabilities increase, so should the average upload/download standards of the certification program. These standards should be reviewed and calibrated every 2 years.

**2.    Publicize success of pilot program.**

The pilot program should be publicized through regular press releases from MOCTO. This would act as a marketing push and information distribution not only to highlight the progress and successes of the IMP, but also the strides in achieving digital equity by the participating ISPs. The signed pledge should also be emphasized to increase awareness and attention among NYC residents and communities, provide publicity for those participating ISPs, and increase interest from other ISPs.

**3.    Launch certification program.**

Once standards have been finalized and the certification program is ready to be launched, it should be housed within the "Certify with the City" section of the SBS website. The SBS website already hosts the City's Minority and Women-owned Business Enterprise (M/WBE) Certification Program, the Emerging Business Enterprise (EBE) Certification Program, and the Locally-based Business Enterprise (LBE) Certification Program.[12] As such, the infrastructure for such programs and portal for vendors already exist and may be easily leveraged for the ISP Preferred Vendor Certification Program.

**4.    Utilize program feedback.**

The certification program should be reviewed and evaluated regularly. It is recommended that a review on standards for certification and effectiveness (i.e., incentivizing ISPs to provide affordable broadband access) be done at least once every 2 years. Consideration should be given to feedback from participating ISP vendors. Particular attention should be given to the ability to achieve the standards for certification and to the incentives afforded from certification. As noted above, if standards for achieving certification become cost prohibitive or significantly difficult to achieve for most participating ISPs, consideration should be given to lowering those standards. Similarly, incentives for certification should be reviewed and refreshed in order to drive interest and participation from ISP vendors. If there is a lack of interest and participation, consideration should be given to increasing incentives—this could include additional access to NYC properties, funding initiatives in new budgetary cycles, or inclusion in press releases as a method of marketing and developing a brand.
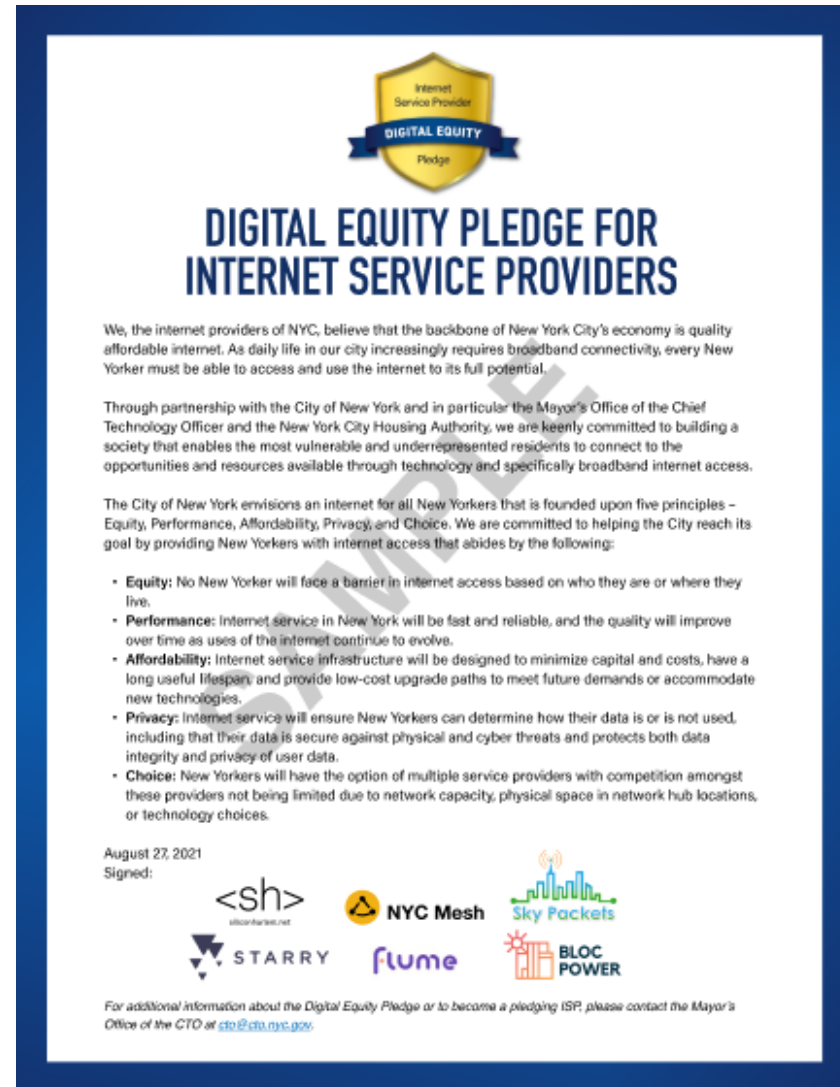
*Image by Philipp Katzenberger* at Unsplash

# Appendices

**APPENDIX A**

# Digital Equity Pledge

A sample image of the digital equity pledge can be found below, and is [linked here](linked here).



**APPENDIX B**

# Digital Certification Badge

Sample images of the digital certification badges can be found below.

**APPENDIX C**

# Certification Standards

Refer to Step 1 of Phase 1 for details on how to use these metrics to determine the certification level.

| Measure: Adoption | | | |
| --- | --- | --- | --- |
| Description | Level 2 (min) | Level 3 | Rationale |
| Total number of subscribers | | | |
| Number of subscribers receiving discounted or free services | 10% of total subscribers | 15% of total subscribers | Encourage the vendors to prevent customers from canceling if they can't afford service |
| Number of subscribers who canceled or whose service was disconnected | 1.5% to 2% | Below 1.5% | |

| Measure: Cost | | | |
| --- | --- | --- | --- |
| Description | Level 2 (min) | Level 3 | Rationale |
| Average monthly cost/customer | $15 to $20 | Below $15 | This should include all taxes, fees, penalties etc. to ensure there are no hidden costs |
| Total revenue collected in fees, penalties, etc. | <10% of revenue | <8% of revenue | Ensure there are no hidden costs |

| Measure: Performance & Reliability | | | |
| --- | --- | --- | --- |
| Description | Level 2 (min) | Level 3 | Rationale |
| Average actual download speed (broadband) | >25Mbps | >125Mbps | Average mobile and fixed broadband download and upload speeds worldwide as of May 2021[13] |
| Average actual download speed (Mobile/wireless) | >25Mbps | >75Mbps | |
| Average actual upload speed (Broadband) | >25Mbps | >75Mbps | |
| Average actual upload speed (Mobile/wireless) | >25Mbps | >35Mbps | |
| Number of outages (Calculate) | 98% uptime | 99% | Specifying availability requirements[14] |
| Average duration of outage | <2 hours mean time to detect, <2 hours mean time to repair | <1 hours mean time to detect, <1 hours mean time to repair | |

| Measure: Privacy | | | |
| --- | --- | --- | --- |
| Description | Level 2 (min) | Level 3 | Rationale |
| Privacy policy | Data collection limitation<br>Data quality<br>Purpose specification<br>Limited use | Data collection limitation<br>Data quality<br>Purpose specification<br>Limited use<br>Data protection<br>Openness<br>Individual participation<br>Data retention | Fair Information Practice Principles[15] |

| Measure: Security | | | |
| --- | --- | --- | --- |
| Description | Level 2 (min) | Level 3 | Rationale |
| Security policy | Access control<br>Awareness and training<br>Identification and authentication<br>Incident monitoring and response<br>Configuration management | Access control<br>Awareness and training<br>Identification and authentication<br>Business continuity<br>Incident monitoring and response<br>Physical and environmental protection<br>Supply chain risk management<br>Configuration management | National Institute of Standards and Technology SP 800-53; Security and Privacy Controls for Information Systems and Organizations[16] |

| Measure: Support | | | |
| --- | --- | --- | --- |
| Description | Level 2 (min) | Level 3 | Rationale |
| Average time taken to close issues | <48 hours for response<br><72 hours for resolution | <24 hours for response<br><48 hours for resolution | |
| Customer satisfaction survey/ratings (must have >75% response rate of registered users, surveyed at least twice a year) | >85% | >90% | See Phase 1 for details on how consumer feedback and data can be used to validate the information reported by vendors |

| Measure: Other | | | |
| --- | --- | --- | --- |
| Description | Level 2 (min) | Level 3 | Rationale |
| Number of jobs created | Not required for certification | Not required for certification | HireNYC FAQs[17] |
| Number of people trained | Not required for certification | Not required for certification | |
| Number of service options available | Not required for certification | Not required for certification | To promote healthy competition and provide options to consumers |
| Number of owned assets shared by other providers | Not required for certification | Not required for certification | To optimize the use of city assets |

**APPENDIX D**

# Vendor Self-Reporting Application

This application can be used by MOCTO to collect data from the ISPs. Based on the data entered, it calculates the level of certification that vendor is eligible for.

For backend access to the data table and charts, create an AirTable account (or log in) here.

# Endnotes

**1** "The New York City Internet Master Plan," City of New York, January 7, 2020, https://www1.nyc.gov/assets/cto/downloads/internet-master-plan/NYC_IMP_1.7.20_FINAL-2.pdf.

**2** "Our Focus Areas," About Us, NYC MOCTO, accessed August 15, 2021, https://www1.nyc.gov/assets/cto/#/about#broadband.

**3** See the complete draft of the Digital Equity Pledge in Appendix A.

**4** "Best Internet Providers in New York, New York," 360 Reviews, *U.S. News and World Report*, accessed August 29, 2021, https://www.usnews.com/360-reviews/internet-providers/local/new-york-ny?sort-by=availability.

**5** "Project Loop," Project Page, Aspen Tech Policy Hub, accessed October 1, 2021, https://www.aspen-techpolicyhub.org/project/projectloop/.

**6** "Certify with the City," City of New York Small Business Services, accessed August 15, 2021, https://www1.nyc.gov/site/sbs/businesses/certify-with-the-city.page; and "Locally Based Enterprise (LBE) Certification Program," City of New York Business, accessed August 15, 2021 https://www1.nyc.gov/nycbusiness/description/locally-based-enterprise-lbe-program.

**7** "NYC Small Business Services," Event Page, Eventbrite, accessed August 15, 2021, https://www.eventbrite.com/o/nyc-department-of-small-business-services-5423713077.

**8** Locally Based Enterprises, New York City Administrative Code (2021), § 6-108.1 https://codelibrary.amlegal.com/codes/newyorkcity/latest/NYCadmin/0-0-0-2795.

**9** LBEs have other requirements, including that 25% of their work is in economically disadvantaged Census tracts. The current list of Census Tracts can be found at: "The Rule of the City of New York, Appendix A: Economic Development," Rules of New York City, accessed August 15, 2021, https://codelibrary.amlegal.com/codes/newyorkcity/latest/NYCrules/0-0-0-93559. There is strong overlap with NYCHA developments, such that any contractor who is providing a large share of services to NYCHA should be able to meet this 25% requirement.

**10** Victor Olds and Jonnel Doris, "M/WBE Program: Compliance Report," City of New York, April 2021, https://www1.nyc.gov/assets/mocs/downloads/pdf/MWBEReports/FY21_Q1-Q3_MWB_Compliance_Report_Final.pdf.

**11** "A Recovery for All of Us: Mayor de Blasio Announces Major Next Steps to Close the Digital Divide in NYC," City of New York, March 3, 2021, https://www1.nyc.gov/office-of-the-mayor/news/150-21/recovery-all-us-mayor-de-blasio-major-next-steps-close-digital-divide-in.

**12** "Certify with the City," NYC Small Business Services, accessed August 21, 2021, https://www1.nyc.gov/site/sbs/businesses/certify-with-the-city.page.

**13** "Global Speeds: May 2021," Speedtest Global Index, Speedtest, accessed August 15, 2021, https://www.speedtest.net/global-index#mobile.

**14** "Specificying Availability Requirements," Cisco Certified Expert, updated January 6, 2021, https://www.ccexpert.us/network-design-2/specifying-availability-requirements.html.

**15** Certification at Levels B and C would require a vendor to attest to implementing a privacy policy that incorporates some elements from the Fair Information Practice Principles. See "Fair Information Practice Principles", Resource Center, International Association of Privacy Professionals, accessed August 15, 2021, https://iapp.org/resources/article/fair-information-practices/.

**16** Certification at Levels B and C would require the vendor to attest to implementing some security best practices based on NIST 800-53. See: "Security and Privacy Controls for Information Systems and Organizations," National Institute of Standards and Technology, September 2020, https://nvl-pubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-53r5.pdf.

**17** "Frequently Asked Questions for Businesses: HireNYC Program," New York City Economic Development Corporation, accessed August 15, 2021, https://edc.nyc/sites/default/files/filemanager/HireNYC/HireNYC_FAQ_General.pdf.

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