

# Digital Inclusion in Mountain View

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## **Executive Summary**

This project focuses on understanding digital inclusion in the City of Mountain View. Digital inclusion is a type of social inclusion that ensures individuals and disadvantaged groups have access to, and the skills to use, Information and Communication Technologies (ICT) (Digital Inclusion definition, n.d.). This issue is particularly critical due to the impending 2020 Census which, for the first time, will include an online component.

Through a mixed method approach, our team was able to gather critical baseline data on the digital divide in the City of Mountain View. Our research design consisted of a survey that was delivered electronically via the City of Mountain View's website and social media channels. This survey was also converted into a one-page print-out and distributed in-person through on the ground surveying as well as at our focus group with the City of Mountain View Spanish Speaking Ambassadors. Not only were we able to collect survey responses during our focus group, but we were also able to collect rich qualitative data to supplement our survey results. In all, we were able to collect 191 survey responses in a little under four weeks.

A few key findings from our research include the lack of public wifi use for lower income brackets, the exploitation of low-income individuals by telecom providers that claim to offer "affordable internet options," and the inconvenient scheduling of digital literacy classes for seniors. These findings are explained further, condensed into an infographic, and visualized using a heat map in this report. Despite the work done for this project, further surveying, particularly of targeted demographics such as the elderly, low-income individuals, mono-lingual non-English speakers, and the illiterate, should be conducted in order to better identify communities without access and propose potential solutions to bridge the digital divide.

# **Project Purpose**

## **Background Information**

Most of Silicon Valley is digitally connected. Only 4% of households do not have a computer, and only 9% do not have broadband internet access. However, when considering households making less than \$35,000 a year, a disproportionate number, 30%, do not have access to the internet (Silicon Valley Index, 2018). It is these unconnected households that are suffering from the digital divide, the gulf between individuals with and without internet access. For students, a computer and the internet allow for increased educational opportunities and social interaction. For adults, connectivity is a means of civic engagement, access to healthcare and economic opportunity. For example, if someone is unemployed, they will, on average, find a job seven times faster if they have access to the internet (Chike, How the Digital Divide is Holding the Economy Back). Ensuring that all residents are connected to the internet increases social equity by giving everyone access to the same opportunities, whether they be economic, recreational or educational. Especially because those suffering from the digital divide tend to be already marginalized groups such as people of color, low-income communities and the elderly, universal access would be incredibly impactful (US Census Bureau. Computer and Internet Use in the US). The increased economic opportunities would have a greater effect than most believe: “160 million dollars a day are lost of US productivity because of 60 million people not connected to the internet (Chike, How the Digital Divide is Holding the Economy Back).”

There are resources that pre-exist, which may help bridge the digital divide. One resource is low-cost internet solutions available through many nationwide providers like AT&T and Comcast. These packages range from ten to fifteen dollars a month and in order to be eligible residents must meet certain eligibility standards. These standards include having at least one member of the household enrolled in the federal nutrition assistance program or one child on free or reduced lunch programs. The digital divide cannot just be attributed to a lack of access though. Digital literacy, the ability to use information technologies, is equally important. A lot of community libraries and senior centers offer digital literacy classes to enable residents to utilize digital resources at their disposal.

## **Project Location & Community Partner**

This project would not be possible without the ongoing partnership with Mr. Alex Andrade and Ms. Christina Gilmore, who both work for our community partner, the City of Mountain View. The City of Mountain View is led by an elected council and manager, which governs over 81,000 residents. Situated in the heart of Silicon Valley, it is committed to providing exceptional public services to its diverse community: The City of Mountain View is 56.0% White, 26.0% Asian,

21.7% Hispanic or Latino, 2.2% Black or African-American, 0.5% Native American, 0.5% Pacific Islander (US Census Bureau. State and County Quick Facts. January 2014). Housing costs in Mountain View are incredibly high, with the median cost of a single-family home in the millions. These skyrocketing housing prices have attributed to the homeless population in Mountain View tripling. Many residents now live in cars or RVs. The scope of our project is the entirety of the city, including undocumented and homeless populations. While most residents can be reached via social media, it is anticipated that groups such as monolingual Spanish speakers may not be accessible through that channel. To ensure that all demographics are accounted for, targeted outreach will happen through community meetings like those held by the City of Mountain View Spanish Speaking Ambassadors.

## **Project Goals**

This project focuses on understanding digital inclusion in the City of Mountain View. Our team took a multi-tiered approach towards understanding the many aspects of this complex issue. First, we tried to determine geographic pockets of Mountain View that are offline due to a lack of internet or the necessary hardware. Secondly, we gathered information regarding attitudes towards digital inclusion. The United Nations Human Rights Council recently declared access to the internet a fundamental human right. Do Mountain View residents agree with that statement? For Mountain View residents that are connected, we are interested in the demographic that feels more or less digitally savvy than the rest of the city. Finally, we inquired about existing programs that promote digital inclusion and ways those programs can be improved. We wonder if reduced-rate internet options are known and/or used. The library offers a lot of digital literacy programming, and we wondered if residents are aware of it, and if so, if they participate in it.

We obtained most of our answers through a survey delivered via social media and in-person. The results of the survey are presented in an infographic, as well as a heatmap that visually shows areas of Mountain View where residents do not have access to the internet. Survey results and analysis informed our own recommendations for further programming to support digital inclusion that were presented to the Community Services Agency, a nonprofit that provides vital resources to low-income families.

## **Project Importance**

This project remains critical in creating a sustainable Mountain View due to its potential contributions to economic vitality and social equity. As mentioned earlier in the project description, as a country, the U.S. loses 160 million dollars a day as a result of the 60 million people who are not connected to the internet. If this percentage were to be applied to the City of

Mountain View, with 9% of individuals not connected to the internet, the city loses million of dollars annually. In regard to social equity, ensuring that all residents have the means to connect to the internet allows them to have “equal” opportunity whether that be access to employment sites, online education, or the 2020 Census. As you may or may not know, the census counts every resident in the U.S. and is conducted every ten years. The Census research then results in the number of local residents that will be tied to federal funding. Prior to 2020, the decennial Census included volunteers physically walking door-to-door and conducting surveys. However, the 2020 Census is expected to use mobile technology as well as internet responses. Consequently, this project will play a crucial role in identifying the communities without internet access in an effort to ensure equal representation in the 2020 Census.

Broadly speaking, community control within this project, and its future directions, is a high priority. Using Arnstein’s ladder of citizen participation, it’s easy to view the digital literacy programs that exist in Mountain View as relatively low on this ladder. Too often we see that there is a missing link between laws, regulations, or policies and the people they’re supposed to benefit. For example, the city of Mountain View can create as multitude of informative digital literacy classes, but if nobody is attending them - because they aren’t in Spanish, for example - there is no return on the investment for the community these classes are trying to serve. Fortunately there are very concrete steps to move the programs up the ladder through existing infrastructure. One step is to increase community control through organizations like The Spanish Speaking Ambassadors, whom are already in contact with the city and offering services such as information that can serve undocumented members of the community and tax information to people who attend the meetings. By putting the distribution of digital literacy services and programs that already exist through the community centers more in the hands of community members, this project moves much higher on the ladder of citizen participation. By including the community as much as we can in the city’s attempts to reach those who need the classes the most, we both figure out what would be the most useful information to give to the community and which community members have the highest need.

## **Literature Review**

Both the City of Baltimore as well as Kansas City have digital inclusion goals that have local government buy-in. The City of Baltimore is focusing on becoming more of a smart city and one of its goals is to have all of its residents have access to broadband internet by 2023. Moreover, the City of Baltimore is working to ensure that every citizen is connected and able to benefit from that connection. This means that digital literacy is a huge priority. The City of Baltimore is working to create avenues for connection by refining low-cost options through pre-existing internet providers and creating easy ways to access trainings that increase digital literacy. There is a strong emphasis placed on interacting with people in everyday places to

spread awareness and ensure that this initiative is well-received in all neighborhoods. This study emphasized the importance of community engagement and support. The City of Baltimore conducted many focus groups with small groups of residents in order to understand their barrier to digital inclusion (The City of Baltimore, Inclusive Digital Transformation Strategic Plan, 2018). Similarly, we have conducted focus groups with different community members, which led to really fruitful learnings.

While the push for digital inclusion is mainly coming from the government in Baltimore, Kansas City is bringing together business leaders, government officials and nonprofit agencies to enact meaningful change towards the issue of the digital divide. The Kansas City Coalition for Digital Inclusion has many initiatives, including powering innovation in civic services and marketing the region as a leader in smart cities. The most applicable sections of their playbook pertain to ensuring universal access and capacity. Kansas City wants internet access and a computer in every home. While many low-income residents have access to a smartphone, often with data, a computer and internet are necessary for many tasks like completing homework or job applications. As such, nonprofits are providing refurbished computers at a low cost and the coalition is actively searching for community-based organizations that are working on universal access. Like Baltimore, Kansas City also believes that digital skills training is incredibly important and have programs on everything from email use to online banking (Kansas City Digital Drive, 2018).

Both Baltimore and Kansas City integrated community voices within their recommendations and future plans, which was a goal of ours as well. Something that these cities did not address was the efficacy of low cost internet options. Baltimore plans on redefining low-cost options with pre-existing service providers and Kansas City has made a call to action regarding expanding service. As a result, Time Warner has already expanded Wifi connectivity in the region. The current literature focuses more on whether or not low-cost options are available and not on their usage. We were interested in understanding if eligible residents within Mountain View were even aware of these programs, and if they were, we wanted to know if they used them. A key aspect of the digital divide is access, but an equally critical piece is usage. The digital divide can never be breached unless there is both, yet current literature on low-cost internet options do not talk about usage.

## **Methodology**

In order to identify the appropriate stakeholders, residents of Mountain View that are not digitally connected, we began our data collection by distributing an electronic survey to determine which communities are in fact digitally connected. The survey was created using Stanford Qualtrics with the Stanford branding hidden so that an overarching private

organization is not tied to the survey. This ensured that the citizens of Mountain View do not answer the survey questions with a bias based on their perceptions of the private entity distributing the survey.

Prior to this study, there was no quantitative or qualitative data in the City of Mountain View that assessed the state of digital access. As a result, this survey served as a means of creating baseline quantitative data for the Mountain View city government, and thus the public sphere. We selected this particular quantitative approach, surveying because it would allow us to collect data from a large amount of Mountain View residents. Moreover, we hoped that collecting electronic survey data along with respondent residential data would reveal the communities which are already digitally connected. Underrepresentation in certain neighborhoods told our team that the survey didn't reach individuals from these communities either due to the limited reach of our distribution channels or because people in these areas do not have internet access.

While establishing the content of the survey, we had to consider multiple perspectives with a particular consideration for the viewpoint of the target population. Since we are targeting low-income communities that do not have the means to access digital services such as the internet, we include questions in the survey that cater to this demographic. For instance, we have included appropriate income brackets and mentioned affordable internet options such as AT&T Access and Spectrum Internet Assist. The survey is divided into five sections which are access, connectivity, resources, miscellaneous, and demographics. It consists of 29 questions and on average takes 5-10 minutes to complete. The survey was made available in both English and Spanish. In general, the data we collected from the survey is two-fold. First, we needed to understand the community member's digital connectedness by asking questions regarding the devices in their house, their access to the internet, and their knowledge of digital resources available in the community. Second, we needed to determine where they live in order to generate a heat map as one of the project deliverables. In order to protect the confidentiality of household addresses, we included a map of Mountain View that is color-coded to divide it into six regions. The survey participants will simply be required to include the region in which they reside. However, there is still an option to include the full household address if they are open to doing so. (See the full survey in the Appendix.)

This electronic survey was distributed through multiple channels, including the City of Mountain View's website, social media channels (Twitter and Facebook), and NextDoor. Furthermore, we also handed out paper copies of the survey to community members at our focus group with the City of Mountain View Spanish Speaking Ambassadors. This focus group was held 7th of November at the Mountain View City Hall employee break room. The entire session was conducted in Spanish thanks to a translator from the Spanish Speaking Ambassadors as well as Romeo Umana, who is also fluent in Spanish. We began by introducing

ourselves, our community partners, and the projects. Following introductions, we passed out paper copies of the survey for completion. Seeing that we had yet to launch the online version of the survey, the focus group served as a pilot test for the clarity and readability of our survey. Following the completion of the printed survey, we then field questions and comments from the 10 Spanish Speaking Ambassadors that attend the focus group. There was no formal structure to this particular portion of the focus group. This was done intentionally in order to collect organic responses pertaining to this topic. Last but certainly not least, we distributed extra surveys to the Spanish Speaking Ambassadors for them to give to other community members unable to attend the focus group. These responses were promptly returned to Christina, scanned and sent to our team a couple weeks later.

In addition to the focus group, our team collected paper responses by surveying on the ground at the Mountain View Senior Center and Teen Center. The visit to the Senior Center occurred on Tuesday, November 13th and the visit to the Teen Center was two days later on Thursday the 15th of November. At both of these locations, we approached potential survey respondents, introduced ourselves and the project, and asked them to participate in our survey. Following the focus group and on ground surveying, all the paper survey data was then inputted into Qualtrics for data analysis. In all, we were able to collect a total of 191 responses.

One of the main limitations of using survey methodology is how static data collection becomes. Survey respondents see the same questions and are offered the same answers to choose from. While collecting consistent data allows researchers to track frequency and identify patterns, there is little to no freedom to further prod participants or allow for unexpected answers. Although, structurally, one could add open response questions to gather richer qualitative data, more often than not, answers that require a text response disincentivize survey completion. Thankfully, information collected from our focus group supplemented our survey data by allowing us to hear directly from individuals who are affected by the digital divide via an open forum. Another limitation of our survey is the fact that it was only translated into English and Spanish. Mountain View is a fairly diverse city and there are many monolingual speakers of other languages such as Russian or Chinese that were not able to fill out the survey. That being said, given that the City of Mountain View had relatively no city-specific data related to the digital inclusion, the survey was the ideal method for creating a baseline and collecting data from many individuals. Moreover, the additional use of qualitative methodology, the focus group, allowed us to also capture stories to complement and enhance our quantitative findings.

# Deliverables

## **Focus Group Findings**

From our focus group with the City of Mountain View Spanish Speaking Ambassadors, our team was able to make a handful of key findings. First and foremost, we were told by focus group participants that there is a notable illiterate community within Mountain View that are unable to either read English or any other language. Based on the information given to us by the focus group, the size of the illiterate community is unclear. Given the high levels of affluence within the Mountain View community, this information was quite surprising. If more research were to be conducted on this topic in the future, this particular community of interest could be a good population to reach out to.

The next notable finding was related to affordable internet options such as AT&T Access, Internet Essentials from Comcast, Spectrum Internet Assist, and Cox Connect2Compete. These affordable internet plans offer wifi at less than \$10 a month. Prior to the focus group, many of our team members were under the impression that these programs would be the solution to bridging the digital divide, that low-income Mountain View residents were simply unaware of these options. However, after speaking to focus group participants it became clear that these affordable internet options (specifically from Comcast and AT&T) were affordable because of their terrible download speeds. The download speeds were so slow, one woman told us it was akin to having no service at all. To make matters worse, when these individuals contacted these telecom companies, instead of being making an effort to improve the quality of the service being provided, phone operators attempted to bait-and-switch these customers. In other words, the phone operators only encouraged these low-income individuals to buy the more expensive option in order to get faster download speeds. Although further research should be done to corroborate these claims, this finding highlights an opportunity for large-scale advocacy work for affordable internet access options with acceptable download speeds.

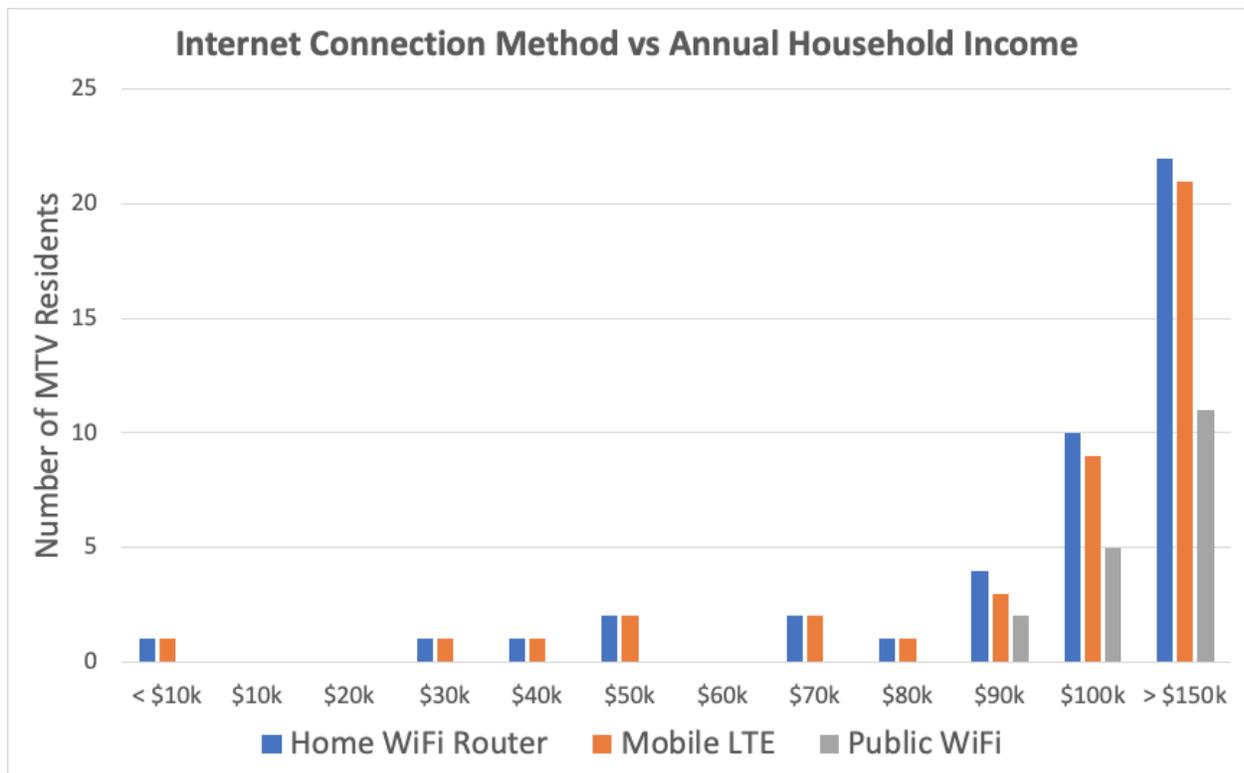
Finally, we also discovered a need for more accessible digital literacy courses in the City of Mountain View. Of the focus group participants, nearly one-third of these individuals were older women who expressed an interest in learning how to use information and communication technologies. Although classes are offered at the Mountain View Senior Center and library, these women work two or three jobs and, as a result, are not free to go to these courses until 8 PM. Classes are currently not offered at this time. Moreover, digital literacy classes are taught in English making it impossible for monolingual non-English speakers to take any of these class offerings. This finding is significant because even if everyone has access to the internet it is

critical that they know how to utilize it. Additionally, this finding indicates that the scheduling of digital literacy classes may not work for the individuals that want and need this type of education the most. Moving forward, the Senior Center, as well as the library, should gauge interest and availability to better meet the digital literacy needs of the Mountain View elderly.

## Survey Analysis

In total, we received about 200 survey responses from the Mountain View community. Here, we will be analyzing these results from the survey and providing further insight into what these results mean for digital inclusivity in Mountain View.

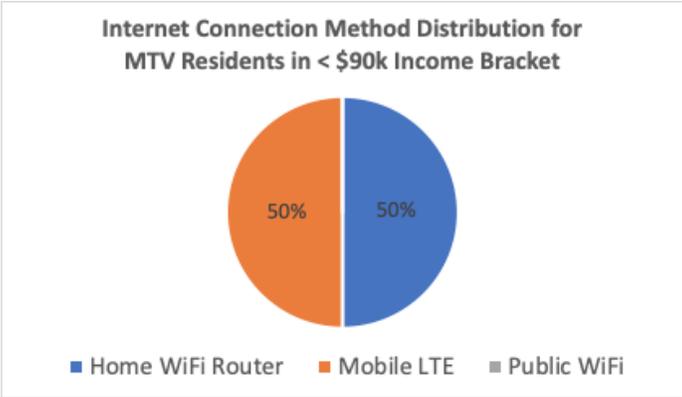
**Figure 1:**



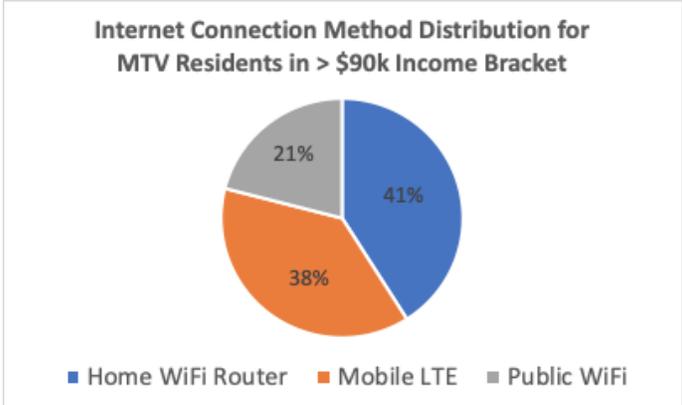
To begin, Figure 1 shows how the method by which the residents of Mountain View connect to the internet compares across various annual household income levels. It is evident that a home WiFi router and a mobile LTE are ubiquitously used methods of internet connection in Mountain View across all income levels. In fact, as can be visualized in Figure 1, both of these methods are used about equally. However, one key observation here is that the use of public WiFi as a means to connect to the internet is only present in the higher income brackets from \$90k and above. Figures 2 and 3 below provide a closer look at this phenomenon by presenting

an aggregate distribution of internet connection method across all income brackets below \$90k and all income brackets above \$90k, respectively.

**Figure 2:**



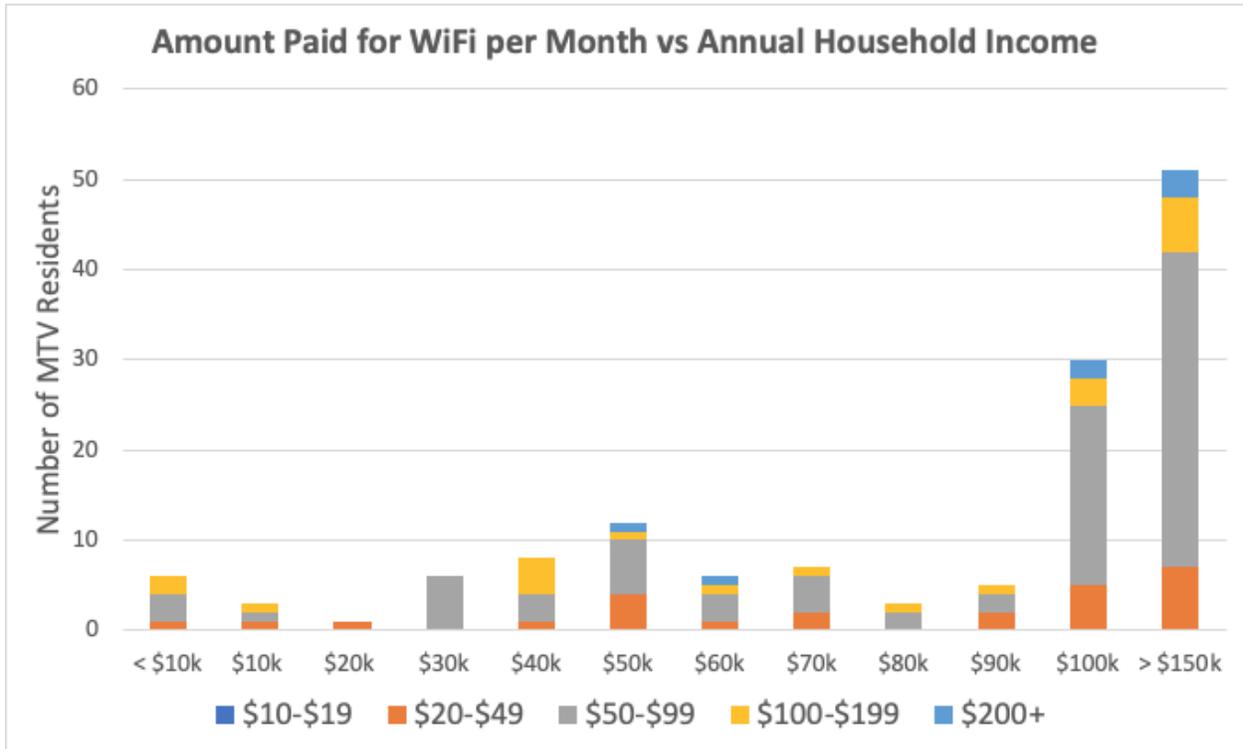
**Figure 3:**



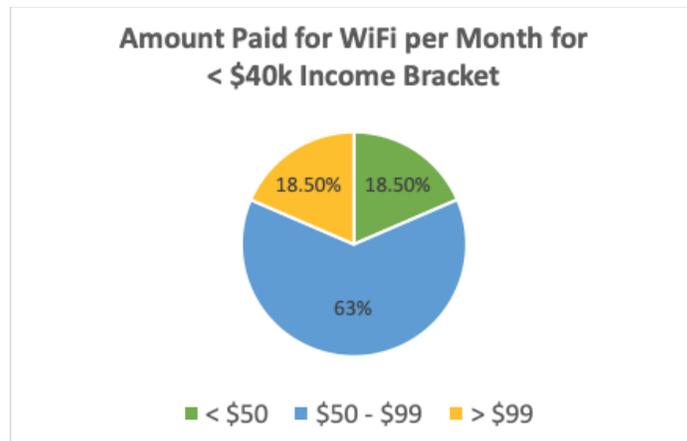
Based on the survey results, we can clearly observe in Figure 2 that none of the lower income brackets (i.e. below \$90k in this case) show use of public WiFi. On the other hand, the higher income brackets (i.e. above \$90k in this case), as displayed in Figure 3, show that 21% of Mountain View households that fall in this income range use public WiFi as a means of connecting to the internet. This interesting finding points to a potential solution to the digital divide in Mountain View: increasing awareness of and access to public WiFi for low-income residents.

Next, Figure 4 provides a distribution of the amount paid for WiFi per month per household as a function of the annual household income level. As can be seen by the dominant gray-colored bar across all income levels, Mountain View residents pay, on average, \$50 - \$99 per month for WiFi connection via a home WiFi router.

**Figure 4:**



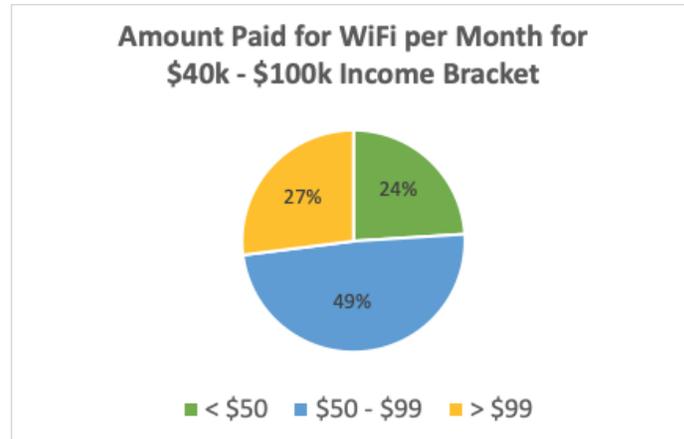
**Figure 5:**



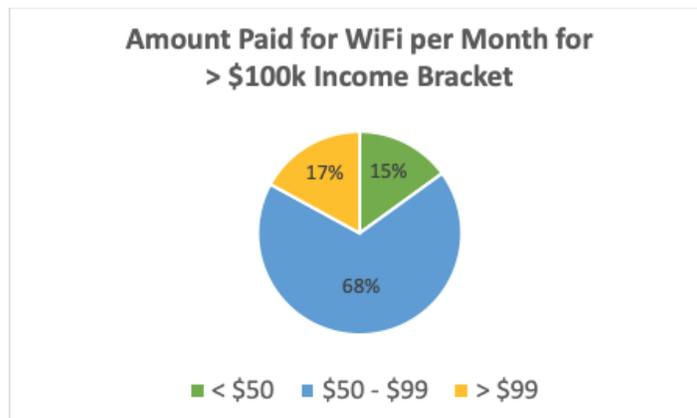
The pie charts in Figures 5, 6, and 7 take a closer look at the data presented in Figure 4. Each of these figures breaks down the distribution of amount paid for WiFi per month per household across a particular group of income brackets. Figure 5 explores the lower income brackets (less than \$40k) while Figures 6 and 7 take a look at the middle (\$40k - \$100k) and high (greater than \$100k) income brackets, respectively. In addition, each of these figures aims to highlight the percentage of households within these income groups that pay the average WiFi cost of \$50 -

\$99. Thus, the pie chart divisions are threefold: below average (less than \$50), average (\$50 - \$99), and above average (greater than \$99).

**Figure 6:**



**Figure 7:**

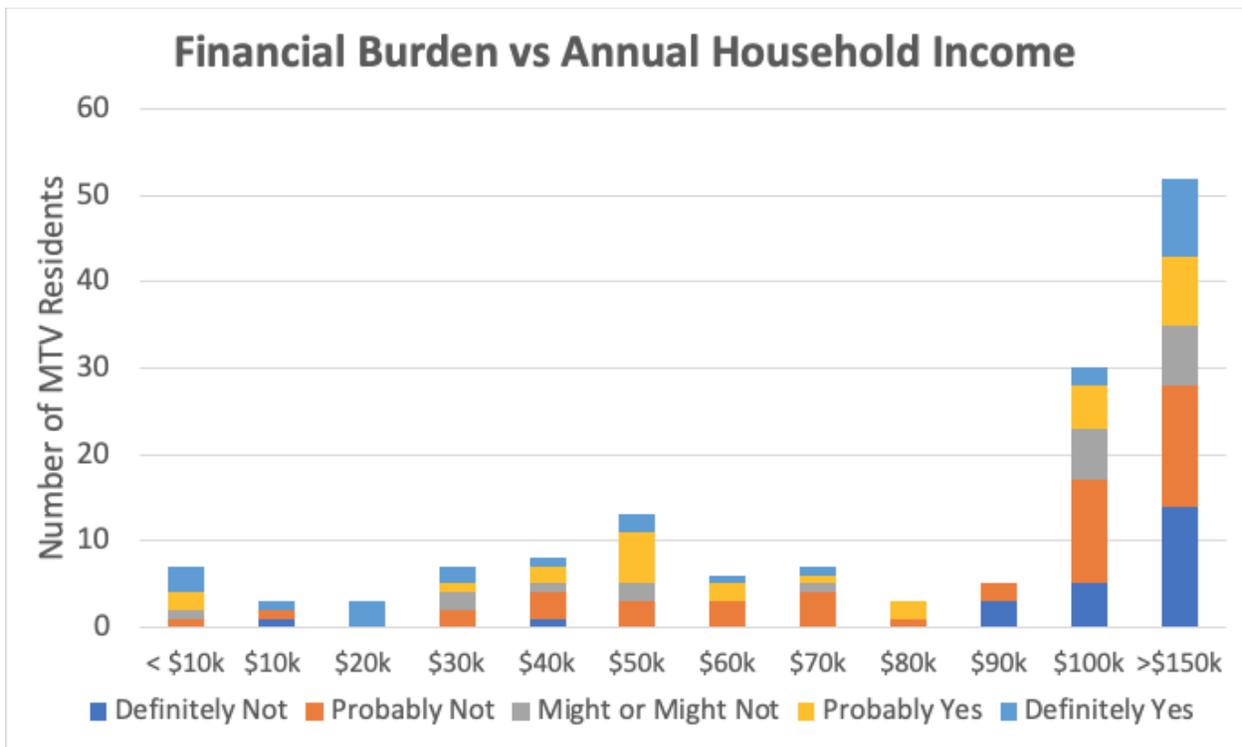


The data shows that of the Mountain View households in the < \$40k income group, 63% pay in the average \$50 - \$99 range for WiFi (Figure 5). In perspective, based on Figure 7, we see that 68% of households in the > \$100k income group pay the average \$50 - \$99 range for WiFi. Not only does a majority of the lower income group pay the average WiFi cost, but also the percentage of the lower income group paying the average WiFi cost (63%) is about exactly the same as the percentage of the higher income group paying the average WiFi cost (68%). This interesting finding provides support for the claim that many internet companies, such as AT&T and Comcast, prey on lower income residents by baiting them with low-cost internet options and then hiking up the price when these residents call to ask about the service's poor connection. In fact, based on Figure 6, it is evident that a much lower percentage (49%) of households in the middle income group (\$40k - \$100k) pay the average \$50 - \$99 range for WiFi.

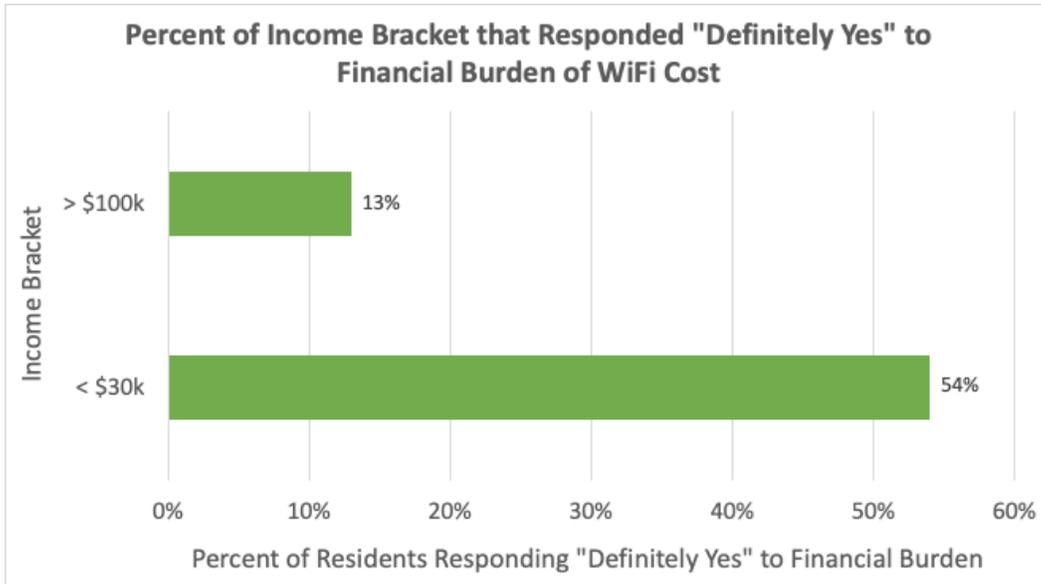
Thus, this disparity in cost distribution further shows that the lower income residents are differentially affected by WiFi cost, even when compared to the middle income residents. In addition, another possible explanation for the higher average WiFi cost for low-income households versus middle-income households is the lack of knowledge or information about internet services amongst residents in the low-income brackets, most likely due to a potential language barrier or lower social capital.

Lastly, Figure 8 explores whether or not the residents of Mountain View consider paying for a household WiFi service a financial burden. The responses to this question are displayed across income brackets in order to provide more insight into how reported financial burden compares in the context of annual household income.

**Figure 8:**

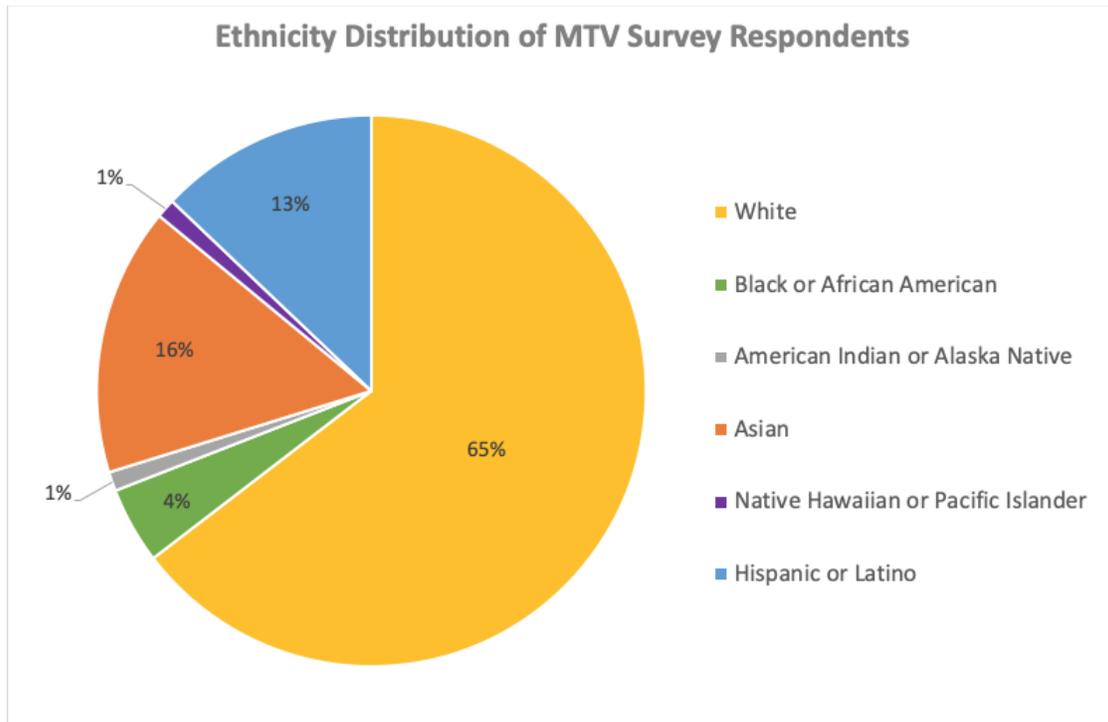


**Figure 9:**



In order to look more closely at the data shown in Figure 8, Figure 9 specifically looks at those respondents that answered “definitely yes” to the cost of WiFi being a financial burden for their household. In particular, Figure 9 shows how the percent of residents responding “definitely yes” compares within each of the low income (less than \$30k) and high income (greater than \$100k) brackets. From this bar graph, we see that a majority (54%) responded “definitely yes” to financial burden in the low income group while only a small number of residents (13%) responded “definitely yes” to financial burden in the high income group. More or less, this result confirms that the phenomenon uncovered in Figures 4-7 (i.e. percentage of residents in low income and high income brackets that pay average WiFi cost is about the same) leads to a comparatively strong financial burden for lower income residents and thus serves as a barrier to equitable access to WiFi for the residents of Mountain View.

**Figure 10:**



In order to note the demographic distribution of the survey respondents, Figure 10 provides a percent breakdown by ethnicity of all the Mountain View residents that responded completely to all answers on the survey. These numbers include both paper survey and electronic survey respondents. Based on Figure 10, we can see that a majority (65%) of the respondents were White. The other ethnicities that made a significant contribution to the survey results are Asian (16%) and Hispanic/Latino (13%). Only a small percentage of the respondents came from the other remaining ethnicities, Black/African American (4%), American Indian/Alaska Native (1%), and Native Hawaiian/Pacific Islander (1%).

## **Infographic**

The infographic contextualizes the problem of the digital divide, summarizes our findings from the past several weeks of research, and makes suggestions for further steps. Finally, it allows citizens of Mountain View to get involved, by providing the survey link and contact information of our community partners. This infographic can be distributed at many of the places we visited throughout our project: The senior, center, the teen center, the Community Services Agency (CSA), the library, etc. Such distribution could potentially help with future work on the project.

STANFORD UNIVERSITY AND THE CITY OF MOUNTAIN VIEW

# DIGITAL INCLUSION



## 60 MILLION PEOPLE

Or 18.42% of the United States, lack internet access, amounting to \$160 million lost daily. With the digitalization of the upcoming 2020 census, this has the potential to exclude a large part of the population.

## THE CITY OF MOUNTAIN VIEW

Home to Google, Microsoft, LinkedIn, and other successful tech companies, Mountain View still experiences digital inaccessibility rates of about 9% - amounting to over 7000 residents.

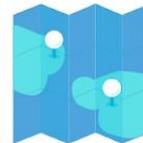


## A 29-QUESTION SURVEY

Distributed online and in-person, in both Spanish and English, was used to assess who in Mountain View was connected and who was not, why they were/weren't connected, and how best to address the digital divide.

## 200 RESPONSES

Collected from online responses, a focus group with the Spanish Speaking Ambassadors, and surveying at the Teen and Senior Centers, were used to develop a heat map of digital connectivity.



## THE RESULTS SHOWED



- 54% of surveyed households making <\$30k consider Wifi to be a financial burden vs. 13% of >\$100k households
- The majority of those making <\$30k paid Wifi bills in the same \$50-\$99 monthly price range as those making >\$100k

## DIGITAL INCLUSION PROGRAMS

Created to target less connected demographics. In Mountain View, this would include digital literacy classes held at the Senior Center, Teen Center, and Library. Reducing the cost and expanding the geographic connectivity of low-cost data plans from AT&T and ComCast

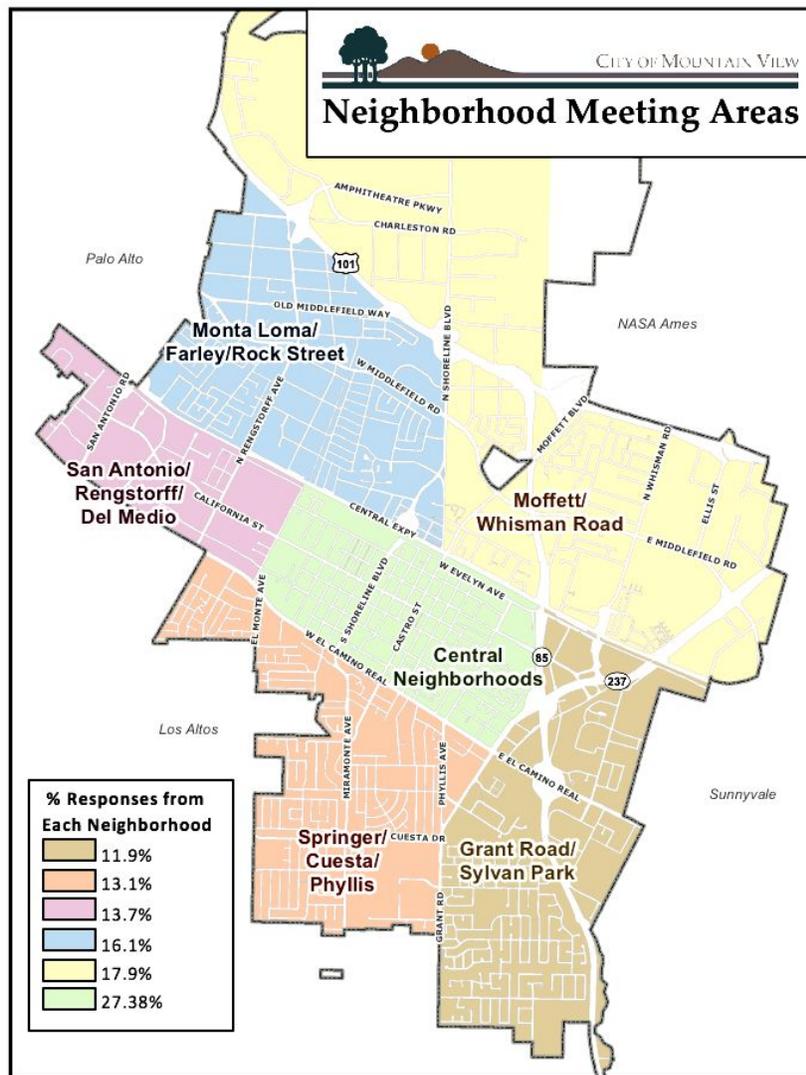


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FOR MORE INFORMATION CONTACT CITY OF MOUNTAIN VIEW ASSISTANT TO THE CITY MANAGER -CHRISTINA GILMORE- AT [CHRISTINA.GILMORE@MOUNTAINVIEW.GOV](mailto:CHRISTINA.GILMORE@MOUNTAINVIEW.GOV)

## Heatmap

Creating a heatmap was a bit challenging, as the latitude and longitude coordinates calculated by Stanford Qualtrics were not local to Mountain View, indicating that many citizens took the survey while at work, traveling, etc. Thus, we did not have precise geographic coordinates of all the responses to create a map. The map below showing the distribution of responses across neighborhood classification was included instead because the difference in the number of responses by region was minimal and the sample size was fairly small relative to the population of Mountain View. A concrete heat map would be reasonably uninformative at this point in time. Further data collection, particularly including precise geolocation of responders addresses, would better contextualize the map and provide more concrete geographic information about connectivity.



## **Conclusion**

Within the community of Mountain View, this project could go in several different directions. First and foremost, further surveying and data collection are necessary to develop an executable plan. More specific residential information (i.e. collecting specific addresses) would be very helpful in developing a more detailed heat map of digital connectivity. Moreover, distributing the survey to more targeted demographics would help to determine who exactly lacks internet access and why. These demographics include the elderly, low income individuals (especially those living in mobile homes), monolingual non-English speakers, and those who aren't literate. This may thus involve in-person door-to-door canvassing or more formal interviews conducted in spaces such as the senior center or the Community Services Agency, which serves low-income individuals.

With more thorough data collection and specific identification of the individuals lacking access, a more concrete plan of action can be formulated. In determining the reasons for a lack of digital connectivity- whether it be digital literacy, unaffordability, hardware, or something entirely unrelated- The City of Mountain View can work to better bridge the digital divide.

From a broader perspective, Mountain View is unlike most other communities in the United States. Home to Google, Microsoft, and LinkedIn- among other massive tech companies- the difficulties Mountain View faces differ starkly from those faced by other cities across the nation. Nationally, the rate of digital inaccessibility hovers around 18.42%. This could be attributable to a variety of factors not particularly applicable to Mountain View- a lack of providers, a lack of interest, etc. Addressing national concerns related to digital connectivity would likely begin with the reformulation of "affordable" data plans provided by At&T, Comcast, etc. However, the most effective change is likely bottom-up, and determined on a community-by-community basis.

# Appendix: The Online Survey

English (US) ▲▼

## Digital Access in Mountain View

**Introduction.** Stanford University, in cooperation with the City of Mountain View as the project sponsor, is assessing the current state of digital access in Mountain View. We're interested in learning about residents' connectedness: the types of devices used, how people access the internet and learn about resources available to the community. Responses to this brief five-minute survey will be analyzed by Stanford University to identify opportunities and challenges to digital access and inclusion. We very much appreciate your time.

### Section 1. Access

**Q1. What devices does your household have? How many of each of these devices does your household have? (Select all that apply and write the # of each in the box to the right)**

- Tablet
- Smart TV
- Smartphone
- Basic Cell Phone
- Landline
- Desktop
- Laptop
- Miscellaneous/Other

**Q2. Does your household use these devices to access the internet?**

- Yes
- No

**Q3. How does your household connect to the internet?**

- Home Wifi Router
- Mobile Provider's LTE
- Public Wifi (i.e. Starbucks, Public Library, etc.)
- Other

**Q4. What prevents you from accessing the internet on your devices?**

**Q5. How much per month does your household pay for internet access?**

- \$0
- \$1-\$9
- \$10-\$19
- \$20-\$49
- \$50-\$199
- \$100-\$199
- \$200+

**Q6. If you currently pay for internet access, do you consider the payment a financial burden?**

- Definitely yes
- Probably yes
- Might or might not
- Probably not
- Definitely not

**Section 2. Connectivity**

**Q7. How many hours a week does your household spend on the internet?**

- 0
- Less than 5 Hours

- Between 5-10 Hours
- Between 10-20 Hours
- Between 20-30 Hours
- More than 30 Hours

**Q8. How often does your household use the internet for \_\_\_\_\_?**

|                                                                    | Always                   | Yearly                   | Monthly                  | Weekly                   | Daily                    | Never                    |
|--------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Job Search                                                         | <input type="checkbox"/> |
| Navigation (i.e. Google maps, Waze, etc.)                          | <input type="checkbox"/> |
| Education                                                          | <input type="checkbox"/> |
| Connecting with Family and Friends                                 | <input type="checkbox"/> |
| Child Care                                                         | <input type="checkbox"/> |
| Civic Engagement (i.e. Research Candidates, Ballot Measures, etc.) | <input type="checkbox"/> |
| Transportation (bus/train schedules, airline tickets, etc.)        | <input type="checkbox"/> |
| Email                                                              | <input type="checkbox"/> |
| Healthcare                                                         | <input type="checkbox"/> |

**Q9. Is your household aware of any of the following affordable internet options? (Select all that apply)**

- AT&T Access
- Internet Essentials From Comcast
- Spectrum Internet Assist
- Cox Connect2Compete

**Q10. Does your household use any of the following affordable internet options? (Select all that apply)**

- AT&T Access
- Internet Essentials From Comcast
- Spectrum Internet Assist
- Cox Connect2Compete
- None

Other

**Q11. Compared to the average household in your *community*, how do you feel like your household's internet usage measure up?**

- Far above average
- Somewhat above average
- Average
- Somewhat below average
- Far below average

**Q12. Compared to the average household in *Mountain View*, how do you feel like your household's internet usage measure up?**

- Far above average
- Somewhat above average
- Average
- Somewhat below average
- Far below average

**Section 3. Resources**

**Q13. Does anyone in your household go to the Mountain View public library?**

- Yes
- No
- Unsure
- N/A (No Library Access)

**Q14. Does anyone in your household go to the Mountain View teen center?**

- Yes
- No
- Unsure
- N/A (No Teens)

**Q15. Does anyone in your household go to the Mountain View senior center?**

- Yes
- No
- Unsure
- N/A (No Seniors)

**Q16. Which of the following subjects would you or anyone in your household be interested in learning more about: (Select all that apply)**

- Computer Skills
- Microsoft Word Basics
- Email Basics
- Cloud Storage
- Internet Basics
- Financial Basics
- Resume Skills
- Other

**Q17. Is your household aware of any of these services offered by the City of Mountain View? (Select all that apply)**

- Mountain View Library: Computers for Beginners Class
- Mountain View Library: Personal Technology Tutors
- Mountain View Library: Learn Google G Suite Class
- Mountain View Library: Become a Super Internet Searcher Class
- Mountain View Library: Girls Who Code
- Senior Center: Essential Computer Skills
- Senior Center: Introduction to Microsoft Word

**Q18. Have you or anyone in your household used the services offered by the City of Mountain View? (Select all that apply)**

- Mountain View Library: Computers for Beginners Class
- Mountain View Library: Personal Technology Tutors
- Mountain View Library: Learn Google G Suite Class
- Mountain View Library: Become a Super Internet Searcher Class

- Mountain View Library: Girls Who Code
- Senior Center: Essential Computer Skills
- Senior Center: Introduction to Microsoft Word

**Section 4. Misc.**

**Q19. In 2018, the United Nations Human Rights Council passed a resolution declaring access to the internet a basic human right. Does your household believe that internet access is a human right?**

- Strongly agree
- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

**Section 5. Demographics**

**Q20. How old are you?**

**Q21. What are your preferred pronouns?**

- She/Her
- He/His
- They/Them
- Other

**Q22. What is your ethnicity? (Select all that apply)**

- White
- Black or African American
- American Indian or Alaska Native

- Asian
- Native Hawaiian or Pacific Islander
- Hispanic or Latino
- Other

**Q23. What Mountain View neighborhood do you live in? ([Click here to see the neighborhood map](#))**

- Monta/Loma/Farley/Rock Street
- Moffett/Whisman Road
- San Antonio/Rengstorff/Del Media
- Central Neighborhoods
- Springer/Cuesta/Phyllis
- Grant Road/Sylvan Park

**Q24. What is your home address? (Optional)**

**Q25. What is your current employment status?**

- Employed full time
- Employed part time
- Unemployed looking for work
- Unemployed not looking for work
- Retired
- Student
- Disabled

**Q26. What is the annual income of your household?**

- Less than \$10,000
- \$10,000 - \$19,999
- \$20,000 - \$29,999
- \$30,000 - \$39,999
- \$40,000 - \$49,999

- \$50,000 - \$59,999
- \$60,000 - \$69,999
- \$70,000 - \$79,999
- \$80,000 - \$89,999
- \$90,000 - \$99,999
- \$100,000 - \$149,999
- More than \$150,000

**Q27. How many adults live in your household (ages 18 and over)?**

**Q28. How many children live in your household (ages 17 and below)?**

**Q29. What is the highest level of education you have received?**

- Less than high school
- High school graduate
- Some college
- 2 year degree
- 4 year degree
- Professional degree
- Doctorate

# The Paper Survey

## Digital Access in MTV

Stanford University, in cooperation with the City of Mountain View as the project sponsor, is assessing the current state of digital access in Mountain View. We're interested in learning about residents' connectedness: the types of devices used, how people access the internet and learn about resources available to the community. Responses to this brief five-minute survey will be analyzed by Stanford University to identify opportunities and challenges to digital access and inclusion.

### ACCESS

Q1. What devices does your household have? How many of each of these devices does your household have? (Select all that apply and write quantity in the space to the right)

- Tablet: \_\_\_\_\_
- Smart TV: \_\_\_\_\_
- Smartphone: \_\_\_\_\_
- Basic Cell Phone: \_\_\_\_\_
- Landline: \_\_\_\_\_
- Desktop: \_\_\_\_\_
- Laptop: \_\_\_\_\_
- Miscellaneous/Other: \_\_\_\_\_

Q2. Does your household use these devices to access the internet?

- Yes
- No

Q3. How does your household connect to the internet?

- Home Wifi Router
- Mobile Provider's LTE
- Public Wifi (i.e. Starbucks, Public Library, etc.)
- Other: \_\_\_\_\_

Q4. What prevents you from accessing the internet on your devices?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Q5. How much a month does your household pay for internet access?

- \$0
- \$1-\$9
- \$10-19
- \$20-\$49
- \$50-99
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- \$200+

Q6. If you currently pay for internet access, do you consider the payment a financial burden?

- Definitely yes
- Probably yes
- Might or might not
- Probably not
- Definitely not

### CONNECTIVITY

Q7. How many hours a week does your household spend on the internet?

- 0
- Less than 5 Hours
- Between 5-10 Hours
- Between 10-20 Hours
- Between 20-30 Hours
- More than 30 Hours

Q8. How often does your household use the internet for \_\_\_\_\_? (Circle one letter for each category)

**Key:** A = Always, Y = Yearly, M = Monthly, W = Weekly, D = Daily, N = Never

Job Search:

A   Y   M   W   D   N

Navigations (i.e. Google maps, Waze, etc.):

A   Y   M   W   D   N

Education:

A   Y   M   W   D   N

Connecting with Friends and Family:

A   Y   M   W   D   N

Child Care:

A   Y   M   W   D   N

Civic Engagement (i.e. Research Candidates, Ballot Measures, etc.):

A   Y   M   W   D   N

Transportation (bus/train schedules, airline tickets, etc.):

A   Y   M   W   D   N

Email:

A   Y   M   W   D   N

Healthcare:

A   Y   M   W   D   N

Q9. Is your household aware of any of the following affordable internet options? (Select all that apply)

- AT&T Access
- Internet Essentials from Comcast
- Spectrum Internet Assist
- Cox Connect2Compete

Q10. Does your household use any of the following affordable internet options? (Select all that apply)

- AT&T Access
- Internet Essentials from Comcast
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- Cox Connect2Compete
- None
- Other: \_\_\_\_\_

Q11. Compared to the average household in your community, how do you feel like your household's internet usage compares?

- Far above average
- Somewhat above average
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- Somewhat below average
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Q12. Compared to the average household in your Mountain View, how do you feel like your household's internet usage compares?

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- MV Library: Girls Who Code
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- Senior Center: Introduction to Microsoft

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#### MISC.

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- Agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Disagree
- Strongly disagree

#### DEMOGRAPHICS

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