

2023

Technology Access and Adoption Summary Report



City of Seattle

Seattle Residents, Businesses, and Community Partners,

To forge a stronger city grounded in inclusion, educational success, and economic prosperity, we must also strive to ensure digital equity. As we saw plainly during the COVID-19 pandemic, staying connected is essential and digital opportunities are not the same for all. Seattle has made great strides toward our goals of universal internet access, digital skills training, and access to devices, and we will continue to invest to ensure those that need help the most don't get left behind.

This is the sixth City of Seattle Technology Access and Adoption study since it began in 2000. Thank you to over 4,600 diverse residents whom we heard from through our survey and focus groups and to the organizations that assisted. You participated in ten languages and enabled the first-ever urban Native digital equity assessment. The data helps us measure progress, and to pinpoint where additional work and investments are needed. You'll see in the results that we also considered emerging topics of telehealth use, screen size adequacy, and awareness of internet discount programs.

We've made great progress towards achieving our goal of internet for all but continue to see significant gaps, particularly with communities of color, low-income people, people with disabilities, and older adults:

- More residents are connected: 98% of households have access where they live (up from 95% in 2018).
- More than nine out of ten (92%) households have Internet at home and on the go; however, that falls to 75% for those whose primary language is not English. More households report having adequate internet.
- Concerns about security, data use, and protection from others online have risen.
- Those below 150% of the poverty level are 30 percentage points less likely to have a laptop or tablet.
- Seattle residents have a high interest in technology training.

For the City, these results are being used to drive short-term steps and target long-term systemic changes designed to drive progress.

These are a few recent steps we've taken to continue closing the digital equity gap:

- Provided \$545,000 in Technology Matching Fund (TMF) grants to 18 organizations.
- Launched a new campaign to increase awareness and enrollment in the federal Affordable Connectivity Program (ACP) providing internet discounts. We recently received an FCC grant to expand this further. As of July 2023, there are 31,525 Seattle residents enrolled in the ACP program.
- Created a new Internet for All Dashboard that measures ACP enrollment, devices distributed, and other progress metrics.
- Partnered with King County and the Digital Equity Learning Network to create the first King County-Seattle Regional Broadband Infrastructure and Digital Equity Local Action Report that frames a path forward for collaborative action and use of future federal funds.

I am committed to ensuring that Seattle continues leading the way in digital inclusion. The positive results in this report are to be celebrated, but we're not done.

Our work on digital equity goes hand in hand with our race, social, and economic justice work. Together, we can make a city where technology's potential reaches its fullest, and that includes empowering all residents and communities to meet their digital potential. I encourage you to take these findings and work with us to close these gaps, leave no one behind, and foster the next generation of home-grown entrepreneurs, skilled workers and leaders, creatives, and community connectors.



A handwritten signature in black ink that reads "Bruce Harrell".

Mayor Bruce Harrell

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Background and History

The City of Seattle believes that striving for digital equity and increasing access to technology improves the quality of life in our city. The Technology Access and Adoption Study has been commissioned since 2000, and the 2023 survey marks the sixth time this research has been conducted.

These findings help the City of Seattle and others understand how Seattle residents use technology and the internet. The study also uncovers barriers that prevent residents from utilizing digital technologies,

which then informs the City's work to ensure the access, services, and resources necessary for all Seattle residents to succeed in life.

Where possible, the study collected data that is comparable to the previous study conducted in 2018. This 2023 community research measured technology adoption changes, progress toward the City's Internet for All initiative goals, and Covid-19 impacts on digital connectedness and use.

The 2023 study included two types of research: 1) a citywide general population survey, and 2) qualitative research conducted through 40 focus groups with key communities and earlier design phase interviews. This combination provides both broad resident information and valuable snapshots from additional community members. This Summary Report contains findings from the survey, along with highlighted key findings and quotes from the focus groups. These help further inform the depth and diversity in technology use and barriers in our diverse communities. **We encourage using the two full reports available for the survey and for the qualitative study in addition to this Summary Report.**

Survey Methodology and Sampling

A total of 4,197 surveys were collected from Seattle residents across multiple modes including mail/paper, online, and in-person. To maximize representativeness and inclusivity, the sampling plan was framed around four population groups and was offered in eight languages. The survey collected data on the individual responding to the survey as well as their entire household.

General Population: A sample of Seattle residents were selected from each of the seven City Council Districts. Addresses were identified via Address-Based Sample (ABS) and were selected randomly within each district. The goal of the stratified sampling plan was to obtain a reliable number of responses from each Council District so that analysis could be performed at this level with a high degree of statistical confidence.

In total, 15,000 households (approximately 2,143 per Council District) received a three component survey treatment through the mail designed to encourage maximum response. Each treatment included:

- Pre-notification postcard,
- Survey packet consisting of a cover letter, eight-page survey and postage-paid return envelope, and
- Post-notification postcard.

Recipients were given the option to complete the survey by mail or go online to complete the survey. The packets were distributed in English but included instructions on how to request a paper survey in another language. The online survey option included all eight language options.

Seattle Housing Authority (SHA) Beneficiaries:

A census of those living in SHA owned properties in the City of Seattle as well as residents receiving housing assistance, but not living in SHA owned properties, was conducted through a combination of mail and email methodologies.

A total of 2,500 SHA beneficiaries received a mail survey. Priority was given to selecting households for the mailing where a language other than English was indicated as preferred. An email invitation was sent to the remaining SHA benefit recipients inviting them to respond online.

Seattle Public Schools (SPS) Parents/Guardians:

Parents and guardians of students from six schools were selected for inclusion in a mailing with addresses provided by SPS. The specific schools were chosen because they are located in areas of lower economic status and/or are identified as having higher risk for digital inequity based on a high prevalence of students who are English learners, qualify for free or reduced lunch, or are protected under the McKinney-Vento act. An email invitation was sent to all remaining parents and guardians of Seattle Public School students inviting them to respond online.

Native Community Outreach: The City of Seattle IT team coordinated with community partners to distribute online or paper surveys to members of the Seattle Native community. This outreach was conducted at in-person events, through email, and through social media links.

Sampling and Response Rate	Invitations	Number of Responses	Response Rate
General Population	Total/Mail: 15,000	2,400	16.0%
Seattle Housing Authority Residents and Assistance Recipients	Mail: 2,500	336	7.4%
	Email: 6,260	191	3.1%
	Total: 8,760	527	6.0%
Seattle Public Schools Parents/Guardians	Mail: 2,000	196	9.8%
	Email: 32,436	938	2.9%
	Total: 34,436	1,134	3.2%
Community Outreach	--	136	--
Total	Mail: 19,500	2,932	15.0%
	Email: 38,696	1,129	2.9%
	Total: 58,196	4,197	7.2%

Weighting

To correct for deliberate over-sampling of certain key subgroups, a sample balancing or weighting algorithm was applied to all data points. This algorithm balances the data back to the demographic proportions that exist in the Seattle population, so that when examining the total population metrics, they are accurate and projectable to the Seattle residency at large.

- The survey instrument sent to households collected data on the **individual** responding to the survey, as well as the entire **household**. In the latter case, the individual responding was asked to provide data for their entire household. To account for this difference in perspective, each data point is classified as describing a household characteristic (e.g., household size and income) or an individual characteristic (e.g., age, gender, and ethnicity).
- Two different weights were developed and applied—one based on household characteristics, and one based on individual characteristics. All data presented here is weighted. Base sizes/sample size groups are unweighted. A full description of the weighting algorithms can be found in the Technical Report.

Council District Response Rate

Analysis was completed on the total sample, as well as by key subgroups. The overall confidence interval of the study results is +/-1.5% (percentages and proportions cited are accurate within a range of +/- 1.5%).

The total sample size and associated confidence interval of each Council District is as follows:

	Number of Responses	Confidence Interval
Council District 1	712	±3.67%
Council District 2	761	±3.55%
Council District 3	477	±4.49%
Council District 4	533	±4.24%
Council District 5	633	±3.89%
Council District 6	639	±3.88%
Council District 7	352	±5.22%

Survey Population Group Responses

A concerted effort was made to collect survey responses from a wide range of residents, including the following groups who often correlate with higher rates of digital inequities:

	Number of Responses	Confidence Interval
Households with children under the age of 18	1,652	±2.41%
Older Adult (60 years old and older)	1,539	±2.50%
Black, Indigenous, People of Color—BIPOC residents	1,467	±2.56%
Black, African Descent, African American	331	±5.39%
Native American / Alaska Native	205	±6.84%
Households living below 150% of the Federal Poverty Level (FPL)	735	±3.61%
Households that speak a language other than English	434	±4.70%
Households with one or more members living with a disability	351	±5.23%

Total household and individual estimates in this report are based on the American Community Survey 2017–2021 5-Year Population Estimates

Changes & Improvements Since 2018

The City is committed to improving the representativeness and inclusivity of the Technology Access and Adoption Study as well as reflecting changing technology. Improvements to the study for 2023 included:

- New metrics and questions were introduced including screen size adequacy, incidences of prolonged internet interruptions, number of devices in the household, Affordable Connectivity Program awareness, multiple telehealth uses, video meeting tools and other updated digital skills and activities.
- A digital connectedness index was added to reflect the combination of internet, devices and skills required for full digital opportunity.
- There was greater BIPOC community engagement in the design and implementation of the research.
- Community interviews and surveys with 247 residents were conducted prior to the study to inform the questions and methods for the survey & focus groups.
- The survey was offered in eight languages: Amharic, Chinese, English, Korean, Somali, Tagalog, and Vietnamese.
- A census of Seattle Housing Authority (SHA) beneficiaries included recipients of SHA vouchers living outside of SHA properties.
- A focused mailing targeted to households served by six Seattle Public Schools with high rates of free and reduced school lunch programs and non-English speaking households.
- The survey was mailed to SHA and Seattle Schools households in the preferred language of the household when that information was known.

The 2023 survey resulted in a significantly more diverse group of residents responding to the survey than we have had since the first study was conducted in 2000. Thanks to the impressive response, surveys were completed in all languages offered and Seattle IT received enough completed surveys from the Native community to have a statistically valid sample and provide the first-ever urban Native digital equity report.

Focus Group Methodology

Forty (40) in-depth community member led focus groups were conducted with a total of 203 individuals across 10 focus populations and in six languages. These included Black/African American, African Diaspora, disability, Khmer-speaking, Spanish-speaking from Mexico, Spanish-speaking from Central or South America, Cantonese-speaking, Vietnamese-speaking, housing insecure, and veterans. The African Diaspora groups included ones held in Oromo and in Somali, and two held in English for participants from any part of Africa. Intersectionality and inclusion were prioritized. Each focus population included four subgroups each of older adults aged 55+, housing insecure, and community workers with lived experience who work with community members.

The focus group discussions centered around these six question areas that parallel the population survey: 1) internet type and devices, 2) qualities of adequate internet, 3) impact of technology access on quality of life, 3) household devices and sharing, 4) digital skills training methods and topics, and 5) security, comfort, and privacy online.

Seattle continues to make progress toward connectedness for all but there is work to be done to make our city fair and equitable.

Internet Access at Home

Technology and the internet are significantly more important to daily life today than they were in 2018. In 2023, 73% of residents say technology is extremely important, versus only 62% saying the same in 2018.

Not surprisingly, the 2023 research also shows Seattle residents are increasingly connected to the internet. The 2023 research shows that 98% of households have a way to access the internet at home compared to only 95% in 2018.

Home internet access in Seattle has increased from

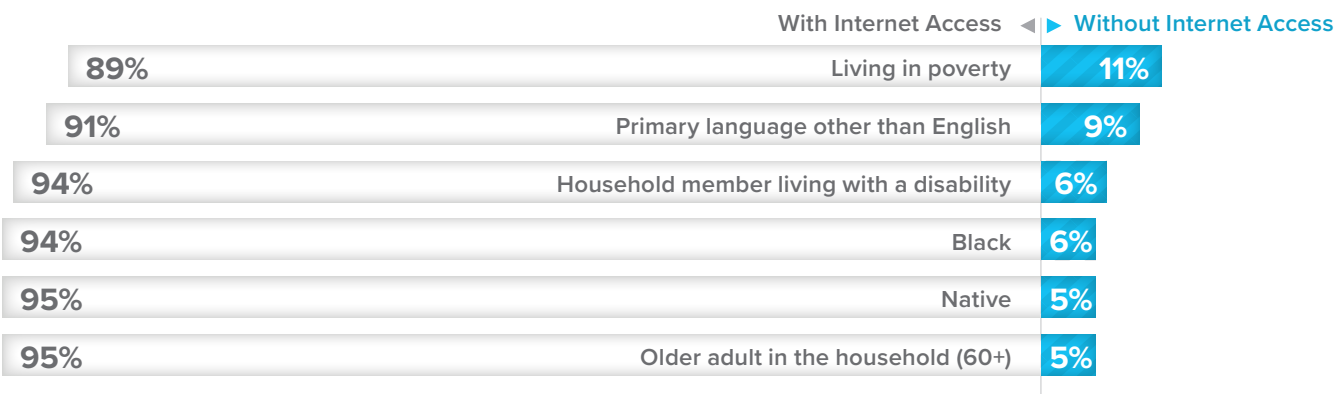


Significant disparities persist, however. An estimated 8,123 households within the city have no way to access the internet at home and inequities persist for some population groups:

- Living in poverty (at or below 150% of Federal Poverty Level): 5.5 times more likely to not have internet access at home.
- Primary language other than English: 4.4 times more likely to not have internet access at home.
- Household member living with a disability: 3 times more likely to not have internet access at home.
- Black households: 3 times more likely to not have internet access at home.
- Native households: 2.5 times more likely to not have internet access at home.
- Older adults (60+ years of age): 2.5 times more likely to not have internet access at home.

Internet access has improved for many populations, including those impacted by a disability, less educated, lower income, older adults, and BIPOC (especially Native households). While not statistically significant, increases of 5 percentage points were also seen among Black and Latino/a/x populations.

Internet Access by Population Group



“Given the direction in which society is moving I believe barrier free access to fast, reliable internet is becoming a basic need.” –Seattle resident and survey respondent

Speed of Internet

Internet download speeds correlate with household income. The higher the income, the faster the household's download speed.

Access to faster download speeds allows for uninterrupted meetings and classes, improved online entertainment experiences, and an ability to process data sets more easily and efficiently. Almost two in five Seattle households are not able to venture a response when asked for the download speed of the internet service where they live. The portion of the population who does not know their speed declines as income increases, indicating that download speed is vitally important and dependant on ability to afford it.

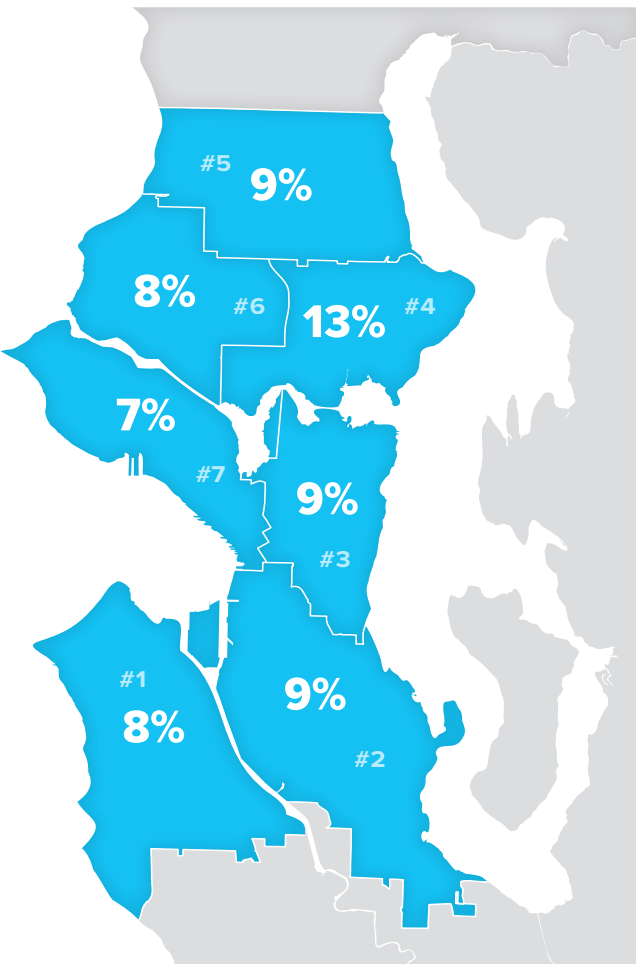
Almost one in ten households only have speeds up to 50 Mbps (the lowest category provided) and certain highly impacted populations groups, namely households under 150% of Federal Poverty Level and those who speak a language other than English, are even more likely to have this slowest internet speed (19% and 16% respectively).

Upload speeds are terrible and are often not increased when paying for more expensive/faster connection. As an internet professional, this really slows down my work, and prevents my husband from working from home many days. Finally there is a fiber connection available in my neighborhood, but I'm locked into a contract (for cable) the next year and a half.

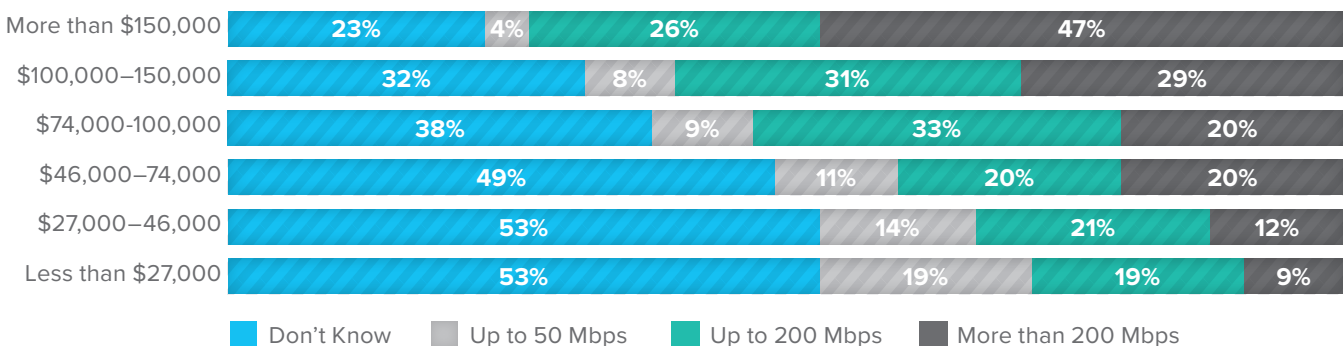
—Seattle resident and survey respondent

Those living in Council District 4 are significantly more likely than those living in other Council Districts to report that their internet download speed at home is only up to 50 Mbps.

% Living with home internet at or below 50 Mbps download speed



Internet Speed by Income



Internet On-The-Go

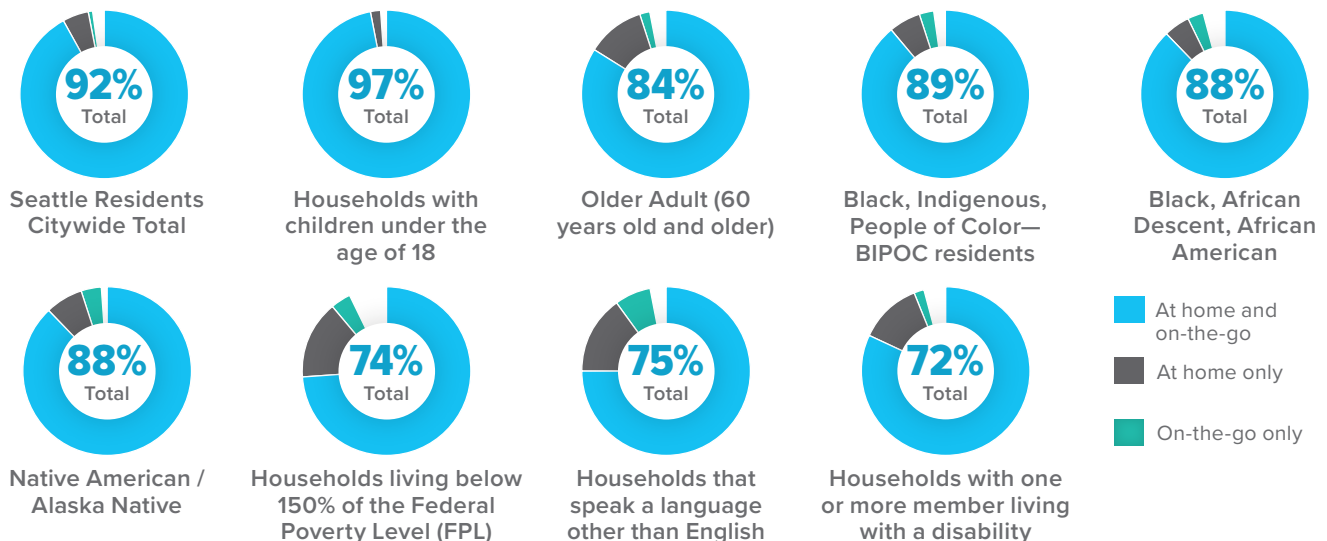
Current society essentially demands that we are always connected. To be best positioned for success, Seattle's residents need access to the internet not only at home, but as they move around the city and the world. The combined analysis of whether households have a connection to the internet at home and whether they have access to the internet on-the-go permits understanding of the extent to which Seattle residents are disconnected from the internet for at least some portion of the day.

Eight percent (8%), or an estimated 25,976 households in Seattle fall into this partially disconnected category as they do not have access both at home and on-the-go.

Furthermore, when compared to the general population, many heavily impacted, focused population groups are disconnected at far higher rates than the general population.

- 11%** of Black, Indigenous, or People of Color (BIPOC) do not have access both at home and on-the-go
- 16%** of older adults do not have access both at home and on-the-go
- 18%** of households living with disabilities do not have access both at home and on-the-go
- 25%** of households speaking language other than English do not have access both at home and on-the-go
- 26%** of households living in poverty do not have access both at home and on-the-go

Access to Internet Both At Home and On-The-Go



While more than two-thirds of residents have an unlimited mobile plan for use while on-the-go, some populations are facing significant limitations – even if they do have a way to access the internet when away from their home.

% With Unlimited Mobile Data

Seattle Residents Citywide Total	67%
Living in Poverty	42%
Primary Language Not English	46%
Living with Disability	54%
Elder Adult (60+ Years)	57%
Black	58%
Native American	60%

Interrupted Internet

While most Seattle residents enjoy a constant connection to the internet, too many of our city's residents must manage sustained outages for a month or more—causing interruptions in school, work, and household management.

In the past 12 months, one in twenty (5%) Seattle households, or more than 33,000 residents, went without internet at home for one month or longer. South Seattle, Central Seattle, and Northeast Seattle (Council Districts 2, 3, and 4) report higher rates of interruption than other Council Districts (8%, 7%, and 7% of households respectively with 1 month or longer internet outages).

Number of households managing sustained outages

1 in 10

BIPOC households dealt with outages of a month or more

1 in 8

Households who speak a language other than English dealt with outages of a month or more

1 in 6

Native households dealt with outages of a month or more

1 in 5

Households living in poverty (under 150% of FPL) dealt with outages of a month or more

Adequacy of Internet Connection

Rates of continuous connectivity closely align with internet adequacy and speed.

Nearly nine in ten (89%) Seattle households with internet report having mostly or completely adequate internet connection and speed; an improvement of eight percentage points since 2018.

On the other hand, **1 in 4 households** say their internet is interrupted or too slow at least weekly, if not more often. This rate rises to **2 in 5 households** living in poverty.

Furthermore, the heavily impacted, focused population groups report higher levels of inadequacy—often significantly so.

The reporting of internet inadequacy is significantly more common among the following groups:

- Households who do not primarily speak English are **4.5x** more likely to be experiencing inadequate speeds
- Households that are living in poverty (at or below 150% FPL) are **4x** more likely to be experiencing inadequate speeds
- Households with one or more member living with a disability are **4x** more likely to be experiencing inadequate speeds
- Black households are **3.5x** more likely to be experiencing inadequate speeds

Key Findings from Focus Groups: Internet Access and Reliability

Participants expressed that adequate internet means speed, reliability, and affordability, and they listed what people need to be able to do with the internet.

Unreliable or inconsistent internet connections, along with bad connections in parts of the house or building were the most frequently mentioned internet barriers to use. The participants most likely to mention an unreliable or inconsistent internet connection were participants in the Black/African American focus groups and elder (55+) focus groups.

The participant group of people with disabilities was equally likely to mention expensive internet service as unreliable or inconsistent connection barriers. Public Wi-Fi was mentioned as a valuable source for internet for some, including by those that are housing insecure.

Focus group participants articulated the impacts of bad service or interruptions if their service is out. Bad service causes people to stay off virtual meetings. It also has extra costs in time and travel to get work, school, and home activities done.

Cost of Internet

Most Seattle households are paying at least \$100 per month, if not more, for internet service. Two out of five (39%) are paying at least \$150 per month.

Overall, Seattle households spend approximately 2.2% of their annual income on internet. For heavily impacted, focused populations that percentage of income is far higher.

Cost of Internet as a Percentage of Income

Seattle households overall	2.2%
Living in poverty (under 150% of Federal Poverty Level)	5.1%
Black households	4.4%
Household has a member that is living with a disability	3.9%
Native households	3.5%
Elder adult is living in the household	3.0%
Household speaks a language other than English	2.5%

“Internet is exceedingly important to daily life. It is astronomically expensive to have reliable internet, and very difficult to qualify for low cost options. With kids in school I can’t afford not to have internet, but it is sometimes a choice between paying the bill and buying food and other necessities.”

—Seattle resident and survey respondent

Sources of Internet Service

Seattle residents rely on a mix of broadband and cellular providers for internet where they live.

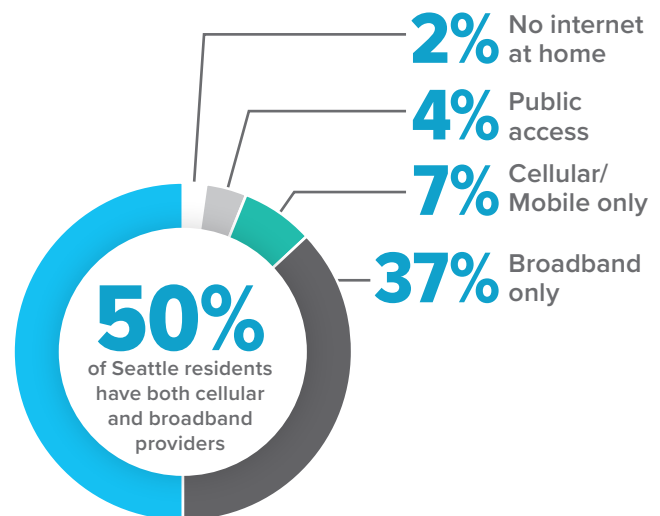
Half of Seattle households have **both** cellular and broadband internet providers, ensuring consistent and reliable coverage by means of multiple sources of internet.

On the other hand, more than one-third (37%) of households have only broadband subscriptions, which could create service interruption vulnerabilities. Similarly, seven percent (7%) of households rely solely on a cellular/mobile provider for their internet.

Of the remaining: 4% rely on their building’s free public connections or something similar and 2% have no internet at all.

Groups that are less likely to have both broadband and cellular connections at home include:

- Older adults (42% have both)
- Households where someone is living with a disability (41% have both)
- Black (41% have both)
- Speak a language other than English (32% have both)
- Low income living at 150% FPL or lower (30% have both)



A total of 87% of residents have broadband service. More detail about use of specific service providers is available in the Technical Report.

Affordable Connectivity Program

Critically important program suffers from lack of awareness and use

The Affordable Connectivity Program (ACP) is a Federal Communications Commission benefit program that helps ensure that households can afford the broadband they need for work, school, healthcare and more. A household is eligible for a discount on internet service of up to \$30 per month if the household income is at or below 200% of the Federal Poverty Level. For a complete list of eligibility options see <https://getinternet.gov/>

Unfortunately, more than half of the population in Seattle who would qualify is unaware of this benefit which would reduce the cost of internet to the household.

Usage of the ACP discount lags even further behind awareness as less than a third of the eligible population take advantage of the benefit.

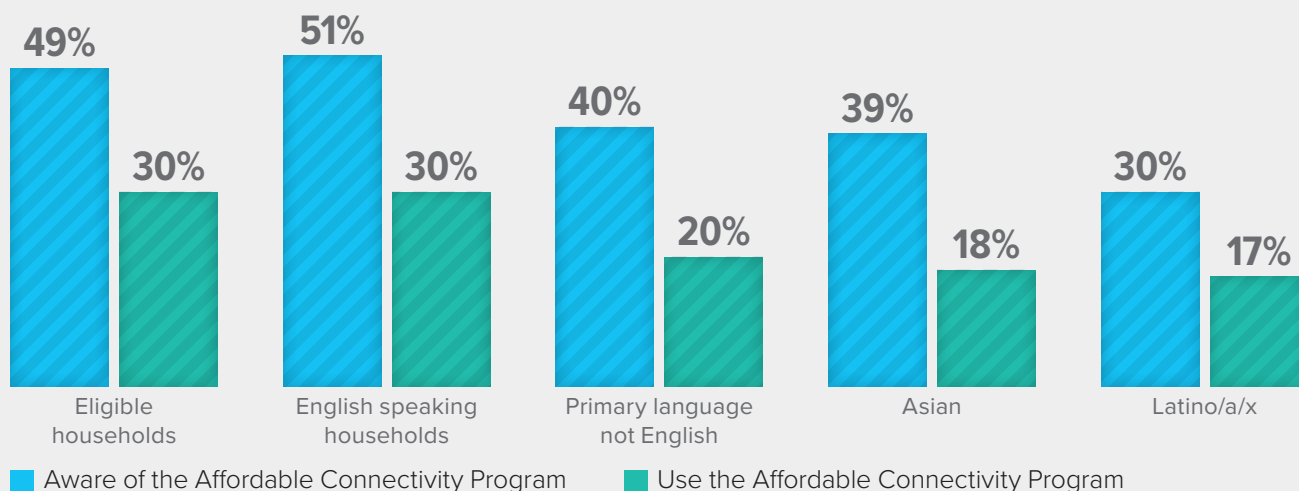
It appears language barriers are impeding the program's success. Awareness of the program is at 40% among households whose primary language is not English, versus 51% of English-speaking households. Usage is at 20% versus 30%, respectively.

Asian and Latino/a/x households are significantly less likely to be aware of and use the program than White, Black and Native households.

Less than a third of low income residents (28%) are aware of the Federal Lifeline assistance program that offers a discount on broadband and phone services. This benefit can be used along with the ACP or on its own but is available through fewer providers.

Seven out of ten households in Seattle that would qualify for the Affordable Connectivity Program are not currently using it.

Awareness and Usage of the Affordable Connectivity Program Among Eligible Individuals



Key Findings from Focus Groups: Affordable Connectivity Program

Focus group participants had a range of awareness and experience using the ACP discount. Over half of those who participated had never heard of it. A sizable segment of respondents (about 30%) had heard of it, but do not use it.

"It's valuable. I don't know if it's accessible." –Black/African American Housing Insecure participant

"I'm actually enrolled in it and I would say it's good, but again, speeds are cut way down...But as far as keeping me connected, absolutely wonderful." –Disability Community Workers participant

Access to Devices

Full digital connectedness requires access to a device when needed. While the vast majority of Seattle households report having at least one internet enabled device for each household member, one in 20—or more than 17,000 households—have fewer than one internet enabled device per household member.

Certain groups such as BIPOC households, or those living at or below 150% of the Federal Poverty Level (FPL) are two, three or even four times more likely to have fewer than one internet enabled device per member.

“Of course, there is a challenge, I cannot afford it. My kids even envy other kids with laptops and tablets. As of now we share one device for two.”

—Focus Group participant

Populations That are Sharing Devices Across Household Members

- 5%** of all Seattle residents are sharing
- 10%** of households with children are sharing
- 14%** of households living with a disability are sharing
- 15%** of Native households are sharing
- 19%** of Black households are sharing
- 20%** of households living in poverty (at or below 150% of Federal Poverty Level) are sharing
- 22%** of households whose primary language is not English are sharing

Households without internet-enabled devices

A small number (1%) of Seattle households have no internet-enabled devices at all.

1% of Seattle Households have no internet-enabled device at all	2x more likely to have a household member with a disability	3x more likely to be a household that does not speak English
85% are 55 years of age or older	1.5x more likely to be a BIPOC household.	4 in 5 have incomes of less than \$45,000

Key Finding from Focus Groups: Device Access

There is a need to ensure service delivery is phone accessible while also helping people obtain the laptops, tablets, and monitors they need for their circumstances, to have mobility and have sufficient screen size.

“Someone in my family have poor eyesight and cannot see clearly when using the mobile phone to access the internet, and there is no other way to improve it. Even with a tablet, there are still some things that cannot be done, so this is also a limitation.”

—Cantonese participant

Focus group participants also raised the issue of sufficient internet coverage in their home or building, and the challenges of getting equipment to boost or distribute the signal.

“The challenge in that is that sometimes it does not cover the whole house. In different sections of the house the signal is a little weaker, and if you want wider connectivity throughout the place, you have to rent another device or signal expander.”

—Spanish Community Worker

Types of Devices

Smartphones are the most prevalent type of device with 95% of Seattle households having one or more smartphones.

86% of households have a laptop computer and more than half (55%) have two

67% of households possess a tablet and 54% have two tablets for the household

45% of households have a desktop computer

While having an array of devices is common, 3% of Seattle households (more than 10,000 households) are reliant on only a smartphone to do what they need to do on the internet. This rate has dropped one percentage point from 2018 when it was 4% of households.

Having only a smartphone can present an array of difficulties in fully engaging with the internet and technology, particularly as some websites are not fully mobile enabled and content may be more difficult to consume in this format.

Households with only a smartphone:

9 in 10 have an income of \$46,000 or less

1 in 4 speak a language other than English

1 in 5 have a household with a member impacted by a disability

More likely to live in Council District 2 and 7

68% are over the age of 55

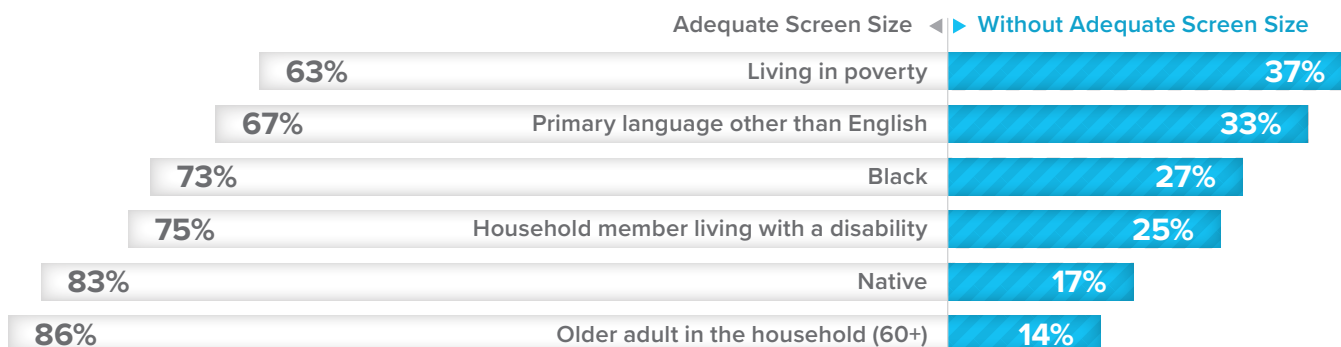
63% are Black, Indigenous, and People of Color (BIPOC)

Screen Size Adequacy

More than nine out of ten Seattle residents report having access to a device with a screen large enough to do what they need to do, but almost 55,000 Seattleites (in 9% of households) are working with screen sizes inadequate for the tasks required of them.

Highly impacted, focused populations are more likely than average to be coping with screens too small to review documents, complete forms, or participate fully in classroom or business meetings.

Adequate Screen Size by Focused Population Group



The research sought to understand how Seattle residents use online technology and where skill deficiencies exist, so that programs and services can be designed and targeted for maximum benefit.

Digital Activities

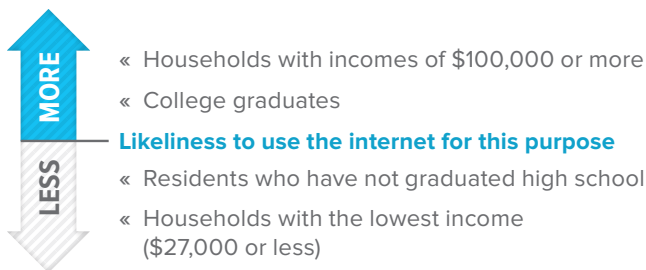
The survey measured whether residents have performed twenty-two common online tasks within the past six months. Of the online activities measured, Seattle residents perform an average of thirteen activities at least occasionally.

94% of Seattle residents use the internet for Telehealth and Medical Services

89% Access health records or health insurance records online

82% Research health information online (WebMD, etc.)

71% Participate in a health appointment with a doctor or other health professional online



42% of Seattle residents use the internet for Education and Schooling

- « Households with children
- « Households who speak a language other than English

Likelihood to use the internet for this purpose

- « Older Adults (65 years of age or older)
- « Residents who are White only

92% of Seattle residents use the internet for Banking and Financial Services

- « Households with high annual income (\$100,000 or higher)
- « College graduates

Likelihood to use the internet for this purpose

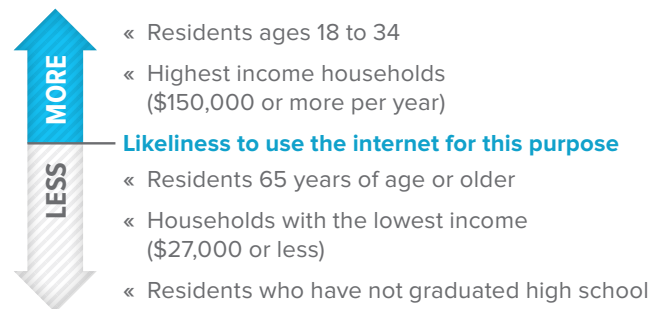
- « Residents who have not graduated high school
- « Households with the lowest annual household income (\$27,000 or less)

81% of Seattle residents use the internet for Career, Workforce, and Job Searches

68% Telecommute or work online while away from a central workplace, such as working from home

53% Use the internet to search or apply for a job online

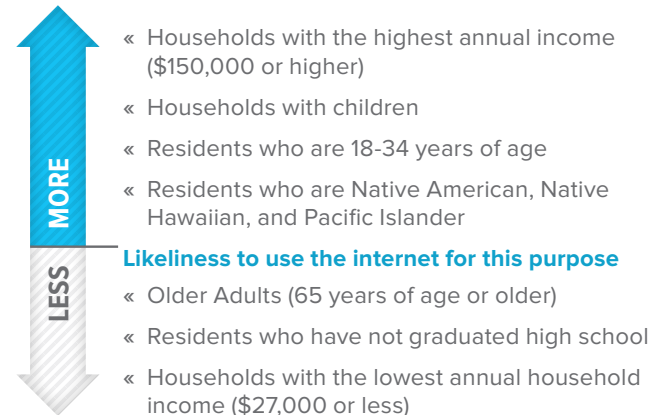
52% Participate in or attend school or job training online



87% of Seattle residents use the internet for Government Services and Legal Information

84% Access government services online (registering to vote, renewing drivers licenses, etc.)

49% Find legal or consumer rights information online



Digital Skills

Seattle's population is moderately skilled when it comes to technology, but more than two out of five need some assistance completing at least a few digital tasks.

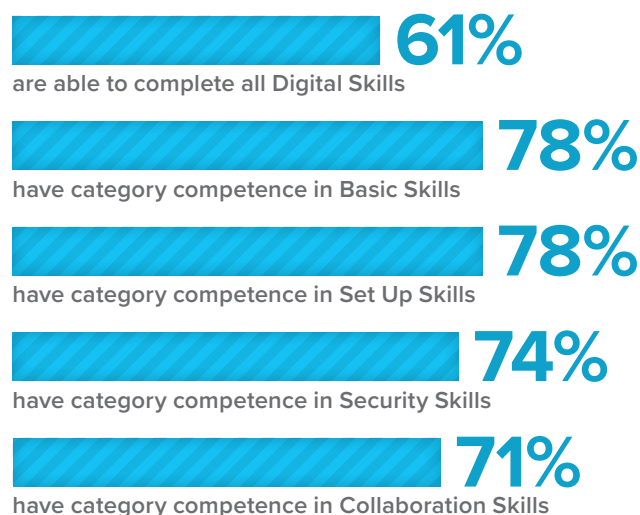
Access to the internet provides meaningful opportunity for individual advancement and achievement, but to maximize one's opportunity, there are a continuum of skills requiring mastery. At a basic level, an individual can gather information and participate in society. With increased skills, an individual can procure necessary tools for success, protect themselves in the online environment, and collaborate with others to create content.

The research sought to determine the level of digital skill of Seattle residents. To that end, summary metrics were created to measure digital skill levels when it comes to performing different types of online tasks. Survey respondents were asked how comfortable they are performing nineteen digital activities that have been classified into categories: basic, setup, security, and collaboration. If a respondent reported being completely comfortable doing all the skills in a category without assistance, they are classified with category competence. Respondents who have all

category skills in all four skills categories, are classified as able to complete all digital skills.

Three in five residents are able to complete all digital skills, and more than seven of out ten have category competence in each of the skill categories.

% of Individuals

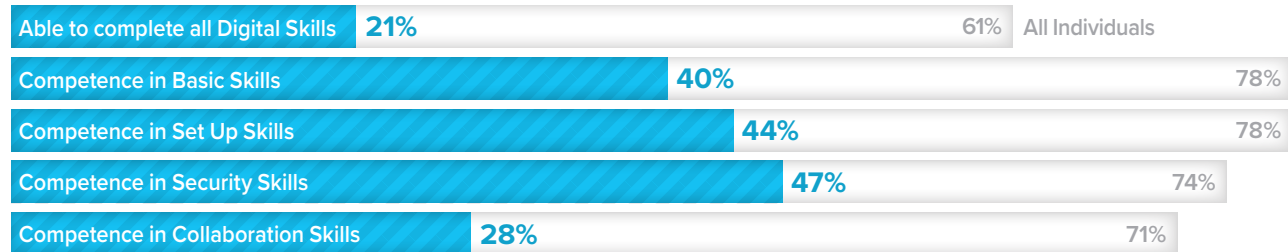


Basic Skills	Setup Skills	Security Skills	Collaboration Skills
- Open an internet browser to find and use websites - Use search engines to find the information you are looking for - Use the internet to find information that helps you solve problems - Use credit/debit cards or other forms of online payment (e.g. PayPal, Venmo) to buy goods/ services online - Participate in video conferences, calls, or meetings over the internet (e.g. Teams, Zoom) - Use webchat to get customer service or solve problems	- Set up an email account - Downloading and installing a new app on your smartphone, tablet or laptop - Connect a device to a Wi-Fi network - Change settings to make device easier to use (e.g. change the font size to make it easier to read)	- Recognize and avoid suspicious links in email, websites, social media, and text messages - Recognize what information or content may, or may not, be trustworthy on websites or apps - Setting up and changing passwords to help keep information and accounts secure	- Share documents with others by attaching them to an email - Share and collaborate using online documents (e.g., Google docs, Dropbox) - Access and share information across different devices (e.g. manage a calendar or appointment system across a smartphone and laptop)
Able to Complete All Digital Skills			

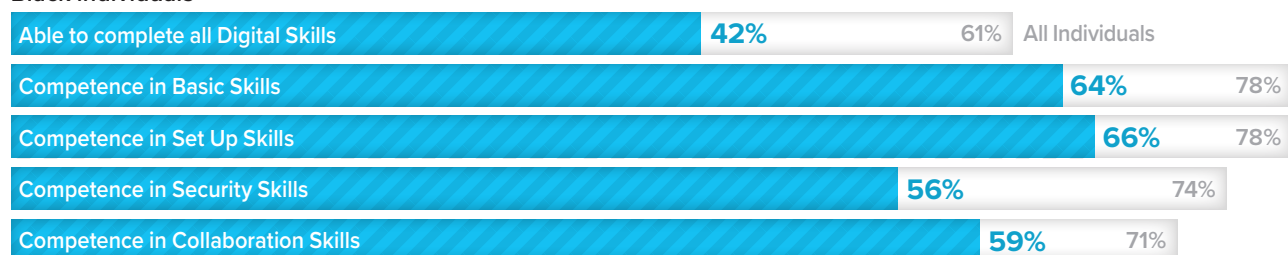
There are populations, however, whose ability to complete skills lag far behind others. Clearly, older adults, Black residents, and individuals whose primary language spoken at home is not English could benefit from support in bolstering their digital skillsets as could those who earn at or below 150% of the Federal Poverty Level.

Differences in Digital Skill Levels

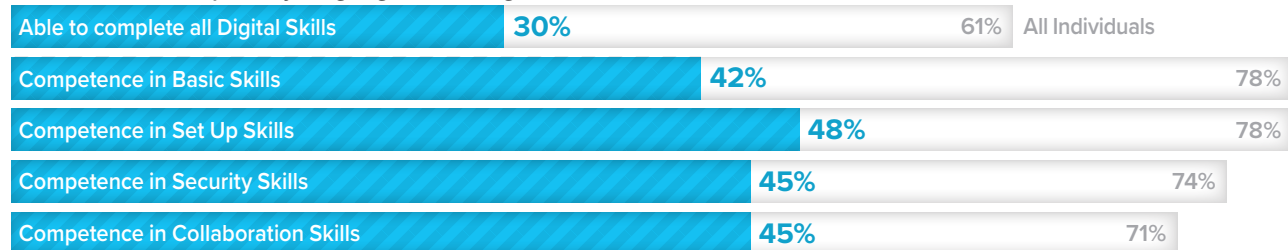
Individuals 65 and older



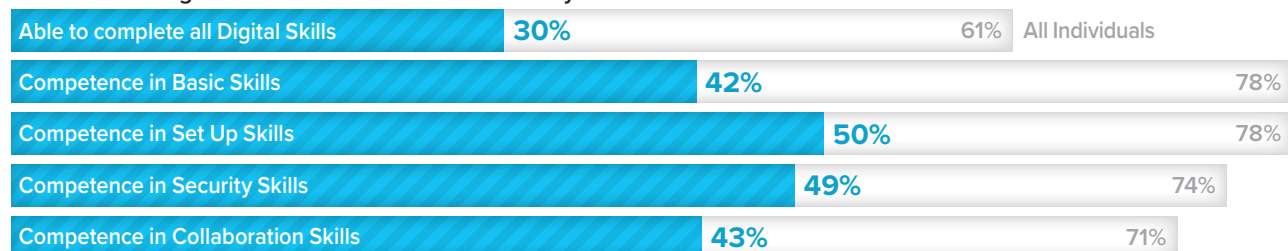
Black individuals



Individuals whose primary language is not English



Individuals living below 150% of the Federal Poverty Level



Barriers to Using the Internet More

Barriers to using the internet more have declined

Four out of five (80%) Seattle residents say there are no barriers or reasons preventing them from using the internet more, and that they are already using it to a great extent.

In 2018, 23% cited a barrier or reason for not using the internet more. Now, in 2023, the number of those who noted barriers is down to 20%.

Top reasons why residents do not use the internet more (among those with ANY concerns)

Internet service is too expensive

36%

Too slow/frustrating/internet doesn't work well

25%

Not interested or don't need/want to use it

25%

Service plans from internet providers are confusing

17%

Concerns About Accessing and Using the Internet

Seattle residents continue to be concerned about internet costs and the security of their personal information online

Seattle residents do have concerns when it comes to accessing and using the internet. More people are concerned about all of the metrics tested in 2023 than they were in 2018. Residents are increasingly concerned about protecting themselves and their children from harm from other individuals.

Concerns about accessing and using the internet

Security of my personal information

2018 80%

2023 84% +4% points

How my data/information is being stored

2018 77%

2023 83% +6% points

Online viruses and malware

2018 71%

2023 74% +3% points

Protecting myself from others online

2018 39%

2023 55% +16% points

Protecting my children from others online

2018 24%

2023 39% +15% points

“I wish there was more security on the Internet when children surf. I also wish there were more resources to help buy a computer at low cost. I also wish there were more computer classes in community centers on weekends, because we single mothers, we are heads of households and we work Monday through Friday and we leave very late. We can no longer go or take a knowledge course in English, computer or other programs because of our jobs.” (translated from Spanish)

—Focus Group participant

Interest in Digital Skills Training Topics

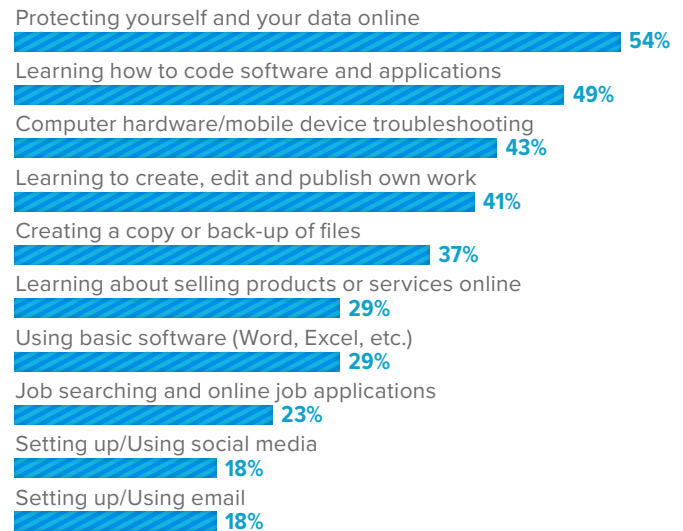
There is significant interest and demand for training in use of technology and applications

Access to training can improve the socioeconomic prospects of Seattle residents, and generally improve online competence and confidence. Over half (54%) desire training on protecting oneself and one's data online, and nearly half (49%) want to learn how to code.

"It would be nice if the City of Seattle could help low income senior citizens with software to help prevent them being hacked online or getting viruses online."

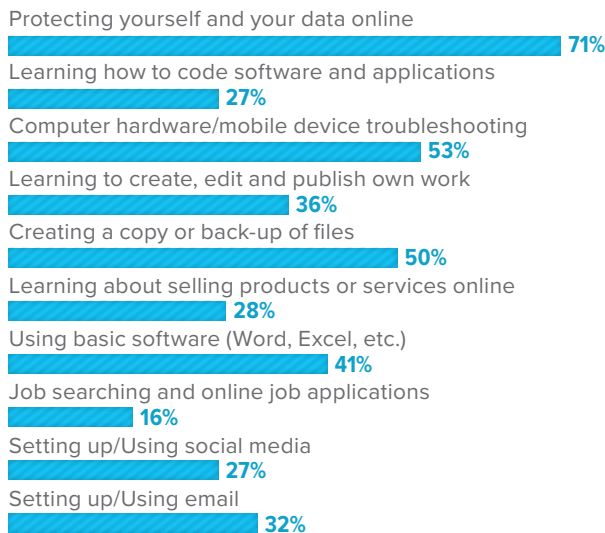
—Seattle resident survey respondent

% of Individuals Interested in Training Topics

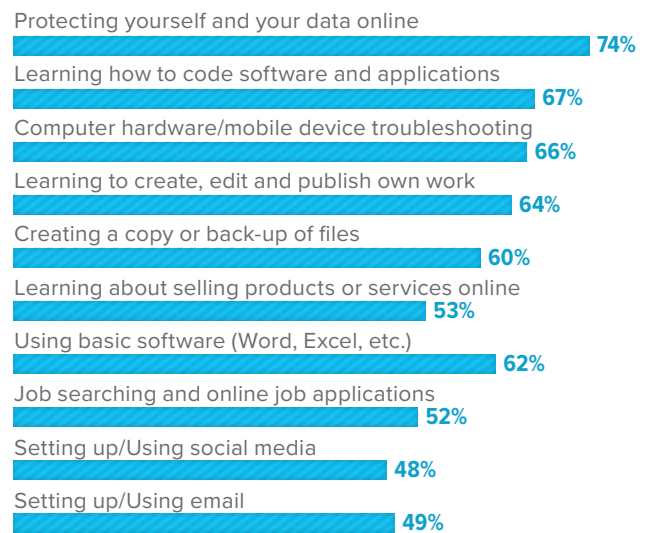


Residents who are living in poverty are significantly more likely to be interested in all digital training topics. Older adults are notably interested in training about how to protect themselves and their data online.

Interest among Older Adults



Interest among those Living in Poverty



Key Findings from Focus Groups: Digital Skills Training

The focus group participants also indicated a high need and interest in digital skills training. The three topics of greatest interest to participants are internet basics, computer or technology basics, and protecting yourself and your data online.

Participants were most likely to state a preference for in-person training with a slightly lower number preferring online training or hybrid in-person/online training.

In addition to language and culturally relevant training, the value of training geared to specific age groups (especially for elders) and experience level was also raised.

Key Focus Group Findings: Applications, Services, and Safety.

Some focus populations were more likely to say that language was a barrier to using the internet: Spanish-speaking from Central and South America, Cantonese-speaking, Khmer-speaking, and African Diaspora.

Community workers were the subgroup most likely to report that language was a barrier to using the Internet when compared to other subgroups.

Fear of hackers or fraudsters was the most mentioned sentiment regarding security and comfort when using online applications.

Participants in the Cantonese and African Diaspora focus groups were the most likely to report a fear of fraudsters or hackers when compared to other focus populations.

The key findings of the focus groups highlight the importance of reliable and affordable Internet, accessible programs, and services in multiple languages. Recommendations include providing free or low-cost internet access and devices that meet accessibility needs; simplifying sign-up processes; providing public internet access with comfortable surroundings; improving infrastructure; offering language-specific training and support; and prioritizing safety, data privacy, and security training and assistance.

Civic Engagement Preferences

For engaging civically, email stands apart as the preferred communication method across all race and ethnic groups.

When it comes to electronically receiving information or giving an opinion to a community group or to the City of Seattle:

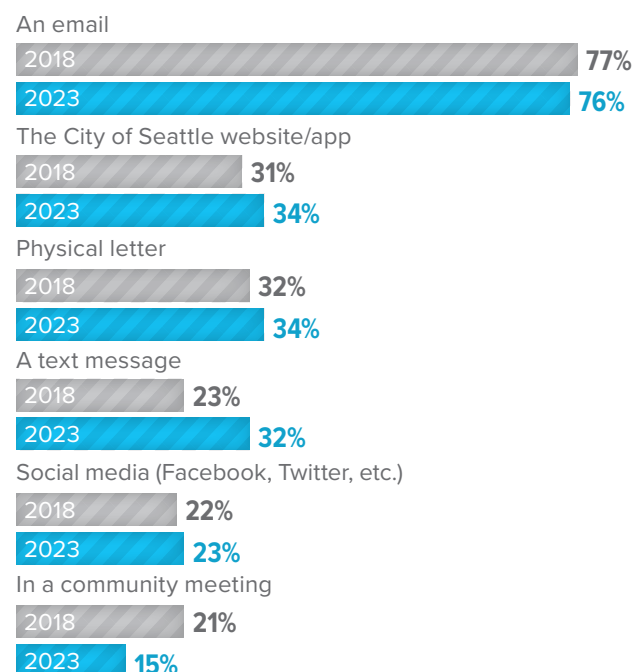
- Three out of four would like to send or receive an email.
- Around one third prefer doing so through the City of Seattle website/app or through a text message.
- Nearly one quarter favor communicating using social media like Facebook or Twitter.
- One in ten like doing so through a personal or community blog.

While physical communication is less preferred, one third still prefer physical letters through the mail. In addition:

- Fifteen percent (15%) like attending community meetings.
- Thirteen percent (13%) prefer speaking to someone on the phone.
- Eight percent (8%) like going to city offices in-person.

Findings among Seattle residents are very similar to 2018 with regard to the most preferred methods for interacting with the City. It is notable that, in 2023, the preference for text messages has increased while preference for community meetings has declined.

Preferred communication method for interacting with the City of Seattle

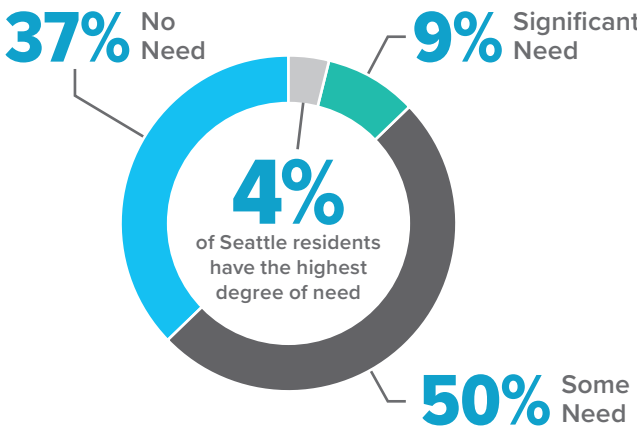


Digital Connectedness Index

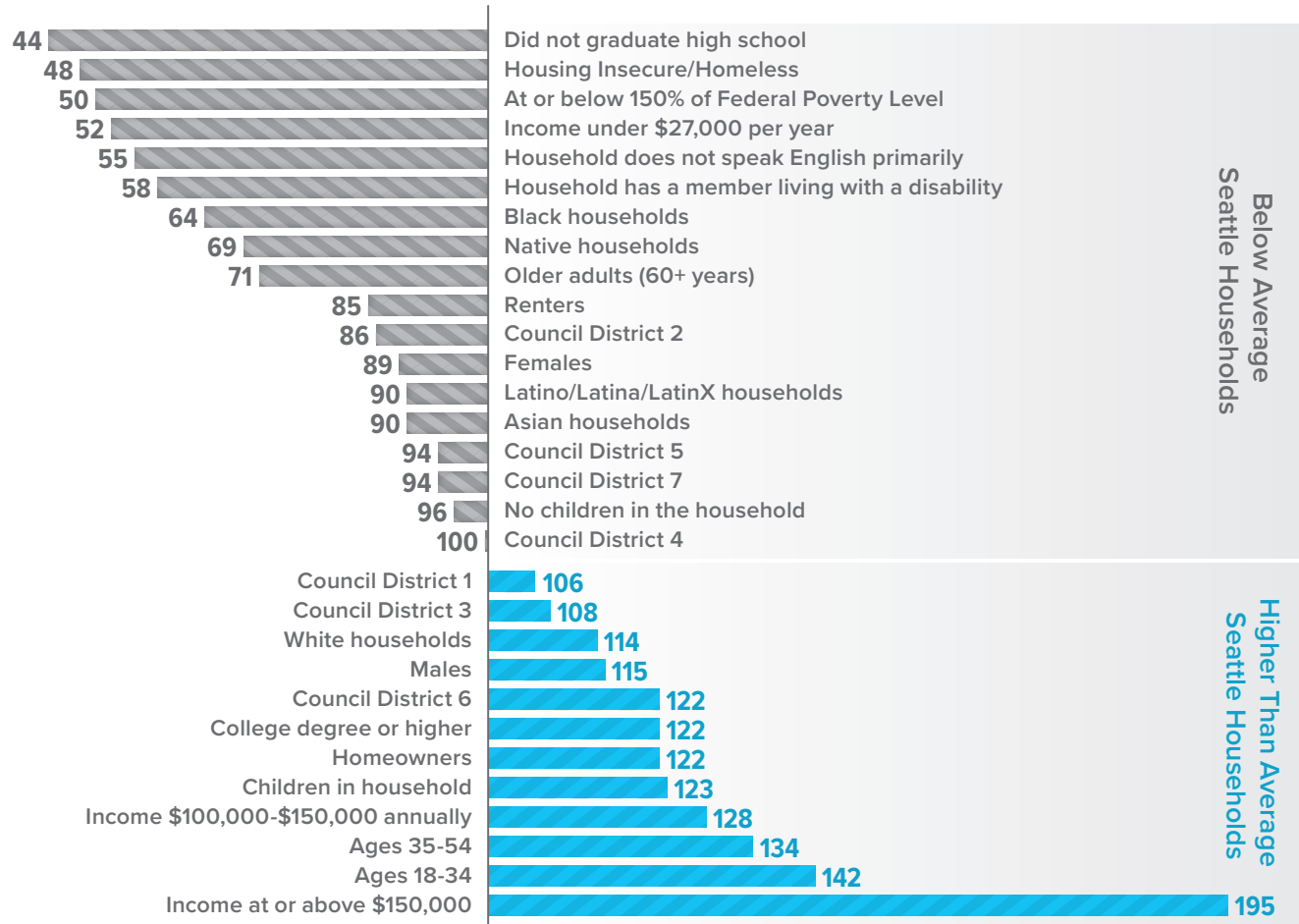
Almost two-thirds (63%) of Seattle households have digital connectedness needs and nearly 44,000 households have significant need.

Digital equity and opportunity require more than just an internet connection. A new “Digital Connectedness Index” measure was created to reflect a cart of the essentials required. This provides a measure to use, in addition to the frequently cited level of households with internet (98%), that provides a wholistic measure of need.

The factors used to measure overall digital connectedness are: 1) quality of access at home and on the go, 2) variety and adequacy of devices, and 3) the ability to perform technology and internet related tasks alone as opposed to relying on others for assistance. These three category scores contain multiple measures and are combined into an overall needs score. Scores are then indexed, with the city average score set to 100.



Index scores below 100 have ‘higher need’—and represent digital inequity. Index scores above 100 represent households who have a higher than average degree of digital connectedness. Population groups which are higher or lower than average are illustrated below.



Equipped with the findings of the 2023 Technology Access and Adoption Study, the City of Seattle will focus its commitment on these digital inclusion actions and investments over the next two years:

1. Widely disseminate the results of this study to encourage greater investment and targeted response to residents' needs.
2. Increase awareness and enrollment in the Affordable Connectivity Program and lower cost internet service options.
3. Ensure that Seattle residents have the devices they need to take full advantage of the internet.
4. Partner with organizations to deliver culturally relevant digital navigator, skill building, internet access and other inclusion programs.
5. Provide information, assistance, and referrals to Seattle residents seeking connectivity, devices, and digital skills.
6. Strengthen the local digital equity network and countywide effort to improve the referral network to resources, capacity of local digital inclusion service providers, and collaboration between sectors.

The City's work on digital equity can be followed at [Seattle.gov/tech](https://seattle.gov/tech)

Thank you to the over 4,600 Seattle residents who gave their time to participate in this study.

Produced by the City of Seattle Information Technology Department (Seattle IT)

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For more information

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2023 Seattle Technology Access & Adoption Study

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City of Seattle