



The Road to Broadband for All: Internet as a Public Good and Civil Right

A Small-Scale Survey

By

Francesca Romero

Michelson 20MM Digital Equity Student Fellow



About Michelson 20MM Foundation



**SEEKING TO ACTIVATE
HUMANITY'S FULL
POTENTIAL
THROUGH EQUITABLE
EDUCATION AND
ECONOMIC
OPPORTUNITIES**

Michelson 20MM is a 501(c)(3) working toward equity for underserved and historically underrepresented communities by expanding access to educational and employment opportunities, increasing affordability of educational programs, and ensuring the necessary supports are in place for individuals to thrive.

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Key Terms

Affordable Connectivity Program

(ACP): The Affordable Connectivity Program was a federal initiative in the United States designed to ensure that low-income households have access to affordable high-speed internet. The program sought to bridge the digital divide by providing subsidies for broadband service and connected devices to eligible households. The ACP officially ended on June 1, 2024, after Congress failed to approve more funding for the initiative.

Broadband: An umbrella term for a kind of internet access that is always on and fast. Usually measured in megabits per second (Mbps), broadband is the total amount of data that comes through a connection.

Cable Internet: Sends data using the same coaxial cables as TV with typical speeds of 1.5 Mbps or more.

Digital Discrimination: A form of discrimination in which any policy or practice that unequally affects a consumer's ability to use broadband internet services based on income,

race, ethnicity, color, religion, or natural origin.

Digital Divide: The gap between those who have access to technology, internet, and digital literacy, and those who do not.

Digital Equity: Every person and community having the necessary information technology resources to participate in society, democracy, and the economy fully.

Digital Subscriber Line (DSL): Sends data over traditional telephone lines with typical speeds ranging from several hundred Kbps to Mbps.

Effective Broadband: Provides at least 6 Mbps per user and allows users to send and receive high-quality video telecommunications.

Fiber Internet: Sends data over optic cables with typical speeds that are tens or even hundreds of Mbps faster than DSL and cable.

Key Terms

Internet: Global computer network providing information and communication facilities.

Internet Service Provider (ISP): The companies that both provide equipment to connect homes to the internet and manage the data going through a home's physical connection. Many telephone and cable companies became ISPs because they already owned wires going into customers' homes. Competition among ISPs is often limited due to the physical barriers to entry, lobbying, and regulation granting localized monopolies to traditional telcos.

Municipal Broadband: Broadband internet access offered by public entities. Services are often provided either fully or partially by local governments.

typically regulated by the government to ensure fair pricing and reliable service due to their natural monopoly status.

Public-Private Partnership (PPP): A collaboration between a government agency and a private-sector company that can be used to finance, build, and operate projects, such as public transportation networks, parks, and convention centers. PPPs often involve concessions of tax or other operating revenue, protection from liability, or partial ownership rights over nominally public services and property to the private sector.

Wireless Internet: Fixed wireless sends data over radio linked with fixed receiver endpoint. Typical speeds are comparable to DSL or cable.

Overview

This report reveals a growing trend toward advocating for publicly owned internet services as a solution to digital inequities. Several cities in the United States (US) have successfully implemented municipal broadband initiatives, demonstrating improved access, lower costs, and enhanced community engagement. By examining these models, the report identifies best practices and potential frameworks that could be adapted to promote equitable internet access in Los Angeles. This would position municipal broadband as a viable solution to recognize the internet as a fundamental utility and bridge the digital divide.

The report also includes a preliminary analysis of digital discrimination awareness and experiences in Los Angeles, emphasizing the impact of the discontinuation of the Affordable Connectivity Program (ACP) on vulnerable populations. Conducted as part of a broader initiative to advance digital equity, the report highlights two urgent needs: 1. accessible resources 2. advocacy to support low-income residents of color, who are disproportionately affected by digital inequities. Effective advocacy hinges upon both identifying and reporting digital discrimination.

Digital Discrimination

Digital discrimination remains a critical barrier to equitably accessing essential services, especially in the wake of the ACP's termination earlier this year.

As defined by the Federal Communications Commission (FCC), digital discrimination occurs when the policies or practices of internet service providers “differentially impact consumers’ access to broadband internet access service based on their income level, race, ethnicity, color, religion or national origin.”

Prior research indicates that numerous residents, particularly those from marginalized communities, face pervasive challenges related to internet access and affordability. Los Angeles has established mechanisms for reporting digital discrimination within the city; however, there remains a lack of accessible, user-friendly resources to help residents understand and assert their experiences.

Methods

To explore the issues, we conducted a quantitative analysis through a survey distributed throughout Los Angeles. The survey featured questions on demographic data, internet usage patterns, digital discrimination knowledge, and ACP participation. Additionally, the survey was offered in both English and Spanish to maximize accessibility. Distribution efforts included grassroots outreach to community organizations and educational institutions to optimize participation from diverse populations. A total of 85 responses were collected using the Qualtrics platform and the data was analyzed using R programming software to assess trends and correlations.

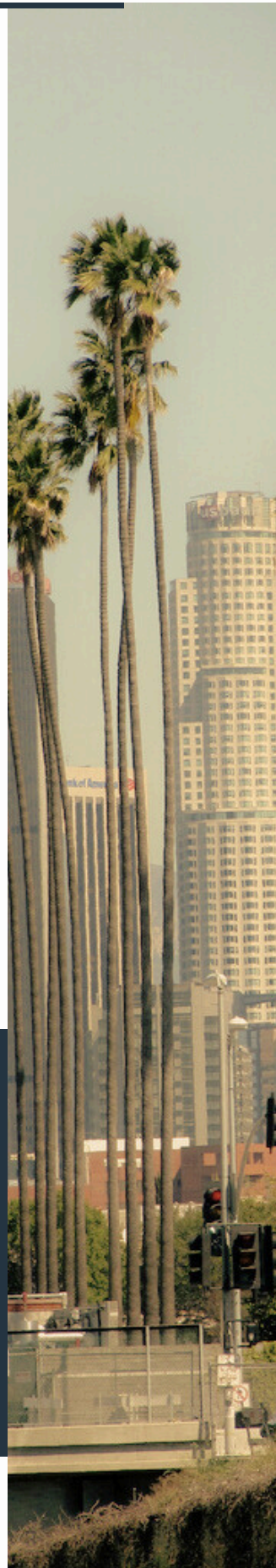
Key Findings

1 Internet Providers and Pricing
Spectrum emerged as the primary internet service provider in Los Angeles. The responses indicate that lower-income communities are paying disproportionately higher rates for internet access.

2 Digital Discrimination Awareness
A significant gap in knowledge about digital discrimination was identified. 61% of respondents were unable to confidently identify it, despite 44% being aware of the city's reporting mechanisms.

3 Impact of ACP Discontinuation
A notable correlation was found between ACP participation and reported difficulties in accessing the internet following the program's termination.

This preliminary analysis underscores the critical need for further research into digital equity in Los Angeles, particularly regarding the barriers faced by low-income residents of color. The findings call for enhanced outreach strategies, clearer survey methodologies, and a focus on developing municipally owned internet solutions. By addressing these issues, Los Angeles can advance its efforts toward a more equitable digital landscape, ensuring that all residents have access to the internet as a fundamental utility.



Introduction

Access to the internet is a fundamental necessity for individuals to obtain medical treatment, job opportunities, services, and information. As digital connectivity increasingly underpins every aspect of modern life, the question of how to ensure equitable and universal access to the internet becomes more prominent.

Los Angeles is one of the most complex metropolitan areas within the US, operating as a global center for creation, culture, innovation, and trade. At the same time, the city features significant disparities in internet access. Despite being a hub for technological innovation, many residents in underserved communities lack reliable and affordable internet connections, which exacerbates the digital divide and limits opportunities for socio-economic advancement, access to basic services, and cultural and civic participation.

Addressing the inequity issue is a matter of technological infrastructure, social justice, and economic development. Since the ACP ended in June 2024, the digital divide has only become further exacerbated as many low-income Angelenos are left without affordable internet access, limiting their ability to participate in many of the actions stated above. The purpose of this analysis is to explore the potential benefits and challenges of implementing the internet as a public utility in Los Angeles.

To do so, we conducted a landscape analysis of various case studies of municipalities across the US and how they have implemented municipal internet.

We then ran a preliminary quantitative survey of residents across Los Angeles to obtain a current snapshot of which areas are experiencing the digital divide, the extent to which they are paying for it, both literally and figuratively, and their knowledge of digital discrimination.

We hope this report not only serves as a collection of information, but also as a building block for the internet to become a public utility within Los Angeles.

Landscape Analysis

As the internet becomes increasingly integral to everyday life, the concept of treating it as a public utility, or at a minimum as a public good, has gained traction across the United States. This landscape analysis explores the current state of internet accessibility, regulatory frameworks, and public policy initiatives aimed at establishing municipal owned internet. By examining various models and case studies, the report provides a brief overview of the opportunities and challenges in making the internet a more universally accessible service, highlighting the potential impact on economic development, social equity, and digital inclusion nationwide. Furthermore, the analysis takes a brief look at initiatives currently happening in Los Angeles to understand where Los Angeles stands in the current state of digital equity.

Municipal Internet Across the Country

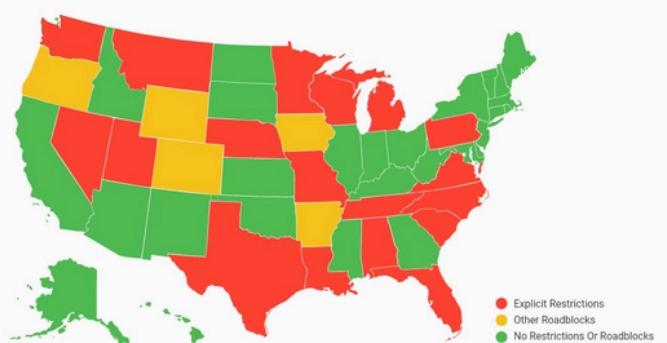
The analysis began with a broad overview of what municipal broadband consists of across the US. At the federal level, broadband is not considered a public utility, despite its clear necessity during the COVID-19 pandemic and Congress stating that it is a utility in the text of the Coronavirus Aid, Relief, and Economic Security (CARES) Act. [1] Furthermore, in order for broadband to be considered a utility at the federal level, it would require the FCC to reclassify it as a “telecommunications service” under Title II

of the Communications Act.

Through this reclassification, the FCC would be able to enforce measures for network resiliency, reliable backup power, blackout prevention, and network replacement in addition to ensuring that broadband remains universally affordable.[2] This reclassification may serve as an appropriate long-term goal in the fight for broadband as a public utility.

In the short-term, however, we will look at more municipally-based examples from cities and towns across the country. It is important to note that there are restrictions across the US that make the implementation of municipal broadband difficult, with 18 states having a high level of restriction. Five additional states have roadblocks in place that make establishing these networks difficult.[3] Despite this, there are approximately 83 municipal networks across the country and 315 network communities across 31 states with a publicly owned network offering speeds of at least one gigabit.[4]

States with Municipal Broadband Restrictions



Case Studies

Through the research, we identified five models of the internet as a public utility throughout the US including Chattanooga, Tennessee; Montgomery County, Maryland; Santa Monica, California; the Maine Connectivity Authority; and Loveland, Colorado. Each model demonstrates varying levels of reach, affordability, services, and implementation. Regardless, they serve as important markers of how municipal broadband can be implemented to ensure that people have universal access to quality broadband services.



MoCo Net - Montgomery County, MD

The smallest program of the five examples is Montgomery County, Maryland's MoCo Net. The program has its roots in Montgomery County's FiberNet Network, which is a 600-mile fiber network that is county-owned. The network serves the county's 911 center and connects 220 K-12 public schools. MoCo Net is an offshoot of FiberNet and provides services to several county affordable housing developments.[5] Most notably, MoCo Net is also free for all low-income and/or special needs residents.[6] Finally, it provides voice, data, video, and Wi-Fi services to county departments, offices, and agencies.

Although Montgomery County owns the FiberNet network, they partnered with a few vendors to ensure access to services within the housing developments including Positron for broadband access equipment, Plume for Wi-Fi software and access points, and Cisco for routers and switches. Although MoCo Net is the smallest of the case studies, it is one of the most accessible ones for residents because it is free. It provides an interesting path to municipal broadband through the use of already existing services and networks.



CityNet- Santa Monica, CA

Santa Monica, California, took a somewhat similar approach to establishing their municipally-owned network. CityNet is a city-wide fiber optic network connecting 43 buildings, college facilities, and schools. The project was funded through a combination of the city, local school district, and college budgets. CityNet stems from the Telecommunications Master Plan of 1998, which established an incremental approach to creating a fiber network and a "dig once policy." When Santa Monica opened the streets for various construction projects, they also installed conduits and fiber at a reduced cost.[7] In more recent years, CityNet has leased dark fiber to local businesses at a more affordable price.[8] Additionally, Santa Monica offers a program similar to MoCo Net through which affordable housing buildings are connected to the network during the building process and residents then have the ability to select the network as their provider.

While CityNet is less expensive than the median price of internet in America, (around \$75 a month),[9] the prices are still high for low-income residents at \$48 a month.[10] This is more expensive than MoCo Net overall.



Maine Connectivity Authority - ME

Maine's example of municipal broadband is interesting as the state has established a state-wide agency. The Maine Connectivity Authority oversees all funding related to expanding access to reliable, high-speed affordable internet service. Additionally, the agency tracks service availability and identifies which areas of the state are underserved.[11]

Created in 2006, the agency was tasked with improving broadband access and allocated between \$750,000 to \$1 million a year in grants to connect rural and poor communities. The Maine legislature decided to expand the agency through LD 1484 in order to manage a large influx of federal funding. The new expansion allows the Maine Connectivity Authority to borrow money, negotiate contracts with private internet providers, own infrastructure, and provide grants to companies and communities.[12]

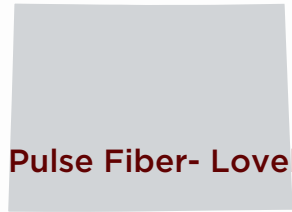
While the Maine Connectivity Authority differs significantly from the other programs presented in this report, the ability for a state legislature to establish an agency dedicated to broadband that can own infrastructure, borrow money, and enter into contracts with private providers provides an interesting path forward for municipal broadband. This is especially important considering that a primary roadblock to establishing municipal broadband is how to establish infrastructure when private companies own most of the existing broadband infrastructure.



NoogaNet - Chattanooga, TN

Chattanooga, Tennessee, has been a powerhouse within the digital equity sphere and played a large role in the movement to expand high-speed internet across the US. The city began offering municipally owned fiber internet, operated by the Chattanooga Electric Power Board, to their citizens in 2008.[13] The program began with the Chattanooga Electric Power Board (EPB) aiming to modernize the city's electrical grid and install smart meters on residents' homes. Since the smart meters required communications links, Chattanooga made the decision to install fiber as well.[14] This installation of fiber made it easy for the EPB to transition into offering municipal-based broadband. As a result, Chattanooga was sued by Comcast and AT&T. Both private providers lost the lawsuits; however, they also limited Chattanooga from expanding their network to neighboring areas due to the state laws.[15]

Much of the funding for Chattanooga's network came from revenue bonds, Department of Energy stimulus, and a line of credit from the EPB electric division.[16] Overall, the network provides service to 180,000 homes and businesses and has residential prices that range from \$57.99 a month for 300 Mbps to \$1500 a month for a staggering 25,000 Mbps.[17] Chattanooga's network is an example of how to establish municipal internet through the work of an already existing utility company.



Pulse Fiber- Loveland, CO

Loveland, Colorado, created their own municipally owned internet network, Pulse Fiber, which was launched in 2018 in response to the community’s need for better broadband delivery to the local school district.[18] The city of Loveland invested \$110 million into the building of the internet network and managed its construction on a four-year timeline. To build it, the city laid 631 miles of conduit and 1316 miles of fiber-optic cabling.[19] The network’s construction was funded through a municipal bond; however, its upkeep and maintenance is funded through the revenue made from residents. [20]

Pulse Fiber’s internet pricing functions on a sliding scale based on the residents’ income level. The network promises to make it accessible to every home and business within the city and plans to expand to regional neighborhoods.[21] Pulse Fiber is one of the most direct examples of how to create municipal internet in a region and a shining example of how to effectively and efficiently build the infrastructure, make it universally accessible, and provide a more equitable approach to internet pricing.

Common Themes

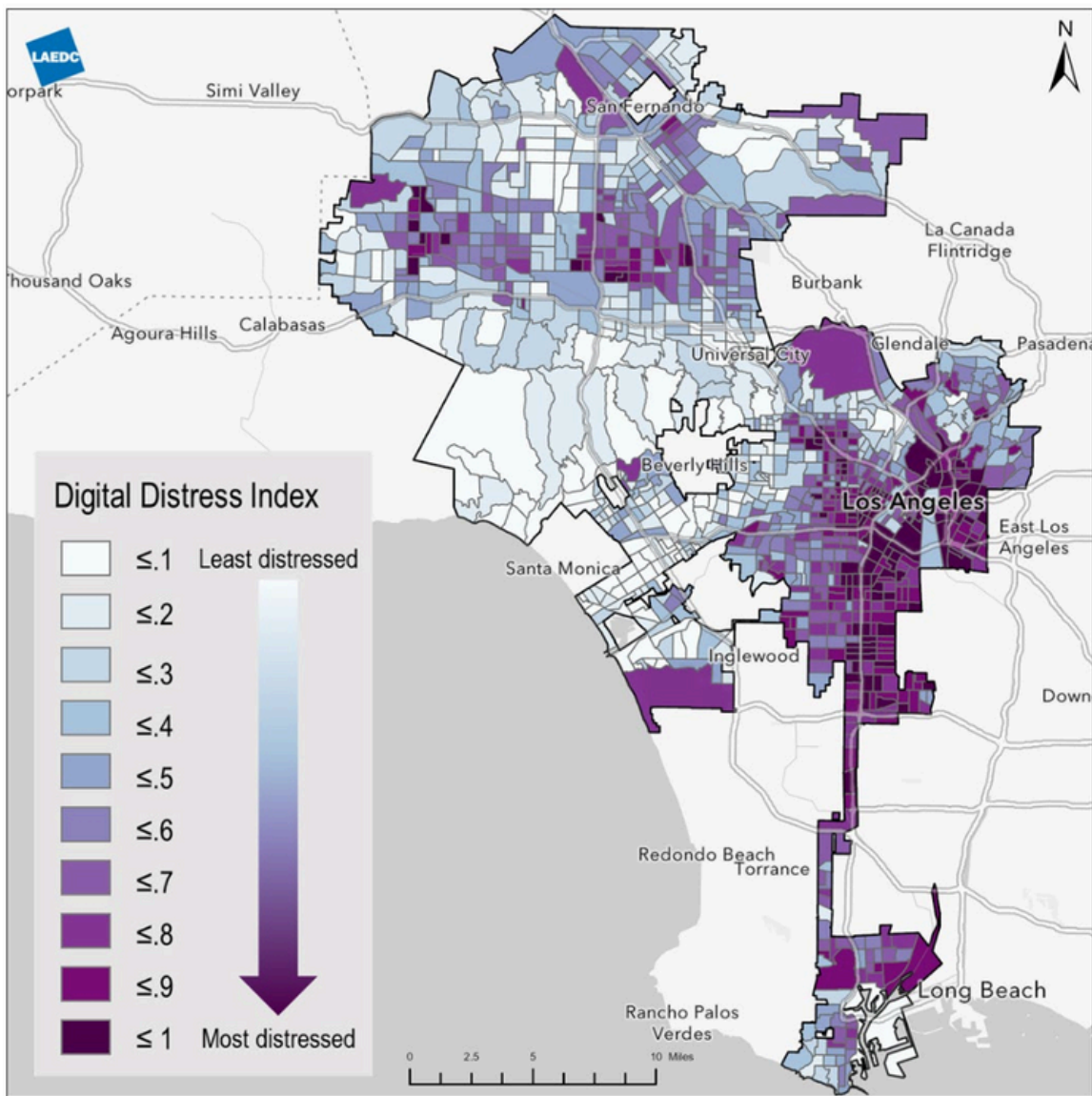
1 Many municipally-owned internet networks began as infrastructure upgrade projects for other city priorities, such as city communications, power grid upgrades, or local school and college needs. Through a quick analysis of where each city or region obtained their funding, it becomes easy to see that it’s primarily through the use of revenue bonds and sometimes grants or stimuluses.

2 There seems to be a trend where municipalities will offer the municipal-based internet only through affordable housing units. While this is a good step forward, it may create issues in making the internet more universally accessible to the public. This becomes especially important when considering that not every low-income person lives in these units or meets certain requirements to live in them. The pricing for these networks vary as well, but they seem to be around \$20 - \$30 cheaper than the median Americans regularly pay.



The State of Digital Equity in Los Angeles

Exhibit ES-1: Digital Distress Index in the City of Los Angeles, by Census Tract



Los Angeles County Economic Development Corporation (LAEDC)

The State of Digital Equity in Los Angeles

The COVID-19 pandemic highlighted how widespread the digital divide is across communities in Los Angeles. In their 2022 report, the Digital Equity Los Angeles (DELA) Coalition found that Charter Spectrum covers the majority of addresses in Los Angeles County and offers better pricing and terms and conditions to those in wealthier neighborhoods.[22] Furthermore, the Los Angeles County Economic Development Corporation (LAEDC) conducted and published an analysis in March of 2024 that discussed which neighborhoods in Los Angeles were most “digitally distressed,” based on broadband infrastructure, adoption, pricing, and device adoption. Their analysis found that Districts 1, 8, 9, 14, and 15 were the most digitally distressed in the city.[24] These districts are also some of the poorest districts in the city[23] and signal a significant need for change to happen.

Some ongoing initiatives within LA City and County include the efforts by the DELA and LA Digital Equity Action League (DEAL) coalitions. They are the catalyst behind much of the push within Los Angeles to bridge the digital divide and prevent digital discrimination. Additionally, LA County has established the LA County Digital Divide Action Team, Strategy Team, and Advisory Team.

These teams collect existing data, develop measurements for future initiatives and frameworks, and identify the best communities for “pilot” programs to take place.[25]

Over the last three years, LA City and County have been working on a variety of initiatives in relation to closing the digital divide for broadband. These initiatives include creating public Wi-Fi available at county parks, a General Relief Opportunities for Work (GROW) program for providing low-cost internet access, and the development of a Community Wireless Action plan.[26] Furthermore, the City Council recently passed a motion designed to allow people to submit complaints to the City’s Civil, Human Rights, and Equity Department alleging digital discrimination. The department will collect demographic data and will be required to report on any trends that pop up.[27] **This motion makes LA the first city to outlaw digital discrimination.**

Districts 1, 8, 9, 14, and 15 were the most digitally distressed in the city. These districts are also some of the poorest districts in the city.

Los Angeles Survey

As part of our efforts to establish a more equitable digital equity landscape, we conducted a preliminary quantitative analysis across Los Angeles. The survey sought to better understand digital discrimination, especially after the ACP sunsetted earlier this year.

As mentioned, several research reports stemming from Los Angeles City, County, and various community-based organizations have found that digital discrimination across the region is not only prevalent but also is a threat to the livelihoods of thousands of primarily low-income residents of color.

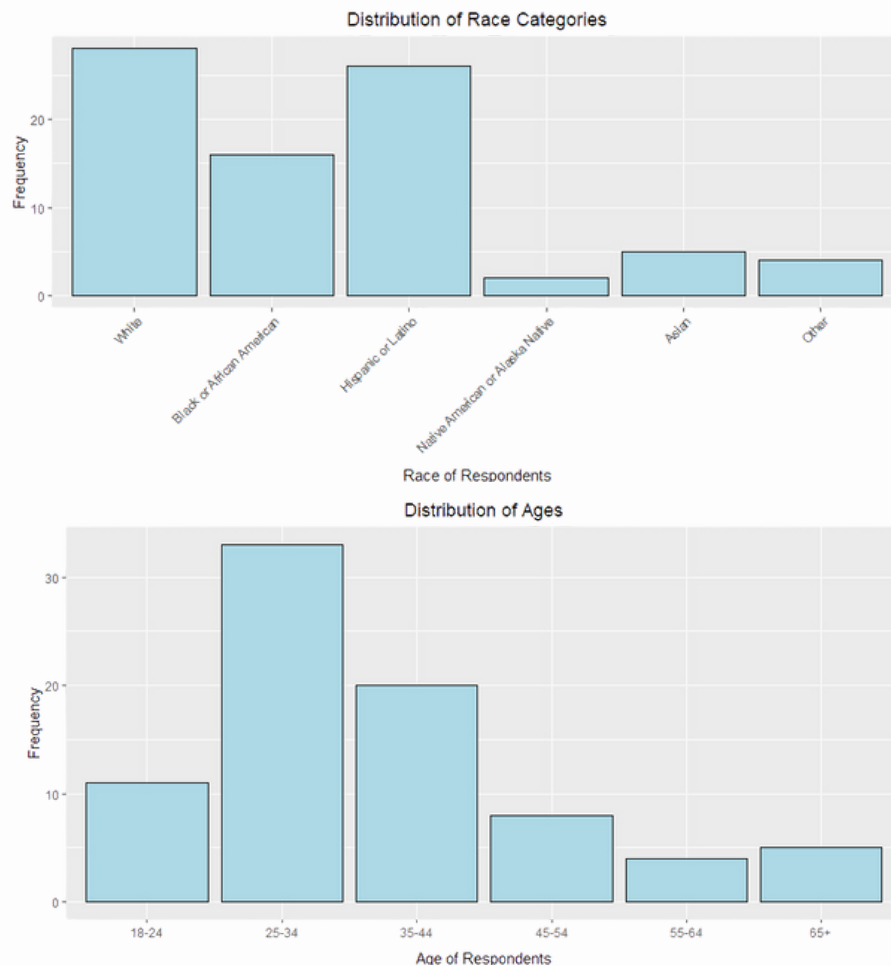
Survey Results

After running the survey for approximately two and a half months, we obtained 85 responses.

13% of respondents were between the ages of 18-24, 40% between the ages of 25-34, 24% between the ages of 35-44, 11% between the ages of 45-54, 5% were between the ages of 55-64, and finally 6% were 65+. Overall, there is a left skew towards the younger age groups represented in the survey results, which makes sense considering the survey was primarily distributed online.

While Los Angeles City has created a method of reporting digital discrimination,[28] there are few resources that are easily understandable and available to the public that would allow local residents to make an accurate self-assertion about whether or not they are experiencing discrimination.

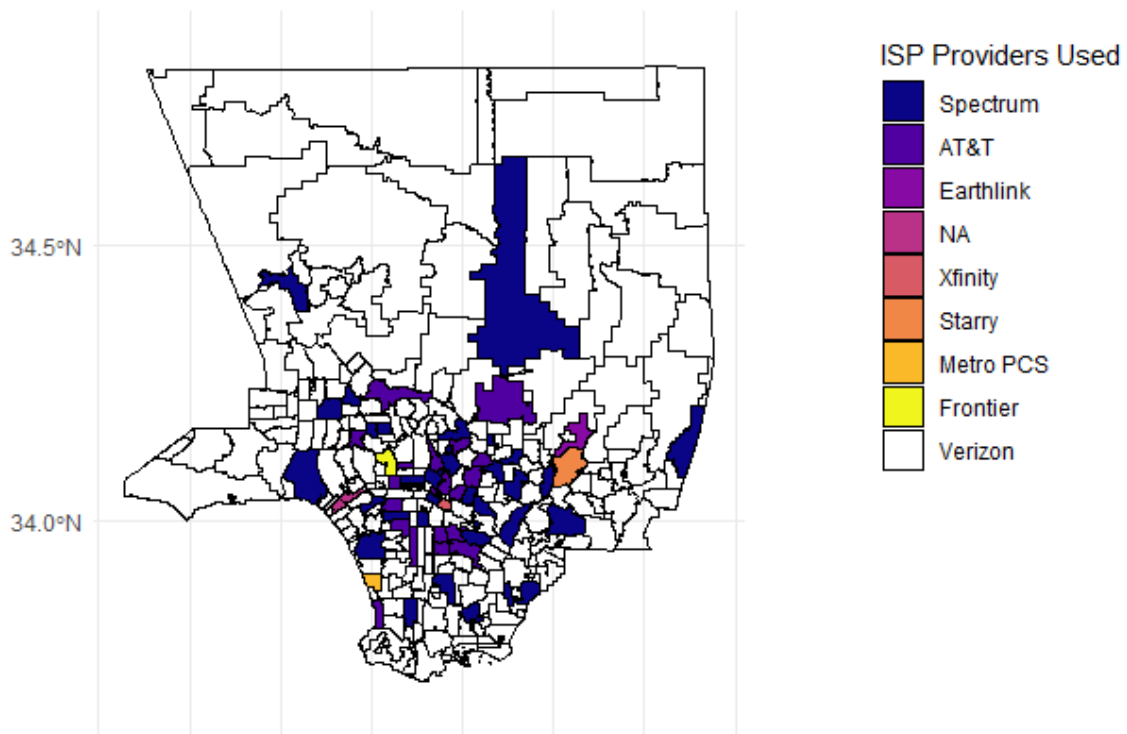
This report is a first step towards increasing that overall knowledge, offers a starting point for further research to be carried out, and provides a basis for Los Angeles officials and organizations to look into and advocate for municipally owned internet.



Finally, the income levels of the respondents were interesting considering that the data skewed right, meaning there was a greater representation of higher-income participants in the survey. Again, this may be a case of who has access to the internet and has the bandwidth to take the survey; however, the first curve upward in the distribution of income does match up with Los Angeles' median income of around \$79,700.[31] It is unclear what caused the second increase upward at the \$100,000 line. Overall, the demographics of the survey are somewhat similar to official census data, but there are a few notable discrepancies, particularly around income and race, that do not make this survey the most representative. It is assumed that with a larger sample size, these discrepancies would dissipate and mirror the census data more accurately.

The second part of the survey revolved more around internet use, affordability, and quality. As mentioned, we ran a zip code map analysis utilizing our data and a shapefile of LA County in order to get a broad view of how that data looks among different communities. One of the first questions asked was which providers each participant used if they had internet access at home. By far, it became very clear that Spectrum is the main ISP in Los Angeles as most zip codes presented them as the main provider for that area. There are outliers in the data, but it may be possible that that particular zip code only had one or two survey respondents present. Regardless, it does mirror the data found by the DELA Coalition. Based on a scan of the map, it appears more “digitally distressed” regions, as defined by the LAEDC, are paying a greater rate on average compared to higher-income communities. To reiterate, a larger sample size is needed to fully confirm the data; however, based on this preliminary set, it appears to follow this trend.

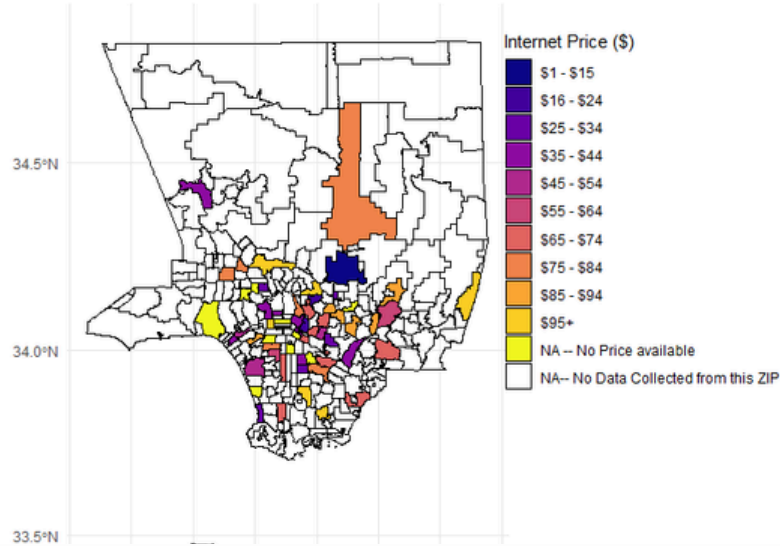
Internet Service Providers by ZIP Code in Los Angeles County



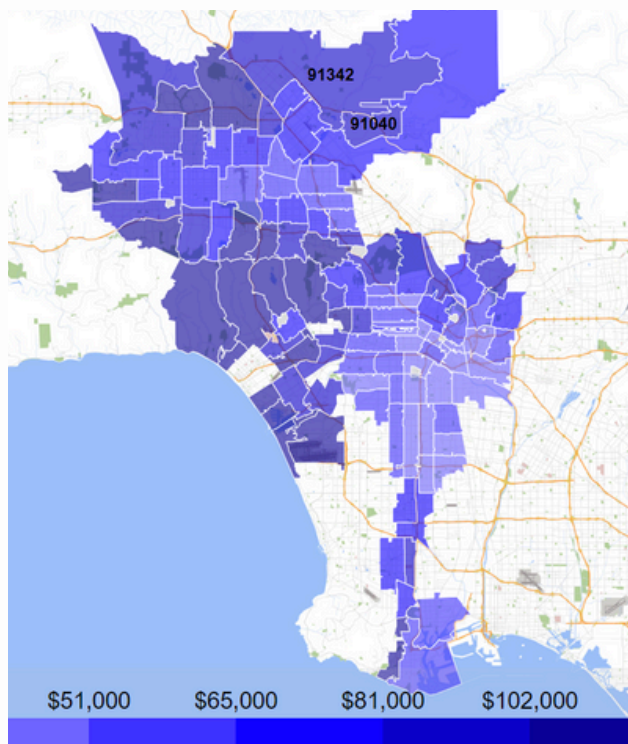
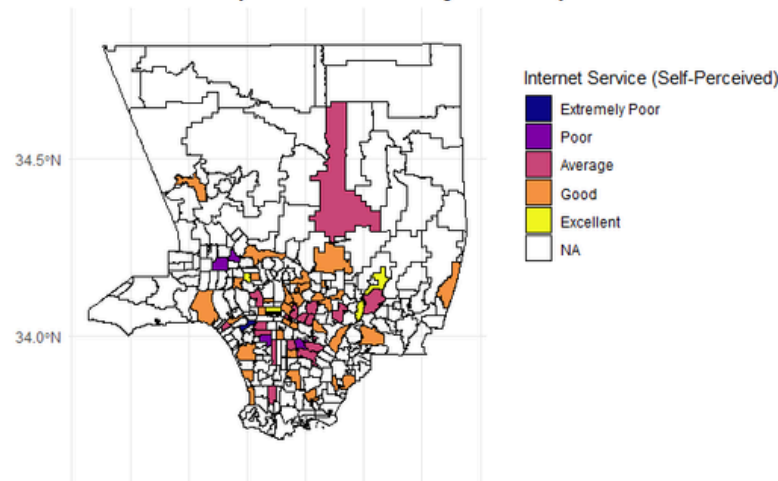
For zip code mapping, we asked respondents what their self-perceived internet service is. Compared to the internet prices graph, the data revealed a slight mirroring between the higher-paying areas and more “average” internet descriptions. Meanwhile, within lower-paying areas we observed more descriptions of the internet being “good.”

In addition to the self-perceived internet service, the survey asked at-home participants to take an internet speed test. In hindsight, it seems that the question required more instruction as responses varied wildly. The survey didn’t specify which metric respondents should use and there simply was not enough time to recode each individual response in the survey data. As a result, we are choosing to not represent that data. In this section of the survey, we also looked at what people’s preferred internet price would be and found that the preferred prices peaked at around \$20 less and \$60 less than the national average of \$75.

Internet Prices by ZIP Code in Los Angeles County



Internet Service by ZIP Code in Los Angeles County



US Census Data

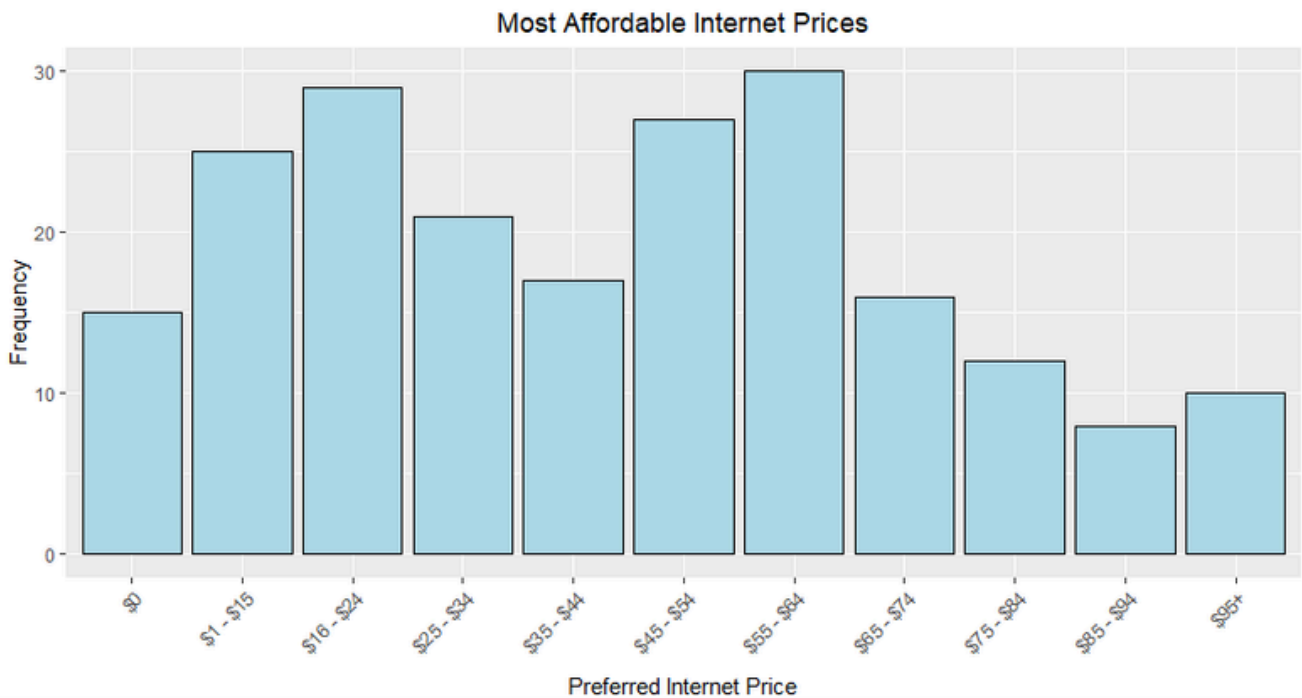
This section of the survey also looked at what people are using their internet for overall. We found that 93% of participants use the internet for work; 77% for entertainment; 70% for accessing local information such as news, community events, or election results; 69% for paying for essential services such as bills or rent; 55% for healthcare; 45% for school; and 19% for applying to government programs. The data points to a trend we have noticed in society: More essential services and functions are moving towards the digital sphere.

In the final section of the survey, we examined participants' ACP participation and if they were aware of digital discrimination. 37% of respondents were participants in the ACP program. We also ran a bivariate and multivariate analysis gauging if these participants had experienced difficulty using the internet over specific time periods.

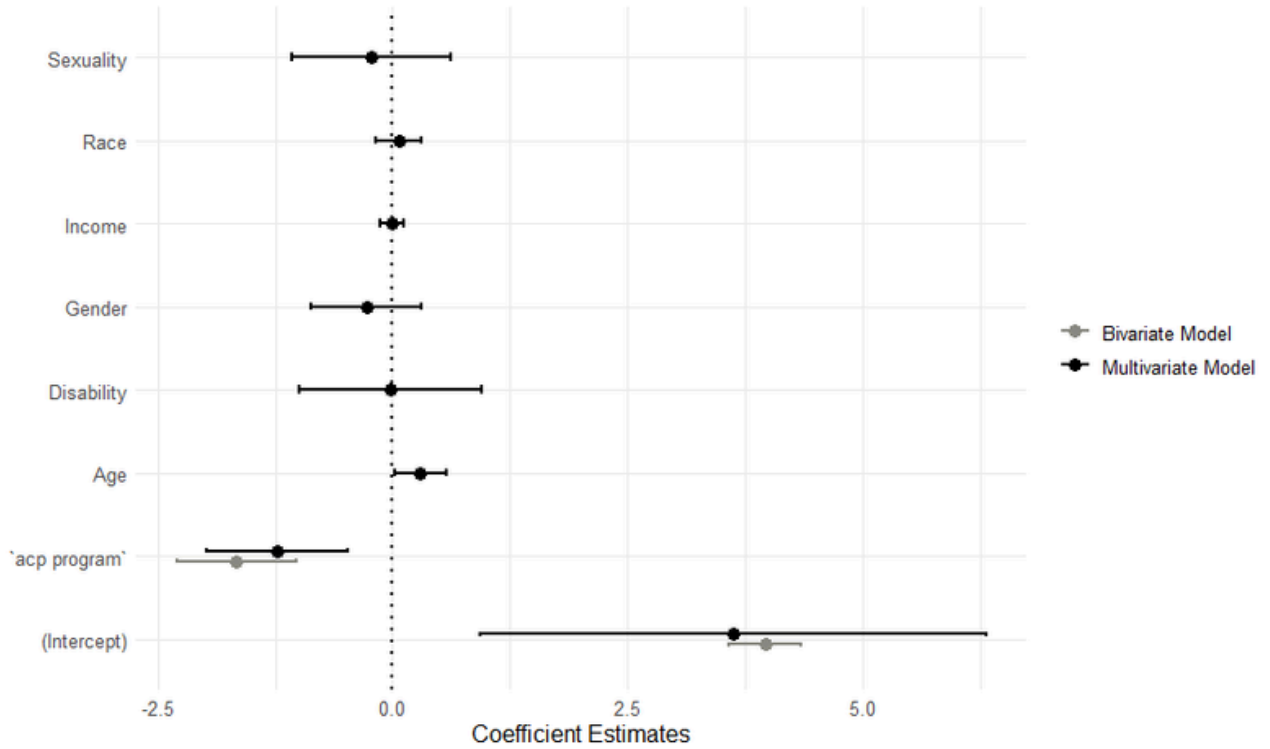
93%
use the internet for work

55%
use the internet to access healthcare

45%
use the internet for school



Relationship Between Difficulty Using Internet Over Last Year



The analysis revealed a direct correlation between ACP participation and difficulty using the internet over the last three to six months. This is significant to note since that was the approximate time period that the ACP ended and participants had to start paying for the internet without any help. We used demographic factors to control for this reality, but the only demographic factor that popped up as significant was age.

Finally, we considered digital discrimination knowledge among participants. 61% of participants noted that they could not confidently identify digital discrimination compared to 39%, who said that they could. Interestingly, 44% of participants were aware that Los Angeles now allows people to report digital discrimination.

44%
were aware they could report digital discrimination

61%
could not identify digital discrimination

Discussion

Overall, the results of this preliminary survey seem to be consistent with past surveys' results. The most notable new aspect of this survey is the multivariate analysis around ACP participants and difficulty using the internet in recent months, which points towards a problematic trend that results in people becoming left behind. This is concerning considering how most participants reported using the internet for work, healthcare, or paying for essential services. Further research is recommended to look into this trend and how to ensure that those who need internet access the most are able to obtain it and keep it sustainably.

The internet affordability questions also illuminated another perspective of this analysis and demonstrated that many people are paying much more than they can afford on average for internet access. Again, this is deserving of further research into how to make the internet more affordable overall to ensure access is equitable.

To foster transparency, there were several obstacles in the survey collection that made it difficult to obtain a large number of accurate results. When the survey was launched, including on social media platforms, there was a large influx of bots taking the survey, which resulted in location locking the survey and clearing out as many suspicious responses as possible. We erred on the side of caution, which resulted in regularly deleting responses that were flagged or looked like duplicates, potentially explaining why our sample size is so small despite running the survey for a long period of time.

Additionally, the lack of clear direction in our survey question about the internet speed test unfortunately forced us to leave it out of this report due to responses being too inconsistent to recode accurately. In the future, surveys should state this question more clearly to obtain this important data.

When further analysis is conducted, it would be interesting to compare self-perceptions of internet quality against hard data and assess whether or not people are accurately sensing the quality of their internet or if they are under or overcompensating. Indeed, this report contains several jumping off points for future research to cover and to assess the viability of municipally owned internet, informed by community needs.



Conclusion

The preliminary quantitative analysis provides crucial insights into the current state of digital equity in Los Angeles, particularly in the wake of the discontinuation of the ACP. The survey results underscored the pervasive nature of digital discrimination, which disproportionately affects low-income residents of color and highlights significant gaps in awareness and resources available to those experiencing these challenges.

The findings indicate a troubling correlation between ACP participation and difficulties with internet access. This raises concerns about the implications for individuals reliant on the internet for essential services such as work, healthcare, and education. The data also suggests that many residents are paying significantly more for internet access than they can afford, exacerbating existing inequalities.

While the survey achieved the goal of gathering initial data on digital discrimination and internet use, the limitations in sample size and data accuracy emphasize the need for further research. Addressing the survey's methodological challenges—such as clearer question phrasing and improved outreach to underrepresented communities—will be essential for capturing a more comprehensive view of the digital equity landscape.

The report serves as a foundational step toward advocating for greater digital equity in Los Angeles, providing evidence that could inform policy discussions around internet affordability and access. By engaging with community stakeholders and building on the insights gained from this analysis, we can better understand and address the barriers faced by vulnerable populations.

As the city moves forward, it is critical to prioritize initiatives that promote equitable internet access, including the exploration of municipally owned internet solutions, to ensure that no one is left behind in an increasingly digital world.

The data also suggests that many residents are paying significantly more for internet access than they can afford, exacerbating existing inequalities.



End Notes

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