7. Broadband Community Profiles: Winters

A. Residential

Two primary providers serve the Winters residential broadband market, AT&T of California and Wave Broadband. Fixed wireless providers also have coverage in Winters including DigitalPath and Winters Broadband. 72 samples were collected from residential broadband subscribers across Winters to evaluate actual speeds against those reported in publicly available data from the California Public Utilities Commission ("CPUC"). CPUC data indicated that Winters' broadband providers maintained coverage across the entire city boundary, with download speeds in the majority of the downtown up to 24 Meg and in certain areas of the city, up to 100 Meg.

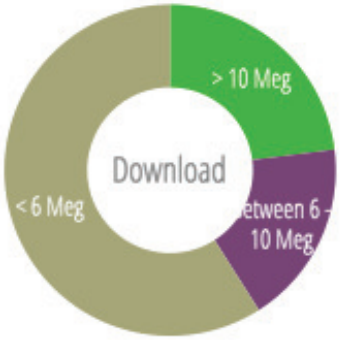
Upon further investigation into Winters' census tracts, it was found that about two thirds of the City is reported as underserved in wireline broadband services and there was little indication that these speeds were actually available to residents.

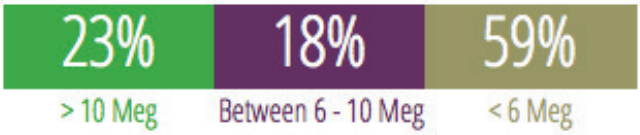
Pockets of high-speed wireline broadband services do exist within the City, however; residents have reported significant issues receiving speeds anywhere close to the speeds they have purchased from providers. Speed test data has verified speeds up to 10Meg download and 1.2Meg upload for cable broadband services. Speed test data for has verified speeds up to 7Meg download and 1.1Meg upload for DSL broadband services.

A total of 58% of respondents reported download speeds of less than 6 Meg while 89% of respondents reported speeds of less than 6 Meg. Residents reported significant reliability and speed issues with their current services; 50% of respondents felt their services were unreliable and 59% felt that their services were not fast enough for their needs. Of the 4 cities, Winters residents reported the lowest realized speeds for the cost of residential broadband services, particularly with upload speeds. At higher prices, residents received only marginally higher realized speed. For example, at the lowest price point, $20 - $29 per month, residents realized upload speeds of .8 Meg while at the highest price point of $100 - $124, residents realized upload speeds of 1.9 Meg, only a small increase in speed for a 4x increase in price. This may indicate that Winters' local broadband infrastructure is not capable of providing upgraded, higher-speed services.

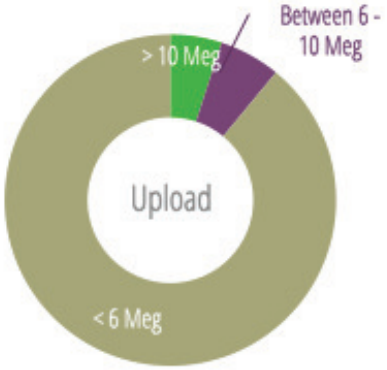
Residential Broadband Services - Winters Survey Data

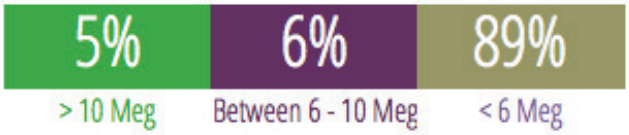
Residential Broadband Download Speed Test Results





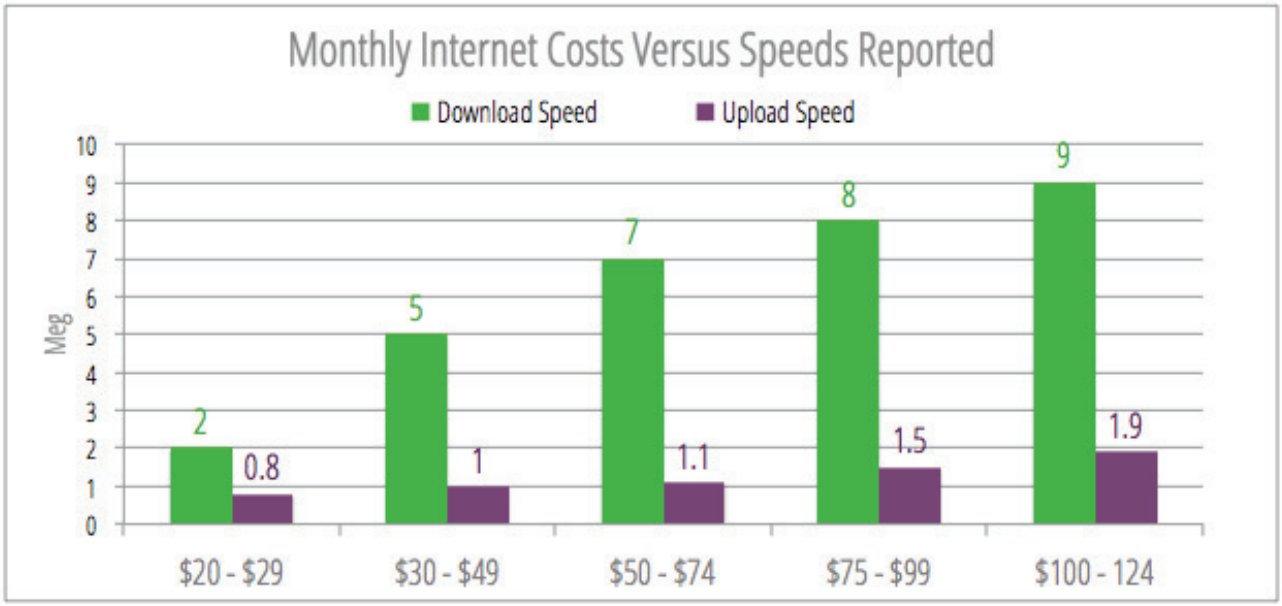
Residential Broadband Upload Speed Test Results





Reilability of Current Broadband Services

Speed of Current Broadband Services



Winters' residents need broadband services that are on par with the larger communities in Yolo. The city's remote location makes it even more important for residents to have sufficient broadband access that allows them to do more online rather than drive long distances for their products and services. Winters' residents need to ensure their children have the most opportunities for education and technology-based learning tools they receive from the schools can be used in their homes. Without sufficient broadband access, these tools are ineffective. Home-based businesses in Winters also need high quality broadband services, similar to Winters' commercial businesses. Without them, these businesses also suffer, being less competitive with their commercial counterparts.

Figures 7.1 and 7.2 illustrate the key residential broadband issues facing Winters. Large segments of the city still remain underserved in the speeds of broadband services available to them as reported by the CPUC in the 06/30/2013 dataset. Since then, the CPUC has received updated data for the Winters area that shows coverage of approximately 80% of the city by Wave Broadband. This data has only recently been uploaded and should be verified to ensure its accuracy. Bright red areas illustrate underserved parts of the city. Everything South of Grant Ave is included in this region as well as about half of the area North of Grant Ave within the city boundary. In addition, rural areas outside the city boundary are almost all underserved or in some cases unserved. For these residents, their only options are generally fixed wireless, satellite or 3G/4G mobile broadband. Although Figure 7.1 reports high-speed broadband available, Figure 7.2 contradicts this availability in many areas of the city. Although Figure 7.21 illustrates a large portion of the city covered by broadband infrastructure supporting speeds between 10 Meg and 25 Meg, Figure 7.1 shows this area as underserved. Data is inconsistent as reported to the CPUC. Through the speed test results, a few residents received speeds above 10 Meg, 77% of residents reported speeds of 6 Meg or below.

Figure 7.1: Wireline Residential Status – Unserved & Underserved Areas

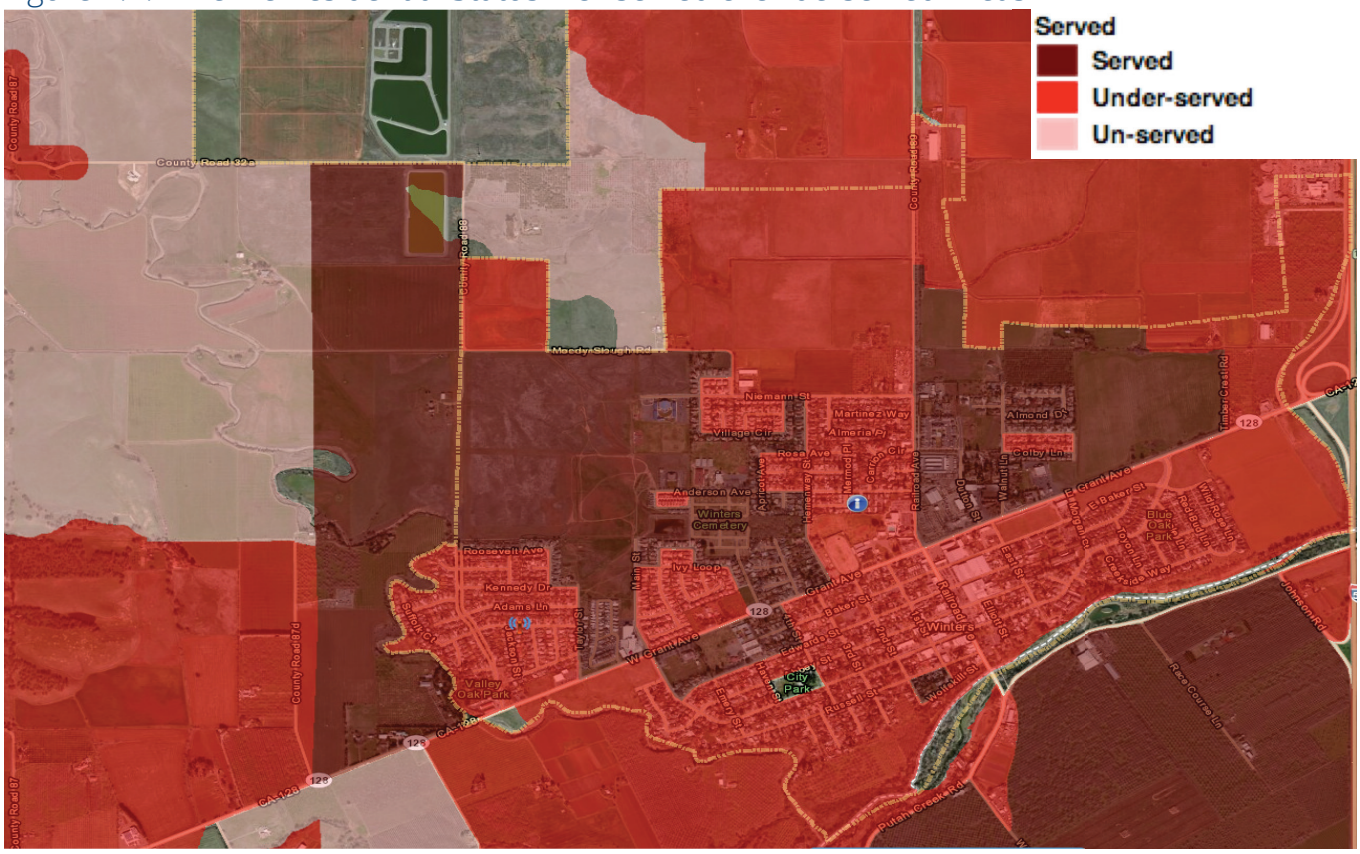


Figure 7.2: Residential Wireline Broadband Availability By Speed (Download Speeds)

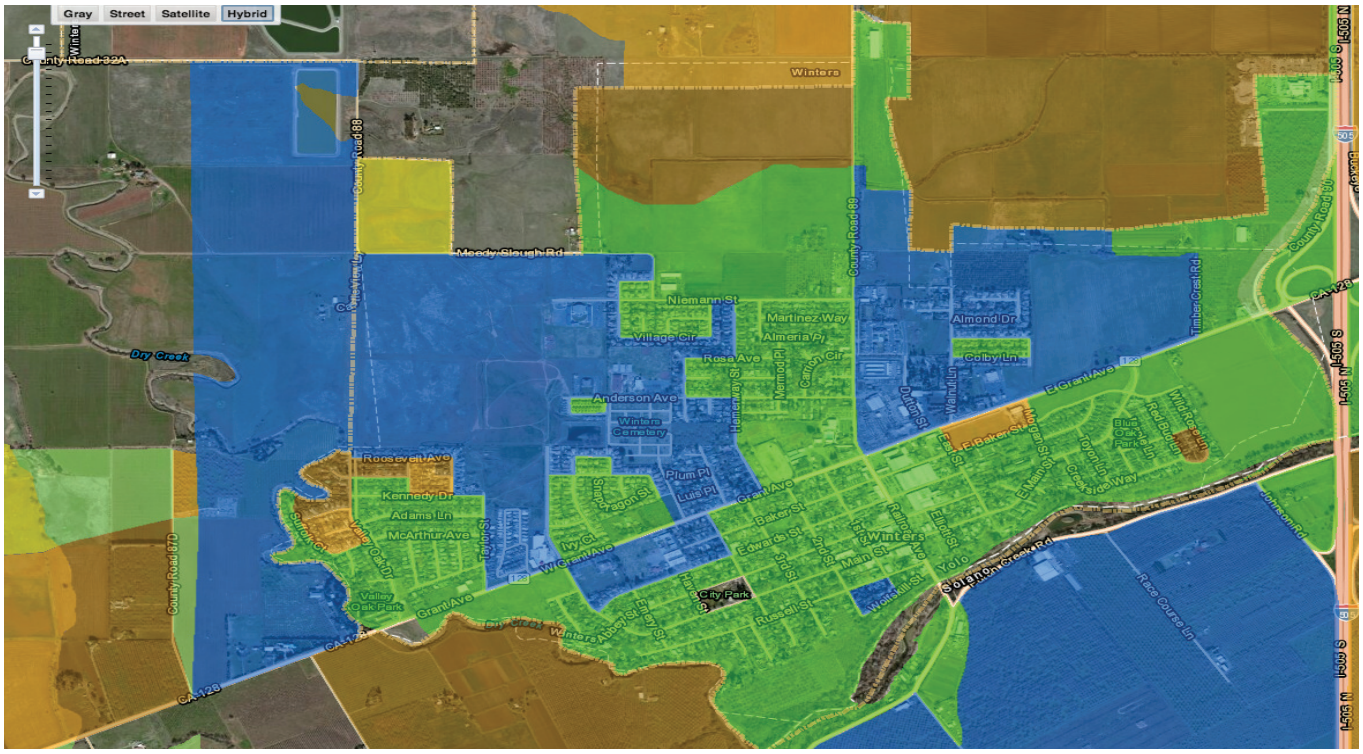
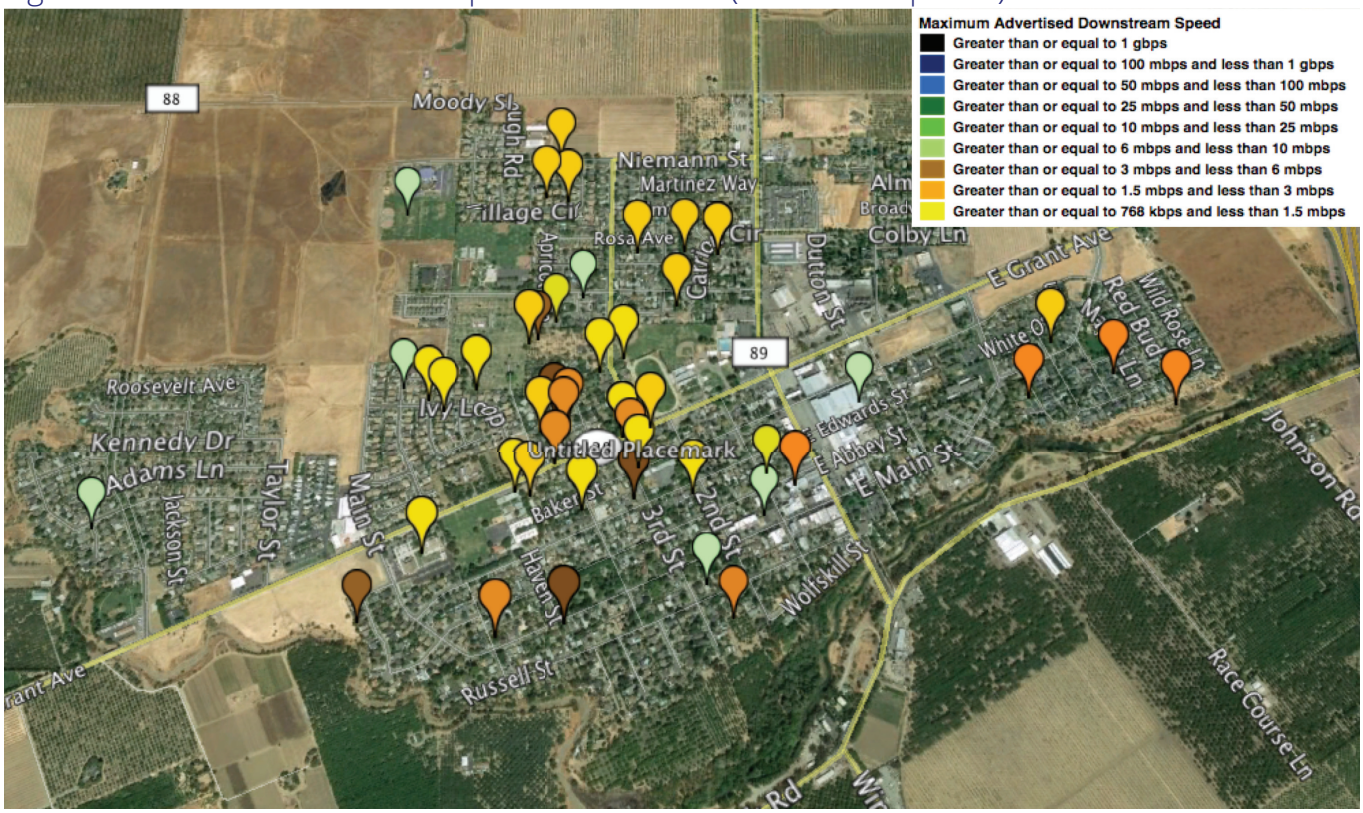


Figure 7.3: Residential Wireline Speed Test Results (Download Speeds)



B. Business

Local businesses in Winters suffer from many of the same issues as residential users. The same DSL and cable infrastructure is utilized to provide business services in Winters as residential services. Service is not consistent across the city and businesses reported particular issues getting reliable service in the downtown corridor along Grant Street. A few businesses reported utilizing T1 services, which provided more reliable connectivity, however prices for these services were extremely high. One business reported paying $800 per month for a single T1, which provides only 1.5Meg of service. Unfortunately T1 was the only option available, apart from their current DSL service which provided them 3Meg download and 768Kbp upload at $79.99 per month. They reported that the DSL was not reliable enough to sustain their business and were forced to upgrade. Only 10% of businesses reported download speeds above 10 Meg and only 2% reported upload speeds above 10 Meg. Some 65% reported that their services were not reliable and 64% reported that their services were not fast enough.

Winters business face significant challenges in receiving consistent, reliable broadband service. Although most businesses are small and may not be large consumers of bandwidth, they do require broadband services that enable them to reliably use online business applications, videoconferencing, cloud applications and security monitoring. At the current service levels, Winters' businesses will fall farther behind the curve as new online applications are made available that unfortunately, Winters' businesses will not be able to take advantage of, due to their insufficient broadband.

For the City's economic development goals, the current state of broadband in Winters makes it particularly difficult to attract new businesses to the area. A business that wants reliable service may pay upwards of $1,000 per month for this access in Winters. For small and medium businesses, this cost is prohibitive, particularly when businesses can locate in other communities and pay less than half of this amount for significantly faster services. Therefore, Winters must make positive strides forward to improve the availability and affordability of business broadband services in the city. Doing so will allow the City to utilize local broadband as a tool to attract more businesses to the city and reduce the costs for its current businesses.

PG&E will be building a significant training facility in Winters to train staff on operations of gas facilities and construction, approximately 100,000 sq. feet. It will be the largest gas training facility in the US. The training facility will require significant broadband services to conduct broadcast, distance learning and other data intensive applications. PG&E has already held initial discussions with broadband providers in the area to ensure fiber services are available. Providers have indicated that they can meet these needs, however; no pricing information was shared for these services. Due to PG&E's size, it is likely that they will procure whatever services are required to meet the needs of the training facility. The City could potentially partner with PG&E to bring connectivity into the new facility in a joint construction project between the two organizations. It would positively impact the City by expanding local conduit and fiber infrastructure along the route to the PG&E facility.

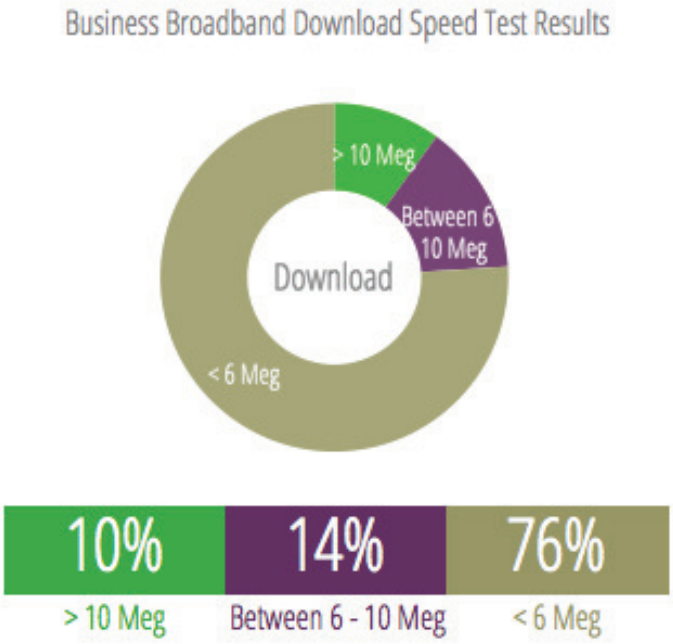
Comments from Businesses in Winters:

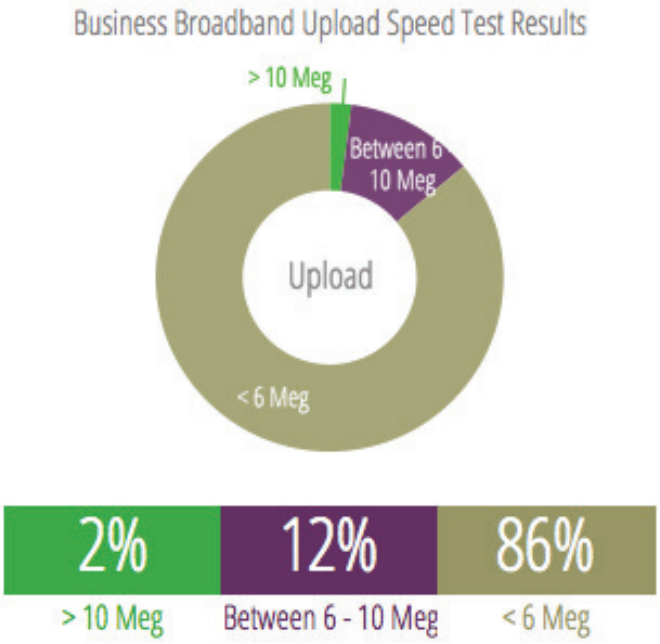
Agricultural Business – "On the edge of town, we use an unreliable DSL line and a wireless modem as backup when it is down"

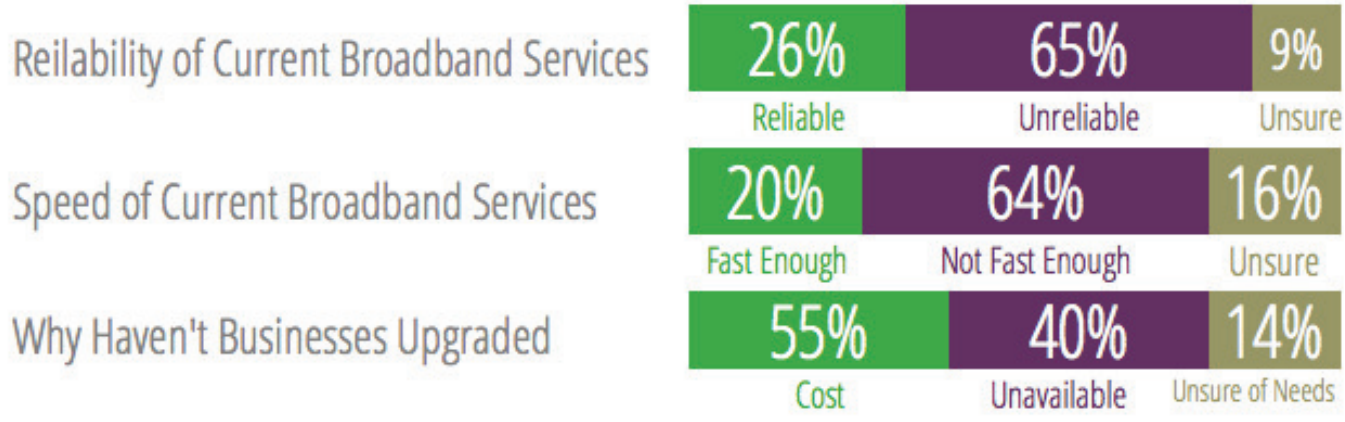
Law Firm – "When the cable is down, our phones are down which means no billing for our staff"

Local Restaurant – "We would like to provide WiFi to patrons but can't run this and credit card machine simultaneously with our current Internet service

Business Broadband Services - Winters Survey Data







C. Community Anchors

Education

The Winters Unified School District has received some important technology upgrades recently, including new computers and technology-based teaching tools. These upgrades were provided as part of a Yocha Dehe Community Fund grant to the District. The District is planning to equip students with IPads that can be taken home to enable more self-study and computer-based learning opportunities. The District is also looking at the opportunities to integrate more cloud applications into its environment. These programs can only be successful with sufficient broadband capabilities, both within the School District's key sites and at the homes of students who are equipped with these technology tools.

Winters' Joint Unified School District currently maintains 10Mbp connectivity between schools in the area and 100Meg to the Board of Education. For the District to take full advantage of these programs and technologies, upgrades to their existing services will be required. The School District should be planning its activities to significantly increase its speeds to schools and its centralized connection to the Board of Education. The District should be planning for 100Mbp upgrades to its schools in the near term and evaluating the future needs for 1Gbp to every school (depending on the size of each school's student body).

The broadband access that students receive at home becomes an important issue for the School District and community, as students are equipped with take-home technologies such as IPads. Although students may have sufficient broadband and wireless access in the classroom, many will not have sufficient access at home to make these technologies truly effective. Two key issues emerge. First, residential broadband speeds are not evenly distributed throughout Winters. Some neighborhoods are better served than others. In neighborhoods with older infrastructure or that have not been upgraded by providers, broadband speed and reliability will be a challenge to students using these technologies.

Second, the technologies that are enabled in students' homes pose challenges for technology-based learning. Without wireless connections in the homes, students will not be able to take advantage of their technology tools. Homes must be equipped with basic wireless access to ensure that students are able to utilize the tools provided by the School District. A wireless router is needed in every home where a student uses an IPad. In these cases, the household may not have the technical skills to install a wireless router or may not be able to afford one. In some cases, wireless routers can be provided with the household's broadband service; however it is usually at an additional cost and requires the technical skills for installation. Today, students in Winters huddle around the library afterhours to take advantage of its WiFi connectivity. In many cases, this is the fastest broadband that students can receive in the community. This is symptomatic of the issues described above and if they are not mitigated, the School District's technology-based learning programs will not be fully realized in the community.

Healthcare

Winters healthcare organizations reported significant broadband issues. Winters Health Foundation has encountered serious connectivity issues across their three locations in the city. When their Internet is disrupted, they cannot treat patients. All of their patient records are cloud-based, so whenever the Internet is down, they are disconnected from these systems. In addition, they have been trying to establish connectivity with California Telehealth Network to expand their access to telehealth services but local infrastructure in the area will only support T1 connectivity. T1 service is extremely expensive and provides minimal bandwidth. Unfortunately, no other options exist in the local area; DSL and cable services cannot currently be connected to CTN's network.

The Foundation has recently upgraded their service in the downtown locations, which provides more stable connectivity between their offices. However, they are paying $800/month for this connectivity, which is extremely high given the low speed of these connections and the close proximity of their offices to one another. Several doctors' offices have also reported local connectivity issues that impact their practices. Two offices reported that they were only able to receive the lowest speed DSL services, 1.5Meg download and 768K upload and these services were currently insufficient to run their web-based applications.

Local Government

There are many options for Winters to consider in its approach to promoting broadband development in the city. Within the city boundary, the grid of homes and businesses is relatively small in geographic area that may positively benefit broadband development in the city. The City should consider the various options for development of local broadband, which include using broadband-friendly policy tools to reduce the cost of broadband construction, streamlining permitting processes and potentially building a community broadband network to serve the needs of residents, businesses and community anchors.

In all cases, it is important for the City to develop strategic partnerships with local broadband providers in effort to expand broadband in ways that mutually benefit Winters' stakeholders and the providers. Being a small city with a large underserved component, Winters may have a good opportunity to capture federal or state grant funding for expansion of local broadband infrastructure. These grant programs provide funding for service providers and public organizations to build next-generation broadband infrastructure in their communities. In addition, Winters should partner with Yolo's other public organizations, namely Yolo County to plan infrastructure improvements that mutually benefit one another. Some sites for consideration include the Winters Community Library and the Health and Human Services Center.

D. Strategies & Action Items

Recommendation 1: Conduct a study to determine the feasibility of constructing a citywide broadband network that can serve the needs of Winters' residents, businesses and community anchors. The feasibility study should:

a) Determine the physical network required to serve the City's needs;

b) Identify the best business model for Winters to utilize to meet the broadband needs of the community, retail, wholesale or infrastructure-only;

c) Incorporate the broadband needs of other public agencies that have offices in Winters into the study;

d) Determine the role local service providers will play in the development of this network, including potential public-private partnerships;

e) Assess the financial feasibility and funding requirements for the network, including potential federal and State grant opportunities; and,

f) Develop an action plan and timeline for buildout of the network.

Timing: The City should consider conducting the feasibility study within the next 12 months and implement any action plan per its timelines.

Recommendation 2: To improve local broadband conditions, the City needs to help key community anchors get the broadband services they need, by:

a) Focusing on community anchors described in the Winters Community Profile that are currently not receiving adequate broadband service;

b) Developing a broadband construction fund (via Development Impact Fees or other mechanism) that will allow the City to jointly fund construction of broadband infrastructure to these anchors, in cooperation with local service providers;

   i) Finance the upfront costs for "last mile" connection fees to get community anchors the services they need; and,
   ii) Work with local providers to jointly build this infrastructure and ensure that the City maintains rights to install additional conduit and fiber-optic cable in these projects.

Timing: Ongoing until broadband has been extended throughout the community.

Common Action Items

Recommendation 3: Adopt General Plan policies that incorporate broadband as a public utility and create a policy framework to promote its deployment in public and private projects as appropriate. This includes:

a) Tailoring the sample policies and standards (included in the appendix) to the City's specific needs and adopt them into local policy, codes and standards (including policies, dig-once, joint trenching, engineering standards, etc.);

b) Incorporating broadband in the City's Development Impact Fee program and the City's Capital Improvement Plan (CIP) as appropriate and make a commitment to fund broadband infrastructure;

c) Identifying opportunities to install broadband infrastructure in conjunction with public and private construction projects as appropriate;

d) Developing a process so that Planning and Public Works coordinate with IT to identify projects that could install this infrastructure at reduced costs;

e) As the City builds out its network, maintaining broadband infrastructure in the City's GIS system, requiring GIS-based as-builts and implement any other means for accurate documentation;

f) Evaluating ways to streamline the broadband permitting processes within public rights of way to ensure broadband providers do not face unnecessary obstacles to building infrastructure; and

g) Evaluating fees levied to broadband providers for constructing broadband infrastructure to ensure they do not discourage broadband investment.

Timing: The City should adopt General Plan policies and implementing codes and standards over the next 12 months. Implementation should be ongoing.

Recommendation 4: Coordinate with other agencies with facilities in the City (i.e. WJUSD, Yolo County, Yolo County Housing, Yolo County Office of Education, PG&E, etc.) on a regular basis to leverage opportunities to reduce broadband construction costs by:

a) Reviving the regular Utility Coordination Meeting attended by the cities/County (and potentially add the public agencies listed above) to facilitate the long-term planning of broadband infrastructure; and

b) Coordinating on a regular basis to identify opportunities for joint construction, use and broadband infrastructure sharing between local agencies to lower costs and maximize public benefit.

Timing: The City should develop these collaborative programs with other public agencies over the next 3 months.