



PIA 2096: CAPSTONE - DIGITAL GOVERNANCE AND CONNECT FALL 2023

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Executive Summary

In 2023, a reliable connection to the Internet is essential for daily life. Through the University of Pittsburgh Graduate School of Public and International Affairs (GSPIA), our Capstone course – Local Government Consulting Practicum with CONNECT – was given the opportunity to work on dual projects centered around digital governance and digital equity. The goal of this report is to better prepare our local governments and communities to offer safe and affordable digital services to constituents. Part One of this report focuses on the Affordable Connectivity Program (ACP) and other local efforts to ensure residents are connected to the services that they need. Part Two focuses on how switching municipal government websites over to “.gov” web domains from “.com”, “.org”, “.net” or any other web domains can improve their cybersecurity posture. Together, improving both residents’ access to affordable internet local governments’ cybersecurity are key steps towards achieving digital maturity.

Part One - Affordable Broadband: Connectivity is no longer a luxury, but a fundamental necessity. Community services are more readily (and sometimes exclusively) accessed through an internet connection. It facilitates education, employment opportunities, healthcare access, and access to other essential government services. Without it, residents face an additional barrier to accessing these critical services. Through our research, we explored the Affordable Connectivity Program (ACP) and what strategies can be adopted to increase household registrations. This program grew out of COVID-19 pandemic-era assistance programs to provide subsidies to qualifying households that reduce the cost of internet service and digital devices. However, the ACP enrollment rate remains low, due to a variety of factors including lack of awareness, a multistep application process, and other barriers. Additionally, the funding is set to expire in early 2024 unless Congress extends the program’s funding. Our working group, with the guidance of many experts in the field, focused on creating solutions for these concerns and highlighting the best practices being established around Southwestern Pennsylvania. Our recommendations outline strategies to increase the adoption of the ACP and avenues to ensure future access to affordable broadband internet.

Part Two - The Importance of “.gov” Domains: Digital crime is on the rise, and the cybersecurity of municipal governments cannot be an afterthought. The second section of this report explores how transitioning to a “.gov” web domain can improve municipalities’ cyber security practices and allows governments to access additional digital resources. The transition to a “.gov” domain is free, and this section presents a historical analysis, case studies, and expert advice on how to facilitate this transition.

Glossary of Terms

Part I

ACP = Affordable Connectivity Program

BEAD = Broadband Equity, Access, and Deployment Program

FCC = Federal Communications Commission

IJA = Infrastructure Investment Jobs Act

ISP = Internet Service Provider

Part II

Distributed Denial-of-Service (DDOS): A malicious attempt to disrupt the normal traffic of a targeted server, service or network by overwhelming the target or its surrounding infrastructure with a flood of Internet traffic.

Phishing: The fraudulent practice of sending emails or other messages purporting to be from reputable companies in order to induce individuals to reveal personal information, such as passwords and credit card numbers.

Ransomware: A malicious attempt to disrupt the normal traffic of a targeted server, service or network by overwhelming the target or its surrounding infrastructure with a flood of Internet traffic.

Worm: A type of malware whose primary function is to self-replicate and infect other computers while remaining active on infected systems. A computer worm duplicates itself to spread to uninfected computers.

Part I: Affordable Broadband

Affordable Connectivity Program (ACP) Basics

In this section, we will discuss the Affordable Connectivity Program (ACP) at a high level including eligibility, the application process, and barriers to adoption.

1. What is the ACP?
2. Eligibility
3. Application Process
4. Barriers to Adoption
5. Effectiveness

1. What is the Affordable Connectivity Program (ACP)?

The ACP is a federal subsidy program managed by the Federal Communications Commission (FCC) that provides eligible households up to \$30 per month off their internet bill. The program also includes a one-time discount of up to \$100 towards a computer or tablet, when purchased through your Internet Service Provider (ISP). Additional discounts are available to those living on tribal lands.

2. Eligibility

Any household whose income is at or below 200% of the Federal Poverty Guidelines is eligible for the program. Additionally, a household is eligible if at least one member meets any of the following criteria:

- Participates in federal assistance programs such as SNAP, SSI, WIC, Medicaid, Veterans' Pension or Survivor Benefits, or federal housing assistance.
- Receives free or reduced lunch prices through their school, including students attending schools with school-wide free lunch programs under the USDA Community Eligibility Provision.
- Received a Federal Pell Grant.

**~ 20 million
households are
currently enrolled
in the ACP**

3. Application Process

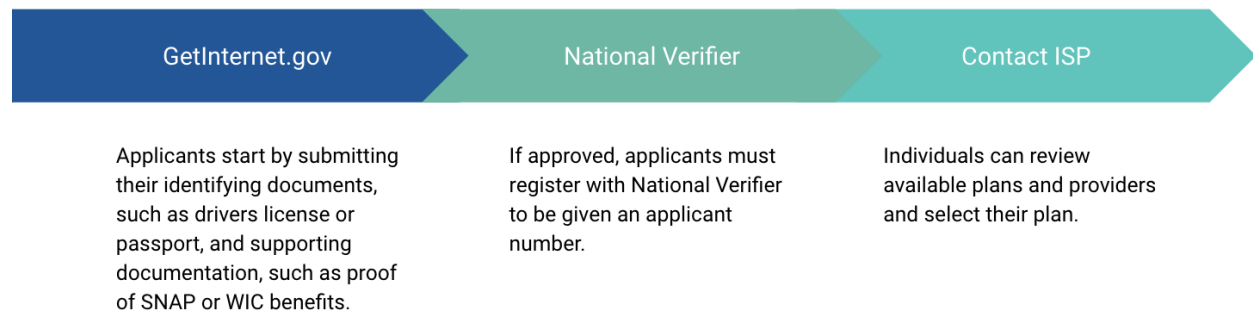


Figure 1: Application Process for ACP

There are three main steps to the ACP application process:

1. Applicants must first apply through GetInternet.gov, and, if approved,
2. Connect to a second website, National Verifier, to receive a unique identification number, and finally,
3. Contact an ISP to establish service.

The ACP application itself is fairly straightforward, asking for standard personal information like address and date of birth, but the documentation requirements to prove eligibility present some challenges, as detailed below. Applications may be completed online or via mail but are only available in English or Spanish. National Verifier is used by other government benefits programs, such as Lifeline, as a tool to safeguard personal information while serving as a verified source of eligibility for such programs. As ACP benefits are directly dispersed to an ISP, qualified individuals must select an ISP and plan to receive the discount¹.

It is important to note that homeless and undocumented individuals may still be eligible for ACP, provided they meet the eligibility criteria and can submit all required documentation. For example, undocumented individuals may only be able to qualify using school-related criteria, as other programs require a social security number. Similarly, while homeless individuals may qualify, they may only be able to select plans with mobile internet, which may not be available in their area.²

4. Barriers to Adoption

It is estimated that 51.6 million households in the US are eligible, but only 42% (as of December 2023) of those households are registered to receive benefits from the program.³ This is due in part to a lack of awareness of the program, but also due to strict

¹ Education Superhighway. *LearnACP - Online Training*.

² Ibid

³ Education Superhighway. *Affordable Connectivity Program*

application requirements that limit individuals' ability to prove eligibility. In fact, 45% of applicants are rejected due to the requirements to provide supporting documentation of eligibility.⁴

The registration process for ACP presents numerous challenges. Each step in this process involves sharing highly personal information, which not all people may feel comfortable disclosing, nor may they have the supporting documentation readily

*~ 30 million
eligible
households have
not enrolled*

available. This is of particular concern to undocumented individuals, who, while they are eligible regardless of immigration status, may not feel safe providing detailed personal information to a government entity. Additionally, while application instructions are available in numerous languages, the application itself is only available in English and Spanish. This presents a large barrier to those not fluent in these languages.

Applicants must submit proper identification and supporting documentation to demonstrate eligibility. The specific documentation requirements are determined by which criteria the individual is using to qualify for ACP. In some cases, individuals may even be asked to submit documentation as 'proof of life'. Across all this documentation, personal information such as name, date of birth, and other items must match exactly, which may be a challenge for some people who have changed their names, are experiencing homelessness, or otherwise have limited access to personal records.

As with many government assistance programs, the time and effort needed to complete the application process deters many from applying. This demonstrates the ineffectiveness of such opt-in programs that place a burden on the individual to prove eligibility. Many individuals who are experienced with government assistance programs may be hesitant to trust that completing the application is worth their time, especially for a relatively small subsidy.

Trust in government to effectively deliver services equitably, timely, and fairly is a major issue across the government assistance ecosystem. While there are several recommendations later in this report that discuss how CONNECT and



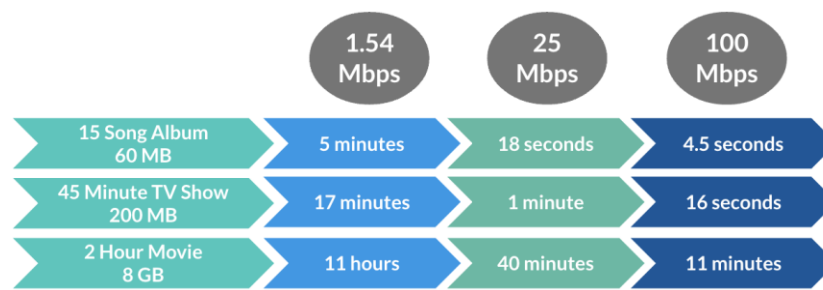
⁴ibid

the Digital Governance Program Manager can address some of these barriers to adoption, these larger systemic issues may not be able to be addressed in full at the local level.

5. Effectiveness

For households that live within communities serviced by ISPs yet remain offline, the cost of Internet service is one of the greatest barriers. For these households, \$10-\$20 per month is the most that many are able to pay for Internet service.⁵ The \$30 monthly subsidy brings the cheapest tier of plans of some ISPs into this range for local households, with others offering entirely free (albeit, low-speed) internet plans to qualifying households. The Universal Service Administrative Company offers a [search tool](#) to find free and reduced plans. For households who remain unconnected, the ACP is a cost-effective way to get online.

The Commonwealth of Pennsylvania's standard for broadband internet – ***last updated in 2007(!)*** -- is a download speed of no less than 1.544 megabits per second (Mbps) and an upload speed of no less



than 0.128 Mbps.⁶ Broadband may meet these requirements using any technology, including fiber optics, wireless, or satellite. This is far below the federal FCC standard of 25 Mbps download and 3 Mbps upload.⁷ The Broadband Equity, Access, and Deployment (BEAD) program, funded through the Infrastructure Investment Jobs Act (IIJA) sets an even higher goal for broadband speeds at 100 Mbps download and 20 Mbps upload.⁸ These increases in service levels are needed with an increasing dependence on the internet for work and schooling and as households increase the number of devices connected. ACP recipients can use their benefit toward an internet package of any speed, but the lowest cost (or free) plans often have the lowest download speeds, which may not be enough for adequate internet service.

While the FCC advertises that ACP participants may be eligible for \$100 towards a device, in practice, this benefit is rarely utilized. Most providers do not participate in this benefit program. As an individual must use the same provider for both the internet and device subsidies, this means that participants may need to choose between benefits.

⁵ Cao & Goldberg

⁶ Pennsylvania Public Utility Commission

⁷ National Telecommunications and Information Administration

⁸ De Wit



Figure 2 demonstrates that there are no options available in Pennsylvania that meet the state’s minimum service level requirements with a “free with ACP package” and also participate in the device discount. This means that households participating in ACP must decide between a provider that will offer them free internet or one that would offer a device discount.

Company Name	\$0 with ACP	Discounted Device	Internet Service	Meets PA Standards
Volt Mobile	Yes	Yes	5GB Hotspot on 5G/4G LTE Network	No
RCN	Yes		150mbps	Yes
Comcast Xfinity	Yes		200mbps	Yes
GR8 CONNECT CORP.	Yes	Yes	5G/ 4G LTE Network	No
Verizon	Yes		300mbps	Yes
Metro by T-Mobile	Yes	Yes	5GB Hotspot on 5G/4G LTE Network	No

Figure 2: ISP Participation in ACP

ACP Adoption in CONNECT Communities

In this section, we will analyze the ACP adoption rates in CONNECT communities and correlations to other digital and economic equity factors.

1. ACP Adoption
2. Digital Maturity and ACP Adoption

1. ACP Adoption^{9,10}

Municipality	ACP Adoption	Municipality	ACP Adoption	Municipality	ACP Adoption
Aspinwall	27%	Baldwin	43%	Bellevue	32%
Brentwood	47%	Carnegie	35%	Castle Shannon	26%
Churchill	40%	Clairton	67%	Crafton	35%
Dormont	26%	Duquesne	71%	Edgewood	32%
Etna	36%	Forest Hills	47%	Fox Chapel	17%
Green Tree	29%	Homestead	36%	Ingram	35%
Jefferson Hills	61%	McKees Rocks	70%	Millvale	29%
Mount Oliver	62%	Munhall	36%	Oakmont	12%
Pittsburgh	32%	Sharpsburg	27%	Swissvale	32%
Turtle Creek	52%	West Homestead	36%	West Mifflin	27%
West View	23%	Wilkinsburg	47%	Average	38%

Figure 3: CONNECT Communities and ACP Adoption Rate

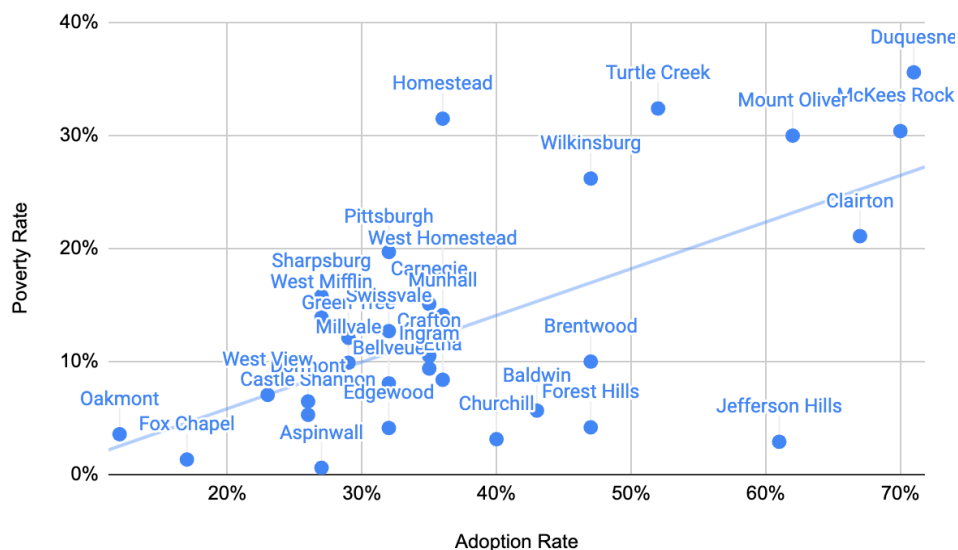


Figure 4: CONNECT Communities Poverty Rate vs Adoption Rate

⁹ Education Superhighway. Affordable Connectivity Program.

¹⁰ Note: ACP adoption data not available for the following CONNECT Communities: Collier, Mount Lebanon, Reserve Township, Ross Township, Shaler, Wilkins

Across all CONNECT communities, ACP adoption is in line with the estimated national average. However, there are some trends in the adoption of ACP. Communities with the highest poverty rates, including Duquesne, McKees Rocks, and Mount Oliver borough, have the highest adoption rates. Communities with the lowest poverty rates, such as Fox Chapel and Oakmont, have the lowest adoption rates. There are exceptions to this trend, such as Jefferson Hills, but this could indicate that communities with higher poverty rates are more aware of various subsidy programs and more committed to spreading awareness of such programs. While Duquesne also has the highest ratio of eligible households (66%), there is not a clear trend between the ratio of households eligible in a community and the adoption rate.

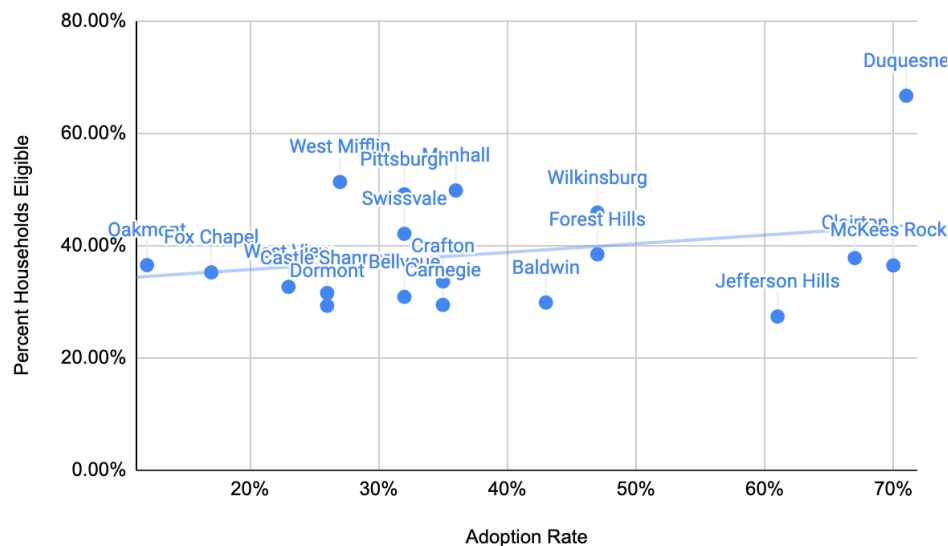


Figure 5: CONNECT Communities Percent Eligible Households vs Adoption Rate¹¹

Surprisingly, the average percentage of households eligible - that is, the number of eligible households divided by the total number of households in the municipality - for ACP does not have a large effect on the adoption rates. There is a positive correlation between the percentage of households eligible and the adoption rate.

2. Digital Maturity and ACP Adoption

Last year, the GSPIA Capstone on Digital Governance produced the report *Digital Governance in Municipal Governments: Equity, Access, and the Digital Divide*.¹² One student from the class, Shannah Mallett, continued the work in Summer 2023 producing the report, *Digital Governance in Municipal Governments: Improving Municipal Websites* in which she created a composite index of digital maturity of the CONNECT

¹¹ Note: Number of households per municipality is not available for all CONNECT communities

¹² Bovbjerg et al.

communities.¹³ Through this composite, she ranked digital maturity among CONNECT communities. We then compared the digital maturity score of each municipality to the ACP adoption rate and poverty rate in that community. While not directly related to broadband access, comparing Digital Maturity and ACP Adoption can demonstrate a municipality's overall progress toward achieving digital equity. The digital maturity score indicates a municipality's website's digital readiness. A score of 1 (red) indicates early digital maturity, a score of 2 (orange) indicates developing digital maturity, and a score of 3 (green) indicates full digital maturity.

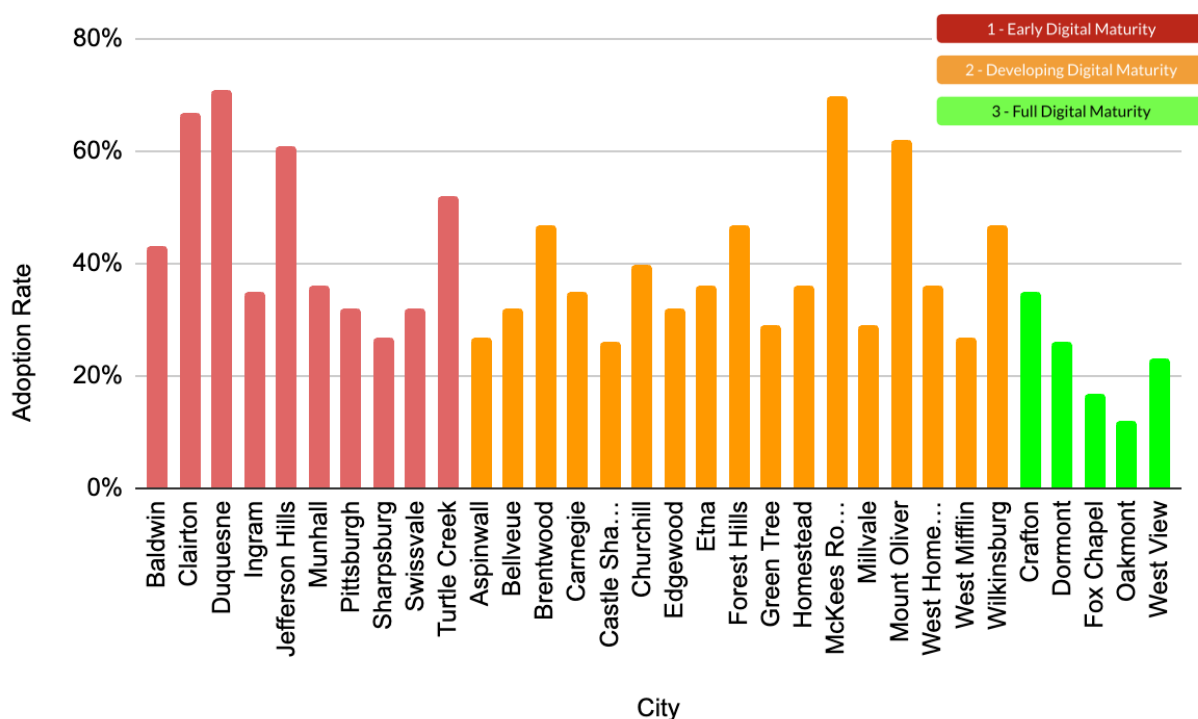


Figure 6: CONNECT Communities ACP Adoption and Digital Maturity Score

On average, we found that **CONNECT communities with lower digital maturity scores have higher adoption rates of ACP**. This correlation is likely due to the fact that, generally, communities with lower digital maturity scores have higher poverty rates, and as stated above, there is a positive correlation between poverty rates and ACP adoption. Our analysis here confirms that correlation for CONNECT communities. This demonstrates that there is a relationship between the digital maturity of a municipality, ACP adoption residents, and socioeconomic factors.

¹³ Mallett

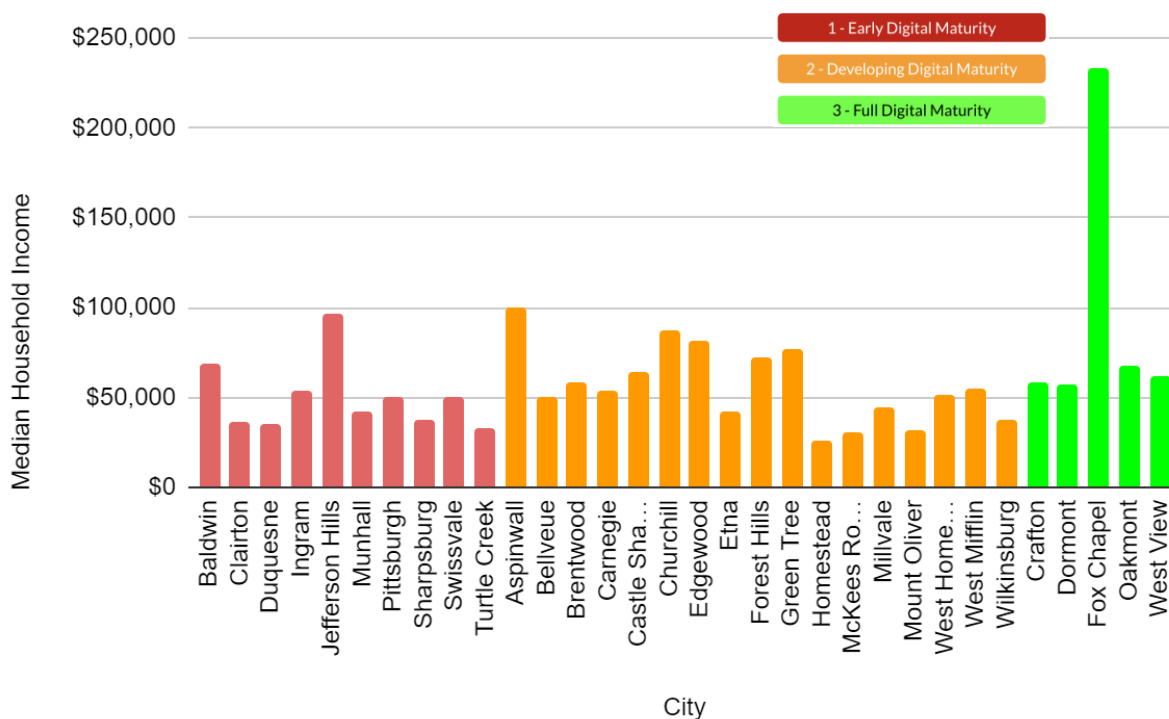


Figure 7: Digital Maturity Score and Median Household Income¹⁴

The lack of adoption in wealthier communities and those with high digital maturity demonstrates that low-income people in those communities may be left behind. These communities may see that not many individuals qualify for ACP or similar programs and therefore choose not to prioritize outreach regarding these programs. In communities with higher poverty rates, focus on affordability programs and other subsidies is a higher priority. Anecdotally, we have heard from some officials in wealthier municipalities that they did not see similar issues, like food insecurity, as a major concern for their residents. However, hardships during the COVID-19 pandemic highlighted this concern for some residents in the community, leading some to travel to other municipalities to receive benefits. This spill-over effect can put additional strain on already tight resources. While we are not aware of any direct spillover effects related to low ACP adoption rates in higher-income municipalities, addressing increasing enrollment in these programs should receive more attention in all communities.

¹⁴U.S. Census Bureau Quick Facts.

Digital Maturity Score	ACP Adoption Rate	Average Poverty Rate
1	46%	17%
2	39%	14%
3	23%	6%

Figure 8: Digital Maturity Score, and Poverty Rate

This chart demonstrates that municipalities with high digital maturity scores have lower poverty rates, although not all municipalities with low poverty rates have high digital maturity scores. This indicates that wealthier municipalities have more resources to dedicate to digital maturity.

Strategies & Best Practices to Increase Adoption

In this section, we will discuss strategies and best practices to increase ACP adoption.

Overview

While the FCC provides some outreach materials, a 2023 report by the Government Accountability Office found outreach efforts to be insufficient. Specifically, limited language offerings were identified as a main barrier to outreach and application completion. The GAO also found that the FCC lacks a comprehensive outreach strategy, limiting the effectiveness of the program.¹⁵

The FCC recognizes the barriers to adoption and lack of awareness of the program and has assembled a toolkit with various infographics providers, non-profits, and municipalities can use to spread awareness of the program. However, many of these flyers are text-heavy and overly technical, which means many people may not take the time to read the flyer to see if they qualify. To simplify messaging, we have created multiple advertisements that can be shared in specific locations to target eligible demographics.

The FCC has also created numerous social media template posts, although most focus on the national statistics of the program. We have created two graphics specific to CONNECT that CONNECT and member municipalities can share to engage their residents in the ACP.

¹⁵ <https://www.gao.gov/assets/gao-23-105399.pdf>

Many of these outreach efforts may be coordinated by CONNECT, and a future Digital Equity Program Manager and interns, as recommended in previous Capstone reports. Specific recommendations for outreach management are included with each activity listed below.

This section will detail the following outreach methods:¹⁶

1. Social Media
2. Text Campaigns
3. Outreach in Schools
4. Digital Navigators
5. Healthcare and Insurance
6. Advertising at Points of Service
7. Assistance with Applications
8. ISP Outreach

1. Social Media

CONNECT and individual municipal governments can leverage existing social media platforms and digital newsletters to encourage residents to apply for ACP benefits. We have drafted example posts below that can be copied and pasted by any current staff managing external communications.

Caption: Did you know there's a benefit that can give you up to \$30 off your internet bill? You may qualify if you receive other government assistance. *Check out getinternet.gov for more!*



2. Text Campaigns

The Allegheny County Department of Human Services (ACDHS) maintains a directory of individuals who receive various government benefits, including SNAP and WIC. CONNECT could partner with ACDHS to send out text messages to potentially eligible residents. This initial effort may be initiated by the Digital Equity Program Manager but would mostly be managed by ACDHS.

Example: Did you know there's a benefit that can give you up to \$30 off your internet bill? You may qualify if you receive other government assistance. Check out getinternet.gov for more!

¹⁶ Additional examples of outreach materials can be found in Appendix A.

3. Outreach in Schools

As many households may be eligible for ACP by qualifying for various school lunch benefits, partnering with school districts to spread information about ACP may be effective at increasing adoption. One common way that schools can address barriers to ACP enrollment is by sending all families an “eligibility letter” that satisfies all of the documentation requirements set by the FCC. In order to apply for ACP benefits under school enrollment, applicants may provide a document showing their child is enrolled in a qualifying school. That document must include (1) the student’s name (2) the current school year (3) the name and address of the school, and (4) contact information for the school such as a phone number or an email address. However, not all schools include all of this information on their report cards. For this reason, providing students with an eligibility letter is a best practice suggested by Education Superhighway.

Another suggestion that warrants further exploration is providing families with a pre-completed ACP application form with a pre-paid, pre-addressed envelope. Schools already have a lot of information about students that their parents/guardians would need to fill out on the form. By pre-completing these fields before sending the form to families, they can streamline the process for qualifying families.

Digital Navigators¹⁷

Definition:

Though many organizations already engage in “digital navigator” work, there is no widely adopted definition of what “digital navigator” services must include. Based on feedback during stakeholder interviews, three key components of “digital navigator” services include (1) accessing low-cost Internet service (2) accessing a digital device that meets the needs of clients and (3) providing digital literacy training, so clients are able to use their devices. Further, ***digital navigators should be “trusted messengers”*** who connect clients to these services. For this reason, community-focused nonprofits or local government agencies are in an ideal position to fill this need. We believe that state government, federal government, or ISP-organized digital navigators might be less effective.



Local Example:

United Way of Southwest Pennsylvania announced on October 4th the launch of their Digital Navigator Network. Using their current 211 outreach network, resource navigators can provide digital aid to residents of a five-county area: Allegheny, Armstrong, Butler, Fayette, and Westmoreland Counties. Clients can call, text, or chat

¹⁷ Cramer, M & Pecharka, R; *Digital Navigator Meeting with Neil DeBaise*

through the 211 network and be connected with Digital Navigator services, including informing and promoting the Affordable Connectivity Program. These Digital Navigator services are provided through three partners - Literacy Pittsburgh, Goodwill of Southwestern Pennsylvania, and the YWCA. The Digital Navigator Network has received funding from its ISP partner, Comcast, to build this additional service. The 211 Network served over half a million requests in 2022 for other basic needs (food, shelter, etc.), so the additional offering of digital equity services to this client base may significantly increase awareness and engagement for the ACP.

Digital Manager:

Our recommendation for CONNECT would be to develop and employ a Digital Manager. This person would ideally operate as an intermediary for municipal managers and organizations to keep them up to date on digital equity practices, opportunities, and funding. Because the digital equity space is so dynamic and expansive, having a dedicated policy and advocacy specialist would be incredibly beneficial for CONNECT's members.

With many grants on the horizon, funding opportunities for a Digital Navigator (or Digital Manager) will likely be possible in the coming year. Specifically, the Digital Equity Plan (released November 27th, 2023) has a large section devoted to Digital Navigators. This bodes well for potential funding opportunities and CONNECT should continue to monitor this as it develops. Funding through the Digital Equity Act is estimated to be around \$20-30 million and is likely to become available sometime mid-2024 to early 2025.¹⁸

4. Healthcare & Insurance

The University of Pittsburgh Medical Center (UPMC) Health Plan is piloting a new program to enroll eligible patients in the ACP and Lifeline programs to provide them with a cost-free smartphone as well as unlimited talk, text, and data. Smartphones have several healthcare-related applications pre-installed to help facilitate patients' ability to connect with digital health, telehealth, and insurance navigation services. The phones' contacts are also pre-loaded with phone numbers for key departments within the Health Plan.

To address barriers associated with ACP and Lifeline enrollment, members of the pilot cohort are being proactively mailed applications with information explaining the program as well as a pre-paid return envelope.

¹⁸ Pecharka, R; *Digital Equity Interview with Jen Blatz*; PA Department of Community and Economic Development

5. Advertising at Points of Service

Since there are numerous ways individuals can qualify for ACP, we have prepared specific outreach materials that can be displayed at various points of service. For example, pharmacies may display specific advertising that references ACP eligibility based on Medicaid benefits, as shown below.

6. Assistance with Applications

Education Superhighway offers free online training on how to assist others in applying for ACP. This training covers all aspects of the application process and required materials. We recommend that the Digital Equity Program Manager completes this training, along with any interns. Then, these individuals would easily be able to assist residents in completing their ACP application. CONNECT and member municipalities could advertise the availability of these individuals, along with the Digital Navigators mentioned above, as resources for completing the ACP application process.

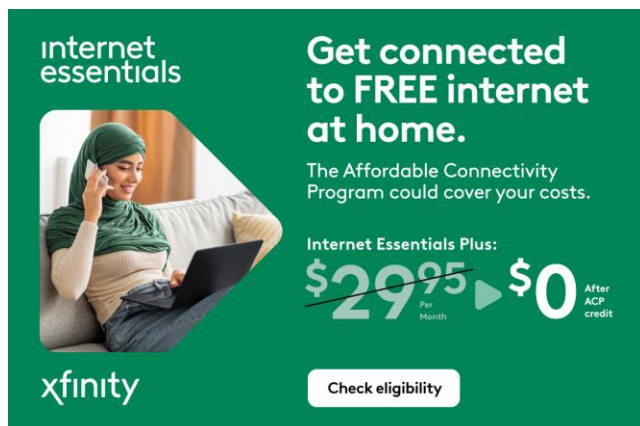


7. ISP Outreach

ISPs have a critical role to play in increasing the adoption of ACP. Many ISPs offer other discount packages that can be combined with ACP to further reduce the cost of broadband. For example, Comcast offers a service called “Internet Essentials” which provides qualifying individuals with a package that is only \$9.99 per month for 50 Mbps download / 5 Mbps upload or \$29.99 for a package with double the speeds. Both of these packages are free for individuals who qualify for the ACP. These packages also do not require a contract, lowering the barrier to individuals transferring services should funding for ACP expire. Individuals may also rent a device through the Internet Essentials program. Across the state of Pennsylvania, over a million residents are served by the Internet Essentials program.

In an interview, a representative from Comcast detailed the ways in which the company proactively reaches out to existing Internet Essentials customers to advertise the ACP program. Service representatives often advertise the program to customers who call expressing concerns over their bill. Comcast also advertises the program on social media, highlighting how Internet Essentials and the ACP can be combined. Comcast also partners with community groups to raise awareness of the ACP and provides funding through the Comcast Foundation for digital equity programming, such as the United

Way's digital navigator program discussed above. This example demonstrates that there may be opportunities for CONNECT to work with ISPs to increase outreach for the ACP.



One barrier to ISP's face in further encouraging ACP adoption is a lack of clarity around sharing personal information and assisting with applications. While many ISP service representatives are trained to assist with ACP applications, there is only so much a representative can do without triggering privacy concerns. Overall, the representative from Comcast agreed that the largest barrier to ACP adoption broadly is awareness.

Funding ACP

1. Program Origin

In May of 2021, the Emergency Broadband Benefit (EBB) program was formed with an initial investment of \$3.2 billion by the FCC. This was a federal initiative aimed at providing financial assistance to eligible households to help them access affordable broadband services during the COVID-19 pandemic. The initial monthly discount offered was up to \$50 toward a household's broadband service bill, as well as providing a \$100 credit towards the purchase of a computer or laptop for eligible households. It provided much-needed support for families during the pandemic, at a time when broadband services were integral for education and employment.

The funding allocated by the FCC is partially supported through the Universal Services Fund (USF). This fund has been in operation since 1996 and is responsible for funding current programs such as Lifeline, Rural Health Care Program, E-Rate, and High-Cost Program, all centered on digital equity. The USF receives its funding through money collected from telecommunications companies, with annual funds of \$8 billion.

In November of 2021, Congress formed the Affordable Connectivity Program, which was intended as a long-term measure with the same goals as the EBB program, but with a lower monthly credit and a much larger funding base of \$14 billion.¹⁹

2. Current State of ACP Funding

This current iteration of the ACP is expected to run out of funds by April of 2024. In the middle of October 2023, President Biden requested an additional \$6 billion in

¹⁹ Federal Communications Commission

emergency funds to be allocated to the ACP, though this has yet to be approved. Even if the funding is provided, it will likely only provide program coverage until 2025, and this panic over funding extension will have to play out again.

The ACP has received bipartisan support in Congress, as well as robust support from the broadband and telecom industry. In a recent letter to Congress, 26 Governors issued their support for funding extension and expressed the critical role the ACP not only plays in connectivity and access but also the role it will play in future bills such as the robustly funded BEAD Plan. This widespread support for the ACP is echoed by the broadband industry, with leaders like Comcast advocating for funding extension and program awareness. It is also a critically important feature for telehealth providers like UPMC, who know that many of their customers rely on this subsidy in order to access healthcare. It is difficult to think of a program in current politics that has garnered more widespread support than the ACP.

Though these requests have been made by cross-party leaders, corporate representatives, governors, and our sitting President, it is still very possible that funding is not extended. Budget negotiations may not prioritize ACP funding. If funding is not extended, there are some alternative programs, though they are limited. And if funding is approved, there is a real need to continue to push for a permanent home for the ACP. The Universal Service Fund is the most likely source for this, as it currently funds stable, long-term programs promoting connectivity and digital equity. This transition would require significant political capital, but it is the most viable solution for protecting the ACP for years to come.²⁰

Not extending funding for the ACP would be a short-sighted budget cut, as the continuation of the ACP would mitigate government spending in other areas. Healthcare costs through Medicaid would be higher without available telehealth services, as would education and business startup costs.²¹

3. Alternatives

If funding is not extended, there are some alternatives for low-cost internet, though they are limited. The only program that is embedded within the FCC's budget and readily available is Lifeline, which, similar to the ACP, provides a monthly subsidy for internet or phone costs to qualifying applicants, as well as subsidies for devices. But the monthly benefit through Lifeline is only \$9.25, compared to the ACP's \$30 a month benefit.

Other alternatives would be those provided by ISPs themselves. Many ISPs offer a low-income internet program or option for those that need it. Comcast, for example, has been running the Internet Essentials program since 2011, which offers two tiers of

²⁰ Ferraro, N

²¹ Lyons, D.A.

broadband services to qualifying households, with the lowest starting at \$9.95 a month. The program is estimated to have served 1,724,000 residents in Pennsylvania since its inception. While this is an incredible benefit, the internet speeds offered through the lowest tier are not up to national standards, and the program itself is obviously limited to those that are within Comcast's service area.²²

SWOT Analysis

This SWOT analysis focuses on CONNECT's role in increasing ACP adoption, rather than on the ACP program as a whole.

Strengths

- CONNECT & its members are trusted community partners. Residents may be more receptive to outreach coming from CONNECT or local governments rather than state or federal government agencies or for-profit companies like ISP's.
- CONNECT and its members have demonstrated themselves as leaders in digital equity policy in the region.

Weakness

- It remains unclear how many other groups offer "digital navigation" services to residents. The United Way has convened a digital navigator network, but there might be other local groups offering similar services. CONNECT & its members might unnecessarily duplicate efforts if they try to directly offer digital navigation services to residents.
- Unlike some other non-profits, CONNECT's mission is not explicitly dedicated to digital equity, and there may be others with more technical expertise.
- CONNECT is still a growing organization and is limited in staff capacity. Prioritizing ACP adoption efforts would mean other projects might be de-prioritized.

Opportunities

- CONNECT may leverage connections with elected officials to advocate for additional funding of ACP.
- CONNECT is well positioned to work with other community partners and governments to increase outreach of ACP, particularly if the Digital Equity Program Manager position is launched.

Threats

- CONNECT has no real control over funding ACP since it is a federal program.
- If CONNECT communities prioritize increasing ACP registrations, residents may be kicked off of the program as soon as Spring 2024, when the funding runs out.

²² Cramer, M., Pecharka, R., & Seifert, R. *ISP Interview with Alka Patel*

Part II: The Importance of “.gov” Domains

Introduction

Cyber attacks, specifically within local governments, increased between 2022 and 2021 (SecurityIntelligence, 2023). There were 2,323 cyber attacks on local governments in 2021 and an overwhelming majority of these attacks utilized social engineering as the attack method.

“Cyber security” is a loosely understood term that can be over-simplified. Incorporating technology such as dual-factor authentication onto desired devices or having a “training” run by the most tech-literate person in the office is insufficient. Local governments are targets of cyber criminals and cyber attacks for a litany of reasons, but none more important than the funding and staffing of many municipalities.



State and local governments are increasing their digitization efforts, as seen in the recent push by CONNECT and this GSPIA capstone. Digitization can breed risk, which not only causes risk for the user of the technology but also for the employees of these institutions who find themselves holding the largest burden. Cloud-based storage, which has proven efficacious, still warrants substantial employee training that these local governments cannot afford either fiscally or due to staff limitations. Security programs for local governments will outweigh the significant repercussions of a major cyber incident as noted in Allegheny County’s May 2023 data breach carried out by cybercriminals known as “CI0p”.

Local governments and municipalities are considered “high-risk” in different literature like the 2023 Verizon Data Breach Investigation Report (VDBIR), which examines cybersecurity developments across industries including threats and data breaches of varying types. The VDBIR focuses on reducing the cyber risks of organizations by looking at trends and mitigation tactics. This report is in readable language and is synthesized for consumption by the average reader.

“More than three-quarters of ransomware attacks are targeted at lower branches of government” - SentinelOne

Public institutions are:

- Considered “soft targets” (compared to the private sector) - SentinelOne
- Poorly prioritizing cybersecurity but increasing internet usage for various public utilities like transit and water meter readings – ICMA

- Bound by state and local boundaries, which threat actors do not recognize- CISA

The increased workload of municipality governments, the general lack of funding for any type of in-house cyber-focused security manager, the amount of personally identifiable information (PII) that is being transferred through local governments each day, and the sheer number of local governments (130) in Allegheny County make this region a target in the eyes of threat actors.

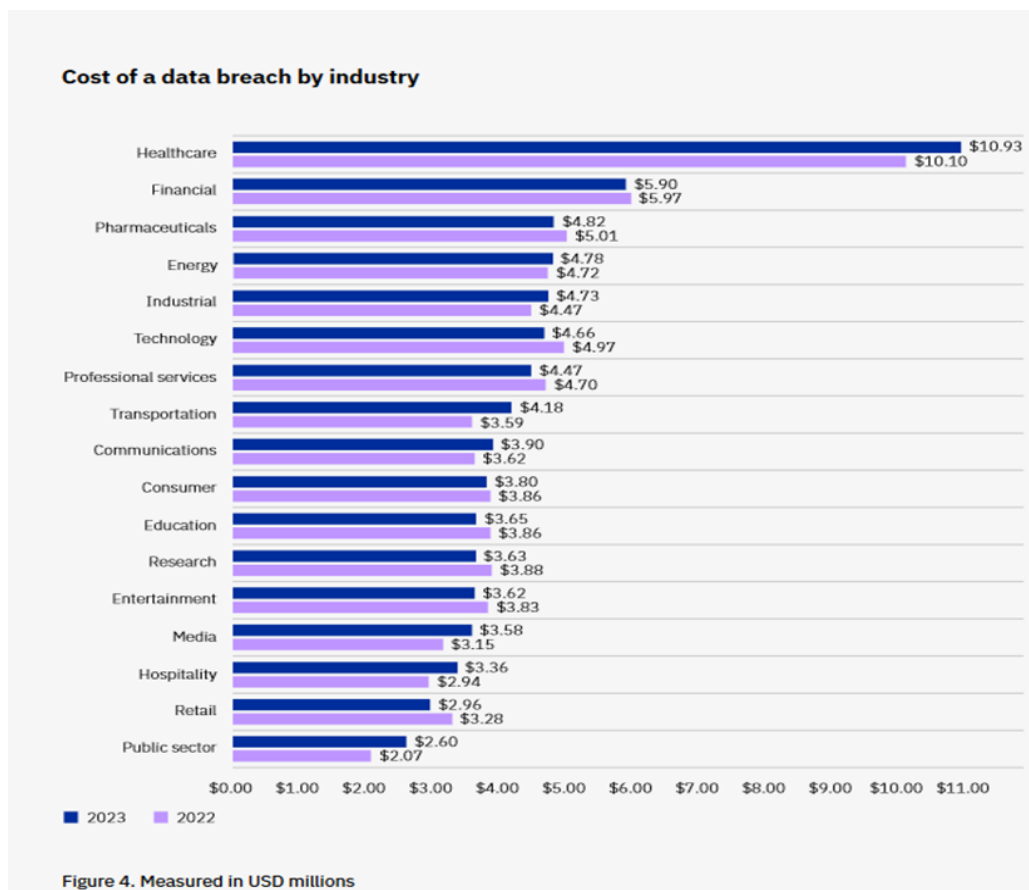


Figure 1: Costs of Data Breaches

This graph highlights how the public sector is the least costly industry to be attacked, however, each attack costs roughly \$2.6 million.

History

Between a recent push for digitization and the global pandemic, the essence of cyber security has turned from a luxury to a necessity within the decade. Governments, who generally work at a more careful pace than their counterparts in the private sector, need

to make cyberinfrastructure, and cyber-related training, imperative to their missions. Major historical cyber attacks utilized different methods like ransomware in the Bad Rabbit attacks, DDoS like the 2020 AWS attack, or malicious worms as seen in the Stuxnet attack in Iran. These large-scale attacks, while much more costly, happen less often than attacks on local governments.

Examples from other local governments around the U.S. and in/around Allegheny County include:

- Westmoreland, Kansas paid \$71,0000 to end a 13-day ransomware attack in September 2021.
- Chatham County, North Carolina experienced a ransomware attack where personal information was lost at the government level in October 2020.
- The city of Minneapolis fell victim to a DDoS attack where the websites and systems for law enforcement were disabled.
- Allegheny County fell victim to an SQL injection within the file transfer tool called “MOVEit” in late May of 2023. SSNs, taxpayer ID numbers, and certain medical information were lost during the attack.
- Tarentum borough fell victim to a phishing scheme in December of 2022 where \$140,000 was lost.
- Delaware County, PA paid \$500,000 in ransom after a Mimikatz attack in late 2020.

Allegheny County Hack (2023):

On June 1, 2023, the County became aware of a software vulnerability in MOVEit, which is a popular file transfer tool owned by Progress Software and used by the County to send and receive data. This vulnerability was exploited by a group of cybercriminals known as “CLOp,” and allowed them to access and download files belonging to the County between May 28, 2023 - May 29, 2023.

Since the onset of the incident, CLOp has maintained that it is focused on targeting businesses and that it will delete any data from certain organizations, including governments. While “CLOp” indicated that it has deleted data specifically belonging to Allegheny County, the County is still encouraging individuals to take precautionary steps to protect their personal information.

While the impacted information varies based on the individual at issue and their relationship with Allegheny County, this incident involved the following information: name; Social Security number (SSN); date of birth; driver’s license/state identification number; taxpayer identification number; and student identification numbers. For some individuals, certain types of medical information (e.g., diagnosis, treatment type, admission date), health insurance information, and billing/claim information may be involved.

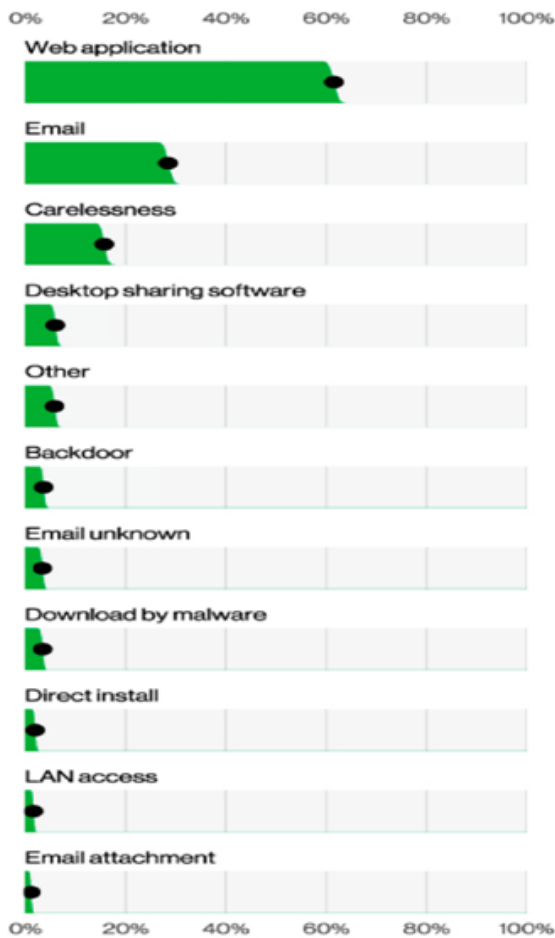


Figure 16. Top Action vectors in breaches (n=3,194)



Figure 17. Top Action vectors in incidents (n=10,502)

Figure 2: The above graphic from the Verizon Data Breach and Incidents Report (VDBIR) shows which action vectors are being targeted by cybercriminals in cyberattacks.

Transitioning to a dot gov top-level domain

Why Make the Change?

Security: The dot gov top-level domain requires a two-step verification process of the authorized personnel and user accounts cannot use passwords that were found in data breaches. This is a requirement that is administered and enforced through CISA.

1. The dot gov connection to the internet is end-to-end encrypted. Web browsers know to always use “https” to connect with any website on the domain. The browser will not connect to a website without a TLS protocol.
2. The domain is constantly monitored for threats, leaks, or hacks by Cybersecurity and Infrastructure Security Agency, General Services Administration, and the National Institute for Standards and Technology.

Cost: The cost to own the domain is \$0. In the past, under the supervision of the GSA, the fee was \$400 annually. While there are associated fees that come along with hosting servers, the acquisition itself is no charge. Please refer to Figure 1 below for the increase in adoption rates amongst city and county government registrations.

Credibility: The dot gov TLD name allows the general populous to know they are dealing with an accredited and legitimate government website/email address. This provides assurance and peace of mind to the constituent at a time when cybersecurity concern is at an all-time high.

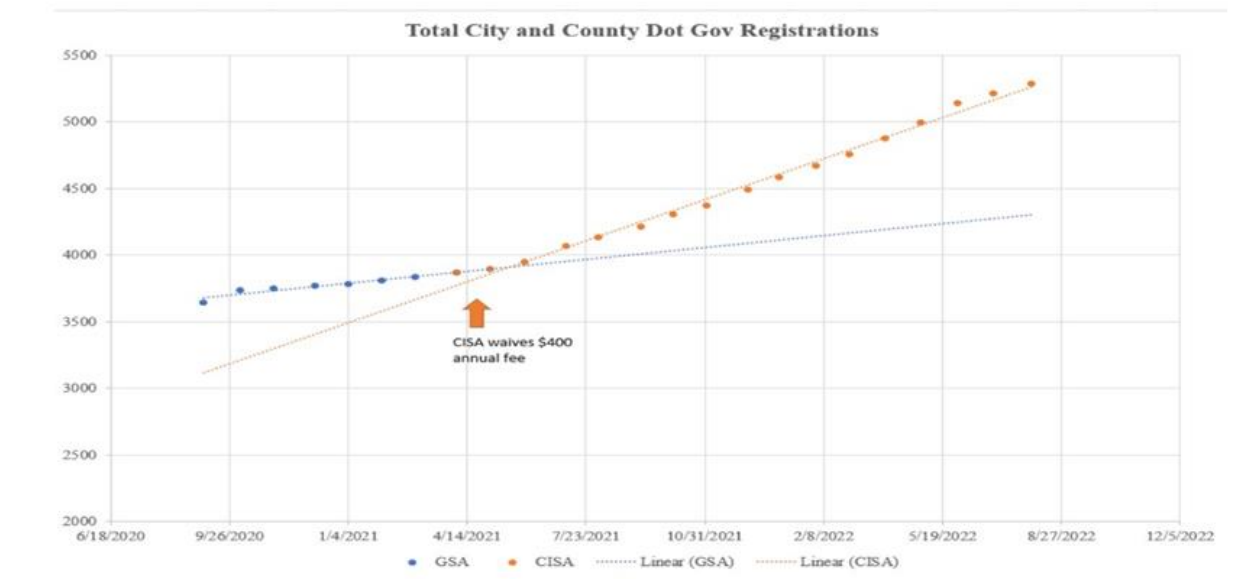


Figure 3: Timeline of conversions to .gov

Colorado SIPA Example

Colorado proved a unique example of making the switch to .gov, as they centralized and streamlined the process. The Colorado Statewide Internet Portal Authority (SIPA) created a one-stop process for local municipalities who wanted to move to .gov, streamlining the process and giving a generalized template for the new websites to follow as well.

- Multiple types of confirmation are used to make sure that .gov domains are ONLY available to governments.
- When residents see emails from, and links to, *anytownco.org* vs *anytownco.gov*, they can be much more confident in the authenticity of the .gov
- .gov domains are hard to convincingly impersonate: *anytownco.org* will constantly be spoofed by folks setting up domains like *any.townco.org*.
- All web browsers know to only connect to .gov websites with encryption. This helps protect all interactions with government services by default.
- Moving all governments to a .gov web and email presence has been identified as a nationwide security objective.

Case Study of Brentwood Borough

Over Fall 2023, as we were in this Capstone, Brentwood Borough started and finalized its application to a dot gov top-level domain, with the appropriate processes successfully completed.



Meetings with borough manager **George Zboyovsky** (and CONNECT Communications and Technology team member) helped us create this case study and provided the necessary details so other municipalities could learn from their experiences. Mr. Zboyovsky noted the following information regarding Brentwood's change:

1. Recommendation: Two options for hosting include creating and maintaining an internal server through the borough or utilizing an external like Microsoft 365. Mr. Zboyovsky suggests utilizing the external application as it is user-friendly and cheap to maintain.
2. Hosting: Currently, Brentwood's **email server** is being hosted by **Microsoft 365**. **Municbit** is hosting Brentwood's **website**. Additionally, **GoDaddy** is hosting the other iterations of Brentwood borough's websites that utilize other domains like ".com", ".org", ".us", etc.
3. Processes: Brentwood submitted their dot gov request at the beginning of October. The request was approved mid-November, and the website was up and running by November 20th. The borough is still paying for the other iterations of the domain as this is good practice for transitioning municipalities.
4. Costs: As seen in the appendix section, we see the exact costs broken down into itemized formats from GoDaddy. The total to maintain the previously used domains is **\$134.94**. Municbit, according to George Z, is **\$780.00** annually with no long-term contract required. Microsoft 365 prices range from \$6.00 user/month to \$22.00 user/month depending on the chosen tier.

Case Study of Wilkinsburg Borough

The only active borough/municipality among the CONNECT communities having already transitioned to a dot gov top-level domain when we began Fall 2023 was Wilkinsburg. The Borough of Wilkinsburg had made their change before 2014. The governing body of this change at the time was the U.S. General Services Administration. Conversations with **Owen MacAfee**, Code Enforcement Director, noted the following information regarding Wilkinsburg's change:



1. Recommendation: Wilkinsburg had hosted their own exchange server which also hosted email records. Mr. MacAfee's recommendation is to outsource the hosting as hosting an internal exchange server was too hands-on for the borough.
2. Hosting: Currently, Wilkinsburg's **email server** is being hosted by **Microsoft 365**. ImageBox, which has since become **React Digital**, now **hosts the website**.
3. Processes: In regard to the dot gov transition, Mr. MacAfee notes, "Very little expertise is required." However, the process took roughly two (2) years from start to finish which was partially due to maintenance issues at the GSA.
4. Costs: Wilkinsburg had received their dot gov TLD when the \$400 annual cost was still in effect. With the renewal fee being waived, the prices of the hosting are the only expense.

Considerations for CONNECT

Below is the digital maturity table for all CONNECT communities, their current top-level domain, and their domain host. Given that not all domain hosts can facilitate the switch to .gov, it is imperative to understand if a domain change will be required, as it can prove the most technologically difficult step.

Key:

Domain Host

- **Green** - This domain host **does** support a .gov domain.
- **Yellow** - This domain host **may** host a .gov with increased difficulty and customization
- **Red** - This domain host **cannot** host a .gov domain.

Digital Maturity

- Level 1 - Early digital maturity
- Level 2 - Developing digital maturity
- Level 3 - Displaying digital maturity

Borough/ Municipality	Top-Level Domain Name	Level of Digital Maturity without Broadband	Domain Host
Allegheny County	.us	3	.us Reserve Account
Aspinwall	.com	2	GoDaddy.com, LLC
Baldwin Township	.org	1	Tucows Domains Inc.
Bellevue	.org	2	Network Solutions, LLC
Brentwood	.gov	2	MuniBit
Carnegie	.com	2	pair Networks, Inc. d/b/a pair Domains
Castle Shannon	.us	2	US Locality
Churchill	.com	2	eNom, LLC
Clairton	.com	1	GoDaddy.com, LLC
Collier	.net	2	GoDaddy.com, LLC
Crafton	.com	3	eNom, LLC
Dormont	.us	3	US Locality
Duquesne	.us	1	Tucows Domains Inc.
Edgewood	.us	2	US Locality
Etna	.org	1	Network Solutions, LLC
Forest Hills	.org	2	Tucows Domains Inc.
Fox Chapel	.us	3	US Locality
Green Tree	.com	2	Domain.com, LLC
Homestead	.com	2	eNom, LLC
Ingram	.org	1	eNom, LLC
Jefferson Hills	.org	1	GoDaddy.com, LLC
McKees Rocks	.us	2	GoDaddy.com, LLC
Millvale	.com	2	GoDaddy.com, LLC
Mount Lebanon	.org	3	Tucows Domains Inc.
Mount Oliver	.com	2	GoDaddy.com, LLC
Munhall	.us	1	Wild West Domains, Inc.
Oakmont	.com	3	Domain Registration Services, Inc. dba dotEarth.com

Reserve	.com	1	Launchpad.com Inc (HostGator)
Ross	.us	2	US Locality
Shaler	.org	2	Network Solutions, LLC
Sharpsburg	.com	1	Wild West Domains, LLC
Swissvale	.com	1	eNom, LLC
Turtle Creek	.us	1	Domain.com, LLC
West Homestead	.com	2	Network Solutions, LLC
West Mifflin	.com	2	Amazon Registrar, Inc.
West View	.com	3	GoDaddy.com, LLC
Wilkins	.com	2	Tucows Domains Inc.
Wilkinsburg	.gov	2	React Digital

Dot Gov Step by Step

Eligibility

If you are a local municipality, you are eligible!

Domain Name

Your domain name must be:

- Available
- Unique
- Relate to your organization's name, location, and services
- Be clear to the general public

Authorizing Official

You need to have the role and contact information of the person who has the power to make the change, get.gov lists this as someone "in a role of significant, executive responsibility within the organization". This is someone distinct from a technology or security contact.

Account

Create an account on Login.gov, this is necessary to complete the request form. This requires an email you will have permanent access to and a strong password. Login.gov also recommends a form of multi-factor authentication, this can be an external security key from an authenticator, or even something like a confirmation text/call. Then you're done!

Request Form

The request form requires:

- Type of government organization you represent
- Organization name and mailing address
- Purpose of the .gov domain
- Current website for your organization (if you have one)
- The .Gov domain you want
- Other employees from your organization

Review

It takes approximately 20 business days for the authenticating body to verify your request meets all the necessary standards. Once they confirm that you're eligible they will ask for additional points of contact, a security email for public use, and domain name server information.

Recommendations

Our recommendations for the different maturity levels within the CONNECT communities are as follows:

- For communities within **digital maturity level 1** (Balwin, Clairton, Duquesne, Etna, Ingram, Jefferson Hills, Munhall, Reserve, Sharpsburg, Swissvale, and Turtle Creek) we recommend:
 - Focusing on full digitalization and general maintenance of the current website.
 - Utilizing security mechanisms like notifying the user when they are leaving the borough's website. This is a good hygiene practice and is common when the user is attempting to make a payment. This should be implemented at every digital maturity level.
 - Electing a "Chief Digital Officer", or CDO, who is responsible for becoming familiar with the layout of the borough's website and email hosts.
- For communities within **digital maturity level 2** (Aspinwall, Bellevue, Brentwood, Carnegie, Castle Shannon, Churchill, Collier, Edgewood, Forest Hills, Green Tree, Homestead, McKees Rocks, Millvale, Mount Oliver, Ross, Shaler, West Homestead, West Mifflin, and Wilkins) we recommend:
 - Utilizing security mechanisms like notifying the user when they are leaving the borough's website. This is a good hygiene practice and is common when the user is attempting to make a payment. This should be implemented at every digital maturity level.

- Electing a Chief Digital Officer”, or CDO, who is responsible for becoming familiar with the layout of the borough’s website and email hosts. This CDO would also act as a security contact for the dot gov transition.
- Applying for a dot gov domain through CISA. This is a choice that all digital maturity level 2 communities should prioritize.
- Utilizing options like MuniBit, Microsoft 365, and React Digital (Which has an office in downtown Pittsburgh) These three options, which have been proven efficacious and relatively cheap to host the website/email servers.
- For communities within **digital maturity level 3** (Allegheny County, Crafton, Dormont, Fox Chapel, Mt. Lebanon, Oakmont, and West View) we recommend:
 - Utilizing security mechanisms like notifying the user when they are leaving the borough’s website. This is a good hygiene practice and is common when the user is attempting to make a payment. This should be implemented at every digital maturity level.
 - Electing a Chief Digital Officer,” or CDO, who is responsible for becoming familiar with the layout of the borough’s website and email hosts. This CDO would also act as a security contact for the dot gov transition.
 - Applying for a dot gov domain through CISA. This is a choice that all digital maturity level 3 communities should prioritize as it is well within the communities technological and budget restraints.
 - Utilizing options like MuniBit, Microsoft 365, and React Digital (Which has an office in downtown Pittsburgh) These three options, which have been proven efficacious and relatively cheap to host the website/email servers.
 - Create and share, between other digital maturity level 3 communities, the aforementioned Digital Governance Program Manager (DGPM). The DGPM will be responsible for assisting the CDO in mitigating technological concerns happening at each of the communities. For more information on the roles of the DGPM, please see Appendix C.

Best Practices

1. The addition of a “Security Contact:”
Having a security contact ensures that there is someone responsible for checking on the security and health of your website.
2. Develop a Vulnerability Disclosure Policy (VDP):
Developing a VDP allows you to quickly communicate with your constituents should a hack been found to have occurred. Listed here is CISA’s template that can be adapted to fit your needs. <https://www.cisa.gov/vulnerability-disclosure-policy-template>.
3. Preload your domain:
Today, web browsers allow websites to be “preloaded” as HSTS-only. This means that **web browsers will always use HTTPS to connect with those**

websites. For example, whitehouse.gov has been preloaded into all major web browsers.

4. Obtain cyber-security insurance:

Many local municipalities have already obtained cybersecurity insurance to protect against the worst outcomes of a hack, and it will only become more prudent with time. Be aware that prices for cybersecurity insurance have been rising, and as such make sure to find the appropriate balance between coverage and monthly cost.

5. Use an email hosting service:

One of the most common roadblocks was with personally hosted email services. When looking to make the swap to .gov either immediately or in the future, find a trusted email host who is compatible with the .gov regulation. Both Wilkinsburg and Brentwood utilize Microsoft 365.

Conclusions

Part I: Affordable Broadband

Affordable, reliable, and fast internet is a necessity for all residents. While the ACP is an important program for lowering the cost of broadband, the program is flawed and inaccessible and faces major funding threats. Assuming the ACP program continues, or a future iteration of the program is funded, it is worthwhile for CONNECT and member governments to work with other partners to increase awareness and adoption of the program. We recommend:

- An active campaign to elected officials for support and advocacy for extending the Affordable Connectivity Program. In the Appendix, we include an example of the letter to send to elected officials and public officials, asking them to work to continue ACP funding.
- Establishing outreach in multiple domains to increase adoption of ACP. We cover a number of materials and location-specific means to increase adoption by eligible residents and households. CONNECT through a possible student intern could coordinate these efforts. We have also recognized numerous additional initiatives to assist more of our eligible residents to apply to ACP. With outstanding success of adoption rates in many CONNECT communities, again, partnerships across communities show ways for success that are working in CONNECT communities. More examples are found in the Appendix.
- Creating a Digital Governance Program Manager. We suggest a proposal to the county or Pennsylvania Department of Community Development to establish a pilot effort, as previously recommended by GSPIA Capstone reports. Given the funding now available through digital equity, this presents an opportunity for success for a shared program manager. Further information is available in the appendix.
- New initiatives with Digital Navigators. This can also be central for CONNECT as a connector across communities, many of which are in the earlier stages of developing digital maturity, and relates to the Digital Program Manager and a possible student internship program either through CONNECT or Local Government Academy.
- We also addressed possibilities if funding for ACP is not extended. Not as desirable, but good possibilities for low-cost internet.

Part II: The Importance of Establishing “.gov” Domains for CONNECT communities

Moving to .gov can be a relatively quick process that improves the security of your website, the trust your residents can have in official correspondence, and help enable future updates to keep pace with a rapidly changing digital world. While the upfront cost has been removed, the costs associated with maintaining all the previous domains are

still an important consideration when budgeting for the change. In both case studies the issue of email hosting proved one of the more persistent challenges, and a common recommendation was to have a trusted external source, such as Microsoft 365, handle the email hosting. Moving to .gov is an effective way to protect yourself against bad external actors and continue to engage in healthy and safe website maintenance. While the process of obtaining a .gov is currently on hold until January of 2024, this is an effective step for all municipalities and local communities to move towards a safer online presence.

References

- Arctic Wolf. "State and Local Government Cyber Attacks." *Arctic Wolf*, 17 Oct. 2023, arcticwolf.com/resources/blog/why-state-and-local-governments-are-targeted-by-cyber-attackers/.
- Bovbjerg, B; Hoydich, Z; Keppel, K; Ma, R; Macadandang, E; Mallett, S; Nie, A; and Watson, D. (2022). *Digital Governance in Municipal Governments: Equity, Access, and the Digital Divide*. [Capstone: University of Pittsburgh Graduate School of Public and International Affairs]. https://drive.google.com/file/d/113KKdGc7GHljMnEEFckIAyFbVn0S_bR/view?usp=sharing
- Cao, M & Goldberg, R. (2022). *New ASHOWS Offline Households Are Willing to Pay \$10-a-Month on Average for Home Internet Service, Though Three in Four Say Any Cost is Too Much*. National Telecommunications and Information Administration. Retrieved December 2023 from <https://www.ntia.gov/blog/2022/new-analysis-shows-offline-households-are-willing-pay-10-month-average-home-internet>.
- "County Government." *History | County Government | Allegheny County*, www.alleghenycounty.us/About/History/County-Government.aspx. Accessed 30 Aug. 2023.
- Cramer, M., & Pecharka, R. (2023, November 22). Digital Navigator Meeting with Neil DiBiase. personal.
- Cramer, M., Pecharka, R., & Seifert, R. (2023, November 29). ISP Interview with Alka Patel. personal.
- "Cyberattacks Rise Sharply against Governments and Schools." *Security Intelligence*, 29 Nov. 2023, securityintelligence.com/news/cyberattacks-rise-sharply-against-governments-schools/#:~:text=In%20addition%2C%20data%20was%20exfiltrated,the%2077%20attacks%20in%202021.
- "Cyber Attacks Worldwide 2022." *Cyber Attacks Worldwide 2022 | KonBriefing.Com*, konbriefing.com/en-topics/cyber-attacks-2022.html. Accessed 11 Oct. 2023.
- "DBIR Report 2023 - Master's Guide." *Verizon Business*, www.verizon.com/business/resources/reports/dbir/2023/master-guide/. Accessed 1 Dec. 2023.
- De Wit, K. July 7, 2022. *How Do Speed, Infrastructure, Access, and Adoption Inform Broadband Policy?*. Pew. Retrieved October 2023 from <https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2022/07/how-do-speed-infrastructure-access-and-adoption-inform-broadband-policy>.
- Education Superhighway. *Affordable Connectivity Program | ACP | Enrollment Dashboard*. Education Superhighway. Retrieved November 2023 from <https://www.educationsuperhighway.org/no-home-left-offline/acp-data/>.
- Education Superhighway. *LeFranc - Online Training*. Education Superhighway. Retrieved November 2023 from <https://www.educationsuperhighway.org/learnacp/>.
- Federal Communications Commission. *Affordable Connectivity Program*. FCC. Retrieved October 2023 from <https://www.fcc.gov/acp>.
- Ferraro, N. (2023, November 29). How ACP negotiations might shake out. *Light Reading*. <https://www.lightreading.com/broadband/how-acp-negotiations-might-shake-out>

Greggworth. "Cyber-Insecurity: Preparing for Public Sector to Better Mitigate Cyber-Risk." *Thomson Reuters Institute*, 29 June 2023, www.thomsonreuters.com/en-us/posts/government/government-agencies-mitigating-cyber-risk/.

Lyons, D. A. (2023, May 11). Assessing the State of the Universal Service Fund. U.S. Senate Committee on Commerce, Science, & Transportation. <https://www.commerce.senate.gov/>

Mallet, S (2023). *Digital Governance in Municipal Governments: Improving Municipal Websites*. [Independent Study: University of Pittsburgh Graduate School of Public and International Affairs]. https://drive.google.com/file/d/1xFajL5cO4gRMLHlz5FCJt_OiO4QHa5P8/view?usp=sharing

"Municipal Cisos Grapple with Challenges as Cyber Threats Soar." *CSO Online*, 6 Mar. 2023, www.csoonline.com/article/574621/municipal-cisos-grapple-with-challenges-as-cyber-threats-soar.html.

National Telecommunications and Information Administration. *How fast is broadband?* BroadbandUSA. Retrieved September 2023 from <https://broadbandusa.ntia.doc.gov/about-us/frequently-asked-questions/how-fast-broadband>.

Norris, Donald F. "A Look at Local Government Cybersecurity in 2020." *ICMA.Org*, icma.org/articles/pm-magazine/look-local-government-cybersecurity-2020. Accessed 25 Nov. 2023.

"Notice of Data Breach." *Allegheny County*, www.alleghenycounty.us/information-technology/notice-of-data-breach.aspx. Accessed 2 Nov. 2023.

Pecharka, R. (2023, November 15). Digital Equity Interview with Jen Blatz. Personal.

PA Department of Community and Economic Development. (2023, November 27). Digital Equity (DE) Act. Digital Equity Act. <https://dced.pa.gov/programs-funding/broadband-in-pennsylvania/infrastructure-investment-and-jobs-act/digital-equity-de-act/>

Pennsylvania Public Utility Commission. *Broadband Bill of Rights*. Public Utility Commission. Retrieved September 2023 from https://www.puc.pa.gov/Telecom/pdf/Broadband_Bill_of_Rights.pdf.

"Ransomware Gangs Are Increasingly Targeting U.S. Cities and Towns." *Axios*, www.axios.com/2023/05/16/ransomware-us-cities-towns-local-government-hackers. Accessed 12 Sept. 2023.

"State and Local Government Cyberattacks Timeline." *Security Intelligence*, securityintelligence.com/timeline/state-local-government-cyberattacks/year-by-year. Accessed 11 Dec. 2023.

"State, Local, Tribal, and Territorial Government." *State, Local, Tribal, and Territorial Government | Cybersecurity and Infrastructure Security Agency CISA*, www.cisa.gov/audiences/state-local-tribal-and-territorial-government. Accessed 26 Oct. 2023.

Appendix A: Example ACP Outreach Materials

Examples of location-specific outreach materials



Example of a social media post



Caption: Did you know there's a benefit that can give you up to \$30 off your internet bill? You may qualify if you receive other government assistance. Check out getinternet.gov for more!

The flyer features a background of colorful, abstract lines and icons representing various services and technology. At the top, the main headline is in large, bold, dark blue letters. Below this, on the left, is a circular logo for the Affordable Connectivity Program (FC) showing a stylized building and people. To the right of the logo, a section of text in orange and blue describes eligibility criteria, followed by a bulleted list of benefits. At the bottom, a light blue banner with a globe graphic on the left contains the website information in bold, dark blue letters.

YOU COULD SAVE \$30 A MONTH ON YOUR INTERNET BILL



**AFFORDABLE
CONNECTIVITY
PROGRAM**

**You might be eligible if
you (or a family
member) receive any of
these other benefits:**

- SNAP
- WIC
- Social Security Income
- Medicaid
- Public Housing or Section 8 Vouchers
- Pell Grant
- Free and Reduced-Price School Lunches
- Veterans Pension or Survivor Benefits

**FIND OUT MORE AT
GETINTERNET.GOV**

Example Letter for CEP Eligible Schools

Affordable Connectivity Program:

The Affordable Connectivity Program (ACP) is an FCC benefit program that helps ensure that households can afford the broadband they need for work, school, healthcare and more. There are many ways households can qualify for up to \$30 per month for internet service and a one-time discount of up to \$100 to purchase a laptop, desktop computer, or tablet. **Since your child is enrolled in [school or district], your household is automatically eligible for these benefits, regardless of your household income.** If this is the first time you're hearing about this program, you're not alone. Surveys suggest that up to 75% of households eligible for ACP benefits do not know that this program exists.

How Do I Qualify?

As you might know, all students at [school or district] receive free breakfasts and lunches during the day. This is possible through a federal program called the "Community Eligibility Provision" (CEP) that allows schools to provide these meals at no cost to students or their families. Since your student attends a school participating in the CEP, your household is automatically eligible for ACP benefits.

Where Do I Sign Up?

If you already have Internet service, you must contact your internet service provider (ISP) in order to receive this benefit. If you do not already have Internet service, you can register for the ACP while signing up for Internet service. Here are some of the common ISPs in our area, and their ACP registration links*:

Xfinity (Comcast): <https://www.xfinity.com/acp>

Verizon: <https://www.verizon.com/home/internet/acp/>

T-Mobile Home Internet: <https://www.t-mobile.com/brand/affordable-connectivity-program>

Viasat: <https://www.viasat.com/satellite-internet/affordable-connectivity-program/>

HughesNet: <https://www.hughesnet.com/acp>

Here is the government's website for more information: <https://getinternet.gov/apply>

What Information Will I Need?

You may be asked to provide documentation verifying that your student attends a Community Eligibility Provision school. You may either upload a copy of their report card, or the attached letter verifying their enrollment. If you need a digital copy of this letter and are unable to scan their report card or verification letter, please contact [Contact Person] at [XXX-XXX-XXXX] or [\[email@email.com\]](mailto:[email@email.com]).

If you are unable to access the online application, paper applications are also available.

Dear Parents & Guardians:

[School Name] would like to make you aware of the Affordable Connectivity Program (ACP), the Federal Communications Commission's program that can help families access affordable internet services.

Since your student, [Student Name] attends a school that participates in the U.S. Department of Agriculture's Community Eligibility Provision (CEP), your household is automatically eligible to receive the ACP benefit.

This letter can be used to prove eligibility during the application process and confirms that the following student attends a CEP school during the [School Year]

[Student Name]

[School Name]

Best Regards,

[School Official Name & Title]

[School Name]

[School Address]

[School Contact Information] (Phone and/or Email)

Example Letter to Elected Representatives - Continue Funding for ACP

To: [Example Public Administrator]

From: CONNECT Communities GSPIA Working Group on Digital Equity in Governance

Date: 12/3/2023

Subject: Request for Support for Funding Extension for the Affordable Connectivity Program

We are writing this memo to request your support and advocacy for the extension of funding for the Affordable Connectivity Program (ACP). The ACP has been a vital resource in bridging the digital divide and ensuring equitable access to the internet for low-income households and individuals across our region and the nation. As public leaders committed to the well-being and progress of our residents, we have a unique opportunity to make a significant impact on the lives of those who depend on the ACP for affordable internet access.

Background:

The Affordable Connectivity Program, established to provide subsidies for broadband services to low-income households, has proven to be a lifeline for many during the COVID-19 pandemic and beyond. Access to the internet is no longer a luxury but a necessity for essential activities, including education, remote work, healthcare, and staying informed. The ACP has played a crucial role in ensuring that all members of our community can participate in the digital economy and access vital services.

The Urgent Need:

Time is of the essence if we want this vital program to continue. The ACP program is expected to run out of funds by April 2024. Federal action is needed to ensure the program is funded. Without action, millions of Americans could lose access to affordable internet.

Critical Factors:

1. **Equity and Inclusion:** By extending funding for the ACP, we can further bridge the digital divide, ensuring that no one is left behind in the digital age.
2. **Economic Growth:** Access to affordable high-speed internet is a driver of economic growth. It empowers individuals to access job opportunities, online entrepreneurship, and digital skills development.
3. **Education:** students of all ages rely on the internet for learning. Extending the ACP ensures that all learners, regardless of their financial situation, can access online educational resources.
4. **Healthcare:** Telehealth has become an essential part of healthcare delivery. Expanding affordable connectivity ensures access to vital healthcare services for all, regardless of their location or income.

Our Region:

In Allegheny County alone, roughly 67,000 residents are currently benefiting from the ACP and will be negatively affected if funding is not extended. The ACP works as a measure to address inequities in education, employment, and healthcare, and without it, many of our most vulnerable residents will be at a disadvantage. For many of these households, the financial barrier to accessing internet services without the ACP is insurmountable, and a disruption in program funding could have a detrimental effect on access and re-enrollment should funding be resumed at a later date.

Request for Support:

We kindly request your support in advocating for the extension of funding for the Affordable Connectivity Program. Your endorsement and influence are crucial in helping to secure the resources needed to make this program a continued success. By supporting the ACP, you are making a significant contribution to the well-being and progress of our residents and our community as a whole.

Through our work with CONNECT Communities, we have come to understand the critical need for this program in our region and are actively advocating for its continuation both nationally and locally. Included in this document are letters of support, which we are asking to be signed and sent to our representatives in Congress. It also contains engagement materials for residents.

If you have any questions or require further information regarding this matter, please do not hesitate to contact me at rap157@pitt.edu. I am available to discuss this issue in greater detail and explore how we can work together to ensure the extension of the ACP.

Thank you for your time and consideration. Your commitment to this important cause will undoubtedly have a lasting and positive impact on our region.

Sincerely,

Rachel Pecharka, Myles Cramer, Rylan Seifert

[Public Official Name]

[Address]

[City, State, ZIP Code]

[Email Address/ Phone Number]

[Date]

Dear [Representative],

This letter is written to express the strong support for the Affordable Connectivity Program (ACP) and to urge you to consider the importance of extending its funding. With over 20 million households currently enrolled in the program, ACP has played an enormous role in bridging the digital divide and ensuring equitable access to the internet for all Americans.

The ACP, established to provide subsidies to low-income households and individuals, is a pivotal tool in making broadband services more affordable and accessible to those who are financially disadvantaged. In today's increasingly digital world, access to the internet is not a luxury but a necessity. It facilitates education, employment opportunities, healthcare access, and access to essential government services.

The COVID-19 pandemic further underscored the urgency of addressing the digital divide. With remote work, online learning, telehealth services, and more reliant on internet access, millions of Americans without reliable and affordable broadband were left at a significant disadvantage. The ACP stepped in to mitigate this disparity, helping many individuals and families connect to the internet and stay connected during these challenging times.

The initial funding for the ACP has made a meaningful impact, but the need for affordable connectivity persists. Extending the funding for the ACP will allow more low-income households to benefit from these subsidies and continue to participate in the digital economy. It will also foster greater digital inclusion, empower marginalized communities, and drive economic growth. In Allegheny County alone, roughly 67,000 residents will be affected if funding is not extended. And for many of these households, the barrier to accessing internet services without the ACP is insurmountable, and a disruption in program funding could have a detrimental effect on access and re-enrollment should funding be resumed at a later date.

Despite the various financial challenges facing our government, it is firmly believed that investing in the extension of the Affordable Connectivity Program is an investment in the future and growth of our community. By ensuring that all Americans can access affordable, high-speed internet, we are not only closing the digital divide but also building a more inclusive and equitable society.

We respectfully request your support and advocacy for the extension of funding for the Affordable Connectivity Program. Your commitment to this crucial program will have a lasting and positive impact on our community, our state, and our nation.

Thank you for your dedication to public service and for considering this request.

Sincerely,

Appendix B: Switch to .gov Supplemental Data

Figure 1: Highlighted statistics note the percentage of breaches per incident of web application attacks. 93.6% of incidents resulted in confirmed data disclosure.

Frequency	1,404 incidents, 1,315 with confirmed data disclosure
Threat actors	External (100%), Internal (1%), Multiple (1%) (breaches)
Actor motives	Financial (95%), Espionage (4%), Fun (1%) (breaches)
Data compromised	Credentials (86%), Personal (72%), Internal (41%), Other (19%) (breaches)

Figure 2: Graphics highlight the importance of cybersecurity staffing along with the general awareness of cyberattacks in local government.



50% of state CISOs said inadequate cybersecurity staffing was the top barrier to an effective cybersecurity program.

SOURCE: NASCIO.ORG REPORT



Nearly one-third of cities and counties would be unable to tell if they were under attack.

SOURCE: GOVERNING.COM STUDY

Figure 3: The graphics highlight the importance of cyber insurance along with adoption rates of cybersecurity policies and standards.



Figure 4: The following information are the costs associated with GoDaddy to continue hosting Brentwood Borough's different website domains. The charges are annual fees.

Receipt

A copy of your receipt below has been sent to Gzboyovsky@brentwoodboro.com

Confirmation #: 2792722225
 Date: 11/7/2023
 Payment: Mastercard

brentwoodboro.biz \$26.99
 .BIZ Tier 100 Bulk Domain Name Transfer (6-20) - 1 Year

brentwoodboro.com \$9.99
 .COM Bulk Domain Name Transfer (6-20) (recurring)
~~\$21.99~~
 54% off

brentwoodboro.info \$31.99
 .INFO Bulk Domain Name Transfer (6-20) (recurring)

brentwoodboro.net \$22.99
 .NET Bulk Domain Name Transfer (6-20) (recurring)

brentwoodboro.org \$22.99
 .ORG Bulk Domain Name Transfer (6-20) (recurring)

brentwoodboro.us \$19.99
 .US Bulk Domain Name Transfer (6-20) (recurring)

Appendix C: Digital Governance Program Manager

Digital Governance Program Manager (DGPM) duties from GSPIA Capstone 2022

Program Manager for Digital Governance through CONNECT

To oversee and manage the various digital governance needs of municipalities, we recommend CONNECT hire and maintain a program manager to empower municipal governments to reach digital maturity and help them become self-sustaining as modern, efficient local governments in today's world. Depending on funding availability, the program manager will:

- Assist municipalities to enhance digital services and online governance.
- Connect groups of governments to reputable vendors/services to enhance digital services and online presence. The DGPM will be the main point of contact in developing cost-effective agreements that allow municipalities of different sizes and capacities to improve their digital governance; the DGPM will also work on collecting an up-to-date inventory of what vendors current municipalities are using.
- Develop an RFP for a multi-municipality or CONNECT website development project.
- Oversee and manage training modules that introduce and build proficiency in key aspects of a digital governance maturity for local government officials; the DGPM will conduct outreach to local experts and practitioners to conduct webinars for live and recorded distribution. The DGPM will package training modules into a marketable series for participation.
- Help oversee and manage an internship program for municipal government offices that need operational support in social media, and records management; interns will also report to and support the DGPM in building capacity for in-house technical support to municipalities.

A full job description for the position can be found in the appendix. The job duties, expectations, qualifications, and salary were based on comparable positions found in the private sector.