Exploring the Digital Divide in Baltimore, Maryland

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Introduction

In a digitized world, the reliance on digital infrastructure and systems to execute day to day functions has skyrocketed. This increasing reliance has highlighted the need for digital equity for people to thrive economically and socially and has created a world of outcasts for those who cannot afford Internet access. In Baltimore, the digital divide[1], the gap between those with the internet and those without, runs deep. According to a study conducted by the Abell Foundation, in 2018, around 40.7% of households in Baltimore did not have wireline internet service, such as cable, fiber, or digital subscriber line service[2]. With respect to income, just 33.8% of low-income Baltimoreans (those whose annual household incomes are less than $25,000) have home wireline service compared with 83% for households whose annual incomes exceed $75,000. Specifically during and after COVID, a "homework gap" became a prevalent issue in Baltimore, which demonstrates the learning curve that those without internet access faced during the pandemic, leaving many children behind in their education and hampering their potential success.

We conducted our research on the socio-economic effects of the digital divide in Baltimore, an increasingly prevalent issue, as demonstrated above. Our research was conducted under the supervision of Georgetown University Law Center Professor Monica Sanders, and her Undivide Project team. Throughout our research period, we were tasked with creating an Internet Bill of Rights (IBOR) for Jonathan Moore of Rowdy Orb.it, a community leader and founder of Rowdy Orb.it, an enterprise that aims to leverage broadband infrastructure, with the goal of economic development and community revitalization in underserved communities. The IBOR aimed to empower and protect Internet users throughout Baltimore, and outlined fundamental rights to ensure affordable and reliable internet access, awareness of utility, and sovereignty for all who use the Internet. Additionally, we were tasked to assemble an asset map, using ArcGIS, to visualize the correlation between fiber coverage in Baltimore,

[1]Hanna, Katie Terrell. 2021. "What Is the Digital Divide and How Is It Being Bridged?" Techtarget.com. August 2021. https://www.techtarget.com/whatis/definition/digital-divide

[2] Horrigan, John. 2020. "Baltimore's Digital Divide: Gaps in Internet Connectivity and the Impact on Low-Income City Residents." https://abell.org/wp-content/uploads/2022/02/2020_Abell_digital20divide_full20report_FINAL_web20dr.pdf.

public Wi-Fi areas, and median household income. We created a second visualization to illustrate the correlation between racial demographics and digital equity scores[3], whose data was sourced from the research of John Horrigan of the Abell Foundation.

This study employed structured interviews with community leaders and researchers, to grasp an understanding of the public sentiment, along with searching for solutions in regards to issues with increasing affordable internet access. Additionally, we studied previous legal reports and conducted further qualitative research to gather concrete information on fiber implementation, rights of way fees, and general issues surrounding previous and current broadband deployment policies. Throughout our research period, we concentrated on themes such as the role of the internet for well being and the effects of different internet infrastructure ownership models.

Methodology

Our research primarily used qualitative analysis by the means of interviews, to gain a comprehensive understanding of the effects of the digital divide within Baltimore, Maryland, in addition to an analysis of legal research and other reports conducted by experts on the matter of digital equity. By utilizing these means of research, we aimed to gain an understanding of the public sentiment by those who were being affected by local and federal policy, while cross referencing the sentiment with reports analyzing the legislature and socio-economic situation from a broader perspective. Our legal research specifically was designed to create the Internet Bill of Rights for Jonathan Moore and Rowdy Orb.it, as solely interviews did not suffice for the creation of the IBOR. Below, we provide an overview of our research design, focusing on the qualitative data gathered from our interviews, which we utilized as our primary source to answer our research questions. The primary research question and sub question are listed below.

[3]"Racial Demographics vs. Digital Equity Scores."
https://georgetownuniv.maps.arcgis.com/apps/mapviewer/index.html?webmap=05653671a6f24988b1bbe6c2a400bdbc

Research Question: How deep does the digital divide run in Baltimore and to what extent does it affect the everyday lives of Baltimoreans?

Sub-Question 1: How do differences between publicly, privately, and communally owned broadband infrastructure impact Baltimore residents' access to reliable and affordable internet connection?

Qualitative Data: Interviews

Interviews generally lasted between 45 minutes to 1 hour and 15 minutes. We crafted a set of questions tailored to each individual interviewee to grasp information of which they would be the most knowledgeable about. All interviewees were contacted through email, and had the choice between an in-person or online interview. The named interviewees gave their consent to have their name and occupation included in this paper, while those who did not were anonymized. A total of seven interviews were conducted throughout our six week research period.

Interviewees consisted of six people. First, we interviewed a former policy maker within the Baltimore City Department of Planning, to understand the spectrum of the organizations that had already begun investigating the digital divide in Baltimore, as well as gather future contacts for the Ten States Project. Next, we interviewed Jonathan Moore, an affiliated researcher with Johns Hopkins University and founder of Rowdy Orb.it, a for-profit organization that leverages broadband infrastructure within communities and aims to increase affordable access to broadband services within neighborhoods, and empower communities. We interviewed Mr. Moore twice throughout our research process, as we worked closely with him to provide an Internet Bill of Rights for his organization. Then, we interviewed Beth Harber, the Senior Program Officer for Community Development and Environment for the Abell Foundation, a private foundation that provides grants to nonprofit community partners and funds extensive research in Baltimore. Next was Dr. Felicia Henry, an Assistant Professor of Sociology at American University. Throughout our interview with her, we focused on her research regarding the effects of climate disasters on previously incarcerated individuals, with the aim of finding a correlation between

internet access and disaster mitigation. Additionally, we interviewed two members within the BCIT (Baltimore City Information and Technology) office to discuss the city government's agenda on fiber infrastructure and on bridging the digital divide. Finally, we met with Jill Donaldson, the current president of Medstar Harbor Hospital in the Cherry Hill neighborhood, and another member working on digital equity at Medstar Harbor Hospital. We conducted the final interview due to Medstar Harbor's role as a community anchor institution and the location of one of Rowdy Orb.it's public Wi-Fi network hubs.

Utilization of Interviews and Themes

These interviews gave us detailed, first hand information on the public sentiment on the digital divide in Baltimore, problems with the current broadband infrastructure, and gave us an insight into the solutions proposed for improving broadband affordability, specifically in underserved areas. We utilized thematic analysis for our interviews, which is done in most social science research reports. We split themes into two categories, (1) broadband infrastructure ownership and (2) the role of the internet for well being, as we found these themes were both most relevant to our research questions and came up frequently throughout our interview process.

Within the themes, we devised three sub-categories to analyze thoroughly. For the first theme, we investigated public, private, and communal structures of infrastructure ownership, as we found those to be the principal methods of ownership. For the second theme, we discussed the social, economic, and environmental role of the internet for well being. The environmental role of the internet is heavily tied to Professor Monica Sanders' Ten States Project, as her project hones in on the overlap between environmental justice and equitable internet access.

Thematic Analysis

<u>Theme 1: Broadband Infrastructure Ownership</u>

Public

The expansion of broadband infrastructure owned and operated by Baltimore City represented a significant portion of our discussions with many of our interviewees. The two BCIT employees that we interviewed both emphasized the City's construction of fiber optic cables in all fifty-two of Baltimore's recreation centers and ten senior centers in the city. They further explained that by basing public infrastructure in anchor institutions across the city, the ongoing "FreeBmoreWiFi" project can provide free and accessible internet to populations such as older folks, uncertainly housed people, and low-income residents who have the most challenges with digital connectivity. As one of the largest developments in the City's public infrastructure, it carries many follow-on impacts beyond increasing immediate access. The two BCIT employees explained that the new infrastructure allows for local ISPs to utilize the public distribution cabinets in order to avoid constructing miles of their own fiber. This is especially important for reducing costs in low-income neighborhoods where existing private infrastructure is sparse and markets are non-competitive. Additionally, Jonathan Moore highlighted that internet access in anchor institutions allows local residents to familiarize themselves with digital services, test out various uses, and potentially adopt them in their own homes as educated consumers.

The two BCIT employees stressed the importance of federal funding for these public infrastructure projects. Although "FreeBmoreWiFi" was fully funded by the American Rescue Plan Act, Baltimore has been completely cut out from other federal broadband programs. Interviewees Beth Harber, Jonathan Moore, and government officials all expressed frustration that Baltimore will not see a penny of the $42.45 billion that the federal Broadband Equity Access and Deployment Program (BEAD) is allocating for high-speed internet infrastructure grants. Ms. Harber identified that the BEAD Programs's problematic method of determining which areas are considered to be already served by high-speed infrastructure is the primary mechanism excluding Baltimore from funding. The program utilizes a map of national internet coverage created by the Federal Communications Commission whose parameters consider the entire city as already "served" by ISPs due to the private infrastructure that spans across the city. One BCIT employee noted that the staggering number of Baltimore residents without service do not lack fiber in their neighborhoods, but rather cannot afford the costs of private services like Comcast.

The interviews with Baltimore City government officials and Jill Donaldson demonstrated that bridging the digital divide through public infrastructure does not simply mean installing infrastructure in anchor institutions. The two BCIT employees highlighted distributions of 30,000 free chromebooks over the course of 2024 to eligible households in the city. This initiative addresses the vital need for devices to connect to broadband networks where they are accessible and it highlights the multi-faceted challenge of bridging the digital divide. Even with City infrastructure and device efforts, Jill Donaldson touched on the need for effective outreach and publicity. Despite the Carter Woodson Recreation Center offering FreeBmoreWiFi in Cherry Hill, Ms. Donaldson estimates that nine out of ten neighborhood residents are not aware of the free services. The accessibility of the City's broadband is further limited by its relatively small area of coverage. For instance, Ms. Donaldson explains that the Carter Woodson Center's Wi-Fi is concentrated in the center itself with significant drops in quality outside of its premises.

Our interviewees frequently delved into how the basic dignity of Baltimore's digitally excluded or underserved residents must be upheld in discussions of expanding internet access. Jonathan Moore noted that focusing solely on the ways that internet access is becoming a necessity for daily life hides the reality that digital inequality includes unequal access to non-essential services such as entertainment and social connection. Public infrastructure is challenged with meeting pressing needs and naturally prioritizes increasing access to economic resources and opportunities. With these goals in mind, the resulting infrastructure projects predominantly address one important aspect of the digital divide.

Private

The management of broadband utilities under current Internet Service Providers repeatedly came up as an area of frustration for many of our interviewees, specifically due to the monopolistic nature of the market in Baltimore, Maryland. Comcast controls the majority of the broadband infrastructure in Baltimore, and due to its heavy share of the market, has the ability to set higher prices. Specifically, interviewees Jonathan Moore and the two BCIT officials expressed frustration at Comcast's market control.

The Affordable Connectivity Program allowed for more than 70,000 Baltimoreans to gain access to broadband services by paying $30 per month off of low income residents' internet bills. When funding for the federal program ran out in May 2024, many were left without Internet access, but small Internet Service Providers (ISPs) suffered as well. When asked about the effects of the end of the Affordable Connectivity Program, Jonathan Moore emphasized that people were extremely frustrated, and could not afford Comcast's costly services on their own. In addition, he claimed that many smaller ISPs had to rethink their business models and consider exiting the market, due to the fact that their customers could no longer afford to pay for smaller ISPs services. Mr. Moore argued that doing so would give Comcast a larger market share, and therefore giving them even more control over pricing.

The two BCIT employees expressed similar frustration at Comcast's monopoly, and emphasized the need for the city government to collaborate with smaller ISPs. They mentioned releasing an RFP (Request for Proposal) to provide internet access in projects from companies aside from Comcast. Additionally, they floated other ideas, such as allowing smaller ISPs to tap into public fiber networks to create a network for free, and either waiving or decreasing right of way fees for smaller ISPs, which would remove a large impediment for smaller companies to enter the broadband market. They claimed that they needed more transparency from larger ISPs, and supported the claim by citing constant frustration from customers regarding faulty services and misleading information. In conclusion, interviewees expressed their discontent with the current state of private broadband ownership and highlighted the need for greater competition to drive prices down and quality of services up.

Communal

The prospect of locally owned mesh networks was met with mixed opinions. Mr. Moore emphasized that their structure and alternative method of operation is their greatest advantage. These networks rely on cooperatives of residents within a specific area or local non-profit organizations to install their own fiber infrastructure and subsequently amplify its coverage to all those involved through the use of satellite nodes. The community organization then operates this mesh network allowing it to

serve the specific needs of the group. Importantly, Mr. Moore explained that the lack of profit incentives for communal networks means that they can reduce costs compared to privately owned services. The cost for each community member can be reduced further by tailoring the speeds, phone lines, and other services to the specific needs of the community. Mr. Moore cited how large private ISPs design bundles that frequently include services that consumers are not aware that they are paying for or do not need. This tailored service under communal ownership requires people with training within the community who can manage the network and address issues. Mr. Moore explained that free online resources and trainings regarding developing local broadband increase the feasibility of this system of ownership. Finally, it is an advantage to have a point of contact within a community whom residents are familiar with and comfortable with approaching with their needs and broadband problems.

Despite its advantages, the challenges of communal ownership were thoroughly discussed in our interviews with the two BCIT employees as well as Jonathon Moore. As with public and private infrastructure, initial funding for fiber installation presents a significant barrier. Beyond the initial capital required, one BCIT employee stressed that the networks are dependent on environmental factors that are not consistent across neighborhoods and areas which can make them much more costly for some communities. On the operational level, Mr. Moore highlighted the dedication and stamina that broadband development and maintenance requires. Both of the BCIT employees expressed concerns about the networks' reliance on frequently available community members with technical expertise and effective management skills.

Working through these challenges, a growing number of community mesh networks are emerging in Baltimore. One former city employee cited Project Waves as a growing non-profit organization bringing communally owned infrastructure to households in the city. Its success demonstrates what Mr. Moore highlighted as communal broadband's powerful alternative to costly private infrastructure and public infrastructure which he says suffers from delayed roll-outs and limited scope.

Theme 2: the Role of the Internet for Well Being

Social

Aside from the continuous trend of social media in the 21st century, the role of the Internet has largely transformed into the sole source for communicating and accessing services. The ability to do both efficiently on the internet effectively creates another divide for those with and without access to the internet. Three of our interviewees, Dr. Felicia Henry, Jill Donaldson, and another Medstar official gave us an insight into how the internet plays a role for social well being within their fields.

Dr. Felicia Henry, who discussed the lives of previously incarcerated individuals throughout our interview, highlighted this disconnect. She described how climate disasters emphasize the impact of this disconnect, specifically due to the inability to communicate with parole officers after disasters. Dr. Henry explained how often times previously incarcerated individuals could not afford cell phones or laptops upon re-entry into the community, resulting in only communicating with parole officers in person. However, in the case of a disaster, where communication was not viable in person and the individual did not have a cellular device, a violation would often be given to the previously incarcerated individual for the absence of communication. Dr. Henry continued by describing how previously incarcerated individuals struggled during COVID. She explained how many of these individuals were ordered to work, but due to the pandemic, were obliged to work online. However, state institutions would rarely provide internet or a laptop, resulting in an impossible situation for these individuals. Due to the lack of support from the state, individuals would often have to rely on community-based organizations, nonprofits, or mutual aid organizations to fill these gaps, despite these organizations often being underfunded and restricted in their use of funds. Overall, those under supervision were generally left to fend for themselves and find their own method to gain access to the internet.

Jill Donaldson and her partner at Medstar Health Harbor provided their own insights into the social role that the internet takes in their workplace. In past years, they noticed an increase in the reliance of technology within the hospital. Mrs. Donaldson expressed her disapproval at the fact that there was no longer a phone number for Human Resources and Patient Services, instead they both could solely be accessed through an online portal. In addition, the topic of digital literacy was mentioned repeatedly. Ms.

Donaldson described collaborating with workforce development partners and digital navigators to train employees with basic tech skills, in order to adapt to the shift online. They highlighted the importance of digital literacy skills, as motivated employees could not progress past entry level positions without basic navigation skills. Specifically, the Patient Portal arose as an issue for both employees and those receiving care from Medstar Harbor. Without digital literacy skills, an employee was virtually unable to update their patient's portal, heavily incapacitating their role as an employee. On the other hand, Medstar reported a lack of trust in the patient portal with privacy, as the absence of face to face interaction led to lesser knowledge of the final destination of a patient's data. Additionally, they noticed patients' lack of willingness to make appointments online and having virtual appointments, although the ability to do so proved to be extremely efficient for the hospital.

Overall, the Internet has transformed the way in which society functions, and is quintessential for social well-being, as can be seen above throughout multiple perspectives. Although our interviews were conducted with people in a specific line of work, they provide great insight into the difficulties that those without internet access face in everyday life. In order to be fully integrated into society and access every service, the digital divide must be bridged.

Economic

Ironically enough, the digital divide is both caused by worse economic circumstances, and itself causes worse economic conditions. Notably after COVID, the internet has become a primary factor towards employment, both in the digital literacy skills category and job search accessibility. In addition, the large increase in many remote jobs has excluded anyone without access to the internet from this area of the workforce, increasing demand for in person jobs. A "homework gap" has also been created after the switch to online schools, leaving children without access to the internet with an inferior education and potentially harming their economic well-being in the future.

This topic was briefly discussed by many of our interviewees, specifically regarding employment. As mentioned above, Dr. Felicia Henry described the difficulties previously incarcerated individuals faced

in order to meet job requirements during COVID due to lack of internet access. Additionally, both Jill Donaldson and her Medstar co-worker mentioned the necessity of digital literacy skills for employment, a trend seen throughout the globe. Recently, the Bureau of Labor Statistics found that around 27% of the U.S. workforce was working remotely at least part time as of late 2022[4]. Generally speaking, the sentiment remained that internet and digital literacy skills are an absolute must for employment.

However, Jonathan Moore and his internet model provide a different perspective for areas without broadband infrastructure. Rowdy Orb.it, his for-profit broadband service provider, concentrates on revitalizing communities by installing Wi-Fi networks and heavily involving residents of the area. By building up community networks, overhead is completely cut out, residents themselves can be employed to build the infrastructure, and trust in the infrastructure is formed. In addition, the internet services themselves often cost much less than a large ISP would charge, due to the absence of overhead and the prioritization of affordability. A large opportunity for growth arises in these areas without broadband, both by employing its own residents and providing the internet resources necessary to obtain future jobs and grow even more. Internet access is essential for economic well-being in a digitized world, and Mr. Moore's model provides an opportunity for community revitalization and affordable access to the internet.

Environmental

Our research reflected the inseparable ties between internet inequality and the unequal impacts of climate change. Given the internet's increasingly dominant presence in global affairs and its potential for climate change mitigation and resilience, it plays a critical role in many environmental initiatives including many of the United Nations' Sustainable Development Goals. While broadband infrastructure is vital for areas such as innovative environmental science, our interviewees focused primarily on its capability for increasing community resilience to worsening environmental disasters and climate change. Dr. Henry emphasized how underserved communities suffer disproportionate impacts from disasters

[4]Walsh, Dylan. 2023. "How Many Americans Are Really Working Remotely? | MIT Sloan." Mitsloan.mit.edu. September 7, 2023. https://mitsloan.mit.edu/ideas-made-to-matter/how-many-americans-are-really-working-remotely.

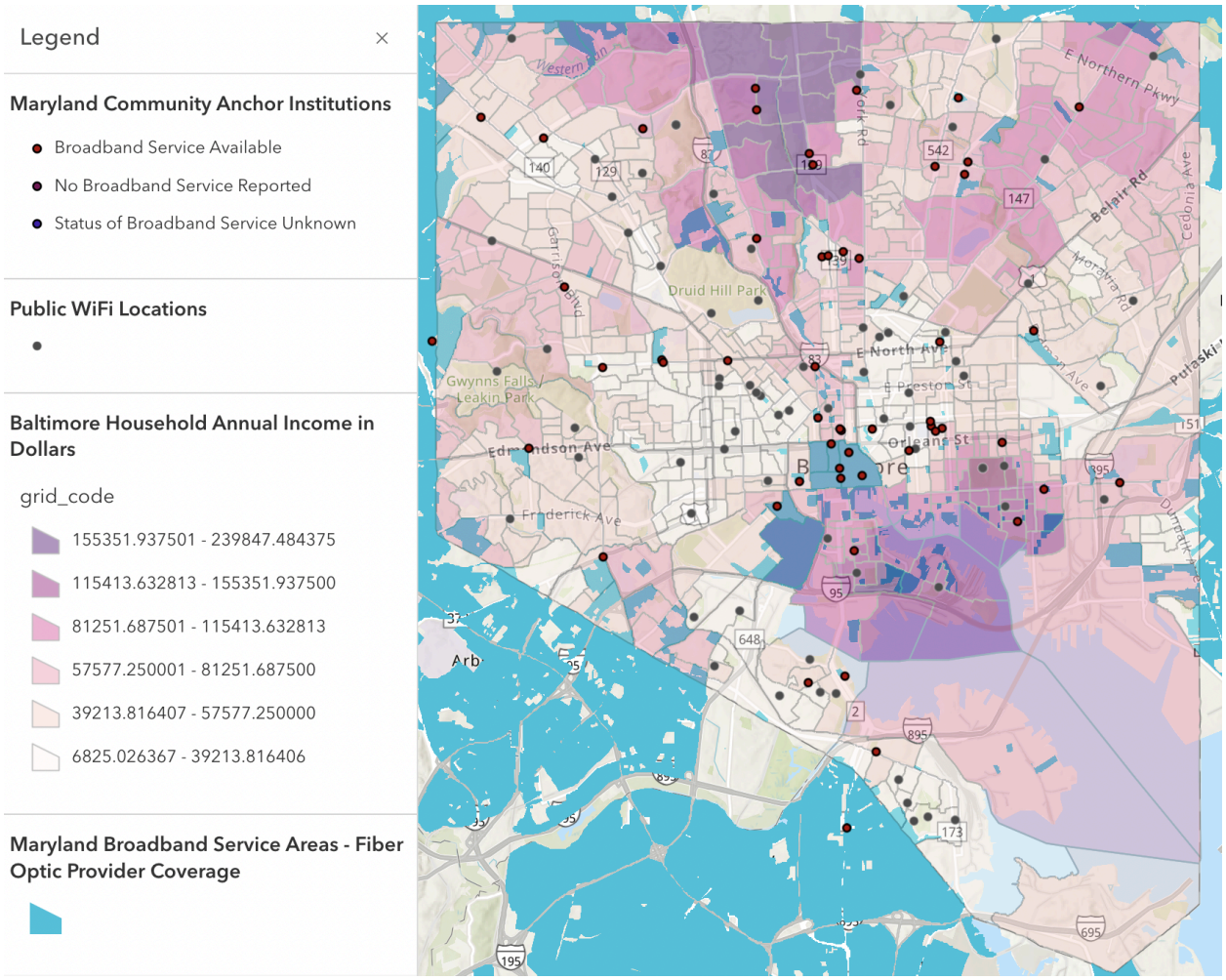
related to their exclusion from internet connection. She spoke about the importance of Wi-Fi for communication during disasters especially as emergency response organizations such as the International Red Cross depend upon internet-based communication when helping those in need. Additionally, early warning systems heavily incorporate internet-based communication to provide a significant protection against disasters. In 2020, within the 23 UN countries with a multi-hazard national early warning system, 93.63% of the population endangered by a natural disaster was successfully evacuated as a result of the integrated system.[5]

Aside from vital services during disasters, internet access supports community resilience through its social impacts. Community groups utilize internet-based communication to spread vital information about recovery resources and essential services. These lines of communication and access to online climate studies and data are crucial for preventative and sustainable community development. The internet can serve as a powerful tool for community driven environmental and disaster resilience while exclusion from it deepens already existing vulnerabilities.[6]

[5] Marco Esposito et al., "Recent Advances in Internet of Things Solutions for Early Warning Systems: A Review," Sensors (Basel, Switzerland), March 9, 2022, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8954208/.
[6] Monica Sanders, "Using a Digital Justice Framework to Improve Disaster Preparation and Response," Federation of American Scientists, June 26, 2024, https://fas.org/publication/using-a-digital-justice-framework-to-improve-disaster-preparation-and-response/.

Compiled Data Mapping

[Fiber Coverage in Baltimore vs Median Household Income vs Public Wifi Areas]

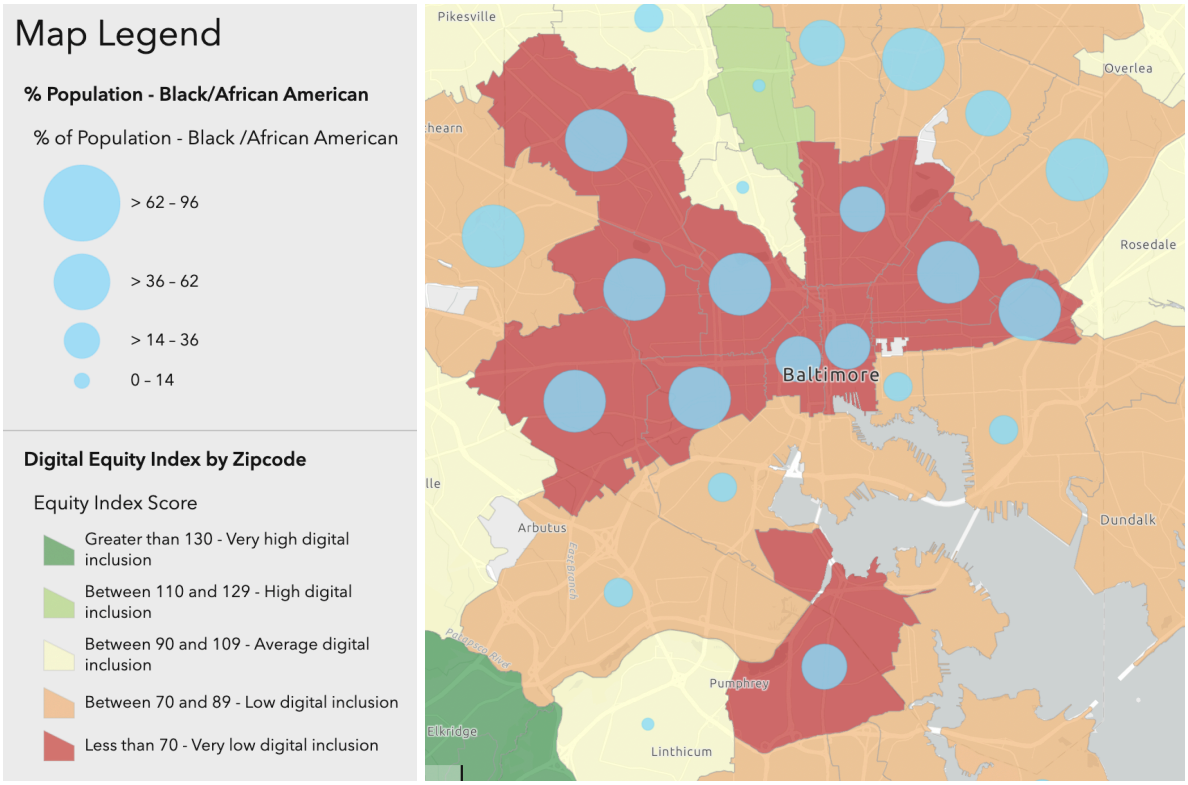


As Baltimore-specific digital equity studies and our interviewees identified income levels as primary determinants of internet access, we created a visualization that overlays median household income levels by neighborhood with existing Fiber Optic Provider infrastructure and free public Wi-Fi locations in Baltimore. We utilized data from the Maryland Department of Information Technology to map the fiber optic provider coverage areas and anchor institution locations.[7] Our public Wi-Fi location data was

[7] Maryland's GIS Data Catalog, accessed August 16, 2024, https://data.imap.maryland.gov/datasets/37d988f7ef6c43b3a6acf3273e904451/explore?location=39.312150%2C-76.582081%2C11.57.

sourced from the Baltimore Neighborhood Indicators Alliance[8] and neighborhood median household income data from the Baltimore City Government.[9]

Percent Black Population vs Digital Equity Index by Zip Code



Our research frequently made reference to the Baltimore Indicator Alliance and John Horrigan's digital equity index mapped above with percentages of Black population in each zip code.[10] In conjunction with our asset map, this visualization importantly illustrates the inseparable relationship between systemic anti-Black racism and digital inequity.

[8] BNIA – Baltimore Neighborhood Indicators Alliance, "Baltimore Neighborhood Indicators Alliance Public WiFi Locations," BNIA, accessed August 16, 2024, https://bniajfi.org/.
[9] "Median Household Income." n.d. Data.baltimorecity.gov. https://data.baltimorecity.gov/maps/8613366cfbc7447a9efd9123604c65c1/about.
[10] "Digital Equity Index by Zipcode," BNIA ArcGIS Dashboards, accessed August 16, 2024, https://bniajfi.maps.arcgis.com/apps/dashboards/de8d2f55435a4ff58ec80284ddd11fbf.

Internet Bill of Rights

Working closely with Jonathan Moore, we created an Internet Bill of Rights framework designed for Baltimore community members to update, discuss, and use to lobby policymakers, ISPs, and local organizations working on internet access. This living document arose out of the need for coordinated community action in the name of closing the digital divide. Interviewees including the two BCIT employees recognized the potential for change that arises when residents organize and commit to goals of bettering their community's well being. With this goal in mind and our commitment to centering our partnerships with local groups in our research, we drafted the following IBOR framework:

"In light of bridging the digital divide in Baltimore City, we propose an Internet Bill of Rights to empower and protect Internet users throughout RowdyOrb.it targeted neighborhoods. This declaration outlines fundamental rights essential for the modern digital age, ensuring affordable and reliable access, awareness of utility, and sovereignty for all who use the internet.

1. The Right to Internet Access:

   Every individual has the right to affordable and reliable internet access of 100/20 Mbps and latency less than or equal to 100 milliseconds, as described by the Federal Communications Commission, without discrimination based on location, economic status, or any other factors. This includes access to the internet without the necessity of justification. Access to the internet should be considered a basic utility, as it deems itself vital for public health, disaster mitigation, and participation in modern society.

2. The Right to Data Sovereignty:

   Every individual has the right to data sovereignty. This includes the protection of personal data and communications from unauthorized collection, use, and disclosure. Users should have control over their personal information and be informed about how it is being used.

3. The Right to Awareness and Consent of Development:

Ensuring digital rights must complement the sustainable development of communities. Every individual has the right to participate in the designing and construction of internet infrastructure in their proximity. This includes knowledge and understanding of the physical impacts on an individual's property and surroundings throughout construction and requires the consent of the community for construction to commence.

4. The Right to Informed Consent:

   Every individual has the right to clear and transparent information about Internet services, including terms of service, privacy policies, and any data collection practices. Internet service providers must clearly detail their specific services and costs for their consumers to avoid misleading and predatory contracts. Consumers must be informed of any changes to these terms and contracts and have access to their own data.

5. The Right to Community Sovereignty:

   Every community within the RowdyOrb.it ISP footprint has the right to establish, co-design, and operate, without repercussions or retribution from both the government entities and large Internet Service Providers. This right empowers community anchor institutions and members while promoting consumer-first organizations.

6. The Right to Innovation and Competition:

   Every individual has the right to benefit from innovation and competition within the digital marketplace. This includes the right to access a variety of services and platforms, and the prevention of monopolistic practices that increase prices and decrease the quality of services.

7. The Right to Accessible Education:

   Every individual has the right to free in-person digital literacy and career-building programs led by community anchor institutions. This encompasses access to resources

and training that enable users to care for their needs, pursue economic opportunities, and enjoy digital spaces.

8. The Right to Hold Providers Accountable:

   Every individual has the right to advocate for their rights in the face of unfair and unsatisfactory practices by the Internet Service Providers. This includes accessible mechanisms for reporting and resolving issues with service providers.

9. The Right to Digital Non-Discrimination:

   Every individual has the right to use the internet without facing digital discrimination, defined as "policies or practices, not justified by genuine issues of technical or economic feasibility, that differentially impact consumers' access to broadband internet access service based on their income level, race, ethnicity, color, religion or national origin, or are intended to have such differential impact,"[11] by the Federal Communications Commission. Equal treatment and opportunity should be fundamental principles of online engagement.

10. The Right to a Safe Environment:

    Every individual has the right to a safe online environment. This includes protections against harassment, abuse, and harmful content. Service providers should take reasonable steps to ensure their platforms are safe and supportive for all users.

By endorsing these rights, we affirm our commitment to creating a fair and inclusive digital environment by empowering neighborhoods who are experiencing digital transformation."

Conclusion and Discussion

In this section, we explore the results of our research questions. Firstly, through our interviews and thematic analysis above, we found that the digital divide affects the everyday lives of Baltimoreans in

[11] "Code of Federal Regulations Part 16: Digital Discrimination of Access," National Archives, August 9, 2024, https://www.ecfr.gov/current/title-47/chapter-I/subchapter-A/part-16.

social, economic, and even environmental aspects, and raises the question if broadband should be treated as a utility. Secondly, we explored different methods of broadband infrastructure, each with their positives and negatives, but found that there was extreme discontent with the current state of private and public broadband infrastructure in Baltimore. Through this sentiment, the question arises whether communally owned networks function the most efficiently and should be implemented more often. Below, we discuss the argument for broadband as a utility and policy recommendations in order to obtain the goals described above.

Broadband as a Utility

Although the Baltimore City Mayor's Office has recognized reliable internet as an essential service,[12] the question of whether broadband should become a public utility akin to electricity, water, or gas received mixed responses in our interviews. Proponents of broadband as a utility like Jonathan Moore argue that such a shift in how broadband is provided, regulated, and maintained would be a massive step toward universal access, affordability, and reliability for all residents. Specifically, Mr. Moore highlighted how broadband service as a utility would be regulated to ensure affordability and would develop programs to subsidize internet costs for low-income households. In contrast, the two BCIT employees were hesitant as to whether a broadband utility would be able to deliver on universal reliable internet access. They discussed current pitfalls of the Baltimore Gas and Electric utility service such as its relatively high costs and difficulties with effective regulation. One city employee stressed the need for a significant expansion of the enforcement capabilities of regulatory offices, especially on the federal level. They identified underfunded and understaffed regulatory enforcement as a primary reason for their doubts surrounding a potential broadband utility's ability to bridge the digital divide.

[12] "Mayor Scott Introduces FreeBmoreWiFi, Baltimore's Free Public Wi-Fi Network," Baltimore City Information & Technology, June 17, 2024, https://technology.baltimorecity.gov/news/press-release-bde/2023-12-19-mayor-scott-introduces-freebmorewifi-baltimores-free-public-wi-fi.

Future Action and Policy Recommendations

Throughout our individual research and interviews, we discovered that the main issue with implementing affordable broadband access for all was the cost of installing fiber. Jonathan Moore told us in our initial interview with him that fiber can cost around $150 a foot to install, meaning that three blocks of fiber installation can cost up to $450,000, an extremely high price tag. A majority of this cost stems from the cost of digging up roads to build a fiber network and paying "rights-of-way" fees, which are fees paid by ISPs to utilize poles, conduits, ducts, roads, and power lines to build infrastructure for broadband deployment. However, through our individual legal research, we came across a study that explored the effect of implementing a "Dig Once Policy," where the construction of a fiber network would be paired with new roads, effectively splitting the cost in half between ISPs and the government[13]. This study, conducted by Holly Trogdon, then a law student at George Washington University, investigated the Google Fiber project conducted in Kansas City, MO in 2015, which aimed to provide high speed internet access by constructing a fiber-to-the-home network. The study found that the elimination of state and local rights-of-way fees is not itself sufficient to encourage universal broadband deployment, as evidenced by Google Fiber. Around 70-80% of the cost of installing fiber is spent on the physical labor of trenching roads to lay the conduit, meaning that waiving the rights of way fees is essentially useless in deploying affordable broadband service.[14]

Therefore, we propose that "Dig Once" policies be implemented, to successfully employ fiber infrastructure in developing communities at an affordable price. Solutions such as micro-trenching should be explored as well, where only a few inches are dug into the roads in order to implement fiber at a much lower cost. Additionally, rights-of-way fees should be waived for smaller ISPs, as doing so would remove

[13]Trogdon, Holly. n.d. "Lessons from Google Fiber: Why Coordinated Cost Reductions to Infrastructure Access Are Necessary to Achieve Universal Broadband Deployment." http://www.fclj.org/wp-content/uploads/2014/01/66-1Trogdon.pdf.

[14] ALCATEL-LUCENT, DEPLOYING FIBER-TO-THE-MOST-ECONOMIC POINT 6 (2007), *available at* http://www.alcatel.hu/wps/DocumentStreamerServlet?LMSG_CABINET=Docs_and_Resource_Ctr&LMSG_CONTENT_FILE=Other/23168_DeployFiber_wp.pdf; *see also* Stacey Higginbotham, *The Economics of Google Fiber and What It Means for U.S. Broadband*, GIGAOM), http://gigaom.com/2012/07/26/the-economics-of-google-fiber-and-what-it-means-for-u-s-broadband/

a major barrier to entry and allow for greater competition in the broadband market, which is heavily needed in Baltimore.

Limitations and Need for Research

As Baltimore Mayor Brandon M. Scott stated during the rollout of FreeBmoreWifi, "closing the digital divide is one of the most important civil rights issues of our time."[15] This challenge requires a combination of dedicated work from policymakers, business leaders, community organizers, and more. A crucial component of closing the digital divide is research including the work that informed this paper and the work that the Ten States Project continues to do. Regarding this paper's contributions to the subject, our study was severely limited due to its short 6-week timeframe and tight resources. We were not able to conduct a sufficiently large sample of interviews and analyze results across professions and demographics. Additionally, our analysis of differing infrastructure ownership methods was limited by our inability to survey users at scale. We found existing studies regarding the scope of the digital divide to be vital for identifying the need for action and hope that this paper and the ongoing work of the Ten States Project, in partnerships with groups across Baltimore, contributes to the implementation of data-driven public policy and community organizing.

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[15] "Mayor Scott Introduces FreeBmoreWiFi, Baltimore's Free Public Wi-Fi Network," Baltimore City Information & Technology, June 17, 2024, https://technology.baltimorecity.gov/news/press-release-bde/2023-12-19-mayor-scott-introduces-freebmorewifi-baltimores-free-public-wi-fi.

community partners on bridging the digital divide. This project would also not be possible without Georgetown's Center for Research and Fellowships, along with the Laidlaw Scholars program itself.

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