

Responses to Fiber Concerns

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BACKGROUND

This document was created as a result of feedback from the Detroit Office of Digital Equity and Inclusion (DEI), investigating the potential implications of installing an open access fiber network in Detroit. Staff at the DEI requested support compiling evidence-based explanations that would address common misconceptions and attacks against public investment in fiber. This document is the product of that effort.

Concern: High-speed cable internet is fast enough. There is no need for faster speeds offered by fiber.

Response: The FCC definition of “high-speed broadband” (25Mbps/s down, 3Mbps/s up) is not enough to meet modern internet needs. These bandwidths cannot support reliable video calls, video streaming, and internet usage for a household of more than 2 people.^{1,2} For increasingly common use cases of 1080p video calls and 4K streaming, this speed cannot support a single user.³ Fiber has virtually infinite bandwidth and is a one-time investment that will not need to be upgraded even as internet demands increase in the future.

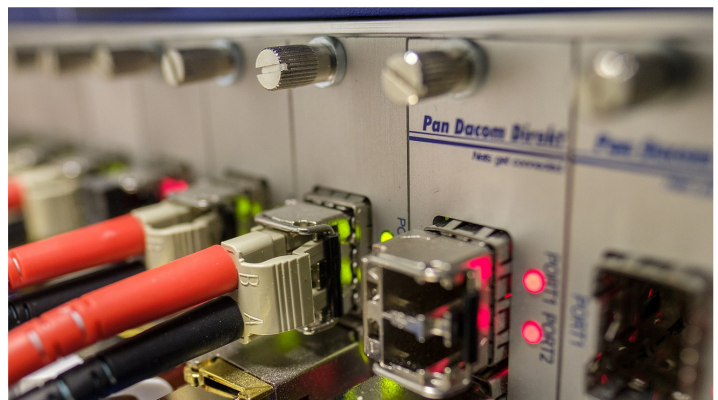
Concern: Cable internet is less expensive than fiber for low-speed plans.

Response: For the same upload speeds, fiber has a lower monthly cost than a wired connection. The fastest upload speed plan Xfinity advertised in Detroit in 2022 is 20Mb/s and costs \$120 a month, compared to a fiber connection that offers 1000Mb/s and costs \$30 a month.⁴ For both upload and download, fiber is much less expensive per megabit. Fiber’s cost can be as low as 3 cents per Mbps, compared to the U.S. average of 14 cents per Mbps.⁵

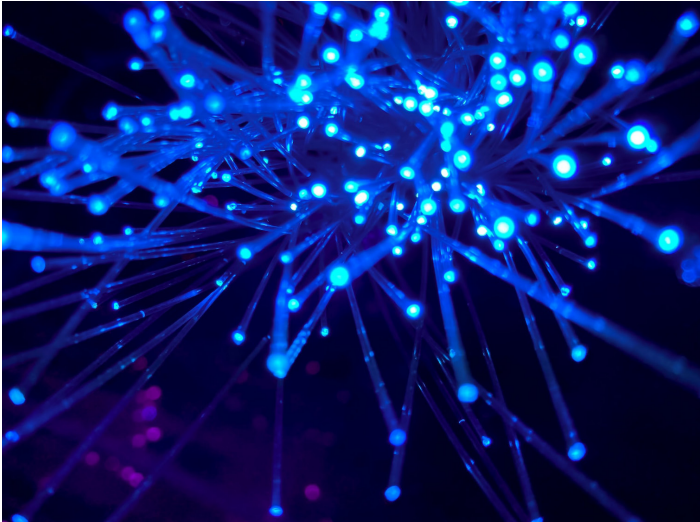
The monthly cost of a barebones wired connection can be less than fiber, but it is not sufficient to meet upload and download speed requirements. In addition, the true cost of wired internet is often much higher than what telecom companies advertise. Internet providers are being investigated by the FCC for widespread predatory pricing plans that rise without the customer’s knowledge after a year of service.⁶ Fiber becomes an even lower-cost option when taking these pricing increases into account.

Concern: Through the Affordable Connectivity Program, Xfinity already offers an Internet Essentials Program that provides 50 Mbp/s download speeds for free. Why do we need to invest in more internet?

Response: The Affordable Connectivity Program is funded by the Federal Communications Commission (FCC). While this program is great for those who need internet access now, it is a band-aid that treats the symptom and not the main causes of the digital divide. The digital divide is in part due to the high cost of internet access caused by a lack of competition. This program gives billions of taxpayer dollars to telecom giants, making them



even stronger, to temporarily subsidize internet costs instead of lowering cost through competition. Introducing new technologies such as fiber can spur competition and permanently lower internet costs.



This program will likely run out of money in 2024, at which time all qualifying members' bills will rise by \$30 a month unless more funding is approved.⁷

Ultimately, we cannot “coupon” our way to digital equity. To solve the digital divide, we need meaningful long-term infrastructure improvements that do not rely on the whims of Congress.

Concern: Low-income communities have other needs that should be addressed before faster internet speeds.

Response: Living in a low-income neighborhood should not exclude you from the services offered to those in higher-income areas. Everyone deserves equal access to choice regardless of income level. Currently, high-quality internet is offered at more expensive rates in low-income communities than in high-income communities, if it is even offered at all.⁸

Additionally, fiber internet is synergistic with other initiatives in education and healthcare, as these services increasingly rely on remote learning and telehealth.^{9,10} These communities would benefit economically from reliable internet access, as research has shown that workers aged 25-54 participate in the labor force at a much higher rate if they have access to a broadband connection.¹¹ In short, reliable internet access enabled by fiber

addresses the root of digital inequality and is a force multiplier that can improve the outcomes of various initiatives.

Concern: The primary use of the internet is entertainment. Entertainment is a luxury and not a valid reason to invest in fiber internet.

Response: Entertainment is family movie night. Entertainment is staying connected with your friends. Entertainment is bringing your community together through a big sporting event. Entertainment creates shared experiences, increases self-worth, and decreases social isolation.^{12,13} When only the wealthy have access to recreational options, it builds social barriers and limits integration across socio-economic lines.¹⁴ The digital divide is also a social divide between those who can experience certain leisure activities and those who cannot. Everyone deserves access to these experiences regardless of income level.

Concern: We don't need “Fiber-to-the-Home” (FTTH). “Fiber-to-the-Curb” (FTTC) is cheaper to install, less invasive, and equally fast.

Response: “Fiber-to-the-Curb” (FTTC) refers to routing fiber to a single utility pole node in a neighborhood rather than to individual homes. A single node will service many homes, and the “last mile” connections will be made with copper wire or a wireless network.¹⁵

With FTTC, customers far away from the fiber node will not receive the full speeds of fiber. If history repeats itself, the fiber nodes will be placed in wealthier neighborhoods, and the furthest customers will be lower-income residents and people of color.¹⁶ This “digital redlining” has already been observed in several cities across the country.¹⁷

“Fiber-to-the-home” provides a direct fiber connection to each house and achieves true digital equity where every customer has equal access to the same quality fiber service. The addition of fiber to a home can also directly raise property values by 3.1%.¹⁸ In addition, FTTH does not require the construction of additional wireless towers in neighborhoods and is a one-time lifetime installation that does not require upgrades.

Concern: The community is not asking for faster internet. Why is the city investing in fiber internet if they don't even want it?

Response: Detroit residents have expressed a desire for faster internet and are keenly aware of the digital divide in their city. 83 percent of Detroiters favor a public high-speed internet network where the city builds a fiber infrastructure.¹⁹ 63 percent of Detroiters without broadband say that they would be likely to choose broadband if an affordable option were available.²⁰ And 88 percent agree that the 170,000 people in Detroit who do not have broadband internet is a problem.²¹

Additionally, national polling data has shown over 75 percent would switch to fiber internet if available.²² Similar fiber initiatives in cities such as Chattanooga have had high approval rates, which has translated to high approval rates for their elected officials.²³ Detroit residents clearly want fiber internet and they want to see the digital divide in the city fixed.

Concern: Is fiber dangerous? Can fiber cause shocks, eye damages, cancer or other dangers?

Response: Fiber is safer than copper wires and poses no risk of shock or fire. Fiber is simply a glass tube that allows light to transmit data instead of an electrical charge. The light intensity is much lower than that of a lightbulb and does not heat up or radiate energy.²⁴

In addition, the possibility of eye damage from looking into an optical fiber is extremely low, as once light escapes a broken fiber it scatters quickly.²⁵ Fiber can be routed through water without shock risk as there is no electric current involved. Finally, there is no energy radiation from fiber and no risk of cancer.

Concern: Is fiber related to 5G? Will you be installing towers in my neighborhood?

Response: Fiber technology is completely independent of 5G and does not transmit data wirelessly. Fiber is a wired internet connection using a glass tube instead of copper lines. 5G is a set of wireless standards that use higher frequency bands to achieve faster speeds.²⁶

Fiber requires no towers to be built, as it is buried underground. 5G requires upwards of 250,000 new towers to be built in neighborhoods to be effective,

as the transmit range is shorter than previous technologies.²⁷

Concern: I don't trust the government to provide my internet. I am concerned about my privacy.

Response: It is illegal for the government to listen to your internet traffic without a warrant, which is protected under your Fourth Amendment rights.²⁸



The City of Detroit is only providing fiber infrastructure and leasing it to private companies to handle data traffic. It is similar to the city providing other utility infrastructure, such as electrical lines or pipes for sewage. The City of Detroit will not provide internet service directly and is not able to see any data traffic.

The University of Michigan's Science, Technology, and Public Policy (STPP) program is a research, education, and policy engagement center concerned with cutting-edge questions at the intersection of science, technology, policy, and society. This document was written as part of STPP's community partnerships initiative, where we work with organizations that have concerns related to a current or anticipated science or technology issue. If you want us to take a deep dive into the implications of an emerging technology in your community, and you want more information, contact stpp@umich.edu.

ENDNOTES

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