

# Town of Prosper, Texas Broadband Access Assessment

May 2019

Prepared by Connected Nation

## Executive Summary

The vision of the broadband leadership team in Prosper, Texas (Prosper) is to ensure that citizens have access to world-class broadband infrastructure in their community, and that no citizen is left offline. The purpose of the following Broadband Access Assessment is to provide an in-depth analysis of the broadband access available to Prosper citizens.

From March 3-10, 2019, Connected Nation's engineering and technical services team members worked on-the-ground to:

- Create a profile of the town's broadband services.
- Develop an outside plant and fixed wireless map illustrating which areas of Prosper have access to broadband at 25 Mbps download and 3 Mbps upload.
- Identify where all copper, cable, and fiber lines are located.
- Identify the providers.

Additionally, Connected Nation deployed a survey of households and businesses in the community to gather more detailed information on the current state of broadband in the community. Highlights from the survey appear to support the local broadband team's assumptions that there is some room for improving the broadband landscape in Prosper:

- 95.7% of respondents subscribe to fixed, terrestrial broadband (cable, DSL, fiber-to-the-home, and fixed wireless).
- 97.5% of those surveyed indicated they subscribe to mobile service with 74% of those stating it is used as a secondary connection.
- On average, citizens of Prosper respondents reported paying an average of \$70.08 per month for their home internet service. Remarkably, 70% indicated they were "very or mostly dissatisfied" with the monthly price of service.
- 52% of those responding to the survey indicated overall satisfaction with their home broadband connection while 54% were satisfied with its reliability.
- Nearly every respondent (98.6%) said they are interested in having improved or additional choices for internet service in Prosper.
- More than half (57%) of businesses in Prosper indicate that their current internet connection does not meet their needs, and 85% report that the speed is too slow.

Additionally, Connected Nation has gathered data from several studies that show the importance of broadband across every sector of a community. These critical findings include:

- Households with a broadband connection have an estimated annual economic advantage of \$1,850 per year over households without broadband.<sup>1</sup>
- Small businesses with faster internet connections tend to have a higher proportion of employees with advanced technology skills compared to those with slower speeds.<sup>2</sup>
- Employees who do not telework in any capacity tend to have incomes that are 75% of that of their teleworking neighbors.<sup>3</sup>

In the aggregate, the results of the survey, along with the outside plant and fixed wireless audit, have been used to develop a comprehensive report that discusses the pros and cons of the existing telecommunications assets and offers recommendations for improving broadband access in the community.

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<sup>1</sup> "Connected the Dots of Ohio's Broadband Policy," Rembert, Feng, and Partridge, *Swank Program in Rural-Urban Policy*, The Ohio State University, April 2017

<sup>2</sup> "Going Social on Small Business Saturday," *Connected Nation Connected Community Engagement Program*, <http://connectmycommunity.org/project-view/going-social-on-small-business-saturday/>

<sup>3</sup> *Connected Nation Connected Community Engagement Program*, <http://connectmycommunity.org/>

# Context and Background

## Overview

Since its inception in 2001, Connected Nation's mission has been to change lives through technology and bring the benefits of universal broadband access, adoption, and use to communities and ensure their competitiveness in the twenty-first century global economy. We remain committed to building on this experience and have enjoyed the opportunity to conduct an extensive review of Prosper's broadband landscape.

As a national 501(c)(3) that advocates for rural broadband expansion, CN is often asked to discuss its position on municipal projects, most commonly fiber-to-the-home (FTTH). CN takes a neutral stance but highly recommends that municipalities exercise caution and conduct structured and methodical due diligence before making the decision to enter the arena.

In the current environment, deploying broadband infrastructure, services, and applications, as well as supporting the universal adoption and meaningful use of broadband, are challenging but required, to advance technologically empowered communities. From healthcare, agriculture, public safety, and tourism, to government, education, libraries, talent, and economic activity, every sector of a community requires the power of broadband and related applications to function at the highest capacity.

One thing is clear, broadband and related technologies have transformed nearly every facet of society. While many of these technology changes can be discussed at a global scale, local community technology advancements depend on community leadership and action. A critical first step in advancing broadband technology is identifying and understanding local assets along with opportunities and barriers to technology advancement. This assessment is a first step to advancing technology in Prosper, Texas.

The success of a community has become dependent on how broadly and deeply the community adopts technology resources, which includes access to reliable, high-speed networks, the digital literacy of residents, and the use of online resources locally for business, government, and leisure.

From the onset, the local broadband team should be applauded for their past and ongoing efforts to foster broadband expansion in Prosper. Under the guidance of Harlan Jefferson, Chuck Springer, and others, the team's efforts have paid dividends and their message has been heard by the citizens and the broadband providers within Prosper.

The local broadband team also includes:

- Leigh Johnson, Prosper; Director of Information Technology
- Craig Andres, Prosper; Council Member, Place 2
- Meigs Miller, Prosper; Council Member, Place 4
- David Bristol, PEDC, Board Vice President
- John Webb, Prosper; Director of Development Services
- Darcy Schroer, Prosper Economic Development Corporation, Vice President of Marketing
- Fernando De Velasco, Prosper Independent School District, Chief Technology Officer
- Danny Scott, Prosper Independent School District, Director of Network Services

It is CN's opinion that the localized campaign to improve broadband has resulted in substantial improvement in infrastructure expansion; much of which can be attributed to the last 12 months of new home construction in recently developed subdivisions.

## The Regulatory Picture

Through legislation, Texas made it easy for phone companies to discontinue their carrier-of-last-resort (COLR) obligations, who now no longer have a state-based legal requirement to repair or replace service

once it goes down. Carrier-of-last-resort efforts started to weaken with the introduction of competition from the Telecommunications Act of 1996. Since that time the large telecom companies have been able to walk away from carrier-of-last-resort obligations in most of their territory. Only in those areas where the telecom companies are still receiving federal high cost Universal Service Fund (USF) support are they obligated to connect homes that request service.

Texas also outlaws certain categories of telecommunication service without ever using the words “broadband” or “internet.” Generally, legislation discourages public broadband services and public-private partnerships to provide service, while leaving some allowances for communities with no private options. Examples of these restrictions are as follows.

### **Texas Utilities Code, § 54.201**

CERTIFICATION PROHIBITED. The commission may not grant to a municipality a:

- (1) certificate of convenience and necessity;
- (2) certificate of operating authority; or
- (3) service provider certificate of operating authority.

Acts 1997, 75th Leg., ch. 166, § 1, eff. Sept. 1, 1997.

### **Texas Utilities Code, §43.001:**

Encourages the deployment of Broadband over Power Lines (BPL) by permitting affiliates of the electric utility, or permitting unaffiliated entities, to own or operate all or a portion of such BPL systems. This act provides the appropriate framework to support the deployment of BPL.

### **Senate Bill 1004:**

This bill was passed June 9, 2017 (during the 85<sup>th</sup> Legislature) and made effective September 1, 2017. The bill amended local government code for the state of Texas to include new uniform rules for deploying small cell infrastructure throughout the state. The bill also regulated the size, shape, and placement of wireless network equipment.

The bill bars municipalities from entering into exclusive agreements with wireless providers to access to public rights-of-way and utility poles. It caps permit fees for use of public rights-of-way to \$250 per wireless facility. It also enables municipalities to designate specific designs for wireless facilities that are to be installed in historic districts.

## **Current State**

Knowing the currently available infrastructure and availability of broadband in a community is central to developing a course of action to remedy any shortfalls or issues. Maps on the following page show areas of Prosper where the Federal Communications Commission (FCC) indicates coverage with a download speed of at least 25 Mbps and 3 Mbps upload (25/3 Mbps), and coverage where download speeds are reported of at least 100 Mbps.

Figure 1 - FCC Reported Broadband Coverage with Speeds at Least 25/3 Mbps

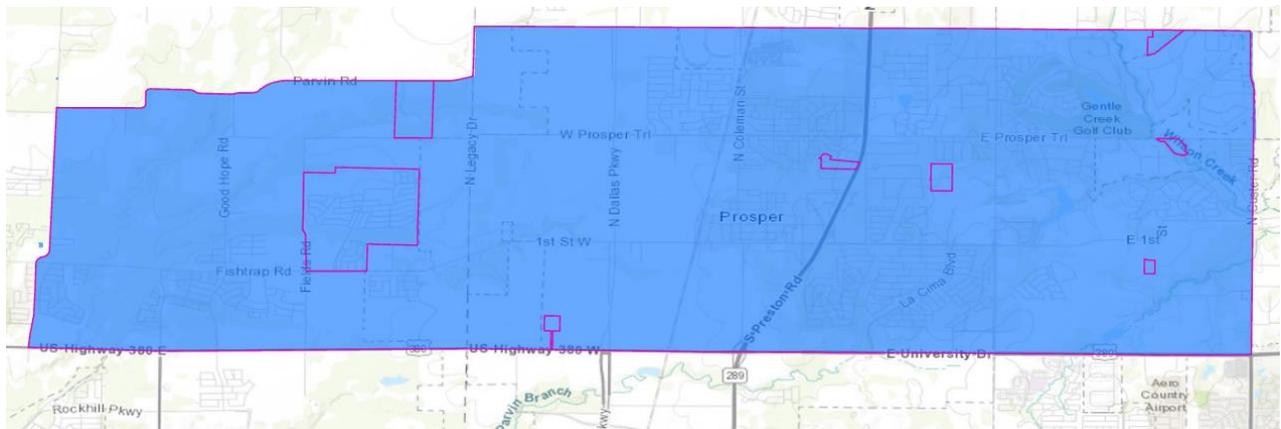
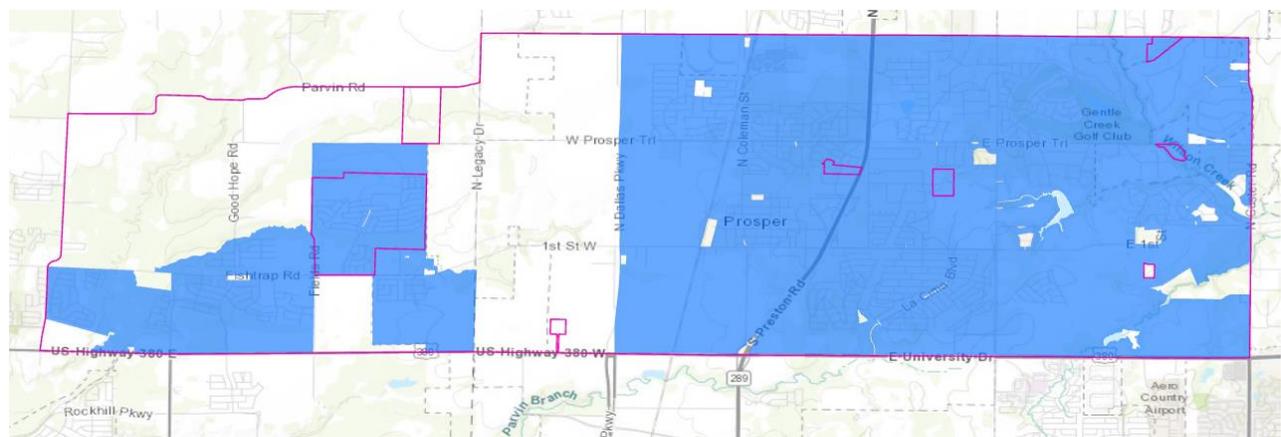


Figure 2 - FCC Reported Broadband Coverage with Speeds at Least 100 Mbps Download



As shown in the maps above, the FCC reports that broadband with speeds of at least 25/3 Mbps is available to every location in the town. The FCC reports less availability of download speeds of at least 100 Mbps as shown in Figure 2.

Broadband providers are required to file with the FCC a list of census blocks covered by their services twice annually. Under this current census block methodology, if even one household in a given block is served, the entire block is marked as having service. In rural areas, these blocks can be extremely large, increasing the likelihood of overstatement of service in the very areas that need help the most. For example, nationally, there are more than 3,200 census blocks that are larger than the entire District of Columbia (68 square miles in area) and 5 blocks that are larger than the entire state of Connecticut (5,567 square miles in area). Secondly, broadband providers that do not have GIS (geographic information system) capabilities are not able to visualize the spreadsheet-based file of census block IDs being filed through the FCC's Form 477 process to ensure accuracy, resulting in overstated and/or understated coverage reporting. Thirdly, some providers are simply missing from the Form 477 dataset entirely. Lastly, fixed wireless coverage is also reported as full census blocks, instead of service areas developed from propagation modeling, as was produced when the National Broadband Map was hosted by the National Telecommunications and Information Administration between 2009 and 2014. The FCC continues the problematic use of census blocks as the unit of measure for reporting, and thus accepts the well-established and inherent overstatement and understatement that such reporting yields.

This overstatement of coverage is one of the primary reasons communities like Prosper are studying their coverage at a local level and developing plans to address the challenges discovered. The following chapters provide greater local context for the true nature of broadband availability in Prosper, Texas.

## Household Assessment

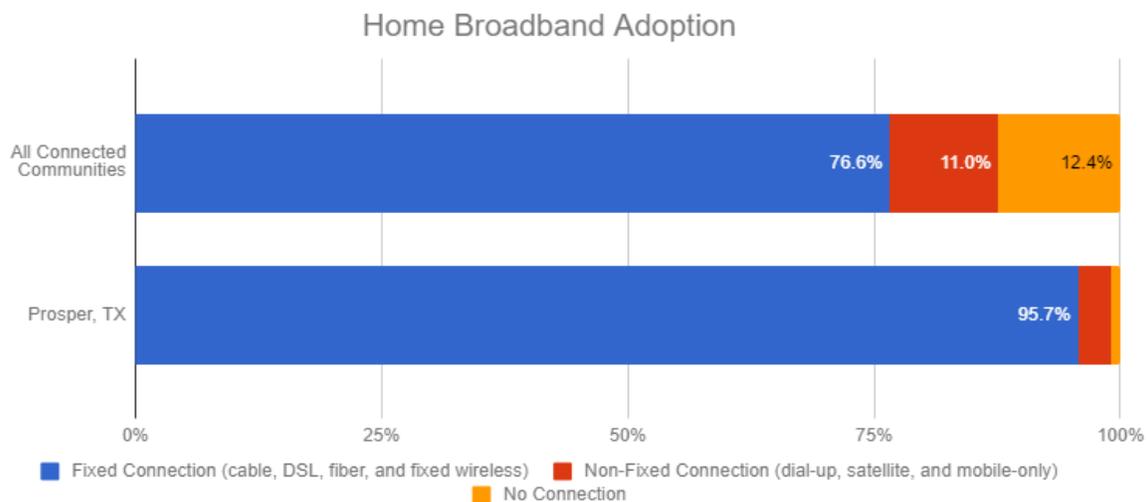
The Households Assessment section examines the ways in which a community's residents access, adopt, and use broadband and related technology in their everyday lives.

In order to gather this information, a residential technology survey was made available throughout the community. The survey was designed to gather detailed information on the access, adoption, and use of broadband and technology among residents of Prosper. The residential survey, distributed in February and March 2019, gathered 914 responses.

The following provides a summary of the survey results. Results from surveys in Prosper, for some data points, are compared to Connected Nation's voluminous body of survey results from communities across the nation representing more than 25,000 survey responses. This comparison allows for a benchmarking of Prosper's broadband access, adoption, and use with other communities.

### Broadband Adoption

The adoption of home internet service is the single most critical step for families to experience the benefits of being connected to the digital economy. Adoption represents the choice families make to be connected or not. There are several factors that influence broadband adoption. Sometimes these factors are internal and influenced by behavior patterns and knowledge (e.g., digital literacy skill, awareness of benefits, etc.); other times these factors are external and the adopter has little or no control over them (e.g., cost and infrastructure availability). Adoption often follows broadband availability, but not always. With more and more services being conducted in an online environment and an increased desire to digitally communicate, those without a home broadband connection most often seek connections elsewhere, breaking the access-first-adoption-second pattern.



The chart shows the percent of households that subscribe to various types of broadband services or that are without a connection. Fixed connections are those provided by cable, DSL, fiber, or fixed wireless technology while Non-Fixed connections include dial-up, satellite, and mobile-only services. These non-fixed types of internet services, while providing basic access, can often be plagued by connection latency, have costly monthly data plans, or can be impacted by weather, terrain, large expanses of open water, and other environmental factors. As shown, nearly all, (95.7%) of households have a fixed broadband connection, (compared to only 76.6% of households in other communities), while 3.3% rely on non-fixed broadband, and only 1% report not having any connection at all. Among the small number of households without a connection, one-third report that the cost of service is too high and the remaining two-thirds report that service is not available to them.

## Download Speed

Connection speeds can have a significant impact on how the internet is used. This chart shows the average reported download speed among households in Prosper compared to those in other Connected communities. As shown, the average reported download speed reported by residents is approximately 134 Mbps.

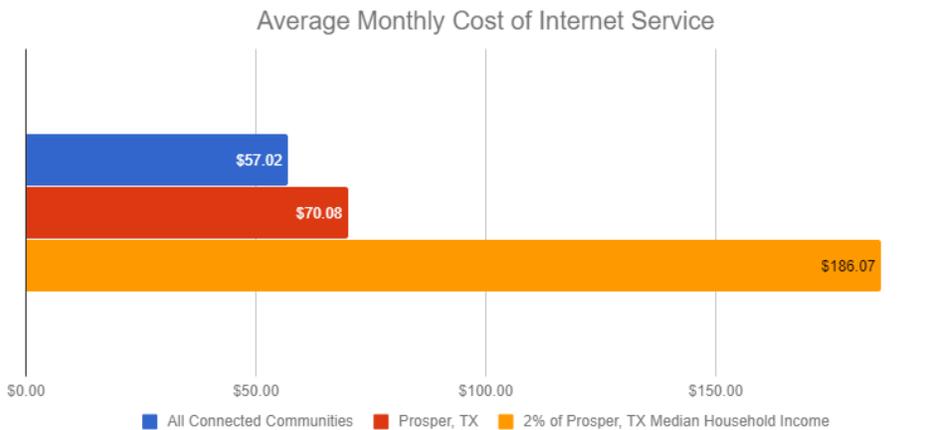
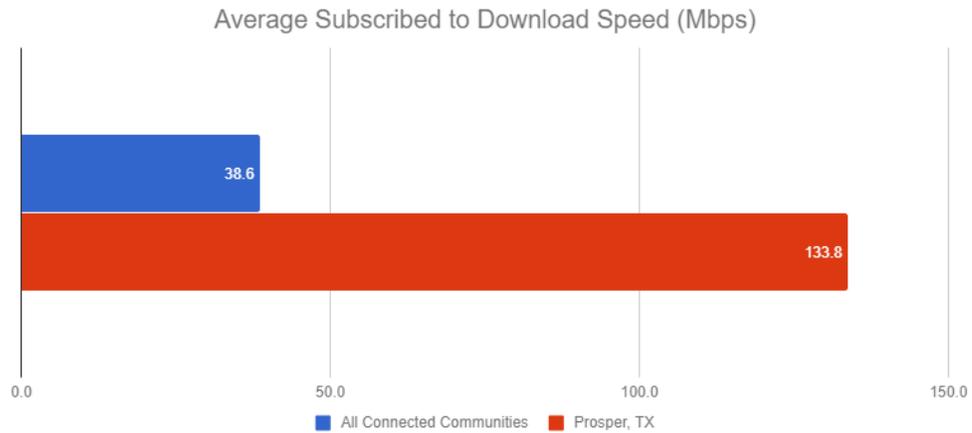
## Cost of Service

The cost of service can prevent some from being able to access the internet. This chart shows the average reported monthly cost of service among households in the community compared to those

in other Connected communities. Two-percent of household income is the benchmark generally used when determining the affordability of home internet service. The chart shows the monthly cost of service expressed as 2% of the community's median income according to the US Census. According to the latest Census

information, Prosper, TX has a median household income of \$111,641; 2% of which is \$186.07 per month. The average monthly cost of broadband service in Prosper reported by residents is just over \$70. For perspective, the median annual income in the United States in 2017 was \$60,336; 2% of which is \$100.56 per month.

It is important to remember that this benchmark is applied to the median income. Half of the households in the community earn less than the median income and thus may find broadband service at this price unaffordable.

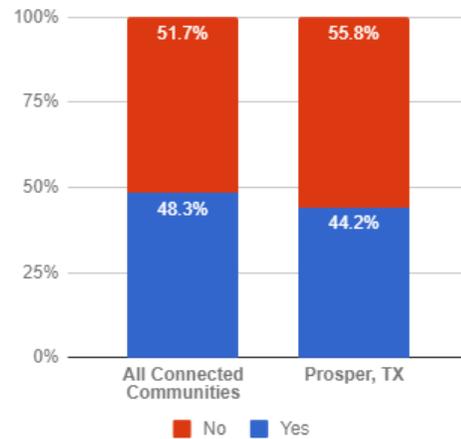


## Service Satisfaction

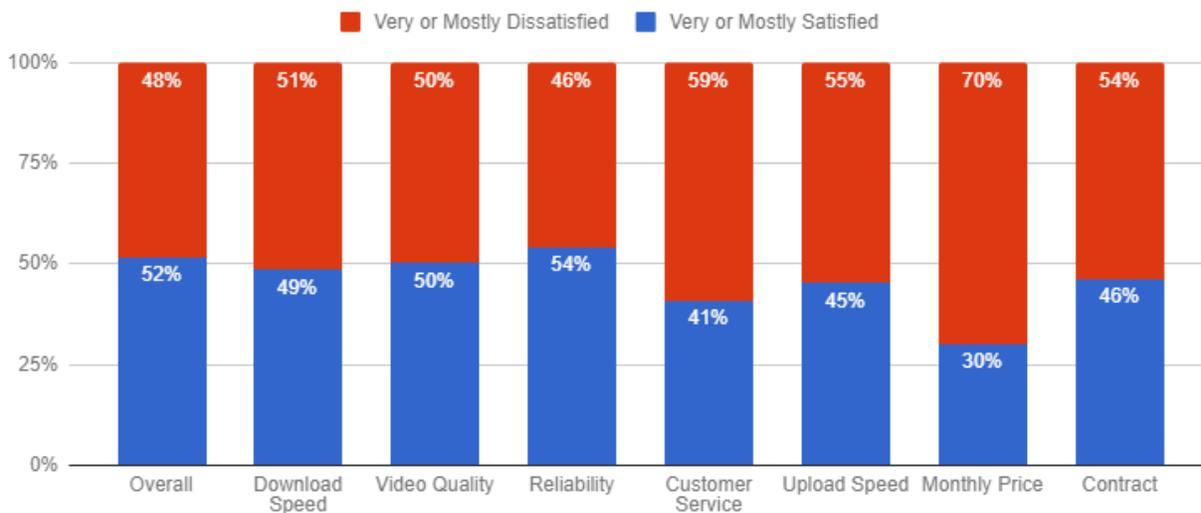
Competition provides residents with choices for service, allowing them the ability to switch providers if their current service does not meet their needs. The charts show; 1) the percent of households who state that their internet service meets or does not meet their needs; and 2) the reasons why their service doesn't meet their needs. Additionally, nearly all survey respondents (98.6%) indicate that they are interested in additional internet service options.

According to respondents, 55.8% indicate that their current internet connection does not meet their needs. Most households in Prosper have a fixed broadband connection, however, satisfaction with those connections varies in a number of ways. The chart below shows the satisfaction or dissatisfaction with several elements of their home broadband connections. As shown, residents are mostly dissatisfied with the customer service and monthly price of their connections.

Does Your Internet Connection Meet Your Needs?



Satisfaction with Home Broadband Connection

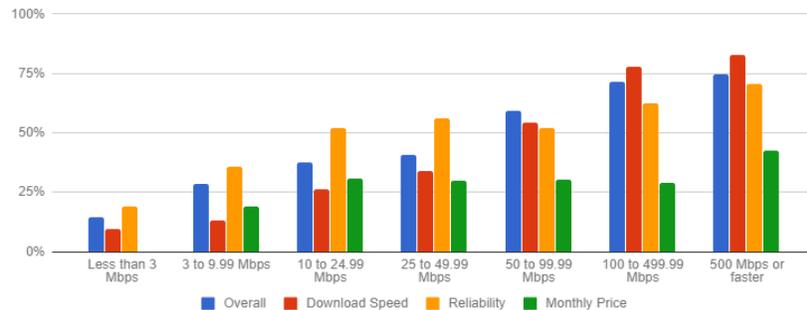


The two charts below show the percent of households that are very or mostly satisfied with select elements of their home broadband connection by; 1) their connection speed, and 2) their connection technology type.

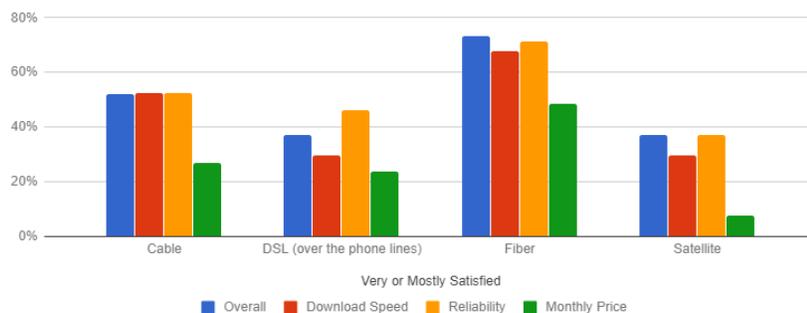
As shown, satisfaction tends to increase as connection speed increases. Similarly, households with cable or fiber connections tend to be more satisfied with their connections compared to those with DSL or satellite service.

For context, approximately 49% of survey respondents subscribe to cable service, 22% to DSL broadband, 19% to fiber, and 3% to satellite, with the remainder (~7%) unsure of their connection type. Additionally, approximately 29% of respondents subscribe to a connection with a speed less than 25 Mbps, 33% with speeds between 25 and 100 Mbps, and the remainder (38%) subscribing to speeds faster than 100 Mbps.

Users Very or Mostly Satisfied with Their Home Broadband Connection by Connection Speed



Users Very or Mostly Satisfied with Their Home Broadband Connection by Connection Type

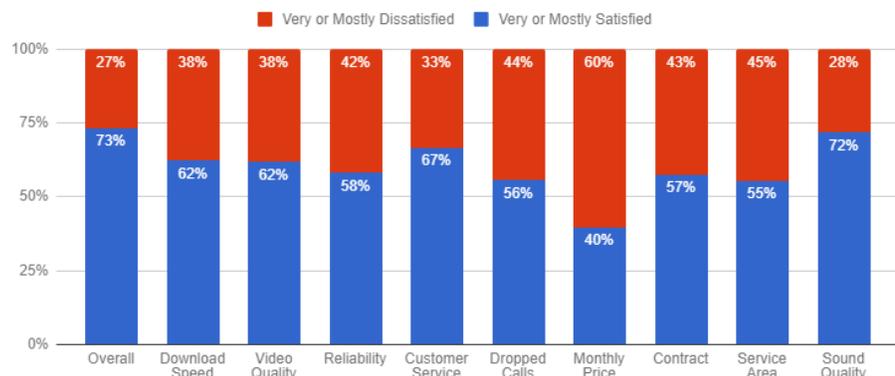


## Mobile Broadband Use and Satisfaction

Mobile broadband is different from fixed internet service in that it is designed for continuous use on the go. Having both fixed and mobile broadband connections is critical for households to ensure voice and data options are available to users as needed or desired. However, some households rely on mobile broadband for their permanent, fixed home connection. While mobile broadband can serve this role, it is often a last resort option for households when fixed broadband services are not available.

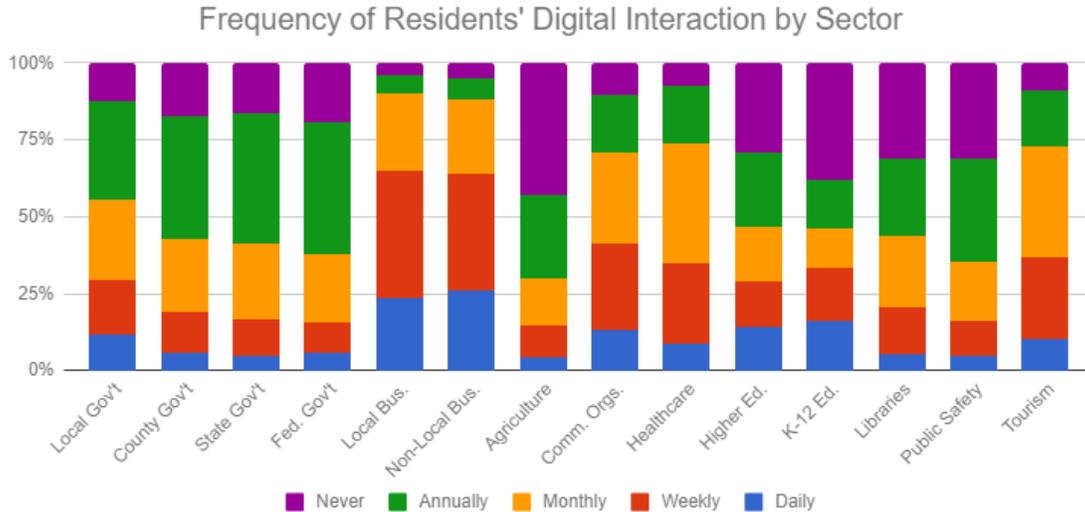
Nearly all, (97.5%) of residents in Prosper subscribe to mobile broadband service and 74% rely on mobile broadband as their secondary internet connection, meaning they also subscribe to a fixed connection. The chart shows the percent of mobile users and their satisfaction or dissatisfaction with various elements of their mobile service. Most residents are dissatisfied with the monthly cost of their mobile service, however, nearly three-quarters of residents (73%) are satisfied with their mobile service overall.

Satisfaction with Mobile Broadband Service

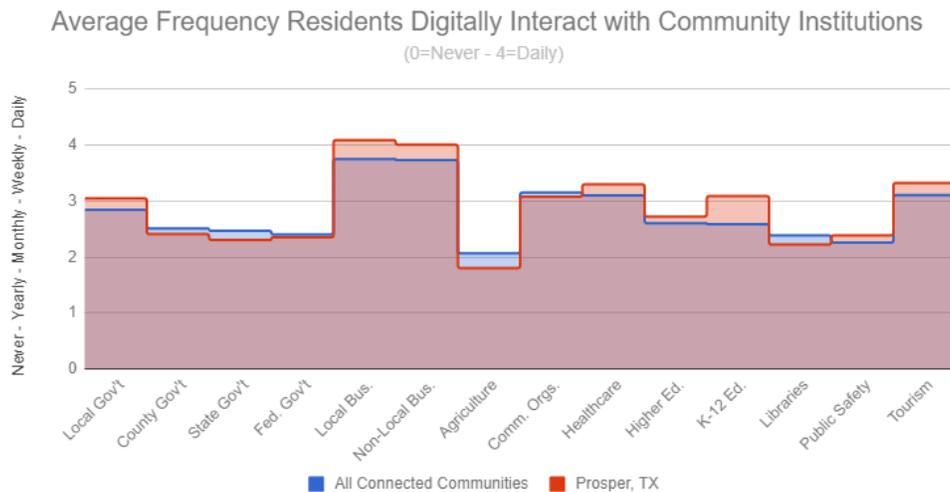


## Digital Interaction

The internet has moved from an occasional tool to one of the principal ways we communicate, perform research, work, or participate in leisure activities. Measuring the digital interaction among residents and various community sectors allows a glimpse into the importance of the internet in their lives. More importantly, this analysis can identify the common traits among those who use the internet less frequently and develop solutions for including them in the digital ecosystem.



This chart above shows the frequency with which residents state they digitally interact with various sectors of the community. Community members were asked how frequently they access online information from or interact electronically with the following sectors/entities: Agriculture, Community Organizations, Healthcare, Higher Education, K-12 Education, Libraries, Local and Non-Local Businesses, Local, County, State, and Federal Government, Public Safety, and Tourism. The digital interaction information explores how residents are (or are not) digitally interacting with various community institutions. This information is helpful for guiding and developing the digital strategy and online presence of these entities in the community. This chart below shows the average frequency with which residents digitally interact with these sectors compared to residents in other Connected communities.



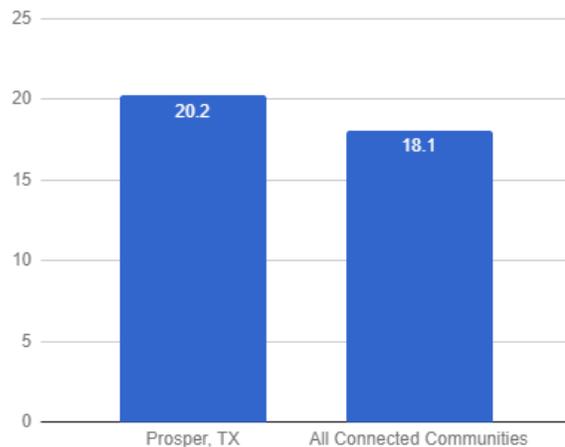
As shown, Prosper residents tend to interact with businesses, (both local and non-local), healthcare providers, K-12 schools, and local government than residents in other communities, but less frequently with county and state government, libraries, and the agricultural sector. While digital interaction is a personal choice, for those completely without or with restricted access to the internet, those who cannot afford a connection, those without the skills to use the internet, and those with limited awareness of the opportunities afforded by the internet, their opportunity to make such a personal choice is severely limited.

## Devices in the Home

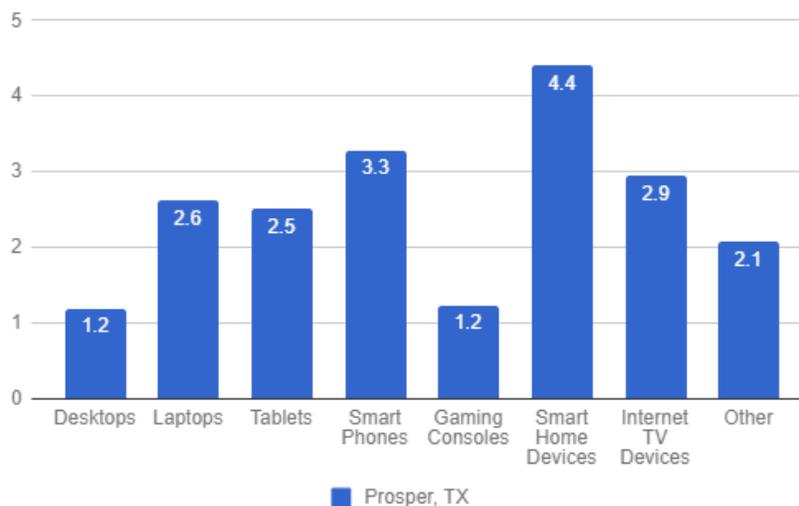
In the early days of the internet, a desktop computer was the primary, and virtually the only, way of connecting to the internet. However, with the rise of Wi-Fi, mobile broadband, Bluetooth, and many other revolutionary technologies, residents have multiple ways through which they can access the internet. While a wide variety of devices are available to connect to the internet, sometimes the lack of an internet-enabled device is cited as a barrier to home broadband adoption. The chart shows the average number of internet-enabled devices in Prosper households compared to homes in other communities, and the chart below shows the average number of devices by type for homes in Prosper.

As shown, the average Prosper household has approximately twenty internet connected devices, compared to eighteen in other communities.

Average Number of Devices in the Home



Average Number of Devices in the Home



## Teleworking

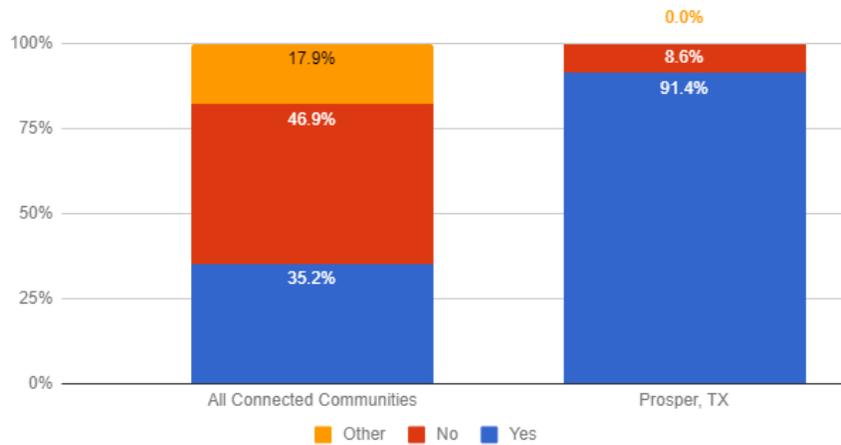
Teleworking, or telecommuting, refers to working outside of the conventional workplace and communicating with it by way of telecommunications or computer-based technology. Further, telework is a form of organizing and/or performing work, where work, which could also be performed at the employer’s premises, is carried out away from those premises. Teleworking is a spatially flexible work style that typically also involves greater flexibility in one’s daily routine.

Teleworkers typically have higher incomes and higher rates of advanced degree attainment. While traditional teleworkers are often thought of as those in management occupations or professional service industries, recently, technology has enabled new opportunities for teleworkers across the occupational and industry sector spectrum.

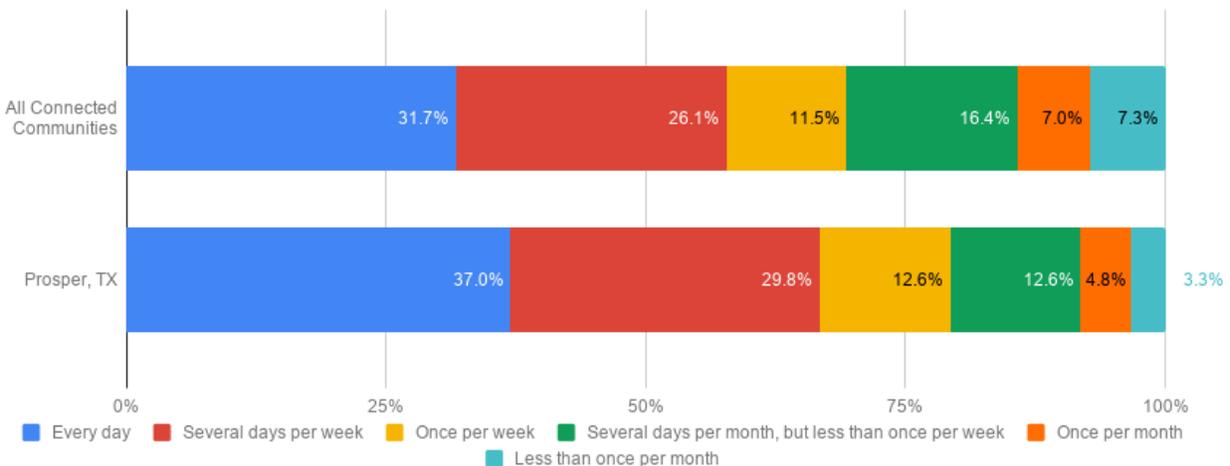
Teleworkers often do not register on typical measures of economic or workforce activity. Economic development strategies traditionally involve the attraction or retention of employers. While this is a critical part of growing a local economy, telework represents an opportunity to attract or retain employees even though their employer may not be located within the community, but only if those employees have access to advanced broadband infrastructure. The chart shows the percent of residents in the community that telework compared to residents of other Connected communities. According to survey respondents, more than 91% of residents telework with some frequency in the community. This is far higher than the average rate of teleworking in other communities and the nation as a whole.

While the rate of teleworkers appears high, this accounts for all teleworking situations and frequency. The chart below shows how frequently respondents telework, with 37% indicating they telework every day, 30% teleworking several days per week, and the remainder teleworking with less frequency.

Do You Currently Telework for Your Job?



How Frequently Do You Telework?





Other areas where DSL is the only available technology, which should be discussed with Prosper’s broadband providers, exist at locations such as Cripple Creek Drive, Moss Creek Drive, Reflection Lane, Flyway Drive, Stonybrook Drive, Springbrook Drive, Cedarbrook Lane, Overbrook Lane, Town Lake Drive, White Crest Lane, Blue Ridge Drive, Moss Glen Drive, and Abbey Lane.

## **Broadband and Service Providers**

Broadband access refers to the infrastructure that enables a high-speed internet connection. There are two primary types of broadband connections: fixed and mobile.

Fixed broadband is delivered to a user via several technology platforms including cable, digital subscriber line (DSL) over a phone line, fiber optics, and fixed wireless. Fixed broadband is designed for stationary use at a fixed location such as a home, business, or institution (see examples at Appendix II: Infrastructure).

Mobile broadband is a wireless technology used to connect portable devices to the internet. These networks are designed to provide seamless connectivity as the user moves from one location to the next while accessing the web from a portable device. Mobile connections were robust in Prosper and generally were not impacted by weather, vegetation, latency, and other issues of typically associated with connection reliability and restriction.

The eventual deployment of fifth generation, or 5G, wireless services will likely impact Prosper and such networks will be designed to push immense amounts of data across the mobile network. 5G will not be a band-aid or cure-all and will be subject to its own set of inherent problems.

In their article titled “What is 5G?”<sup>4</sup> PCMag.com opines on the initial launch of 5G networks stating “...we think this will be ‘millimeter wave’ 5G, which requires dense networks of cells that don't reach very far (say, about 1000 feet each), but deliver extremely high speeds.” This coincides with early indications that, as an industry, millimeter wave service (combined with massive MIMO antennas) may be deployed across existing 4G networks as a precursor of things to come.

Texas Senate Bill 1004<sup>5</sup>, which was signed by Gov. Greg Abbott in June 2017 and went into effect in September 2017 made it easier for ISPs to deploy small cell networks. The bill has been controversial and, since going into effect, the state has since been sued by Austin, Dallas, and 20 other city governments over the bill. It is difficult to opine whether this will accelerate or impede 5G deployments over the next few years.

The Federal Communications Commission’s (FCC) Spectrum Frontiers Auction 101 (28 GHz) was completed on January 24, 2019 and received gross bids of \$702,572,410 for the 3,072 licenses (parsed as 425 megahertz blocks) and commenced Auction 102 (24 GHz) on March 14 offering 2,909 licenses (100 megahertz blocks).

Broadband availability is an essential infrastructure for twenty-first century communities. Broadband empowers a community to access applications ranging from healthcare and education to business and government services. A high-speed internet connection is critical for families, students, businesses, and institutions to participate in the digital economy.

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<sup>4</sup> <https://www.pcmag.com/article/345387/what-is-5g>

<sup>5</sup> <https://legiscan.com/TX/text/SB1004/2017>

The Town of Prosper is performing better than other communities surveyed by Connected Nation when it comes to broadband speed and adoption. In several areas of the town, consumers have access to fiber, cable modem, and high speed DSL, and in most areas of the town, consumers have access to both cable modem and high speed DSL. The average download speed reported by residents in Prosper is 133.8 Mbps while the average download speed reported by residents in other communities engaged by Connected Nation is 38.6 Mbps.

***Prosper survey results indicate that the average download speed of service is 133.8 Mbps<sup>6</sup>.***

The speed tests shown in Figure 4 were conducted on March 8 and 9, 2019 and clearly illustrate the inconsistency of the connection speed of one provider. The 8:44 a.m. download speed is 20.15 Mbps

Figure 4 - Speed Tests

Date	Download	Upload
3/9/2019 8:44:54 AM	20.15 Mbps	17.57 Mbps
3/8/2019 8:30:51 PM	2.19 Mbps	12.12 Mbps

versus the 2.19 Mbps download speed at 8:30 p.m. It was very evident that consumers in the area held strong opinions of the local providers and the inconsistencies in speeds. It was also apparent, however, that these problems may be attributed to the rapid growth (and subsequent construction activities) in the area.

CN staff members spent March 3-9, 2019 driving the majority<sup>7</sup> of the roadways in Prosper (765 miles) while mapping the CATV outside plant (OSP) routes, FTTH OSP routes, distribution fiber routes, and identifying the DSLAM and central office (CO) locations across the town (see sample map below). On several occasions, CN staff members witnessed damage to the broadband infrastructure (e.g., pedestals being run over by heavy machinery, fiber optic cables being cut by graders and back-hoes, etc.) causing service interruptions until such time as broadband providers could dispatch repair crews.

The vision of the broadband leadership team in Prosper is to ensure that all citizens have access to world-class broadband infrastructure in their community. Such infrastructure requires patience and time and it should be acknowledged that certain things are simply outside of the control of the broadband provider.

Armed with individual provider maps, CN staff members set out to locate and log the service routes. For example, if an FCC Form 477 map indicated the presence of fiber-to-the-home, then one would expect to find remote terminals at the entry to a subdivision or somewhere within the subdivision, pedestals (if the OSP is underground), and network interface devices on the side of a home in the neighborhood (see Figure 5). Maps of service routes can be found in the Appendix.

Figure 5 -



As one of the primary deliverables for this project, Figure 6 below, and the set of detailed route maps found in the Appendix, will assist the Prosper broadband team to isolate the locations of unserved households within its borders.

This unique mapping methodology supplants the standard FCC Form 477 mapping data; when filing Form 477 for fixed broadband deployment, service available at one home in a census block translates into the entire census block being reported as served by broadband.

As a starting point for this exercise, CN downloaded and processed the

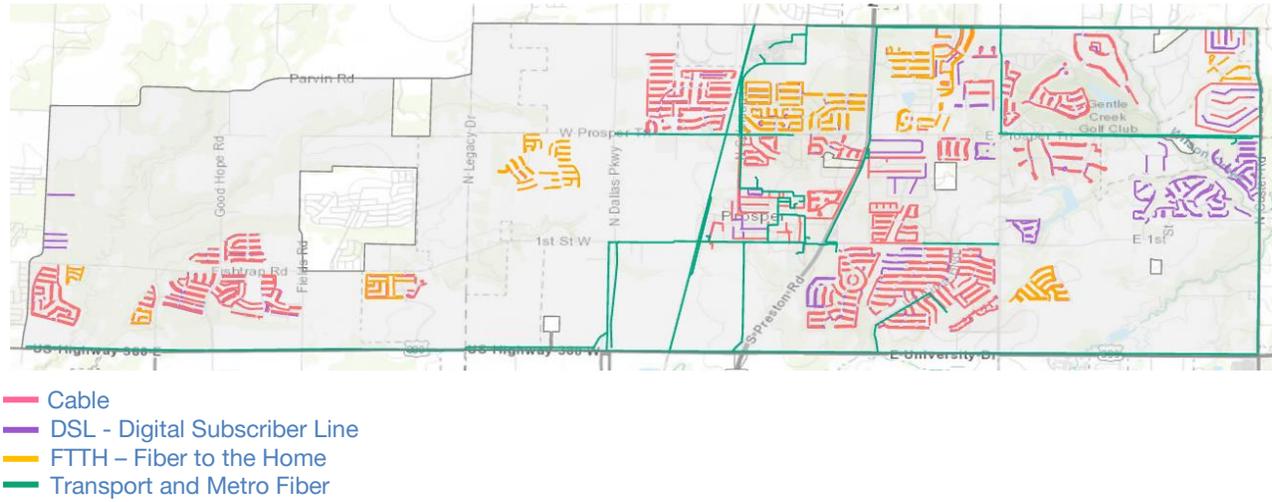
<sup>6</sup> Based on reported subscription levels and not availability levels.

<sup>7</sup> Several small gated communities were inaccessible during these periods of time. It can generally be assumed that these outliers receive AT&T's DSL service, at a minimum, and likely receive cable modem service from Suddenlink.

most recently available FCC Form 477 data, current as of December 30, 2017.

Two providers that were present in the FCC Form 477 deployment data were found to not actually provide any broadband service in Prosper (Comcast and Ultra Communications d.b.a. NewWave).

Figure 6 - Outside Plant Map



## Recommendations

While the Prosper broadband team has exhibited great progress in broadband and technology advancement, this technology plan offers recommended actions that may help the community fill the technology gaps identified in this report. These recommended actions for project implementation are subject to evolution as implementers assimilate various local organizational goals and objectives.

### Unserved and Underserved

Areas served by only one broadband provider, or areas where the speed level falls below the federal benchmark of 25 Mbps x 3 Mbps, should be the focus of a campaign to introduce competition and potentially reduce service pricing.

### Public-Private Partnership

A public-private partnership (P3) model may allow Prosper to express some control over the areas served while passing the operational burden on to a private partner. Prosper could consider funding the front-end capital costs (CAP-EX) of projects while the P3 partner would provide the overall operating expenses (OP-EX), necessary manpower and some form of debt service (e.g., profit sharing through the term of debt retirement).

Prosper is serviced by multiple fixed wireless providers, most notably Speed of Light. A P3 with this entity may enable, and ensure, the delivery of 25 Mbps x 3 Mbps service to the hardest to reach areas within the town boundaries.

### Free Wi-Fi

Additionally, such a P3 arrangement could be leveraged to develop “free” Wi-Fi zones in the city. Wi-Fi access points could be installed near high traffic areas such as Frontier Park and Stone Creek Park, or inside public transit vehicles.

### Competitive Application Process – Grant Program

This logical approach may provide the town of Prosper with the greatest flexibility and control. A grant pool, with funds sourced from TxCDBG, GLO, or monies potentially earmarked within HB 2423, could be set aside to provide financial incentive/support to broadband providers willing to expand into higher cost or remote areas.

### Economic Prosperity and Social Media Classes for Local Businesses:

A website and social media are not just for companies that have the experience, staff, or budget; any small business can tap into these resources. Training should be provided to small businesses regarding the use of websites and social media within that small business. Website topics could range from starting a basic website to more advanced topics such as e-commerce. Social media topics could include a variety of social media outlets including Facebook, Twitter, YouTube, Pinterest, and LinkedIn.

# Appendix I: Infrastructure

**N. Custer Rd. & Christie Farms Blvd.  
(AT&T Fiber Cabinet)**



**Wichita Drive  
(AT&T DSL Pedestal, Grayson Collin  
Fiber-to-the Home Power Pedestal, &  
Suddenlink Pedestal)**



**Newpark Way  
(Fiber-to-the-Home Optical Cable)**

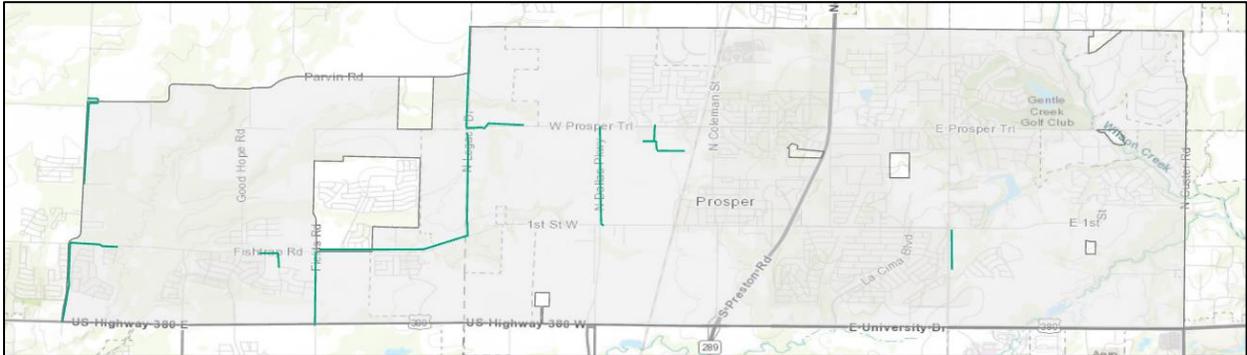


**Butchart Drive  
(Suddenlink Overbuild)**

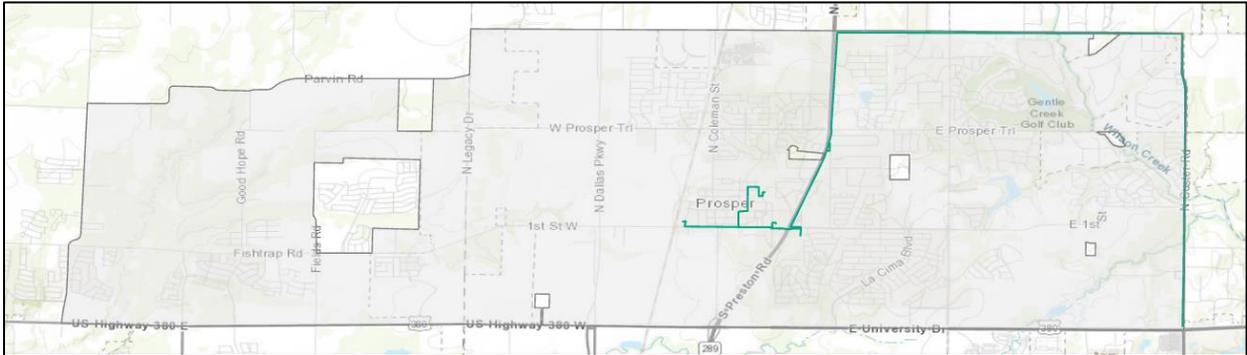


# Appendix II: Broadband Maps

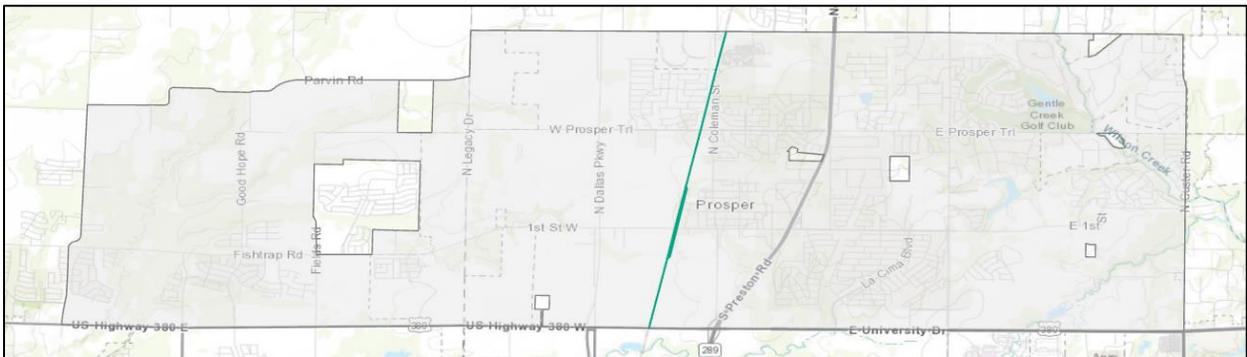
## Metro Fiber Route Map: AT&T



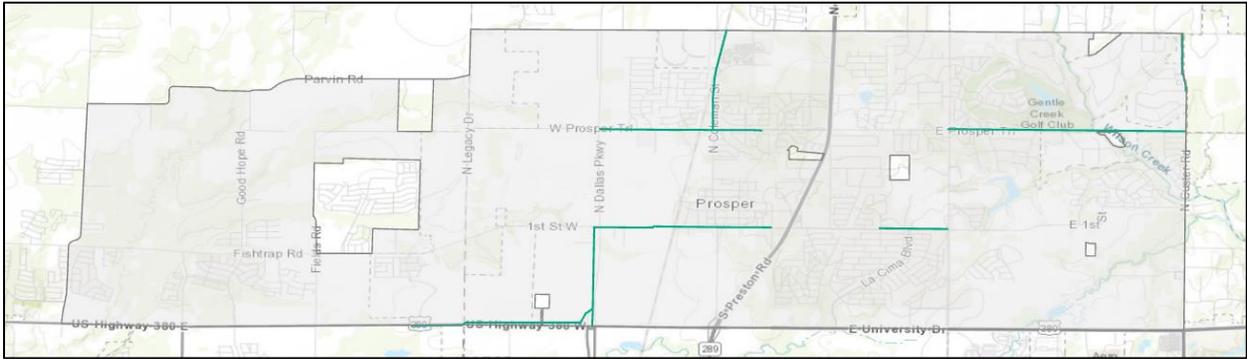
## Metro Fiber Route Map: Grande Communications



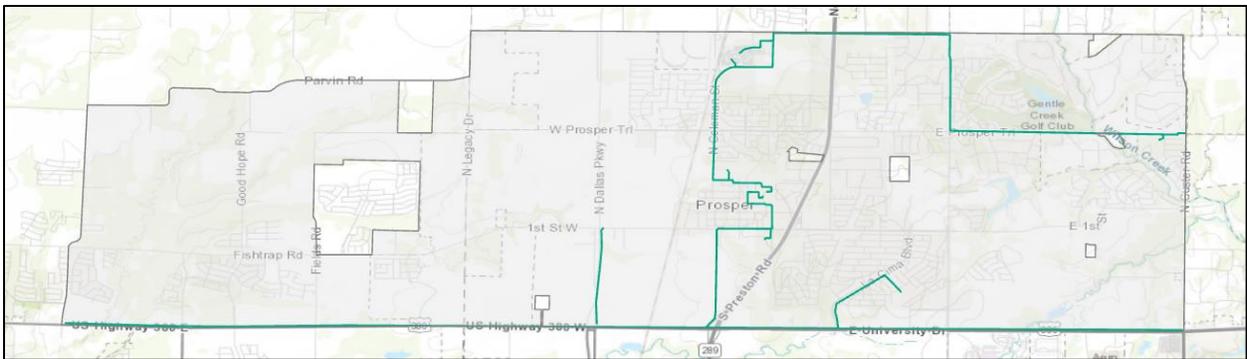
## Metro Fiber Route Map: RailAmerica – Genesee and Wyoming



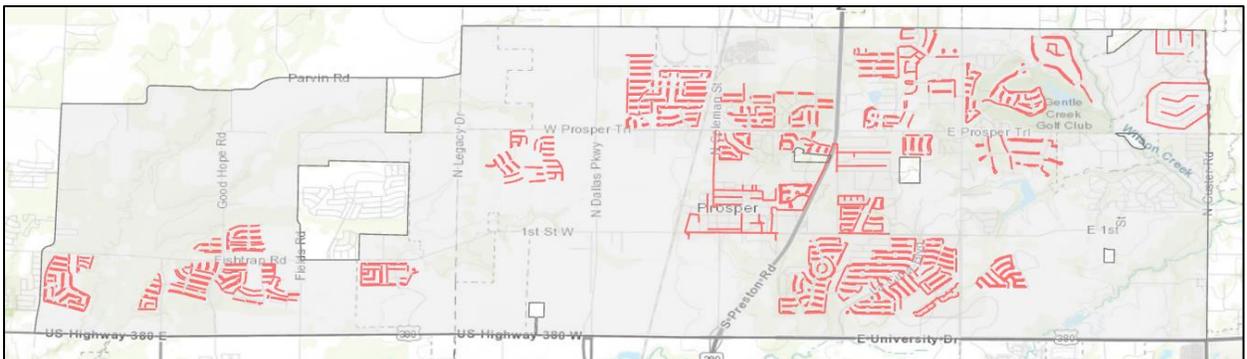
Metro Fiber Route Map: Suddenlink



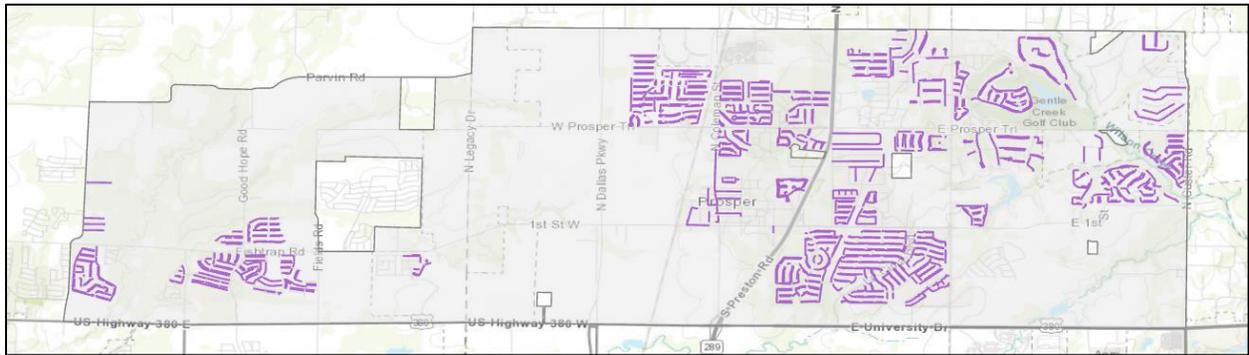
Metro Fiber Route Map: Zayo



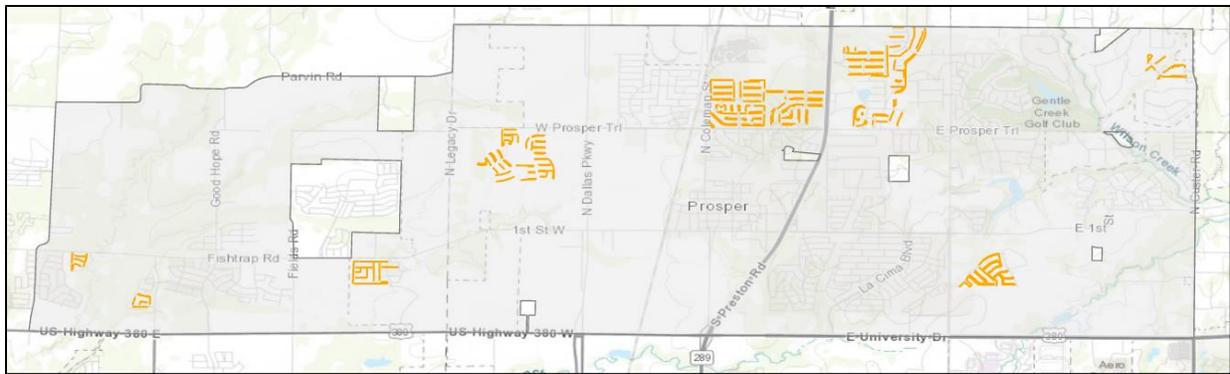
Technology Route Map: Broadband Over Cable Television Lines



### Technology Route Map: Copper



### Technology Route Map: Fiber-to-the-Home



### Technology Route Map: Composite of All Technologies

