

LinkNYC

Link5G in Residence Zoning and Historic Districts

PDC Preliminary/Final Review

August 8, 2022

We Can No Longer Afford to Wait

- The PDC's approval of Link5G for installation in Manufacturing and Commercial Zoning Districts has allowed **Link5G deployment to begin in those areas.**
- But the Link5G program **cannot fully bridge the Digital Divide** until Link5G deployment can likewise begin in Residence Zoning and Historic Districts.
- As we delay, aspects of life (whether for remote schooling, business, telemedicine, etc.) continue to shift online and require digital connection.
- And as the public need for 5G cellular and internet connectivity strengthens, **NYC's Digital Divide deepens with every passing day.**
- Nowhere is the Digital Divide felt more acutely than in Residence Zoning Districts, where most New Yorkers reside.
- The people most in need are falling further and further behind, and **the longer we wait, the more difficult it will be for these New Yorkers to ever catch up.**

Background

- **December 2021** - PDC gave preliminary approval to Link5G for installation in Manufacturing and Commercial Zoning Districts, including Commercial overlay in Residence Zoning Districts, with the understanding that OTI may, in the future, submit a proposal to install the structures in Residence Zoning and Historic Districts, noting that such proposal shall include data showing the success of the program in bridging the digital divide and proven demand in proposed districts.
- **January 2022–May 2022** -
 - **GfK**, (a leading global market research firm) was commissioned to undertake a comprehensive independent survey and analysis to determine whether (and where) there is **DEMAND** and **NEED** for additional telecommunications infrastructure in the city.
 - Separately, **HR&A Advisors** (a strategic firm specializing in economic and public policy development) was engaged to conduct an independent economic impact analysis of the economic **IMPACT** Link5G will have bridging the digital divide in Residence Zoning and Historic Districts.
- **June 2022** - PDC gave final approval for installation of Link5G in Manufacturing and Commercial Zoning Districts, including Commercial overlay in Residence Zoning Districts.
- **July 2022** - First Link5Gs are installed in Commercial Zoning Districts.
- **August 2022** - **OTI and CityBridge are now requesting preliminary and final PDC approval for the installation of Link5G in Residence Zoning and Historic Districts to immediately address the digital divide.**

Update on Cultural Programming & Digital Literacy Education

LinkNYC continues to support initiatives to **teach digital literacy**. We do this via partnerships with **community based and cultural institutions** to bridge the digital divide through **educational trainings and learning opportunities in technology**.

Snapshot of Recent Programming Launched Since June 2022:

- **June 11, 2022: Opened Second Gigabit Center, The Andrew Freedman Home and Library**
 - Installed new, neutral, high capacity fiber optic infrastructure to provide high-speed Wi-Fi today and support connectivity needs.
 - Digital literacy programs will be launched in conjunction with the Knowledge House www.theknowledgehouse.org.
 - Offered through partnership between The Bronx Borough President's Office, Bronx Community Foundation, Bronx Digital Equity Coalition, DreamYard, OTI, LinkNYC and ZenFi Networks.
- **June - July 2022: Internet Safety Month Programming Partnership with Digital Girl, Inc.**
 - **June 17, 2022:** *Digital Me! For Seniors, Internet Safety, Digital Footprints, and Their Impact on Image*. Presented in conjunction with West Indian American Day Carnival Association (WIADCA)
 - **June 30, 2022:** *Digital Me! For Seniors, Internet Safety, Digital Footprints, and Their Impact on Image*
 - **July 16, 2022:** *Digital Me! Internet Safety, Digital Footprints, and Their Impact on Image*

Upcoming Programming in Progress:

- **The Knowledge House**
 - Digital Literacy Programming including coding, Introduction to Mac and Windows, and exploring careers in technology
- **Allen Senior Center**
 - Partnering with Center for Hearing to deliver a free hearing screening and digital accessibility event
- **Affordable Connectivity Program at Silicon Harlem**
 - Supporting ACP Informational Event with updates on our Link Local Program
- **The Digital Library Project**
 - Created by the Andrew Freeman Home, the Digital Library Project will provide kids and adults with digital production skills that will help them find jobs in fields connected with the arts. It will offer virtual programs in animation, multimedia production and other specialties, in an effort to maximize peer-to-peer connectivity.

Equity Districts Deployment Mandate

CityBridge must build at least 739 new Links in the 13 “Equity Districts” (which are outlined in red on this map).*

Equity Districts were chosen by the City based on:

- Lack of broadband options
- Lower median annual income
- Lack of Links
- High levels of pedestrian / street traffic

Equity Districts are in all 5 boroughs and include neighborhoods hit hard by the pandemic, such as:*

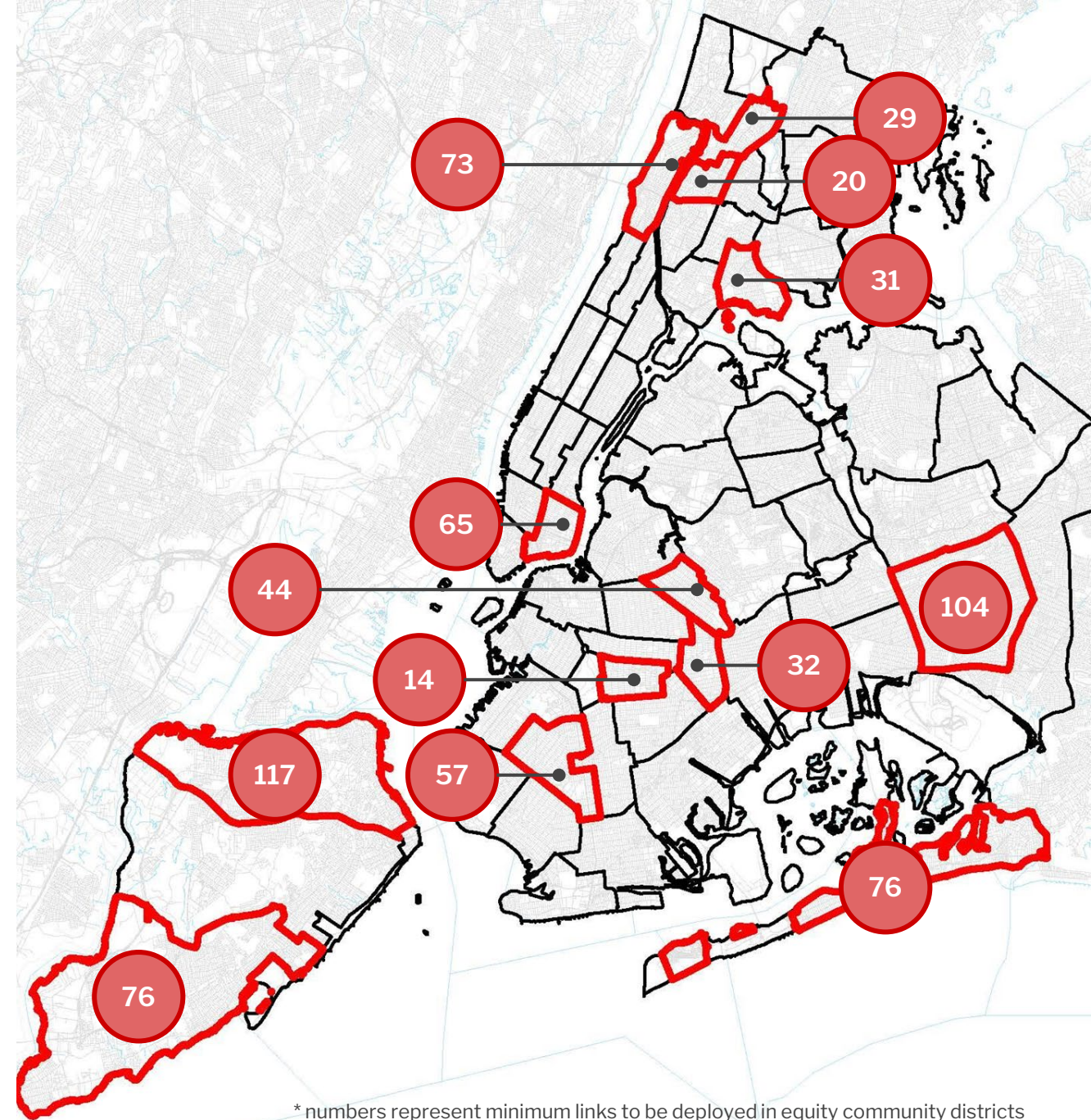
Bronx: Hunts Point and Longwood

Brooklyn: Bushwick, Brownsville and Ocean Hill

Manhattan: Inwood and Washington Heights

Queens: Rockaway, Jamaica and Hollis

Staten Island: Port Richmond, St. George and Stapleton



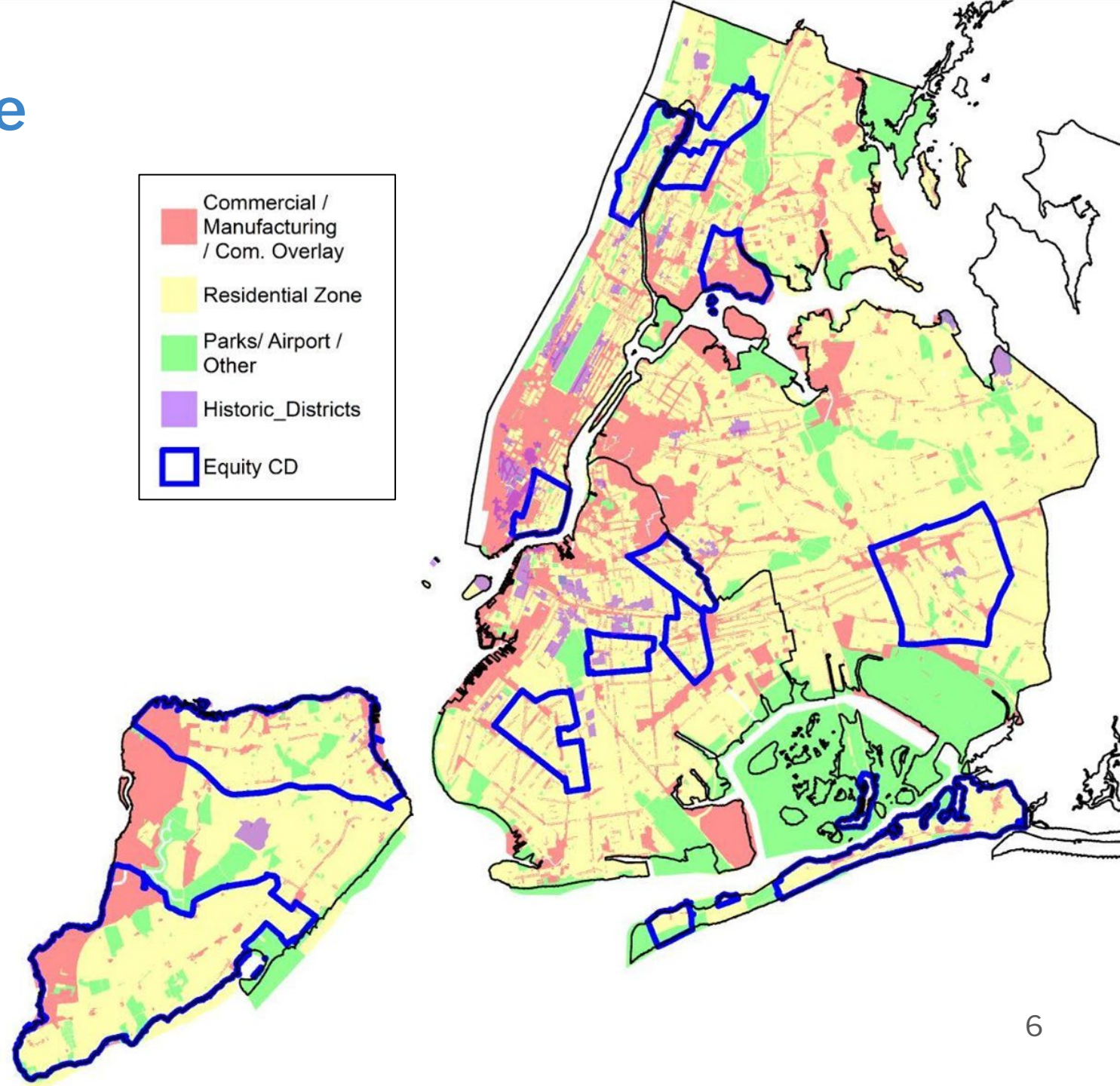
* numbers represent minimum links to be deployed in equity community districts

All Solutions Must Include Residential Access

65% of the “Residential Expansion Districts” (Bronx, Brooklyn, Queens, Staten Island & Manhattan above 96th Street) and **71%** of the “Equity Districts” are **Residence Zoning and Historic Districts**.

90% of all New Yorkers live in these **Residential Expansion Districts**.

92% of the NYC households that **solely connect to the internet via mobile data plans** reside in Residential Expansion Districts.



Data to Date: LinkNYC is Bridging the Digital Divide

- Since inception, LinkNYC has provided:
 - **11 million+** users of LinkNYC's Wi-Fi network
 - **3 billion+** Wi-Fi sessions
 - **~27,000 Terabytes** of data transferred, an equivalent of over **\$400 million in cellular data charges***
 - **28+ million free phone calls** (most dialed number is the EBT hotline)
 - The FindHelp (f/k/a Aunt Bertha) social services directory for jobs, housing, food, and other programs is accessed on average + **10,000 times per month**.
 - Free advertising for over **1,300 small and local businesses**
- LinkNYC is the largest free public Wi-Fi network in the U.S.
- These usage statistics are with a Link footprint primarily in Manhattan. The need is greatest and demand highest in the areas targeted by this next phase of deployment.

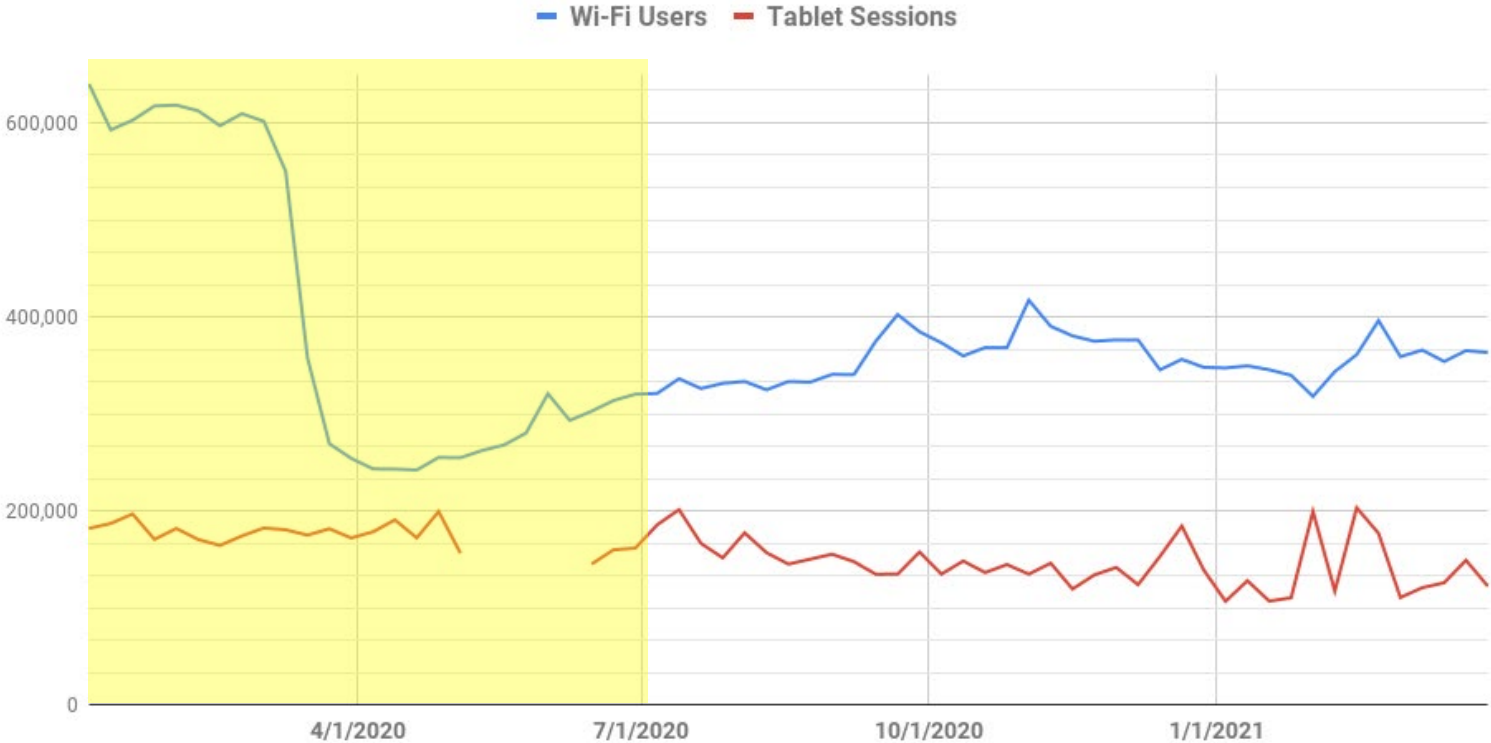
* based on \$15/GB average cost



New Yorkers in Need Continued to Rely on LinkNYC

LinkNYC users relied on the free services throughout the COVID-19 pandemic, showing that Links fulfill a need, not just a convenience. Highlighted area shows ~50% aggregate drop in users with the onset of lockdown and virtual elimination of tourists and commuters from the city.

Weekly Service Usage



LinkNYC Wi-Fi Users who reside in NYC:	
Have no internet at home:	30%
Use LinkNYC Wi-Fi for Work:	34%
Use LinkNYC Wi-Fi for School:	18%

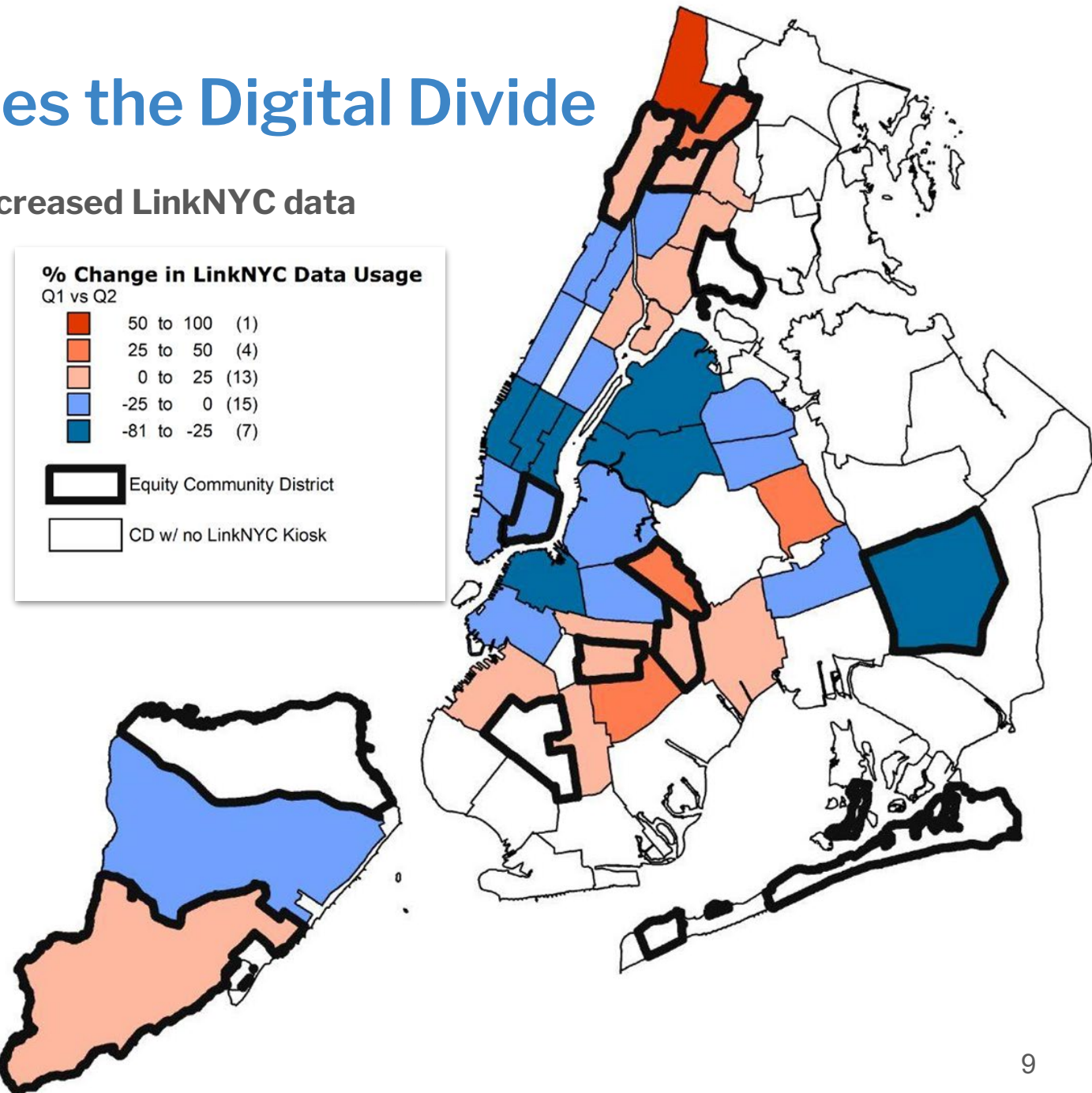
Source: Internal usage data and survey of Wi-Fi users.

Conclusion: LinkNYC Bridges the Digital Divide

Underserved community districts of the City saw **increased LinkNYC data use** during the peak of the pandemic.

COVID-19 Case Study: Comparing the change in data use from pre-pandemic (January-March 2020) to mid-lockdown (April-June 2020) reveals:

- **Residents of underserved areas used substantially more data** during lockdown, (despite the 50% drop in number of users due to fewer people being outside)
- Most other areas saw a modest decrease in usage
- Commercial Zoning Districts and commuter hubs saw the largest reduction



New Yorkers Need Better Service

NYC residents in Digital Deserts are **44%** more likely to use their cellular device as their primary method to connect to the Internet while at home.

Digital Desert residents are far more likely to rely on free public Wi-Fi or their mobile data service to supplement or replace home internet service, **but lack affordable and reliable access to both.**

- Of respondents that had no home internet, **29%** reported it is too expensive and **21%** reported there is no in-home Internet provider available to them.

A staggering 65% of NYCHA residents reported having dropped calls at least once per month.

Only 25% of Digital Desert residents report being satisfied with their Mobile Provider.

	Digital Deserts	Non-Digital Deserts
Use cellular data at home	35% ↑	25%
Use Free Public Wi-Fi at Least a Few Times per Month	42% ↑	32%
Have had at least one dropped call	48% ↑	37%
Have run out of data at least one time	58% ↑	39%

Arrows ↑↓ indicate significant differences between Digital Desert and Non-Digital Desert Zips at the 95% confidence level

63% of NYCHA residents use Free Public Wi-Fi at least a few times per month, and

13% rely exclusively on mobile data for internet at home.

Impact of Link5G in Residence Zoning and Historic Districts

HR&A Advisors conducted an **Economic Impact Analysis** of expanding Link5G approval to Residential Expansion Districts above 96th St. in Manhattan and the outer boroughs using publicly available data and responses to the GfK survey.

Their data analysis resulted in 5 ‘Key Findings’.

The proposed Residence Zoning and Historic District Expansion plan for Link5G will deliver:

1. Digital infrastructure to communities that have **historically suffered from underinvestment**.
2. 5G service to residents of 13 Equity Community Districts, which are disproportionately **home to historically marginalized populations**.
3. Wi-Fi & City services to New Yorkers most in need—**but only if the Links are near their homes**.
4. **Best-in-class cell service** and high-speed internet options to communities that are mobile-only.
5. **Additional enterprise fiber options**, creating a stepping-stone for faster, more affordable internet for households and small businesses.

New Yorkers Demand Link5G

New Yorkers in the Residential Expansion Districts are historically underserved and can only benefit from Link5G deployment in Residence Zoning and Historic Districts.

"... **The ability to have an equitable future in the most underserved neighborhoods cannot be understated . . . 5G connection means quicker downloads, much lower lag and a significant impact on how we live, work and play.**"

Yudelka Tapia, New York State Assemblymember

"From the information highway to digital technology at our doorsteps, **this is the best innovation of the 21st century.**"

Dr. Bola Omotosho, Chair, Bronx Community Board 5

"**We are thrilled at this opportunity to be the first recipients of LinkNYC's latest phase in tech development** as we unveil their new Link5G Kiosk here in the Morris Heights section. The decision to launch the project in the West Bronx speaks to . . . [the] commitment to eliminating the digital divide in our city."

Vanessa L. Gibson, Bronx Borough President

"The quick deployment of this critical program throughout the city with a focus on social equity districts is what our city needs right now. **That includes residential areas as well as commercial and mixed-use neighborhoods.**"

Antonio Reynoso, Brooklyn Borough President

"The deployment of new and improved Link5G structures will begin in neighborhoods left behind . . . ensuring their access to 5G mobile broadband in addition to the benefit of free Wi-Fi. . . . **These structures aren't a luxury in our communities — they are a necessity.**"

Arva Rice, President & CEO of the New York Urban League

"**Link5G is an investment in long-term economic prosperity, just like building roads or bridges.** Having affordable broadband in the home is an essential piece of bridging the digital divide, and the infrastructure that will be created by Link5G will be an important step in making sure we are able to reach more homes across NYC."

Clayton Banks, Co-Founder & CEO of Silicon Harlem

New Yorkers Support Link5G

88% of all New Yorkers are supportive of Link5G “coming to [their] neighborhood”.

% Somewhat, Very, Extremely	Digital Deserts N=889	Non-Digital Deserts N=414
Total NY	90% ↑	85%
<\$35K Income	90%	85%
NYCHA	97%	91%

64% of residents in Digital Deserts are “very” or “extremely” supportive of Link5G “coming to [their] neighborhood”.

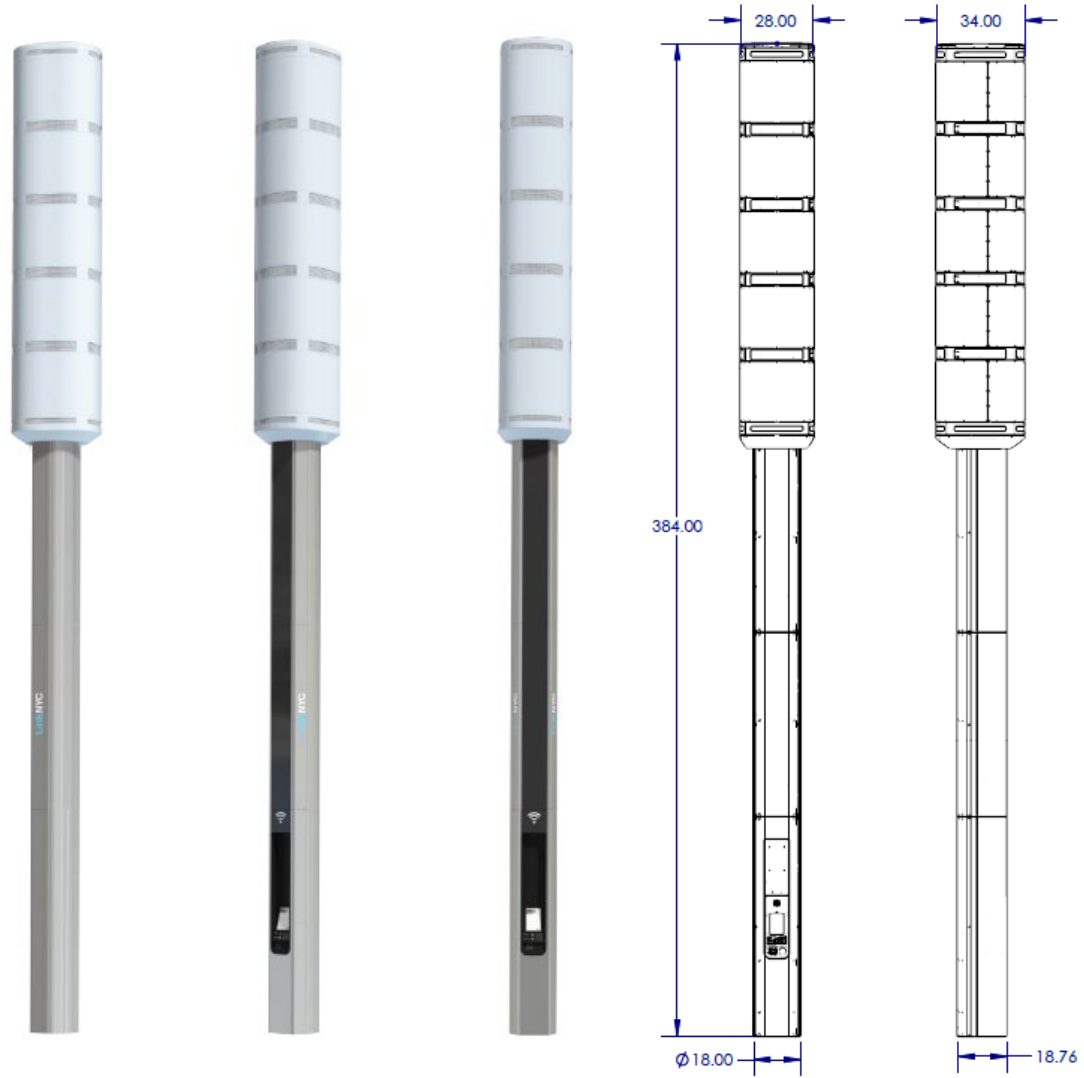
	Digital Deserts N=889	Non-Digital Deserts N=414
Extremely supportive	36% ↑	21%
Very supportive	28%	31%

77% of NYCHA residents were “very” or “extremely” supportive.

Source: GfK Independent survey of 1,303 New Yorkers

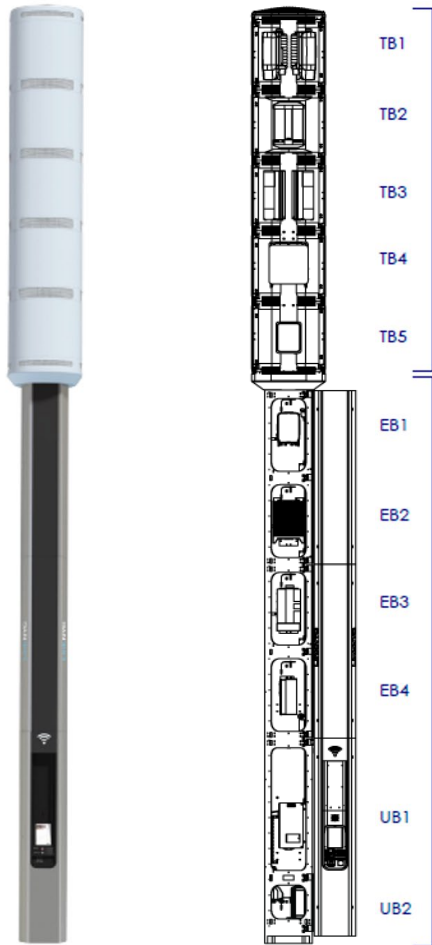


Only Link5G
Without Ad
Screens may be
Installed in
Residence Zoning
and Historic
Districts



Link5G

Link5G Design Expands Broadband Accessibility



FRONT VIEW
EXAMPLE EQUIPMENT LOADOUT*
(EXTERIOR DOORS OPEN, SHROUDS
AND DOOR PANELS HIDDEN)

TB1	Millimeter Wave Bay for Operator 1 Ultra-Fast 5G Service	Ultra-Fast 5G Services from multiple providers, giving NYers freedom of choice and the fastest possible wireless services
TB2	Millimeter Wave Bay for Operator 2 Ultra-Fast 5G Service	
TB3 + TB4	Millimeter Wave Bay or Sub 6 GHz Shared Bay for 4G LTE + 5G for additional coverage and capacity for CBRS and/or IOT to support neutral host providers and technologies	Coverage and capacity at Sub 6GHz bands, while alternative technology offerings increase competitive landscape and open doors to alternative wireless providers for NYers
TB5	Optimized Wi-Fi structure and siting locations improve coverage and performance of free public gigabit Wi-Fi	
EB1 to EB4	Operator Equipment	Safe, secure and efficient use of space to house required radio equipment concealed from view
UB1 + UB2	LinkNYC Wireless Services Equipment, Pole controls and connection to fiber and power	

Below ground fiber infrastructure that can be used by other carriers to deliver connectivity throughout NYC

Fiber is the backbone of internet access

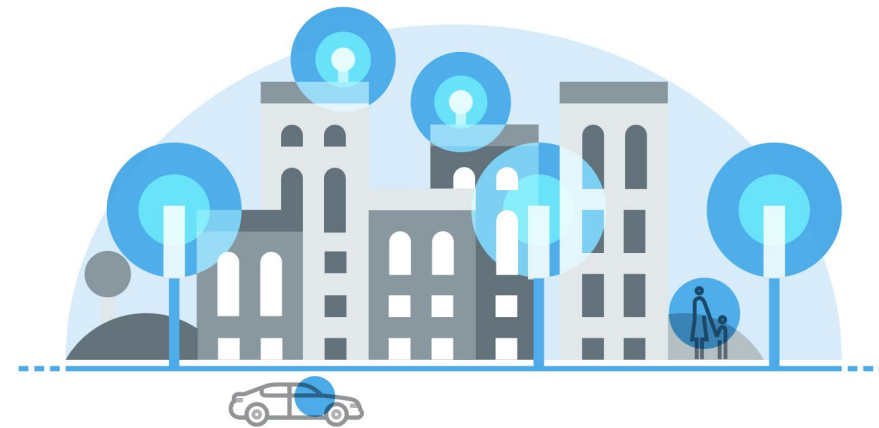
Link5G brings fiber to Residence Zoning Districts - making in-home internet possible

Without Link5G in Residence Zoning Districts

With Link5G in Residence Zoning Districts



- No expansion of new, neutral LinkNYC fiber.
- No expansion of free Wi-Fi network.
- Limited expansion of upgraded 5G infrastructure.

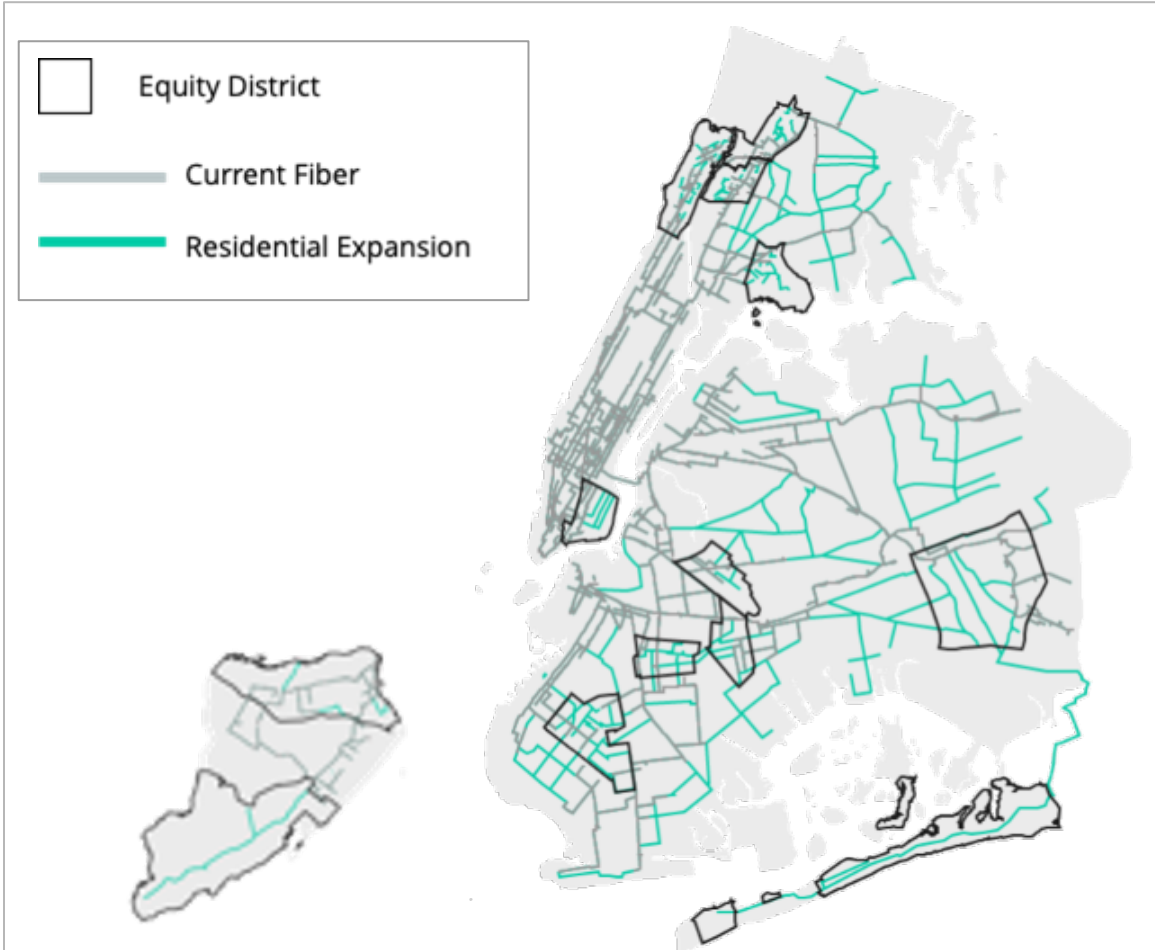
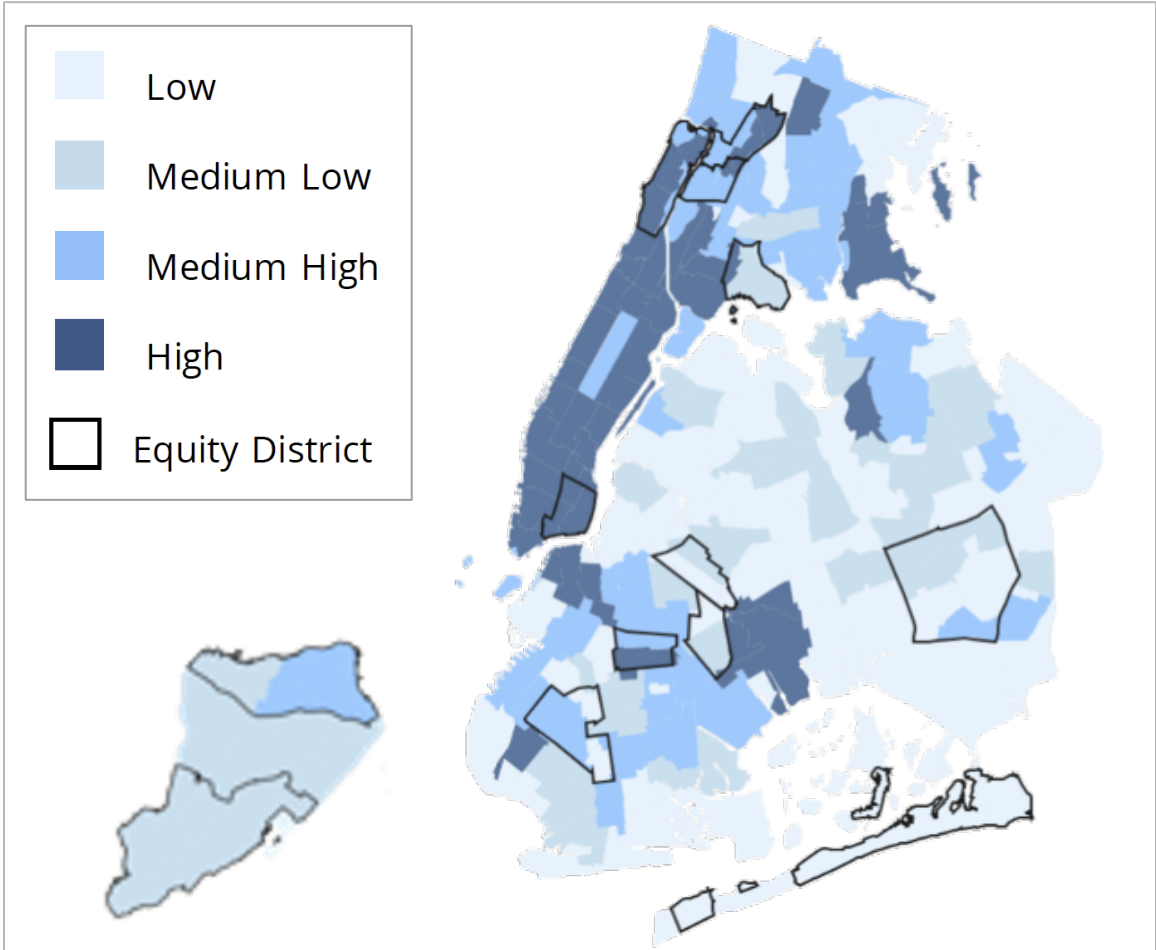


- **Robust fiber infrastructure** deployed across NYC neighborhoods.
- Fiber provides platform for **additional alternative service providers** (wired and wireless) to deliver competitive internet offerings (like Spot On and Skywire).
- Expansion of **free Wi-Fi network**.
- Expansion of **upgraded 5G infrastructure**.

Most digital infrastructure investment is concentrated in Manhattan, below 96th. Fiber expansion into residential areas would significantly increase digital infrastructure in Equity Districts and Digital Deserts.

Private Sector Fiber Investment Today*

LinkNYC Fiber Coverage (Projected)



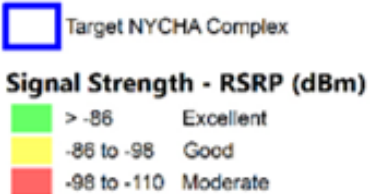
*Map shows percentages of census blocks that have one or more commercial fiber options available: Low < 5%, Medium Low 5%-11%, Medium High 12%-21%, High >21%.

With Residence Zoning District Approval, Link5G Will Bring Improved Mobile Coverage to NYCHA facilities.

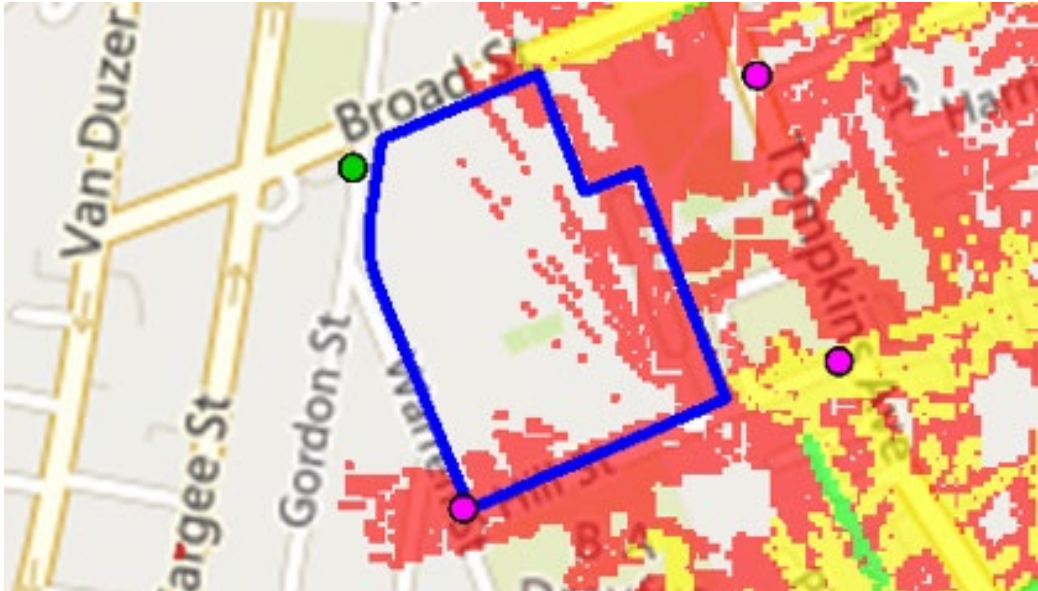
- Link5G will bring Wi-Fi coverage to at least two NYCHA facilities.
- By laying additional fiber near these NYCHA facilities, Link5G will also provide for additional wireless broadband coverage in and around NYCHA facilities.
- At City Council hearings in May, OTI was asked to ensure that Link5Gs were deployed around NYCHA facilities to help provide Wi-Fi and broadband access at those facilities.
- **96% of NYCHA facilities are located in Residence Zoning Districts** meaning that residential approval for Link5G is necessary to provide service to NYCHA facilities.
- CityBridge will deploy Link5Gs outside two NYCHA facilities - **the Stapleton Houses in Staten Island and Baisley Park Houses in Queens.**
- The proposed NYCHA deployment would significantly improve mobile coverage for residents from that carrier. But because **both of the NYCHA facilities are located in Residence Zoning Districts**, CityBridge would need Residence Zoning District approval for Link5G to complete the deployment.

Proposed NYCHA Deployment No. 1 of Link5G – Stapleton Houses (Staten Island)

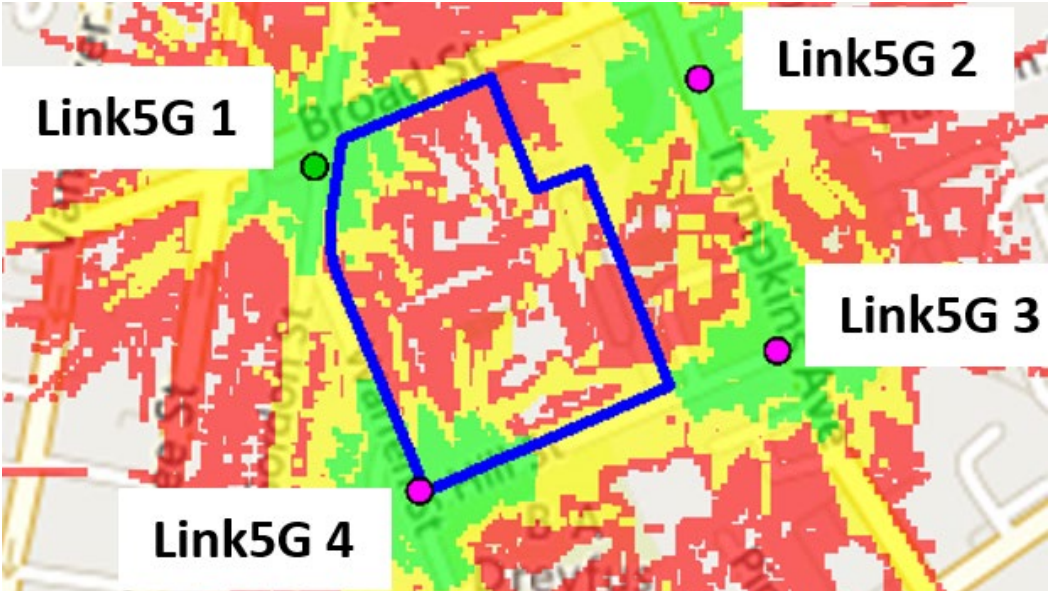
Deployment of Link5G will significantly improve mobile service coverage for residents of the Stapleton Houses.



Estimated Coverage from existing Mobile Carrier infrastructure at Stapleton Houses



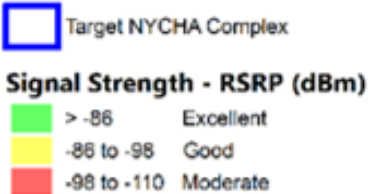
Projected Mobile Coverage by the same Carrier after Link5G deployment at Stapleton Houses*



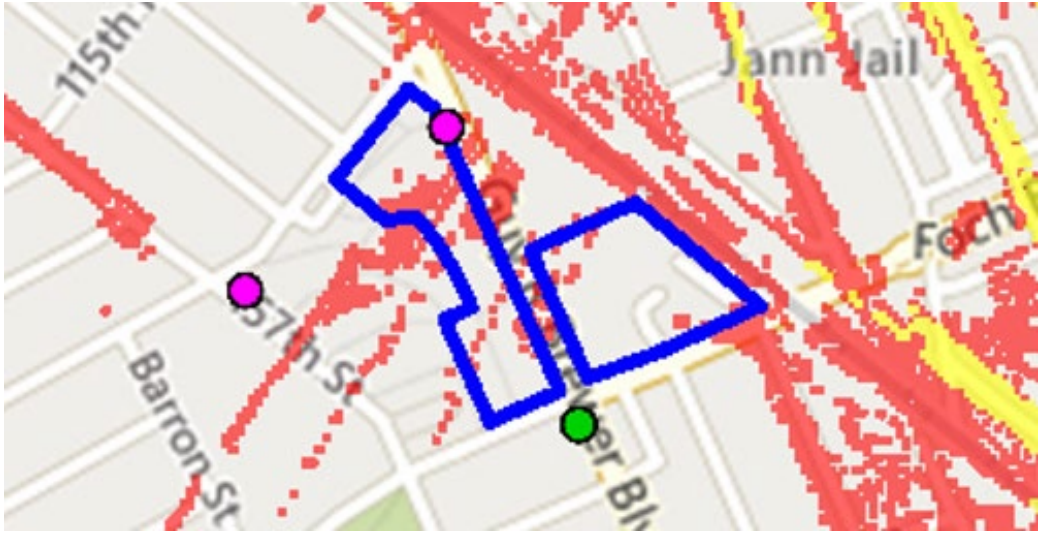
*CityBridge estimated the current coverage from one of the existing mobile carriers currently against what the coverage could be if the carrier deployed in Link5Gs outside the facilities.

Proposed NYCHA Deployment No. 2 of Link5G – Baisley Park Houses (Queens)

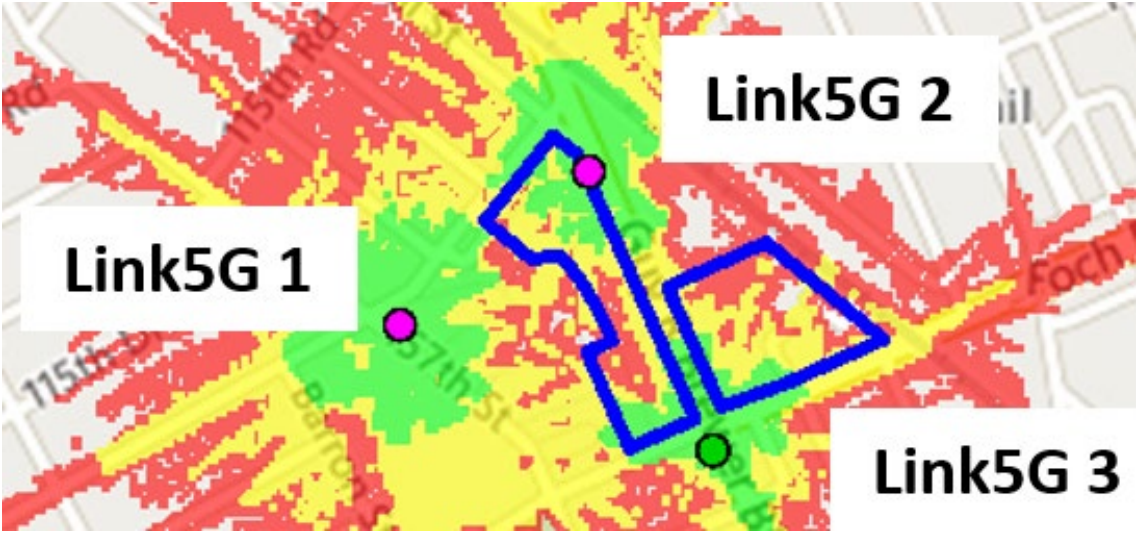
Deployment of Link5G will significantly improve mobile service coverage for residents of the Baisley Park Houses.



Estimated Coverage from existing Mobile Carrier infrastructure at Baisley Park Houses



Projected Mobile Coverage by the same Carrier after Link5G deployment at Baisley Park Houses



Link5G in NYC

The First Link5G Launch Event

Morris Heights, Bronx



Link5G in NYC

The First Link5G Launch Event

Morris Heights, Bronx



Link5G in NYC

The First Link5G Launch Event

Morris Heights, Bronx



Link5G in NYC

The First Link5G

Morris Heights, Bronx



Link5G in NYC Residential (Simulation)

Bushwick,
Brooklyn



Link5G in NYC Residential (Simulation)

Kingsbridge
Heights, Bronx



Link5G in NYC Residential (Simulation)

Bushwick,
Brooklyn



Link5G in NYC Residential (Simulation)

Bushwick,
Brooklyn



Historic Districts



The siting of Link5Gs in Historic Districts is subject to review and approval of the Landmarks Preservation Commission.

Link5G in NYC Residence Zoning & Historic Districts (Simulation)

Fort Greene Historic District, Brooklyn



Link5G in NYC Residence Zoning & Historic Districts (Simulation)

Clinton Hill Historic District, Brooklyn



Link5G in NYC Residence Zoning & Historic Districts (Simulation)

Addisleigh Park Historic District, Queens



Link5G in NYC Residence Zoning & Historic Districts (Simulation)

Greenwich Village
Historic District,
Manhattan



Additional Residence Zoning and Historic District Site Restrictions



1 No Advertising Screens in Residence Zoning and Historic Districts

To reduce the impact of digital screens in Residence Zoning and Historic Districts, Link5Gs with advertising screens are prohibited. Advertising is only permitted in commercial or manufacturing zoning districts.

2 Streetscape Preservation

No more than one Link5G may be installed on each block and only on one side of the street per block.

Each Link5G must be installed at least 200 feet from another Link5G.

Residence Zoning and Historic District Site Restrictions



3

Full OTI Control and Oversight

All proposed Link5G siting locations must be submitted to OTI for review along with a map of the proposed locations, detailed site plans and photographs of the area.

Every single Link5G site location requires approval from OTI.

4

Community Engagement on New Link5G Sites Proposed in Residence Zoning and Historic Districts

Borough Presidents and Community Board District Representatives are provided with advance notice and a comment period for all siting locations for every new Link5G proposed for deployment in Residence Zoning and Historic Districts.

5

Clear, Safe Sidewalk Access for Pedestrians

All Link5Gs must be installed to allow a minimum of 8 feet or one half of the sidewalk, whichever is greater, of straight unobstructed path (“clear path”) for pedestrian circulation on the sidewalk.

Installation (and removal) of all Link5Gs requires that the sidewalks must be promptly restored and the affected sidewalk flags completely replaced utilizing material to match the adjacent flags.

Residence Zoning and Historic District Site Restrictions



6

ADA Accessibility

Link5G must comply with all ADA requirements.

Link5G must maintain at least an 8 foot clear path from closest point on each Link5G to closest point on all Handicap Ramps, and at least a 5 foot clearance from every Wheelchair Ramp and Lift.

7

Equity Access - Underserved Deployment to Community Districts

At least ninety percent (90%) of new kiosk sites must be in Manhattan above 96th Street and in the Bronx, Brooklyn, Queens, and Staten Island

8

Compliance with Other City Rules

All Link5G sites must comply with the City's Department of Transportation, Parks Department, Landmarks Preservation Commission and the Public Design Commission, and any other agency of the City with jurisdiction over the property on which a Link5G will be located

9

Public Safety Rules

Link5Gs may not interfere with crosswalk passage or unobstructed lines of sight for vehicular traffic.

Link5Gs may not impede use of or means of egress of Fire Escapes.

Sidewalk pitch may not exceed 5 degrees parallel to curb line or 3 degrees perpendicular to curb line.

Link5G in Residence Zoning and Historic Districts

Appendix: Data and Analysis

Glossary

Residence Zoning Districts	“Characterized by a range of housing types, from detached single-family homes in R1 Districts to residential skyscrapers in R10 Districts.” (NYC Department of City Planning)
Historic Districts	“Any area which contains improvements which: (a) have a special character or special historical or aesthetic interest or value; and (b) represent one or more periods or styles of architecture typical of one or more eras in the history of the city; and (c) cause such area, by reason of such factors, to constitute a distinct section of the city; and (2) has been designated as a historic district pursuant to the provisions of this chapter.” (NYC Administrative Code)
Commercial Zoning Districts	“Characterized by a range of business activities, from neighborhood retail and services in C1 Districts, to regional commercial areas with department stores and movie theaters in C4 Districts, to gas stations and car repair in C8 Districts.” (NYC Department of City Planning)
Manufacturing Zoning Districts	“Characterized by a range of industrial and commercial activities, including light manufacturing in M1 Districts and heavy manufacturing in M3 Districts.” (NYC Department of City Planning)
Equity District	The 13 below-listed Community Districts identified in as “underserved” and earmarked to receive a minimum number of Links (LinkNYC Franchise Agreement Amendment No. 3) Bronx: 2, 5, 7; Brooklyn: 4, 9, 12, 16; Manhattan: 3, 12; Queens: 12, 14; Staten Island: 1, 3
Residential Expansion Districts	Residence and Historic Zoning Districts in the outer boroughs and in Manhattan above 96th St. (HR&A Impact Analysis)
Digital Deserts	All 13 Equity Districts, plus additional NYC areas identified as having low levels of home and mobile broadband access (Internet Master Plan).

Need for New Telecommunications Infrastructure

An online survey of residents across NYC was conducted by research firm GfK to identify whether (and where) there exists a need and demand for Link5G kiosks. The survey also gauged support, acceptance and expected use.

Out of 1,303 completed surveys:

- **19%** of the participants reside in NYCHA developments
 - (**24%** in Digital Deserts, **8%** in non-Digital Deserts)
- **24%** of the participants have an annual household income under \$35,000
 - (**27%** in Digital Deserts, **17%** in non-Digital Deserts)
- **27%** identify as African American, **23%** are of Hispanic origin
 - (**32%/26%** in Digital Deserts, **15%/16%** in non-Digital Deserts respectively)

The survey targeted New Yorkers in zip codes above 96th St. and Digital Deserts in Manhattan, and all zip codes in Brooklyn, Queens, The Bronx and Staten Island. Respondents were divided into cohorts of New Yorkers located inside and outside “Digital Desert” areas—zip codes identified as having low and medium-low access to home and/or mobile broadband in the New York City Internet Master Plan¹

1 - https://www1.nyc.gov/assets/cto/downloads/internet-master-plan/NYC_IMP_1.7.20_FINAL-2.pdf

New Yorkers Rely on Free Wi-Fi & Mobile Data

NYC residents in Digital Deserts are **44%** more likely to use their cellular device as their primary method to connect to the Internet while at home.

Digital Desert residents are far more likely to rely on free public Wi-Fi or their mobile data service to supplement or replace home internet service, **but lack affordable and reliable access to both.**

- Of respondents that had no home internet, **29%** reported it is too expensive and **21%** reported there is no in-home Internet provider available to them.

Base: All respondents

Q23. How often do you use free public Wi-Fi (for example, at a library, coffee shop, or from a LinkNYC kiosk)?

Base: Use internet at home

Q5. How do you connect to the internet at home? Please select all that apply.

Arrows ↑↓ indicate significant differences between Digital Desert and Non-Digital Desert Zips at the 95% confidence level

	Digital Deserts	Non-Digital Deserts
Use cellular data at home	35% ↑	25%
Use Free Public Wi-Fi at Least a Few Times per Month	42% ↑	32%

63% of NYCHA residents use Free Public Wi-Fi at least a few times per month, and 13% rely exclusively on mobile data for internet at home.

Mobile Service is Not Only Lacking, but Lower Quality

Digital Desert residents reported lower levels of access to mobile Internet. Even if someone in a Digital Desert has service, the quality of the service they receive is lower, and individuals often cannot afford unlimited data plans so they exhaust data on their mobile plans at a higher rate than those in non-Digital Deserts.

- **18%** of residents in Digital Deserts use a prepaid data plan compared to **11%** in non-Digital Deserts.

Base: All respondents Q1. Do you use a mobile phone?
 Base: Use a mobile phone Q2. Do you have a mobile data plan?
 Base: Limited data plan Q12A. How many months out of the year do you run out of data?
 Base: Use a mobile phone Q13. How often does your mobile phone drop calls at home?
 Arrows ↑↓ indicate significant differences between Digital Desert and Non-Digital Desert Zips at the 95% confidence level

	Digital Deserts	Non-Digital Deserts
Have had at least one dropped call	48% ↑	37%
Have run out of data at least one time	58% ↑	39%

A staggering 65% of NYCHA residents reported having dropped calls at least once per month.

Only 25% of Digital Desert residents report being satisfied with their Mobile Provider.

New Yorkers already support Link5G!

88% of all New Yorkers are supportive of Link5G “coming to [their] neighborhood”.

% Somewhat, Very, Extremely	Digital Deserts	Non-Digital Deserts
Total NY	90% ↑	85%
Bronx	88%	76%
Kings	91%	84%
Queens	91%	88%
Richmond	77%	79%
Manhattan	96%	n/a
<35K	90%	85%
NYCHA	97%	91%

Base: All respondents

Q25. Below is a picture of a new LinkNYC kiosk that would provide free high-speed Wi-Fi, free phone calls, free USB charging, better and faster cell phone service, and fiber internet service options. How would you feel about these kiosks coming to your neighborhood to provide these services?

Arrows ↑↓ indicate significant differences between Digital Desert and Non-Digital Desert Zips at the 95% confidence level



Digital Desert Residents are Extremely Supportive

64% of residents in Digital Deserts are “very” or “extremely” supportive of Link5G “coming to [their] neighborhood”.

	Digital Deserts N=889	Non-Digital Deserts N=414
Extremely supportive	36% ↑	21%
Very supportive	28%	31%

77% of NYCHA residents are “very” or “extremely” supportive.

Base: All respondents
Q25. Below is a picture of a new LinkNYC kiosk that would provide free high-speed Wi-Fi, free phone calls, free USB charging, better and faster cell phone service, and fiber internet service options. How would you feel about these kiosks coming to your neighborhood to provide these services?
Arrows ↑↓ indicate significant differences between Digital Desert and Non-Digital Desert Zips at the 95% confidence level



LinkNYC is a Public Good

Not only do City residents “support” Link5G kiosks—they also express interest in using them and see their benefit to the community at large (above and beyond just themselves).

Likelihood To Use LinkNYC Kiosk

% Somewhat, Very, Extremely	Digital Deserts	Non-Digital Deserts
Total NY	81% ↑	70%
Bronx	82% ↑	59%
Kings	82% ↑	68%
Queens	80%	73%
Richmond	65%	66%
Manhattan	84%	n/a
<35K	83%	79%
NYCHA	93%	88%

Perceived Benefit of Link5G to Community

% Somewhat, Very, Extremely	Digital Deserts	Non-Digital Deserts
Total NY	91% ↑	85%
Bronx	90%	82%
Kings	92% ↑	83%
Queens	92%	88%
Richmond	82%	74%
Manhattan	94%	n/a
<35K	93%	92%
NYCHA	98% ↑	84%

Base: All respondents

Q27. Assuming a new LinkNYC kiosk comes to your neighborhood and community, how likely are you to use the free Wi-Fi?

Q28. Thinking less about yourself personally, and instead about your broader neighborhood and community, how beneficial do you think these LinkNYC kiosks are to your local area?

Arrows ↑↓ indicate significant differences between Digital Desert and Non-Digital Desert Zips at the 95% confidence level

Benefits of Link5G in NYC Residence Zoning and Historic Districts

If Links aren't everywhere, the hardest to reach will be most impacted

LinkNYC kiosks needs to be in Residence Zoning and Historic Districts for **all** New Yorkers to benefit

90% of all New Yorkers live in Residential Expansion Districts*



**Residential Expansion Districts are neighborhoods in the outer boroughs and above 96th street in Manhattan (NYC DoITT).*

Benefits of Link5G in NYC Residence Zoning and Historic Districts

If Links aren't everywhere, the hardest to reach will be most impacted

Key Finding

#1

LinkNYC's proposed Residential Expansion plan would bring Link5G to all residents of 13 Equity Districts, which are disproportionately home to historically marginalized populations.

KEY FINDING



63%

Black & Latinx
vs. 53% Citywide



21%

Below the Poverty Line
vs. 17% Citywide



48%

With a High School Degree or Less
vs. 41% Citywide



27%

Receiving SNAP Benefits
vs. 19% Citywide

Benefits of Link5G in NYC Residence Zoning and Historic Districts

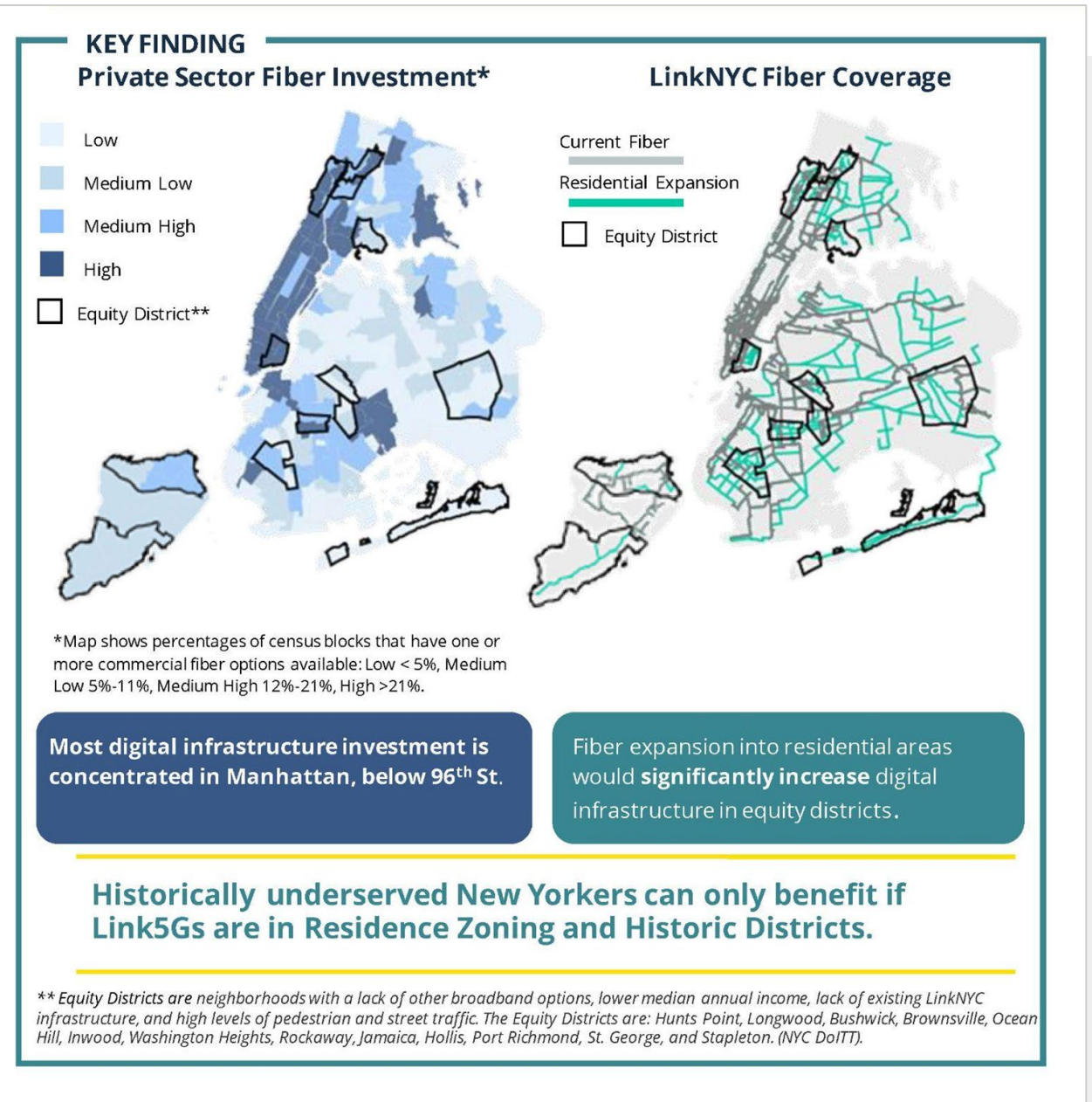
If Links aren't everywhere, the hardest to reach will be most impacted

Key Finding

#2

Link5G offers an opportunity to deliver private digital infrastructure spending in communities that have historically struggled with underinvestment.

*Data provided by HR&A Advisors, Inc.



Benefits of Link5G in NYC Residence Zoning and Historic Districts

If Links aren't everywhere, the hardest to reach will be most impacted

Key Finding

#3

Link5G connects residents with Wi-Fi and brings access to City services to New Yorkers who need them the most, but those benefits only accrue if the Links are near their homes.

As City services continue to be accessible online, Link5G in Residence Zoning and Historic Districts can provide free digital access to the New Yorkers who are most in need.

KEY FINDING



40%

of low-income residents in Equity Districts reported **using public Wi-Fi "multiple times a month"**



327K

Mobile-only households in Residence Zoning and Historic Districts", who stand to gain **better access to telemedicine** through Link services



20+

City-provided social services moved online during Covid and will stay online



225K

Aunt Bertha/Find Help Sessions on Link Kiosks*

*From June 2020 to May 2022.

Benefits of Link5G in NYC Residence Zoning and Historic Districts

If Links aren't everywhere, the hardest
to reach will be most impacted

Key Finding

#4

Link5G will bring best-in-class cell service, delivering high-speed internet to communities that are mobile-only.

KEY FINDING

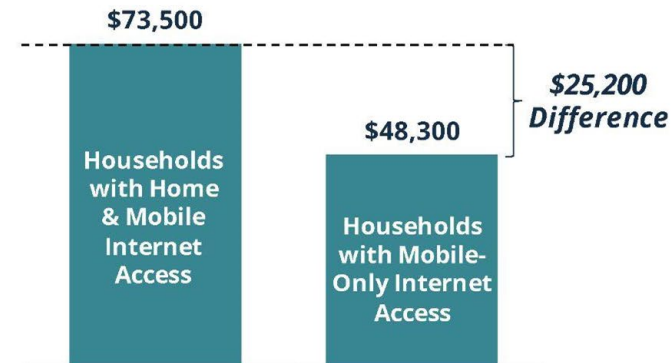
92%

of households who **solely connect to the internet via mobile data plans** reside in Residence Zoning and Historic Districts". Link5G will accelerate access to best-available mobile service to these New Yorkers.

63%

of Census Tracts in NYC have **fewer than 2 ISP residential options** which reduces quality of service and **drives up costs**.

Median Income



Mobile-only households tend to earn less, be households of color, and have lower educational attainments than households with home-based internet access.



48%

Black and Latinx in Mobile-Only Households vs. 41% Citywide with Internet



46%

With a High School Degree or Less in Mobile-Only Households vs. 41% Citywide with Internet

Benefits of Link5G in NYC Residence Zoning and Historic Districts

If Links aren't everywhere, the hardest to reach will be most impacted

Key Finding

#5

Link5G will deliver an additional enterprise fiber option in NYC, creating a stepping-stone for faster, more affordable internet for households and small businesses

Link5Gs will bring ZenFi neutral host fiber to these communities facilitating the opportunity for more consumer choice for broadband services

KEY FINDING

Benefits of Universal Broadband in New York City*

Link5Gs will bring an additional fiber option that further enables universal broadband access via third party providers. These are just some benefits of ubiquitous broadband, as discussed in the NYC Internet Master Plan:



Closing the Digital Divide

Individuals need broadband access to fully participate in the today's economy and society. Universal access is foundational to **addressing persistent inequalities, particularly in education, employment, and healthcare.**



Catalyze Economic Expansion

Providing high-speed internet to all New Yorkers will **improve labor force access** with better matches between employers and skilled workers and **increase labor and capital efficiencies** for enhanced regional competitiveness.



Improve Public Services

Access to high-speed internet for all New Yorkers is essential for the **delivery of public services** in an efficient and affordable manner.

*Internet Master Plan, pages 5-10

Link5G Siting Criteria

No Link5G may be placed within:

1. 3 feet of a traffic sign;
2. 4 feet of a traffic light;
3. 5 feet of the end of a ramp of an entrance to or an exit from a wheelchair lift;
4. 15 feet of the entrance way of an outdoor or elevated subway entrance, except where the PCS structure is attached to, or is immediately adjacent to, the building and clear pedestrian passage is maintained;
5. 5 feet from a subway station entrance;
6. 15 foot radius of a fire hydrant and, unless otherwise authorized by the Commissioner in writing, within 5 feet of a standpipe and/or sprinkler, siamese connection or wall hydrant;
7. 3 feet from a subway grate, utility hole cover, or transformer vault;
8. 15 feet of a sidewalk cafe;
9. 15 feet of a bus stop zone unless the PCS structure is attached to a bus stop shelter within the zone or is installed at the building line and does not obstruct pedestrian passage on the sidewalk;
10. 15 feet of a newsstand unless the PCS structure is attached to such newsstand or is installed at the building line and does not obstruct pedestrian passage of the sidewalk;
11. 15 feet of a public pay toilet unless the PCS structure is attached to such public pay toilet or is installed at the building line and does not obstruct pedestrian passage on the sidewalk;
12. 5 feet of a bench located at the curblines;
13. 10 feet of a driveway unless the PCS structure is attached to or immediately adjacent to a building immediately adjacent to such driveway;
14. 5 feet of a canopy as defined in § [19-124](#) of the Code;
15. 4 feet of a mailbox located at the curblines;
16. 4 feet of the base of a street light;
17. 4 feet of a parking meter;
18. 3 feet of a fire box unless otherwise approved in writing by the Commissioner;
19. 3 feet of a news rack located at the curblines unless the PCS structure is attached to the newsrack;
20. 3 feet of a newsbox located at the curblines;
21. 8 feet of a tree;
22. 3 feet of a grating if the public pay telephone is installed at the building line and does not cover the grating or in any way impede the opening of the grating;
23. 3 feet of a signpole;
24. 3 feet of the edge of a tree pit or planter located at the curblines.
25. 4 feet from a "Pedestal Structure," (herein defined as any telecommunications utility box, cabinet, or enclosure and related construction, such as foundations, that is located, in whole or in part, above grade and within the public right-of-way of a public street and/or sidewalk, except when such structure is attached to a utility pole or other legal street furniture installation);
26. 8 feet from a bicycle rack; and
27. 4 feet of any sidewalk encumbrance not specifically enumerated herein.
28. No more than one structure shall be installed on each block and, for the avoidance of doubt, on only one side of the street per block.
29. No more than one structure shall be installed closer than 200 feet to an existing Structure

Protection for Existing Street Furniture and Public Transit

Included in existing siting criteria, no Link5G may be installed within:

3 Feet		Fire Call Box, News Rack, Traffic Sign, Sign Pole, Tree Pit, Curblin Planter, Transformer Vault (curblin), Subway Grate, Utility Manhole Cover
4 Feet		Parking Meter, Traffic Light, Mailbox, Cabinet, or Utility Box, Speed Camera Pole
5 Feet		Bench, Standpipe (recessed), Sprinkler Connection (recessed), Canopy, Subway Hatch
8 Feet	of any	Bicycle Rack, Building Planter, Transformer Vault (recessed), Open Sidewalk Cafe (pre-1996 sites), Cellar Door, Tree
10 Feet		Driveway
15 Feet		Enclosed Sidewalk Cafe, Bus Departure Zone, Fire Hydrant, Subway Entrance or Elevator, Public Pay Toilet, News Stand, Borough/Community Wayfinder, Open Sidewalk Cafe (post-1996 sites), Standpipe (curblin), Sprinkler Connection (curblin)

Additional Site Restrictions

Respect for Local Community	<ul style="list-style-type: none">- Link5G may not be placed in front of houses of worship (churches, synagogues, mosques, etc.).- Link5G may not be placed at the same location as a Licensed produce “Green Cart.”- No Link5G may be located directly opposite a building entrance.
Support for the Arts	<ul style="list-style-type: none">- PDC review & approval is needed for Link5G Greenfield sites within 75 Feet of an art installation.
Open Street Feeling	<ul style="list-style-type: none">- Street corners and intersections will remain uncluttered. No Link5G may be installed within 10 Feet of a Corner Quadrant/Building Line.

LinkNYC Bridging the Digital Divide: COVID-19 Case Study

LinkNYC does not collect detailed usage data from the network or ANY data from our users other than email address for service related communications. Because of this, we can only analyze high-level aggregated data and responses to subscriber surveys.

With the city-wide lockdown in March of 2020, the effective disappearance of commuters and tourists, and reduction in travel city-wide, a window was opened onto the critical role LinkNYC plays for underserved New Yorkers, and where they use the service.

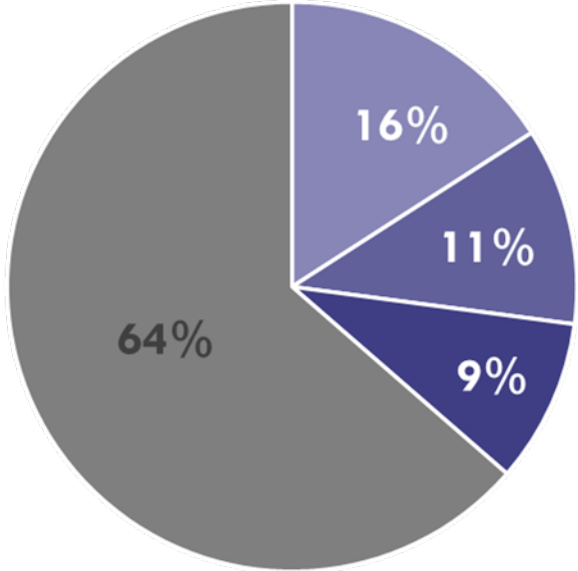
Key Findings:

- 1. Overall, the number of **devices on the network dropped roughly 50%**
- 2. Data consumption on the network dropped from 1,316 terabytes to 1,195 terabytes, **only a 9% reduction**
- 3. **Usage increased** in Equity Districts and Digital Deserts

LinkNYC Wi-Fi Users who reside in NYC:	
Have no internet at home:	30%
Use LinkNYC Wi-Fi for Work:	34%
Use LinkNYC Wi-Fi for School:	18%

The Digital Divide in New York City

Households in New York City with Home Broadband or Mobile Broadband



- Households without Broadband or Cellular Access
- Households with Cellular Access Only
- Households with Broadband Access Only
- Households with Broadband and Cellular Access

New York City's Digital Divide Relative to Other Cities' Total Populations



Source: American Community Survey 5-Year Estimates (2016-2020) (most recent data available)