

Municipal Digital Equity Implementation Program

Public Wi-Fi Learning Session

March 19, 2025

MBI

MASSACHUSETTS
BROADBAND INSTITUTE



at the MassTech
Collaborative

Welcome!

As you sign on, please feel free to share the following information in the chat:

- Name
- Municipality or Organization
- Favorite spring flower



1. MBI Updates

- Residential Retrofit
- Launchpad

2. Program Reminders

- Timeline
- Focus Areas

3. City of Boston Presentation

- Peter Favorito, Senior Digital Equity Manager
- Brian Donoghue, Digital Equity Officer

4. City of Pittsfield Presentation

- Kevin Zawistowski, Chief Information Officer

5. Q&A

Residential Retrofit Program

\$22-Million-dollar
infrastructure program
(and expanding!)

Purpose

Update wiring in public and private affordable housing in MA

Program Goals

- Reduce service cost
- Improve quality of service
- Provide greater access through community benefits via device distributions and partnerships

Impact (as of 1/16/25)

- 11,350 Units Awarded / \$16.5 Million Investment

Quality of Life improvements

Enable remote work, educational opportunities, and healthcare access.



Expression of Interest Form DUE 3/28/25

The Launchpad Program

Purpose: Address gaps in digital equity grantmaking in Massachusetts and expand digital access and adoption across the Commonwealth

Total Funding Available: \$9.44 million

Priority Geographic Areas:

- Barnstable, Bristol, Worcester Counties

Priority Covered Populations:

- Incarcerated/formerly incarcerated individuals
- Residents with language barriers
- Veterans

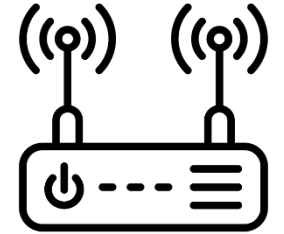


What We Fund for Digital Equity



Public Space Internet
Modernization

Digital Equity Grant Focus Areas



Device Distribution
and Refurbishment



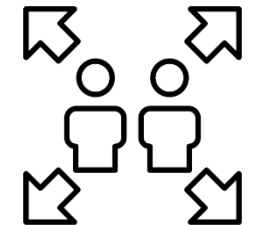
Wi-Fi Access



Digital Literacy

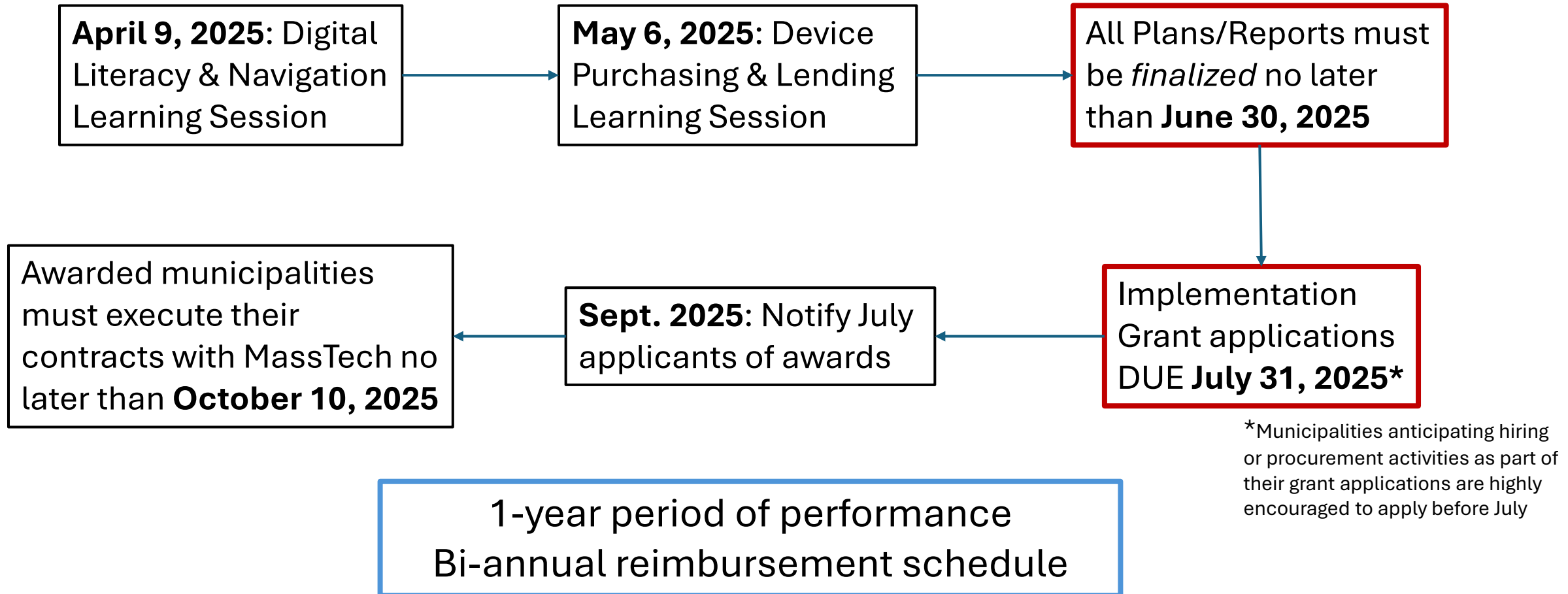


Connectivity for Economic
Hardship (hotspot distribution)



Education, Outreach, &
Adoption
(incl. Digital Navigation)

Timeline



Wicked Free WiFi

March 19, 2025



CITY OF BOSTON

- **Overview**
- **History & Creation**
- **Maintaining the Network**
- **Current Expansion Project**
- **Installation Costs & Timeline**



Overview

CITY OF BOSTON

- **What is “Wicked Free WiFi”?**

- Boston’s free, public wifi network
- Owned and operated by the Innovation & Technology Cabinet
- 300+ access points around Boston
 - Outdoors & in common areas of City-owned buildings
- Speed: 100/20 Mbps
- Content filtering in place

[HOME](#) › [DEPARTMENTS](#) › [INNOVATION AND TECHNOLOGY](#) › [WICKED FREE WI-FI](#)

Last updated: 8/

WICKED FREE WI-FI

Learn about the City of Boston’s free wireless network, and how you can use it.

[PROJECTS](#) [WI-FI LOCATIONS MAP](#) [PRIVACY CONCERNS?](#)

WHAT IS WICKED FREE WI-FI?


Wicked Free Wi-Fi is Boston’s free, public Wi-Fi network. It is owned and operated by the City of Boston’s [Department of Innovation and Technology](#). You can use it to find places to shop, eat, or connect with other residents in the City. By ensuring that folks have free internet access, we are helping advance Boston digital equity goals.


Still have questions? Contact:


[INNOVATION AND TECHNOLOGY](#)

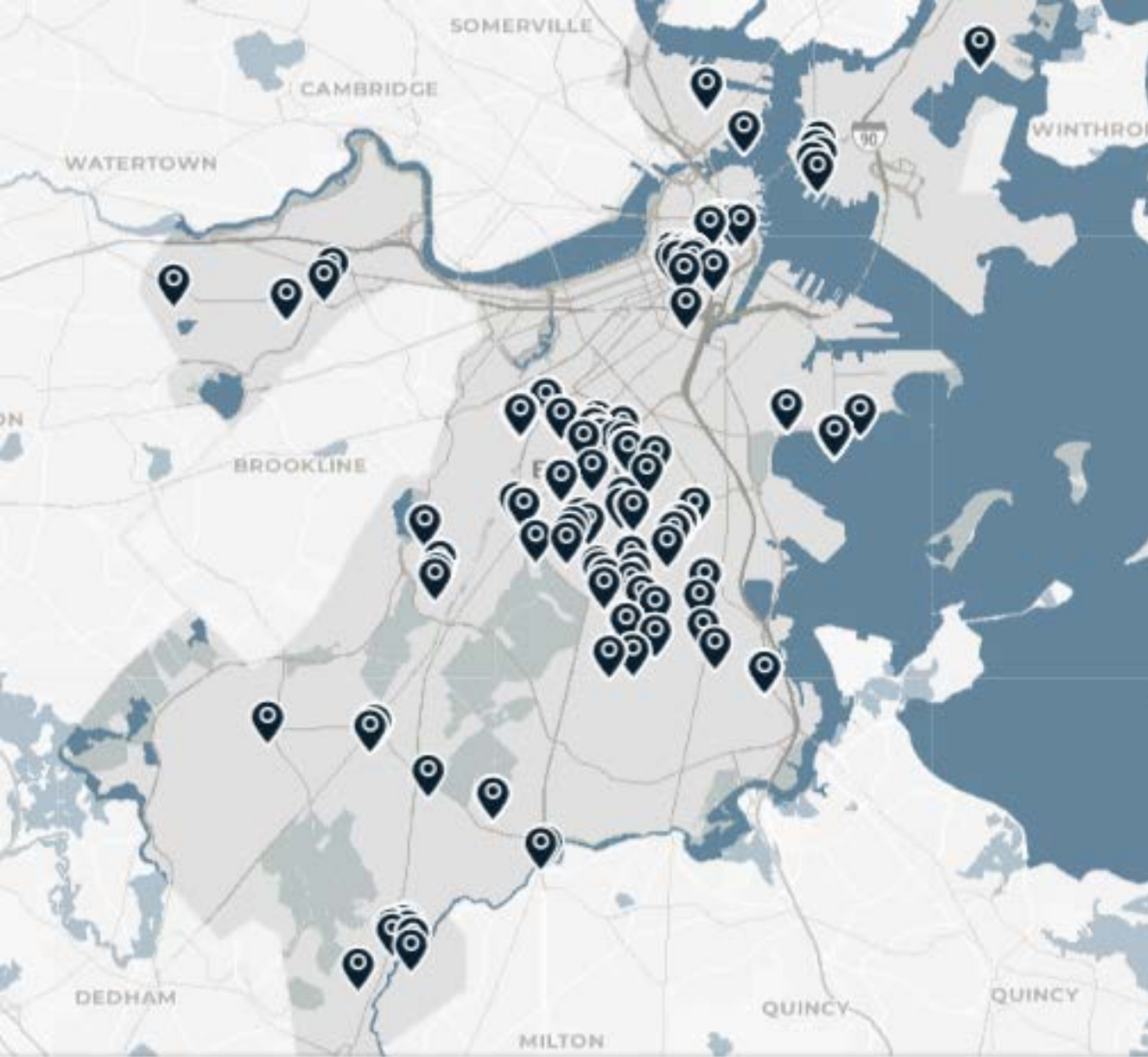
 [617-635-4783](#)

 [SEND AN EMAIL](#)

 1 CITY HALL SQUARE
ROOM 703
BOSTON, MA 02201-2021

 EXPERIENCING AN OUTAGE?
Send us an email at
doit@boston.gov.

 [LEARN ABOUT WICKED FREE WI-FI](#)



Map of Existing Wicked Free WiFi Sites

300+ *access points*



WIFI LOCATION



History & Creation

CITY OF BOSTON

- **First launched in 2014**

- *Goal: to help bridge the digital divide*
- *Primarily located in downtown area & some neighborhood sites*
- *170+ access points*
- *Desire to provide connectivity to Main Streets districts*

- **Powered by “BoNet”**

- *Boston’s municipal use fiber optic network*
- *Provides connectivity to all City-owned buildings*





Maintaining WFWF

CITY OF BOSTON

- **Managed by the City's Network Team**
 - *Includes:*
 - *Dir. of Network & Telecomm. Services*
 - *Principal Network Engineer*
 - *Infrastructure Project Manager*
 - *WiFi Engineer*
 - *Oversees daily operations, repairs, buildout*
 - **Cisco Meraki** dashboard used to observe functionality & health
 - *Traffic data, # of users, on/offline access points*
 - *Utilize contractors & other City departments when needed*

MAINTAINING WFWF (cont.)



Search Dashboard

Network
2 Center Plaza

Network-wide

Assurance

Wireless

Organization

Find in Menu

Map

Satellite

Address, zip code, etc.

Go

Hide table

☐

Networks

Network tags

Devices

Search...

44 networks

Over the last week: 13221 clients, 3.14 TB

CSV

+

<input type="checkbox"/>		Name	Usage	Clients	Tags	Network type	Devices	Offline devices
<input type="checkbox"/>		South Boston	57.9 MB	6		Wireless	6	3
<input type="checkbox"/>		Roxbury	74.62 GB	171		Wireless	52	27
<input type="checkbox"/>		Maintenance	None	0		Wireless	9	9
<input type="checkbox"/>		Parks	42.89 GB	1483		Wireless	15	3
<input type="checkbox"/>		Dorchester	57.47 GB	57		Wireless	24	8
<input type="checkbox"/>		Charlestown	434.7 MB	5		Wireless	3	0
<input type="checkbox"/>		Hyde Park	19.98 GB	37		Wireless	13	5
<input type="checkbox"/>		Alston Brighton	6.42 GB	167		Wireless	6	1
<input type="checkbox"/>		Roslindale	1.85 GB	58		Wireless	5	4
<input type="checkbox"/>		Downtown Boston - City Hall - Quincy Market	50.01 GB	1370		Wireless	16	0
<input type="checkbox"/>		East Boston	2.96 GB	288		Wireless	8	3
<input type="checkbox"/>		BCYF Tremont	277.78 GB	431		Wireless	9	0
<input type="checkbox"/>		Bolling	90.51 GB	330		Wireless	6	1

CITY OF BOSTON



Current Expansion Project

CITY OF BOSTON

CURRENT EXPANSION PROJECT



- **Goal:** To expand WFWF to more transit-oriented, neighborhood sites
 - 5 locations were selected:
 - Nubian Sq→ Completed
 - Mattapan Sq→ Completed
 - Egleston Sq→ Completed
 - Maverick Sq→ Near completion
 - Malcolm X Park→ Set to be installed
- **Project = Mayoral priority**
- **Funded by MBI Digital Equity Partnerships Program**
 - Initiative: Public Space Internet Modernization

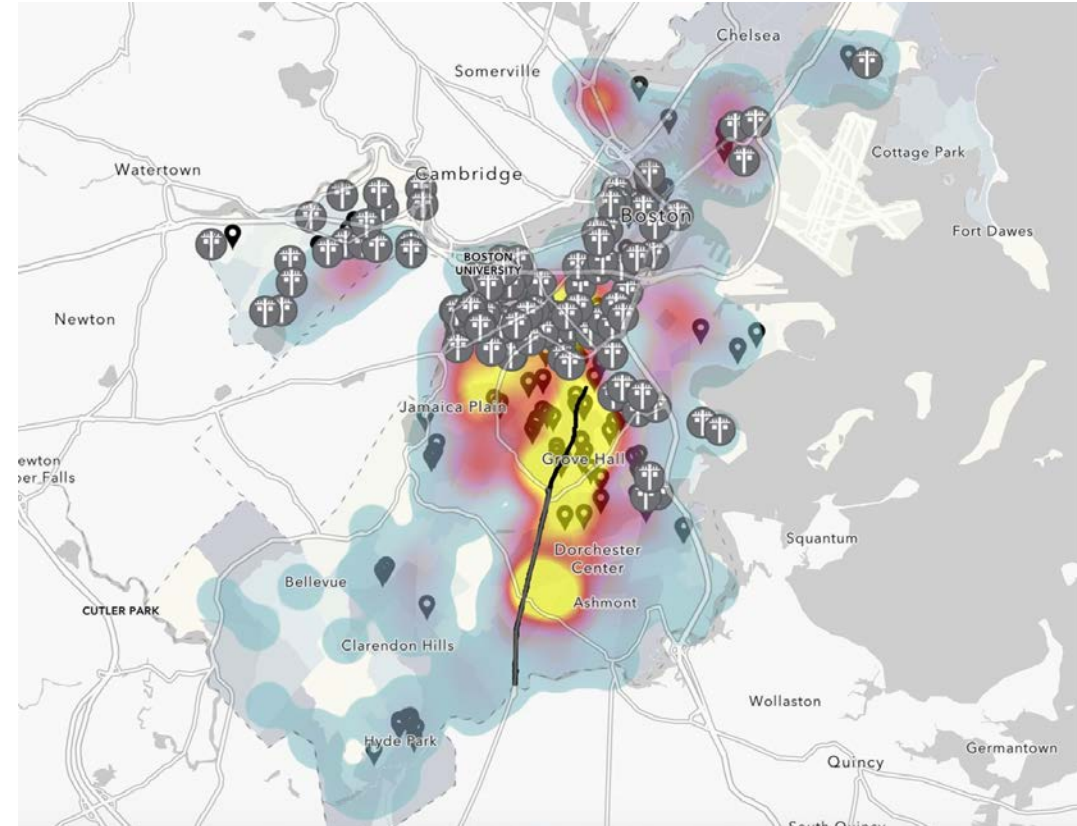
- **Site Selection Process**

- Considered sites based on the following characteristics:
 - i. Public locations (public squares, transit nodes, parks)
 - Residential areas with higher occurrences of no at-home internet subscription (ACS data)
 - Low-income residential areas with a higher likelihood of limited mobile data plans
 - ii. Minimum technical requirements - expansion sites anchored to City-owned buildings wired to the BoNet network
 - Expansion locations will use wiring into the existing BoNet network; at least 1 anchor point will be wired to the building, with additional access points used as extenders as needed
 - Range of APs estimated to be ~20-40ft
 - iii. Expansion beyond the existing WFWF outdoor network

CURRENT EXPANSION PROJECT (cont.)

● Site Selection Process (cont.)

- Potential locations were identified by using GIS to overlay multiple geospatial datasets to understand the target areas within the City of Boston
- The following datasets were used as inputs:
 - i. **Locational demographic data for residents with limited internet access**
 - ACS Internet Connectivity census tracts
 - Income restricted housing
 - Transit hubs
 - ii. **Input from the City's Equity and Inclusion cabinet**
 - City of Boston network infrastructure
 - Existing public wifi
 - BoNet sites



- **Site Visits**

- 8 potential sites were identified→ site surveys followed
- Set up a “**Mobile Wicked Free Wi-Fi**” unit at each site to provide connectivity
- Conducted resident surveys & spread awareness

- **Analysis & Selection**

- 5 sites were chosen based on data from the following criteria:
 - Proximity to public transit & current WFWF locations
 - Backhaul availability→ proximity to BoNet sites
 - Community input from surveying
 - # of unique WFWF users during site visit
 - Traffic data (gb) during site visit

CURRENT EXPANSION PROJECT (cont.)



Nubian Sq, Roxbury



Maverick Sq, East Boston



Installation Costs & Timeline

CITY OF BOSTON

INSTALLATION COSTS



- **5 Sites**

Item	Cost per Site	Overall Costs
Direct Labor: Wireless Engineer (35 hours for 2 years @ \$100/hr)	\$72,800	\$364,000
Installation - labor required to install access points @ \$1700 per location install	\$8,500	\$42,500
WiFi Equipment for each of the 5 locations: 5 Access Points @ \$1380, mesh products @ \$16,907, fiber retrofit for light poles @ \$4500	\$28,307	\$141,535
WiFi Equipment - Licences and mesh service support (\$414 per AP x 25, \$4867 per mesh location x 5)	\$25,968.80	\$129,844
Total:	\$135,575.80	\$677,879

- **Length of time to build out new locations varies**
 - *Average: 6–8 months*
 - *Site survey & backhaul feasibility*
 - *Quotes for & procurement of equipment & contractors*
 - *Installation work*
 - *New site coverage testing*
- **Current WFWF Expansion Project:**
 - *Started in Fall 2023→ nearing completion*



B

THANK YOU!!

Pittsfield Public Wi-Fi

Kevin Zawistowski, Chief Information Officer

Pittsfield, MA Free WiFi

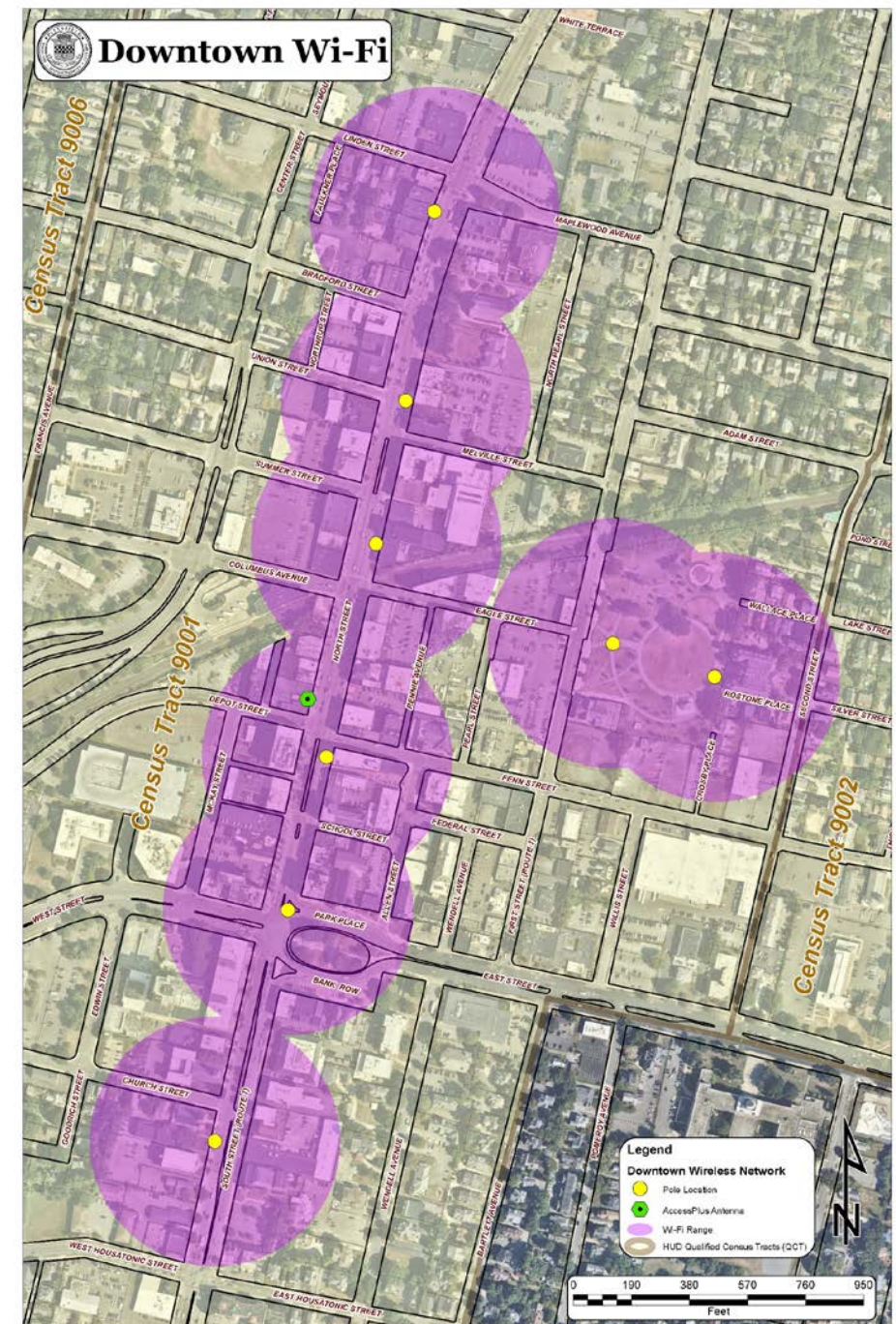
Presented by: Kevin Zawistowski, CIO

Agenda

- Overview
- Technologies
- Usage
- Challenges
- Funding
- Contracts
- Questions

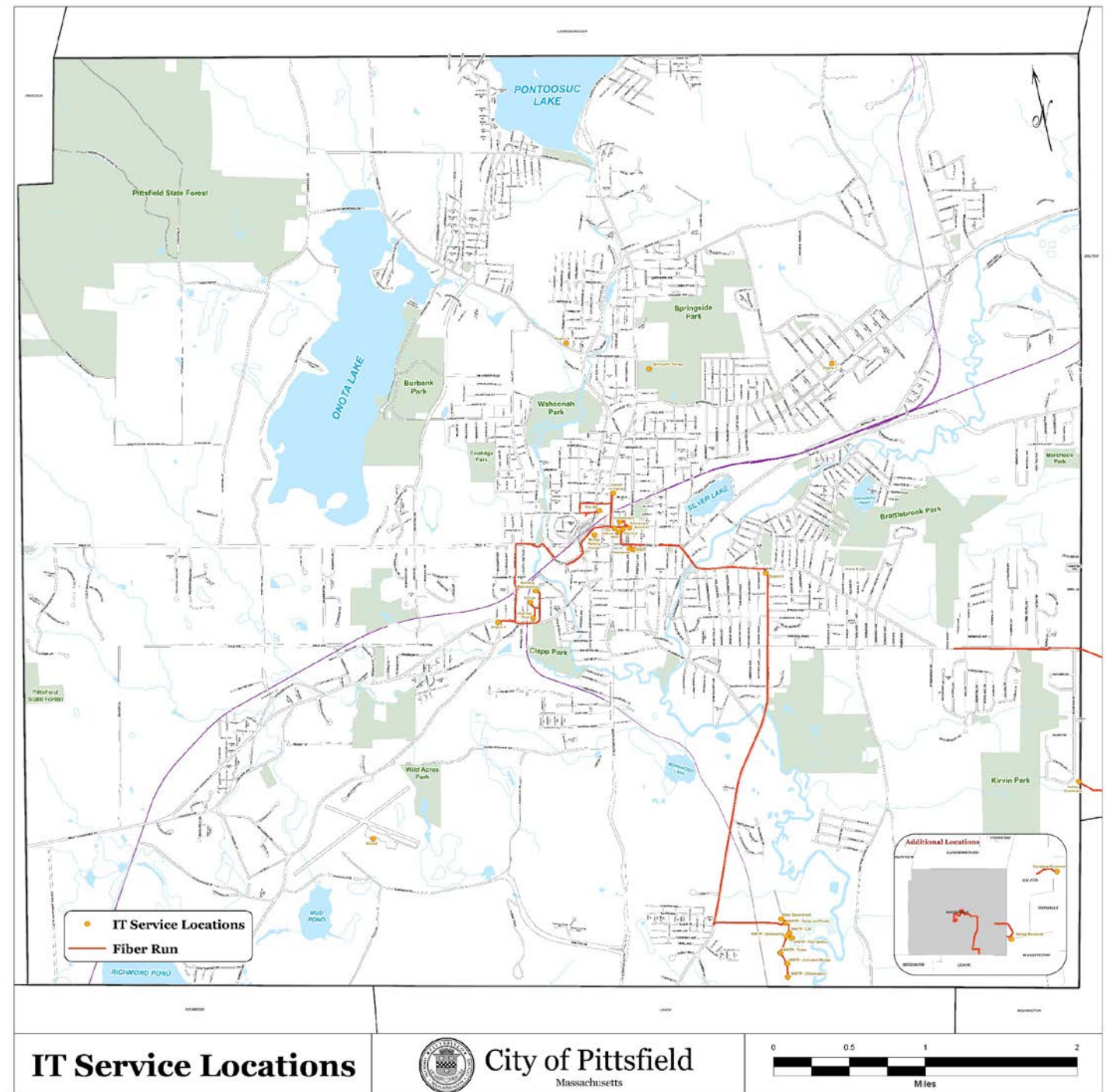
Overview

- **Initial Project**
 - Started with 8 Access Points
 - Microwave off Lenox Mountain (Bosquet) to North Street
 - Wireless Mesh with seamless handoff (just like home WiFi)
- **Additions**
 - City Hall public spaces (including Council chambers)
 - Council on Aging
 - Lichtenstein Center for the Arts
- **Future Plans**
 - Municipal Airport
 - Durant Park
 - Riverside Park
 - Dunham Mall (City Hall Exterior)
 - Captive portal and acceptable use banner
 - Better signage
 - Performance (bandwidth etc.)



Municipal Fiber

- 23 Locations
- Minimum Run is 24 Strand Single-mode
- Some are 100+ strands
- Utilized Municipal Right-of-way
- Right-of-way caused some issues**
- Fiber feeds Municipal buildings hosting free WiFi including: City Hall, COA, Center for Arts and Airport (Soon)



Technologies

- Ubiquiti UniFi access points and switch gear
- Managed via cloud interface
- Combination of wired and radio backbone (location dependent)
- Capable of speeds of up to 100Mbps, highest observed was 60Mbps, average seems to be around 10Mbps





- 20 Access Points
- Average of 60 simultaneous connections per day
- 6800 unique devices connected in last 360 days
- 24GB Usage per day

Usage

Challenges

- Cost (initial build-out)
- Line of Sight
- Electrical
- Public Perception of Equity
 - Both perception from those seeking to take advantage and those opposed to providing equitable access
- Management
- Maintenance
- Budget (ongoing ISP charges, maintenance)

Funding

- Initial Funding through Community Compact Cabinet IT Grant
 - \$99k Grant
 - Installed along HUD Qualified Census Tracts
- Scalable design allowed for absorbing additional access points
- Remainder picked up by operational budget (ISP costs, maintenance, etc.)
- Leveraged use of municipal fiber, also funded by Community Compact Municipal Fiber Grant.
- MBI Phase 2 will extend to Durant Park. We can hopefully hit Riverside Park from Durant Park
 - This will help with signage too
- Municipal Airport should go live this summer, again with help of Municipal Fiber Grant

Contracts

- Most work is done using ITT72 (outside of MBI grants)
 - <https://www.mass.gov/doc/itt72-category-2-9/download>
- Municipal IT maintains and operates the physical network
- Equipment is relatively inexpensive, labor and install eats up most of contract costs

Questions?

MBI

MASSACHUSETTS
BROADBAND INSTITUTE



at the MassTech
Collaborative