

Residential Technology Access in Tacoma 2016

Preliminary Technical Report

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Background

The City of Tacoma Information Technology Department engaged Pacific Market Research, Inc. and Applied Inference, LLC to conduct a study of residents regarding their access and use of technology.

This study was designed to help the City understand current digital divide issues in the community, and will be used to inform the City's Digital Equity Program going forward.

The City's interest in a Digital Equity Program was established in 2015-16 as a direct outcome of the City Council's strategic planning efforts. At that time, the City was completing its 10-year strategic visioning exercise (Tacoma 2025) and it became clear that digital equity aligned with the City's five focus areas of:

- Access & Equity
- Civic Engagement
- Livability
- Economy/Workforce
- Education

Tacoma's 2016 Community Technology Survey is the City's first study of this kind. Other data sources were examined, but deemed insufficient to draw meaningful conclusions for this specific purpose. Such data sources – along with inputs from other leading cities and local stakeholders – were factored in to Tacoma's study.

Methods

Mail and community surveys

City staff and consultants developed an eight-page paper survey which was mailed to 150 randomly selected pilot households in August 2016, with 37% returned. A slightly revised survey, with a \$2 bill attached, was mailed to the remaining 1100 randomly selected Tacoma addresses in the sample in mid-September 2016. Fifty-eight of the envelopes were returned as undeliverable, indicating that 1192 surveys were mailed to a valid Tacoma addresses. Forty-one percent of those sampled completed the survey, for a total of 484 responses.

The mail survey sampling was done to produce a sample as close to the City demographics as possible. The mail survey was available in English, and speakers of Spanish, Russian, Vietnamese, Korean, and Khmer were invited to call to be interviewed in their language.

In addition to the "mail survey," an abbreviated survey (the "mini-survey") was created and administered online and on paper at community events, libraries, senior centers, and through Tacoma Public Schools. 533 individuals responded to this survey. (See Appendix I for both surveys.)

Despite efforts to reach a representative sample of Tacoma residents in the mail survey and despite the high response rate, the resulting dataset over-represented some demographic groups and under-represented others. To produce a better balanced picture of Tacoma residents, weights were calculated for the datasets with the aim of producing results that reflect the population of Tacoma in terms of gender, age, education, and race/ethnicity. Overall, survey respondents "speak for" themselves as well as others in their community. Heavier weights are assigned to respondents who are members of groups

under-represented in survey responses to enable them to "speak for" themselves and even more of the residents in their under-represented demographic. Lighter weights are assigned to those who are members of groups over-represented in the survey so that their voices do not dominate the survey results.

The mini-survey sampling was not random. It was done in an effort to gather information from parts of the city or from demographic groups that might be under-represented in the mail survey and about which the City of Tacoma needed more representative information. Thus this survey was administered to convenience samples online, at events, and in community centers and libraries. Because of this, it cannot be used to reliably estimate population values, however, weights were created to balance the demographic categories listed above.

Who participated in the study?

Table 1 presents the unweighted and weighted distribution of survey respondents, both by the full random mail survey and online/ event-based brief survey, with the corresponding Tacoma distributions based on the U.S. Census.

Table 1. Demographic description of survey respondents with and without weights

	City Pop	Random Mail Survey (valid n=484)				Online and Event Brief Survey (valid n=533)			
		Unweighted		Weighted		Unweighted		Weighted	
	%	#	%	#	%	#	%	#	%
Race/Ethnicity									
African American/black	11%	24	5.7	46	11.1	31	7.1	43	10.1
Asian/Pacific Islander	9%	27	6.5	39	9.3	14	3.2	30	7.1
Caucasian/white	61%	331	79.2	243	57.8	322	73.3	256	59.8
Hispanic/Latino	11%	14	3.3	56	13.4	39	8.9	56	13.2
Native Amer/AK Native	2%	6	1.4	8	1.8	5	1.1	6	1.5
Two or more	7%	16	3.8	28	6.7	28	6.4	35	8.3
Refused		66		64		94		105	
Total		484		484		533		533	
Age									
18 to 24	13%	7	1.5	50	10.6	15	3.1	62	13.1
25 to 34	21%	65	14.0	88	18.9	92	19.2	102	21.7
35 to 50	28%	118	25.4	136	29.1	170	35.4	127	26.8
51 to 64	22%	150	32.3	113	24.3	129	26.9	115	24.3
65 to 75	10%	78	16.8	46	9.9	61	12.7	36	7.6
76+	7%	46	9.9	34	7.3	13	2.7	30	6.4
Refused		20		18		53		60	
Total		484		485		533		533	

	City Pop	Random Mail Survey (valid n=484)				Online and Event Brief Survey (valid n=533)			
		Unweighted		Weighted		Unweighted		Weighted	
	%	#	%	#	%	#	%	#	%
Employment									
Employed full time		231	49.4	236	50.5				
Employed part time		44	9.4	58	12.5				
Self-employed		26	5.6	30	6.4				
Unemployed looking		6	1.3	15	3.2				
Unemployed not looking		6	1.3	15	3.2				
Student		17	3.6	18	3.8				
Retired		150	32.1	101	21.6				
Disabled		39	8.3	49	10.4				
Stay-at-home		21	4.5	21	4.5				
Refused		16		16					
Total		484		484					
Disability									
Yes		55	12.5	53	11.9				
No		386	87.5	390	88.1				
Refused		43		41					
Total									
Living situation									
THA Resident		9	1.9	10	2.1				
Home owner		304	64.1	285	59.6				
Renter		158	33.3	175	36.6				
Other		2	0.4	6	1.2				
Refused		10		7					
Total		484		484					
Years in Tacoma									
Refused		24		21					
Median income of ZIP									
\$31,000 to 45,900						199	37.3	208	39.0
\$46,000 to 54,000						59	11.1	70	13.1
\$58,000 to 83,000						67	12.6	39	7.3
Not a Tacoma ZIP code						182	34.1	192	36.0
No ZIP code info						26	4.9	24	4.5
Total						533		533	

Weights

Table 1 shows how the sample of 484 Tacoma residents who returned the mail survey and the sample of 533 Tacoma residents who completed the mini-survey compare with the entire population of the City (according to the 2010 U.S. Census). The ideal outcome is that the distribution of the demographic characteristics of the samples closely match those of the population. However, because certain groups

are more or less likely to respond to surveys, this is rarely the case. For example, about one-third of Tacoma's population is younger than 35 years of age and about 40% is older than 50. Younger people are often under-represented in population surveys and older people are often over-represented. That was the case in this survey in which 16% were younger than 35 and about 60% were 51 and older. When estimating population figures based on a survey, members of the sample are representing others in their community. In this survey, each respondent is representing about 400 other Tacoma residents. We have learned from other research that some demographic variables, such as age, income, and education are often related to technology use. Suppose that seniors are less likely to use a mobile device. If seniors dominated the survey, we might underestimate the actual use of mobile devices in Tacoma. One solution to that is to calculate weights to be applied to each respondent so that he or she will represent more people or fewer people. In the case of age, the younger participants may be counted double so that they each represent 800 people and the older participants may be given a two-thirds weight so that each respondent in this age range represents only 270 people. The amount by which each respondent is asked to represent more or fewer people in his or her group is his or her weight, a value that is calculated based on the respondents' demographic responses to create a sample reasonably representative of the target population in demographic characteristics thought to be relevant.

As a result of the weighting process in this study, two-thirds of the respondents were assigned a weight between .25 and .99 so that they represented between about 100 and 400 residents and the other one-third were assigned a weight between 1.01 and 10.4 (a young man who has completed some college) so that they represented between 400 and 4000 residents.

Responses to the mini-survey were also weighted by the demographic factors as reported in the survey. This was deemed reasonable because participants in each demographic group could reasonably be expected to have the opportunity to participate, regardless of which events, activities, or organizations were involved in survey administration. However, no attempt was made to weight responses to overcome location, the primary way in which survey administration was non-random. To the extent that the locations at which the survey was administered were not representative of the entire City, the resulting estimates can be expected to be skewed in favor of the responses of residents living in or attending events in the more heavily sampled regions. In an effort to assess the effect of regional sampling, three grouping categories were created based on the 2010 median income of the respondent's ZIP code. Respondents who did not provide their ZIP code or who gave ZIP codes outside Tacoma were excluded from some of these analyses.

Limitations of the study

If the target population or sub-population is largely the same in the variables of interest, residents can accurately represent each other, whether they are asked to represent a few dozen or a few thousand. If the target (sub)population varies quite a bit, a larger sample is needed to fully represent the variety in the community. If the handful of people representing a specific cross-section of the population is not representative of the others in that cross-section, when a heavy weight is applied, it will be as if all the people in that cross-section had those unusual characteristics. For example, education has been shown to affect technology use. When it comes to technology use, a person with less than a high school diploma because he or she is still in high school might not be truly representative of others with less than a high school diploma. When their responses are magnified, it might appear as if people with less education are especially comfortable with technology.

Another limitation of this study is that people with an interest in technology and computer use might have been more interested in completing it. Since it was a fairly lengthy survey, it might be reasonable to keep that possibility in mind, realizing that it might provide an inflated estimate of Tacoma's technology adoption. At the same time, we can have some confidence in the results of explorations of the relationship between demographic and other factors and the adoption of technology.

Finally, aside from a bias related to the topic of technology, certain subgroups of residents may not be represented at all in this survey. For example, residents who are not comfortable with English may have been less likely to complete the survey. Also, those who are not comfortable with reading and writing or who may be unfamiliar with surveys may be underrepresented. It is important to keep in mind the voices that are not represented in such a survey, and when possible, incorporate strategies that are more likely to reach those underserved groups.

Summary

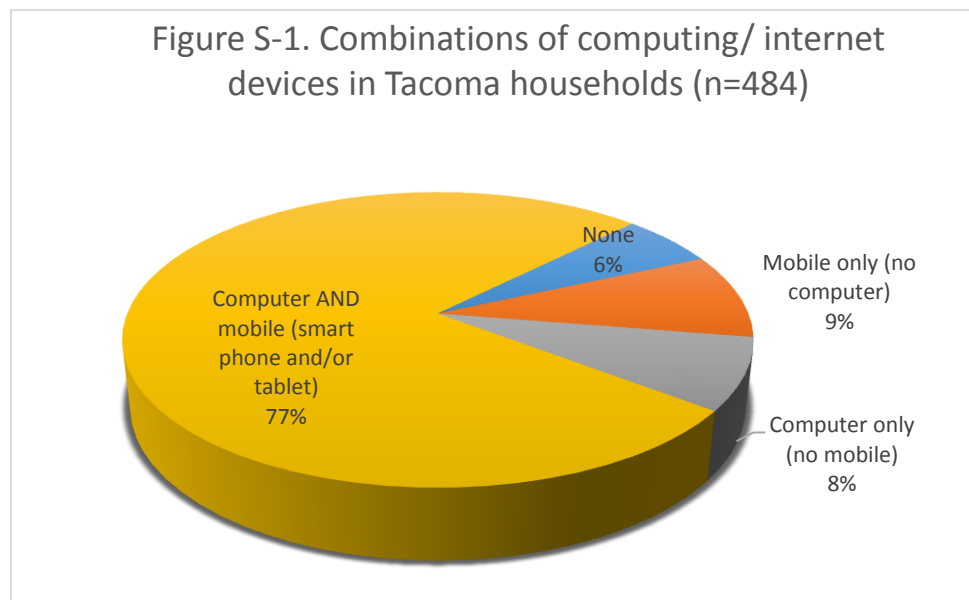
Of the 484 people who responded to the survey, 94% of them have some type of working computer or other internet device at home. Nearly all of the people who use the internet – more than 90% of the people who responded to the survey – have some type of home internet access. Most people were internet users and those who weren't most often said it was because they didn't know how. The mini-survey respondents who don't use the internet gave the same reason.

43% said that their home computer is where they get on the internet most often and 40% said it's the most important way they access the internet. Interestingly, 41% said that they use their mobile device most often to get online, *but 51% said it's their most important device for getting online.*

Nearly all households with home internet access have wired access, mostly by Comcast (53%). Two-thirds have mobile access, and Figure S-1 shows that most have both.

Only 15% said that their internet access wasn't good enough for them – mostly respondents said it is too slow or unreliable. More – at least a quarter – say they don't have the

technology they need at home. For half, this is an up-to-date computer and for another 15%, it's *any* working computer. About one third each checked the boxes for a printer and better internet access. The main barrier was cost, but for some, though, it's because they just don't know how to get started.



How, where, and why people use the internet

Most internet users use the internet at multiple locations: at home, at work, at school, at the library, at a friend's house or anywhere if they're using a mobile device. This was especially true of people who access the internet at work, school, or the library.

This sample's most common use of the internet is communication, including email, texting, and social media. Almost as many use it to get news and information with mapping and navigation at the top of the list. A close third is entertainment. More than 60% of the respondents use the internet to watch TV shows and movies.

More than 95% of the respondents have used a computer and the internet, they've created and sent an email, sent and opened attachments in email, and opened and saved a file. Not as many – between 90% and 95% have sent and received texts, used a word processing program, and installed or updated software. Almost 90% have added an app to their smart phone, used social media and set up wi-fi at home. But if it's reasonable to think that the people who didn't answer or said they didn't know really hadn't done those tasks, these numbers drop a bit so that between 80% and 90% have set up a wi-fi, used a word processor, added an app, used social media, and installed software. Those who have done these tasks rated how comfortable they are doing the tasks. Many fewer rated themselves as "very comfortable" doing these computer tasks. For example, only 65% were "very comfortable" using a word processor – and that drops to 56% if we include the whole sample, not just the people who have actually used a word processor. Similar results can be seen for sending and opening email attachments (69% are "very comfortable," 64% overall), and others. Even fewer mini-survey respondents checked "very comfortable" for these tasks.

More residents are comfortable using email and the internet, while fewer are comfortable using a computer and manipulating files, or making changes to their technology environment (installing or updating software or a smart phone app, setting up a wi-fi).

Are smart phones displacing computers?

Even though respondents were about as likely to have a smart phone at home as a computer, smart phones were used by more people, especially the children and other adults in the household. That means that if someone uses only one device, most often, it's a smart phone. Most people used both a computer and a mobile device, but if forced to choose for financial reasons, younger people tend to choose a smart phone, while older people might decide not to have any device.

The increasing use of smart phones for accessing the internet may mean less time spent using, practicing with, and exploring a computer and the software it runs. This could result in less comfort performing computer tasks that may be important for success in school and work.

Is access important?

Tacoma says yes! Participants were asked how important it is for children and adults to have access to computers and the internet, whether it's important for people's success, how Tacoma is doing in helping people get connected and what else the City should do about it. The great majority of respondents rated adult's and children's access to computers, free or low cost training in how to use them, and household access to high-speed internet as "very important" or "important". The weakest endorsement in the mail survey was 54% saying access to free or low cost training was "very important" and another 30% saying

it was “important.” These responses were even more positive among the mini-survey respondents, especially in relation to the question of training.

Eight in ten respondents believe that computer and internet access are important for success, and that the City has a role to play in making sure that residents have access to the resource, whether in partnership with the public libraries or some other organization. Participants agreed moderately strongly that the library provides sufficient access to computers and the internet, and that patrons can get the help they need at the library. The sticking point seems to be just insufficient resources. Respondents expressed concern that the waits are too long and the time limits for computer use too short. It seems that the library has the potential to address much of the need for public access computing, but may need more resources to do so. Overall, 90% of respondents approve of using public libraries to provide needed access and training.

Nearly everyone agreed that the City should be involved in increasing access to the internet for households that don’t have it. Three-fourths say to increase access by making sure people are aware of current programs (something that 84% of the respondents were not aware of) and others advocate increasing the number of computers available at the public libraries and others support installing some computers at community centers, helping people get low cost computers, and providing technical assistance to people to get connected from home. About one in five people supported free wi-fi access spots around the city as did almost twice that many mini-survey respondents.

Different perspectives

Gender

Differences between men and women were slight and subtle, but consistent. Men tended to have more devices at home and they connect to the internet in more locations. Although men and women were equally likely to have wired or mobile home access, men reported having more types of home access. Women were more likely than men to be Century Link customers while men, who paid more for their service than women, were more likely than women to be Comcast customers.

Men checked off more things they use the computer for, including email, watching videos and TV, surfing the web, getting information including international news, legal and consumer rights information, navigation services, and answers to computer problems. They are more likely to use the internet for job hunting, telecommuting, and doing their job, and using smart household equipment, shopping online, and using financial services.

Men and women tended to endorse with the same options for increasing computer and internet access for residents that don’t have it, but a subtle pattern emerged in which women’s choices slightly favored more home-based solutions (finding out about low-cost options for home access, checking out technology devices or wi-fi hotspots from the library) while men were somewhat more positive about solutions outside the home (more computers at the library and free wi-fi hotspots around the City). Though these differences were not dramatic – many men also endorsed the more home-based options and many women also endorsed the outside options – they were consistent and may point to the need for *a variety of solutions to meet the needs of different subgroups*.

Age

Technology use – computers, smart phones, and internet – decreases with age. (The only exception found in this study was the use of the internet for communicating with the doctor or insurance company.) All of the respondents 50 or younger reported having home internet access, decreasing linearly across the age groups, falling to 70% of those 76 and older. Looking across ages, if this sample is representative of the rest of Tacoma, about 10,000 people overall are without access to the internet, *and 4200 of them are seniors*. For those *with* home internet access, seniors were more likely to be concerned about the cost of the service while younger respondents were more likely to be concerned with the speed and reliability.

Most (80%) of those 65 and older (and only 18% of those 35 and younger!) said mostly they use their home computer to connect to the internet. Three-fourths of the under-35s said they use their mobile device most often.

As age goes up, so does the likelihood of getting internet service through a bundle. More than two-thirds of seniors 76 and older (40% of those over 50) buy a bundled service, compared with a quarter of those 50 and younger. Respondents who pay for internet services alone pay about the same across the age range. But among those who pay for a bundle of services, *the amount paid increases with age from an average of \$91 per month in the youngest group to an average of \$157 per month in the oldest*. This may be part of the reason seniors are concerned about the cost of their service. This suggests that seniors might benefit greatly from (a) getting help to reduce the cost of their service and (b) possibly learning to use internet services to watch shows that may be the reason seniors continue to pay for expensive service.

Younger participants were more positive about the library's computer access and their ability to get help with computer-related issues. Responses became less positive as respondents got older. A similar pattern can be seen regarding the importance of computer and internet access for adults and children.

Young people more than those in other age groups promoted solutions centered on the public library for increasing computer and internet access for households without it. They were most positive about increasing the number of public access computers at the library and more positive than other age groups about technology devices for checkout at the library. This may indicate that respondents in the older age groups did not understand the jargon in this option. Older respondents were more likely to endorse a technical assistance service to help people get connected at home, and the older age groups were more likely to support more training on how to use computers. Such a service could provide the additional benefit of helping seniors save money on their internet service.

Education

Although having a computer, a tablet or a netbook at home and using it increases with education, this effect of education is not as pronounced for smart phones. Further, *the use of the internet overall, home access to the Internet and use of smart phones specifically is not significantly related to the respondent's education*.

The number of places that respondents access the internet increases somewhat with education, and more education was strongly related to using the internet at work. Regardless of education, home internet access was high but the percentage of those who most often use their home computer to

connect declined with education from about half of those with a high school diploma down to one-third of those with at least a four year degree.

Those with less education used the more affordable unbundled Century Link internet access and overall seemed more canny about using costs-saving strategies for access such as free wi-fi and converting their mobile device into a hotspot. This group was also most likely to say that their home technology was lacking, with most (59%) attributing the gaps to the cost or to not knowing how to get started (41%).

Use of nearly all the internet functions increased with education. Some of these functions increased linearly but a few seemed to require a certain education threshold beyond which respondents used the function fairly uniformly. This pattern was seen with email, watching videos or TV online and surfing the web, finding answers to computer problems and finding social service information and assistance, online shopping and financial services, and communicating with a doctor or insurance company. *This result is especially troubling because lack of education seems to prevent individuals from increasing their knowledge and perhaps from accessing services easily.*

Experience using a computer, using a word processing program, and opening and saving files all increased linearly with education, but experience with the other tasks – particularly those that could be performed on a smart phone – was largely unrelated to education. These include using the internet, emailing (with or without attachments), texting, using social media, and adding an app to a smart phone. However, for each task, the comfort level of those who perform it increases with education.

Belief in the importance of computer and internet access increased with education and satisfaction with the library's program to provide that access decreased with education. That is, those who do not support the importance of access as strongly are more satisfied with current efforts to provide that access.

All education groups supported first increasing awareness of current low cost access and increasing the number of public access computers. Those with the least education supported a technical service to help people get connected at home and more time on library computers. Support for free wi-fi access spots around the city or making technology devices or wi-fi hot spots available at the library increased with education, again suggesting that the option may not have been understood by groups that are less familiar with computer technology.

Income

Although the relationship between income and personal use of technology can be seen for computers, netbooks, and even tablets, *the use of smart phones is unrelated to income. Further, except for the lowest income level, the use of the internet is also unrelated to income.* Only 77% of those with incomes below \$20,000 a year reported using the internet, compared with more than 90% of respondents in higher income categories.

Those in the lowest income group were the least likely to have home internet access (85%), rising to 98% in households with incomes of at least \$30,000. Respondents in the lowest income category were more likely than higher income groups to use Century Link for their wired connections, and they were more likely than others to use free wi-fi and employ their mobile phones as a hotspot.

Many numbers increase with income, including the number of devices owned, the number of locations for internet access, the percentage accessing the internet at each location, the importance of the

respondent's work computer, comfort performing most computer tasks, and some numbers increase with income at least to mid-level incomes, including using technology for texting, video calling, surfing the web, streaming content, looking up news, finding answers to computer problems, working, telecommuting, and commerce.

Some numbers don't increase with income, including the use of smart phones, the use of the internet for social media, entertainment, and information or education. The few technology uses that decreased with income were playing games, selling goods or services online and starting or maintaining a business online.

Few of the computer and internet tasks such as using a computer, opening and saving a file were sensitive to income except at the lowest income level. If a household earned more than \$20,000 in a year, respondents across the income levels were about equally likely to have done the task. For most of these tasks, however, comfort performing them increased with income as mentioned above.

As income increased, respondents agreed more in the importance of computer access for adults and children and that such access can help narrow the gap between the "haves" and the "have nots." However, as income increased, respondents agreed *less* that the City of Tacoma should take steps to increase access to high-speed internet access for households without it though they did recognize that the library's program does not provide access adequate to the need.

Though most respondents did not endorse the choice that "The City should not be involved" in increasing access to computers for people without access, the highest and lowest income groups were the most likely to endorse this statement.

Race and ethnicity

Overall, residential technology seems to leave households of color at a disadvantage. Caucasian/white respondents most often named their mobile devices as their most important way of accessing the internet while the other groups were most likely to name their home computers. African American/black respondents are the least likely to use the internet, and the least likely to have internet access at home – and if they do, it's least likely to be a wired connection. At the same time, African American/black and Hispanic/Latino respondents are most likely to use the internet at the library.

Overall, about one-fourth of respondents indicated that they do not have the technology they want or need at home, up to 43% among the African American/black respondents who most often indicated needing some kind of internet access. Even more of the Hispanic/Latino respondents (72%) reported not having the technology they want or need at home. Although all Hispanic/Latino respondents said they have wired home access (44% with Century Link vs. 15% of the other groups), 40% of those reporting a technology gap said they needed better internet access and half say they need a smart phone.

Asian/Pacific Islander and Caucasian/white respondents were more likely to have home internet access, with most households having a wired connection. Few (10% and 17% respectively) reported not having the technology they want or need at home – for the Caucasian/white respondents, this was home internet access or better access about half the time, and working computer about a quarter of the time.

How do the different groups use computers?

Communication: Caucasian/white respondents were most likely to use the internet for communication, using email and texting more than other groups. African American/black respondents and

Hispanic/Latino respondents were less likely to use the internet for communication and when they did, African American/black respondents favored email while the Hispanic/Latino respondents favored social media.

Entertainment: Caucasian/ white respondents and African American/ black respondents used the internet for entertainment somewhat more than other groups.

Information and education: All groups were likely to use the internet to get information but some differences emerged in specific uses. For example, Hispanic/Latino respondents were more likely to use the internet to get information about local schools and about their neighborhood while African American/black and Asian/Pacific islander respondents were more likely to use the internet for educational purposes and to get information about their children's education.

Business: Asian/Pacific Islander and Caucasian/white respondents were more likely to use the internet to do their paying job. Asian/Pacific Islander respondents were also more likely to search for a job online and to telecommute.

Community: Caucasian/white respondents stood out for their use of the internet for community purposes, including communicating with a local group, finding local entertainment, and participating in political issues, for their willingness to participate in commerce online, and for their use of the internet for health purposes.

Health: Asian/Pacific Islander respondents were also more likely to use the internet to find a healthcare or insurance provider and to use a health monitoring service.

Experience with technology: Race and ethnicity was not strongly related to experience with technology tasks, but some group differences emerged in the level of comfort performing those tasks. Specifically Caucasian/white and Asian/Pacific Islander respondents reported more comfort performing most of the technology tasks though the Asian/Pacific Islander respondents were less comfortable with email and texting, while Hispanic/Latino respondents reported less comfort *except* when it comes to texting.

Corresponding with the earlier finding that African American/black and Hispanic/Latino are more likely to use the library computers, people of color were significantly more likely to respond to questions about the library's success in providing a public access computing program. Those who indicated "Don't know" to these questions – between a quarter and almost half of the sample – were disproportionately likely to be Caucasian/white. This suggests that the library's public access computer program may disproportionately and directly affect Tacoma's residents of color.

Importance of computers: Caucasian/white respondents were more likely to rate adults' computer access as "Very Important" in contrast to Hispanic/Latino respondents who were more likely to give that rating to children's access. Though still agreeing strongly, Caucasian/white respondents agreed less strongly that all Tacoma households should have high-speed internet access and that the City should take steps to increase household access or even public access while other groups, especially African American/black and Hispanic/Latino respondents agreed more strongly.

Public access at the library: Although African American/black respondents were positive about the library's public access computing program, this group, along with Asian/Pacific Islander respondents were less positive about using the public library to provide public access to computers, while

Hispanic/Latino respondents were more positive. Hispanic/Latino respondents were also the most positive about learning to use computer technology at the library. *These findings suggest a need to consult with Tacoma's different cultural communities and/or neighborhoods to find additional locations – perhaps community centers or parks facilities – to house additional public access technology, training, and support.*

What the city should do: All groups supported making people aware of low cost options as their first choice. Caucasian/white respondents most often endorsed increasing the number of public access computers at the library and community centers as their second and third choices while African American/black and Hispanic/Latino respondents were more interested in a technical assistance service to help people get connected at home and an increase in public access computers at the library. Asian/Pacific Islander respondents were more interested in having free wi-fi access spots around the city and a way to get low cost computers at home.

Tacoma Public Schools

TPS and non TPS parents were equally likely to have home internet access, including wired access, though TPS families are more likely than others to use Century Link while non TPS families are more likely to use Comcast. TPS parents have fewer home devices than other parents, but they are more likely to be internet users (especially for purposes of their own and their children's education) and more likely to access the internet through school (74% vs. 38%) and less likely to access it via a mobile data plan (56% vs. 82%). Nearly half of the TPS parents do not have the technology they want or need at home, compared with about a quarter of the other parents. More than half of the TPS parents with a technology gap needed help with their internet access, about half need an up-to-date computer, about four in ten needs a printer, and about one-third need up-to-date software. The main barrier for these families is cost.

TPS parents rated themselves as less comfortable installing or updating software, and using a word processing program than their non TPS counterparts. This could be significant if their children need help with these programs. Most parents in the sample said that their children use both a computer and a mobile device. If the children use only one type of device and the parents are older, that device is more likely to be a computer, and if the parents are younger, it's more likely to be a mobile device. This may need some attention as their children increasingly need to use computers for school work.

TPS parents were less positive about the importance and economic value of computer access for adults, and they were less positive that the City should work with libraries to ensure public access to computers. In response to the question, "How should the City help with access?" TPS parents focused on low cost ways of increasing home access. They first endorsed making sure people are aware of current low-cost options, they endorsed helping people access low-cost options for purchasing computers, and they supported a technical assistance program to help people get connected at home.

Hilltop and Eastside

For the most part, Hilltop respondents reported less access overall and less convenient access to computers and the internet than respondents from other ZIP codes. Analysis also separated out East Side residents and though they sometimes tracked with Hilltop respondents (East Side and Hilltop were both significantly less likely to have a desktop or laptop computer at home and correspondingly, less likely to use one), more often their responses were more similar to those of residents in other ZIP codes.

Residents of the Hilltop area have fewer devices at home than residents of other areas of Tacoma and correspondingly were the least likely to say they have the technology they need or want at home (58%). Somewhat more of the East Side residents (69%) are satisfied with their technology at home and even more (80%) of the residents living in other ZIP codes. About one third of the Hilltop residents with a technology gap said they needed internet access (one third of the Hilltop residents with internet access are Rainier Connect customers) and about a quarter each said they needed a printer and a smart phone. Eight in ten of the East Side respondents with a technology gap said they needed a printer, seven in ten said they need better internet access, and six in ten said they need current software.

When including only the 11 people in Census tracts 061400 and 061300 in the Hilltop analysis, the findings for that neighborhood become more extreme. These respondents are less likely to have home computing or internet devices, less likely to use them, less likely to have home internet access, and overall less likely to use the internet at home or elsewhere.

The Eastside residents were more likely to use their computer for communication (telephone calling, social media, and video calling), entertainment (watching TV and playing games) getting information (local news, maps, and information about community groups), and education (school reports).

Hilltop residents stood out in their use of the internet to follow neighborhood activities, do community organizing, and use financial services.

Key Findings and Recommendations

Residents of Tacoma engaged in the Community Technology Survey, as evidenced by the 41% participation rate. This is a higher participation rate than the City has experienced in other recent survey events, including:

- 2016 Plastic bag survey (4.6% business response rate)
- 2014 National Citizen Survey (25% residential response rate)

The project team reviewed the data presented in this report and developed the following key findings and recommendations:

Key Finding #1: Nearly all respondents (94%) have some kind of computing or internet-enabled device in the household. Both computers and smartphones are highly prevalent in Tacoma households, with smartphones being used slightly more than other types of devices. Age and income were the primary predictive factors, device ownership decreasing with age.

Key Finding #2: Nearly all respondents (94%) are able to connect to the internet from home. The most likely combination of devices and services for internet usage is “computer at home”. The second most likely combination of devices and services for internet usage is “mobile device at home”. The fixed - or wired - connection is still the most common type of connection for those households with access at home.

Key Finding #3: Most respondents (77%) have the technology they want or need. Satisfaction rates are higher for residents in higher income neighborhoods and lower for residents in lower income neighborhoods. For those who do not have what they want or need, 46% need more current devices, 35% need printers, and 30% need better internet service.

The main reason people do not have the technology they want or need is related to cost, and experiences vary widely based on racial/ethnic groups. For example, 57% of African American/black respondents and 28% of Hispanic/Latino respondents have the technology they want or need.

Key Finding #4: Most respondents (85%) say that their internet service is sufficient for how they want to use it. The average monthly payment for internet service alone (not bundled) is \$52/month.

Key Finding #5: About one fifth of respondents (21%) connect to the internet at the public library. Those who use public access computers at the library are almost as likely as those who don’t to have home and mobile connections. African American/black and Hispanic/Latino respondents are most likely to use the internet at the library.

Moreover, 88% of the respondents agree or strongly agree that the public library is the best place to provide public access computers and the internet, and 84% agree or strongly agree that it’s the best place for people to learn how to use computer technology.

Key Finding #6: The top reason for not using the internet is lack of knowledge. Because of the relatively small number of respondents that do not use the internet, it is recommended to gather more information from Tacoma residents who are not internet users.

Key Finding #7: Respondents in the Hilltop (zip code 98405) and East Side (zip code 98404) neighborhoods exhibited lower technology adoption rates. Respondents from these neighborhoods tend to have lower income, less home internet access (79%), less home technology, and less comfort performing computer tasks.

Key Finding #8: The top three uses of internet and computers for respondents are Communications (94%), Information (91%), and Entertainment (89%).

Key Finding #9: Nearly all respondents (93%) believe that it is somewhat or very important for adults to have access to computers, the internet, and training to use them.

Key Finding #10: The City has a role to play in ensuring that residents have access to these resources. 95% of respondents agree or strongly agree that the City should work with public libraries and/or other community partners to ensure access for residents without it. 84% of respondents were unaware of programs currently available to increase the access of low income households to the internet.

The top three ways the City should increase internet access for households that currently do not have it are:

- Make sure residents are aware of current low cost options
- More public access computers available at the library
- Provide a way for residents to get low cost computers

Detailed Findings

Access

Table 2 is a copy of the first set of survey questions from the mail survey. Instead of checkboxes (☐) weighted response data have been reported.

HOME TECHNOLOGY CHECKLIST

1. In your household, do you have a working... *(Please check all that apply)*
 - 408 (84%) Desktop or laptop computer
 - 402 (83%) Smart phone (such as an iPhone, Android, or Windows phone)
 - 312 (64%) Tablet (such as an iPad, Surface, or Galaxy)
 - 36 (7%) Chromebook or netbook computer
 - 28 (6%) None of these
 - 0 Don't know
 2. What technology do **YOU USE** at home or elsewhere? *(Please check all that apply)*
 - 394 (82%) Desktop or laptop computer 413 (86%) Smart phone 270 (56%) Tablet
 - 30 (6%) Chromebook or netbook 26 (5%) None of these 1 No response

2a. Do **YOU USE** the internet at home or elsewhere? 431 (92%) Yes 35 (8%) No 18 No response
 3. What technology do **CHILDREN** in your household **USE** at home or elsewhere? *(Please check all that apply)*
 - 285 (60%) Not applicable, no children in the household 6 Don't know/no response

Of the 193 with children in the household who responded:

 - 126 (65%) Desktop or laptop computer 156 (81%) Smart phone 129 (67%) Tablet
 - 6 (3%) Chromebook or netbook 8 (4%) None of these

3a. Do **CHILDREN** in your household **USE** the internet at home or elsewhere? 161 (88%) Yes 23 (12%) No 10 Don't know/no response
 4. What technology do **OTHER ADULTS** in your household **USE** at home or elsewhere? *(Please check all that apply)*
 - 105 (23%) Not applicable, no other adults in the household 19 Don't know/no response

Of the 361 with another adult in the household who responded:

 - 278 (77%) Desktop or laptop computer 316 (88%) Smart phone 228 (63%) Tablet
 - 29 (8%) Chromebook or netbook 21 (6%) None of these

4a. Do **OTHER ADULTS** in your household **USE** the internet at home or elsewhere? 295 (86%) Yes 49 (14%) No 35 Don't know/no response
-

Table 2. Responses to HOME TECHNOLOGY CHECKLIST question items

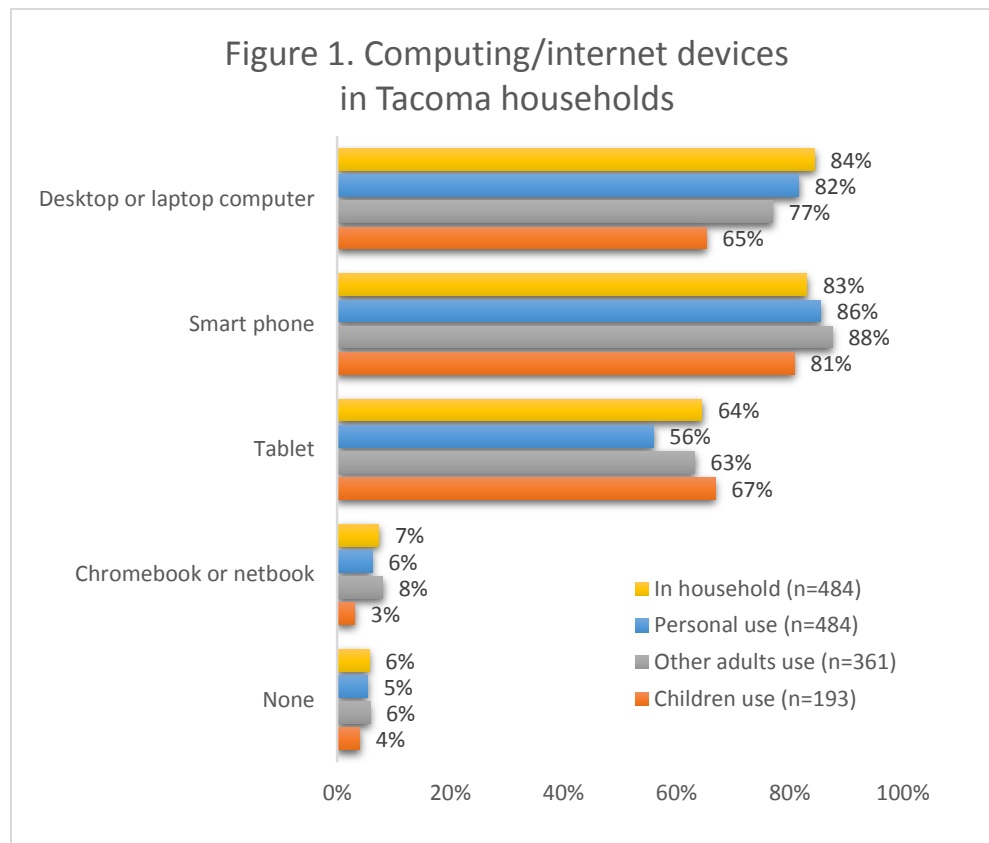
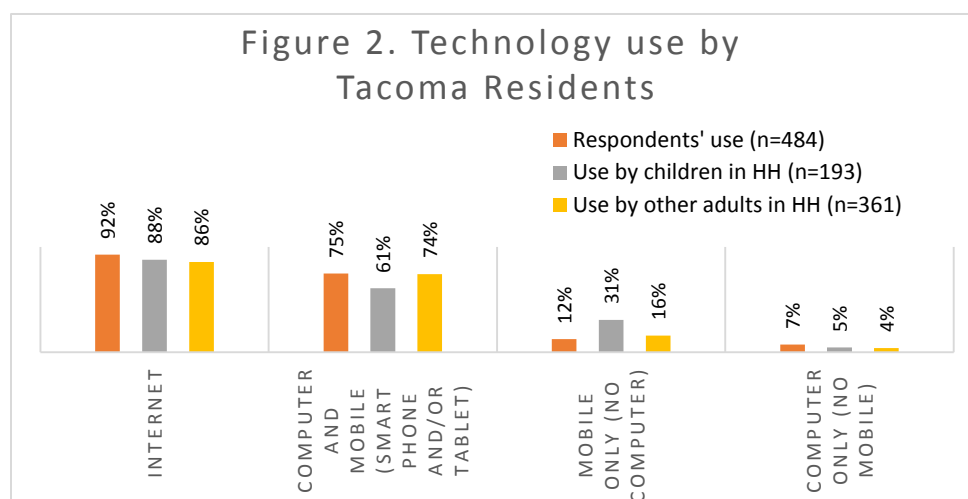


Figure 1 shows that nearly all households have some type of working computing and internet device. Taken together, 94% of respondents indicated that they have some sort of internet-enabled device at home. Respondents were about as likely to report having a computer at home (84%) as a smart phone (83%). Not as many have a tablet (64%) or a netbook (7%). The

second bar in each set indicates the percentage of respondents who use the device at home or elsewhere. The third and fourth bars in each set show the percentage of other adults in the household and children, respectively, who use the device at home or elsewhere. The mini-survey provided similar estimates: desktop or laptop computer (84% have it; 81% use it), smart phone (81% have it; 82% use it), tablet (57% have it; 56% use it), Chromebook or netbook (14% have it; 12% use it).

Figure 2 separates respondents into three categories: those who use both computers and a mobile device; those who use a mobile device only; and those who use a computer only. This figure shows that even though computers and smartphones were equally prevalent in Tacoma households (see Figure 1), respondents who did not use both a computer and a mobile device were more likely to use a mobile device only rather than a computer only. This figure shows that although about 90% of children and adults use a mobile device (combining mobile-only users and those who use both computers and mobile devices), fully one-third of those children do not also use a computer, compared with about half that percentage of adults. This figure also shows that 92% of the respondents use the internet, as do 88% of the children in households with children and 86% of the other adults in the households with other



adults. The mini-survey agrees that 90% of respondents are internet users.

Figure 3 shows that half of Tacoma's households have at

least one computer, one smart phone, and one tablet. Another 18% have a computer and a smart phone. Skipping down a few bars shows that 8% have only a computer and no mobile device.

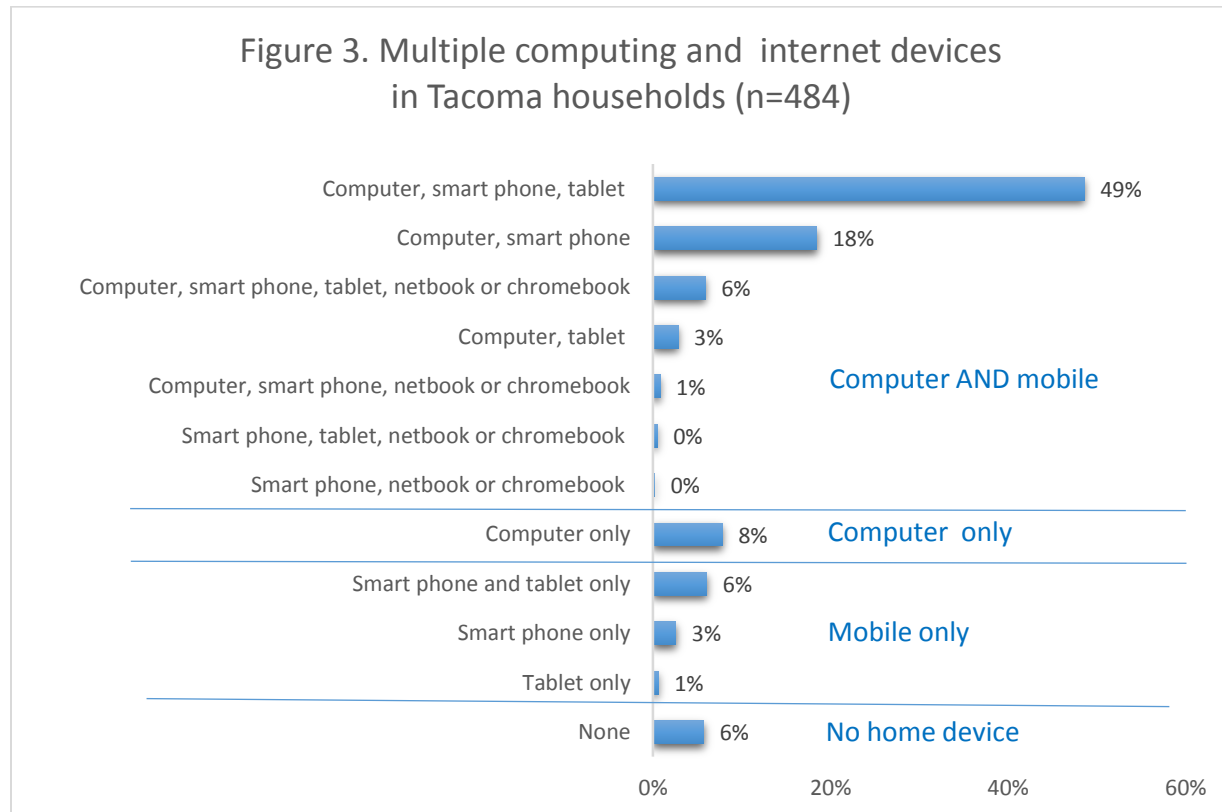
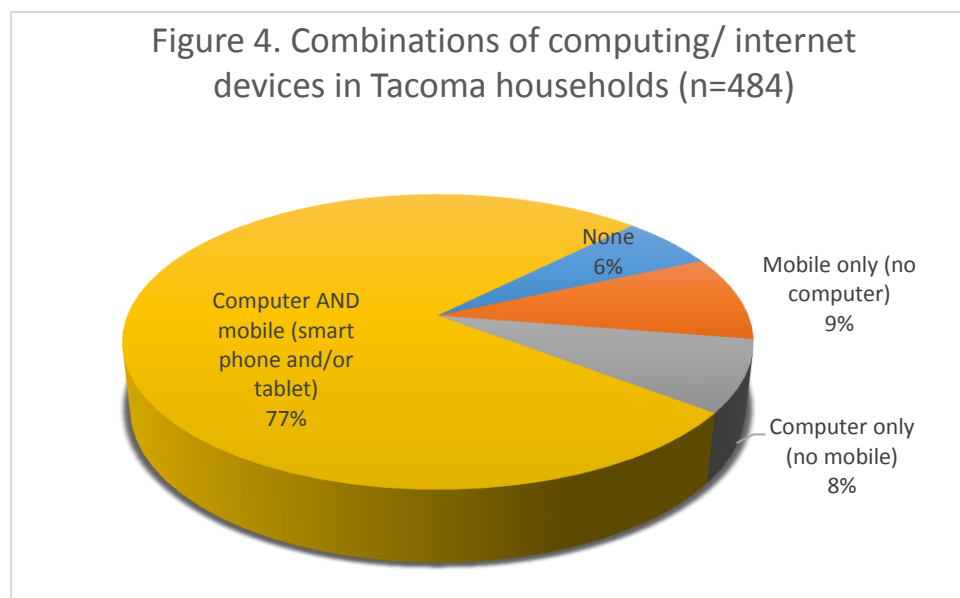


Figure 4 combines the bars in Figure 3 as follows: nearly all (94%) of Tacoma residents have some kind of computing or internet device at home. About three-fourths (77%) have both a computer (desktop, laptop, or netbook) and a mobile device (smart phone or tablet). Almost one in ten (9%) have only a mobile device (no computer) and almost as many (8%) have only a computer (no mobile device).



Results from the mini-survey are similar. These results indicate 5% without any devices (all of those without any device live in ZIP codes with median incomes below \$46,000 per year), 80% with both a

computer and a mobile device, 9% with computer only and 8% with mobile only.

Analysis of the predictive factors (age, income, gender, education, and race/ethnicity) that might be related to the combination of computing or internet devices in a respondent's household showed that ownership and personal use of computers and/or mobile devices was primarily related to age and income.

Income was important, but how it affected device ownership and use depended on the respondent's age. Older respondents with less income were less likely to have or use any device, while their younger counterparts tended to have and use only a mobile device and no computer. Among respondents with more income, older respondents tended to have a computer only (no mobile device) and younger respondents (across much of the income spectrum) tended to have both a computer and a mobile device.

Using these same factors to predict the device usage of other adults in the household produced results only for age. That is, older respondents tended to report that other adults in the household use a computer only or no device at all while younger respondents tended to report that other adults used a mobile device and computer, or just a mobile device.

Using the same factors to predict children's use of computers and/or mobile devices showed that most of the respondents with children said the children used both a computer and a mobile device. These parents were equally likely to be men and women in their mid-40s. Those whose children did not use any device were younger (and perhaps had younger children). Most of the respondents who indicated their children used only a computer or only a mobile device were mothers. Among these, parents who said their child used only a computer were a bit older (mid to late 50s) while those who said their child used only a mobile device were a bit younger (early 40s).

The relationships between the individual predictive factors and ownership and use of computing or internet devices are reported below.

Gender

No significant differences emerged between men and women in computing or internet devices in the household, nor in personal use of these devices. In univariate analysis, men reported have more computing or internet devices at home (2.6 vs. 2.4). Consistent with this finding, women were more likely than men to say that their children used only a mobile device, while men were more likely than women to say that their children used both a computer and a mobile device.

Age

Figure 5 shows that the likelihood of having any computing or internet device in the household is highest among younger respondents and lowest among older respondents, and Figure 6 shows the same pattern for use of computers: seniors are least likely to keep up with computing and internet technology while young people are the most likely to do so. Two important findings stand out in these figures: (1) even among those in the oldest age group (76 years or older), only 30% have no computing or internet device at home; and (2) that 30% translates to roughly 4200 people without a way to connect electronically, up to about 10,000 people including the other age categories.

Figure 5. Presence of all computing/internet devices in the household decreases with age

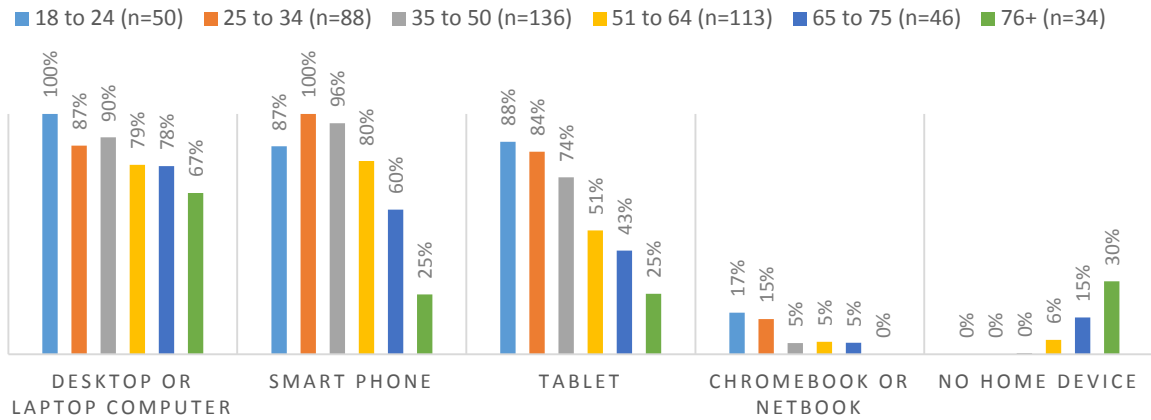
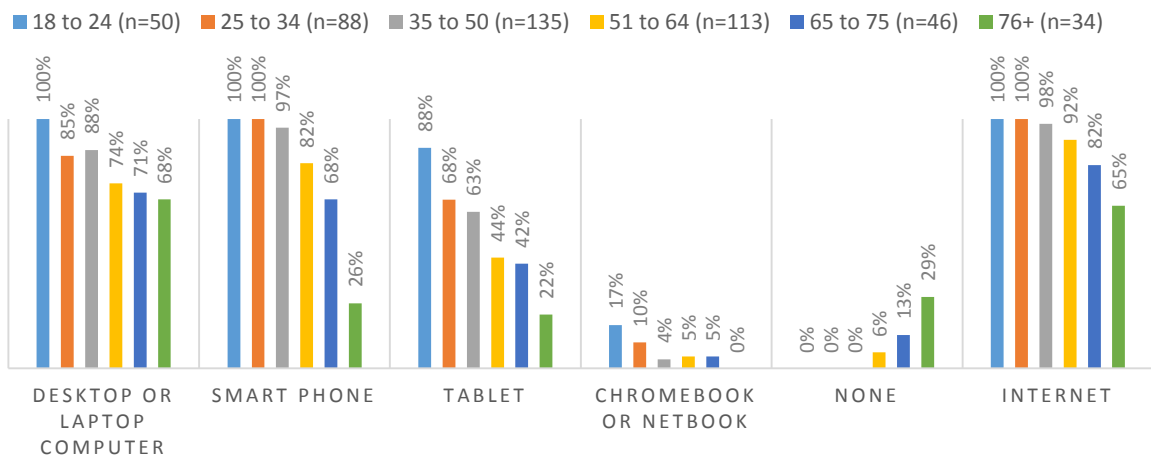
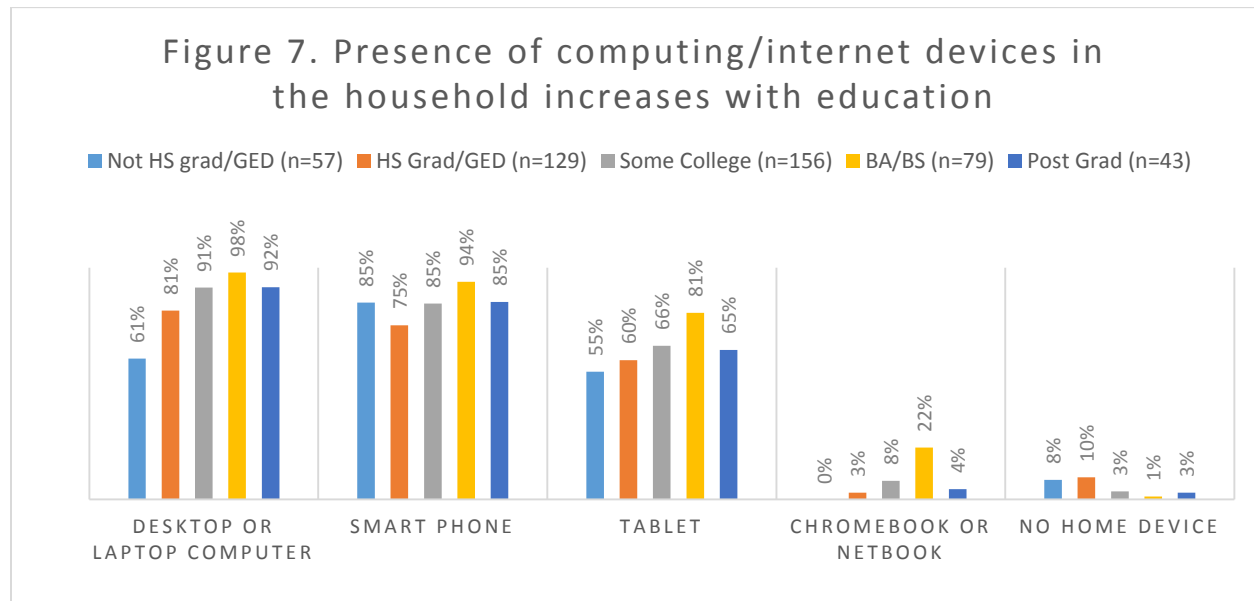


Figure 6. Personal use of all computing/internet devices decreases with age

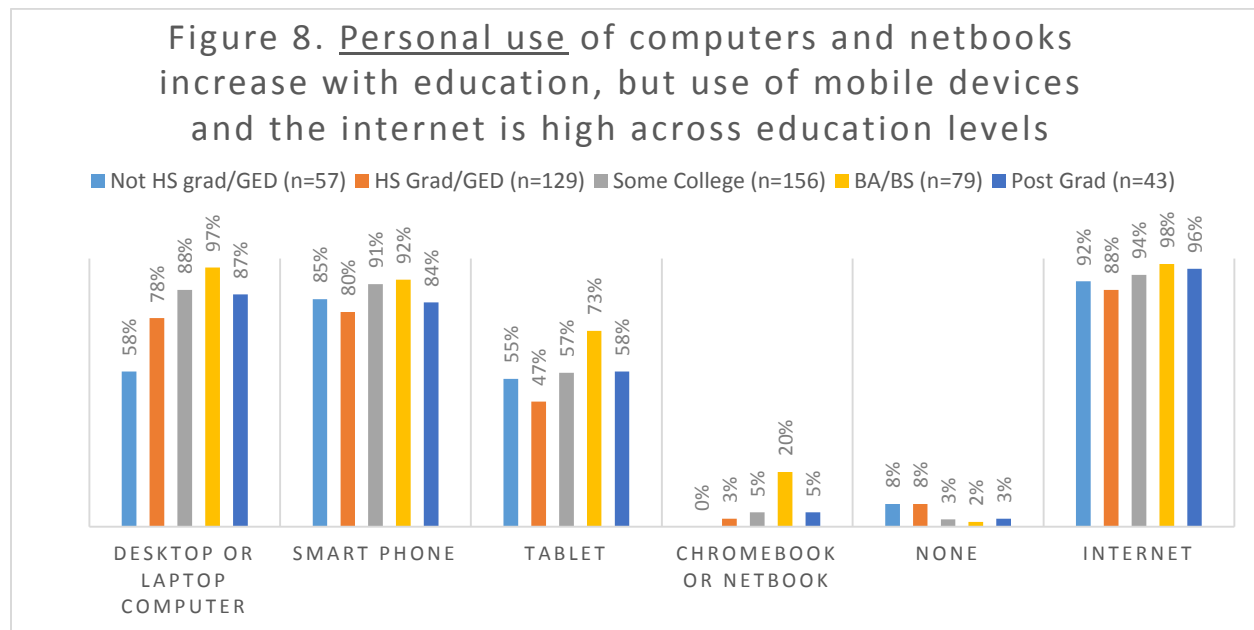


Consistent with the results shown in these figures, the total number of computing or internet devices in the household decreases significantly with age, from an average of 2.9 devices in the homes of the youngest respondents to an average of 1.2 devices in the homes of the oldest.

Education



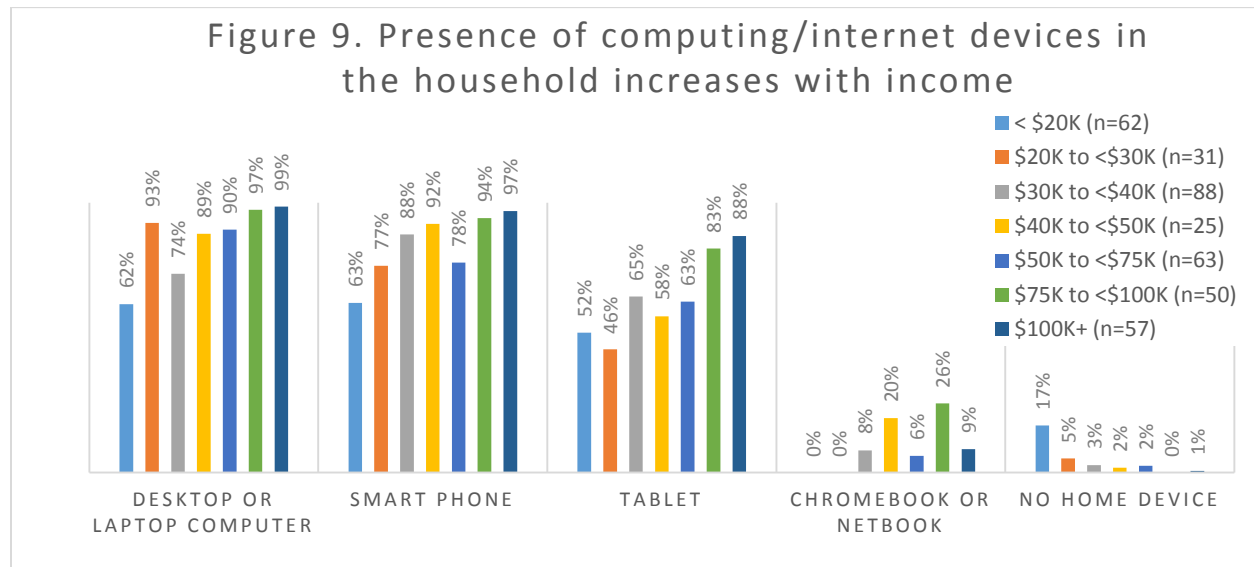
The number of devices at home increases with education from an average of 2.0 among those with the least education, up to 2.9 among those with a four-year degree, back down to 2.5 among those with post-graduate education. Correspondingly, Figures 7 and 8 show that as education increases so does the likelihood of having a computer or netbook at home, and the likelihood of using it. A similar trend can be seen in the ownership of tablets, netbooks and to some extent, smart phones.



When it comes to the personal use of devices other than computers and netbooks, education is not as powerful a predictor. Analysis shows that *the use of the internet overall, and use of smart phones specifically is not significantly related to the respondent's education.*

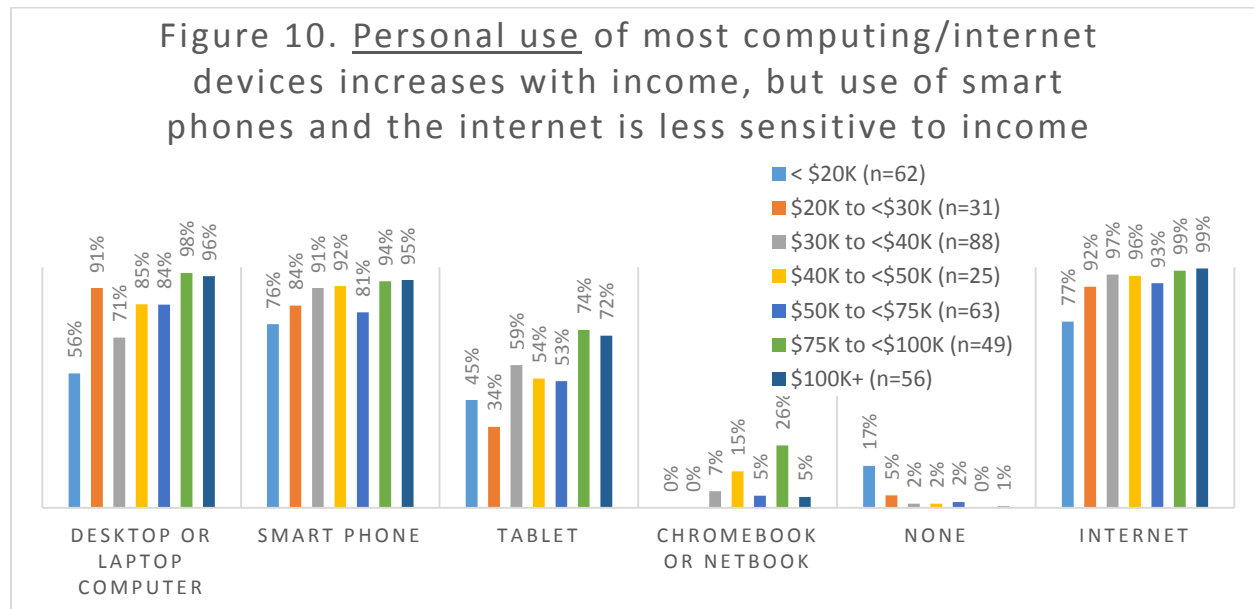
Income

Figure 9. Presence of computing/internet devices in the household increases with income

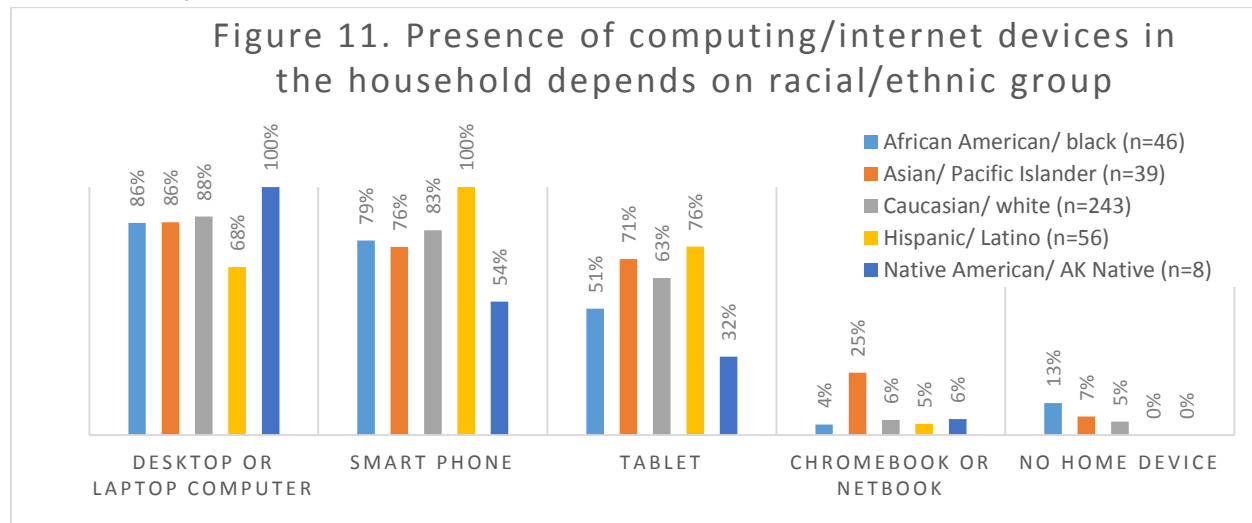


The number of devices at home increases with income from an average of 1.8 devices among those with the least income, up to 2.9 or more among those with incomes of at least \$75,000 per year. Figure 9 shows that the likelihood of having any of these computing or internet devices at home increases with income, while Figure 10 shows that although the relationship between income and personal use can be seen for computers, netbooks, and even tablets, *the use of smart phones is unrelated to income. Further, except for the lowest income level, the use of the internet is also unrelated to income.*

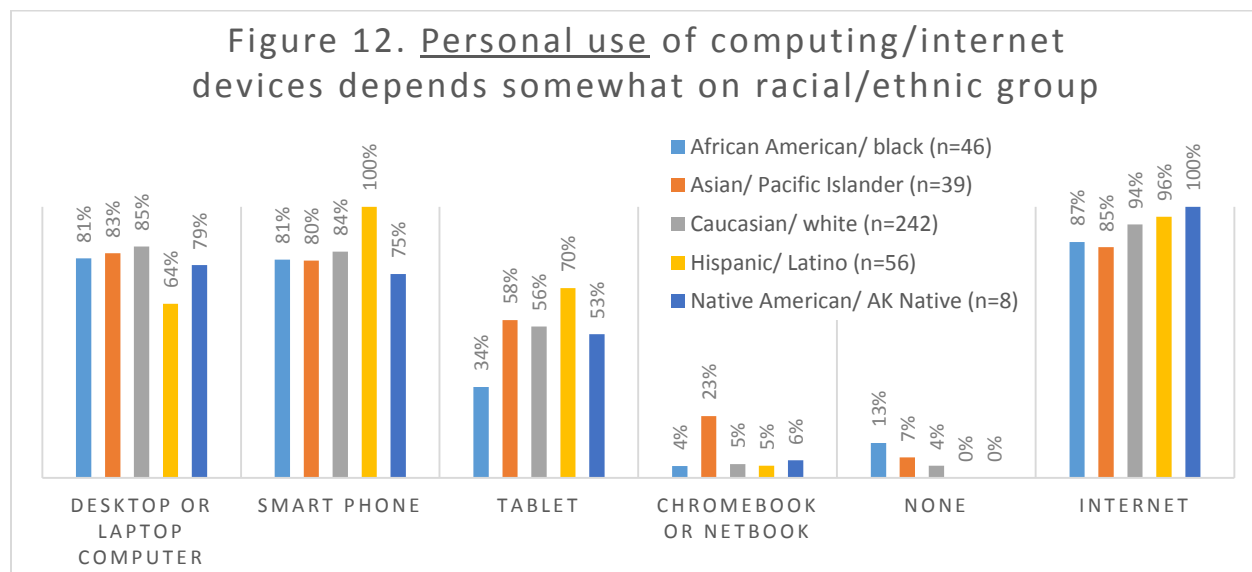
Figure 10. Personal use of most computing/internet devices increases with income, but use of smart phones and the internet is less sensitive to income



Race/Ethnicity



The number of devices in the households of residents of different ethnic/racial backgrounds did not differ significantly; however, Figure 11 shows that the specific devices available were different for different groups. Hispanic/Latino respondents were significantly more likely to have smart phones and less likely to have home computers, while the reverse is true for Native American/ Alaska Native respondents. Although all the Native American/Alaska Native respondents indicated having a home computer, they were less likely than other groups to have the other devices at home.

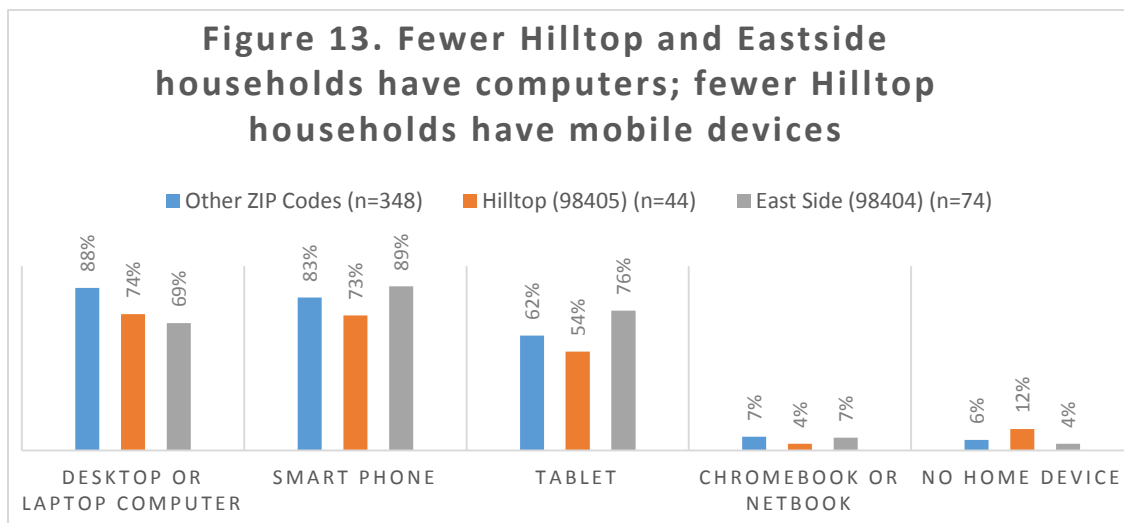


The respondents in different racial/ethnic groups didn't differ significantly in whether they used the internet, but Figure 12 shows that the groups did differ in the devices used. Specifically, Hispanic/Latino respondents were most likely to use a mobile device, especially a smart phone. African American/black respondents were least likely to use a tablet, and were more likely to use a computer or a smart phone. African American/ black respondents were most likely to report using no computing or internet device, but that difference did not reach statistical significance.

While all the Native American/ Alaska Native respondents reported having a computer at home, and all reported using the internet, not all use their home computer and two indicated a need for any working computer.

Children in Tacoma Public Schools (TPS)

Overall, families with children in TPS have fewer devices at home than families with children not enrolled in TSP (2.6 vs. 2.9), though no significant differences were found between parents with children in Tacoma Public Schools and those whose children don't attend those schools in ownership of specific computing or internet devices or personal use of those devices. However, parents of TPS children were significantly more likely to use the internet (99% vs. 92%).



Hilltop (98405) and Eastside (98404) Neighborhoods

Residents of the 98405 ZIP code area have fewer devices at home than residents of other areas of Tacoma (2.0 vs. 2.4). Figure 13 shows that these residents, along with the Eastside residents of 98404 were significantly less likely to have a desktop or laptop computer at home. The Hilltop residents were significantly less likely than Eastside residents to have a smart phone or a tablet at home.

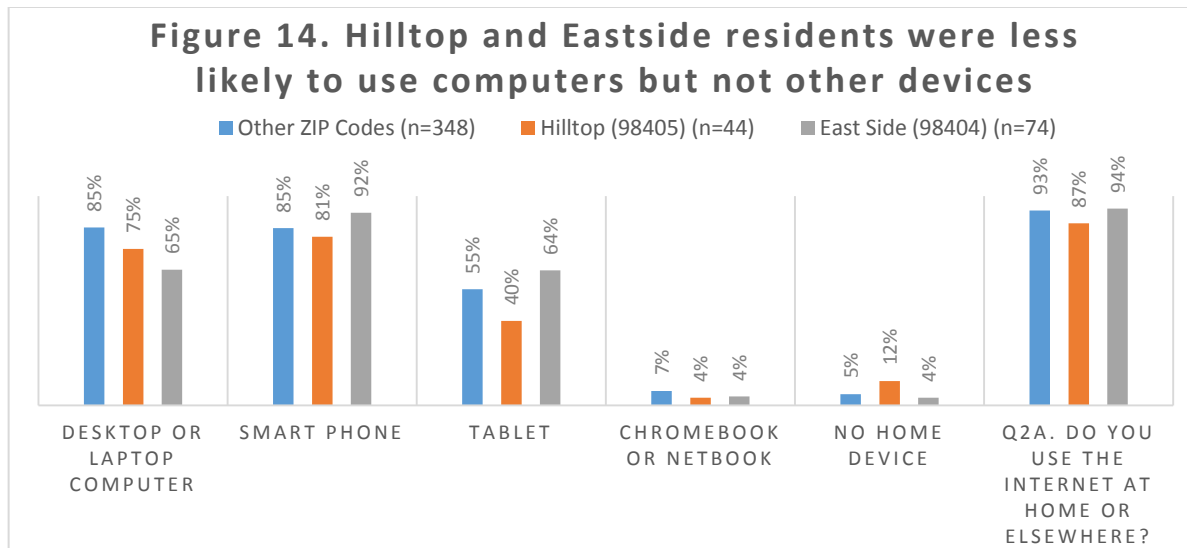


Figure 14 shows that Hilltop and Eastside residents were significantly less likely than other Tacoma residents to use desktop or laptop computers, and Eastside residents were significantly more likely to use a tablet than Hilltop residents.

When including only the 11 people in Census tracts 061400 and 061300 in the Hilltop analysis, the findings for that neighborhood become more extreme. These respondents are less likely to have home computing or internet devices, less likely to use them, and less likely to use the internet at home or elsewhere. Specifically, respondents in these Census tracts are:

- significantly more likely to have and to use no home device (29% vs. 5%)
- somewhat (but not significantly) less likely to have a desktop or laptop computer (65% vs. 84%), and significantly less likely to use it (55% vs. 81%)
- significantly less likely to have a smart phone (56% vs. 84%) or to use it (54% vs. 86%)
- significantly less likely to use a tablet (19% vs. 56%)
- significantly less like to use the internet (63% vs. 93%).

Connecting to the internet

Table 3 is a copy of the question items in the mail survey relating to where respondents or other household members connect to the internet.

CONNECTING TO THE INTERNET

5. **WHERE:** Please check all the **PLACES** that you or others in your household connect to the internet.

457 (94%) Home (including wired, mobile, and other)	187 (39%) Someone else's home
280 (58%) Work	101 (21%) Library
156 (32%) School	8 (2%) Community center
274 (57%) Anywhere/everywhere (mobile data plan)	5 (1%) Boys & Girls Club
263 (54%) Anywhere with free wi-fi	17 (4%) Somewhere else
18 (4%) No one in the household uses the internet	0 Don't know

5. How and where do you, personally, connect to the internet? Which device and which location do you use MOST OFTEN?

Device? (Check one below)	Location? (Check one below)
Most 53 No internet use	53 No internet use
often 26 No response	19 No response
190 (47%) Desktop or laptop computer	311 (76%) Home 30 (7%) Work
212 (52%) Smart phone or tablet	0 School 68 (17%) Anywhere
2 (1%) Chromebook or netbook	2 (1%) Other (please specify) _____

6. Which device and which location is MOST IMPORTANT for you to connect to the internet?

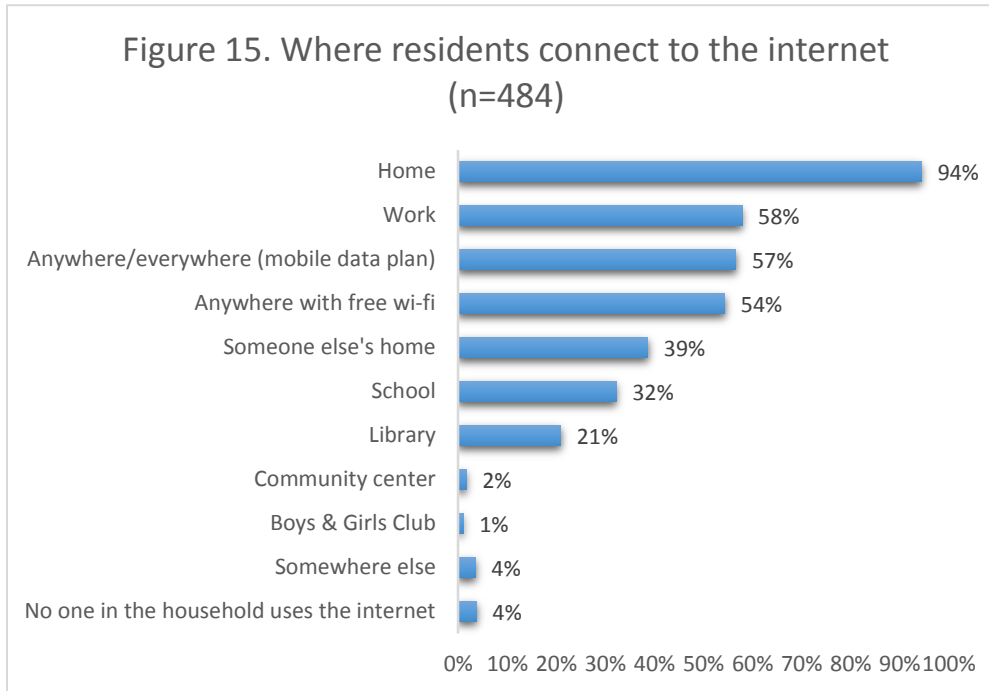
Device? (Check one below)	Location? (Check one below)
Most 53 No internet use	53 No internet use
important 19 No response	38 No response
226 (55%) Desktop or laptop computer	265 (67%) Home 44 (11%) Work
184 (45%) Smart phone or tablet	10 (3%) School 73 (19%) Anywhere
2 (<1%) Chromebook or netbook	0 Other (please specify) _____

7. Is your current internet access good enough for how you want to use it?

53 No internet use 29 No response 343 (85%) Yes 59 (15%) No -->If No, please explain
 5 (7%) Too expensive 25 (43%) Too slow 20 (43%) Unreliable 2 (3%) Limited data 12 (21%) Other

Table 3. Responses to CONNECTING TO THE internet question items

Figure 15 illustrates these numbers and shows that nearly all (94%) Tacoma residents are able to connect to the internet from home. Between 50% and 60% connect from work, with their mobile plan, or “anywhere with free wi-fi.”



About one-fifth of Tacoma residents connect to the internet through the public access computers at the library. Participants identified few if any other public access locations. The mini-survey provides a lower estimate of home internet access (83%). Three-fourths of the mini-survey respondents living in ZIP codes with median incomes of less than

\$46,000 indicated home internet access, compared with almost 100% of the other respondents living in higher income ZIP codes. Mini-survey respondents connect at other locations with similar frequency, except that 42% indicated connecting at the library, likely due to the use of the libraries as some of the survey administration sites.

Respondents indicated between no locations (18 people) and nine locations (2 people) for accessing the internet. Among those with any internet access, they average 3.7 locations. Figures 16 through 22 address combinations of internet access *for the internet users in the sample* (excluding the 18 respondents who indicated that no one in the household uses the internet). Figure 16 shows that of the nine internet users without home access, 52% get access at work and 46% at the library. Thirteen percent of those with home internet access report using the internet in no other location. Otherwise, the pattern of access for the 457 *with* home access is very similar to Figure 15 above since it contains the responses of nearly the entire sample.

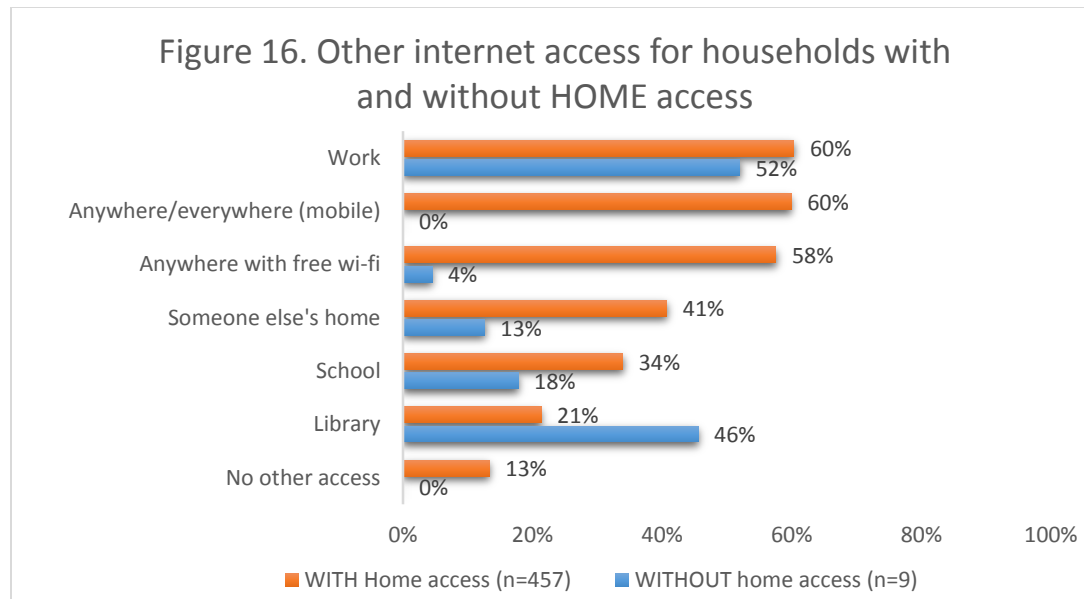
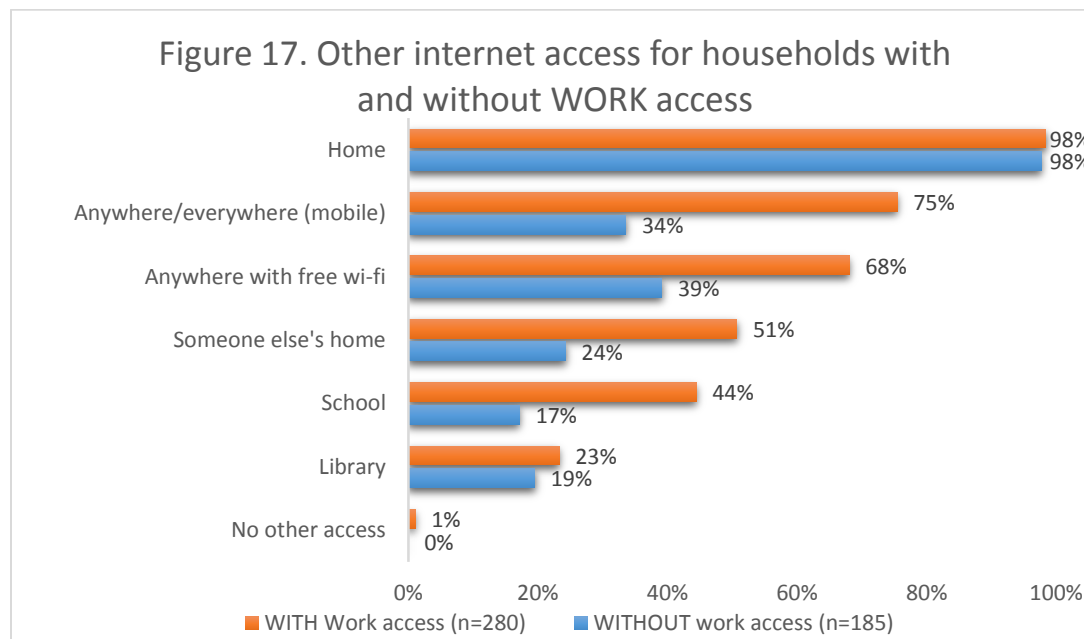


Figure 17 shows that nearly all respondents have internet access at home, whether or not they also have it at work. Those with access at work are more likely to also have access at all the other locations except at the library where those with and without work access are about equally likely access the internet. Overall, those with internet access at work connected to the internet in more locations than those without work access (4.7 vs. 2.4).



Those with school access showed a similar pattern in Figure 18. Again, nearly all internet users have home access whether or not they have school access as well. In addition, those with school access were more likely to have access at the other locations in addition to the library, where they were about twice as likely to access the internet as respondents who were not in school. Overall, those with internet access at school had an average of 5.2 locations where they accessed the internet, compared with an average of 3.0 among those without school access.

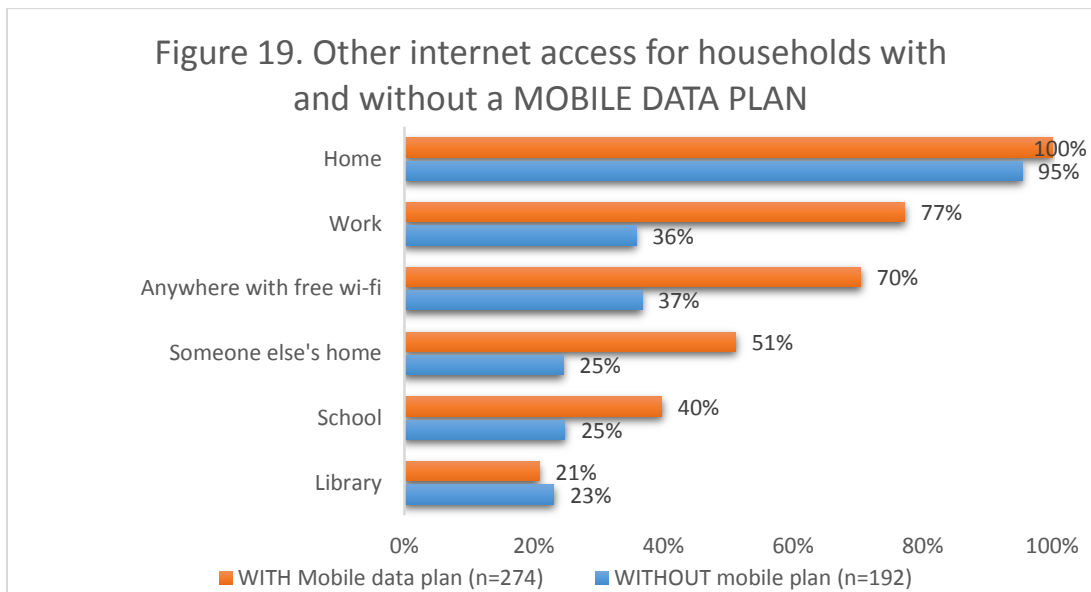
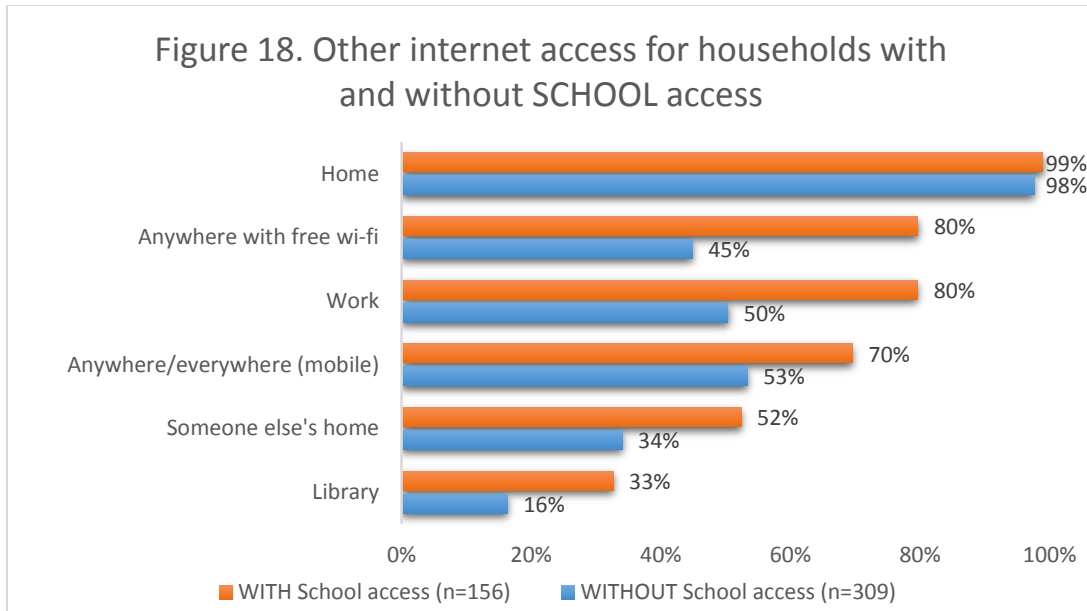


Figure 19 shows that those with mobile access have more locations with internet access than those without (4.7 vs. 2.4).

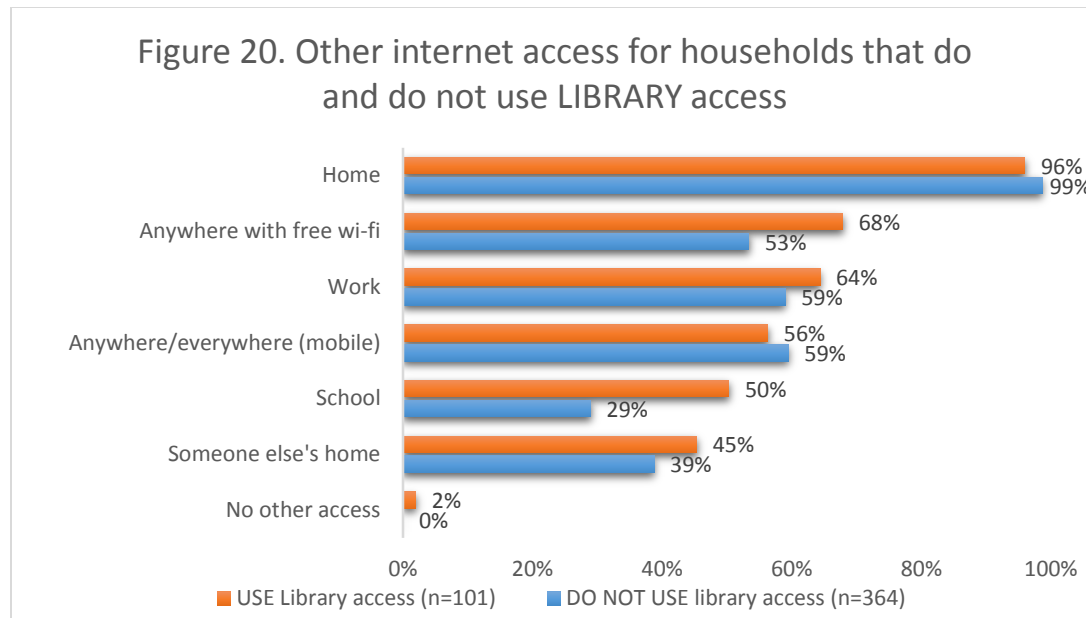
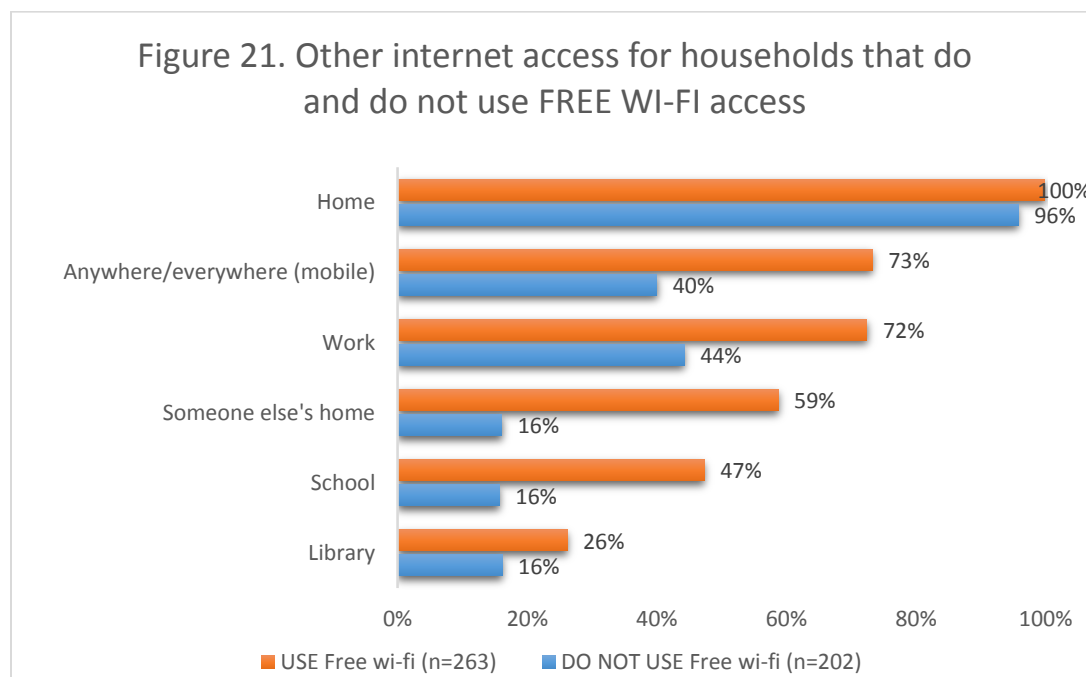
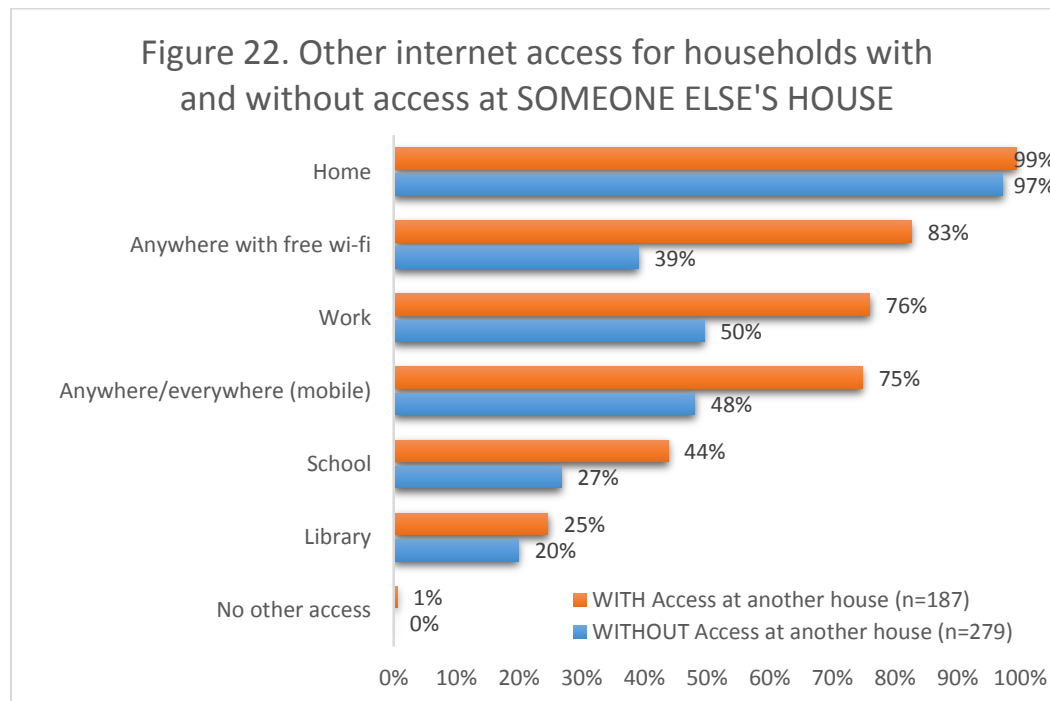


Figure 20 shows that those who use public access computer at the library are almost as likely as those who don't use the library computers to have home and mobile access, and they are somewhat more likely to use free wi-fi access and school access. Overall, those who use the library's public access computers access the internet at 4.9 different locations, compared with 3.4 locations of those who do not use the library computers.

Figure 21 shows that all of those who use free wi-fi access also have home access and almost three-fourths each have access on a mobile device, and access at work. Overall, those who make use of free wi-fi indicated 4.9 locations where they gained internet access, compared with 2.3 locations indicated by those who do not make use of free wi-fi.



About four respondents in 10 indicated having internet access at someone else's house. Figure 22 shows that almost all of those who use the internet at other people's homes also have access at their own homes, and are more likely than people who don't use the internet at other people's houses to have access in many other locations. Overall, those who use the internet at other's home have access in more locations than those who do not use access at other's homes (5.1 vs. 2.8).

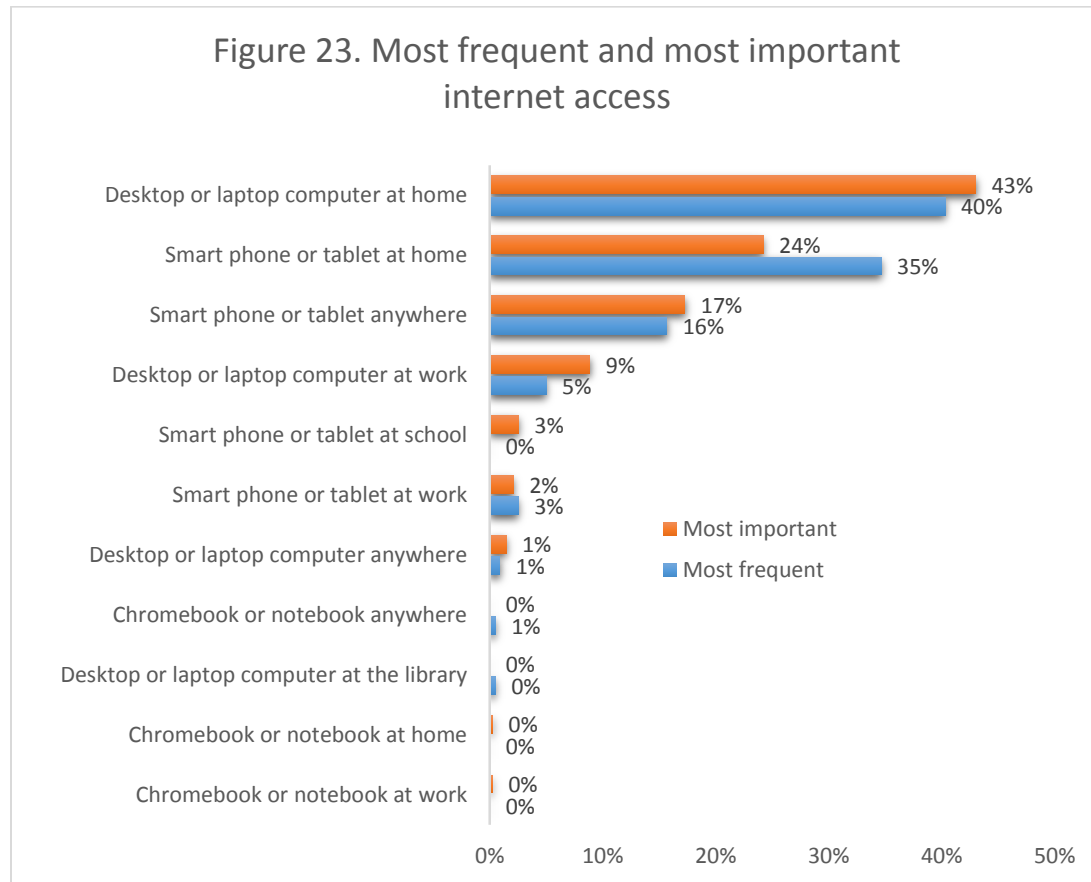


In earlier studies of other communities, when respondents indicated accessing the internet at someone else's home, it was thought to reflect a way of gaining access to a rare and restricted resource. In those studies, respondents were thought to use their friend's or relative's internet access because they didn't have their own. Figure 22 shows that in Tacoma today, the use of the internet from another's home may be due to its ubiquity rather than its rarity.

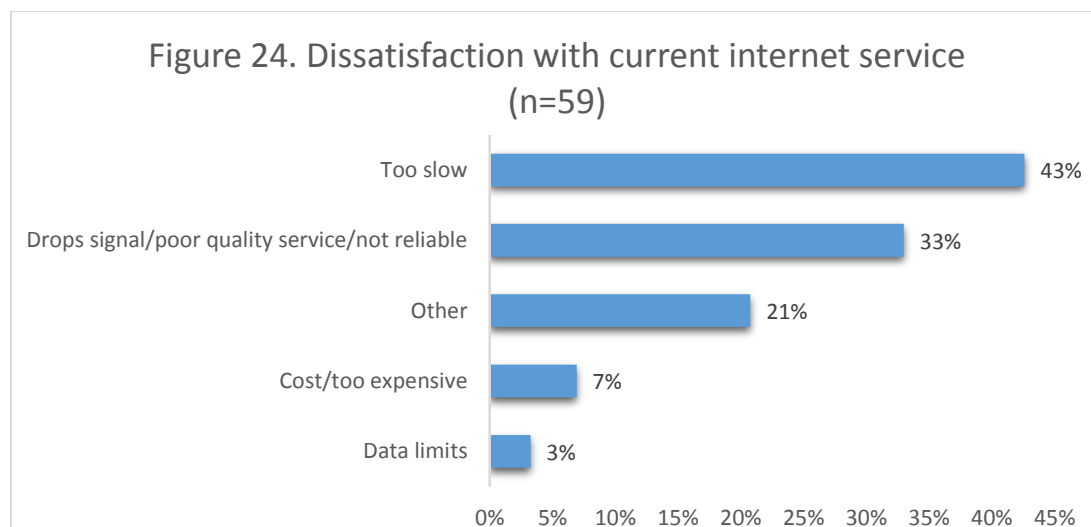
Respondents were asked to indicate where and with which device they most often connect to the internet, and which location and device are the most important for their internet use. Figure 23 shows that the single most important and most frequent combination for accessing the internet was the computer at home. If the people who indicated their mobile device at home are combined with those who indicated their mobile device anywhere, just about half (51%) of the respondents use their mobile device to access the internet most frequently. Surprisingly few (9%) indicated their work computer as most important.

Mini-survey results were similar. The top four combinations were computer at home, smart phone or tablet at home, smart phone or tablet anywhere, and computer at work. The mini-survey sample respondents were somewhat more likely to say their home computer was most important (49%) and somewhat less likely to say they use it most often (31%). They also were a bit less likely to say their smart phone at home is most important (15%) or most frequent (29%) but more likely to say their smart phone anywhere is most important (25%) or most frequent (20%). Combined, smart phone use is similar

between the two surveys. Computer at work was more often indicated in the mini-survey as most important (16%), and most frequent (12%).



Most respondents (85%) say that their current internet access is good enough for how they want to use it. Seventy-eight percent of the mini-survey respondents said their internet access is good enough. Figure 24 illustrates the dissatisfaction described by the other 15%, primarily the quality of their service.



The relationships between the individual predictive factors and internet access are reported below.

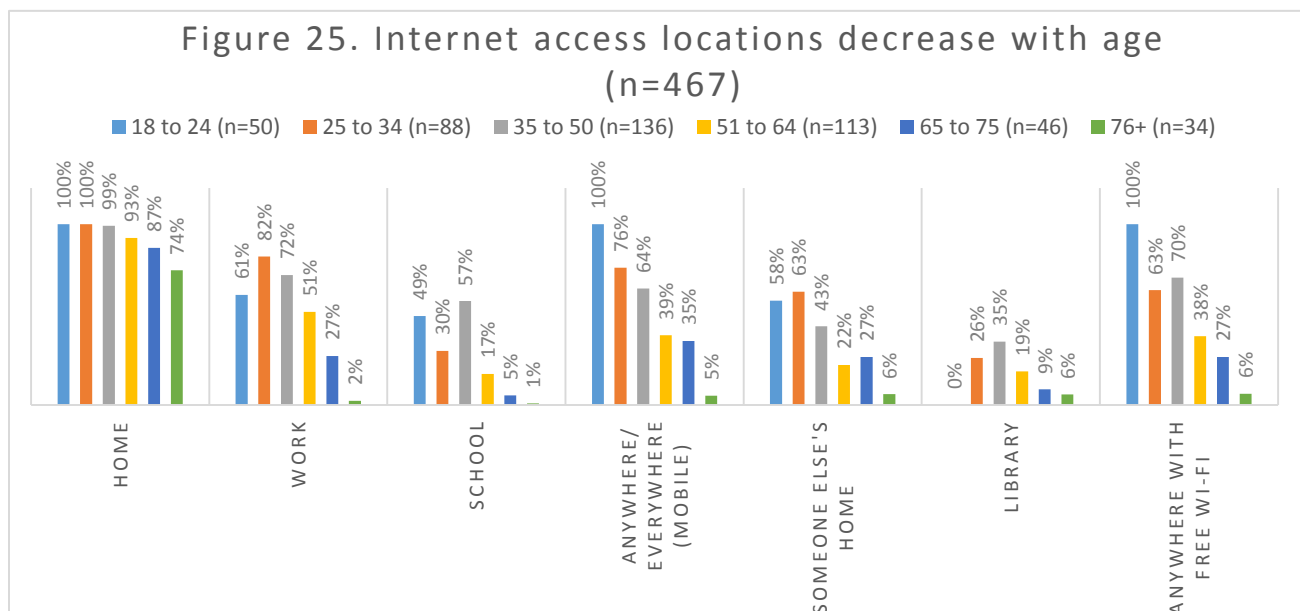
Gender

Men reported connecting to the internet at more locations (4.0 vs. 3.7), including school (38% vs. 28%) and with a mobile data plan (68% vs. 58%). Men were more likely to indicate dissatisfaction with internet service quality and dropped signals. When asked about the connection they use most often, women were more likely to indicate their mobile device at home or their computer at work, while men were more likely to indicate their mobile device anywhere. When “mobile at home” is combined with “mobile anywhere,” men and women rely on their mobile access comparably, though they may differ in where they use it.

When answering about which devices and locations are more important, about half the men indicated their home computer, about one-third their mobile plan (combining home and “anywhere”). For the women, this was reversed with just over one-half indicating their mobile plan (again combining home and “anywhere”) and just over one-third indicating their home computer.

Age

As described above, internet use decreases with age dropping from 94% 51 to 64 and 65 to 75 age ranges, to 81% in the 76 and older age range. Correspondingly, access at each location decreases with age as shown in Figure 25. Home access decreases the most gradually while access outside the home decreases more sharply. Overall, the number of locations for internet access decreases steadily from an



average of 4.8 among the youngest group of respondents to an average of 1.0 among the oldest.

When asked about satisfaction with service, cost topped the list of concerns in the oldest group, while speed and reliability were more likely to be mentioned by the younger respondents.

When asked where, and using what device, respondents connected to the internet most often, the responses depended on age. Those 65 and older were most likely to say they most often connect to the internet using their home computer (80%) compared with only 18% of those younger than 35, and 44% of those 35 to 64. Respondents younger than 35 were most likely to say they most often use their

mobile device from home (or from anywhere) (75%) compared with 18% of those 65 and older. Again, those between 35 and 64 were in the middle (44%). Table 4 summarizes these figures.

When asked what internet access was most important to them, the responses were not quite as dramatic as in the previous question, but again depended on age. Three-fourths of those 65 and older indicated their computer at home, compared with 27% of the younger groups and 45% of those between 35 and 64. Conversely, 58% of those 34 and younger indicated their mobile device (from home or from anywhere) compared with 23% of those 65 and older and 35% of those between 35 and 64.

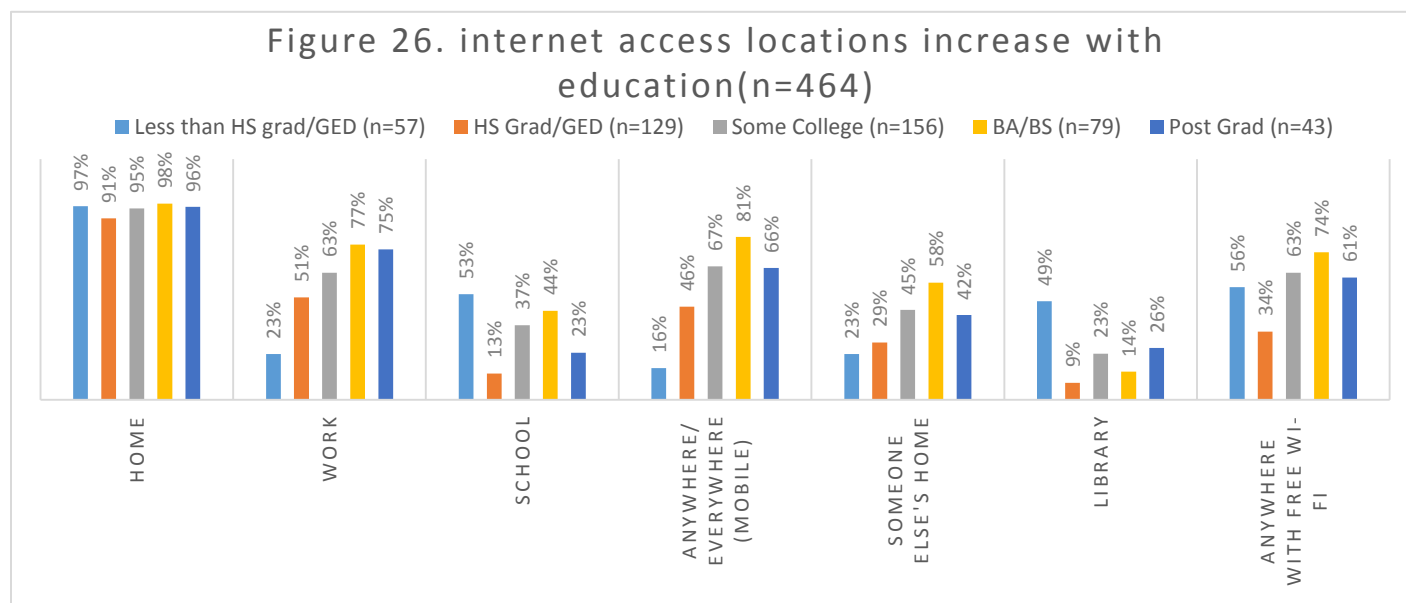
Table 4. Most frequent and most important internet access by age.

Age category	Most frequent access		Most important access	
	Home computer	Mobile device*	Home computer	Mobile device*
18 to 34	18%	75%	26%	59%
35 to 64	43%	44%	46%	35%
65 and older	80%	18%	77%	22%

*"Home" or "Anywhere/everywhere"

Education

Analysis shows that although home internet access is not affected by education, the overall number of locations for internet access increases with education, from an average of about three places among those with the least education to an average of four or more places among those with at least a four year college degree. However, Figure 26 shows that the relationship with education is different at different locations. Importantly, home access is fairly constant across the education groups with a dip from the high 90's to the low 90's among those with a high school diploma or GED only. This figure shows that internet access at work increases with education, as does mobile internet access, access at



someone else's home, anywhere with free wi-fi.

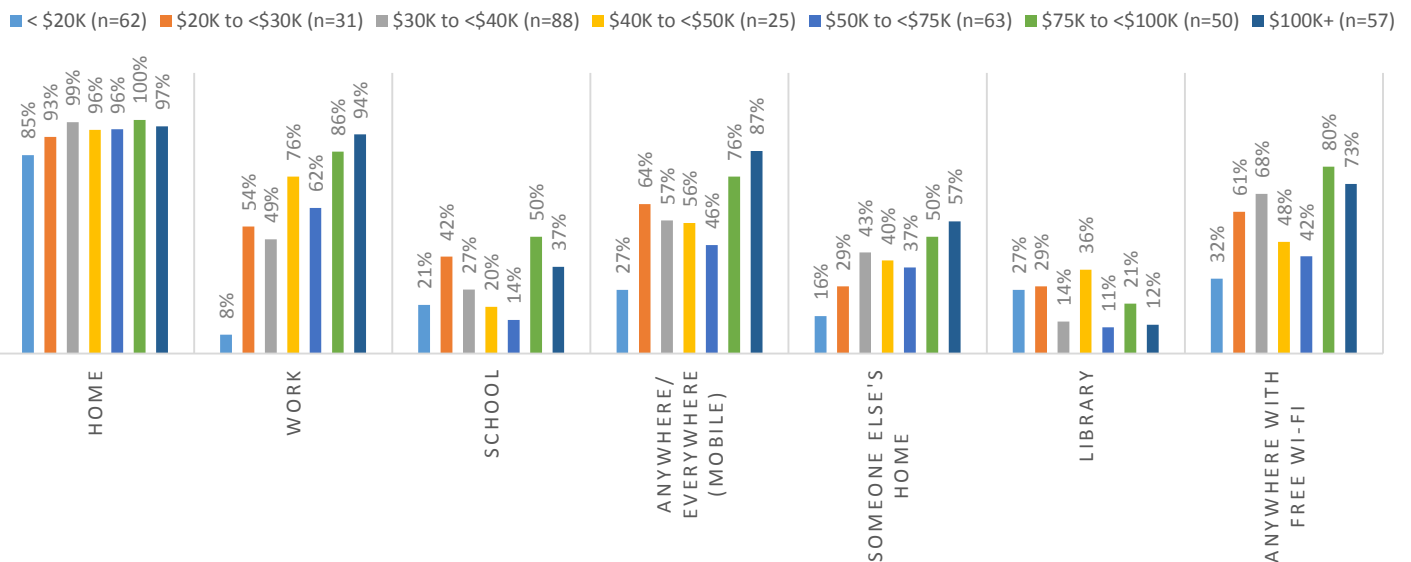
About half of the respondents across the education range indicated that they most often connect to the internet using their mobile device, at home or "anywhere." The percentage using their home computer declined from almost half (47%) of those with no more than a high school diploma or GED to one-third

of those with at least a four-year degree. Slightly more indicated their home computer than their mobile device as the most important way they access the internet (44% vs. 41%). Those with more education were most likely to indicate their work computer (23%).

Income

Overall, analysis shows that the number of locations for internet access increased with income, from an average of 2.2 places among those with income below \$20,000 per year to an average of 4.7 places among those with annual incomes of \$75,000 or more. Analysis shows a statistically significant increase in internet access at each location as income increases. Figure 27 shows that home internet access is high in households with annual incomes of at least \$30,000, and households at the lowest income level

Figure 27. internet access increases with income at each location (n=376)

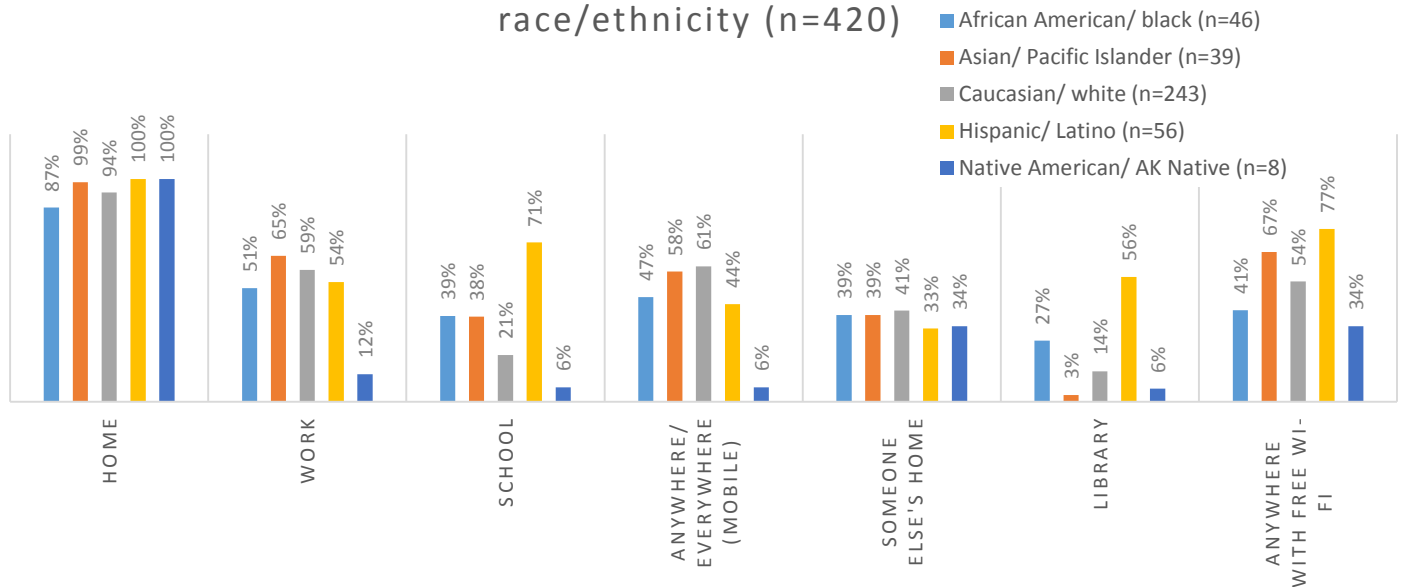


are considerably less likely to have internet access at other locations.

Income was unrelated to most frequent internet access, but the work computer became an increasingly important point of access to the internet as income increased, from none of those earning less than \$30,000 per year to a quarter of those earning \$75,000 or more.

Race/ethnicity

Figure 28. Location of internet access depends on race/ethnicity (n=420)



Overall, Hispanic/Latino (4.4) and Asian/ Pacific Islander (3.7) respondents reported more locations for internet access while Native American/Alaska Native respondents reported fewer (2.1). Caucasian/ white and African American/ black respondents fell between the two extremes at an average of 3.5 locations for internet access.

Figure 28 shows that African American/ black respondents are least likely to report having internet access at home and, with Hispanic/Latino respondents, make good use of internet access at the library. Hispanic/ Latino respondents stand out for their high likelihood of school internet access, and their high use of library internet and other free wi-fi, and relatively low use of a mobile data plan. Native American/ Alaska Native respondents stand out for their low level of access to the internet other than at home.

When asked what access they use most frequently, 72% of the Asian/Pacific Islander respondents named their mobile device, at home or anywhere and all of the Native American/Alaska Native respondents named their home computer. The other groups were more evenly divided between their home computer and their mobile device. Hispanic/Latino and African American/black respondents favored their home computers (61% and 47%, respectively), followed by their mobile devices (36% vs. 32%, respectively) while Caucasian/white respondents favored their mobile devices (55%) followed by their home computers (36%).

The pattern changes somewhat when respondents are asked to name their most important access. All groups except for Caucasian/ white respondents named their home computers more often than any other access, ranging from 38% of the Asian/Pacific Islander respondents to 100% of the Native American/ Alaska Native respondents. Caucasian/ white respondents named their mobile devices slightly more often than their home computers (46% vs. 40%). Asian/ Pacific Islander respondents were fairly evenly divided between their mobile device (28%), their work computer (31%) and their home computer (38%).

Children in Tacoma Public Schools (TPS)

The 109 respondents with children in the TPS were more likely than other parents of children under 18 to access the internet through school (74% vs. 38%), and less likely to access it via a mobile data plan (56% vs. 82%) or at someone else's home (45% vs. 66%).

Parents of children under 18 that do not attend TPS rely heavily on their mobile devices, with 79% naming their mobile device as their most frequent internet access, compared with about half of the parents of TPS children. The other TPS parents named their home computer (43%) or their work computer (6%). When naming their most important internet access, more parents named their home computer (44% overall).

Hilltop (98405) and Eastside (98404) Neighborhoods

Respondents in the 98405 ZIP code indicated fewer locations where they connect to the internet and Eastside residents in 98404 reported more. (3 vs. 3.6 vs. 3.9). Hilltop residents were less likely to report having home internet access (87% vs. 96%) while Eastside residents had the same level of home access. Mini-survey respondents from 98405 were less likely yet to report home internet access (72%) and 94% of the Eastside residents in the mini-survey reported home access. Returning to the mail survey, Eastside residents had more school access (43%) compared with 19% in Hilltop and 30% in other ZIP codes and they reported more use of the library's access (34%) compared with 16% in Hilltop and 20% in other ZIP codes.

98405 and 98404 residents responded similarly to respondents from other parts of the city when asked about their most frequent and most important internet access.

When narrowing the analysis to include just the Census tracts 061300 and 061400, the analysis again becomes more extreme. These results show that significantly fewer of these households have an internet user (71% vs. 97%), and significantly fewer have home access (65% vs. 95%).

Internet at home

Table 5 is a copy of the questions in the internet AT HOME section of the mail survey. Checkboxes are replaced by responses.

INTERNET AT HOME

10. HOW do you get internet service **AT HOME**? *(Please check all that apply)*

27 (6%) Do **NOT** get internet service at home

389* (95%) **Wired connection** (DSL, cable, dialup or fiber) from a commercial provider *(Please select which one.)*

6 (no provider indicated)

71 (17%) Century Link internet **220 (54%)** Comcast internet **21 (5%)** Click **48 (12%)** Rainier Connect

16 (4%) Advanced Stream **7 (2%)** Other *(please specify)* **0** Dial up **0** Don't know

277 (67%) **Mobile connection** *(Please check all that apply)*

266 (35%) Data plan as part of mobile phone service

25 (6%) Portable wi-fi device (mi-fi, Clear)

31 (8%) Use mobile device as a hotspot **0** Other

65 (16%) **Other connection** *(Please check all that apply)*

4 (1%) "Borrowed" wi-fi from nearby business or neighbor **2 (<1%)** Included as part of rent **0** Satellite

61 (15%) Free wi-fi (publicly available internet at no charge) **0** Other _____

2 Don't know

30 No information

* Percentages based on 411 respondents who provided information about access

11. How much, if anything, do you pay **per month** for your home internet service?

Internet alone: (Average=\$52; Median=\$45) Service bundle: (Average=\$131; Median=\$109)

12. Is this amount.... **259 (71%)** for internet alone **107 (29%)** for a service bundle (more than one service)

4 don't know **70** (no answer) **44** (No home connection, no connection info or no response)

14. Do you have the technology you want or need at home?

51 No response

333 (77%) Yes -->If **Yes**, please go to **USING COMPUTERS AND THE internet below**

100 (23%) No -->If **No**, what don't you have that you want or need? *(Please select all that apply.)*

6 No response

14 (15%) Any working computer **43 (46%)** Up-to-date computer

33 (35%) Printer **22 (23%)** Up-to-date software

22 (23%) Smart phone **12 (13%)** Tablet

21 (22%) Any internet access **28 (30%)** Better internet access

14 (15%) Other _____

14a. What are the reasons you don't have these items? *(Please check all that apply)*

12 No response

6 (7%) Too complicated

14 (16%) Don't know how to get started

3 (4%) Don't know how to use them

58 (66%) They are too expensive

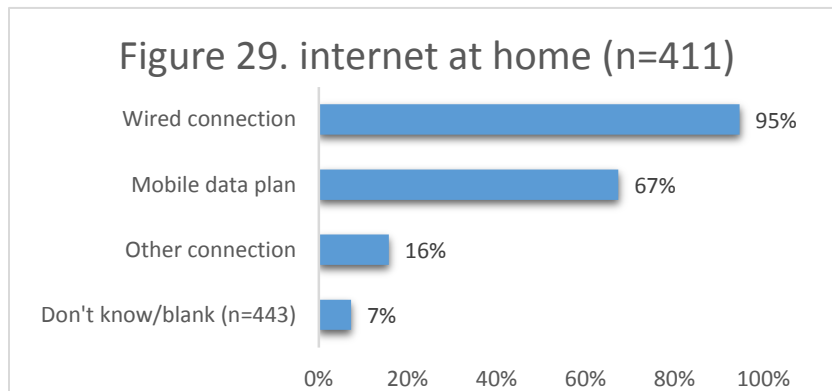
12 (14%) No special reason **12 (14%)** Other _____

Table 5. Responses to internet AT HOME question items

Figures 29 through 35 illustrate the results in Table 5. Six percent of respondents indicated that they do not get internet at home. This goes up to 10% of the mini-survey respondents (nearly all of these in the lower income ZIP codes). 457 indicated having home access. Of these, 411 specified the type of their connection at home, 95% of which indicated that they have a wired connection, similar to mini-survey respondents (89%). More (96%) of the mini-survey respondents in higher income ZIP codes have a wired connection at home. Figure 29 shows that 67% of the mail survey respondents have a mobile data plan and 16% described some other connection. Although many fewer mini-survey respondents indicated that they have a mobile data plan (38%), when combined with those who indicated that a mobile device

is their most frequent or most important way of connecting to the internet, that number rises to 74%.

Respondents who indicated a wired connection were asked to specify their provider. Figure 30 illustrates the responses, showing that Comcast provides wired internet access to just over half of Tacoma's households with



internet access and that almost no one uses a dial up connection. Fewer mini-survey respondents indicated either CenturyLink (7% - nearly all of these in the lower income ZIP codes) or Comcast (45%). Many more indicated click (20%) or Rainier Connect (21%). This difference between the mail survey and the mini-survey might be due to the locations at which the surveys were distributed.

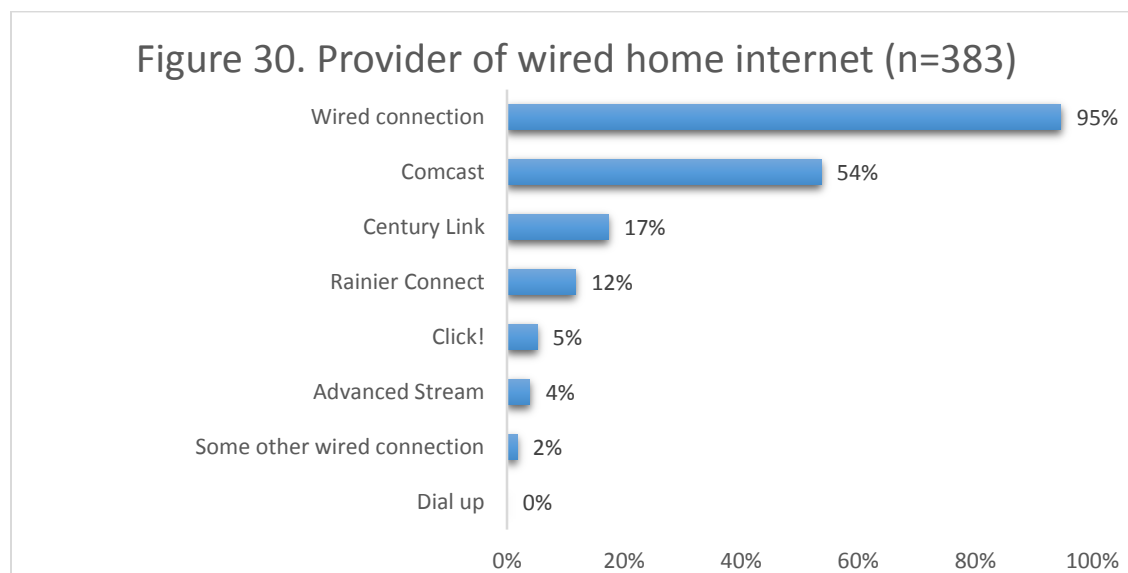


Figure 31 shows that a few of the respondents with a mobile connection have a portable wi-fi device and a few use their smart phone as a hotspot enabling their internet access on their computer via their phone's data plan.

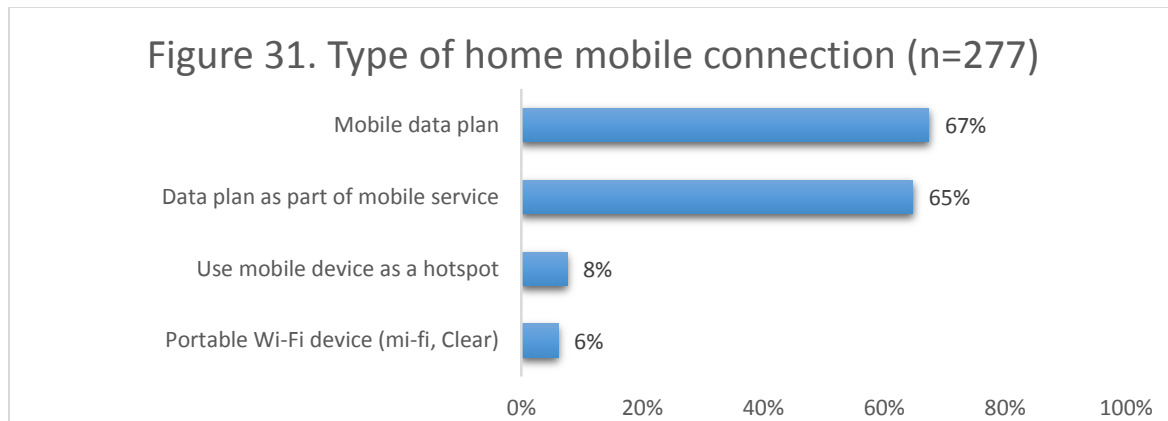
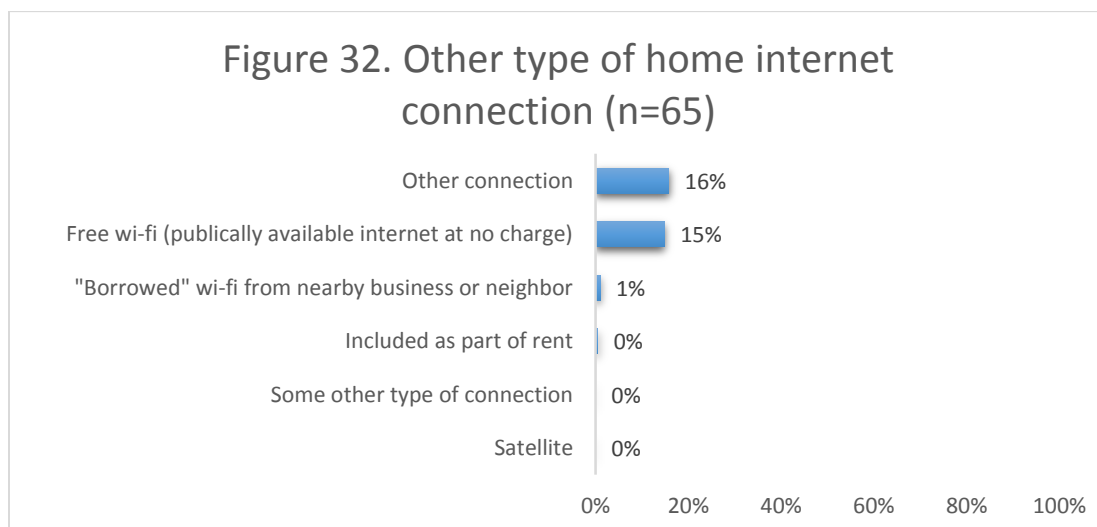
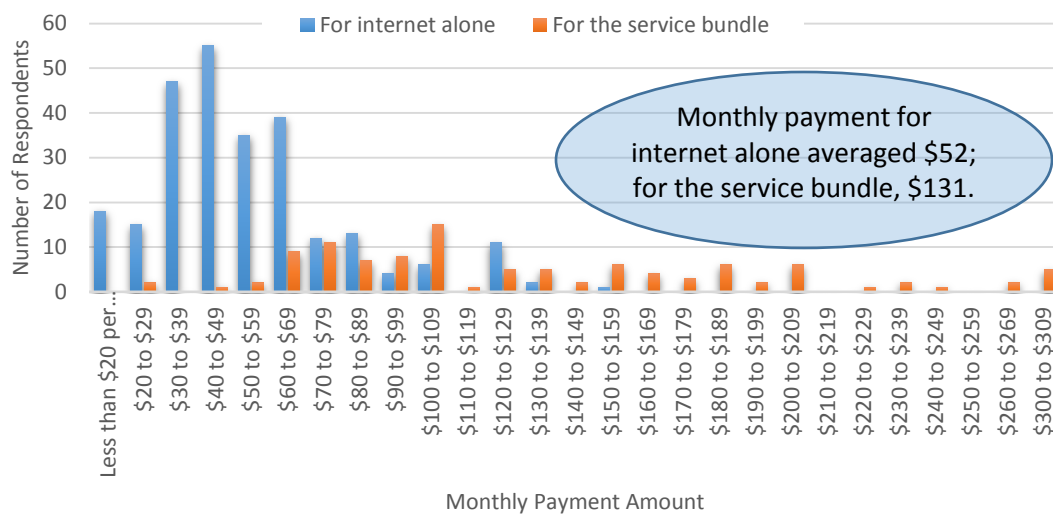


Figure 32 shows that some respondents get their home internet through a free wi-fi service.



Respondents were asked how much they pay per month for their home internet service. Figure 33 shows that answers ranged from \$10 per month to \$200 per month for internet alone (average of \$52, median of \$45), and from \$20 per month to \$300 per month for a service bundle (average of \$131, median of \$109).

Figure 33. Monthly payment for internet service or service bundle (n=366)



Internet service (n=259); Service bundle (n=107)

All participants were asked if they had the technology they want or need at home. More than three-fourths (77%) said that they do and the others indicated some kind of lack. Fifty-one respondents did not answer this question. Most of these (78%) were themselves technology users but analysis shows that they tended to be older, Hispanic/Latino, with less education, and income. Since older, less educated, and lower income respondents were shown to have less access, this finding may suggest that those with the most limited access may not have answered this question. If those who didn't respond are assumed not to have the technology they want and need, the percentage satisfied with their home technology drops from 77% to 69%. Between a quarter and a third of residents do not have the

Figure 34. Technology that about a quarter of residents lack (n=94)

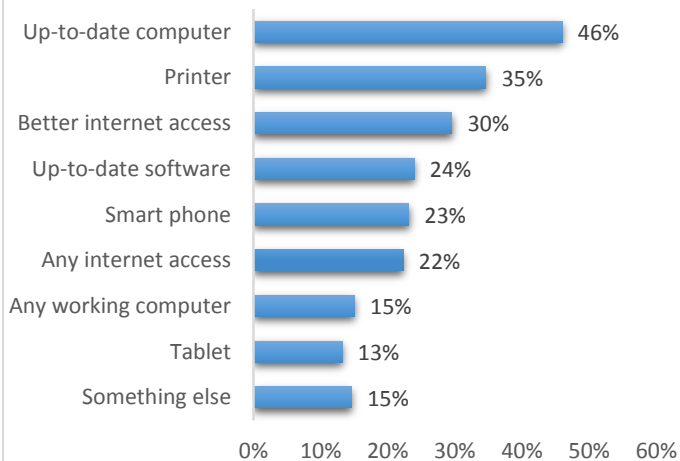
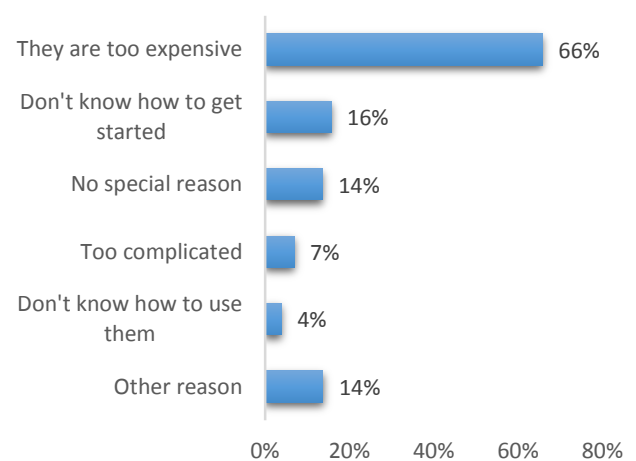


Figure 35. Reasons technology is lacking (n=88)



technology need or want at home.

Mini-survey results also indicated that 77% of all respondents are satisfied with the technology they have at home, though if this figure is restricted to only those who gave Tacoma ZIP codes, that figure drops to 69% and 61% in the middle income ZIP codes. Nearly all (98%) from the highest income ZIP codes were satisfied. Figure 34 shows the technology that mail survey respondents want or need at home, and Figure 35 shows the reason(s) they don't have it.

Nearly half of the people in the mail survey who said that they don't have the technology they want or need at home indicated that they need a better computer. About one-third need a printer and 30% need better internet access. The main reason respondents don't have these things is because they are too expensive.

Mini-survey results show that a quarter of respondents with Tacoma ZIP codes who do not have the technology they need at home say they need *any* computer at home and another 20% need one that is up-to-date. All of the respondents who need "any" computer at home live in the lower income ZIP codes, while those living in higher income ZIP codes are more likely say they need an up-to-date computer. Somewhat more in the mini-survey need a printer (48%). One quarter of the lower income ZIP codes respondents say they need any internet access (compared with none of those in the higher income ZIP codes) and another quarter want *better* internet access, as do eight in ten of those living in middle income ZIP codes. Fewer people in the mini-survey said they need a smart phone (7%) or tablet (15%) but those that did all live in the lower income ZIP codes.

As in the mail survey, most of the mini-survey respondents said these items are too expensive (60%). However, many more in the mail survey said that they don't know how to use them (21%, all of these in the lower income ZIP codes) or that they are too complicated (19%, these disproportionately in the middle income ZIP codes).

Gender

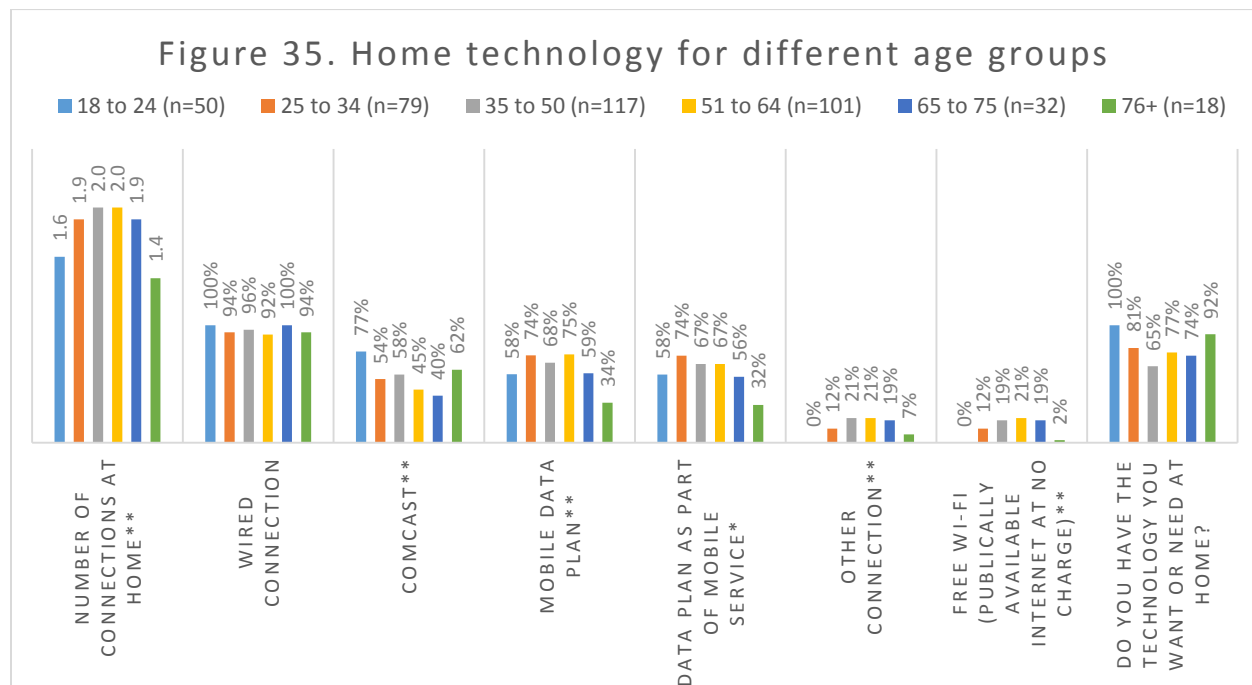
Although women and men were equally likely to have wired or mobile internet access at home, men indicated more types of internet access at home (1.9 vs. 1.8), partially due to men's greater use of their mobile device as a hotspot (11% vs. 2%). Women were more likely to be Century Link customers (20% vs. 10%). Men were somewhat more likely to be Comcast customers (64% vs. 54%) and correspondingly men paid significantly more per month for their internet-only service (\$58 vs. \$48) or a service bundle (\$143 vs. \$119). Although men and women were equally likely to indicate that they have the technology they need or want at home, men were more likely to identify the need for a more up-to-date computer.

Age

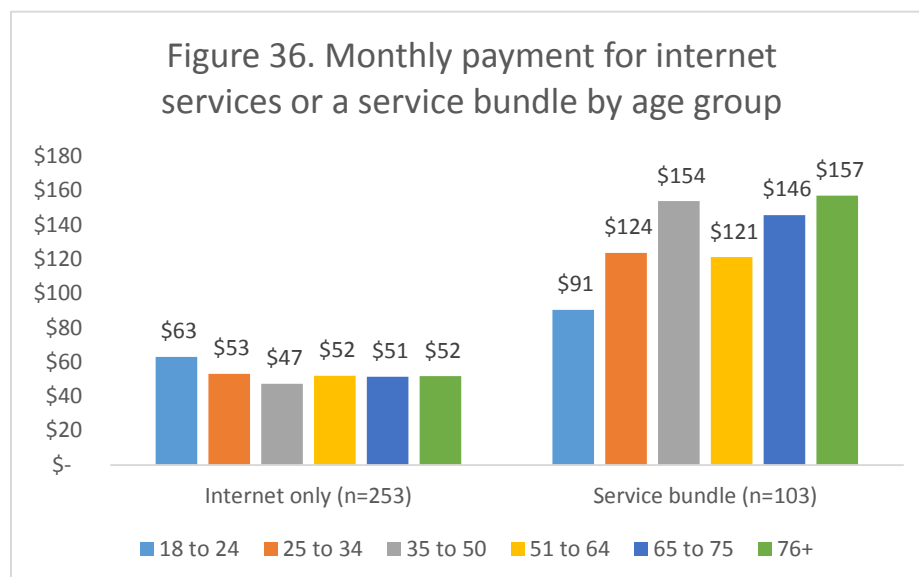
Analysis of the pattern of home internet access across the age ranges shows that the percentage of households without any home internet access increases linearly from 0% in households of respondents 50 or younger, to 6% of the households of respondents 51 to 64, 15% of the households in the next age group, and 30% of the households of respondents 76 and older. Figure 35 shows that among those with home internet access, the patterns of home internet access across the age groups formed a u-shape or an inverted u-shape, with percentages increasing/decreasing to the middle of the age ranges, and then continuing back the other direction. That is, the younger and older respondents gave many similar responses which were different from those in the middle age ranges. Of course this doesn't imply that

the process leading to these percentages is the same for the younger and older groups, but the outcomes are similar.

For example, Figure 35 shows that the number of internet connection types builds from the youngest age group, peaking in the 35 to 64 age groups before it begins to drop again with the older respondents. A similar pattern can be seen in the segments of Figure 35 related to mobile and other types of connections, where the likelihood of those connections builds from the youngest age group and then begins to drop after the 51 to 64 age group. The opposite pattern can be seen in Comcast connection and in the responses to the question, “Do you have the technology you want or need at home?” In both cases, the youngest and the older respondents answered the most positively, in contrast to those in the middle age ranges.



Younger respondents tended to report their monthly payment for their internet services alone, while older respondents were more likely to report their monthly payment for the service bundle.



Accounting for this trend, Figure 36 illustrates the analysis showing that those who are paying for internet services alone pay about the same across the age ranges; however, the seniors buying a service bundle pay more per month – perhaps for a different set of services -

than those in the younger age groups.

Education

Several of the questions about the internet connection at home were related significantly to education level. Overall, those with the least education had more ways of connecting to the internet. In addition to being as likely to have a wired connection (more likely that it's Century Link – 57% vs. 14% of the other age groups and less likely that it's Comcast – 43% vs. 58%) and more likely to have a mobile data plan, respondents in the lowest education group were more likely to use a hotspot (29% vs. less than 10% of the other groups).

This group was also the least likely to say that they have the technology they want or need at home (34% vs. 81%), noting most often that they need an up-to-date computer (64%) and software (41%), a printer (41%), a smart phone (36%) and good internet access (41%). Some (22%) even noted the need for any internet access at home. The reasons given for not having these things were the cost (59%), a concern shared across the education categories, and not knowing how to get started, significantly higher in this education category (41% vs. 6%).

This group was also more likely to report the cost of their internet service alone rather than in a bundle (100% vs. 67% of the others education groups). Even looking only at those who reported the cost of their internet service alone, respondents in the lowest education group reported paying less per month for internet service (\$32 vs. \$55), perhaps due to the different subscription rates for Century Link and Comcast.

Income

The percentage of households without internet access is highest at the lowest income level (15%), declining to 4% in the next income level and an average of 2% across the others. In households with internet access, the percentage with a wired internet home connection was high across all income categories, but increased significantly from 85% in the lowest income category to 98% in the highest. Households in the lowest income group are more likely to use Century Link for their wired access (40% vs. 15% of the other income groups). They are as likely to have mobile internet access.

This group was the least likely to say that they have the technology they want or need at home (72%), a value that increased with income to a high of 91%. Among the respondents who did not have the technology they want or need at home, those in the lowest income group were the most likely to say that they lacked home internet access.

Respondents at each income level were about equally likely to report their monthly cost for internet alone or for a service bundle. Those reporting the cost for internet service alone averaged \$51 per month, slightly but not significantly higher in the highest income category (\$62) than in the lowest income category (\$55). Those who reported the amount for the service bundle indicated an average of \$131 per month, not significantly different across the income categories.

Race/Ethnicity

Overall, five percent of those who disclosed their race or ethnicity indicated that they do not have any home internet access. This figure increased to a high of 13% among the African American/ black respondents, the group that also trailed in wired connections in the households with internet access (85%). However, two-thirds of the African American/ black respondents have a mobile data plan and this

group is among the most likely to use their mobile phone as a hotspot. Most of the African American/black respondents (57%) said that they have the technology they want or need at home. Fifty-eight percent of those that do not said they need some kind of internet access, 19% need a smart phone and 11% need a working computer.

Very few (1%) of the Asian/ Pacific Islander respondents said they don't have home internet access and of those that do, 98% have a wired connection. About half of this group indicated a mobile data plan. Ninety-one percent of this group has the technology they need or want at home. The few that do not need internet access.

Among the Caucasian/ white respondents, 6% said they don't have home internet access and of those that do, 96% have a wired connection and 70% have mobile access. Eighty-three percent of this group has the technology they need or want at home. Those that do not have varied needs. One-quarter need a working computer and 11% need a smart phone; one in five need internet access and one-third need *better* internet access.

The Hispanic/Latino respondents all said they have wired home internet access. This group was most likely to say their connection was through Century Link (44% vs. 15% of the other groups). About half get home internet access through a mobile data plan¹ and 20% use their mobile device as a hotspot. Hispanic/Latino respondents are least likely to agree that they have the technology they want or need at home (28%). Half of those that indicated what was lacking need a smart phone and four in ten need better internet access. They indicated not knowing how to get started to meet these needs.

The Native American/Alaska Native group is small and even though earlier questions indicate that these respondents have internet access through home connections, responses in this section were incomplete. It seems that these respondents are the least likely to have mobile data plans or any other access. About three-quarters have the technology at home that they want and need. Those who don't say they need a working computer, but that they are too complicated and they don't know how to use them. This group may need additional inquiry to understand their residential technology needs.

Overall, two-thirds of the respondents reported the monthly fee for internet service alone and the other one-third reported the monthly fee for a bundled service. The African American/black and Native American/Alaska Native respondents were more likely to report on the fee for a service bundle (44% and 68%, respectively) while Hispanic/Latinos were more likely to report on the fee for the internet service alone (93%). Among those who reported the fee for the internet service alone, the monthly fee ranged from just under \$40 (African American/black and Hispanic/Latino respondents) to a little over \$50 (Caucasian/white and Asian/Pacific Islander respondents) to \$100 reported by two Native American/Alaska Native respondents. Among those who reported the fee for a service bundle reported just under \$130 per month (African American/black, Asian/Pacific Islander, Caucasian/white), \$160 for the Native American/Alaska Native respondents, up to \$300 per month for the Hispanic/Latino respondent.

¹ Figures 11 and 12 show that 100% of the Hispanic/Latino respondents have a smart phone in the household and personally use it. This contrasts with the finding that 50% of the Hispanic/Latino respondents access the internet from home using a mobile data plan. While some of discrepancy is expected due to unavoidably missing data – not every respondent answered every question – most of this discrepancy may be due to the practice by some individuals who can afford a smart phone but not the monthly fee of a data plan, using the device instead as a mobile computer whenever free wi-fi signal is available.

Children in Tacoma Public Schools (TPS)

Households with children in TPS are as likely as household with children who don't attend TPS to have wired or mobile or no home internet access. However, TPS families are more likely to be Century Link customers (25% vs. 8%) and somewhat less likely to be Comcast customers (51% vs. 68%). They are more likely to use free wi-fi (23% vs. 7%) but less likely to use their mobile phone as a hotspot (3% vs. 25%). They are also less likely to agree that they have the technology they need and want in their household (55% vs. 77%). Those whose children are not in TPS and who felt they were lacking technology were fairly uniform in needing a smart phone or a tablet (both 66%), an up-to-date computer (41%), and a printer (38%). About half of the TPS families with unmet technology needs indicated an up-to-date computer, 39% need a printer, 38% need better internet access (17% said they need any internet access), and about one-third indicated up-to-date software. The main barrier for TPS families is the cost. This is also a barrier for about half of the families whose children are not in TPS.

Eighty-five percent of the TPS families reported the monthly fee they pay for internet service alone (and 15% reported the amount they pay for a service bundle), while 64% of the families whose children do not attend TPS reported their internet only fee (while 36% reported the fee for a service bundle). After accounting for that difference, no significant differences were found in the amounts the families paid for their service.

Hilltop (98405) and Eastside (98404) Neighborhoods

Thirteen percent of the Hilltop respondents indicated no home internet access, compared with 5% of the respondents from other parts of Tacoma, including the Eastside. Eastside residents have more ways of connecting to the internet from home (2.3 vs. 1.9 in the other neighborhoods). Among the households with home access, the respondents in these neighborhoods were similar in their likelihood of wired access. Of those who do have a wired connection, 98405 respondents are more likely than others to be Rainier Connect customers (39% vs. less than 10% of the other two groups). Eastside respondents are more likely than others to use Century Link (35% vs. 12% or 13%) and they are more likely to use free wi-fi (34% vs. 5% of Hilltop respondents and 13% of those in other ZIP codes) and their mobile device as a hotspot (18% vs. 5% in Hilltop and 6% in other ZIP codes). They are also more likely than Hilltop residents to use Comcast (47% vs. 31%) but less likely than other ZIP codes (59%) to do so. Internet access included in the rent of 3% of the Hilltop respondents and less than 0.2% of the other neighborhoods.

Fewer Hilltop respondents say that they have the technology they need or want at home (58% vs. 69% Eastside and 80% other ZIP codes). The needs identified by those in the Eastside with a technology gap were more consistent with 81% saying that they need a printer; 71% that even though they currently have internet access, they need it to be better; and 65% that they need up-to-date software. The most common barrier for the Eastside respondents was not knowing how to get started. The needs of the 42% in Hilltop with a technology gap were more diverse. One-third needed any internet access and about as many need a printer. About a quarter need an up-to-date computer and about as many need a smart phone. Hilltop respondents were a bit more likely than Eastside respondents to report the cost of internet service only rather than a bundle (80% vs. 69% of the Eastside respondents and 72% of the other respondents). Respondents in the different parts of the city paid about the same average amount for internet service alone (between \$51 and \$57), but those in the Eastside neighborhood paid less for

their bundled internet (\$93) than those in Hilltop where relatively few paid for a bundle (\$125) or other parts of the city (\$138).

When looking at the 061300 and 061400 Census tracts, the percentage without home internet access increases to 35%. Of those with home access, only 77% have a wired connection, 57% from Rainier Connect, 14% identified Click!, 5% from Comcast, none from Century Link. Only 42% said they have the technology they want and need at home.

Non-internet users; non-internet homes

Table 6 is a copy of the question items in the mail survey for respondents who do not use the internet themselves (question 9) and respondents who do not have internet access at home (question 13).

DO NOT PERSONALLY USE the internet

9. Please check all the reasons you do NOT personally use the internet. *(Please check all that apply)*

449 Use the internet

13 No response

22 answered

6 (27%) Don't want to

5 (23%) Not interested

6 (27%) No home access and public access is inconvenient

9 (41%) Don't know how to use it

5 (23%) Concerns about privacy or security

4 (18%) Concerns about safety/ child safety

5 (23%) Other reason cost, no computer

Have you ever used the internet?

15 No response

14 (70%) No 6 (30%) Yes --> If yes, why did you stop? Cost, poor tech support, no need, tired of it

17 No response

9a. Would you like to use the internet? 4 (23%) Yes 14 (77%) No

DO NOT HAVE internet at home

13. If you do NOT have internet at home, what are all the reasons why not? *(Please check all that apply)*

457 Have home internet

10 without home internet did not respond

7 without a wired connection did respond

6 providing no home internet information did respond

n=32

9 (28%) Don't need it or want it

7 (22%) It's not worth the cost

*17 (53%) Can't afford it ► How much would you spend per month for internet service? \$0 to \$20

2 (7%) Sufficient access elsewhere

7 (22%) No working computer/ device to use it on

5 (16%) Don't know how to use it and no way to learn

5 (16%) Concerns about safety and security

2 (7%) Other *(please specify)* problem with rental, time-waster

*This was the item that generated responses from those with home access

13a. Have you ever had the internet at home? 11 (46%) No 13 (54%) Yes --> If yes, why did you stop?

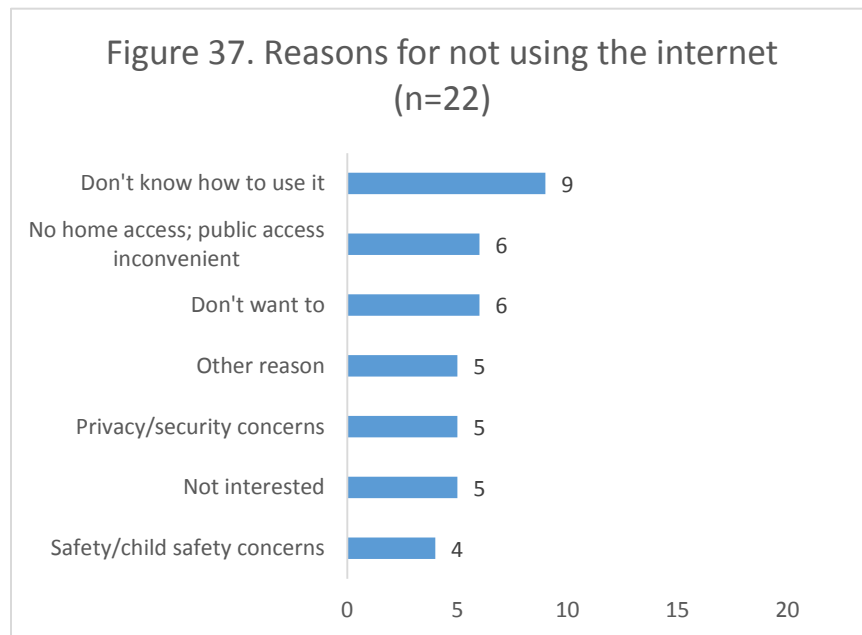
cost (10), technical problems (3), other (2)

13b. Would you like to get the internet at home? 5 (23%) Yes 16 (76%) No

Table 6. Responses to question items for NON internet USERS/ NON-INTERNET HOMES

Thirty-five people (7.5% of those who responded to the question) indicated that they do not personally use the internet and 18 of that 35 (51%) said that no one in their household uses the internet. Of those

35, 22 responded to questions asking why they don't use the internet. Figure 37 illustrates the responses in Table 6 above.



The most commonly selected reason for not using the internet was not knowing how to. Because of the small number of respondents, it would be important to gather information from more people who are not internet users.

Thirty-two people in the mini-survey also answered this question. 82% said it's because they don't know how to use it. 28% indicated concerns about privacy or security.

Twenty-seven of the mail survey respondents indicated that they do not have internet access at home. Nine of these respondents are internet users. When asked about not having internet access at home (question 13), some people without home internet did not answer and some with home internet did answer. Importantly, the response option that seemed to inspire people with home access to answer

was "☐ Can't afford it" offered as a possible reason for not having home internet.

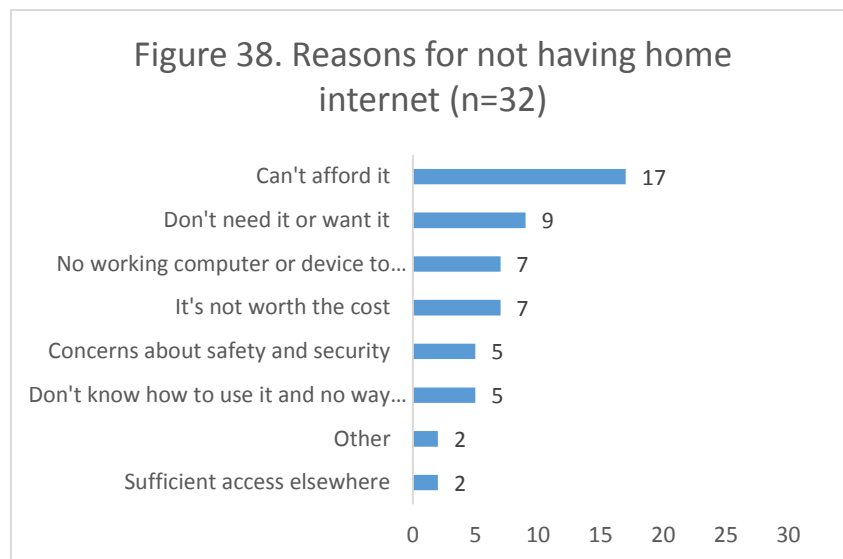


Figure 38 illustrates the reasons given for not having home internet access.

Forty-four of the mini-survey respondents with Tacoma ZIP codes responded to these questions. The most frequent response was "No working computer or other device to use it on" (55%), followed by "Can't afford it" (41%). Very few (3%) said they don't want it

or need it. The same percentage said it isn't worth the cost. A quarter each said "The choices are too confusing," "Sufficient access elsewhere" and "Don't know how to use it and no way to learn." Patterns were different for people living in lower income ZIP codes or in middle income ZIP codes. Those in lower income ZIP codes were the only ones who said "Can't afford it" and "Sufficient access elsewhere."

Nearly all of those in the middle income ZIP codes said, “Choices are too confusing” and “Don’t know how to use it and no way to learn,” responses that only one person in the lower income ZIP codes gave.

Using computers and the internet

Table 7 is a copy of the question items in the mail survey related to use of the internet, with responses filled in.

15. USING COMPUTERS AND THE internet (internet users only). Here are some ways that people use the internet. Please check any that **YOU USE** at least occasionally.

35 do not use the internet; **18** did not answer the question about internet use; **13** skipped this section. **N=418.**

392 (94%) Communications

358 (86%) Email **301 (72%)** Text or instant messaging **239 (57%)** Telephone calling
308 (74%) Social media (e.g. Facebook, Twitter, Instagram, etc.) **203 (49%)** Video calling (e.g. Skype, Facetime)
12 (3%) Other (please specify) coded under other categories

374 (89%) Entertainment

285 (68%) Watch videos **256 (61%)** Watch TV shows **226 (54%)** Play games
308 (74%) Browse or surf the web **241 (58%)** Download/stream music, radio programs or podcasts
6 (2%) Other (please specify) Download news items, read, research, Software as a Service

380 (91%) Information

92 (22%) About local schools news: **284 (68%)** Local **291 (70%)** National **218 (52%)** International
170 (41%) Answers to computer problems **107 (26%)** Legal or consumer rights information
308 (74%) Navigation services or maps **97 (23%)** Social service information and assistance
173 (41%) About your neighborhood, community, or interest group
245 (59%) Reviews of businesses or products
8 (2%) Other (please specify) Anything/everything, research anything, weather, whatever comes up

188 (45%) Education

106 (25%) Attend a class, job training, or webinar **78 (19%)** Do research for school
61 (15%) Write reports for school **57 (14%)** Communicate with your child’s teacher
77 (19%) Check your child’s grades or homework **5 (1%)** Other (please specify) research, work as teacher

271 (65%) Business and employment

166 (40%) Search/apply for a job **128 (31%)** Do work for your paying job **55 (13%)** Telecommute
91 (22%) Sell goods or services online **54 (13%)** Start or maintain a business **3 (1%)** Other

249 (60%) Community

98 (23%) Follow neighborhood activities **74 (18%)** Communicate with a local community/church/school group
216 (52%) Find local entertainment **21 (5%)** Do community organizing
46 (11%) Participate in political issues/dialogues **0** Other (please specify) _____

103 (25%) Smart household equipment (lights, temperature controls, TV, security system, video monitoring)

346 (83%) Commerce

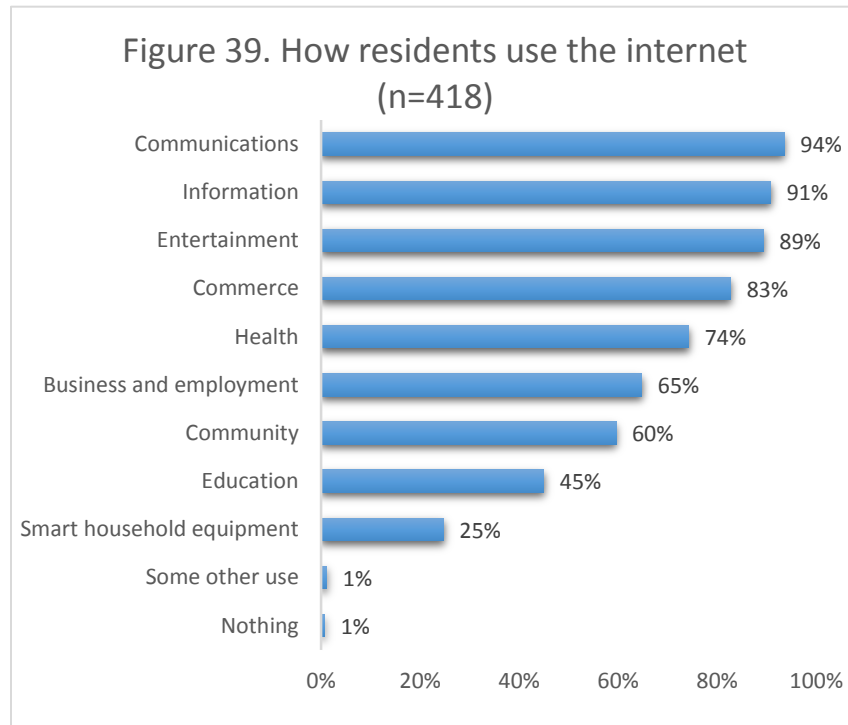
302 (72%) Purchase products and services **212 (51%)** Travel arrangements **152 (36%)** Pay taxes
276 (66%) Financial services, like banking, investing, or paying bills **75 (18%)** Donate to charities
2 (<1%) Other (please specify) hosting websites

311 (74%) Health

266 (64%) Research health and medical information **165 (40%)** Find a healthcare or insurance provider
173 (41%) Communicate with your doctor or access health or health insurance records
67 (16%) Use a health monitoring service that connects to the internet (like Fitbit) **4 (1%)** Other

5 (1%) Other (please specify) _____

3 (1%) Nothing

Table 7. Responses to question items about USING COMPUTERS AND THE internet

Figures 39 through 46 summarize the information in Table 7 above. Figure 39 illustrates the prevalence of the major categories of internet use while the subsequent figures provide details about specific ways of using the internet within the nine major categories. This figure shows that nearly all internet users use it for communication such as email, texting, or social media. Almost as many use it to get news and information, and a close third is entertainment. This could include watching TV or videos online, playing games, or just browsing the web. The specific uses in each category are detailed in the figures below.

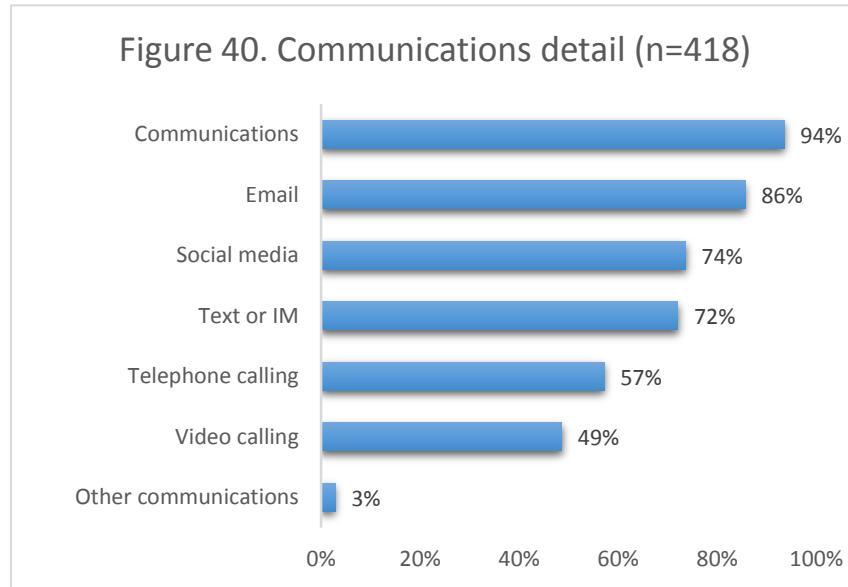


Figure 40 shows that email is the most commonly used internet communications tool, followed by social media (such as Facebook or Twitter) and texting or instant messaging. Telephone calls using the internet are not as common, nor are video calls.

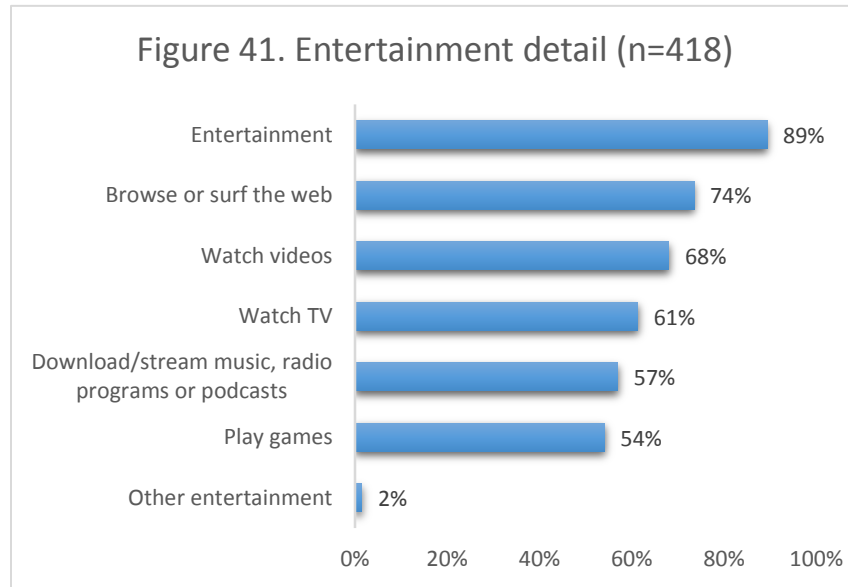


Figure 41 details respondents' use of the internet for entertainment purposes.

Three-fourths of respondents find entertainment in surfing the web, consistent with the high rate of using the internet to obtain information as detailed below in Figure 42.

Two-thirds of the respondents note that they watch videos over the internet and almost as many (61%) use the internet to watch TV shows. Only about

half of the respondents indicated playing games online.

Getting information was the second most common use of the internet after communication. Figure 42 shows that navigation services tops the list with about three-fourths of participants using maps or navigation services at least occasionally. About two-thirds indicated using the internet to get national and local news. The timing of the survey – the final days of the presidential race in 2016 - might have inflated the percentage using the internet to get national news.

About six in ten use the internet to find out about products or businesses by looking up reviews and about half use the internet for international news. Unsurprisingly, fewer people used the internet to find information about more specialized interests, such as about local school, social service information or local community information. A surprisingly large number of people use the internet to find answers to computer problems, suggesting a high rate of computer problems and perhaps adding to the comments of those who no longer use the internet due to technical problems.

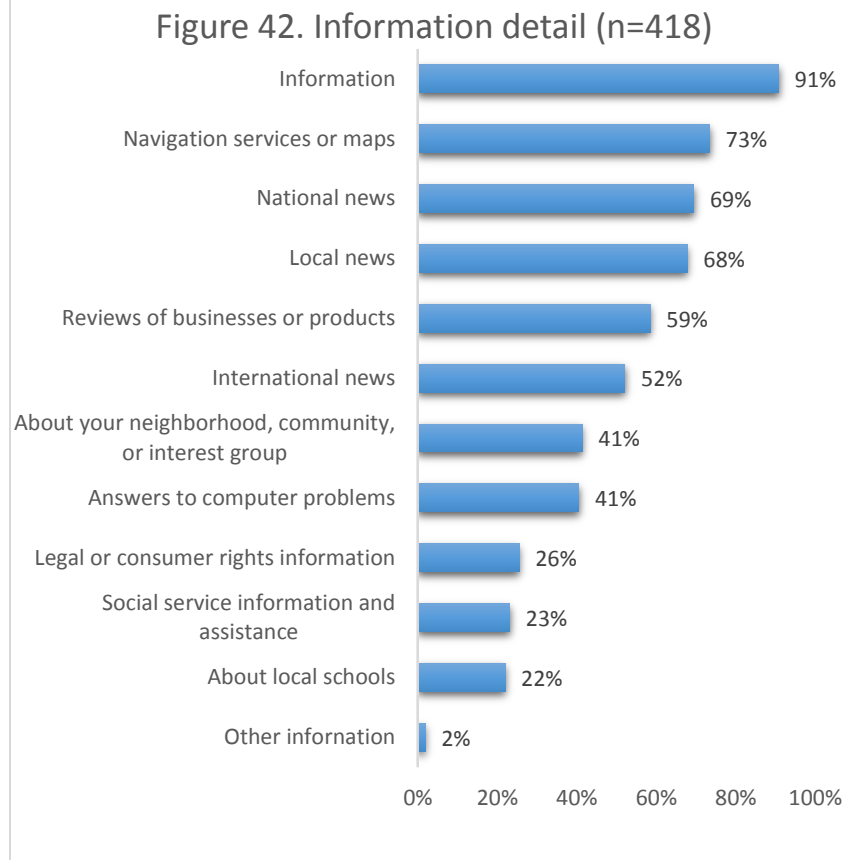
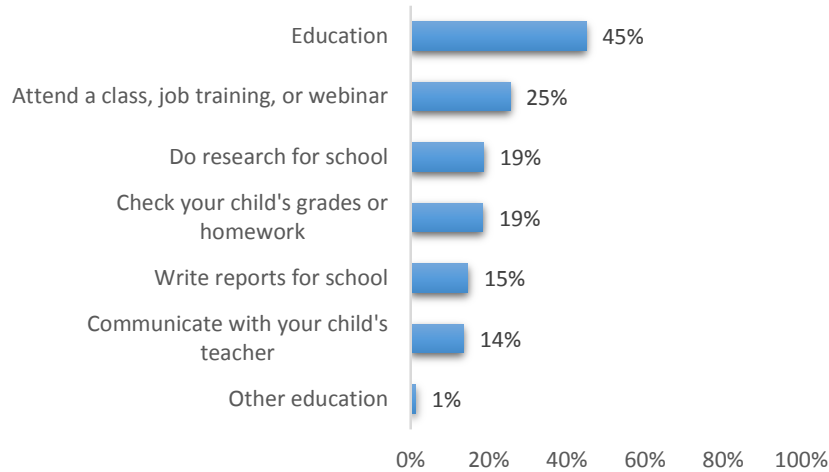


Figure 43. Education detail (n=418)



Not quite half of the respondents indicated that they use the internet for educational purposes. Figure 43 shows that those that do most frequently indicated an online class or webinar. About one in five uses the internet for school research and the same number use it to check up on their child's school progress.

Figure 44 shows that about two-thirds of the respondents use the internet for business and employment. The most common use in this category is job searching, followed by actually doing work for their paying job, indicated by about one-third of respondents – up to about four in ten for those who noted that they were employed.

Figure 44. Business and employment detail (n=418)

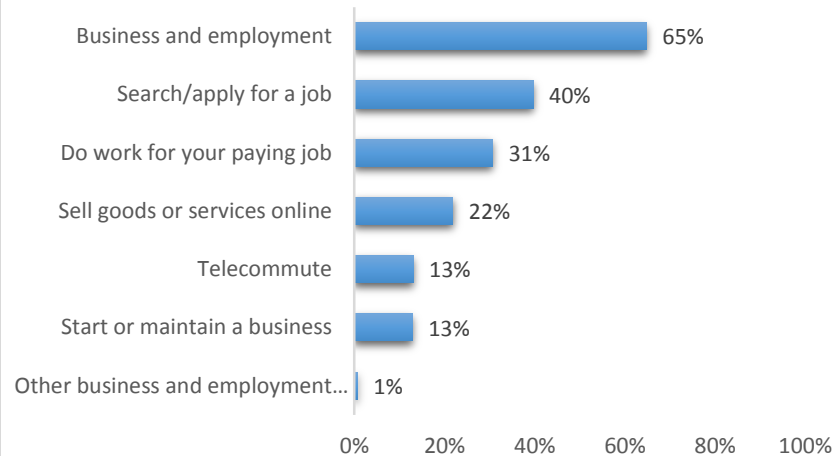


Figure 45. Community engagement detail
(n=418)

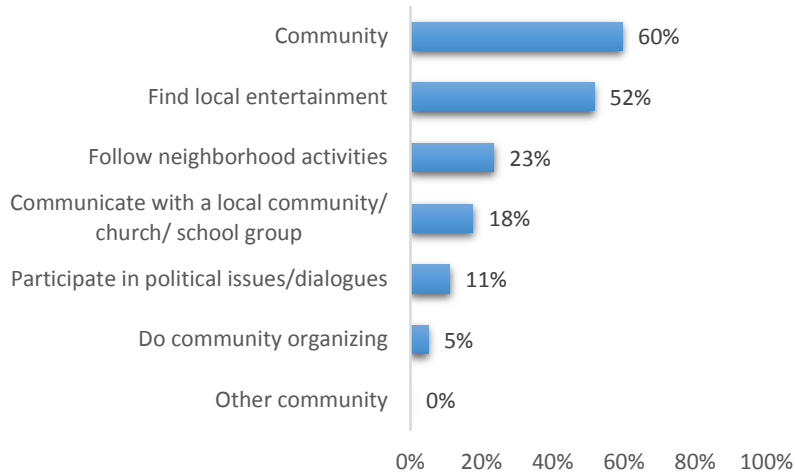


Figure 45 shows that about half of the respondents use the internet to find local entertainment and about half that many use it to follow neighborhood activities.

Figure 46. Commerce detail (n=418)

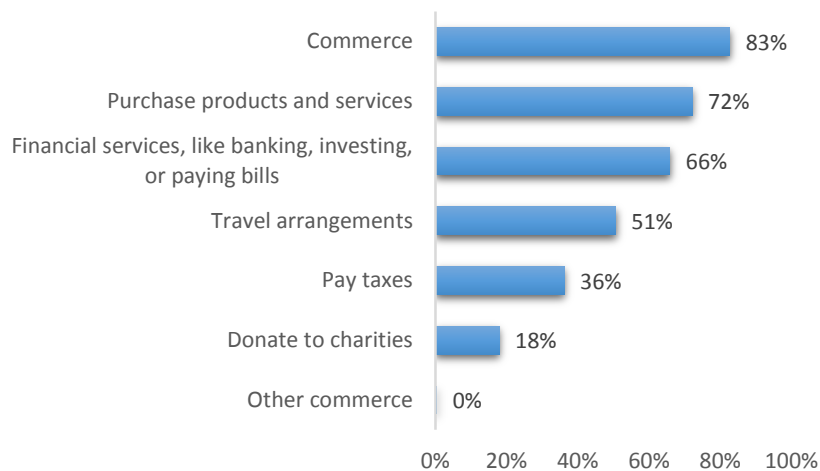


Figure 46 shows that most people (83%) engage in some form of online commerce, including shopping (72%) and banking and investing (66%).

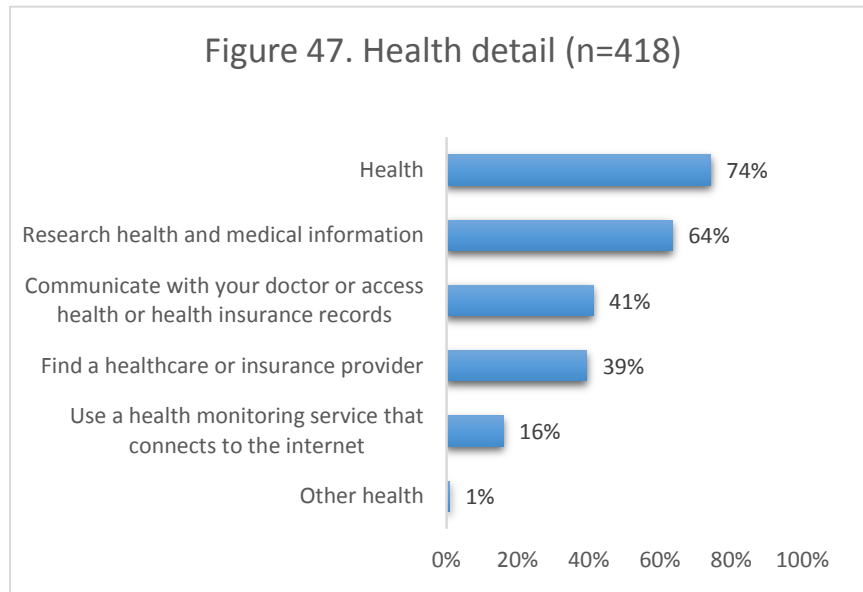


Figure 47 shows that 64% of respondents use the internet to research health and medical information, and four in ten use it to communicate about medical issues or to find a healthcare or insurance provider.

Gender

Analysis of the unweighted data shows few differences between men and women in their use of the internet. Under this analysis, men are more likely to watch online videos or look for answers to computer problems online, and they are more likely to use smart household equipment, while women are more likely to attend an online class and look for a healthcare or insurance provider. Several other functions showed small differences, usually pointing to more use by men. When responses are weighted, these small differences were magnified and several reached statistical significance. They will be reported below, but the reader is warned to interpret these results with caution because of the limitations related to participation bias and weighting.

Communication: The weighted analysis showed that men and women were similar in their use of the internet for communications purposes, except that men are more likely to use email.

Entertainment: Men are more likely to use the internet for entertainment purposes, especially watching videos and TV programs, surfing the web, and streaming or downloading content.

Information: Men are more likely to use the internet for information, including international news, information about legal or consumer rights, reviews of businesses or products, navigation services, and answers to computer problems.

Education: Men are more likely to check their child's grades online.

Business and employment: Men are more likely to use the internet for business and employment, including job hunting, doing work for their job, and telecommuting.

Men are more likely to have smart house equipment and they are more likely to shop online.

Commerce: Men are more likely to use online financial services.

Age

Use of nearly all the tasks named in this section decreased significantly with age.

Communication: Overall, participants in all age groups were likely to use the internet for communication. Email use was high among both the younger and the older respondents (and less so among the middle age groups). But the other ways of using the internet for communication declined sharply with age.

Entertainment: All age groups were likely to use the internet for entertainment. Some activities were extremely age-sensitive decreasing from 100% of the youngest respondents to 25% of the oldest (watching videos) or 90% of the youngest group to 9% of the oldest (downloading or streaming content), while other forms of internet entertainment didn't decline quite so sharply with age.

Information: All the online information functions declined with age, though those with the lowest participation were less likely to produce statistically significant results.

Education: All online functions related to education except for checking your child's grades or homework declined significantly with age.

Business and employment: All the online functions related to business and employment declined significantly with age except for starting or maintaining one's own business which did not have a clear pattern related to age.

Community: Overall, internet use related to community decreased with age. Some of the specific uses also decreased with age (find local entertainment and follow neighborhood activities), but the others seemed unrelated to age.

The use of smart household equipment decreased with age.

Commerce: Overall internet use related to commerce decreased somewhat but not significantly with age, though this decline was significant for each of the individual commerce-related uses.

Health: internet uses related to health decreased significantly with age except for communicating with the doctor or insurance company.

Education

Nearly all the uses increased significantly with education. For most of these functions, the percentage increased linearly, meaning each increase in education level was accompanied by an increase in the percentage of people using the internet in that way. However, a smaller group of uses seemed to require a certain educational threshold such that the use of the internet for a given function will be low at the lowest education level ("Grade school or some high school") and uniformly higher at all the education levels with at least a high school diploma or GED. These uses were in communication (overall communications, email), entertainment (watching videos online, watching TV online, surfing the web), information (finding answers to computer problems, finding social service information and assistance), commerce (overall commerce, online shopping, financial services), and health (communicating with doctor or insurance). The threshold for this function was "Some college."

Two of the summary variables (entertainment and information) did not increase consistently with education even though the individual items in the section did. This indicates that nearly all respondents used the internet for entertainment purposes and for informational purposes, but those with more education indicated a greater variety of these uses.

The functions that did not increase consistently with education were in:

- Education (finding out about local schools, checking your child's grades or homework online, attending a class online, doing research for school, writing reports for school, communicating with your child's teacher),
- Information (legal or consumer rights information, navigation services or maps, social service and assistance, information about your neighborhood),
- business and employment (starting or maintaining a business),
- community (doing community organizing),
- using smart household equipment, and
- finance (paying taxes).

Playing games was the only use that *decreased* with education.

Income

Communications: Nearly all respondents use the internet for communication, but people in the middle income groups use it a bit more. Email use is high for all income groups except for those earning less than \$20,000. Social media is consistent across income levels, while texting, video calling, and to some extent telephoning over the internet increase with income.

Entertainment: The use of the internet for entertainment is high across all income groups. Surfing the web and streaming or downloading content increases with income; playing games decreases.

Information: Nearly all respondents at all income levels use the internet for information, but how they use it differs. Looking up national news and local community news increases with income. Looking up international news or answers to computer problems increases with income to a mid-level, and then decreases. Looking up local news was fairly consistent across income.

Education: No consistent relationship with income was observed with the education functions.

Business and employment: Respondents across the income levels use the internet to perform business and employment functions, but how they do it differs with income. Using the internet to do work for their paying job increases with income, as does telecommuting. Selling goods or services online and starting or maintaining a business decrease with income.

Community: Using the internet to follow neighborhood activities increases with income.

The use of smart household equipment increases with income.

Commerce: The use of the internet for commerce increases with income, including online shopping, making travel arrangements, paying taxes, using financial services, and donating to charities.

Health: The use of the internet to perform health-related tasks increases with income until a mid-point and then decreases. This pattern can be seen in each of the tasks in this section, including researching health and medical information, finding a healthcare or insurance provider and communicating with the doctor, and using a health monitoring service that connects to the internet.

Race/Ethnicity

Communication: No race/ethnicity differences were seen in the use of the internet for video calling.

- African American/black respondents were less likely than most of the other groups to use the internet for communication (82% vs 94%). Of the communication functions used by this group, email (82%) was the most likely, and they were relatively unlikely to use social media (48% vs 75%).
- Hispanic/Latino respondents were as unlikely as the African American/black respondents to use the internet for communication functions (82% vs. 94%), most likely via social media. These respondents were surprisingly unlikely to use email (41% vs. 91%) or text (54% vs. 74%).
- Asian/Pacific Islander respondents differed little from other groups in their use of the internet for communication purposes. This group had a comparatively high level of use of each of the methods, with more use of email (87%) and social media (83%) than text (67%) and a significantly higher likelihood of video calling (72% vs. 47%).
- Caucasian/white respondents were more likely than other groups to use the internet for communication (97% vs. 86%). Further, they were more likely to use email (93% vs. 68%) and texting (78% vs. 57%).
- All the Native American/Alaska Native respondents reported using the internet for communication. This group favored email (100%) and were less likely to text or use social media (53% each).

Entertainment:

- African American/black respondents were very likely to use the internet for entertainment (95%), but were less likely to use the internet to watch videos (50% vs. 68%). The rate of use of other individual functions by this group did not differ significantly from the others.
- Hispanic/Latino respondents were less likely than other groups to use the internet for entertainment (72% vs. 92%). This difference can also be seen in watching videos (54% vs. 69%), browsing the web (39% vs. 78%), and downloading or streaming content (37% vs. 61%).
- Asian Pacific Islander respondents were similar to the rest of the respondents in their use of the internet for entertainment, except that they were more likely to play games (76% vs. 50%) and to download or stream content (78% vs. 54%).
- Caucasian/white respondents were more likely to use the internet for entertainment (91% vs. 84%), more likely to watch videos online (70% vs. 59%) and more likely to browse the web (79% vs. 59%).
- Native American/Alaska Native were similar to the other groups in their use of the internet for entertainment, except they were more likely to watch videos online (100% vs. 65%).

Information: No race/ethnicity differences were seen in the use of the internet to watch local (68%) or national news (71%), get legal or consumer rights information (22%), get navigation information (71%) or social service information and assistance (22%).

- African American/black respondents were similar to the group overall in their use of the internet to get information except that they were less likely than other groups to use the internet to get international news (27% vs. 53%) or reviews of businesses or products (38% vs. 60%).
- Hispanic/Latino respondents were similar to the other groups in their use of the internet to get information with several exceptions. This group was significantly more likely to use the internet to get information about local schools (52% vs. 18%) and about their neighborhood (55% vs.

37%) but less likely to use it to get international news (37% vs. 52%) or to look for answers to computer problems (16% vs. 42%).

- Asian/Pacific Islander respondents were similar to the other groups in their use of the internet to get information except that in contrast to Hispanic/Latino respondents, they were less likely to use the internet to get information about their neighborhood (4% vs. 42%) and in contrast to African American/black respondents, they were more likely to get reviews of businesses or products (78% vs. 55%).
- Caucasian/white respondents were similar to other groups in their use of the internet to get information except they were less likely to get information about local schools (16% vs. 35%) and more likely to get international news (71% vs. 66%).
- Native American/Alaska Native respondents did not differ from the other groups in their use of the internet to get information.

Education: Overall, groups did not differ in their use of the internet to attend a class or job training, or do research or write a paper for school.

- African American/black respondents were more likely to use the internet for educational purposes (66% vs. 45%), to communicate with their child's teacher (36% vs. 11%) and to check on their child's grades or homework (35% vs. 17%).
- Hispanic/Latino respondents were less likely to use the internet to write reports for school (14% vs. 27%) or to check their child's grades or homework (15% vs. 37%).
- Asian/Pacific Islander respondents were more likely to use the internet for education purposes (79% vs. 44%). Their responses to most of the items indicated a higher rate of usage for all the education activities except for writing reports. The difference reached statistical significance for checking on their child's grades or homework online (35% vs. 18%).
- Caucasian/white respondents were less likely to use the internet for educational purposes (37% vs. 63%), and they were less likely to use it to communicate with their child's teacher (10% vs. 21%) or to check their child's grades and homework (9% vs. 35%).
- Native American/Alaska Native respondents did not differ from the other groups in their use of the internet for educational purposes.

Business and Employment: Responses differed by race/ethnicity in nearly every use of the internet related to business and employment.

- African American/black respondents were less likely to use the internet to do work for their paying job (8% vs. 32%).
- Hispanic/Latino respondents were also less likely to use the internet to do work for their paying job (10% vs. 34%), and they were also less likely to telecommute (5% vs. 16%) or sell goods or services online (7% vs. 21%). However, they were more likely to start or maintain a business online (23% vs. 9%).
- Asian/Pacific Islander respondents were more likely to use the internet for business and employment (87% vs. 61%). They were about twice as likely as other groups to search for or apply for a job online (72% vs. 35%) and more than twice as likely to telecommute (36% vs. 13%).
- Caucasian/white respondents were similar to the other groups in most ways, except that they were more likely to use the internet to do their paying job (37% vs. 17%).

- Native American/Alaska Native respondents did not differ from the other groups in their use of the internet for business and employment.

Community: Groups differed in the ways they use the internet for community activities.

- African American/black respondents did not differ from the other groups in how they used the internet in their community.
- Hispanic/Latino respondents were less likely to use the internet for community purposes (41% vs. 63%) and less likely to participate in political issues or dialogues (0% vs. 13%).
- Asian/Pacific Islander respondents were less likely to use the internet for community purposes (36% vs. 61%), follow neighborhood activities (7% vs. 27%), communicate with a local community, church, or school group (2% vs. 20%), or find local entertainment (32% vs. 53%).
- Caucasian/white respondents were more likely to use the internet for community purposes (68% vs. 45%) including communicating with a local community, church, or school group (22% vs. 12%), finding local entertainment (58% vs. 40%), and participating in political issues or dialogues (14% vs. 5%).
- Native American/Alaska Native respondents did not differ from the other groups in their use of the internet for community purposes.

Smart household equipment:

- African American/black respondents were more likely to indicate having smart household equipment (39% vs. 23%).
- Hispanic/Latino respondents were similar to other groups in their use of smart household equipment.
- Asian/Pacific Islander respondents were similar to other groups in their use of smart household equipment.
- Caucasian/white respondents were less likely to indicate having smart household equipment (18% vs. 36%).
- Native American/Alaska Native respondents were similar to other groups in their use of smart household equipment.

Commerce: Groups differed in their use of online commerce.

- African American/black respondents were similar to the overall group on all measures related to commerce except that they are less likely to use the internet for financial services (48% vs. 65%).
- Hispanic/Latino respondents were less likely to use the internet for commerce (62% vs. 84%). They were less likely to purchase products or services online (44% vs. 74%), make travel arrangements online (35% vs. 50%), pay taxes online (14% vs. 32%), or use online financial services (22% vs. 72%).
- Asian/Pacific Islander respondents were less likely to pay taxes online (9% vs. 32%), or donate to charities online (2% vs. 19%) but were more likely to use online financial services (82% vs. 62%).
- Caucasian/white respondents were more likely overall to use the internet for commerce (85% vs. 73%). They were more likely to purchase products and services online (74% vs. 62%), pay taxes online (39% vs. 15%), use online financial services (73% vs. 48%) and donate to charities online (22% vs. 12%).

- Native American/Alaska Native respondents were more likely to use online financial services (100% vs. 63%).

Health: Groups differed in their use of the internet for health purposes.

- African American/black respondents were less likely to use the internet for health overall (54% vs. 75%).
- Hispanic/Latino respondents were less likely to use the internet for health overall (60% vs. 75%) and specifically less likely to use the internet to research health and medical information (44% vs. 63%), to communicate with the doctor or access health or insurance records (22% vs. 44%), or to use a health monitoring service like Fitbit (3% vs. 19%).
- Asian/Pacific Islander respondents more likely to use the internet to find a healthcare or insurance provider (64% vs. 32%) and to use a health monitoring service (34% vs. 15%).
- Caucasian/white respondents were more likely overall to use the internet for health (77% vs. 66%), more likely to research health and medical information online (66% vs. 52%), and more likely to communicate with the doctor online or access health or insurance records (46% vs. 30%).
- Native American/Alaska Native respondents more likely to communicate with their doctor online or access health or insurance records (78% vs. 39%) and more likely to use a health monitoring service like Fitbit (50% vs. 16%).

Children in Tacoma Public Schools (TPS)

Communication: Non-TPS parents are more likely to use the internet to communicate (100% vs. 87%) but no specific method stood out.

Information: TPS parents are more likely to use the internet to get information (94% vs. 81%), specifically about local schools (61% vs. 37%). However, non-TPS parents are more likely to use the internet to find answers to computer problems (61% vs. 33%), to find social service information (43% vs. 24%), and to look up reviews of businesses and products (71% vs. 51%).

Education: TPS parents are more likely to use the internet for educational purposes (82% vs. 53%), specifically writing reports (37% vs. 10%), communicating with their child's teacher (49% vs. 15%), and checking their child's grades and homework online (60% vs. 21%).

Business and employment: TPS parents are less likely to use the internet in their job (17% vs. 36%) or to sell goods or services online (13% vs. 33%).

Commerce: TPS parents are less likely to use online financial services (55% vs. 74%) or to donate to charities online (15% vs. 34%).

Health: Non-TPS parents are more likely to use the internet to research health and medical information (72% vs. 54%) and to communicate with their doctor (52% vs. 31%).

Hilltop (98405) and Eastside (98404) Neighborhoods

When neighborhood differences emerged in using the internet, it was usually because Eastside residents used the function most while Hilltop residents used it least, with the other ZIP codes somewhere in the middle. This pattern held for internet phone calls (75% vs. 52% (other) and 49% (Hilltop)), social media, (90% vs. 70% (other) and 62% (Hilltop)) video calls (65% vs. 47% (other) and 28% (Hilltop)),

entertainment (100% vs. 88% (other) and 84% (Hilltop)), watching TV (75% vs. 59% (other) and 48% (Hilltop)), playing games, (71% vs. 52% (other) and 36% (Hilltop)), getting local news (93% vs. 63% (other and Hilltop)), navigation services (91% vs. 71% (other) and 66% (Hilltop)), education (63% vs. 41% (other) and 33% (Hilltop)), and reports for school (26% vs. 13% (other) and 6% (Hilltop)). Eastside residents also used the internet more to get information about community groups, but this time Hilltop used it the second most (59% vs. 48% (Hilltop) and 37% (other)). Consistent with this shift, Hilltop residents used the internet more to follow neighborhood activities (47% vs. 25% (Eastside) and 21% (other)), do community organizing (15% vs. 5% (other) and 4% (Eastside)), and use financial services (77% vs. 66% (other) and 53% (Eastside)).

The few respondents with internet access in Census tracts 061300 and 061400 are less likely to use it for texting/instant messaging (36% vs. 72%) and more likely to use it to follow neighborhood activities (59% vs. 23%).

Comfort using computers and the internet

Table 8 is a copy of the question items in the mail survey related to comfort using computers and the internet, with responses filled in.

16. These are some tasks that people sometimes do with technology. For each one, check the box that indicates how comfortable you are doing that task.

How comfortable are you:	Very comfortable	Somewhat comfortable	Not that comfortable	Not at all comfortable	Never done this	Don't know
Using a computer	312 (68%)	112 (24%)	26 (6%)	12 (3%)	15	2
Using the internet	329 (71%)	98 (21%)	22 (5%)	12 (3%)	12	5
Creating and sending email	348 (75%)	72 (15%)	28 (6%)	14 (3%)	15	3
Sending and receiving text messages	313 (82%)	53 (14%)	7 (2%)	9 (2%)	24	8
Sending and opening attachments in email	309 (69%)	87 (19%)	41 (9%)	13 (3%)	19	8
Opening and saving a file	308 (70%)	71 (16%)	37 (8%)	25 (6%)	24	11
Installing or updating software	227 (54%)	105 (25%)	58 (14%)	33 (8%)	38	14
Using social media sites like Facebook	288 (70%)	82 (20%)	28 (7%)	16 (4%)	51	8
Adding an app to your smart phone	289 (71%)	67 (16%)	23 (6%)	26 (7%)	50	13
Typing, editing, and printing using a word processing program	273 (65%)	84 (20%)	37 (9%)	29 (7%)	30	20
Setting up wi-fi in your home	217 (53%)	100 (25%)	67 (17%)	22 (5%)	51	15

Table 8. Responses to question items about USING COMPUTERS AND THE internet

The data in this table is complex. The percentages provided are based on the respondents who checked one of the four boxes from “Very comfortable” to “Not at all comfortable.” Thus this table addresses the question, “How comfortable are Tacoma’s technology users in performing various computer and internet tasks?” Other questions that may be more important is, “How many of Tacoma’s residents have

ever done this task?” or “How many of Tacoma’s residents are ‘Very comfortable’ performing each of these computer tasks?”

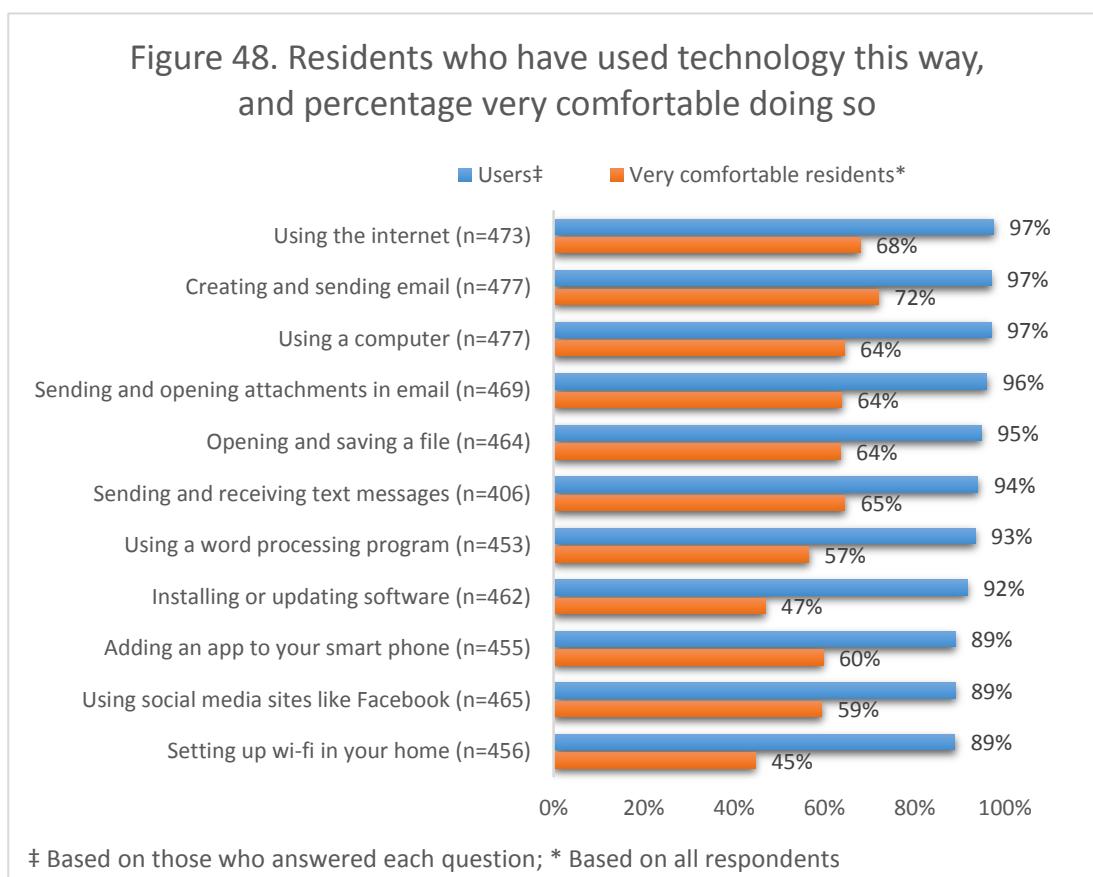
Table 9 summarizes responses from additional perspectives. For each question, there are three rows of data: the number of respondents selecting each option; the percentage of people who have ever done that task indicating each level of comfort (using as the base those who checked one of the four levels of comfort); and the percentage of all respondents in each response category. This row answers the questions: “How many of Tacoma’s residents are ‘very comfortable’ doing this task”? And “How many of Tacoma’s residents have never done this task?”

Table 9. Experience and comfort using computers and the internet

How comfortable are you...		Not At All Comf.	Not That Comf.	Some- what Comf.	Very Comf.	No answer	Never Done This	Don't Know
Using a computer	#	12	26	112	312	7	15	2
	% Users	3%	6%	24%	68%			
	% All	2%	5%	23%	64%	1%	3%	0%
Using the internet	#	12	22	98	329	6	12	5
	% Users	3%	5%	21%	71%			
	% All	2%	5%	20%	68%	1%	2%	1%
Creating and sending email	#	14	28	72	348	4	15	3
	% Users	3%	6%	15%	75%			
	% All	3%	6%	15%	72%	1%	3%	1%
Sending and receiving text messages	#	9	7	53	313	10	24	8
	% Users	2%	2%	14%	82%			
	% All	2%	1%	11%	65%	2%	5%	2%
Sending and opening attachments in email	#	13	41	87	309	7	19	8
	% Users	3%	9%	19%	69%			
	% All	3%	8%	18%	64%	2%	4%	2%
Opening and saving a file	#	25	37	71	308	9	24	11
	% Users	6%	8%	16%	70%			
	% All	5%	8%	15%	64%	2%	5%	2%
Installing or updating software	#	33	58	105	227	9	38	14
	% Users	8%	14%	25%	54%			
	% All	7%	12%	22%	47%	2%	8%	3%
Using social media sites like Facebook	#	16	28	82	288	11	51	8
	% Users	4%	7%	20%	70%			
	% All	3%	6%	17%	59%	2%	11%	2%
Adding an app to your smart phone	#	26	23	67	289	16	50	13
	% Users	7%	6%	16%	71%			
	% All	5%	5%	14%	60%	3%	10%	3%
Typing, editing, and printing using a word processing program	#	29	37	84	273	11	30	20
	% Users	7%	9%	20%	65%			
	% All	6%	8%	17%	56%	2%	6%	4%

	#	22	67	100	217	13	51	15
Setting up wi-fi in your home	% Users	5%	17%	25%	53%			
	% All	5%	14%	21%	45%	3%	10%	3%

Looking at the fourth row of data as an example, 82% of the people who text say they are “Very comfortable” doing so. However, 24 people (5%) said they haven’t ever sent or received a text and 10 people didn’t answer the question at all. When taking all respondents into account, a better estimate of the percentage of Tacoma residents who are “Very comfortable” sending and receiving texts is the 65% who checked that box out of all possible responses. Figure 48 summarizes the percentage of people who have done the task (the top bar in each pair, based on the number of people who indicated their level of comfort or who indicated that they haven’t ever done the task) and the percentage of respondents who indicated they were “Very comfortable” doing that task (the bottom bar in each pair, based on all 484



respondents).

This figure shows that nearly all respondents who answered these questions have used a computer and the internet, and sent email, including attachments. The great majority have also used a word processing program, worked with computer files, texted, and installed or updated software. Still a great majority, but not as many have added an app to their smart phone, used social media, or set up wi-fi at home. Mini-survey respondents were similar in their responses to whether they have done the task but fewer indicated that they were “Very comfortable” performing any of the tasks.

When the focus turns to the percentage of people who indicated they were “Very comfortable” with each task out of all survey respondents, only between 45% and 72% of all mail survey respondents indicated that they were “Very comfortable” doing the task. More residents are comfortable with using email and the internet, while fewer are comfortable using a computer and manipulating files, or making changes to their technology environment (such as installing or updating software or a smart phone app or setting up wi-fi at home). A surprisingly small percentage of respondents indicated that they are “Very comfortable” using social media sites like Facebook.

In the mini-survey, all of the respondents living in middle and upper income ZIP codes said they have done all these tasks, except for texting, social media, adding an app to their smart phone, or setting up home wi-fi (at least 98%). Responses in the lower income ZIP codes ranged from 81% (setting up home wi-fi) to 99% (used a computer).

Looking only at respondents who completed this section, only 4% of the respondents living in Tacoma’s middle and upper income ZIP codes said they were less than “Very comfortable” using a computer, compared with almost a quarter of those living in the lower income ZIP codes. Similar results can be seen for each of the other tasks in Table 10.

Table 10. Mini-survey: Percentage of users “Very comfortable” with each task by ZIP code category

	Lower income ZIP codes (<\$46K)	Middle and higher income ZIP codes (\$46K+)
Using computers	77%	96%
Using the internet	79%	98%
Sending and receiving text messages	80%	96%
Creating and sending email	81%	98%
Sending/opening attachments (email)	70%	100%
Opening and saving a file	67%	98%
Installing or updating software	56%	91%
Using social media sites	70%	93%
Adding an app to your smart phone	58%	93%
Using a word processing program	65%	91%
Setting up wi-fi in your home	48%	73%

Gender

Men and women were equally likely to have done each of these tasks. Women were more likely to be at least “Somewhat comfortable” (94% vs. 86%) and men were more likely to be “Very comfortable” setting up a wi-fi at home (64% vs. 43%).

Age

All of the respondents 50 and younger who answered the questions have done nearly all the tasks listed in the questions. An age-related decrease in use can be seen for most tasks starting with respondents 51 and older. This decrease is most evident in the questions about texting, email attachments, manipulating files, using social media or changing the technology environment by installing or updating software, adding an app to a smart phone, and setting up wi-fi at home. Looking just at respondents who have done the technology task, the comfort they report performing the tasks decreases consistently and linearly with age.

Education

Experience using a computer, using a word processing program, and opening and saving files all increased linearly with education, but experience with the other tasks – particularly those that could be performed on a smart phone – was largely unrelated to education, especially using the internet, emailing (with or without attachments), texting, using social media, and adding an app to a smart phone. However, for each task, the comfort level of those who perform it increases with education.

Income

Experience with many of these tasks increases with income. However, closer examination suggests that experience with most of these tasks is consistent across the income levels, except for the lowest income level (less than \$20,000 per year), where experience is lower for most tasks. That is, when all income levels are included, experience with all the tasks except email and adding an app to a smart phone were associated with income. However, when the lowest income level is excluded from the analysis, only installing or updating software and setting up home wi-fi continue to show the increase in experience as income increases.

As with education, however, the effect of income is robust on *comfort* performing these tasks among those with experience. When the lowest income level is excluded from the analysis, the effect of income on comfort remains except for using social media where those at lower income levels and higher income levels rate their comfort more highly than do those at the middle income levels.

Race/Ethnicity

Race and ethnicity was not strongly related to experience with the technology tasks.

- All the Hispanic/Latino respondents who answered the questions said they had experience with all the technology tasks. These differences reached statistical significance with installing or updating software (100% vs. 90%), using social media sites (100% vs. 88%), adding an app to a smart phone (100% vs. 87%), and setting up home wi-fi (100% vs. 88%).
- Similarly, all the Native American/Alaska Native respondents who answered the questions said that they were experienced with all the tasks except using social media and adding an app to their smart phone and in this task, the Native American/Alaska Native respondents were the least likely to say they had experience. This group was too small to conduct reliable statistical tests.
- The African American/black respondents were the least likely to report experience with six of the technology tasks, and second least likely with the other five. The distance from the other groups reached statistical significance with installing or updating software (83% vs. 93%) and setting up a home wi-fi (81% vs. 90%).
- The Asian/Pacific Islander and Caucasian/white respondents did not differ significantly from the other groups in experience with any of the technology tasks.

Some group differences emerged in the level of comfort performing technology tasks.

- Among those with experience with the technology tasks, Hispanic/Latino participants reported less comfort with computer-related tasks (using a computer, updating or installing software, and using a word processing program), while they reported more comfort with texting.

- In contrast, Asian/Pacific Islander respondents reported somewhat more comfort with a number of computer-related tasks, and less comfort emailing (with or without attachments) and texting.
- Caucasian/white respondents expressed relatively high comfort performing most of the technology tasks including using the internet, emailing (with or without attachments), texting, opening and saving a file, adding an app to a smart phone and using a word processing program.

Children in Tacoma Public Schools (TPS)

TPS parents and non-TPS parents were about equally likely to have experience with each of the technology tasks. TPS parents rated themselves as slightly less comfortable on six of the 11 tasks, and were significantly less comfortable installing or updating software and using a word processing program.

Hilltop (98405) and Eastside (98404) Neighborhoods

Hilltop respondents were significantly less likely than Eastside respondents or those in other neighborhoods to have experience with all the technology tasks except for social media. Further, Hilltop residents with experience with each technology task were less comfortable performing it than their counterparts living in other areas of Tacoma, and Eastside respondents usually rated their comfort level as somewhere between Hilltop and the other Tacoma ZIP codes. These differences reached statistical significance for using a computer (but not the internet), sending text messages and using attachments in email (but not sending email), opening and saving a file, using a word processor, installing and updating software, but not using social media, and adding an app to the smart phone and setting up wi-fi.

When narrowing the analysis to include just Census tracts 061300 and 061400, the results become more striking. Residents of these tracts were between 27% and 41% less likely than other Tacoma residents to have had experience with the computing and internet technology in these questions. The biggest divides appeared with installing or updating software (55% vs. 93%) and using social media sites (54% vs. 89%).

The few in these census tracts who had experience with these technology tasks were consistently less comfortable performing them ranging from the smallest trends in using social media or installing or updating software to the largest statistically significant gaps in setting up home wi-fi, or using a computer or the internet.

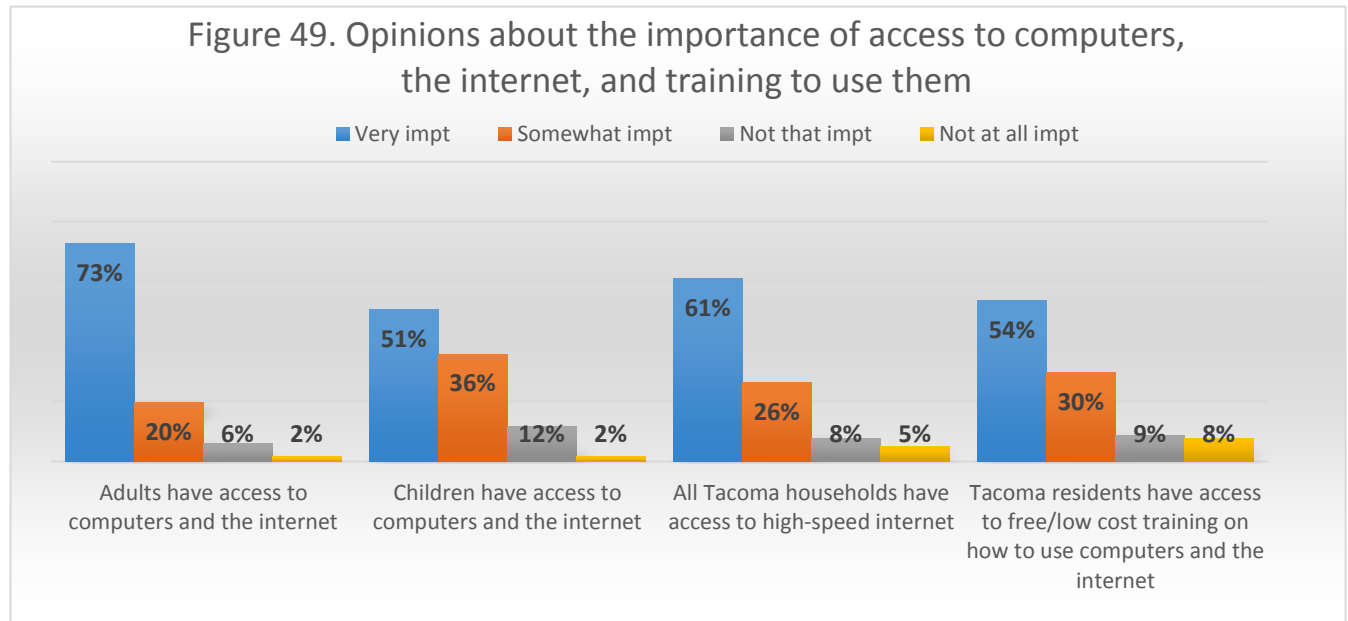
Opinions about technology access and internet safety

Table 11 is a copy of the question items in the mail survey related to opinions about technology access, with responses filled in.

Table 11. Responses to questions items about TECHNOLOGY ACCESS

OPINIONS ABOUT TECHNOLOGY ACCESS					
17. How important do you think it is for...	Very impt	Some what impt	Not that impt	Not at all impt	Don't know/ Blank
Adults to have access to computers and the internet.	337 (73%)	91 (20%)	28 (6%)	8 (2%)	21
Children to have access to computers and the internet outside of school.	225 (51%)	159 (36%)	51 (12%)	8 (2%)	41
All Tacoma households to have <u>high speed</u> internet access.	274 (61%)	119 (26%)	34 (8%)	23 (5%)	35
Tacoma residents to have access to free or low cost <u>training</u> on how to use computers and the internet.	241 (54%)	133 (30%)	40 (9%)	35 (8%)	36
18. How much do you agree or disagree with the following statements?	Strongly agree	Agree	Disagree	Strongly disagree	Don't know/ Blank
Access to computers and the internet help to narrow the gap between the "haves" and "have nots" in our society.	155 (36%)	193 (45%)	64 (15%)	18 (4%)	55
The City of Tacoma should work with public libraries or other organizations to ensure computer and internet access for residents that don't have access at home.	238 (53%)	191 (42%)	19 (4%)	4 (1%)	32
The City of Tacoma should take steps to increase access to high speed internet for households without it.	201 (47%)	159 (38%)	53 (13%)	11 (3%)	60
The public library is the best place to provide public access to computers and the internet.	156 (37%)	216 (51%)	34 (8%)	17 (4%)	61
The public library is the best place to help people learn how to use computer technology.	132 (32%)	214 (52%)	54 (13%)	9 (2%)	74
19. Based on your experience or what you've heard, how much do you agree or disagree with these statements?	Strongly agree	Agree	Disagree	Strongly disagree	Don't know/ Blank
Libraries provide sufficient access to computers and the internet.	92 (26%)	195 (55%)	63 (18%)	8 (2%)	127
When people use computers at the library they can get the help they need.	90 (29%)	179 (56%)	46 (14%)	3 (1%)	167
There are enough computers at the library so that people don't need to wait very long to use one.	50 (20%)	73 (29%)	97 (37%)	38 (15%)	226
The library's time limits for computer use are usually long enough for what people need to do.	55 (22%)	108 (44%)	64 (26%)	20 (8%)	237
20. Are you aware of special programs to provide low cost, high-speed internet access and/or low cost computers to low-income households, such as internet Essentials from Comcast or PCs for People (http://www.pcsforpeople.com/recipients/low-cost-internet)? 74 (16%) Yes 388 (84%) No					

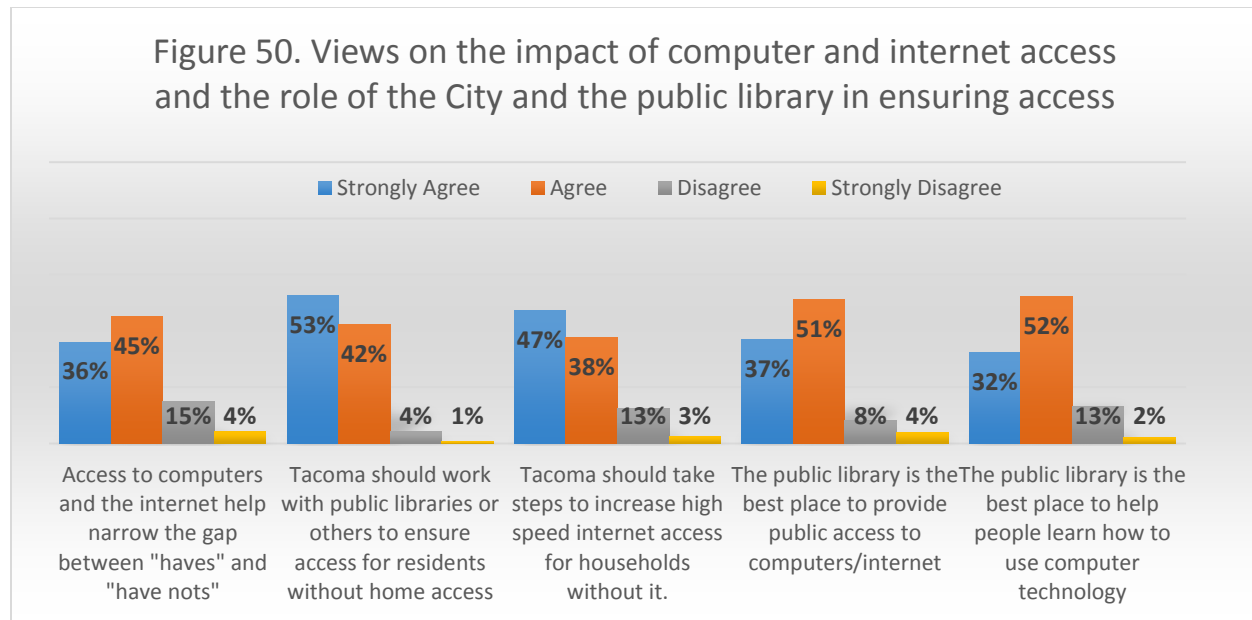
The following figures illustrate the results summarized in Table 11 above. Figure 49 illustrates the responses to the first set of questions in Table 11. This figure shows that overall, respondents believe in the importance of computer and high-speed internet access, and training in how to use computers and the internet for Tacoma resident, both children and adults. Respondents indicated the strongest support for computer and internet access for adults, followed by access to high-speed internet for all Tacoma households, access to free or low cost training to use computers and the internet, and computer and



internet access for children.

More mini-survey respondents rated the first three items as “Very important” by about ten percentage points. An even greater increase can be seen in response to the fourth item where 71% of the mini-survey respondents rated it as “Very important.”

Figure 50 illustrates the middle set of questions in Table 11 in which respondents are asked to provide their opinions about the proper role of the City of Tacoma in ensuring computer and internet access to its residents, and whether the public library is the most suitable partner in that effort.

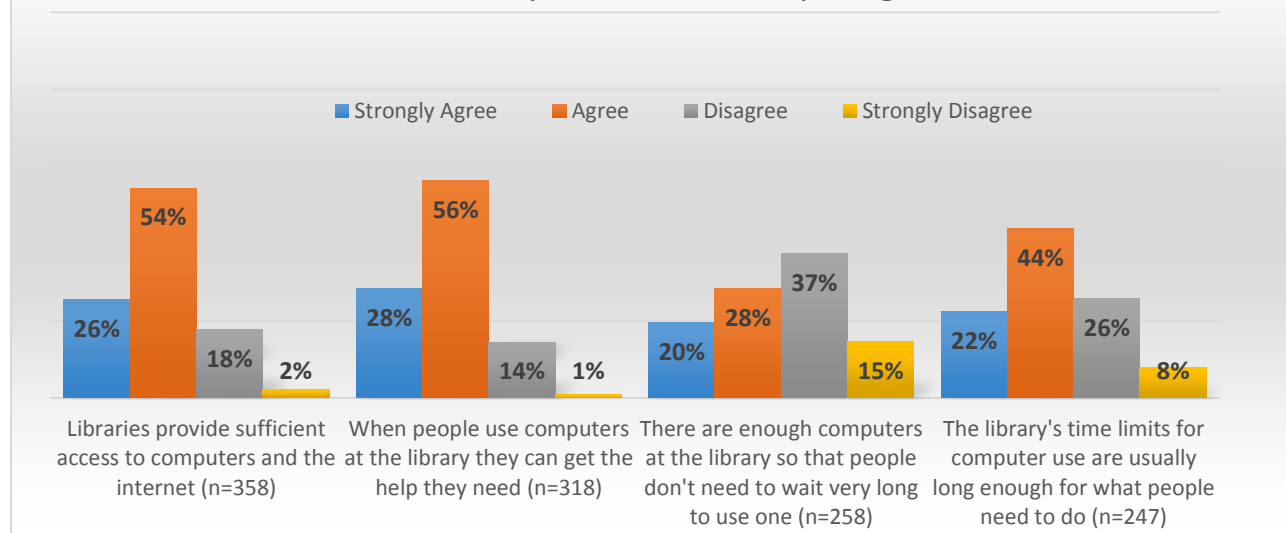


This figure shows that overall, about 80% of respondents believe that computer and internet access are an important resource for success, and that the City has a role to play in ensuring that residents have access to the resource, whether in partnership with the public libraries or some other organization. Almost 90% of the respondents either "Agree" (about half) or "Strongly agree" (about one-third) that the public library is the best place to provide public access to computers and the internet and that it is the best place for people to learn how to use computer technology. Library computer users were even more positive in response to all these questions than other respondents who did not indicate using library computers.

Importantly, 84% of respondents were unaware of programs currently available to increase the access of low income households to the internet, a figure that drops to 67% when considering only library computer users.

Figure 51 illustrates the results in the third section of Table 11 above in which respondents were asked to provide their opinions about public access computing at the public library, based on their own personal experience or what they've heard.

Figure 51. Have libraries been able to meet the need for public access computing?



It is important to note that between one-fourth and almost one-half of respondents did not give an opinion about the library's public access computing resources by selecting the "Don't know" option. Those that did respond agreed that the libraries provide sufficient access to computers and the internet, and that people can get the help they need to use computers and the internet at the library, but many were concerned that the wait to get to a computer is too long and that the time limit might be too short.

Gender

More women agreed than men that Tacoma residents should have access to free or low cost training on how to use computers and the internet (92% vs. 80%), that the City of Tacoma should take steps to increase access to high-speed internet for households without it (90% vs. 81%), and that the public library is the best place to help people learn how to use computer technology (89% vs. 80%). Men and women also responded differently to the statement "The public library is the best place to provide public access to computers and the internet" in that although both men and women agreed with the statement, women were more likely to "strongly agree" (66% vs. 36%) while men were more likely to "agree" (62% vs. 43%).

Age

Agreement with the first two statements in Figure 51 about the library's public access computing resources decreased with age so that the younger respondents agreed more that libraries provide sufficient access and that people can get the computer help they need at the library and older respondents agreed with those statements less. A similar pattern was seen in response to the last two questions in that figure except that the youngest group agreed as weakly as the oldest group.

Although respondents of all ages agree that it is important for adults and children to have access to computers and the internet, the intensity of opinion decreased with age from the youngest group to the oldest group in response to adult's access, but when it came to children's access, again the intensity of agreement decreased with age, but only starting with the respondents who were 35 or older. Among the two younger groups, agreement increased with age. A similar u-shaped pattern can be seen in

response to the question about the importance of Tacoma households having access to high-speed internet and the question about awareness of programs to expand internet access to low income households where the intensity of agreement builds until it peaks among the 35 to 50 year-olds, and then starts to decline.

The youngest group also agrees less strongly than the other groups with that statement that it's important for Tacoma residents to have accessible computer training, and that access to computers and the internet help narrow the gap between the "haves" and "have nots" in society.

Education

As education increases, respondents assigned increasing importance to adults' access to computers and the internet: respondents with less education said it was less important while respondents with more education said it was more important. A similar pattern can be seen in intensity of agreement that access to computers and the internet help narrow the gap between society's "haves" and "have nots." However, agreement decreased with education in response to statements about the library's public access computing program in that respondents with less education expressed more satisfaction with access to computers and the internet, the help they can get, the wait time to use a computer, and the time limits, and that satisfaction decreased as education increased. Respondents with less education were also more likely to be aware of current programs to expand internet access to low income households.

Income

As income increased, respondents assigned more importance to adults and children having access to computers and the internet, and agreed more strongly that access to computers and the internet can help narrow the gap between society's "haves" and "have nots". However, as income increased, respondents agreed less that the City of Tacoma should take steps to increase access to high-speed internet access for households without it. At the same time, those at the higher income levels also agree less that the library provides sufficient access to computers and the internet. Responses to the last three questions in Figure 51 took an inverted u-shape so that people with the lowest and highest incomes agree less strongly than people with mid-level incomes that people can get the help they need at the library to be able to use computers and the internet, and the waiting time is acceptable and the time limits are adequate. The opposite pattern emerged in response to the question about awareness of current programs to expand internet access to low income households in that respondents in the lowest and highest income categories were more aware than those programs.

Race/Ethnicity

Perhaps the most striking finding in the race/ethnicity analyses is that people of color were significantly more likely to respond to the questions illustrated in Figure 51 about the library's success in providing a public access computing program. Those who indicated "Don't know" to these questions – between a quarter and almost half of the sample – were disproportionately likely to be Caucasian/white.

More of the Caucasian/white respondents rated adults' access to computers and the internet as "Very important" than did the other groups (79% vs. 63%); however, about twice as many Caucasian/white respondents rated children's access to computers and the internet as "Not that important" or "Not at all important" (16% vs. 9%). The opposite pattern emerged with the Hispanic/Latino respondents. More Hispanic/Latino respondents rated adults' access to computers and the internet as "Not that important"

or “Not at all important” than did the other groups (16% vs. 6%) while more Hispanic/Latino respondents rated children’s access as “Very important” than did respondents in the other groups (68% vs. 52%).

Though still agreeing strongly, Caucasian/white respondents agreed less strongly that all Tacoma households should have high-speed internet access, that the City of Tacoma should work with the libraries or other organizations to ensure access for residents that don’t have it at home, or that the city of Tacoma should take steps to increase high-speed internet access for households without it. They agree more strongly that the public library is the best place to provide public access to computers and the internet, but agree less strongly that the public library currently provides sufficient access or that people who use the library computers can get the help they need.

Hispanic/Latino respondents agreed more strongly than others that all Tacoma households should have high-speed internet access, that the City of Tacoma should work with the libraries or other organizations to ensure access for residents that don’t have it at home, and that the city of Tacoma should take steps to increase high-speed internet access for households without it. They agree more strongly that the public library is the best place to provide public access to computers and the internet, and that people don’t have to wait very long to use a computer at the library.

African American/black respondents rated adults’ access to computers and the internet as less important than did other groups, and they were less likely to agree that all Tacoma households should have high-speed internet access or access to free or low cost training on how to use computers and the internet. They agreed less strongly that the public library is the best place to provide public access to computers and the internet or the best place to learn to use computer technology, though they agreed more strongly that the library provides sufficient access to computers and the internet.

Asian/Pacific Islander respondents rated as more important children’s access to computers and the internet and Tacoma residents’ access to free or low cost training on how to use computer technology, but they agreed less strongly that the public library is the best place to provide public access to computers and the internet or to learn to use computer technology. They also tended think that the waiting time to use a library computer was too long and the time limit too short.

Children in Tacoma Public Schools (TPS)

TPS parent rated adults’ access to computers and the internet as less important than did non TPS parents and they agreed less that access to computers and the internet can help narrow the gap between the “haves” and “have nots” in our society. They also agreed less that the City of Tacoma should work with libraries or other organizations to ensure that residents can have access at public locations if not at home. TPS parents were somewhat but not significantly more aware of current programs to expand internet access to low income households (32% vs. 20%).

Hilltop (98405) and Eastside (98404) Neighborhoods

Although respondents overall agreed that Tacoma residents should have access to free or low cost training on how to use computers and the internet, Hilltop residents agreed the most strongly and Eastside residents the least strongly. In a similar pattern, Eastside residents agreed least strongly that access to computers and the internet helps narrow the gap between the “haves” and “have nots” in our society. Hilltop and Eastside residents were more positive about the people being able to learn how to use computer technology at the library, however Eastside residents agreed more strongly than other

respondents that the library provides sufficient access to computers and the internet, that library patrons can get the help they need using computers, and that patrons don't need to wait very long to use a library computer.

Residents of Census tracts 061300 or 061400 agreed more strongly that libraries are the best place for people to learn to use computer technology.

Table 12 is a copy of the question items in the mail survey related to opinions about to expand technology access for Tacoma residents, and concerns about that access, with responses filled in.

Table 12. Responses to questions items about TECHNOLOGY ACCESS

21. Please check the top **three** ways for Tacoma to increase internet access for households that currently do not have access. **20 did not respond**

- 350 (77%)** Make sure residents are aware of current low cost options
- 182 (39%)** Increase the number of public access computers available at the public library
- 87 (19%)** Increase the time limit on the public access computers at the public library
- 104 (23%)** Provide free wi-fi access spots around the city (Where? _____)
- 127 (27%)** Make public access computers available at community centers
- 36 (8%)** Allow library patrons to check out technology devices or wi-fi hotspots
- 127 (27%)** Offer a service of technical assistance to help people get connected at home
- 82 (18%)** Provide more training on how to use computers
- 144 (31%)** Provide a way to get low cost computers
- 16 (3%)** Some other strategy _____
- 25 (5%)** None of the above. The City should not be involved

22. Please check your top **three** concerns related to safety over the internet. **34 did not respond**

- 384 (85%)** Identity theft
- 356 (79%)** Credit card or banking fraud
- 105 (23%)** Data collection or tracking by online service providers
- 87 (19%)** Data collection or tracking by the government
- 100 (22%)** Loss of control over personal data such as email or social network profiles
- 192 (43%)** Dangers to children accessing the internet
- 79 (18%)** Threats to personal safety, such as online harassment, stalking, or cyber bullying?
- 7 (2%)** Other concern _____
- 9 (2%)** No concerns about privacy and security online

23. During the past year, have you...	Yes	No	Don't know/ blank
Been affected by an online security breach, identity theft, or similar crime?	111 (27%)	301 (73%)	72
Experienced online harassment, stalking or cyber-bullying?	24 (6%)	380 (94%)	80

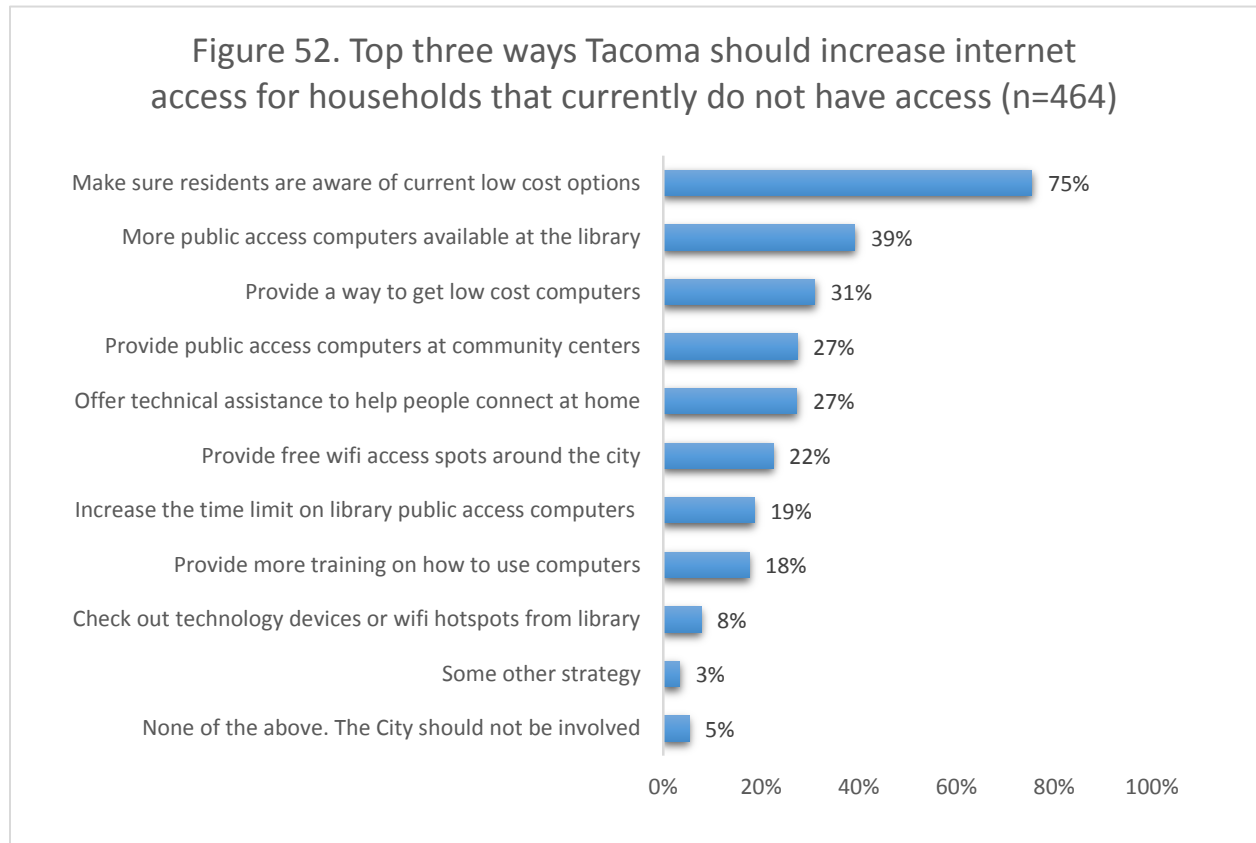


Figure 52 illustrates the results reported in Table 12 related to ways that the City of Tacoma should increase internet access for households that do not currently have access. By far the most commonly agreed upon strategy is to ensure that residents are aware of current low cost options (75%). This response may have been inflated due to the positioning of the question about awareness of current low cost options of which most respondents themselves were not aware. Few respondents (5%) felt that the City should not be involved and much more commonly, respondents advocated increasing the number of public access computers available at the library (39%), helping people get low cost computers (31%) and the help to connect from home (27%), and providing public access computers at community centers (27%).

The most frequent choice for mini-survey respondents with Tacoma ZIP codes was also making sure that residents are aware of current low cost options (62%). The second most popular strategy was to provide a way for residents to get low cost computers (42%), followed closely by providing free wi-fi access spots around the city (37%) and technical assistance to help people get connected at home (31%). Eight percent of these respondents indicated that the City should not be involved.

Gender

Men and women differed in their responses to these questions. The top choice of both men and women was making sure residents are aware of current low cost options (women favored this more than men 83% vs. 69% and women were themselves somewhat more aware of the options (17% vs. 10%)). The #2 choice for women was to provide a way to get low cost computers (37% vs 29% of the men) while the #2 choice for men (and the third choice for women) was to increase the number of public access computers at the library (44% vs. 32% of the women). Men's third choice was to provide free wi-fi access spots

around the city (30% vs. 19%). The other differences between men and women were that women were more likely to favor allowing library patrons to check out technology devices or wi-fi hotspots (13% vs. 4%). These results align with earlier results in which women reported their own internet connections as being more home-based, while men were more likely than women to report their internet connections as being outside the home.

Age

All of the age groups supported making sure that residents are aware of currently available low cost options as either their first or second choice. Interestingly, that was the second option of the youngest group (18 to 24 years old). Their *first* option was to increase the number of public access computers at the library (88% vs. 18% to 41% of the other age groups), followed by increasing awareness of currently available programs, and providing a way for residents to get low cost computers (60% vs. 22% to 30% of the other age groups). The youngest groups were also more likely to endorse providing technology devices or wi-fi hotspots for check-out at the library (23% vs. 2% to 10% of the other age groups). This may suggest that respondents in the older age groups did not understand this option's technical jargon.

The next age group (25 to 34 years) stands out for their support of more public access computers at the library (at 41%, they followed their younger counterparts in endorsing this option) followed by public access computers at community centers (38% vs. 0% to 32% of the other groups). This group was also most likely to support free wi-fi access spots around the city (35% vs 3% to 24% of the other age groups).

The 35 to 50 years olds stood out in their support of a technical assistance service to help people get connected at home (42% vs. 11% to 29% of the other age groups). Their third choice was to increase the number of public access computers at the library (33%).

The older age groups did not stand out particularly, except that the support for providing more training on how to use computers increased with age from 0% in the youngest group to 39% in the 65 to 75 year-olds and back down to 29% in the oldest age group.

Education

Ensuring awareness of current low cost access options was the top choice at all education levels, followed by increasing the number of public access computers. Those with the least education selected a technical service to help people get connected at home as their third choice (47% compared with about a quarter of the other groups). Support for increasing the time limit on the library computers decreased from 27% of those with less than a high school education to 13% of those with more than a four-year degree. Support for free wi-fi access spots around the city and for making technology devices or wi-fi hotspots available at the library went the other way, increasing with education. Support for free wi-fi spots went from 11% of the least educated respondents to more than one-third of the more educated and support for library technology devices went from 0% of the least education respondents to 13% of those with at least a four-year degree.

Income

Residents from two income groups (the highest and the second lowest) were more likely than other groups to respond with "None of the above. The City should not be involved." (14% vs. 3% of the other groups). However, in other ways, these groups responded similarly to the other income groups.

Overall, support for ensuring that residents are aware of current low cost options was the most supported among all the income groups, however it decreased with income from 85% of the lowest income group to 63% of those with incomes of \$50,000 or more.

Increasing the number of public access computers at the library was the second most supported option for all but the two lowest income group respondents who were more likely to support providing a way to get low cost computers, an option that was similarly supported by other income groups until reaching \$50,000 or more when support dropped to 17%.

Support for public access computers in community centers was highest in the middle income groups (\$30,000 to \$99,999) and lower at the two ends.

Race/Ethnicity

All of the race/ethnic groups supported increasing awareness of current low cost options as their first option, but the second and third choices differed.

Among Caucasian/white respondents, increasing the number of public access computers at the library came in second and public access computers at community centers came in third. Caucasian/white respondents were most likely to support making technology devices available for check out at the library (13% vs. less than 5%).

Among African American and Hispanic/Latino respondents, offering a service of technical assistance to help people get connected at home came in second (53% each), followed by increasing the number of public access computers at the library.

Among Asian/Pacific Islander respondents, free wi-fi access spots around the city was second, followed by providing a way to get low cost computers, and then increasing the number of public access computers at the library.

The second choice among Native American/Alaska Native respondents was making public access computers available at community centers, followed by increasing the time limit on public access computers at the library and fourth, increasing the number of those computers.

Children in Tacoma Public Schools (TPS)

TPS and other parents most often support ensuring that residents are aware of current low cost options. The second choice among TPS parents is to offer a service of technical assistance to help people get connect at home, followed by increasing the number of public access computers at the library and providing a way to get low cost computers. That is, TPS parents want to have home access and if that is not possible, then they want better access at the library. The second option among non TPS parents was to install public access computers at community centers, and then to provide free wi-fi access spots around the city.

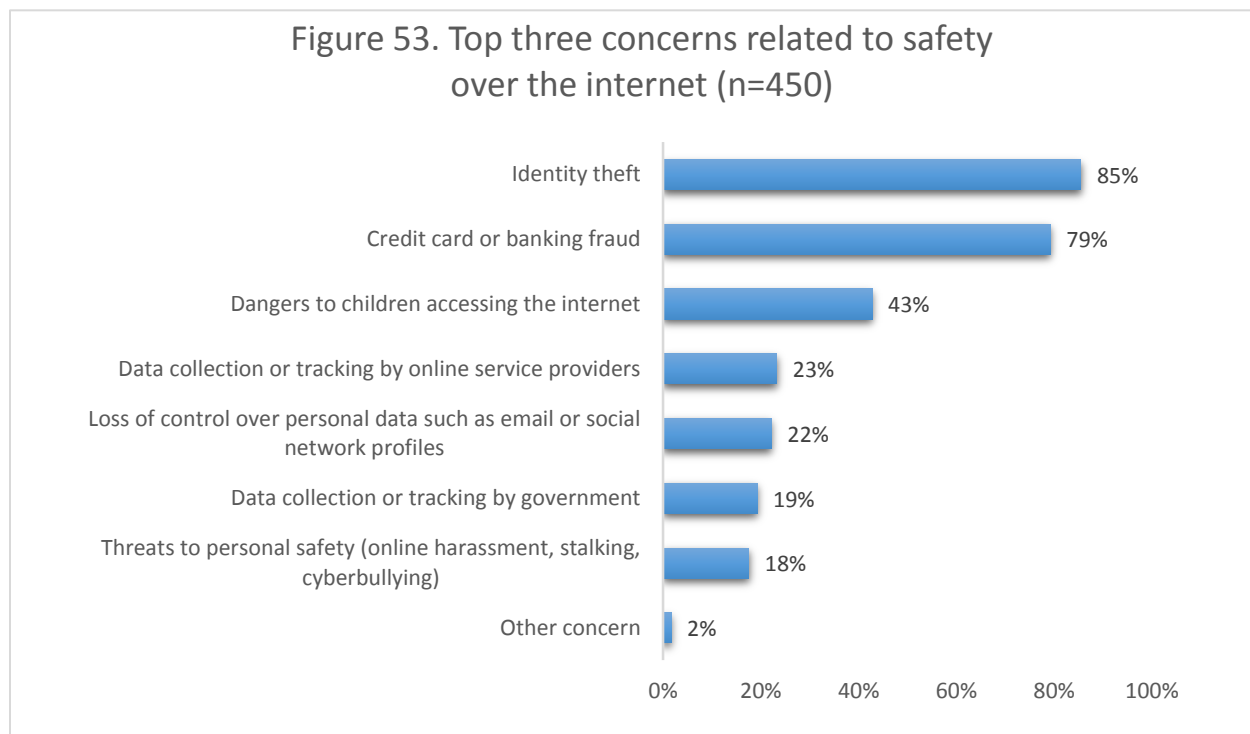
Hilltop (98405) and Eastside (98404) Neighborhoods

Hilltop residents were less positive about increasing public access computers at the library (24% vs. 37% (other) and 55% (Eastside)) or at community centers (14% vs. 29% (other) and 32% (Eastside)). Hilltop residents were also less positive about increasing the time limit on the library's public access computers. The most strongly supported option in this and other neighborhoods was ensuring residents are aware of current low cost options, followed by offering a technical assistance service to help people get

connected at home (36% vs. 26% (other) and 25% (Eastside)), and more training on how to use computers (24% vs. 19% (other) and 7% (Eastside)). The Hilltop neighborhood was more likely to say “None of the above. The City should not be involved” (13% vs. 4% (Eastside and other ZIP codes)).

The resident of the Census tracts 061300 and 061400 were more positive in their support of adding to public access computers at the library (44%), and increasing the time limit there (44%) in addition to providing free wi-fi spots around the city (43%).

Figure 53 illustrates and ranks residents’ concerns related to safety over the internet. The most common concerns reported were identity theft and credit card fraud, something that 27% of the respondents indicated that they’d experienced in the past year. Six percent said that they had experienced online bullying in the past year, something that 18% selected as one of their top three concerns.



Gender

Women and men responded fairly similarly to these questions. Women were a bit more concerned about loss of control over personal data (27% vs. 18%) and about dangers to children accessing the internet (48% vs. 39%). Also, women were more likely to report experiencing online harassment, stalking, or cyber-bullying in the past year (9% vs. 4%).

Age

The top three concerns were the same across all the age groups. Most of the effects of age on responses to these items can be attributed to respondents in the youngest group. These respondents were significantly *less* likely to be concerned about identity theft (63%) or having their data tracked by online service providers (0%), and about twice as likely to be concerned about having their data tracked by the government (44%), loss of control over personal data such as email or social network profiles (39%) or dangers to children accessing the internet (66%).

Education

Concern about identity theft and credit card fraud was high across all education groups, and concern about the dangers to children accessing the internet was the third choice of all but those with less than a high school education. The third concern of this group was the loss of control over personal data, followed by a concern about data tracking by online service providers.

The percentage concerned about identity theft and credit card fraud was the highest among those with less than a high school education and decreased as education increased until reaching the highest levels of education when the percentage concerned rose again. The opposite pattern appeared in response to concerns about the dangers to children accessing the internet. The percentage concerned increased from the least concern expressed by those with less than a high school education to the most expressed by those with a four-year degree. This is the same pattern of responses to the question about experiencing an online security breach or identity theft during the past year. As education increased, so did experiencing this crime.

Income

The top three concerns were the same across all the income levels. However, as income increased, so did reporting of experiencing an online security breach, identity theft, or similar crime from 8% of those earning less than \$20,000 per year to almost half of those earning \$100,000 or more. The experience of online harassment, stalking, or bullying decreased with income from one-fourth of those in the lowest income group to an average of less than 5% of the other income levels.

Race/Ethnicity

The top three concerns were the same across all the racial/ethnic groups except for the Hispanic/Latino respondents whose third most prevalent concern was threats to personal safety online (online harassment, stalking, or cyberbullying).

Although most Caucasian/white respondents were concerned about identity theft, fewer in this group indicated that concern than in other groups (80% vs. 95%).

African American/black respondents were more likely than other groups to be concerned about being tracked by the government (31% vs. 16%).

The pattern of Hispanic/Latino respondents was different from the other respondents in several ways. These respondents were more uniformly concerned about identity theft (98% vs. 82%) but less concerned about being tracked by the government (4% vs. 18%). They were less concerned about the dangers of children accessing the internet (24% vs. 46%) and more concerned about threats to personal safety online (38% vs. 15%).

Children in Tacoma Public Schools (TPS)

TPS parents and other parents responded similarly to these questions except that non TPS parents expressed more concern about threats to personal safety online (48% vs. 20%), the third most common concern among non TPS parents.

Hilltop (98405) and Eastside (98404) Neighborhoods

The neighborhoods were similar except in their concern about tracking by online service providers. Half of the Hilltop residents indicated this as one of their top three concerns (and overall, the third concern

for this group), compared with 31% of Eastside respondents and 20% of respondents from other parts of the City. Residents in the 061300 and 061400 Census tracts showed a similar pattern of concerns.

Appendix I

Mail Survey



Even if you rarely or never use technology or the internet, please complete the relevant portions of this survey and return to us.

Your opinions, experiences and information are important to the City. Please select the option (by checking the box) that best represents your response.

Thank you for your thoughtful responses. Please return the completed survey in the enclosed postage-paid envelope at your earliest convenience.

The City of Tacoma wants everyone who lives here to be able to use technology and the internet. The City wants to know which neighborhoods might need the **City's support for equitable access**. Your responses are important, whether you have technology or not, because it will help paint a picture of your neighborhood.

HOME TECHNOLOGY CHECKLIST

1. In your household, do you have a working... *(Please check all that apply)*

- ☐ Desktop or laptop computer
- ☐ Smart phone (such as an iPhone, Android, or Windows phone)
- ☐ Tablet (such as an iPad, Surface, or Galaxy)
- ☐ Chromebook or netbook computer
- ☐ None of these
- ☐ Don't know

2. What technology do **YOU USE** at home or elsewhere? *(Please check all that apply)*

- ☐ Desktop or laptop computer ☐ Smart phone ☐ Tablet ☐ Chromebook or netbook
- ☐ None of these

2a. Do **YOU USE** the internet at home or elsewhere? ☐ Yes ☐ No

3. What technology do **CHILDREN** in your household **USE** at home or elsewhere? *(Please check all that apply)* ☐ Not applicable, no children in the household

- ☐ Desktop or laptop computer ☐ Smart phone ☐ Tablet ☐ Chromebook or netbook
- ☐ internet ☐ None of these ☐ Don't know

3a. Do **CHILDREN** in your household **USE** the internet at home or elsewhere? ☐ Yes ☐ No ☐ Don't know

4. What technology do **OTHER ADULTS** in your household **USE** at home or elsewhere? *(Please check all that apply)* ☐ Not applicable, no other adults in the household

- ☐ Desktop or laptop computer ☐ Smart phone ☐ Tablet ☐ Chromebook or netbook
- ☐ internet ☐ None of these ☐ Don't know

4a. Do **OTHER ADULTS** in your household **USE** the internet at home or elsewhere? ☐ Yes ☐ No ☐ Don't know

CONNECTING TO THE INTERNET

5. WHERE: Please check all the **PLACES** that you or others in your household connect to the internet.

- ☐ Home (including wired, mobile, and other)
- ☐ Work
- ☐ School
- ☐ Anywhere/everywhere (mobile data plan)
- ☐ Anywhere with free wi-fi
- ☐ Don't know
- ☐ Someone else's home
- ☐ Library
- ☐ Community center
- ☐ Boys & Girls Club
- ☐ Somewhere else *(please specify)* _____
- ☐ No one in the household uses the internet

► If you **DO NOT PERSONALLY USE** the internet please continue to **Question 9 on Page 2**.

6. How and where do you, personally, connect to the internet? Which device and which location do you use MOST OFTEN?

Device? (Check one below)	Location? (Check one below)
Most often <input type="checkbox"/> Desktop or laptop computer <input type="checkbox"/> Smart phone or tablet <input type="checkbox"/> Chromebook or netbook	<input type="checkbox"/> Home <input type="checkbox"/> Work <input type="checkbox"/> School <input type="checkbox"/> Anywhere <input type="checkbox"/> Other (please specify) _____

7. Which device and which location is MOST IMPORTANT for you to connect to the internet?

Device? (Check one below)	Location? (Check one below)
Most important <input type="checkbox"/> Desktop or laptop computer <input type="checkbox"/> Smart phone or tablet <input type="checkbox"/> Chromebook or netbook	<input type="checkbox"/> Home <input type="checkbox"/> Work <input type="checkbox"/> School <input type="checkbox"/> Anywhere <input type="checkbox"/> Other (please specify) _____

8. Is your current internet access good enough for how you want to use it?

☐ Yes ☐ No --> If No, please explain _____

► internet **USERS** please continue to Question 10.

DO NOT PERSONALLY USE the internet

9. Please check all the reasons you do NOT personally use the internet. (Please check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Don't want to | <input type="checkbox"/> Not interested |
| <input type="checkbox"/> No home access and public access is inconvenient | <input type="checkbox"/> Don't know how to use it |
| <input type="checkbox"/> Concerns about privacy or security | <input type="checkbox"/> Concerns about safety/ child safety |
| <input type="checkbox"/> Other reason _____ | |

Have you ever used the internet?

- ☐ No ☐ Yes --> If yes, why did you stop? _____

9a. Would you like to use the internet? ☐ Yes ☐ No

► If you **DO NOT HAVE internet access AT HOME**, please skip to **Question 13**.

INTERNET AT HOME

10. **HOW** do you get internet service **AT HOME**? (Please check all that apply)

- ☐ Do **NOT** get internet service at home (► Please go to **Question 13**.)
- ☐ **Wired connection** (DSL, cable, dialup or fiber) from a commercial provider (Please select which one.)

<input type="radio"/> Century Link internet	<input type="radio"/> Comcast internet	<input type="radio"/> Click	<input type="radio"/> Rainier Connect
<input type="radio"/> Other (please specify) _____		<input type="radio"/> Dial up	<input type="radio"/> Don't know
- ☐ **Mobile connection** (Please check all that apply)

<input type="radio"/> Data plan as part of mobile phone service	<input type="radio"/> Portable wi-fi device (mi-fi, Clear)
<input type="radio"/> Use mobile device as a hotspot	<input type="radio"/> Other (please specify) _____
- ☐ **Other connection** (Please check all that apply)

<input type="radio"/> "Borrowed" wi-fi from nearby business or neighbor	<input type="radio"/> Included as part of rent	<input type="radio"/> Satellite
<input type="radio"/> Free wi-fi (publicly available internet at no charge)	<input type="radio"/> Other _____	
- ☐ Don't know

11. How much, if anything, do you pay **per month** for your home internet service? \$_____

12. Is this amount.... ☐ for internet alone ☐ for a service bundle (more than one service) ☐ don't know

► If you **DO** get internet at home, please go to **Question 14**.

DO NOT HAVE internet at home

13. If you do **NOT** have internet at home, what are all the reasons why not? *(Please check all that apply)*

- ☐ Don't need it or want it ☐ It's not worth the cost
- ☐ Can't afford it ► How much would you be able/willing to spend per month for internet service? \$_____
- ☐ Sufficient access elsewhere ☐ No working computer or other device to use it on
- ☐ Don't know how to use it and no way to learn ☐ Concerns about safety and security
- ☐ Other *(please specify)* _____

13a. Have you ever had the internet at home? ☐ No ☐ Yes --> If yes, why did you stop? _____

13b. Would you like to get the internet at home? ☐ Yes ☐ No

► Everyone

14. Do you have the technology you want or need at home?

- ☐ Yes --> If Yes, please go to **USING COMPUTERS AND THE internet below**
- ☐ No --> If No, what don't you have that you want or need? *(Please select all that apply.)*
- ☐ Any working computer
 - ☐ Up-to-date computer
 - ☐ Printer
 - ☐ Up-to-date software
 - ☐ Smart phone
 - ☐ Tablet
 - ☐ Any internet access
 - ☐ Better internet access
 - ☐ Other _____

14a. What are the reasons you don't have these items? *(Please check all that apply)*

- ☐ Too complicated
- ☐ Don't know how to get started
- ☐ Don't know how to use them
- ☐ They are too expensive
- ☐ No special reason
- ☐ Other _____

USING COMPUTERS AND THE INTERNET

► If you **USE** the internet, please continue with **Question 15** on page 4.

► If you **DO NOT USE** the internet, please skip to **Question 16** on page 5.

15. Here are some ways that people use the internet. Please check any that **YOU USE** at least occasionally. (*Please check all that **you use**.*)

☐ **Communications**

- ☐ Email
 ☐ Text or instant messaging
 ☐ Telephone calling
☐ Social media (e.g. Facebook, Twitter, Instagram, etc.)
 ☐ Video calling (e.g. Skype, Facetime)
☐ Other (*please specify*) _____

☐ **Entertainment**

- ☐ Watch videos
 ☐ Watch TV shows
 ☐ Play games
 ☐ Browse or surf the web
☐ Download/stream music, radio programs or podcasts
☐ Other (*please specify*) _____

☐ **Information**

- ☐ About local schools
 ☐ Local news
 ☐ National news
 ☐ International news
☐ Answers to computer problems
 ☐ Legal or consumer rights information
☐ Navigation services or maps
 ☐ Social service information and assistance
☐ About your neighborhood, community, or interest group
☐ Reviews of businesses or products
☐ Other (*please specify*) _____

☐ **Education**

- ☐ Attend a class, job training, or webinar
 ☐ Do research for school
☐ Write reports for school
 ☐ Communicate with your child's teacher
☐ Check your child's grades or homework
 ☐ Other (*please specify*) _____

☐ **Business and employment**

- ☐ Search/apply for a job
 ☐ Do work for your paying job
 ☐ Telecommute
☐ Sell goods or services online
 ☐ Start or maintain a business
☐ Other (*please specify*) _____

☐ **Community**

- ☐ Follow neighborhood activities
 ☐ Communicate with a local community/church/school group
☐ Find local entertainment
 ☐ Do community organizing
☐ Participate in political issues/dialogues
 ☐ Other (*please specify*) _____

☐ **Smart household equipment** (lights, temperature controls, TV, security system, video monitoring)

☐ **Commerce**

- ☐ Purchase products and services
 ☐ Travel arrangements
 ☐ Pay taxes
☐ Financial services, like banking, investing, or paying bills
 ☐ Donate to charities
☐ Other (*please specify*) _____

☐ **Health**

- ☐ Research health and medical information
 ☐ Find a healthcare or insurance provider
☐ Communicate with your doctor or access health or health insurance records
☐ Use a health monitoring service that connects to the internet (like Fitbit)
☐ Other (*please specify*) _____

☐ Other (*please specify*) _____

☐ Nothing

► **Everyone**

16. These are some tasks that people sometimes do with technology. For each one, check the box that indicates how comfortable you are doing that task.

How comfortable are you:	Very comfortable	Somewhat comfortable	Not that comfortable	Not at all comfortable	Never done this	Don't know
Using a computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using the internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Creating and sending email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sending and receiving text messages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sending and opening attachments in email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opening and saving a file	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installing or updating software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using social media sites like Facebook	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adding an app to your smart phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Typing, editing, and printing using a word processing program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Setting up wi-fi in your home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OPINIONS ABOUT TECHNOLOGY ACCESS AND INTERNET SAFETY

17. How important do you think it is for...	Very important	Somewhat important	Not that important	Not at all important	Don't know
Adults to have access to computers and the internet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Children to have access to computers and the internet outside of school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All Tacoma households to have <u>high speed</u> internet access.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tacoma residents to have access to free or low cost <u>training</u> on how to use computers and the internet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. How much do you agree or disagree with the following statements?	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
Access to computers and the internet help to narrow the gap between the "haves" and "have nots" in our society.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The City of Tacoma should work with public libraries or other organizations to ensure computer and internet access for residents that don't have access at home.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The City of Tacoma should take steps to increase access to high speed internet for households without it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The public library is the best place to provide public access to computers and the internet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The public library is the best place to help people learn how to use computer technology.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Based on your experience or what you've heard, how much do you agree or disagree with these statements?	Strongly agree	Agree	Disagree	Strongly disagree	Don't know
Libraries provide sufficient access to computers and the internet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When people use computers at the library they can get the help they need.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There are enough computers at the library so that people don't need to wait very long to use one.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The library's time limits for computer use are usually long enough for what people need to do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Are you aware of special programs to provide low cost, high-speed internet access and/or low cost computers to low-income households, such as internet Essentials from Comcast or PCs for People (<http://www.pcsforpeople.com/recipients/low-cost-internet/>)?

☐ Yes ☐ No

21. Please check the top **three** ways for Tacoma to increase internet access for households that currently do not have access.

- ☐ Make sure residents are aware of current low cost options
- ☐ Increase the number of public access computers available at the public library
- ☐ Increase the time limit on the public access computers at the public library
- ☐ Provide free wi-fi access spots around the city (Where? _____)
- ☐ Make public access computers available at community centers
- ☐ Allow library patrons to check out technology devices or wi-fi hotspots
- ☐ Offer a service of technical assistance to help people get connected at home
- ☐ Provide more training on how to use computers
- ☐ Provide a way to get low cost computers
- ☐ Some other strategy _____
- ☐ None of the above. The City should not be involved

22. Please check your top **three** concerns related to safety over the internet.

- ☐ Identity theft
- ☐ Credit card or banking fraud
- ☐ Data collection or tracking by online service providers
- ☐ Data collection or tracking by the government
- ☐ Loss of control over personal data such as email or social network profiles
- ☐ Dangers to children accessing the internet
- ☐ Threats to personal safety, such as online harassment, stalking, or cyber bullying?
- ☐ Other concern _____
- ☐ No concerns about privacy and security online

23. During the past year, have you...	Yes	No	Don't know
Been affected by an online security breach, identity theft, or similar crime?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Experienced online harassment, stalking or cyber-bullying?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. Please use this space to share any additional thoughts about Tacoma residents' technology use:

DEMOGRAPHIC QUESTIONS

These questions are for statistical purposes only to ensure that we heard from a broad cross-section of Tacoma residents and to understand the needs of specific sub-groups.

25. Gender _____

26. Which of the following ranges includes your age?

- ☐ 18 to 25 ☐ 51 to 64
☐ 26 to 35 ☐ 65 to 75
☐ 36 to 50 ☐ 76+
☐ Decline to answer

27. Are you of Hispanic, Latino, or Spanish origin?

- ☐ Yes ☐ No ☐ Decline to answer

28. What is your race/ethnicity? *(Please check all that apply)*

- ☐ White
☐ Asian/Pacific Islander
☐ Black or African American
☐ Native American/Alaskan Native
☐ Other (please specify): _____
☐ Decline to answer

29. What is the last year of schooling you completed? *(Please check one)*

- ☐ Grade School or Some High School
☐ High School Graduate/GED completion
☐ Some College, Technical or Vocational School or Two Year Degree
☐ Four Year College Graduate
☐ Post Graduate Work or Graduate Degree
☐ Decline to answer

30. What is your approximate total household income? *(Please check one)*

- ☐ Below \$20,000 ☐ \$50,000 - \$74,999
☐ \$20,000 - \$29,999 ☐ \$75,000 - \$99,999
☐ \$30,000 - \$39,999 ☐ 100,000 or more
☐ \$40,000 - \$49,999
☐ Decline to answer

5. How many children under the age of 18 live in your household? _____

31a. Do any of these children attend a Tacoma Public School? ☐ Yes ☐ No ☐ Don't know

6. If there are others in your household, please check whether compared with you, they use technology...	More	About the same	Less	Rarely/ never	Not applicable	Don't know
Children 12 to 17 years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Young adults 18 to 24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adults 25 to 50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adults 51 to 64	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adults 65 to 75	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adults 76+	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. What is the primary language spoken at your home? *(Please check one)*

- ☐ English ☐ Spanish ☐ Other *(please specify)* _____
☐ Decline to answer

8. Are you... *(Please check all that apply)*

- ☐ Employed
 ☐ full time ☐ part-time ☐ self-employed
☐ Unemployed
 ☐ looking ☐ not looking
☐ A student
☐ Retired
☐ Disabled
☐ Stay-at-home
☐ Other _____
☐ Decline to answer

9. Do you have a medical condition, disability, or chronic disease that makes it harder for you to use the internet or to participate fully in work, school, housework or other activities?

- ☐ Yes
☐ No
☐ Decline to answer

10. What best describes your current living situation? *(Please check all that apply)*

- ☐ Tacoma Housing Authority resident
☐ Home owner
☐ Renter
☐ Other _____

11. How long have you lived in Tacoma? _____ Years _____ Months

Mini-survey



The City of Tacoma wants all Tacoma residents to be able to use technology and the internet. We want to know which neighborhoods might need the **City's support for equitable access to technology**. Your participation is important because your opinions and experiences will help the City better understand the needs in your neighborhood.

Please check the boxes that most closely represent your perspective and place the completed survey in the marked collection box. Thank you!

1. Here is a list of electronic devices some people have in their households. For each device, please check whether there is a working one in your household, and whether you, personally, use it.	Have it in your household?		Do you personally use it?	
	Yes	No	Yes	No
• Desktop or laptop computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Smart phone (such as an iPhone, Android, or Windows phone)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Tablet (such as an iPad, Surface, or Galaxy)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Chromebook or netbook computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Other (please specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Please check all the places that you or others in your household connect to the internet.

☐ Home ☐ Work ☐ School ☐ Someone else's home
☐ Library ☐ Community center ☐ Boys & Girls Club
☐ Anywhere/everywhere (mobile data plan) ☐ Anywhere with free Wi-Fi
☐ Somewhere else (please specify) _____
☐ Don't know ☐ No one in the household uses the internet

3. Do you have the technology you need at home?

☐ Yes ► If **Yes**, go to the next page
☐ No ► If **No**, what don't you have that you need? (Please select all that apply.)

<input type="radio"/> Any working computer	<input type="radio"/> Up-to-date computer	<input type="radio"/> Printer
<input type="radio"/> Up-to-date software	<input type="radio"/> Smart phone	<input type="radio"/> Tablet
<input type="radio"/> Any internet access	<input type="radio"/> High speed internet access	
<input type="radio"/> Other _____		

3a. What are the reasons you don't have these items? (Please check all that apply)

<input type="checkbox"/> Too complicated	<input type="checkbox"/> Don't know how to get started
<input type="checkbox"/> Don't know how to use them	<input type="checkbox"/> Too expensive
<input type="checkbox"/> No special reason	<input type="checkbox"/> Other _____

4. Do you, personally, use the internet at home or elsewhere?

- ☐ Yes ► If **Yes**, please go to **Question 6**
- ☐ No ► If **No**, please continue

5. Please check all the reasons you do NOT personally use the internet. (Please check all that apply)

- ☐ Don't want to ☐ No home access and public access is inconvenient
- ☐ Don't know how to use it ☐ Not interested/don't need it/don't like the content
- ☐ Concerns about privacy or security ☐ Concerns about safety/ child safety
- ☐ Other reason _____

Which of these reasons are the most important? _____

Have you ever used the internet? ☐ No ☐ Yes ► If **Yes**, why did you stop?

Please go to **Question 8**.

6. How and where do you, personally, connect to the internet? Which device and which location do you use MOST OFTEN?

	Device? (Check one below)	Location? (Check one below)
Most often	<input type="checkbox"/> Desktop or laptop computer <input type="checkbox"/> Smart phone or tablet <input type="checkbox"/> Chromebook or netbook	<input type="checkbox"/> Home <input type="checkbox"/> Work <input type="checkbox"/> School <input type="checkbox"/> Anywhere <input type="checkbox"/> Other (please specify) _____

7. Which device and which location is MOST IMPORTANT for you to connect to the internet?

	Device? (Check one below)	Location? (Check one below)
Most important	<input type="checkbox"/> Desktop or laptop computer <input type="checkbox"/> Smart phone or tablet <input type="checkbox"/> Chromebook or netbook	<input type="checkbox"/> Home <input type="checkbox"/> Work <input type="checkbox"/> School <input type="checkbox"/> Anywhere <input type="checkbox"/> Other (please specify) _____

8. How do you get internet service at home? (Please check all that apply)

- ☐ Do **NOT** get internet service at home
- ☐ Wired connection (DSL, cable, or fiber) from a commercial provider (Please select which one.)
- ☐ CenturyLink ☐ Comcast/Xfinity ☐ Other (please specify) _____
- ☐ Don't know
- ☐ Data plan as part of mobile phone service ☐ Included as part of rent
- ☐ Free Wi-Fi (publicly available internet at no charge) ☐ Use mobile device as a hotspot
- ☐ "Borrowed" Wi-Fi from nearby business or neighbor ☐ Other _____

9. Is your current internet access good enough for how you want to use it?

☐ Yes ☐ No ► If **No**, please explain _____

10. If you do **NOT** have internet at home, please check all the reasons why not.

☐ I DO have internet access at home ► Go to **Question 11**.

☐ Don't need it or want it

☐ It's not worth the cost

☐ Can't afford it ► How much could you afford per month for internet service? \$ _____

☐ Sufficient access elsewhere

☐ Don't know how to use it and no way to learn

☐ Don't trust the contract

☐ Landlord does not allow the service I want

☐ Choices are too confusing

☐ No working computer or other device to use it on

☐ Concerns about viruses or malware

☐ Concerns about online privacy or cybersecurity

☐ Concerns about personal safety

☐ Problems with service/ can't get the service I want

☐ Don't want children to use it

☐ Other reason _____

10a. Which of these reasons are the most important? _____

10b. Have you ever had the internet at home? ☐ No ☐ Yes -

► If **Yes**, why did you stop? _____

11. These are some tasks that people sometimes do with technology. For each one, check the box that indicates how comfortable you are doing that task.

How comfortable are you:	Very comfortable	Somewhat comfortable	Not that comfortable	Not at all comfortable	Never done this
Using a computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using the internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sending and receiving text messages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Creating and sending email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sending and opening attachments in email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opening and saving a file	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installing or updating software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using social media sites like Facebook	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adding an app to your smart phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Typing, editing, and printing using a word processing program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Setting up Wi-Fi in your home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. How important do you think it is for...

	Very important	Somewhat important	Not that important	Not at all important
Adults to have access to computers and the internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Children to have access to computers and the internet outside of school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All Tacoma households to have <u>high speed</u> internet access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tacoma residents to have access to free or low-cost <u>training</u> on how to use computers and the internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Please check the top three ways the City of Tacoma can increase internet access for households that currently do not have access.

- 14.** _____ Make sure residents are aware of current low-cost options.
 _____ Increase the number of public access computers available at the public library.
 _____ Increase the time limit on the public access computers at the public library.
 _____ Provide free Wi-Fi access spots around the city. (Where? _____)
 _____ Make public access computers available at community centers.
 _____ Allow library patrons to check out technology devices or borrow Wi-Fi hotspots.
 _____ Offer a service of technical assistance to help people get connected at home.
 _____ Provide more training on how to use computers.
 _____ Provide a way to get low cost computers.
 _____ Some other strategy _____
 _____ None of the above. **The City of Tacoma government should not be involved.**

These final questions are for statistical purposes only to ensure that we heard from a broad cross-section of Tacoma residents and to understand the needs of specific sub-groups.

1. What is your current home ZIP code? _____ 2. What is your gender? _____
 2. What is your age? _____
 3. What is your race or ethnicity? _____
 4. What is the last year of schooling you completed? ☐ Grade School or Some High School
☐ High school graduate/GED ☐ Some college/Two year degree
☐ Four year college graduate ☐ Post graduate work
 5. What is your approximate total annual household income?
☐ Below \$20,000 ☐ \$20,000 - \$29,999 ☐ \$30,000-\$39,999 ☐ \$40,000-\$49,999
☐ \$50,000-\$74,999 ☐ \$75,000 - \$99,999 ☐ \$100,000 or more ☐ Decline to answer
 6. What is the primary language spoken in your home?
☐ English ☐ Spanish ☐ Other (please specify): _____