Memorandum

CITY OF DALLAS

DATE September 21, 2023

TO Honorable Mayor and City Council

SUBJECT **City of Dallas Broadband and Digital Equity Initiatives**

On July 31, 2023, the City Manager received the ARPA Broadband Initiative memorandum submitted by Councilmember Mendelsohn and Mayor Pro Tem Atkins requesting Staff to change course and stop pursuing a middle mile fiber network, provide a full accounting of the original $43 million allocated to address the digital divide, and meet with individual Councilmembers to understand their ideas of how to address digital equity and participation, as well as their proposed uses for excess funds.

Prior to the memorandum, Staff had confirmed 11 individual meetings with Councilmembers to provide an update of our broadband and digital equity efforts to date, ahead of any solicitations related to broadband infrastructure. This memorandum serves as a summary of responses to questions posed in the memorandum and compiles all questions left unanswered during the individual meetings.

City Staff wants to reaffirm our previous statements made during City Council Briefings that the City has no intention of serving as an internet service provider. The City is committed to pursuing digital equity initiatives so that all households in Dallas will have highspeed, reliable internet, access to devices in their homes, and the knowledge and skills to navigate a digital world

In addition to the responses below, Staff is providing the following attachments:
- Attachment 1: Powerpoint presented during individual Councilmember meetings
- Attachment 2: Digital Equity Initiatives Fact Sheet

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1. **Accounting of $43 million allocated to address digital divide.**

ARPA SLFRF Allocation	**$43,000,000**
- Park and Recreation Wi-Fi Expansion Project	$3,000,000
- Digital Navigators Program	$2,000,000
- Consultant Contract: CTC Technology and Energy	$380,000
- Community Wi-Fi Program	$99,000
Remaining Funds Unencumbered	**$37,521,000**

2. **What is the wisdom in building a redundant middle mile fiber network when it already exists.**

The categorization of a middle mile fiber network as redundant is misleading. The existing fiber network currently in place belongs to a limited number of companies in the private sector which control the market and decide whether other Internet Service Providers (ISPs) can serve the area, limiting competition and adversely impacting the cost for services for the area. Where there are monopoly or near-monopoly conditions in a geographic area, the costs for services are higher. Where the owner of the fiber infrastructure is also the ISP, those factors are exacerbated.

3. Will a middle mile network connect any new residents to the internet?

A middle mile network is essential to connecting residents to the internet. The purpose of a middle mile network is to build infrastructure that connects locations to the open network. Robust middle-mile infrastructure reduces the cost to deliver services to the end user, in this case, the resident, through public-private partnerships (PPP), direct internet access and through digital services provided by the City such as SmartCities-related initiatives and e-Governance.

4. What are City IT staff qualifications and workload capacity to maintain a fiber network?

The City recognizes the complexity of the work and technical capacity of existing staff and would contract with a qualified vendor(s) to manage and maintain a fiber network.

5. What are the annual costs associated with maintenance upgrades?

This information is only available based upon the proposals received from qualified providers through a Request for Competitive Sealed Proposals (RFCSP).

6. Are we wasting an opportunity to utilize the funds for ARPA-approved activities?

The expansion of broadband-related infrastructure to improve access to, and delivery of, City services is an approved and encouraged expense under the ARPA's Coronavirus State and Local Fiscal Recover Funds (SLFRF) Guidelines.

7. Provide a monthly and cumulative summary of number of people served by the Digital Navigators.

The Digital Navigators Program was approved by City Council in March 2023 and data in Attachment 4 reflects this period of service.

8. Why can't the City just give the money directly to an internet service provider?

The City has the option to directly allocate ARPA funding, so long as it complies with the SLFRF Guidelines. Should it be the desire of City Council and an allowed expenditure to directly allocate funding to an ISP, this would prevent the City from maximizing funding to improve the City's infrastructure to deliver services in the future and not just Internet to underserved areas but to maximize operational efficiency and effectiveness. The City has this opportunity to utilize once-in-a-lifetime funding to leverage and work with the private sector, to include ISPs and telecommunications companies to drive innovation that addresses the digital divide and provide paradigm shifting thoughts to support the Smart City initiatives of the future in a cost-effective manner.

9. What is the cost comparison if the City provides the internet service versus if an internet service provider?

The City has no intention of serving as an internet service provider.

10. Cost to the City to continue paying internet service providers for data transfer and management versus the City performing those tasks.

The cost for data backhaul and internet services are two separate transactions that have a significant impact on the City's budget. The City will always need to work with ISPs to provide access to the Internet, but the cost to ISPs to transport the data from City facilities or even the last mile (i.e. directly to consumers) is where the majority of the costs reside. Attachment 3 provides detailed information related to year over year costs for data transfer, bandwidth and maintenance costs.

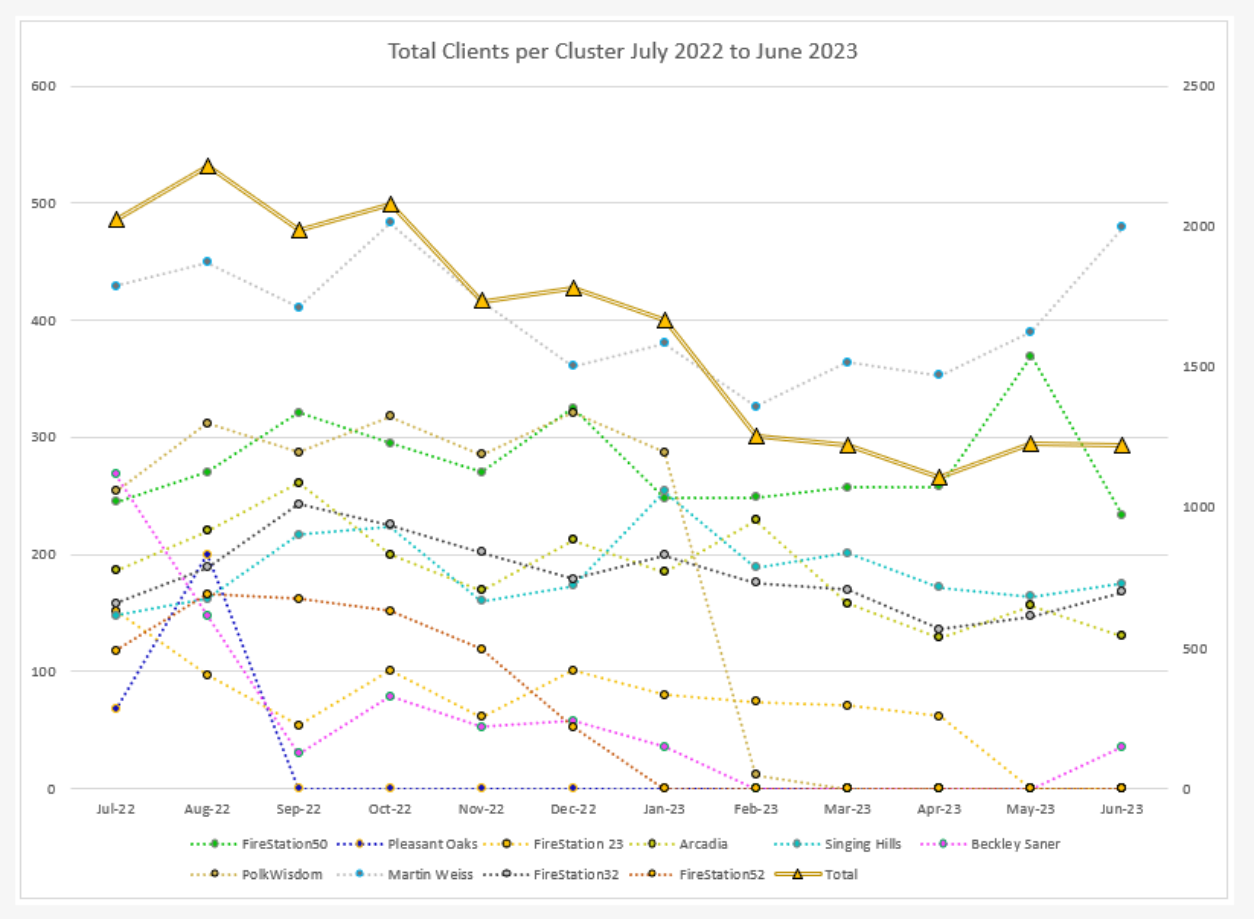
CTC conducted a financial analysis of building 180 miles of fiber. As outlined in the Broadband and Digital Equity Strategic Plan, constructing and connecting 180 miles of fiber would cost approximately $25 million and then entail ongoing operating costs of about $2 million per year. As the bandwidth grows to max capacity, we estimate that operational cost will grow $4 million per year. In comparison, the cost to increase bandwidth to support adding 1G capacity at 1,500 intersections in Dallas is estimated at $9 million per year (1,500 intersections x $750K per month). The City estimates saving $5 million per year in just the transport cost for these intersections, which does not include the costs for general internet cots and data backhaul traffic.

For the Last Mile, the City's intent is not to be an ISP, but to provide a more competitive environment through an open access network to ensure affordable pricing for everyone. With that in mind our goal is to have the Last Mile provider maintain the cost for that last mile and manage the end customer. The City will provide access to the middle mile in a "like in kind" exchange that could help offset the costs for those Service Providers partnering with the City to offer lower internet service in the High Priority Census Tracts.

Additional metrics and data associated with ISP vs City Data Transport Services are provided in Attachment 4.

11. Provide utilization statistics for free Wi-Fi offered by the City.

Council District	City Facility	Residential Blocks
1	Martin Weiss Recreation Center	Thibet St from Martindale to Westmoreland
3	Fire Station #52	Bridlewood from Cockrell Hill to Western Park
4	Beckley Saner Recreation Center	Seevers from Hobson to Elmore
4	Fire Station #23	Iowa from Corinth to Bruck
5	Pleasant Oaks Recreation Center	Greenmound from McCutcheon to McKim
5	Fire Station #32	Toland from Jim Miller to Elva
6	Arcadia Branch Library	N. Justin Ave. from Library to Goodman
6	Fire Station #50	Bluegrass from Keeneland to Furlong
8	Singing Hills Recreation Center	Gillarel Springs from Old Ox to Cul-de-Sac
8	Polk Wisdom Library	Deerwood from Library to S. Polk



12. Provide comparable information for cities similar in size to Dallas.

Data provided from the The National Association of Telecommunications Officers and Advisors ("NATOA"), the National League of Cities ("NLC"), the United States Conference of Mayors ("USCM"), and the National Association of Counties ("NACo"), to the FCC provides the following examples of Cities/Government entities of similar or greater size to Dallas:

- District of Columbia Anchor Network
  - Over 267 lit sites with fiber, including most District government sites, and currently provides High-Speed data network transport and interconnection services. DC-NET also maintains contracts with the private sector for tasks it has determined are better managed by contractors, such as fiber optic construction, fiber optic maintenance, and specialized professional services.
  - **Benefit**: DC-NET offers the District both cost and functional/ safety benefits that commercial carriers cannot offer because of its singular focus on public safety, education, and other applications.
- Palm Beach County, Florida Network
  - Network provides interconnection for over 300 plus buildings, including the delivery of public wi-fi in libraries, courthouses, and the County-owned airport, among others, and covers some 600 miles of fiber plant. Palm Beach County has become the aggregator for Florida LambdaRail (FLR) which provides Internet access service to all government,

education, and non-profit entities both within the County and to neighboring counties. This design is now referred to as the "Palm Beach County Model."
    - **Benefit**: Increased ultra-high-speed connectivity at a reduced cost to all participating agencies
- Ontario County, New York Network
    - Ontario County has developed a 180-mile, middle-mile Open Access fiber backbone running throughout the County with regional connections to three additional neighboring counties. This fiber backbone, which is developed in partnership with many local service providers and enterprise entities — is seen as the foundation to the 21st-century, technology-led economic development strategic plan of the County. The Open Access model for dark fiber provides a very sustainable model. Carrier and service providers who, for "return on investment" reasons, have not made commitments to build infrastructure into the more rural areas of the County, are finding it viable to justify the leasing of this infrastructure. This, is turn, has enabled them to invest in last-mile solutions, further penetrating services into underserved and unserved areas. Revenues from the lease of the fiber are anticipated to cover the operations and maintenance of the fiber for the foreseeable future.
    - **Benefit**: The middle-mile fiber backbone provides the foundation for critical, high-bandwidth telecommunications services. It also encourages competition, thus driving telecommunications costs down. The fiber provides a significant advantage for their economic-development recruitment and retention goals as we pursue their technology-led economic development strategic plan.
- San Francisco, California Network
    - In 2004 under the direction of Mayor Gavin Newsom, the City launched its Digital Inclusion Initiative. The Digital Inclusion Initiative relies on collaboration of a wide range of community-based organizations, public agencies commercial vendors and the Department of Technology. This initiative sought to leverage city assets, including over 90 miles of fiber plant, to provide broadband access, hardware, training, and content key elements necessary to bridge the digital divide. The Community Broadband Network (CBN) has extended this fiber network to 12 low income housing developments in San Francisco and currently provides wireless or wired broadband access at 3000 low income housing developments.
    - **Benefit**: This network model provides free broadband Internet to residents of low-income housing developments by connecting the housing sites to the City fiber network. In addition, anchor institutions are beginning to derive benefits from the network in the form of inexpensive Ultra-High-Speed Internet at a fraction of the market rate from incumbent SP.

13. What is our vision? Guiding principles? Theory of change?

As elaborated in the Dallas Broadband and Digital Equity Strategic Plan (BDESP), the vision is: "All households in Dallas will have highspeed, reliable internet, access to devices in their homes, and the knowledge and skills to navigate a digital world." The vision is aligned to the guiding principles of digital inclusion:

1. Affordable, robust broadband internet service;
2. Access to high-speed internet service;
3. Devices that are Internet-enabled devices to meet the needs of the end user; and
4. Participation in digital literacy training and quality technical support.

14. Does staff's proposed actions/activities get us to the vision?

The current efforts by Staff are informed by market research, collaborations with other Cities and Counties, and from highly qualified consultants that specialize in this work. The work the staff has completed is in-line with the four recommendations as outlined in the Dallas BDESP. Specifically, the RFCSP is designed to address all recommendation in a building block approach by leveraging ARPA funding and incorporating federal funding program requirements to achieve the four stated recommendations in the BDESP and our vision of digital equity.

15. City-run networks are more prone to cybersecurity hacks. Is this true?

Any network that is accessible via public Internet or access points is more prone to Cybersecurity attack. The network that the City is requesting solutions for will just transport the packets from one place to another (city facilities or last mile user to the internet) and will not process those packets reducing the likelihood of successful cyber-attacks, but it is still a possibility no matter who runs the network.

16. What happens when the Affordable Connectivity Program runs out of money?

If Congress does not fund the ACP program and the current funds are exhausted, the users who rely on those offsets will have to pay full cost for those Internet Services unless the ISPs reduce the service cost to those individuals qualifying for ACP. If the ISPs do not reduce the Cost, those end users will not be able to afford the service and the divide will inevitably widen.

17. Who has the City engaged with related to digital equity initiatives?

Listed below is a non-exhaustive list of public and private sector organizations that City Staff have engaged to seek feedback, engineering insight, or recommendations to find solutions for digital equity initiative solutions. Additionally, Staff previously held industry-specific engagement sessions in 2022.

- Engineering Firms: CTC Technology & Energy
- Consultants: Forrester, Gartner
- Technology Manufacturers: Cisco, Fujitsu
- Service Providers: Crown Castle, UPN, Zayo, Charter, Spectrum, WeLink, CircleGX, Frontier, InnerCity FiberNet, AT&T
- State, Local, and Education (SLED) Counterparts: Dallas County, Dallas Independent School District, City of Fort Worth, City of Houston, Parkland Hospital
- Community Input: Telecom Workers of America, Apartment Association of Greater Dallas
- Non-profit partners: Dallas Innovation Alliance, CARDBoard Project

Should you have any questions or concerns, please contact Chief Information Officer, Bill Zielinski at William.zielinski@dallas.gov or Chief of Staff and Resilience Officer, Genesis D. Gavino at genesis.gavino@dallas.gov.

T.C. Broadnax
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Dr. Robert Perez, Assistant City Manager
Carl Simpson, Assistant City Manager
Jack Ireland, Chief Financial Officer
Genesis D. Gavino, Chief of Staff to the City Manager
Directors and Assistant Directors

Digital Divide – Council Discussion

Digital Equity Infrastructure

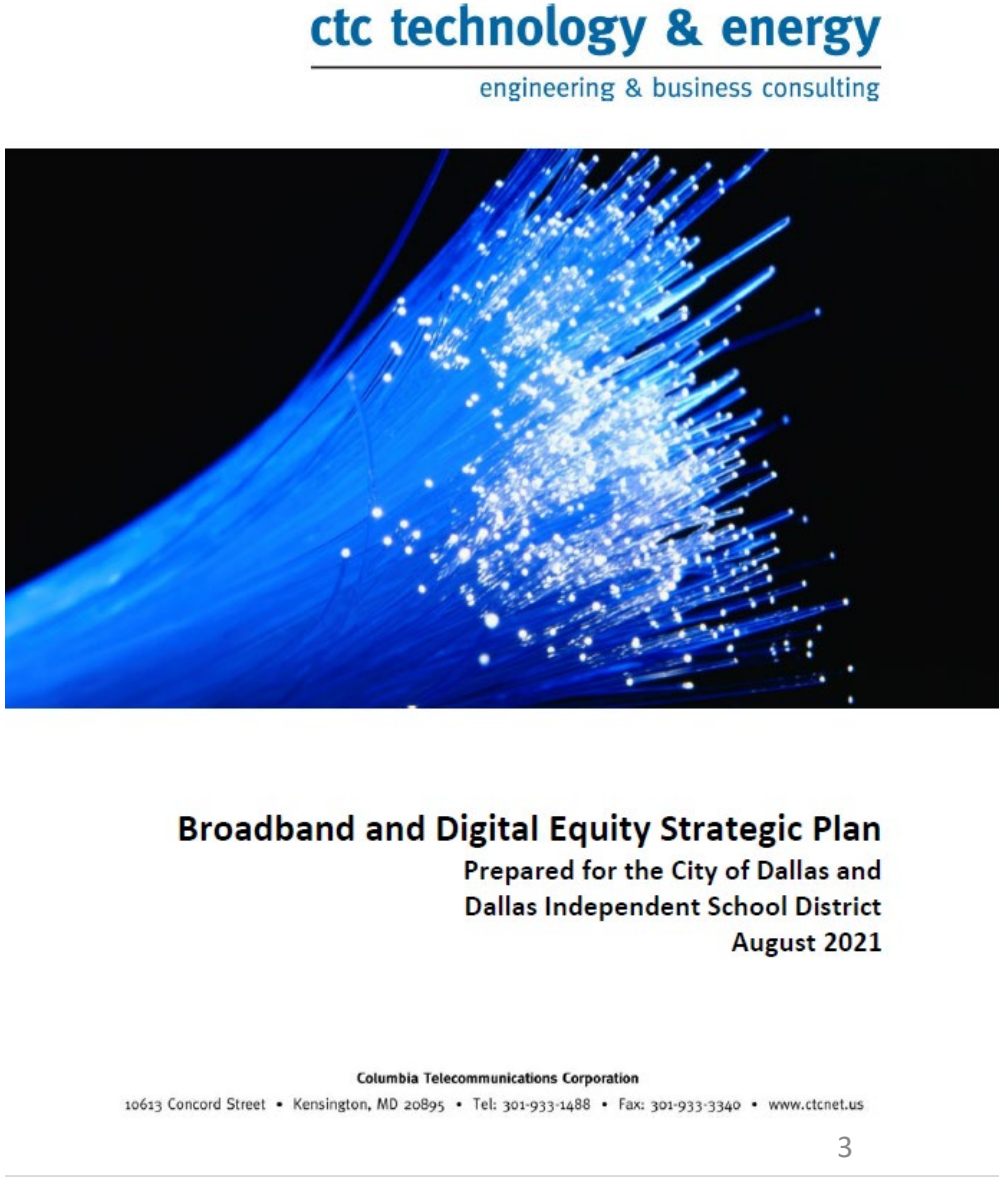
Digital Divide Discussion Agenda

Agenda

- Background
- Council Concerns
- Digital Navigators and Connected Dallas
- Digital Equity Infrastructure
- Next Steps

Digital Divide – Background (recommendations)

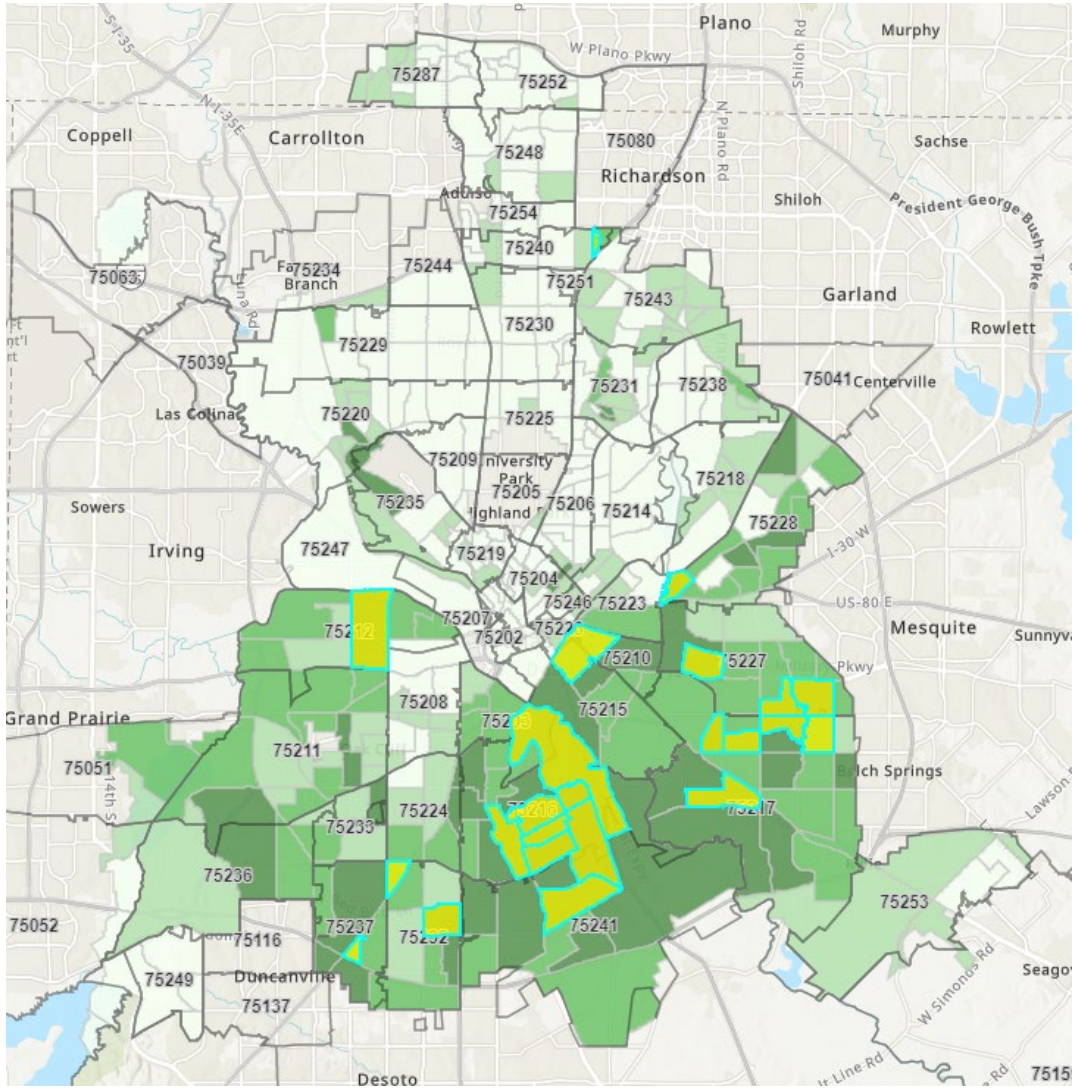
- In collaboration with the DISD, the City engaged CTC technology & energy in the development of a Broadband and Digital Equity Strategic Plan which was presented to Council on August 4, 2021.
- Stated vision was to ensure all households in Dallas will have high-speed, reliable internet and access to devices in their homes.
- CTC recommended the City establish a fiber backbone that connects City buildings and is routed strategically to reach areas with low broadband investment.
- CTC's basis was that a City-controlled fiber infrastructure enables cost-effective, best-in-class networking which enables extended digital equity services to community anchor institutions and lower-income communities.



Digital Divide – Background (landscape)

			Households with no internet	
Name	Zipcode	Total HH	%	#
Census Tract 87.01	75216	2016	57.1	1152
Census Tract 88.02	75216	1762	56.1	989
Census Tract 87.04	75216	1691	53.9	912
Census Tract 91.03	75217	1033	52.6	543
Census Tract 86.04	75216	1160	50.8	589
Census Tract 57	75216	1958	47.1	923
Census Tract 91.05	75217	1050	45	473
Census Tract 92.04	75217	815	44.9	366
Census Tract 111.03	75232	1210	43.8	530
Census Tract 211	75216	1793	43.7	783
Census Tract 114.01	75241	1809	43.3	783
Census Tract 192.12	75240	1087	43.2	470
Census Tract 87.03	75216	1020	42.7	436
Census Tract 122.08	75228	1093	41.8	457
Census Tract 205	75212	2086	41.4	864
Census Tract 93.04	75217	2543	41	1042
Census Tract 84.01	75227	1673	40.9	684
Census Tract 90.02	75227	1388	40.6	563
Census Tract 120	75227	3147	40.5	1274
Census Tract 109.05	75237	1460	39.8	581

Source:
https://dallasgis.maps.arcgis.com/apps/webappviewer/index.html?id=3076076c348e4617859b213687147dc7

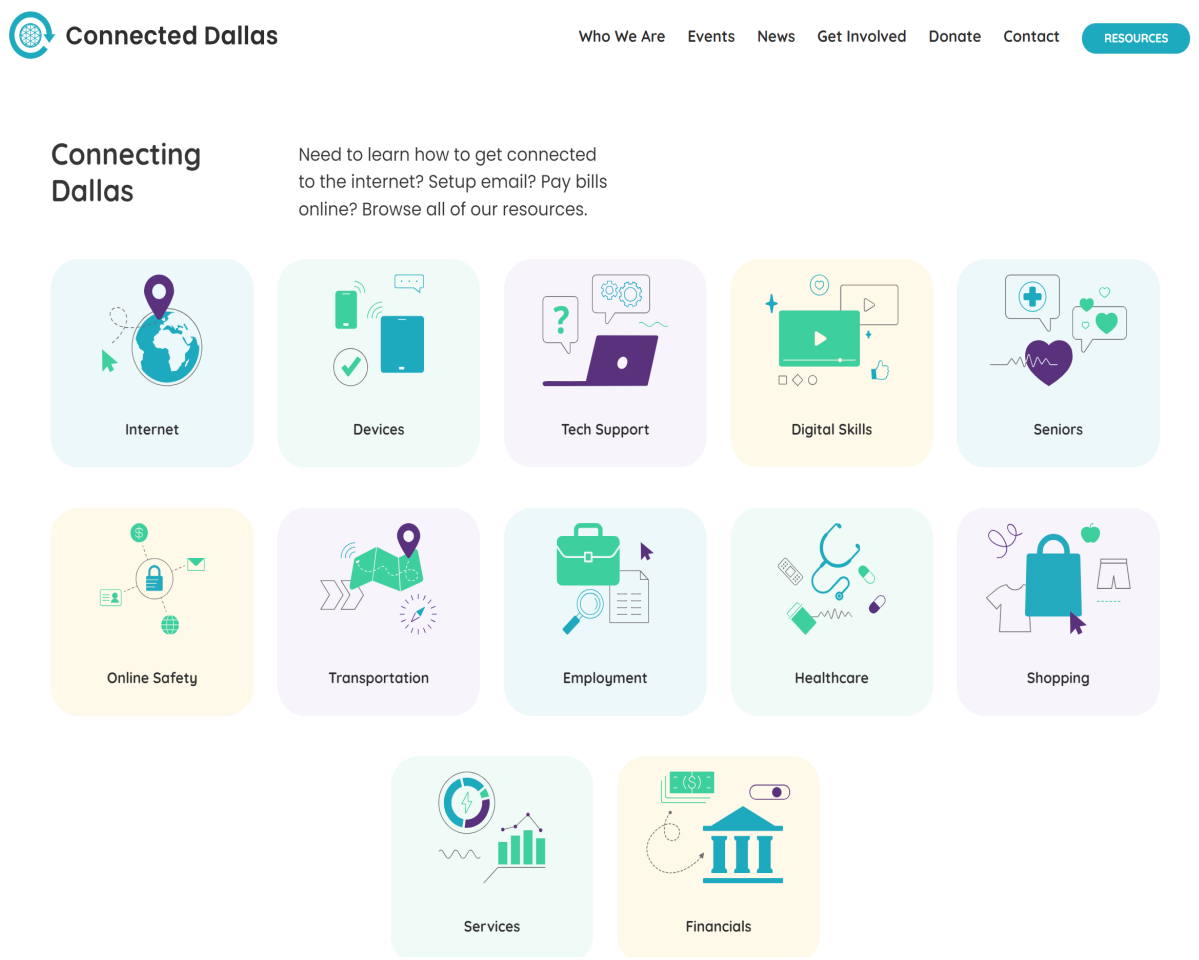


Barriers to Adoption

1. **Cost of monthly internet access.** Lack of awareness, difficult to complete enrollment process, or lack of willingness to participate.
2. **Lack of computer hardware.** Lack of financial capability and/or lack of familiarity or comfort with technology may hinder adoption.
3. **Lack of education and training using computers.** Lack of exposure and/or training for certain populations may hinder adoption.
4. **Skepticism of computers or technology.** Online scams, data breaches, and fears about data protection and online safety may hinder adoption.
5. **Exclusive internet service provider agreements at apartment complexes.** In many multi-unit complexes, there can be limited choices for residents. And those choices may be sub-standard.

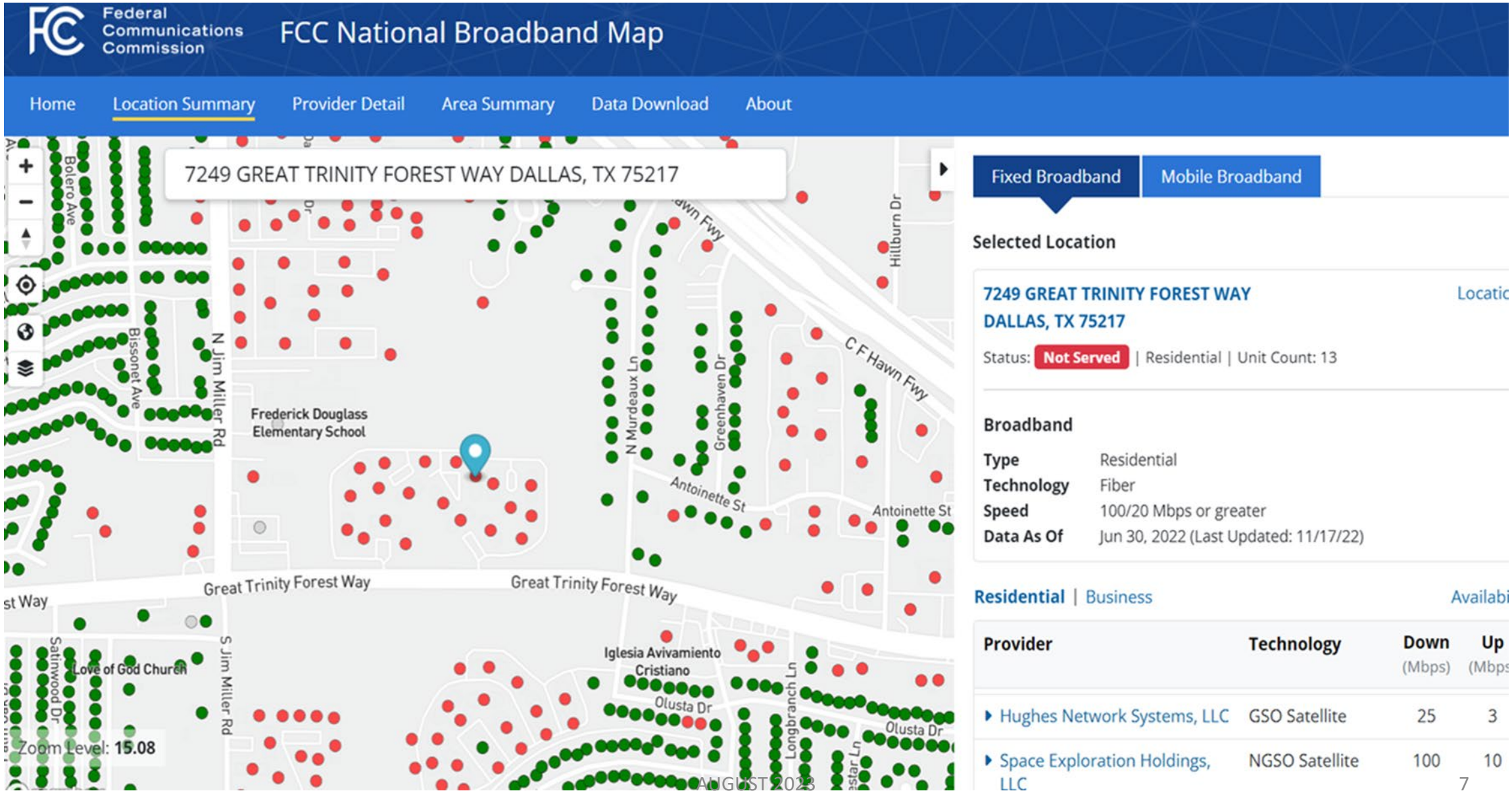
Addressing Barriers to Adoption: Digital Navigators

- On March 8, 2023, Dallas City Council approved an agreement with Dallas Innovation Alliance (DIA) to serve as a subrecipient of American Rescue Plan Act (ARPA) funds for the purpose of administering the Digital Navigators Program.
- The purpose of the Digital Navigators Program is to address the four pillars of digital equity across the City of Dallas through: Affordability, Access, Devices, and Digital Skills. The program engages targeted communities to help alleviate their needs to be connected to the internet, utilize computers and laptops, and acquire training to support digital skills
- The City of Dallas and the Dallas Innovation Alliance are committed to bridging the digital divide through cross-sectoral engagement and collaboration to address the various needs of the public and private sector to get connected. Which includes Affordable Connectivity Program (ACP) enrollment assistance, tech support, and community engagement and more.



Note: ACP funding is scheduled to expire mid 2024

Adoption Barriers #5: Exclusive Apartment Agreements



Broadband Speed Definitions

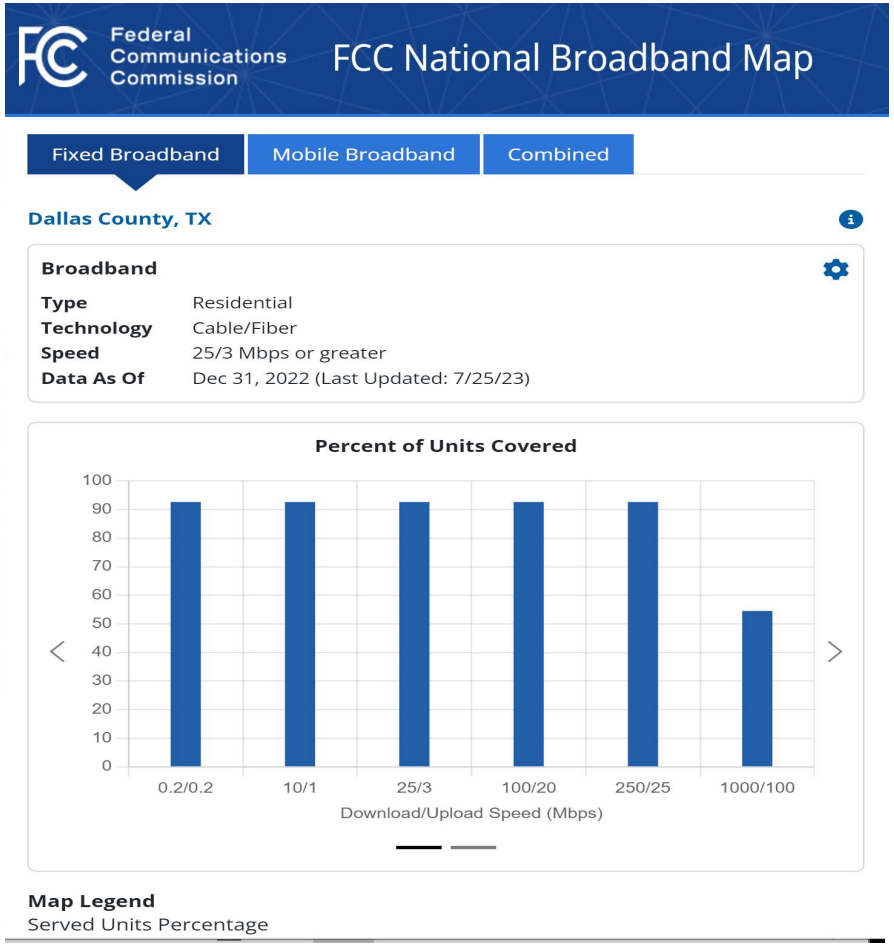
What is a good internet speed?

Internet speed	What you can do
0–5 Mbps	Send emails, search Google, stream in HD on a single device
5–40 Mbps	Stream in HD on a few devices, play online games, run 1–2 smart devices
40–100 Mbps	Stream in 4K on 2–4 devices, play online games with multiple players, download big files quickly (500 MB to 2 GB), run 3–5 smart devices
100–500 Mbps	Stream in 4K on 5+ devices, download very big files very quickly (2–30 GB), run 5+ smart devices
500–1,000+ Mbps	Stream in 4K on 10+ devices, download and upload gigabyte-plus–sized files at top speed, do basically anything on lots of devices with no slowdowns

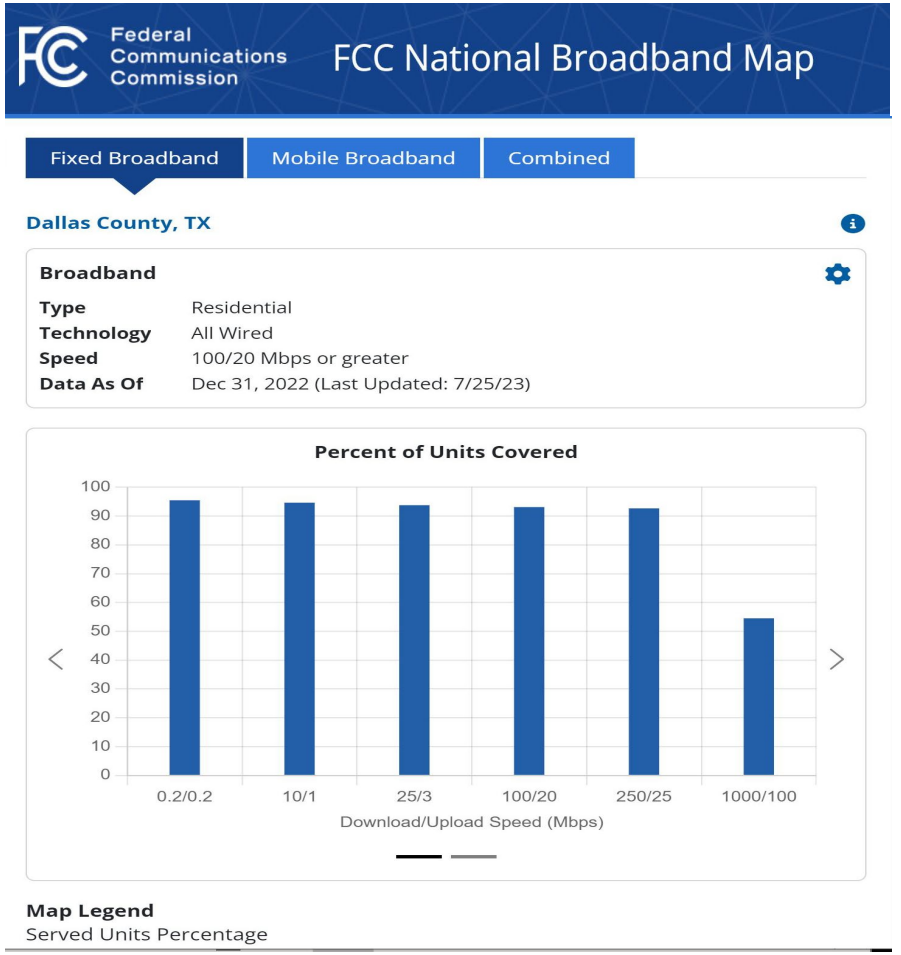
July 25, 2023 – FCC Chairwoman releases Notice of Inquiry proposing to increase the national fixed broadband standard to 100 Mbps for downloads and 20 Mbps for uploads: https://docs.fcc.gov/public/attachments/DOC-395473A1.pdf

FCC BroadBand Map – Standards Comparison

Fiber & Cable (92.63% BOTH Speeds)



All Wired (93.76/93.1% Both Speeds)



Service Provider reporting alludes that there is no real Digital Divide…

Council Concerns and Discussion Points

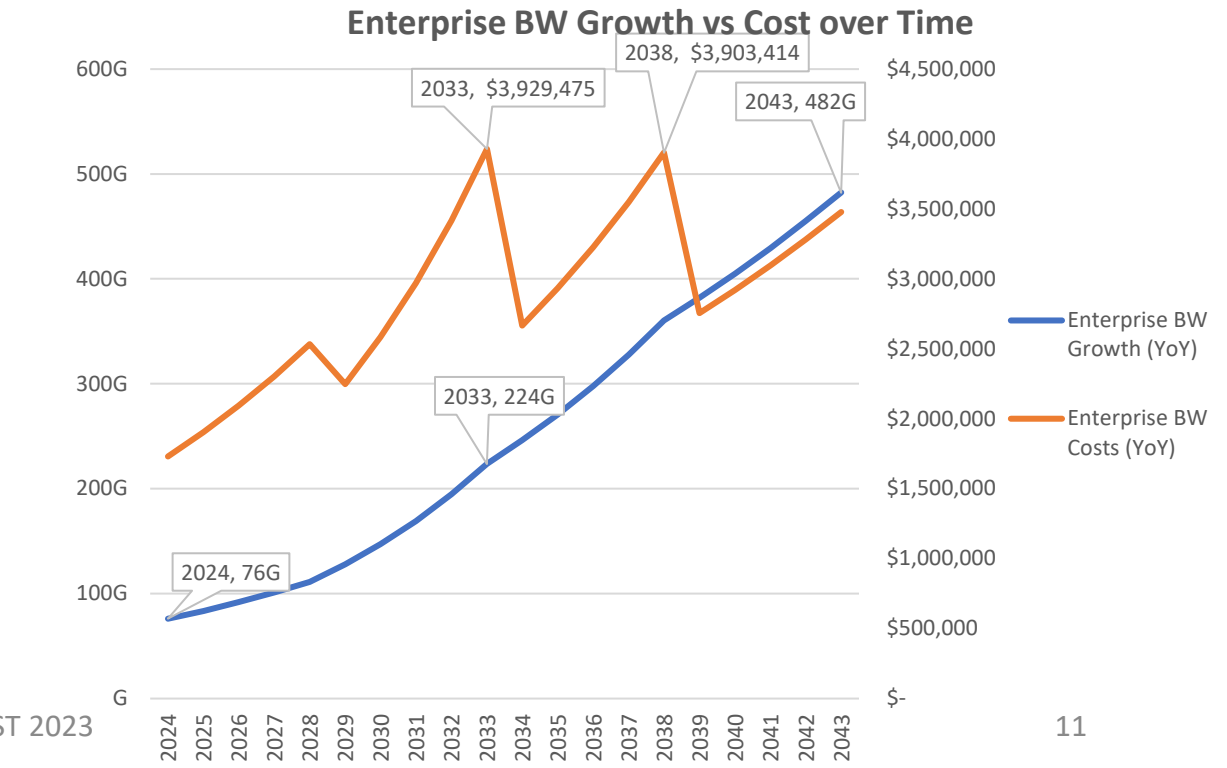
- The wisdom of building a redundant middle mile fiber network when it already exists.
  - This Network will accomplish two of the strategic broadband plan objectives.
  - This will allow the City of Dallas to be a foundational component to assist PPPs in addressing the underserved and unserved residents of the City while addressing the City's data needs now and into the future.
- A middle mile network will not connect any new residents to the internet.
  - The Digital Equity Infrastructure will be leveraged through PPPs to cost effectively connect underserved and unserved residents by providing a middle mile connection that can offset the time and cost needed to help those residents.
- City IT staff qualifications and workload capacity to maintain a fiber network.
  - This has been taken into consideration and the RFP specifically calls for a Managed Service component to Managed the Digital Equity Infrastructure.
- Annual costs associated with maintenance and upgrades.
  - This has also been taken into account and the Operational Expenses that would otherwise be given to Service Providers to deliver the transport services, would be leveraged to pay for the Managed Service and ongoing maintenance costs.
- Wasting the opportunity to utilize the funds for other ARPA-approved activities.
  - This solution will provide the City options to address digital divide and future Smart Cities initiatives while saving the City millions in delivering data services

Digital Divide Use Case - Justification

Current Funding for Transport Services

- Transport Funds are paid out of Operational Budget
- Last Year spend was approx $6.01M
  - 22% increase over previous year
  - Avg YoY increase since FY2018 is approx. 16%
- Due to digital requirements and planned digital services of departments, we are estimating a minimum of 15% YoY for the foreseeable future
- Departments like Traffic that will require 1Gbps service at each intersection (total 1500 intersection, we are looking at $900K per month for just traffic based on current pricing (1G service = $600 per month)

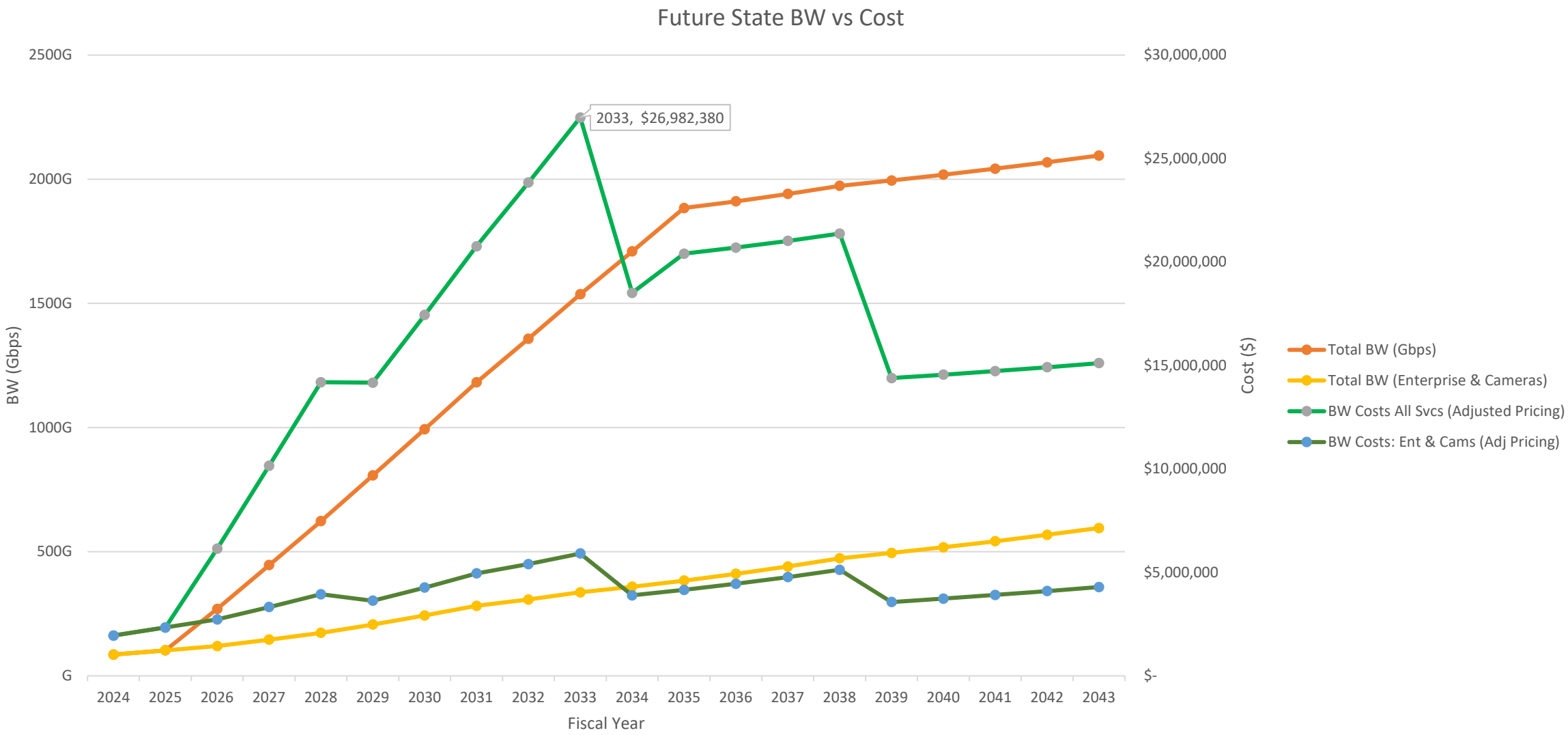
	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	
Fund 0191	$ -	$ -	$ 12,004.09	$ -	$ 38,695.13	
Fund 0197	$ 1,524.36	$ 4,128.72	$ 4,105.38	$ 2,752.48	$ 3,784.66	
Fund 0198	$ 3,454,897.12	$ 3,489,183.58	$ 4,623,134.78	$ 4,914,003.91	$ 5,976,304.79	
Total	**$ 3,456,421.48**	**$ 3,493,312.30**	**$ 4,639,244.25**	**$ 4,916,756.39**	**$ 6,018,784.58**	
Difference		$ 36,890.82	$ 1,145,931.95	$ 277,512.14	$ 1,102,028.19	
						Avg
Y0Y Growth		1%	33%	6%	22%	16%



Digital Divide Use Case - Justification

			2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
			302G	233G	600G	464G	393G	184G	186G	189G	415G	419G	382G	175G	27G	30G	273G	262G	263G	24G	26G	27G
			Year																			
Use Case	**Description**	**Implementation Plan**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	BW growth due to inclusions of Traffic Intersections (1500 sites @ 1G each site)	300 Intersection per year starting in Year 3			150 Sites / Adds 150G of Service	150 Sites / Adds 150G of Service	150 Sites / Adds 150G of Service	150 Sites / Adds 150G of Service	150 Sites / Adds 150G of Service	150 Sites / Adds 150G of Service	150 Sites / Adds 150G of Service	150 Sites / Adds 150G of Service	150 Sites / Adds 150G of Service	150 Sites / Adds 150G of Service								
2	BW Growth due to Last Mile PPP growth	23 underserved areas will be built out in 1st 3 years. Area BW growth will grow @ 10G per year over a 5-year cycle with 1/3 of the areas expansion beginning in year 5 and each area growing at 10G every 3 years	216G (all areas)	216G (Increase all areas)	432G (Increase all areas)	288G (Increase all areas)	216G (Increase all areas)				240G (Increase for all areas)	240G (Increase for all areas)	210G (Increase for all areas)				240G (Increase for all areas)	240G (Increase for all areas)	240G (Increase for all areas)			
3	DPD Expanding 1080p cameras from 1500 to 5000 over the initial 3-year period (ie 3500 cameras in 3 years)	This is an expansion of approx 1200 cameras per year. Each camara will require 12M BW	10G for 1200 Cameras	10G for 1200 Cameras	9G for 1100 Cameras																	
4	DPD Expanding Cameras to 4K increasing BW from12M to 35M per camera (assuming same FPS of 15-20)	Starting				17G increase for 1000 IP Cameras (HD -> UHD)	17G increase for 1000 IP Cameras (HD -> UHD)	17G increase for 1000 IP Cameras (HD -> UHD)	17G increase for 1000 IP Cameras (HD -> UHD)	17G increase for 1000 IP Cameras (HD -> UHD)												
5	System refresh (Year 10)																					
6	Adding Sites	Adding Distribution, Adding Spurs																				
7	Deleting Sites	Decommission building																				
8	Enterprise BW Growth 10%-20% YoY)	15YoY for First 5 years; 20% next 5 years, 7% final 10 years	76G	8G	8G	9G	10G	17G	19G	22G	25G	29G	22G	25G	27G	30G	33G	22G	23G	24G	26G	27G
9	New City Buildings																					
10	DWU Electronic Meters																					
11	PBW use of drones (need number, and BW specs along with timeframe)																					

Future State: BW vs Cost



We may be paying for Transport Services and not Services

What is the concept of the Digital Equity Infrastructure RFCSP

RFCSP will be divided into two main section

Middle Mile (Digital Equity Infrastructure)
Last Mile (Public Private Partnerships)

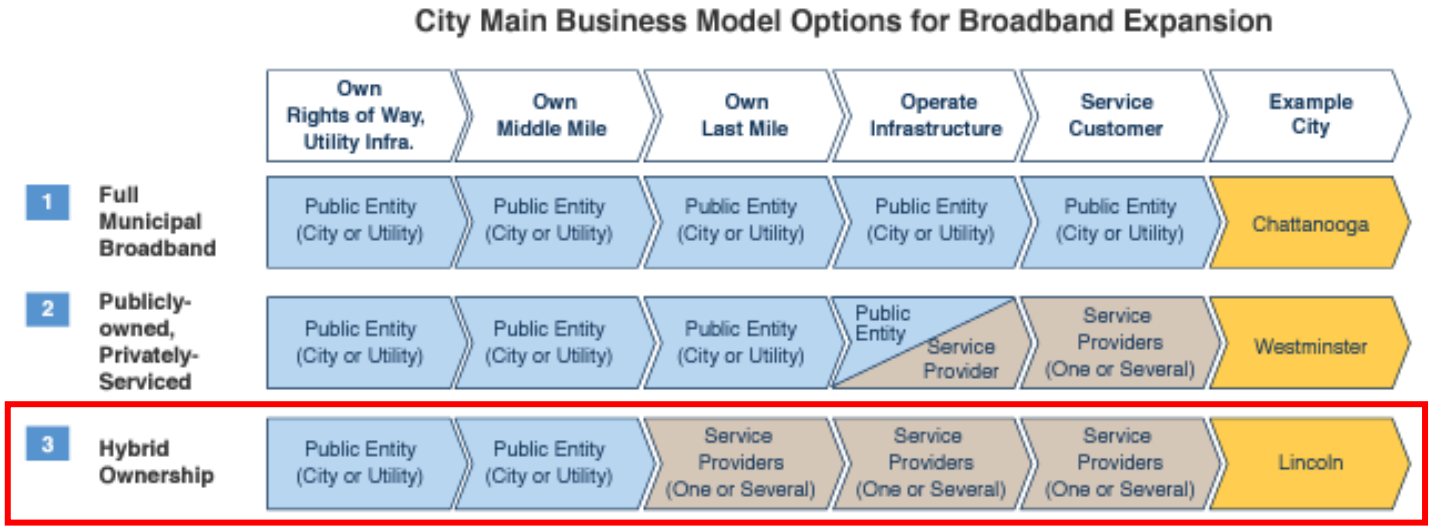
This will be set up as a program to span the 20-year life cycle anticipated by the RFCSP

Middle Mile is designed to connect City buildings via fiber to cost effectively manage anticipated data transport explosion in delivering digital service. Middle Mile will also be leverage to provide transport services to Last Mile PPP (if required) to connect those in underserved or unserved areas

Last Mile is designed to work with local ISP providers to address 23 high priority Census Tracks (total of approx. 15k households) that have been identified as underserved in need of addressing large swaths of the population in the CTs that are reporting 40% or high that do not have internet service available at their house/place of residence

Other Cities, Counties and Government Agencies with Middle Mile RFPs

- Lake Cities
- City of Houston
- Greater East Grand Region
- City of McKinney
- Fort Worth
- Philadelphia
- Gary, IN
- City of Cambridge, MA
- Westborough, MA
- Michigan



Successful Concepts and Deployment Solutions

Municipal Middle Mile Solutions

- Aurora, IL
  - Built 60mile Government WAN network connecting all buildings at 10Gbps with an **annual savings of $485k in Operating costs**
  - $12Mil grant from Illinois DoT to upgrade 60 traffic signals into WAN network
  - Expansion of network to 300mile to connect all anchor institutions
- Carlsbad, CA
  - Leased Dark fiber that upgraded capacity to 10Gbps
  - Ongoing management of network provided by 3rd party
  - **Saved approx. $250k/year with a BW capacity increase on an order of magnitude of 2**

Municipal SP Partnerships

- Aurora, IL
  - Partner with Ex2Technology to sell excess capacity and provide new revenue stream for City
  - City created OnLight Aurora, a non-profit ISP, to expand services beyond Gov
- Carlsbad, CA
  - Provided mobile operators with cell sites resulting in new revenue stream
- Prince George County, founded a PPP with Prince George Electric Cooperative (PGEC)
  - They set up a separate subsidiary, PGEC Enterprises, to offer broadband services. The partnership has connected 268 homes within its first year and plans to reach 500 households over the next four years.
- Longmont, Ca
  - NexLight – PPP between city and electric utility (Longmont Power & Communications)
  - Supports community including local school district with Gbps service via FTTH with a 56% adoption rate.

Basic Concept for Funding the Digital Divide

Middle Mile

- Components of RFCSP
  - Fiber Build Out
    - Scratch Build (CapEx)
      - Maintenance (OpEx)
    - IRU
      - Laterals Buildout (CapEx)
      - Monthly Lease (OpEx)
  - Equipment Purchase (CapEx)
  - Managed Service
    - Monthly Service (OpEx)
    - Projects (TBD – CapEx or OpEx)

Last Mile

- Component of RFCSP
  - Each of the 23 Census Tracts (CTs) will be bid on
  - City will enter into PPP with selected winner(s) to address challenges in each CT
  - Components of each CT will consist of
    - 1) Buildout (CapEx) – Responder will present cost share model in proposal
    - 2) Maintenance/Management – Responder will present cost share model in proposal

Summary

Vendor	Census Track	Infrastructure (Split)			Annual Cost (Split)			Total Costs to City	Optional Volume Discount	Notes
		Costs	City (%)	Vendor (%)	Costs	City (%)	Vendor (%)	(Initial/Per Year)		(Terms,Impact,etc)
Vendor A	1	$ 5,000,000.00	50%	50%	$ 1,000,000.00	60%	40%	$ 3,100,000.00		Note: 1) 2) 3)
Vendor B	1	$ 6,000,000.00	30%	70%	$ 3,000,000.00	70%	30%	$ 3,900,000.00		
Vendor C	1							$ -		
Vendor D	1							$ -		

Goal for Middle Mile and Last Mile Funding

Middle Mile

- Short Term
  - ARPA Funds will be leveraged to build out any infrastructure (Equipment)
  - IRU will get higher weighting based on timing and lower perceived CapEx Cost
- Long Term
  - OpEx Budget will cover cost of Managed Service
    - As transport services are migrated to middle mile, the funds spent on transport will apply to Managed Service of the Middle which is delivering those migrated services

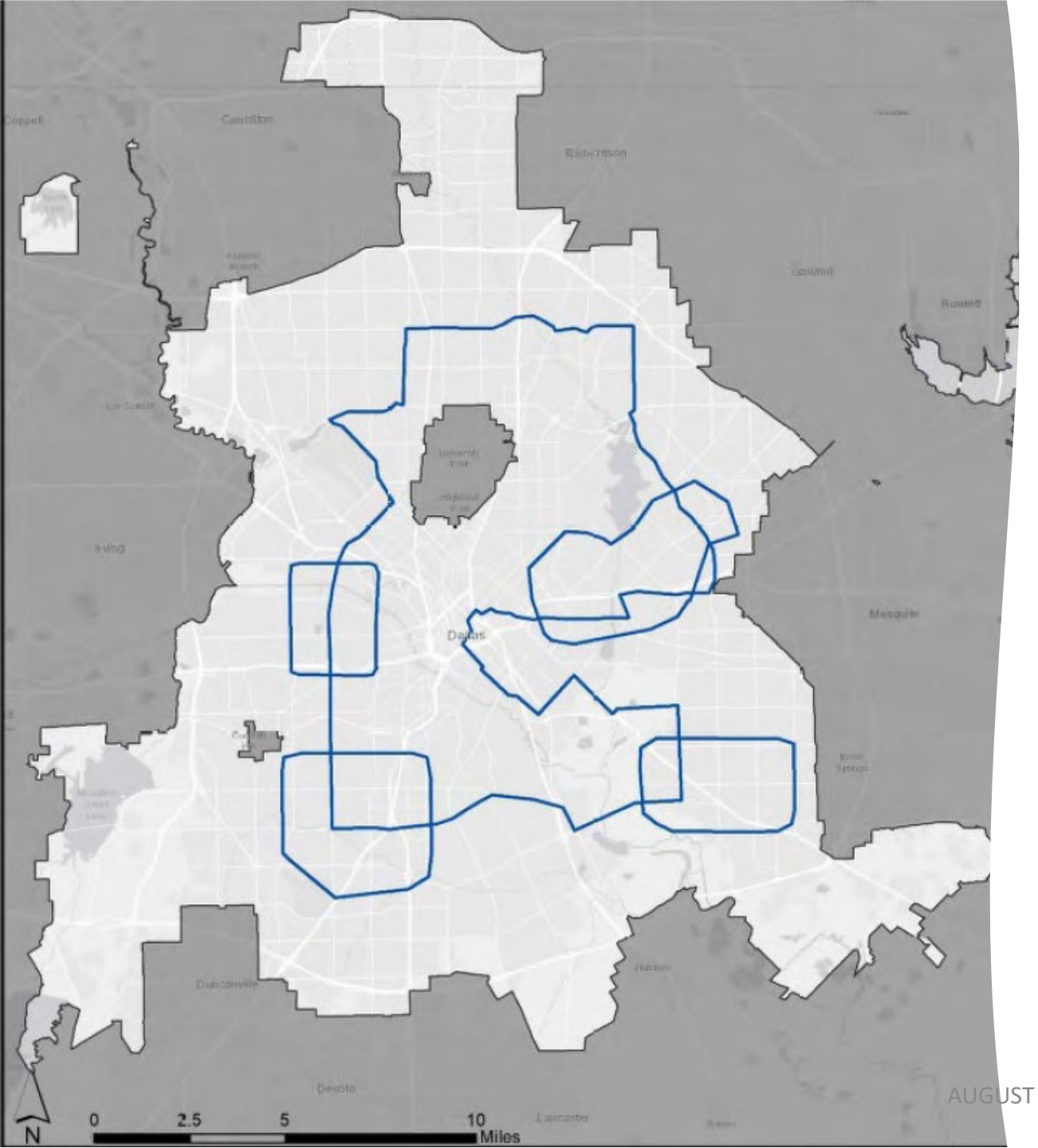
Last Mile

- Short Term
  - ARPA Funds will be leveraged to address some of CapEx expenditures
  - ARPA Funds can be leveraged to address some OpEx items
  - If we are not able to access BEADS or BOOTS, there will be a limited amount of funds to address all 23 areas so they will need to be prioritized
- Long Term
  - Funding of maintenance cost for City portion of cost share – TBD/Unknown

RFCSP Anticipated Schedule

Jan-22	Jul-23	Jul-23	Aug-23	Aug-23	Sep-23	Nov-23	Dec-23	Jan-24	Feb-24	Feb - Apr-24	May-24	May-24	May/Jun-24	Aug-24	Aug-24	Sep-24	Sep-24
Requirement Gathering	Initial Draft RFP Socialization	RFP Draft Finalization	RFP Socialization with Council	RFP Finalization & Submission	RFP Publicized	RFP Proposal Submission	RFP Submission Review	RFP Submission Eval	RFP Decision / Selection	Legal Review / Negotiations	Contract Finalization	Council Queue	Council Review & Briefing	Council RFP Contract(s) Vote(s)	Signatures / Filing	DO to Selected Vendor(s)	Implementation Kickoff(s)

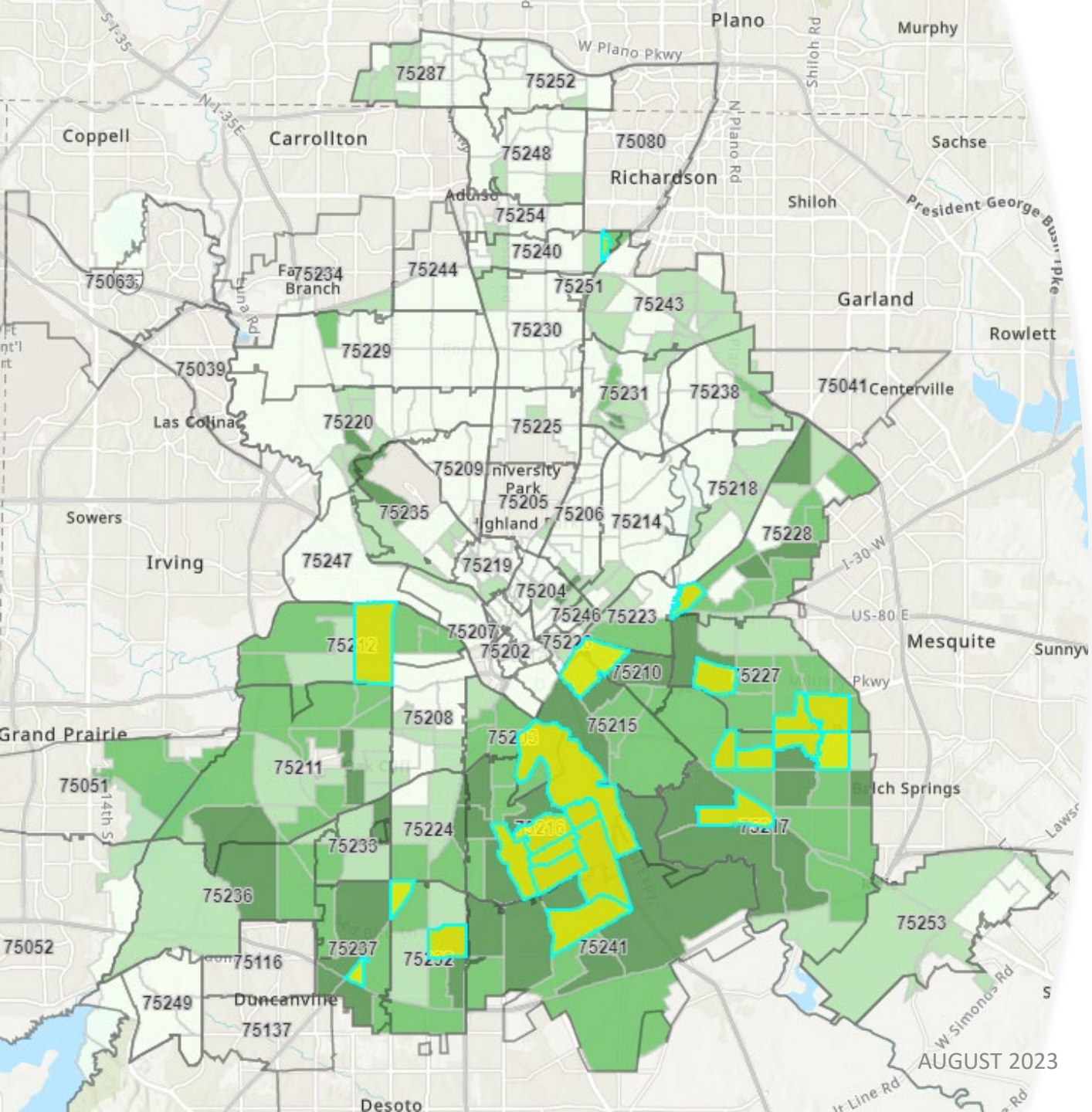
What does this concept look like?



Digital Equity Infrastructure (Middle Mile)

- Function:
  - To provide cost effective connectivity for City of Dallas facilities

- Why
  - Cost to transport data is becoming more expensive due to the amount of data that is and will be transported now and into the future
  - Current Service Provider cost models will parallel a logarithmic increase in data usage over the coming years
  - City needs to implement a cost-effective data transport solution to deliver digital services today and into the future
    - Cities that have implemented similar solutions and seen significant savings as well as operational efficiencies
      - Carlsbad, Ca
      - Aurora, Il
  - ***Can be leveraged to transport data from Last Mile locations very cost effectively in a Partnership with ISPs***



Last Mile

- Function
  - Deploying broadband service to unserved and underserved locations by addressing infrastructure and/adoption in those locations identified as underserved or unserved
- Why
  - BEAD will also address middle-class affordability, and further prioritizes proposals that improve affordability to ensure that networks built using taxpayer dollars are accessible to all Americans
  - CoD RFP will focus on the following
    - Infrastructure
      - BEAD Program prioritizes projects designed to provide fiber connectivity directly to the end user.
    - Non-Deployment Activity (Adoption)
      - Digital Literacy
      - Cyber-Security Education
      - Training on digital privacy and safety
      - Implementation of Entity Digital Equity Plans
      - Broadband sign-up assistance
      - Technology support
      - Multi-Lingual outreach support and adoption
      - Digital Navigators
      - Direct subsidies toward Broadband subscriptions

Potential Public Private Partnership (PPP) Use Cases

	Use Case	Notes
1	PPP Leveraging Middle Mile Infrastructure	By leveraging CoD MM/DEI, PPP can save cost in building out a MM and those savings can be used to make the solution cost for the underserved or unserved areas more affordable. Note: This will require a “Like in Kind” agreement
2		

CoD Ingress Facility
Distribution Ring

CoD Egress Facility
Core Ring

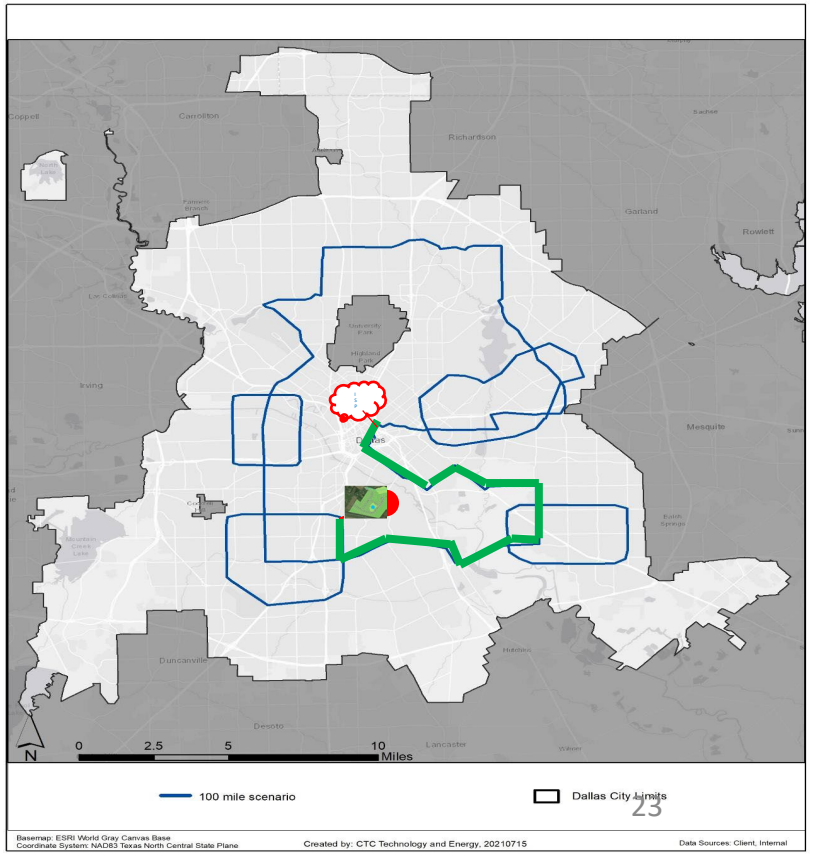
ISP Network — City’s Fiber Infrastructure — ISP Network

Last Mile Infrastructure

Middle Mile Infrastructure

Internet Drop Off Point

Note: Requires “like in kind” agreement



- By allowing multiple PPP to leverage our middle mile, we will provide a way to address the unserved or underserved areas of our City to remove the barriers that have prevented access whether due to lack of infrastructure or availability, such as affordability

Key Points to consider

Last Mile needs the Middle Mile

- To address the Last Mile residents, an infrastructure has to exist that can move internet traffic cost effectively from the last mile to an Internet Peering Point
    - Service Providers have had the opportunity to address this for decades and haven't.
    - City of Dallas has an opportunity to work with Service Providers to ensure that a solution that will work for the residents is put in place
- If the City does not maximize this opportunity, the City will have to TRUST that the Service Providers will address this situation, which they haven't in the past, with a solution that is designed to benefit the residents and not the "for profit" Service Provider
    - Remember, by the very nature of a publicly traded company, they are obligated to seek what is best for their share holders and not their customers
- City DOES NOT want to be an ISP, but we do want a solution that will provide a cost effective solution for the City and residents in terms of data transport

What a Middle Mile brings to the City

- By building out a Middle Mile, the City will get a more cost-effective Network that will provide the following:
    - A more survivable infrastructure for data transport to our key facilities and Critical Infrastructure
    - City has the ability to bring redundant circuits into Key Critical Infrastructure facilities at a fraction of what it will cost to have a service provider deliver the same service as our data consumption grows
        - Approx 85% of City facilities have no redundant circuits
    - Cost control – City will have the ability to manage cost by overseeing a Managed Service Provider who will run the transport with equipment that is owned by the City over dark fiber that is leased from providers (or owned by the City).
        - This ensures that the City has maximum flexibility in delivering quality transport over the term of the contract
    - The scoping of this RFCSP is leveraging industry expertise such as CTC and Gartner to ensure the proper requirements are included and is designed to address the city needs now and in the future
        - Traditional Service Provider transport solutions just don't provide the enhance flexibility the city will need to deliver services in the future
    - *This will allow City to deliver more transport services at the same price point, saving the city funds to apply to other services for the residents*

Questions

City of Dallas

FACT SHEET: DIGITAL EQUITY EFFORTS

AFFORDABILITY
ACCESS
DEVICES
DIGITAL SKILLS

AFFORDABILITY

AFFORDABLE CONNECTIVITY PROGRAM – ENROLLMENT DASHBOARD | bit.ly/3P2k9p6

The dashboard provides data on internet connectivity or a lack thereof within the City of Dallas at a census tract level and enrollment numbers for the federally funded Affordable Connectivity Program (ACP) for Dallas.

AFFORDABLE CONNECTIVITY PROGRAM – ENROLLMENT GUIDE | bit.ly/3OFbjMf

ACP Enrollment Guide assists trusted community partners in supporting Dallas residents and families who are eligible to receive a monthly benefit of up to $30 off internet services through the Affordable Connectivity Program. The Guide is available in English, Spanish (bit.ly/47ximzs) and Vietnamese (bit.ly/3P0zars).

AFFORDABLE CONNECTIVITY OUTREACH GRANT

In March of 2023, the City of Dallas was awarded $700,000 by the Federal Communications Commission (FCC) through the Affordable Connectivity Program Outreach Grant Program to facilitate the promotion and awareness of and participation in the Affordable Connectivity Program among eligible households.

The City will partner with Dallas County, Dallas Independent School District and Dallas Housing Authority for a widespread engagement and outreach campaign to reach millions of residents served by all our agencies utilizing a broad range of media strategies to drive attendance to in-person ACP enrollment events in the community.

CURRENT COST OF AN INTERNET SUBSCRIPTION FOR HIGH-SPEED INTERNET

Name	Plan	Pricing *(as of Aug. 2023)*	Speed	Connection	Source
AT&T	Fiber Internet 300	$55.00/mo.	300 Mbps	Fiber	bit.ly/44iy8Lv
AT&T	5 GIG	Starting Price $180.00/mo.	4,700 Mbps	Fiber	bit.ly/44iy8Lv
Spectrum	Internet Gig	Starting Price $89.99/mo.	1,000 Mbps	Fiber	bit.ly/3YFRYiY
Frontier	Fiber Internet	$49.00/mo.	500 Mbps	Fiber	bit.ly/3DXHuSb

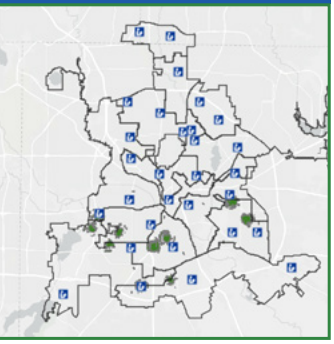
ACCESS

COMMUNITY WI-FI LOCATIONS | bit.ly/3QIuFTw

Since December 2020, the City has provided free wi-fi connectivity to 10 neighborhood locations utilizing advancements in street light technology and wireless technology. The neighborhood locations selected are the least connected in the city. Wi- Fi is also available at all Dallas Public Libraries.

Wi-Fi Locations Map

- *Public Libraries*
- *Council Districts*
- *Community Wi-Fi Pilot Areas*



DEVICES

DALLAS PUBLIC LIBRARY HOTSPOT AND LAPTOP PROGRAM | bit.ly/3s5y0BJ

Dallas Public Library Cardholders can check out a Laptop + Hotspot bundle for up to 30 days with the option to renew if there are no outstanding requests. Multiple devices can be used on one hotspot. Each laptop comes installed with Microsoft Office products for your use, including Word, Excel and PowerPoint. It can also browse the internet, check email and accomplish any tasks you might need a computer to do.

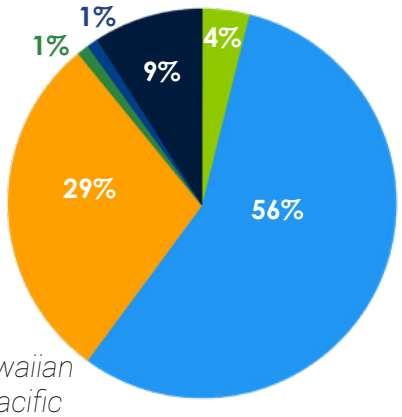
DIGITAL LITERACY

DIGITAL NAVIGATORS PROGRAM | bit.ly/3E0xyrq

Dallas Innovation Alliance (DIA) administers the Digital Navigators Program to address the four pillars of digital equity: affordability, access, devices and digital skills. The program advances the recommendations identified in the City's Broadband and Digital Equity Strategic Plan through engagement with targeted communities to better understand and alleviate their needs to be connected to the internet, utilize computers and laptops and acquire training to support digital skills.

Dallas Residents Served

*As of July 2023



- *Black or African American, 56%*
- *Hispanic/Latino, 29%*
- *White, 4%*
- *American Indian or Alaska Native, 1%*
- *Other/Multiracial, 1%*
- *No Race/Ethnicity Collected, 9%*
- *Asian, 0%*
- *Native Hawaiian or Other Pacific Islander, 0%*

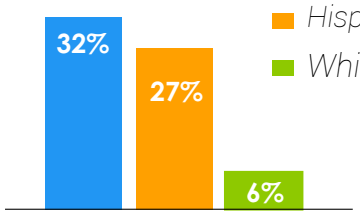
DALLAS SECURE APP

The Dallas Secure App is a mobile app offered to Dallas residents for free that alerts residents if their mobile device, tablet or Chromebook encounters threats, such as a potentially unsecure Wi-Fi network. With each alert, Dallas Secure offers recommendations on how to address the threat it detected. Dallas Secure does not access or distribute any personal information on any device.

CURRENT STATE OF DIGITAL DIVIDE IN DALLAS

EQUITY INDICATORS REPORT

The City of Dallas Equity Indicators report tracks the fairness and justice in outcomes for and treatment of groups of people in the city. From the 2021 Report, Indicator #29: Internet Access, shows that before the pandemic, 32% of Black and 27% of Hispanic households lacked internet access, compared with just 6% of white households.



- *Black or African American, 32%*
- *Hispanic/Latino, 27%*
- *White, 6%*

DIGITAL DIVIDE INFORMATION

There are a total of **74,486 (12.1%)** households without highspeed (100/10 Mbps) internet access.
Source: 2021 American Community Survey (ASC)

Under 18 years old, with a computer, **31,612 (8.6%)** don't have internet.
Source: 2021 American Community Survey (ASC)

103,250 Households are enrolled in the Affordable Connectivity Program (ACP).
*As of June 2023
Source: Affordable Connectivity Program Enrollment Dashboard*

City of Dallas

HOJA INFORMATIVA: ESFUERZOS DE EQUIDAD DIGITAL

ACCESIBILIDAD
ACCESO
DISPOSITIVOS
HABILIDADES DIGITALES

ACCESIBILIDAD

PROGRAMA DE CONECTIVIDAD ASEQUIBLE – REGISTRO DE INSCRIPCIÓN | bit.ly/3P2k9p6

El registro proporciona datos sobre la conectividad a internet o la falta de ella en la Ciudad de Dallas a nivel de tramo censal y cifras de inscripción para el Programa de Conectividad Asequible (ACP, por sus siglas en inglés), financiado con fondos federales, para Dallas.

PROGRAMA DE CONECTIVIDAD ASEQUIBLE – MANUAL DE INSCRIPCIÓN | bit.ly/3OFbjMf

El Manual de Inscripción de ACP ayuda a socios comunitarios fiables a apoyar a los residentes y familias de Dallas que cumplen con los requisitos para recibir un beneficio mensual de hasta $30 de descuento en servicios de internet a través del Programa de Conectividad Asequible. El Manual está disponible en inglés, español (bit.ly/47ximzs) y vietnamita (bit.ly/3P0zars).

SUBVENCIÓN PARA LA DIFUSIÓN DE LA CONECTIVIDAD ASEQUIBLE

En marzo de 2023, la Ciudad de Dallas recibió $700,000 de la Comisión Federal de Comunicaciones (FCC, por sus siglas en inglés) a través del Programa de Subvenciones para la Difusión del Programa de Conectividad Asequible para facilitar la promoción, el conocimiento y la participación en el Programa de Conectividad Asequible entre los hogares que cumplan con los requisitos.

La Ciudad se asociará con el Condado de Dallas, el Distrito Escolar Independiente de Dallas y la Autoridad de Vivienda de Dallas para una campaña amplia de participación y difusión para llegar a millones de residentes atendidos por todas nuestras agencias utilizando una amplia gama de estrategias de medios para impulsar la asistencia a los eventos de inscripción presencial del ACP en la comunidad.

COSTO ACTUAL DE UNA SUSCRIPCIÓN A INTERNET DE ALTA VELOCIDAD

Nombre	Plan	Precio *(a partir de agosto de 2023)*	Velocidad	Conexión	Fuente
AT&T	Fiber Internet 300	$55.00/mes	300 Mbps	Fibra	bit.ly/44iy8Lv
AT&T	5 GIG	Precio inicial $180.00/mes	4,700 Mbps	Fibra	bit.ly/44iy8Lv
Spectrum	Internet Gig	Precio inicial $89.99/mes	1,000 Mbps	Fibra	bit.ly/3YFRYiY
Frontier	Fiber Internet	$49.00/mes	500 Mbps	Fibra	bit.ly/3DXHuSb

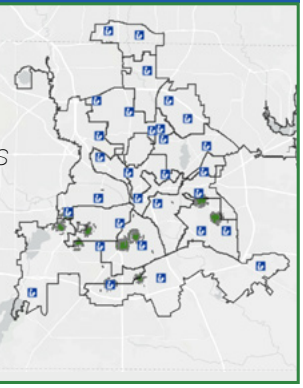
ACCESO

UBICACIONES CON WIFI COMUNITARIO | bit.ly/3QIuFTw

Desde diciembre de 2020, la Ciudad ha brindado conectividad wifi gratuita a 10 ubicaciones en vecindarios utilizando los avances en tecnología de alumbrado público y tecnología inalámbrica. Las ubicaciones seleccionadas en los vecindarios son las menos conectadas de la Ciudad. La conexión wifi también está disponible en todas las bibliotecas públicas de Dallas.

Mapa de ubicaciones con wifi

- *Bibliotecas públicas*
- *Distritos del Concejo*
- *Áreas piloto con wifi comunitario*



DISPOSITIVOS

PROGRAMA DE PUNTOS DE ACCESO Y COMPUTADORAS PORTÁTILES DE LA BIBLIOTECA PÚBLICA DE DALLAS
bit.ly/3s5y0BJ

Los titulares de tarjetas de la Biblioteca Pública de Dallas pueden retirar un paquete de computadora portátil + punto de acceso por hasta 30 días con la opción de renovar si no hay solicitudes pendientes. Se pueden utilizar varios dispositivos en un punto de acceso. Cada computadora portátil viene con productos de Microsoft Office instalados incluyendo Word, Excel y PowerPoint. También puede navegar por internet, consultar el correo electrónico y realizar cualquier tarea que pueda necesitar una computadora.

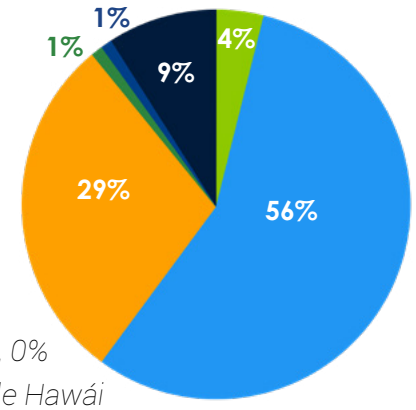
ALFABETIZACIÓN DIGITAL

PROGRAMA ORIENTADORES DIGITALES | bit.ly/3E0xyrq

La Alianza de Innovación de Dallas (DIA, por sus siglas en inglés) gestiona el Programa de Orientadores Digitales para abordar los cuatro pilares de la equidad digital: accesibilidad, acceso, dispositivos y habilidades digitales. El programa promueve las recomendaciones identificadas en el Plan Estratégico de Banda Ancha y Equidad Digital de la Ciudad a través de la participación con comunidades específicas para comprender mejor y aliviar sus necesidades de estar conectados a internet, utilizar computadoras de escritorio y portátiles y adquirir capacitación para respaldar sus habilidades digitales.

Residentes de Dallas atendidos

**Hasta julio de 2023*



- *Negros o afroamericanos, 56%*
- *Hispanos/Latinos, 29%*
- *Blancos, 4%*
- *Indígenas americanos o nativos de Alaska, 1%*
- *Otro/Multirracial, 1%*
- *Sin Raza/Etnia Recopilada, 9%*
- *Asiáticos, 0%*
- *Nativos de Hawái u otras islas del Pacífico, 0%*

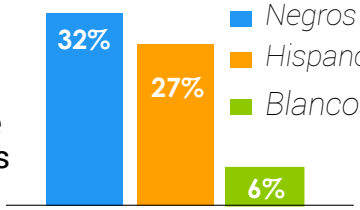
APLICACIÓN DALLAS SECURE

La Aplicación Dallas Secure es una aplicación móvil que se ofrece a los residentes de Dallas de forma gratuita y que los alerta si su dispositivo móvil, tableta o Chromebook encuentra amenazas, como una red wifi posiblemente insegura. Con cada alerta, Dallas Secure ofrece recomendaciones sobre cómo abordar la amenaza detectada. Dallas Secure no accede ni distribuye ninguna información personal en ningún dispositivo.

ESTADO ACTUAL DE LA BRECHA DIGITAL EN DALLAS

INFORME DE INDICADORES DE EQUIDAD

El Informe de Indicadores de Equidad de la Ciudad de Dallas realiza un seguimiento de la equidad y la justicia en los resultados y el trato de grupos de personas en la Ciudad. Del Informe 2021, el Indicador #29: Acceso a Internet, muestra que antes de la pandemia, el 32% de los hogares de afroamericanos y el 27% de los hispanos carecían de acceso a internet, en comparación con solo el 6% de los hogares de blancos.



INFORMACIÓN DE LA BRECHA DIGITAL

Hay un total de **74,486 (12.1%)** hogares sin acceso a internet de alta velocidad (100/10 Mbps).
Fuente: Encuesta sobre la Comunidad Estadounidense (ASC, por sus siglas en inglés) de 2021

Menores de 18 años, con computadora, **31,612 (8.6%)** no tienen internet.
Fuente: Encuesta sobre la Comunidad Estadounidense (ASC, por sus siglas en inglés) de 2021

103,250 hogares están inscritos en el Programa de Conectividad Asequible (ACP, por sus siglas en inglés). **Hasta junio de 2023 Fuente: Registro de Inscripción al Programa de Conectividad Asequible*

ATTACHMENT #3

Digital Navigator's Program 2023

Month	# of clients served	White	Hispanic/ Latino	Black/African American	Asian	American Indian/Alaskan Native	Native Hawaiian Or Other Pacific Islander	Multi-Racial	No race/ethnicity was collected
March	333	11	99	157	0	2	0	3	62
April	71	2	21	45	0	2	0	1	
May	52	6	5	37	0	2	0	2	
June	195	13	43	137	1	0	0	1	6
July	131	2	56	62	0	0	1	3	
August									
September									
October									
November									
December									
Total:	**782**	**34**	**224**	**438**	**1**	**6**	**1**	**10**	**68**

ATTACHMENT #4
Response to Question #10

1) Current costs to the City.

Circuit and Transport Costs

	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Circuit & Transport Charges	$ 3,456,421.48	$ 3,493,312.30	$ 5,451,224.78	$ 6,020,277.42	$ 6,306,441.79	$7,405,266.95	$ 6,581,767.00	$ 9,466,641.00

Note1: FY 2023-24 is the adopted, but ITS anticipates it may be higher once all invoices are validated

Note2: FY2024-25 is Planned and includes $5.2m in enhancements for full cost of Digital Divide and other network expansions.

Year over Year Increase	1.07%	56.05%	10.44%	4.75%	17.42%	-11.12%	43.83%
Average YoY Inc	17.49%						

The above table shows the circuit and transport costs over the last 5 fiscal cycles. FY2023-24 is an estimate that is in the adopted budget, and FY2024-25 is the planned expenditures that account for the Digital Divide spend that we know of, as of today. This table demonstrates the rising costs and growth year over year to our circuit and transport costs.

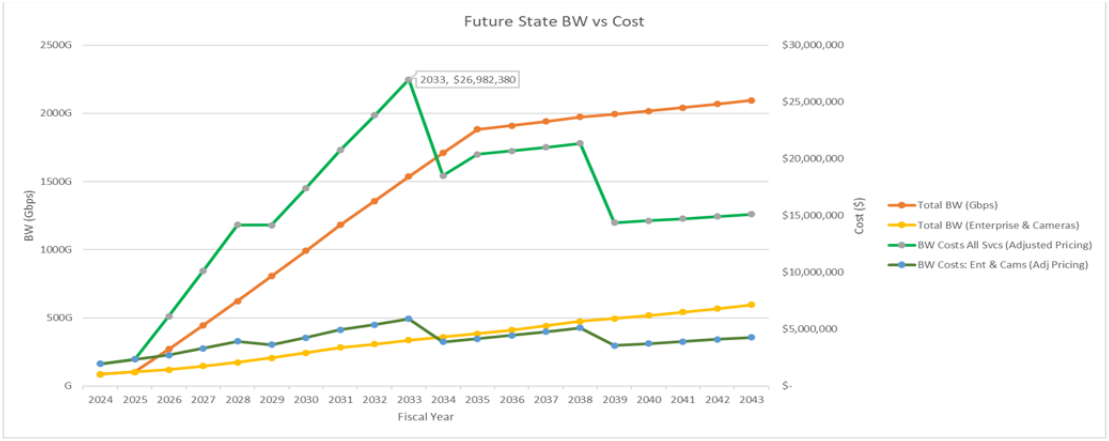
2) Anticipated costs (to include planned growth) for the next several years.

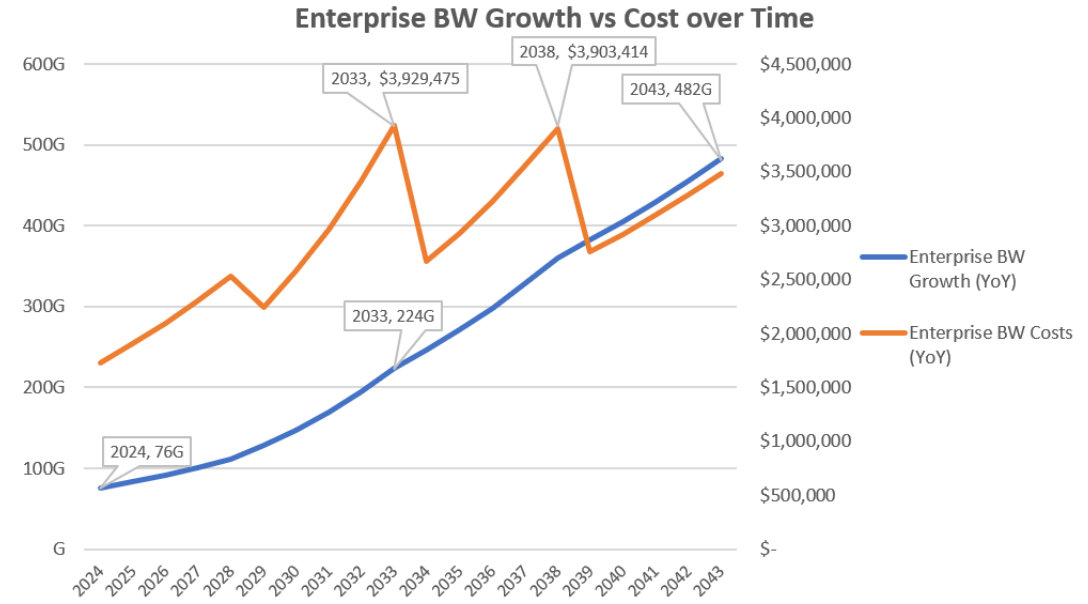
The graphic below shows a forecast of the City's data consumption, which will continue to increase and alongside our cost. The bandwidth growth vs. costs chart considers price renegotiations over time and the leveraging of higher efficiency connection services (40G/100G vs 10G for bulk transport).

ATTACHMENT #4
Response to Question #10

Future Transport Services & Costs

- Transport Funds are paid out of Operational Budget
- Last Year spend was approx $6.01M
  - Avg YoY increase since FY2018 is approx. 17%
- Due to digital requirements and planned digital services of departments, we are estimating a minimum of 15% YoY for the foreseeable future
- Departments like Traffic that will require 1Gbps service at each intersection (total 1500 intersection, we are looking at $900K per month for just traffic based on current pricing (1G service = $600 per month)





ATTACHMENT #4
Response to Question #10

3) Costs of construction at varying levels of Middle Mile investment (e.g. 100 miles vs. 180 miles)

Table 1: Estimated 100-Mile Fiber Backbone Costs

Item	Cost
Fiber Optic Outside Plant (OSP) Construction	$12,500,000
Network Hardware	$800,000
Network Integration and Testing	$200,000
Total Capital Costs	**$13,500,000**
Annual Operating Costs	**$1,000,000**

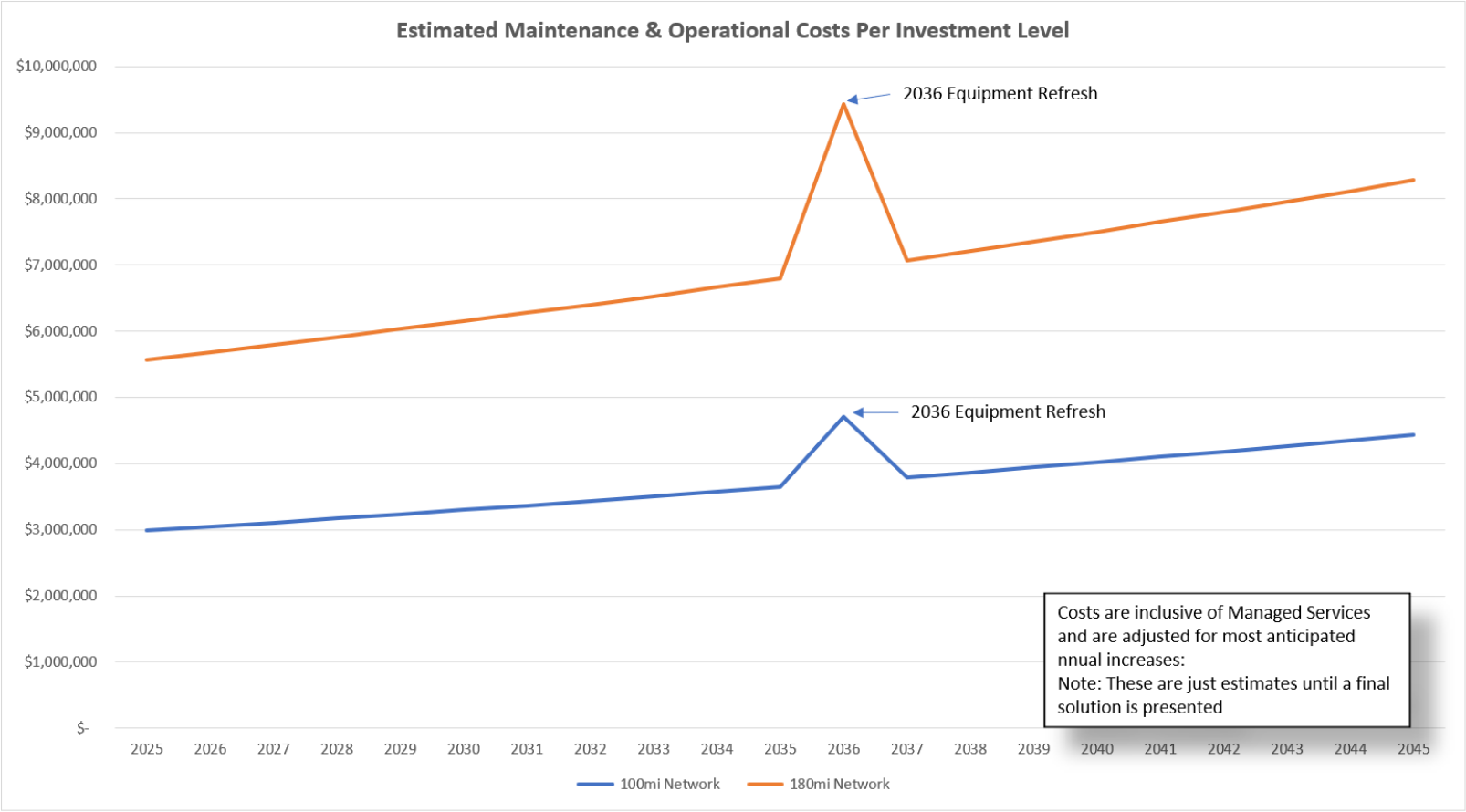
Table 2: Estimated Costs of 180 Miles of Fiber

Item	Cost
Fiber Optic Outside Plant (OSP) Construction	$22,500,000
Network Hardware	$2,000,000
Network Integration and Testing	$500,000
Total Capital Costs	**$25,000,000**
Annual Operating Costs	**$2,000,000**

From the BDESP, Tables 1 and 2 provides estimates for two potential options of an estimated length of fiber buildout to service the City's data transport needs.

ATTACHMENT #4
Response to Question #10

4) Cost of anticipated maintenance at the levels of investment.



The above chart depicts the annual operating costs for each year of operation. It should be noted that until a solution is selected, the actual cost increase is unknown for the additional bandwidth as it grows or if there would be incremental staffing needs. This estimate takes into account an equipment/hardware refresh in year 11 after implementation, in line with industry standards for equipment refresh.