



PRE-FEASIBILITY STUDY

Phase 1 Final Report

[Abstract](#)

Fort Dodge Market Study



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Executive Summary

SmartSource Consulting and collaborators Kielkopf Advisory Services and HR Green conducted this Pre-Feasibility Study to help city leaders identify possible deficiencies in broadband services in the Fort Dodge market and the impacts those deficiencies are having in the community.

Through the combination of an online survey and assessment tool, group stakeholder meetings, and anecdotal feedback, we found that citizens are dissatisfied with the broadband services they receive today, particularly with service prices and the frequency and length of service interruptions. We also found that community members (1) understand the importance of advanced broadband services for the future growth and success of the community and (2) feel that having a provider that provides excellent customer service and uses the best available technology is very important to them.

If offered service from a new fiber optic network, residents would be very likely to take services from that provider. And they are unlikely to recommend the community's two largest service providers to friends and neighbors as shown through low Net Promoter Scores revealed by the community broadband survey.

Background

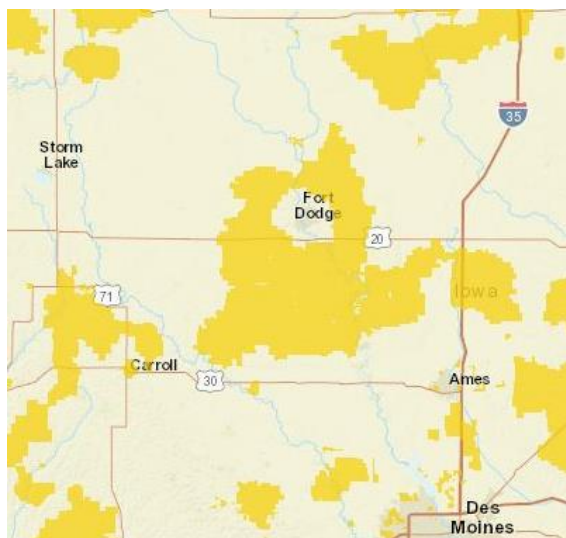


Figure 1: Map showing areas in the Fort Dodge region served by fiber (shaded).

Fort Dodge is surrounded by areas that are served by fiber-to-the-premise (FTTP) networks provided by several small, independent telephone companies (ITCs). These community-based companies were able to utilize federal subsidies, unavailable to most urban areas, through the Connect America Fund and its predecessor - the Universal Service Fund - to upgrade their copper-based delivery infrastructure to all fiber.

Despite being the largest city in the region and key commercial hub, Fort Dodge telecommunications infrastructure is less advanced than in surrounding rural areas and small towns like Lehigh, Dayton, and Badger.

After years of receiving citizen complaints about poor service quality, the Fort Dodge City Council voted in

2018 to add broadband research to the City's strategic plan. Funds were also budgeted to conduct a feasibility study to determine to the viability of a city-owned fiber optic telecommunications utility.

In August 2019, after reviewing preliminary information gathered in the creation of this report, the City Council voted unanimously to place a municipal telecommunications utility referendum on the ballot in the upcoming November 5, 2019 city election to maximize city leaders' options to resolve market deficiencies.

Current Provider Landscape

Like most cities in Iowa, Fort Dodge is served by one telephone company and one cable company. Frontier, the incumbent telephone company, is the nation's 8th largest provider of internet service with 3.7 million users in 29 states. Headquartered in Norwalk, Connecticut, Frontier is investor-owned and publicly traded on the NASDAQ exchange. Frontier's network is based on DSL technology which uses a fiber optic backbone but delivers service to the end user via twisted pair copper lines.

Mediacom is one of the nation's largest internet providers with customers in 22 states. It is Iowa's largest internet and cable TV provider. Based in Blooming Grove, New York, Mediacom is privately owned. Mediacom's network is hybrid fiber-coaxial (HFC) with a fiber optic backbone. While most customers are served via coaxial cable, some businesses are likely connected directly via fiber optics.

In addition to these facilities-based providers, Fort Dodge residents also have access to two satellite-based pay TV providers (AT&T/DIRECTV and Dish Network), as well as several wireless internet options (fixed wireless, satellite, and mobile/cellular data). For video content, consumers also have a growing number of choices for over-the-top (OTT) video that is delivered via their internet connection. In addition to the original streaming video services such as Netflix, Hulu, and Amazon Prime, several new OTT video services have been launched in the past several years and many more are expected to appear moving forward. These services - such as Sling TV, Sony PlayStation Vue, and YouTube TV – have one thing in common: they require an excellent internet connection to deliver content reliably and with acceptable picture quality.

Although pay TV products and landline telephone service are also delivered over telecommunications networks, the focus of this study is the service that has been elevated to a necessity in today's connected world – broadband internet. From a community leader's perspective, excellent broadband internet (and the ISP's that deliver it) should meet several criteria.

1. The service should deliver fast download and upload speeds. Although download speeds have traditionally been the main measure of an ISP's quality, more and more consumers rely on fast upload speeds for daily internet use. In addition to fast speeds, consumers are best served with speeds that are consistent regardless of time of day.
2. The service should be highly reliable with few service slowdowns and interruptions. The network should be redundant and avoid single points of failure. When interruptions do occur, service should be restored rapidly.
3. The service should be affordable so that most citizens can have access to at least adequate service.
4. The service should be available everywhere in the community. "Digital deserts" where acceptable service is not available can limit a community's ability to attract and retain residents, employers, and economic opportunity.
5. The service should provide excellent customer support.

Using these metrics as a guidepost, Fort Dodge's existing cable TV and telephone companies each have their advantages and disadvantages.

Mediacom

Mediacom offers high-speed internet access, digital pay TV service, and landline telephone service utilizing Voice over Internet Protocol (VoIP). Several years ago, Mediacom upgraded its core network to take advantage of DOCSIS 3.1 technology that allows it to provide speeds of one gigabit per second (Gbps) across its entire HFC network. It was one of the first large cable operators to make the transition to DOCSIS 3.1.

“Speed would not have to be blazingly fast for me.... but it would be nice if it were reliable and consistent.” – Comment on Residential Broadband Survey

The next generation of DOCSIS, labeled 10G by the industry, is designed to provide even higher download and upload speeds than today’s platform while still using an HFC network instead of FTTP. Although Mediacom has mentioned that it plans to be an early adopter of the new 10G cable internet protocol, a

definitive timetable for deployment of this next generation of service has not been determined.¹ Overall, download speeds advertised by Mediacom – up to 1 Gbps – are considered more than adequate for most consumer usage today.

Although Mediacom has made investments in internet speed, it continues to be challenged by consumer complaints related to reliability and customer service delivery. It is unclear over the long term if the Mediacom network in Fort Dodge and other small communities will receive the kind of investment and upgrades needed to improve reliability and therefore consumer satisfaction.

Frontier

Frontier’s copper telephone network does not have the same internet delivery capabilities as Mediacom’s. According to the Frontier website, the highest internet download speeds available on Frontier’s Fort Dodge network is 45 Mbps.² Other download speeds listed are 25 Mbps and 6 Mbps. However, as with any xDSL network, not all speeds are available in all areas of the community. For example, the highest download speed recorded by a Frontier customer during the broadband assessment was 22.5 Mbps. Information on Frontier upload speeds is not available.

To significantly improve delivered internet speeds to end users, Frontier would need to extend existing fiber routes closer to the end user so higher DSL speeds could be utilized. To date, the company has not announced any significant technology upgrades that will enable it to do so. Without an upgrade to their network allowing more people to delivery true broadband service, Frontier is unlikely to be able to effectively compete. And they will continue to face the same consumer backlash as Mediacom if reliability and customer care are not improved.

¹ <https://10g.mediacomcable.com/>

² From <https://internet.frontier.com/plans-pricing.html> for zip code 50501.

One of the challenges of examining the current provider landscape is the same challenge that is frustrating to consumers: determining the real price of services. Most providers offer so many combinations of pay TV, internet, and landline telephone services with varying discounts and surcharges

“We have broadband services at our family farm. I can say that the internet phone and tv are way better than what we have in town.” – Comment on Residential Broadband Survey

that it becomes difficult to compare apples to apples. On top of this, providers often create special offers to attract new customers that are not made available to existing customers. Some offers are not necessarily published and widely distributed and require a customer to be proactive to obtain a better deal. This lack

of transparency makes shopping for the best deal within or among providers a difficult task.

Project Goals and Methodology

In its June 2019 proposal to the City of Fort Dodge, SmartSource Consulting identified a phased approach to studying the feasibility of a new fiber-to-the-home network in Fort Dodge using public resources, private resources, or a combination of both. Phase 1 of this effort, the Pre-Feasibility Study, was conducted during June-August of 2019.

The goals of the Pre-Feasibility study:

1. Educate citizens about the importance of broadband.
2. Engage with individuals, anchor institutions, and leadership groups to discover broadband deficiencies.
3. Conduct and report on a comprehensive survey to measure attitudes about existing providers and gauge interest in public or private solutions to improve service.
4. Utilize the online platform CrowdFiber to enable citizens to provide feedback on service reliability and conduct network performance testing.
5. Utilize existing GIS data to determine a high-level cost estimate for a city-wide FTTP network.

Various tools and resources were used to achieve these goals. For education, we relied on a web page and the City of Fort Dodge Facebook page. Engagement took place during several stakeholder meetings on August 2nd. The online survey and broadband assessment allowed citizens to test performance of their internet connection, state opinions, and provide feedback. And using GIS and advanced network design tools, HR Green was able to show a reasonably accurate cost estimate for a FTTP network in Fort Dodge.

Engagement and Education

To provide citizens with information about broadband in general and the Fort Dodge broadband study in particular, a Fort Dodge web page was established at <http://www.ourbroadbandfuture.com/fort-dodge.html>. This page and other pages on the website were developed to serve as an information hub for communities like Fort Dodge that are conducting broadband studies. Other pages include a glossary

of broadband terms, success stories from other community broadband networks, and information about the importance of excellent broadband service.

Because the city has an active and well-read Facebook page, it was also used as an avenue to communicate with residents and provide education about the importance of broadband and how to participate in the study.

While the efforts listed above were focused on the population at large, we also took pains to engage in conversations with community stakeholder groups to learn more about their perceptions of current broadband options in Fort Dodge and identify any gaps that exist. The following stakeholder meetings were held on August 2, 2019.

Industry and Economic Development

Attendees at this stakeholder meeting tended to be from larger businesses and industries in Fort Dodge, and as a result they have had the resources to improve broadband service. In two examples they were willing to pay for a direct fiber connection from one of the existing providers while maintaining a backup connection with another provider.

Overall the participants in this discussion seemed satisfied with their current connections, although they recognized that because of their size and ability to pay they have been able to secure better connections than some smaller businesses are likely to have. A major outage in early July, caused by a fiber optic cable cut in northwest Iowa, was mentioned as a serious issue.³ One of the businesses said it kept them offline and operating on a limited basis for over 24 hours.

Participants expressed support for the concept of competition in the broadband marketplace in Fort Dodge. They did not have strong opinions one way or the other regarding public ownership of fiber infrastructure, as long as the provider can provide excellent service.

Education and Government

Representatives of Fort Dodge's public institutions participated in a discussion about their own broadband needs as well as the needs of the citizens and students they serve. For the most part, each institution indicated that their own needs were being adequately met with the current provider base. However, several concerns were raised about the community in general being left behind.

Fort Dodge Community Schools, for example, has a fiber connection to the outside world as well as

*"I use the internet to teach children in China live. There have been numerous times when my internet was slower, lagged, or stopped working altogether. At one point in time our internet was down for 6 days and I did not get the help I needed to fix it." –
Comment on Business Broadband Survey*

leased fiber connections between each school facility. Although prices are higher than they'd like and they do experience occasional outages, service generally meets the school's internal needs. School officials expressed concern about the ability of their lower income students to access adequate broadband services to complete online assignments. Up to 65%

³ <https://www.messengernews.net/news/local-news/2019/07/cut-cable-knocks-out-mediacom-services/>

of Fort Dodge public school students are on free or reduced-price school lunch due to household income.

The school has had to open facilities on evenings and weekends to allow students without internet at home to have access. Some student households have taken advantage of Mediacom's "Connect2Compete" internet offer for eligible customers⁴. However, school officials stated that the limitations of that service make it inadequate for some students. On a more personal level, the superintendent reported that it took six months for him to get service when he built a new home because providers did not have facilities in the area.

School officials also shared that many home-schooled students rely extensively on online, video-based instruction rather than teachers that are physically present. Those students have particularly acute needs for reliable broadband.

Other highlights of the education and government stakeholder group meeting include:

- Iowa Central Community College has good service with a total of 3 GB to serve their needs. Although their institution is taken care of, ICCCL leaders acknowledged that issues with broadband connectivity are a concern across the community.
- Webster County has used a variety of methods to provide connectivity, including Aureon and fixed wireless.

Health Care

Representatives of UnityPoint and the City ambulance service attended the health care stakeholder meeting. The attendees agreed that timing was good for the pre-feasibility study as they see technology in health care hitting a critical turning point.

The two entities are working together to deliver community paramedicine to enhance health care to citizens and improve outcomes. The program has been a success so far, but they have concerns about having adequate broadband to allow the free flow of information in a secure manner for patient records, billing, etc.

Both organizations felt that their own facilities have adequate services for today's needs, however there is concern about how connectivity elsewhere in the community might impact the ability of health care professionals to work remotely, either on administrative tasks or direct patient care. For example, there is no neurologist based in Fort Dodge, so neurology tasks are typically handled electronically.

As in other communities where we have conducted similar stakeholder meetings, the issue of how broadband impacts employee recruitment was discussed. It is more difficult to recruit highly qualified health care professionals to a community if it is lacking certain characteristics including excellent broadband because it is vital not only to the person being recruited for a position but also for their spouse or partner.

Commercial and Small Business

Attendees of this stakeholder meeting consisted primarily of small business operators in Fort Dodge. The biggest pain point reported by the group was the frequency and length of service outages,

⁴ <https://mediacomc2c.com/>

particularly in the central business district. When outages occur and point of sale systems are offline, it can prevent businesses from accepting electronic payments. As one person reported, “We’re getting more and more fed up.”

Another attendee reported that upload speeds that are slower than download speeds are a sore spot due to the amount of data the business uploads to the cloud and to an office in another city. Several people reported that the use of cloud-based applications have made their internet connection increasingly vital to overall operations. A computer repair shop owner complained that outages at his store means he must close the office and work from home, assuming the outage did not also affect their home connection.

Like the health care group, the commercial and small business group also discussed the impact of broadband on employee recruitment.

General Public

A community broadband meeting was held during the evening of August 2nd. This meeting was open to the general public was attended by approximately 20 citizens and several employees of telecommunications companies in the area. The meeting was also streamed live on the City Facebook page and is available as a recording at <https://www.facebook.com/fortdodgeiowa/videos/910902662641725/>.

The overall tenor of the meeting was negative, as community members expressed concern over service interruptions and slowdowns, customer service, prices, and overall availability.

Community Broadband Survey

To gather feedback from Fort Dodge residents and businesses, two surveys were launched in mid-July and responses were collected until the third week in August. The residential survey received a total of 711 responses from persons within the Fort Dodge city limits. The business survey received 63 responses from businesses in Fort Dodge.

Because broadband internet access was the primary focus of the City’s decision to engage this Pre-Feasibility study, we will focus on those survey results for this report. The survey also gathered feedback from citizens on pay TV and landline telephone services. The results of those questions as well as the entire residential survey are included in Exhibit 1.

Sample Size and Margin of Error

Residential Survey

We attempted to limit responses to one per household through instructions and by limiting responses to one per IP address. If the 711 responses represent 711 Fort Dodge households out of 10,275 total households as reported by the 2010 Census, the margin of error would be 3.55%⁵. While this margin of error is considered good, the potential for self-selection bias must be considered. In an ideal market survey of this type, a random sample of respondents would be selected from the community and those

⁵ MOE calculated using the American Research Group, Inc. online calculator. <http://americanresearchgroup.com/moe.html>

persons would answer the survey. Logistically that was not possible in this case, so anyone in the community could respond. While we consider the survey results to be a reasonable representation of attitudes in Fort Dodge, leaders will need to take this potential self-selection bias into account when considering next steps.

We also captured demographic information from survey respondents (age, gender, income level, and education level) to compare the sample group of respondents to the population at large. Comparing these responses with data from the 2018 American Community Survey⁶, the survey respondents tended to be more middle-aged, with higher household incomes and a greater level of education than the population in general. More females responded to the survey (58.3%) than males (41.7%) even though census data shows a closer balance with more men than women (51.3% to 48.7%).

To evaluate whether these demographic variances had an impact on the validity of the data, we compared the responses of demographic groups to key questions to all answers. That review found little difference in the responses of different demographic groups to those questions versus the survey population in general. As a result, statistical weighting of results was not conducted.

Business Survey

Because the business survey was based on a much smaller population, the margin of error is much higher (approximately 12%) than the residential survey. While those survey results may provide helpful feedback, they should not be considered a representative sample of the business community.

Summary of Residential Survey Findings

To measure opinions on several characteristics of services, we used a standard Likert Scale⁷, then assigned a score to those responses as follows:

- 5 – Very Satisfied
- 4 – Somewhat Satisfied
- 3 – It's OK
- 2 – Somewhat Dissatisfied
- 1 – Very Dissatisfied

While input was gathered on pay TV and landline telephone service, those results will not be summarized for purposes of this report. Information on these topics is available in Exhibit 1.

Overall Internet Usage

94.7% of survey respondents reported subscribing to internet service at home. The vast majority - 69.8% - subscribe to Mediacom with just 26% reporting Frontier as their ISP. The rest were scattered among several other providers, including WCCTA and WMTel.

The survey also asked respondents to share information about how they use the internet. Email was the most popular choice with social media and online shopping all above 90%. The biggest strain on overall internet bandwidth - streaming video – was also very popular along with online banking and general web surfing. Approximately 48% of respondents say they use the internet for education, including adult education. 22.9% reported that they work from home part-time and another 5.8% said they work from

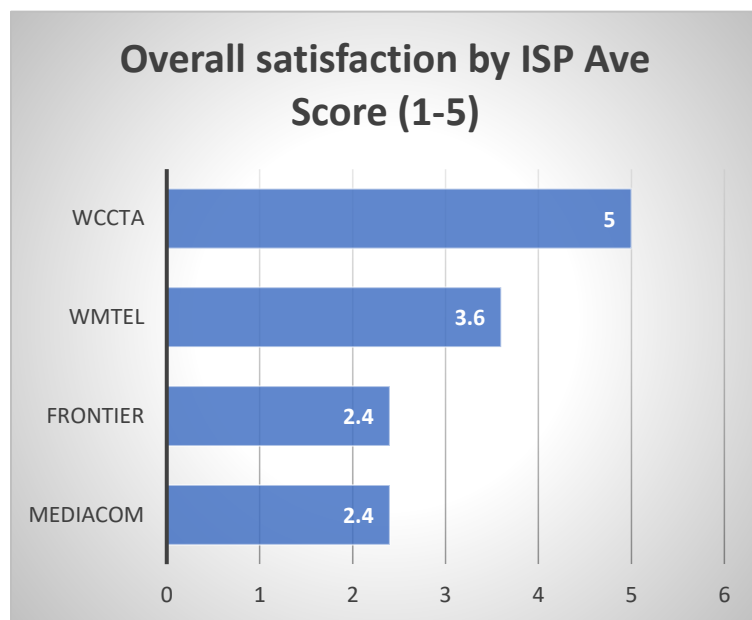
⁶ <https://factfinder.census.gov>

⁷ <https://www.surveygizmo.com/resources/blog/likert-scale-what-is-it-how-to-analyze-it-and-when-to-use-it/>

home part-time. This is consistent with national trends showing and increasing number of Americans that rely on internet connectivity for some or all their livelihood.

Overall ISP Satisfaction

Overall, 54% of respondents were very or somewhat dissatisfied with their ISP. The trait with the highest level of dissatisfaction was price, with 69.8% of respondents saying they were very or somewhat dissatisfied. It was closely followed by reliability (66.7%), then customer service experience (53.1%) and speed (49.2%). A lesser number, 35%, expressed dissatisfaction with their ISP's data allowance.



Fort Dodge's two largest internet providers did not fare well among survey takers when asked to rate their overall level of satisfaction with their ISP. Frontier and Mediacom customer reported an average overall satisfaction level of 2.4, which is below the average of 3. Two other providers with a limited number of customers - Webster-Calhoun Cooperative Telephone Association (WCCTA)⁸ and Woolstock Mutual Telephone (WMTel)⁹ - received above average overall satisfaction.

Satisfaction by Service Characteristics

Different people use different criteria when evaluating their satisfaction with any product, including internet access. So, respondents were asked to rate their level of satisfaction on several ISP service criteria. These responses followed a similar pattern with Mediacom and Frontier seen as offering below average satisfaction on price, customer service experience, and reliability compared WCCTA and WMTel.

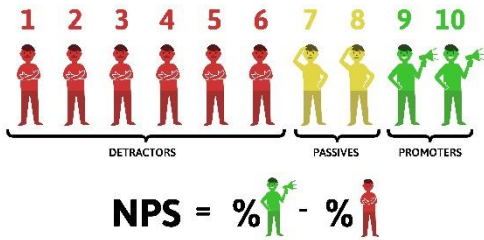
Net Promoter Scores

A common tool used to measure consumer attitudes about companies is called the Net Promoter Score, or NPS. The NPS asks a simple question: "On a scale of 0-10, how likely is it that you recommend (company or service) to a friend or colleague?" The graphic below is a visual representation of how those answers indicate if a consumer is a PROMOTER of that product/service, a PASSIVE, or a DETRACTOR.

⁸ <https://www.wccta.com/>

⁹ <http://www.wmtel.net/>

Net Promoter Score



Respondents are grouped as follows:

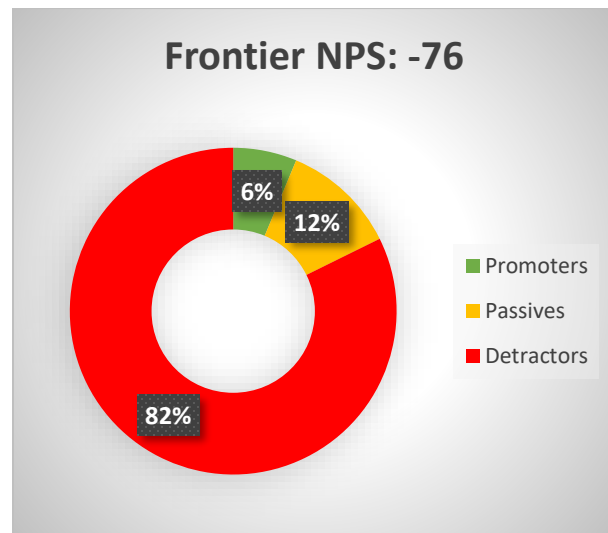
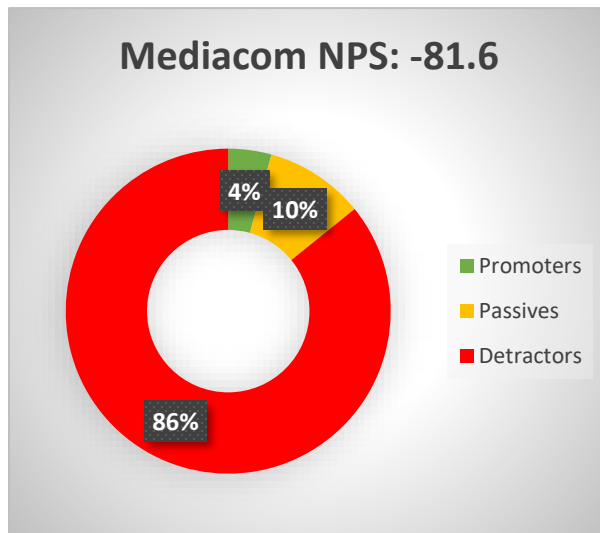
- Promoters (score 9-10) are loyal enthusiasts who will keep buying and refer others, fueling growth.
- Passives (score 7-8) are satisfied but unenthusiastic customers who are vulnerable to competitive offerings.
- Detractors (score 0-6) are unhappy customers who can damage your brand and impede growth through negative word-of-mouth.

Net Promoter Scores are different across different industries. Internet service providers are consistently ranked among the lowest in terms of NPS scores. NICE Satmetrix, the co-developer of the Net Promoter Score, reported that average NPS for internet service providers in 2018 was -1.¹⁰

For purposes of the Fort Dodge Community Survey, we asked the following question:

“How likely is it that you would recommend your ISP to a friend or colleague?”

Respondents to the Fort Dodge residential survey were even more unforgiving when it came to their ISP’s than national industry averages.



In terms of the average score assigned by respondents on the 0-10 scale, Mediacom’s average was 3.5 and Frontier’s was 3.9. Although the responses were limited, the averages for WCCTA (9.3) and WMTel (8.2) were much higher and indicate higher satisfaction levels among their customers.

Interest in A New Provider

One of the most important questions in the residential broadband survey was Question 23:

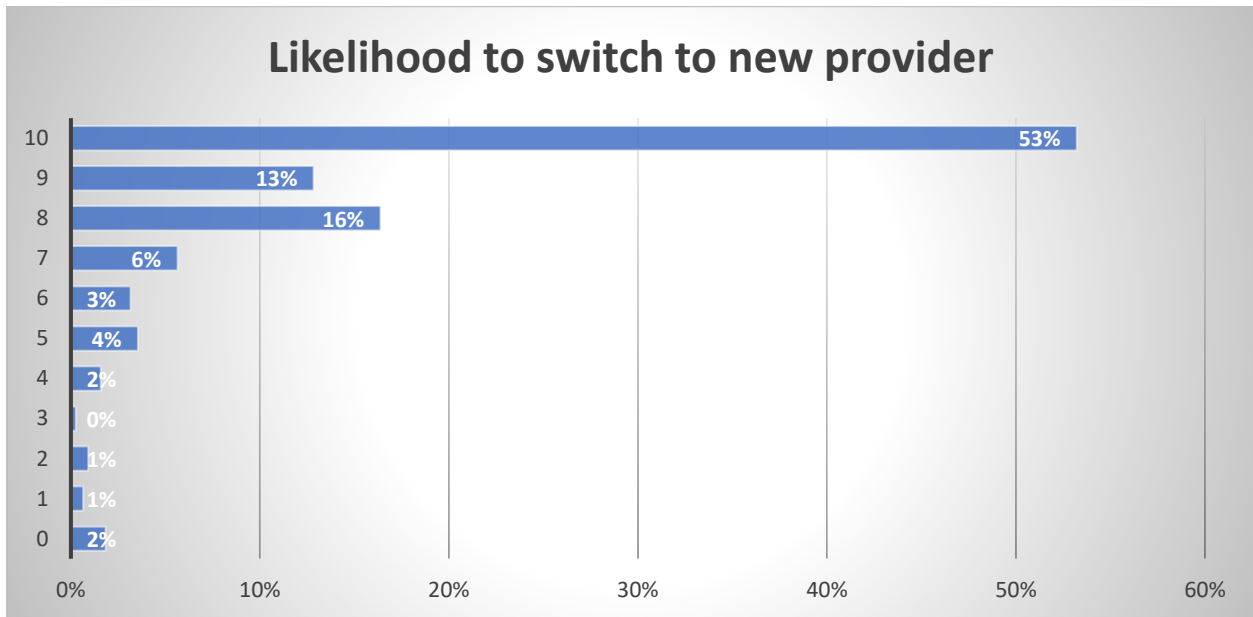
¹⁰ <http://info.nice.com/rs/338-EJP-431/images/NICE-Satmetrix-infographic-2018-b2c-nps-benchmarks-050418.pdf>

“If a new provider (public or private) built a fiber network in Fort Dodge offering superior service for a competitive price, how likely would you be to switch from your current provider(s)?”

The purpose of this question is to identify whether current broadband market conditions would be favorable to a new market entrant. If interest in a new provider were low it would tend to indicate that, despite complaints from customers, current providers are covering the market well and would likely retain high market share. If interest in a new provider is high, it indicates that consumers are open to a new option and shows that a new market entrant would have the opportunity to capture a significant market share.

The presence of a new provider is not enough, however. That’s why we use the terms “superior service” and “competitive price”. A new provider whose standards of customer service, delivered speed, and reliability are the same as current providers would offer consumers no real benefit. And a new provider would be forced by the market to offer services at a reasonable and competitive price in order to attract business.

For this question we used the same 0-10 scale as the Net Promoter Score, where higher number indicate a higher likelihood to switch.



For sake of comparison, we asked a similar question as part of a market survey in Pella, Iowa with similar results. In the case of Pella, 47% of survey respondents placed their likelihood to switch to a city-owned fiber network as a 10/10. Pella is now in final engineering for a FTTP utility with construction planned to begin in 2020.

“Fiber optic would be a great way to attract more younger people to Fort Dodge. Everything is moving in some way online, and fast internet at competitive prices will drive growth.” – Comment on Residential Broadband Survey

A new provider in Fort Dodge could not expect to capture 53% of the market by simply launching services. Existing providers will market heavily to consumers to retain as much market share as possible. They could also choose to address the issues that consumers have identified to keep churn to a minimum and/or reduce prices or offer

additional services as competitive tools. A new provider, public or private, would need to employ significant marketing resources to attract and retain customers. However, the responses to this question clearly shows a strong market potential for a new provider in Fort Dodge.

Anecdotal Feedback

In addition to answering questions with a choice of several set responses, survey participants were given several opportunities to provide additional feedback about their experiences and opinions. A complete listing of each individual comment from the residential survey is provided in Exhibit 5, with business survey comments included in Exhibit 6. These comments were not edited for spelling, punctuation, or language, with the exception of one response where the name of an individual was redacted.

Broadband Assessments

Input on internet characteristics and reliability was gathered through an online broadband assessment tool. Using the CrowdFiber¹¹ application, Fort Dodge citizens could identify their address and conduct a network performance test at their location, as well as provide feedback on their online experiences. The performance test measured download speed, upload speed, latency, and jitter.

The Fort Dodge city limits map was overlaid with the maps for each of the city’s wards so that information could be compared between different areas of the city. Persons outside of the city limits could take the broadband assessment as well, but those results were ignored for purposes of this report.

During the six weeks that the broadband assessment site was active, responses were recorded from 461 locations across Fort Dodge. The map in Exhibit 4 shows the physical location of participants, with each dot indicating a completed broadband assessment.

¹¹ <https://crowdfiber.com/>

Performance Testing

A key purpose of the broadband assessment tool was to capture internet performance information.

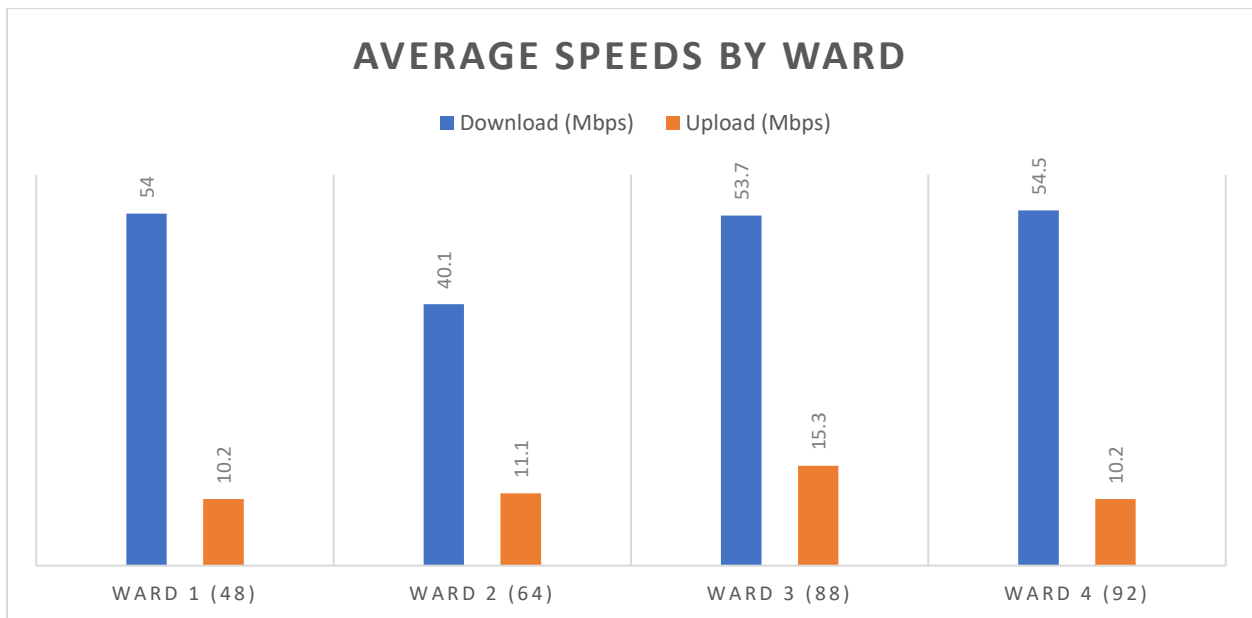
“When service is totally interrupted, we have no phone service and customer’s can’t call us and we can’t make calls out (except with our cell phones) or loop up information on the internet.” – Comment on Business Broadband Assessment

Participants were asked to conduct a performance test from their wired internet connection whenever possible.

The performance test measured four characteristics: download speed, upload speed, latency, and jitter. Download and upload speeds were measured in megabits per second (Mbps) and their meaning is self-explanatory. Latency and

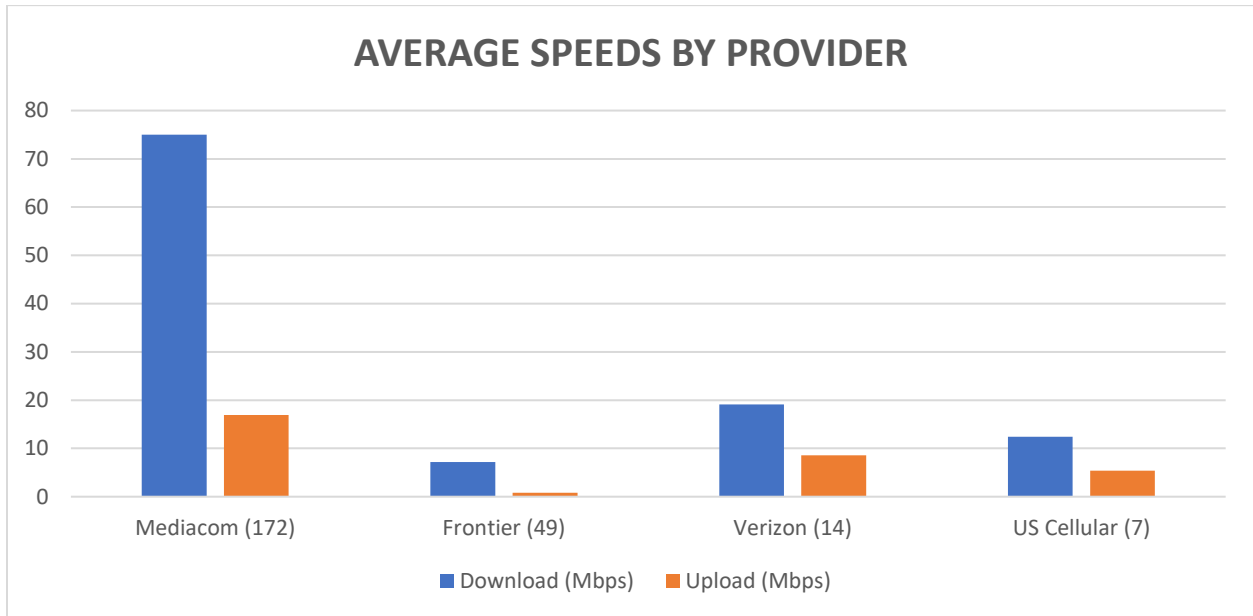
jitter are two measures of network performance expressed in terms of milliseconds. Generally, the lower the latency and jitter, the better the condition of the network. 292 successful performance tests were recorded from the 461 responses (63%). Keep in mind that performance tests such as the one used in the broadband assessment are simply a snapshot in time. Two speed tests conducted a few minutes apart could deliver very different results.

We evaluated the performance tests to measure differences between geographical areas of the community (as defined by wards) and between internet service providers used to conduct the testing.



The chart above shows average download and upload speeds among all providers across the city’s four

wards. It shows that upload speeds across the community are fairly consistent, but that download speeds tend to lag in Ward 2. We also analyzed the average speed test result by provider.



As mentioned earlier, some people used their mobile carrier’s network to conduct their speed test. Those are listed although the primary focus of this study is the landline providers.

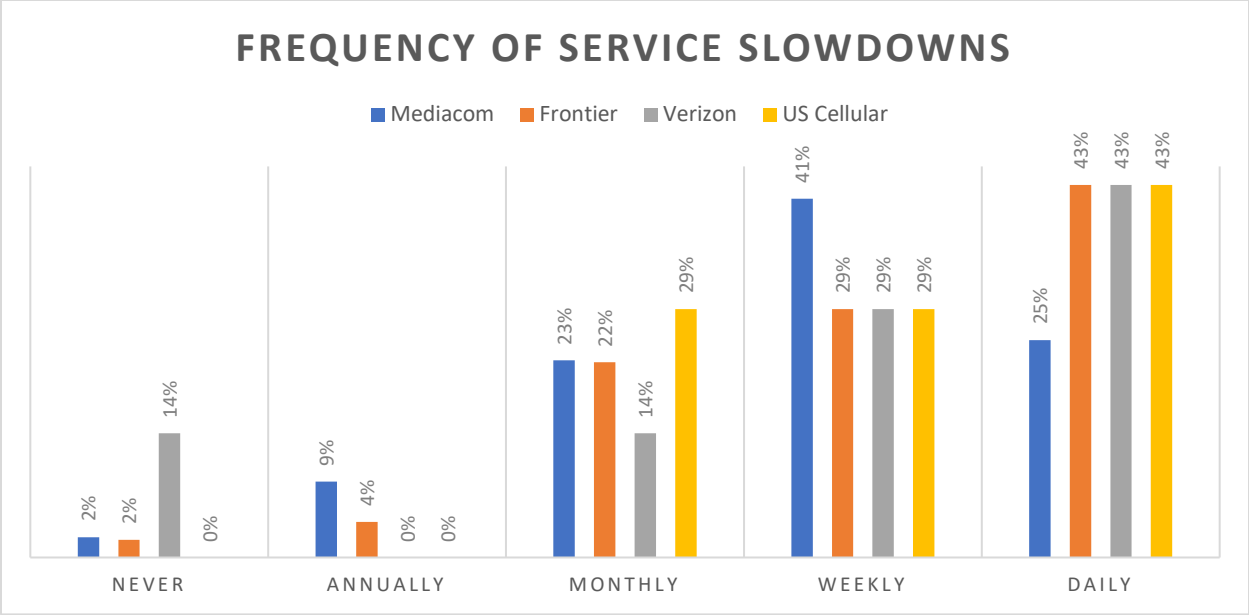
Performance Feedback

The performance test measured network conditions. The broadband assessment also asked respondents to provide additional feedback on their internet experience using three questions.

Question One

“Approximately how often do you suffer significant slowdowns of internet speeds at your home or business?”

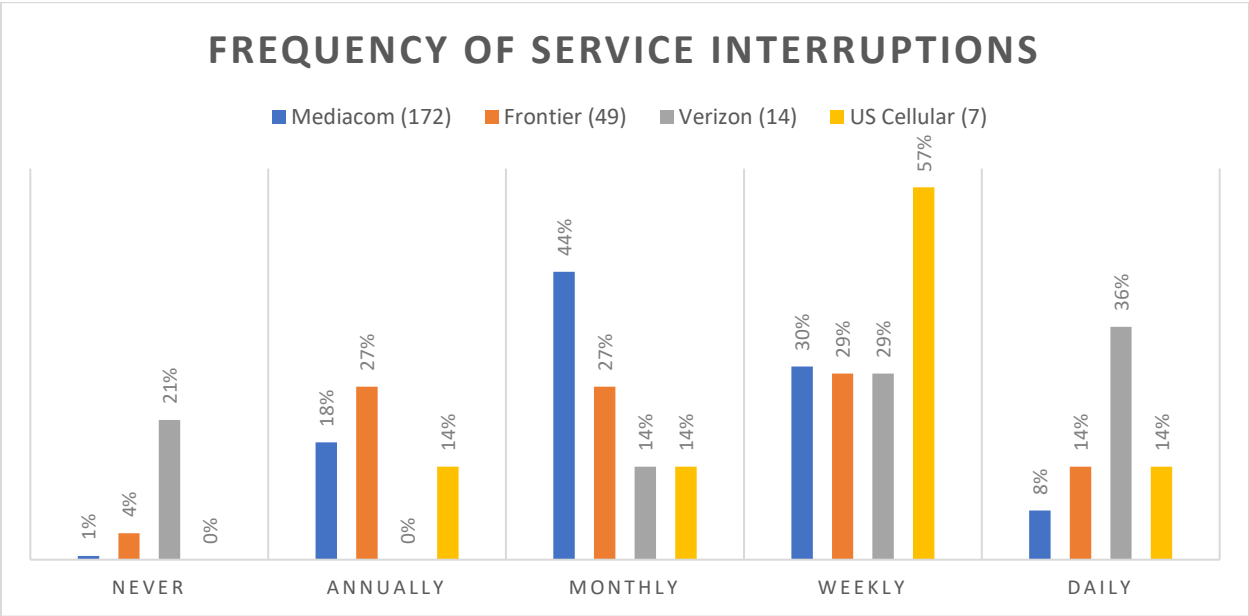
Participants were asked to select one of the following answers to the question: once a day, once or more a week, once or more a month, once or more a year, or never. The chart below shows the responses broken down by ISP.



Question Two

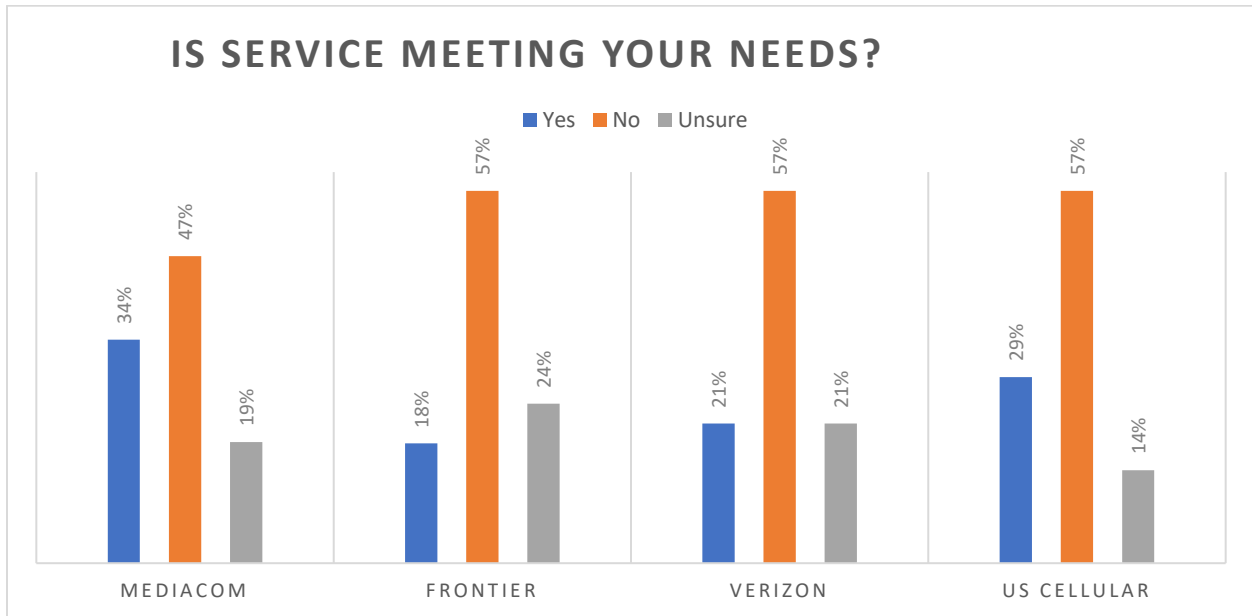
“Approximately how often is your internet service interrupted entirely at your home or business?”

Again, participants were asked to select one of the following answers to the question: once a day, once or more a week, once or more a month, once or more a year, or never. The chart below shows the responses broken down by ISP.



Question Three

“Does your current internet service meet your needs?”



The responses to this question are consistent with the results seen in the broadband survey.

Broadband Assessment Comments

As was done on the survey, assessment participants were offered an opportunity to make comments on their internet experience. A complete listing of these comments is included in Exhibit 6.

High-Level Design and Cost Estimate

As part of the Pre-Feasibility Study, SmartSource Consulting partnered with HR Green, an Iowa-licensed engineering firm with deep experience in designing and implementing fiber optic networks. HR Green’s role was to create a high-level design for a FTTP network in Fort Dodge and, based on that design, create a cost estimate for network construction.

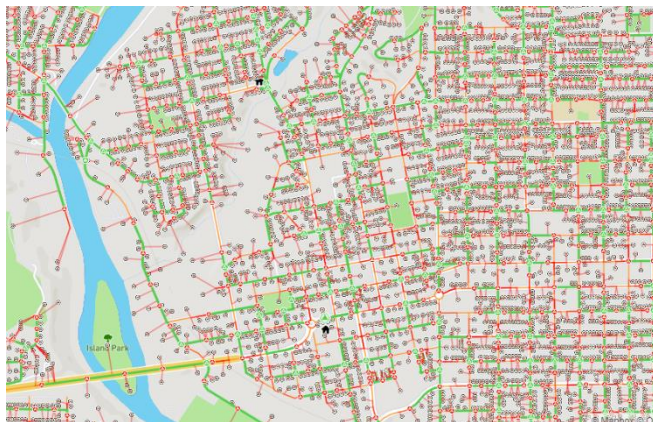


Figure 2 - Sample area of high-level design

HR Green’s report shows that a FTTP network covering the entire city of Fort Dodge would likely cost in the range of \$22.2 million to \$31.9 million. Their design is based on a 100% underground network, the most common type of deployment for new networks. While an underground fiber network is more expensive to deploy (due primarily to labor expense), it does offer distinct advantages such as reliability and control. It also eliminates issues related to pole access.

The lower cost figure represents a network that passes every premise but extends a fiber service line to only 40% of homes and businesses. It is not uncommon in new projects for service lines to only be extended to customers that have committed to switching services in advance. The advantage of this approach is that you don't invest in facilities that may or may not get used, reducing upfront network construction cost. The disadvantage is that when consumers decide later that they want service, it is more expensive to install that service line than it would have been if included in the original construction project.

The higher number (\$31.9 million) represents a network with service drops to 100% of premises. While more expensive, it does allow the operator to more quickly connect customers when they decide to switch even after the initial construction project is complete. At a cost between these two estimates, the operator could install duct to every premise but only install fiber in that duct when the customer signs up for service. Operators tend to invest more in areas where demand for service appears to be high, and revenues are collected sooner to pay for these higher costs.

To identify the best approach to building the network, most operators utilize online demand aggregation tools like CrowdFiber to identify addresses where services are likely to be deployed. That helps the operator – private or public – better plan for the construction project and its budget. For example, Vinton Municipal Communications Utility has used CrowdFiber to measure demand for services. Their original business plan called for building service drops to 65% of premises. However, 78% of premises have responded to the CrowdFiber campaign requesting a service drop, indicating an even greater market demand than originally projected. While it is not likely that every one of those addresses will connect to the network immediately, it will make that conversion much quicker for the customer when they do.

The complete HR Green high-level design and cost estimate is attached as Exhibit 7.

Conclusions

The feedback gathered through the survey, broadband assessment tool, and meetings with stakeholders and the general public provides statistical and anecdotal evidence to support the following conclusions:

1. A highly significant number of Fort Dodge citizens do not feel adequately served by existing telephone and cable TV companies to meet their quality of life needs.
2. Reliability, price, and overall customer service experience are issues for consumers that cause negative perceptions about the value of service they are being provided.
3. Because choices for broadband internet service are very limited or even non-existent for some consumers, there is strong desire for an alternative provider to serve the community.
4. There appears to be adequate potential market share for a competing alternative provider to compel additional investigation as to the financial viability of entering the Fort Dodge market.
5. Potential customer density, consistent levels of dissatisfaction in the community, and scaled construction costs improve the financial viability for an alternative provider to be able to financially compete with existing providers.

Exhibits List

Exhibit 1 – Final Residential Survey Report

Exhibit 2 – Final Business Survey Report

Exhibit 3 – Current Provider Information

Exhibit 4 – Broadband Assessments Map

Exhibit 5 – Residential Survey Comments

Exhibit 6 – Business Survey Comments

Exhibit 7 – Broadband Assessment Comments

Exhibit 8 – HR Green High-Level Design