BELMOND
WELCOMES YOU

COMMUNITY BROADBAND ENGAGEMENT AND EDUCATION PROJECT REPORT

Belmond, IA

SmartSource
CONSULTING

Curtis Dean
curtis@smartsourceconsulting.com

Contents

Executive Summary

SmartSource Consulting was hired by the City of Belmond, Iowa to answer an important question. Is there sufficient interest in a community fiber broadband network in Belmond to justify additional steps, including a referendum and a full feasibility study and business case?

The Community Broadband Engagement and Education Project was designed to answer that question. We engaged Belmond residents in a dialogue about the current state of broadband services in the community; educated the community about the lasting benefits of fast, affordable, reliable, and universally-available broadband; and measured community interest in a community-owned broadband project.

We found that citizens are dissatisfied with the broadband services they receive today, particularly with the level of reliability and response times to service interruptions. They understand the importance of advanced broadband services for the future growth and success of the community. And there is strong support for the concept of a community fiber broadband network.

Background

The 1990's were a decade of significant change in the telecommunications industry. The goal of the Telecommunications Act of 1996 was to deregulate certain aspects of the telecom industry and bring competition to the marketplace. Many experts agree that it had the opposite effect as a wave of mergers swept the industry, consolidating market power in the hands of fewer and fewer companies. Rather than expanding, competition languished, especially in smaller communities where the economics were not favorable enough to invite new entrants into the business. Consolidation among companies that produce video programming pressured cable costs higher and higher, impacting consumers significantly.

Figure 1: Spencer, Iowa broke ground on their broadband utility in 1999

The 1990's also brought a new service - internet access - that has truly transformed our lives. Access to the internet has become an essential element in how we live, work, and play. In its infancy, internet access (mostly via dial-up connections of 56 Kbps or less) was considered a toy by most consumers. But over time consumers demanded more and more from their internet service, and incumbent providers scrambled to upgrade their copper networks to stay ahead of the demand curve.

In some communities, incumbent operators were not moving fast enough to satisfy the needs of citizens. As a result, the decade of the 1990's saw a rapid growth in community-owned broadband networks. These networks, usually operated as a municipal utility, were built to allow communities to control their own technological destinies rather than waiting for large incumbent operators to make those needed investments. The state of Iowa was one of the leaders in municipal telecommunications during the decade.

After a lull in municipal broadband activity, the level of interest has peaked again this decade. Waverly Utilities built their fiber network in 2015-2016 and have achieved over 40% take rate in less than two

years. Indianola Municipal Utilities, which had built fiber to around 25% of the community in the last decade, is now extending the network to every home and business. They are expecting to launch services by the end of 2018.

Other communities like Belmond are exploring their options for better broadband. Charles City, Decorah, New Hampton, and Vinton have completed full feasibility studies and are moving toward possible construction projects in the next two years. And beyond these communities that have already made investments in research and community engagement, there are several Iowa communities – large and small – where community activists and leaders are seeking new options for faster, more reliable broadband services.

Figure 2: Cedar Falls rebuilt their network to all fiber, attracting recognition and a visit from President Obama in 2015.

In addition to interest from new communities, many of Iowa's existing broadband utilities are implementing plans to rebuild their infrastructure to fiber-to-the-home (FTTH). Lenox and Bellevue completed their transition from copper to fiber networks in the 2000's. Cedar Falls rebuilt their system within the last five years. Coon Rapids, Harlan, and Spencer are also in the process. Today, almost every municipal broadband utility in Iowa has either started a FTTH conversion or are planning one in the next few years. They realize that increasing demand for advanced services and gigabit-plus internet speeds require fiber networks. As municipal utilities are only obligated to serve the best interests of their citizen-owners and not to create a stream of profits for outside investors, they are willing and able to make those investments.

The economics of the telecommunications industry make it difficult for incumbent providers to justify the significant investments needed to upgrade their networks to all fiber, especially in small communities like Belmond. Instead, they have chosen incremental improvements to their copper networks that are intended to stay just ahead of the demand curve created by consumer needs. Although there have been steady advances in copper network technology, these networks cannot compete long-term with the capabilities of fiber. Providers who continue to rely on copper-based networks will always be scrambling to stay just ahead (and sometimes will fall far behind) of their customers' needs.

Current Provider Landscape

Like most rural communities, Belmond has one incumbent telephone company (Frontier) and one incumbent cable TV company (Mediacom). Frontier provides traditional landline telephone service and DSL internet service over its copper-based network while Mediacom utilizes a hybrid fiber-coaxial (HFC) network to provide pay TV, internet, and landline telephone service.

In addition to these facilities-based providers, Belmond residents also have access to two satellite-based pay TV providers (DIRECTV and Dish Network), as well as several wireless internet options (fixed wireless 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 two years and many more are expected to appear moving forward. These services - such as Sling TV, Sony PlayStation Vue, and DIRECTV Now – have one thing in common: they require an excellent internet connection to deliver content reliably and with acceptable picture quality.

Excellent broadband should meet several criteria. It should offer fast internet service; it should have high reliability and rapid service restoration when interruptions do occur; it should be affordable so that most citizens can have access to at least adequate service; and it should be available everywhere in the community. Using these metrics as a guidepost, the incumbent cable TV and telephone companies each have their advantages and disadvantages.

Mediacom

Mediacom, the incumbent cable operator, has a network capable of offering internet speeds that are considered sufficient for most consumers today. Their hybrid fiber-coax (HFC) network uses cable modems for internet access, offers digital pay TV service, and provides landline telephone utilizing Voice over Internet Protocol (VoIP). Mediacom has upgraded its core network to take advantage of new technology, DOCSIS 3.1, that allows it to provide speeds of one gigabit per second (Gbps) across its entire network. Continued research on DOCSIS technology could mean the ability of HFC-based providers to achieve even higher speeds in the future.

Although Mediacom has made investments in speed, the biggest challenge they continue to face is reliability. DOCSIS 3.1 (and future improvements) require their network to be in superb working order. It is unclear over the long term if their network in Belmond and other small communities will receive the kind of network investment needed to improve reliability and therefore consumer satisfaction.

Frontier

Frontier's copper telephone network does not have the same capabilities as Mediacom's when it comes to internet services, and the company has not announced any significant technology upgrades that will enable it to do so. According to the Frontier website, the highest internet download speeds available on Frontier's Belmond network is 24 Mbps.[1] However, those speeds are likely only available in select areas of the community. Other speed levels listed on the website include 12 Mbps, and 6 Mbps.

"Constant service interruptions, which is a problem for me since I work remotely from home" – Comment on Community Broadband Survey

Like Mediacom, a key challenge for Frontier is reliability. Both networks are older and utilize copper facilities for the connection to the end user, making outages more frequent than many consumers will tolerate in our hyper-connected world. Also, because both Mediacom and Frontier have limited local technical personnel, restoring service can take longer than most customers can accept.

[1] From https://internet.frontier.com/plans-pricing.html for zip code 50421.

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 various discounts and surcharges 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.

> *"Was overcharged well over $300 last year for data overages when I didn't even have service available." – Comment on Community Broadband Survey*

We attempted to help "lift the veil" on actual pricing by soliciting copies of bills from customers in Belmond. Unfortunately, the participation rate was low, and it is difficult to draw conclusions. Another way to determine the difference between advertised rates and actual bills was to ask Belmond citizens to report the combined dollar amount for their broadband services. That information is provided in the Residential Broadband Survey section of this report.

For a more detailed review of the published rates among incumbent providers in Belmond and a competitive analysis of those services, please refer to Exhibit C.

Project Goals and Methodology

As stated in the project proposal that was accepted by the City of Belmond,

> The overall goal of the Community Broadband Engagement and Education Project is to determine whether there is sufficient community interest in a municipal broadband project to justify holding a referendum and investing in a detailed feasibility study. We intend to **engage** Belmond in a dialogue about the current state of broadband services in the community; **educate** the community about the lasting benefits of fast, affordable, reliable, and ubiquitous broadband; **measure** community interest in a municipal broadband project; and **provide leaders with information** needed to determine next steps.

With this goal in mind, we conducted the project in two essential phases. During the engagement and education phase, we held group meetings and engaged in one-on-one conversations with Belmond residents. During the measurement phase, we conducted two surveys to gauge citizens' attitudes about existing providers and gauge interest in a community project. One survey was aimed at residential customers and the other at business users.

Engagement and Education

Several methods and approaches were taken to engage with residents and provide information about what a community fiber broadband network would mean for Belmond.

Website and Social Media Engagement

SmartSource Consulting operates a website, www.ourbroadbandfuture.com, to provide general information about community broadband and links to other online resources. A page specific to Belmond, http://www.ourbroadbandfuture.com/belmond.html, was created to provide background on the history of Belmond's exploration of community broadband; a video recording of the town hall meeting; and frequently asked questions from residents.

Another method used to reach residents with messaging was a Facebook page, www.facebook.com/belmondbroadband. Since a large percentage of Americans maintain an active presence on Facebook, this was a logical (and free) way to "spread the word". Posts to the Facebook page included general information about community broadband, meeting notices, and links to the Community Broadband Survey.

As of February 22, 2018, the Facebook page had gathered 214 total page likes (meaning people had asked to receive notifications when new information was posted). There was a limited level of engagement on the Facebook page throughout the term of the project. The few comments that were made were favorable.

Fiber Town Hall Meeting

About 35 residents and city officials attended a Fiber Town Hall meeting held on November 2, 2017. Project leaders Curtis Dean and Todd Kielkopf presented information about the community broadband and discussed various aspects of how these networks operate. Also participating was John Bilsten, General Manager at Algona Municipal Utilities, which has successfully operated a community broadband network since the early 2000's. Attendees seemed very interested in the topic, engaged in good questions with the panel, and expressed overall support for the concept of a community fiber broadband network. The meeting was recorded and made available afterwards on Facebook[2]. As of February 22, 2018, the video had been 370 times.

Facebook Live

To gather more citizen feedback and to provide additional information about community broadband, project principals Curtis Dean and Todd Kielkopf participated in a Facebook Live webcast on January 24, 2018.[3] Although live viewing was limited to a handful of people (peaking at six live viewers), the video has been replayed 55 times on Facebook.

Measurement: Residential Broadband Survey

Although anecdotal information was gathered from one-on-one and group conversations, the most tangible method of measuring the community's mindset was through the Community Broadband Survey. Survey respondents were asked to identify if they lived inside or outside the Belmond city limits. A total of 221 respondents reported that they lived in Belmond. For purposes of this report we will consider only those in-town responses.

[2] https://www.facebook.com/belmondbroadband/videos/168855320365173/
[3] https://www.facebook.com/belmondbroadband/videos/192972787953426/

In addition to asking a series of questions, the survey also provided several opportunities for respondents to provide comments. Complete survey results, including comments (edited to remove foul language) is provided as Exbibit F.

Sample Size and Margin of Error

Survey responses were limited to one per IP address to reduce the possibility of motivated persons responding multiple times. The overall response rate of 221 represents 8.6% of Belmond citizens (based on the 2010 Census count of 2,560). The goal of the survey was to collect enough responses to achieve a margin of error of 5% or less. Despite keeping the survey open for an extended length of time we did not achieve that goal. Instead, the final margin of error of the survey responses ±6.3%.[4] As a result, the survey findings are not necessarily a scientifically accurate representation of the community's opinions.

Summary of Survey Findings

Internet

95.0% of survey respondents reported subscribing to internet service.

- Mediacom was the most popular choice as internet provider at 45.9% while Frontier's share was 43.9%.
- Overall, 33.0% were somewhat or very satisfied with their internet service provider while 37.9% were very or somewhat dissatified.
- The trait that had the highest levels of dissatisfaction were reliability (52.5% very or somewhat dissatisfied) followed by speed (51.3% very or somewhat dissatisfied) and price (49.8% very or somewhat dissatisfied). Dissatisfaction among Mediacom customers was highest with price (70.7%), then reliability (62.4%). Frontier customers were more dissatisfied with speed (63.3%) than reliability (50.0%).
- The top five reported uses of internet service were email (94.6%), online shopping (86.2%), social media (also 86.2%), online banking (74.9%), and web surfing (74.4%). Video streaming was reported by 61.1% of respondents. The continued growth of video streaming and the introduction of 4K video will be a primary driver of data use in the future, along with an expected explosion of connected smart devices that will each use bandwidth.
- 5.9% of respondents reported that they work from home full-time, with another 18.7% saying they work from home part-time. This is another trend that could challenge the capacity of existing internet providers and place a further emphasis on reliability.
- About half (50.7%) reported using their internet connection for education. This is likely some combination of primary/secondary school students as well as adults pursuing higher education online.
- Written comments on the survey centered on dissatisfaction over reliability, speed, and cost of internet services. There were numerous references to outages that affected

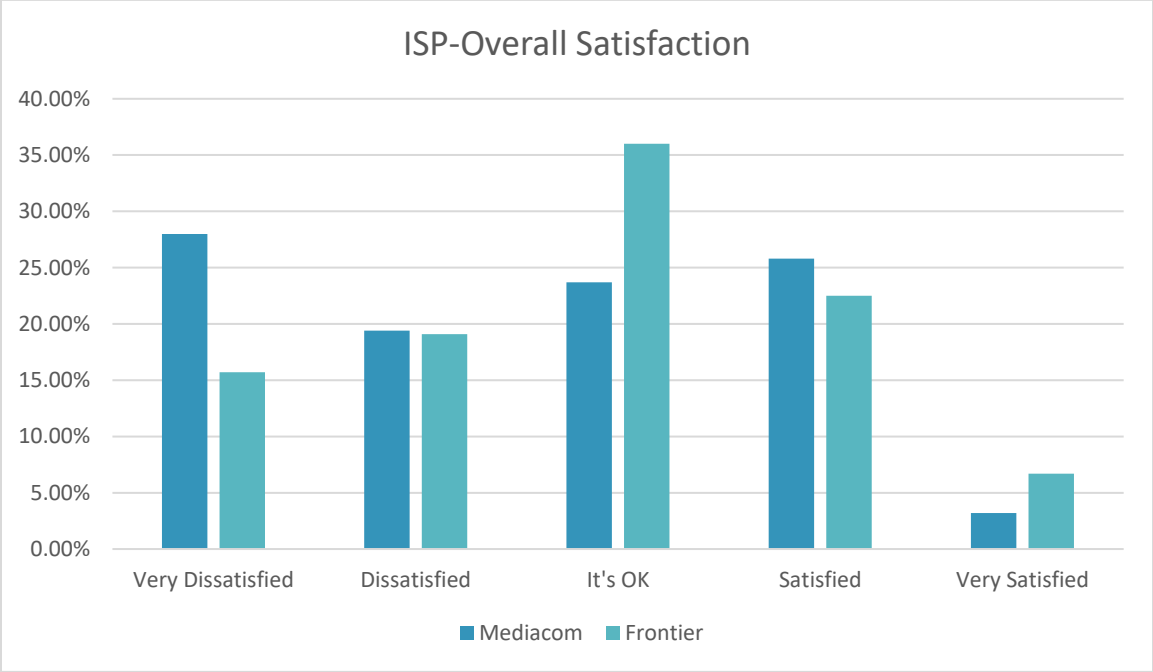
"My internet has been down every day for the past month!" – Comment on Community Broadband Survey

[4] MOE calculated using the American Research Group, Inc. online calculator. http://americanresearchgroup.com/moe.html

the ability of Belmond residents to use the internet when needed. Speed issues included references to slowdowns in download speeds during certain times of the day, especially when younger family members are home from school.

- Frontier customers reported greater dissatisfaction with speed and reliability, while Mediacom customers most complained about price then reliability.

Table 1: Overall ISP Satisfaction



Pay TV

77.4% of survey respondents reported subscribing to pay TV service.

- Pay TV choices were split fairly evenly in Belmond, with Mediacom holding 37.7% of the customer base, Dish Network at 35.8%, and DIRECTV at 25.9%. Only one person reported that they use a streaming-only solution for pay TV services, although many more people reported using streaming services as a supplement to their subscription TV service provider.
- Overall satisfaction levels were fairly well distributed, with more people reporting they were very or somewhat satisfied (44.7%) with their service than very or somewhat dissatisfied (24.2%).
- The biggest perceived negative was price, with a significant 68.3% saying they were very or somewhat dissatisfied with what they are paying. This is not at all surprising, especially with the large price increases that pay TV providers have been forced into making as content costs from networks and TV stations continue to go up at better than 10% annually.
- The pay TV provider with the highest level of overall customer satisfaction was Dish Network. 57.9% of survey participants with Dish Network said they were very or somewhat satisfied with the service. That compares to 50.0% for DIRECTV and 30.0% for Mediacom.

- TV features such as whole-home DVR, video-on-demand, and TV Everywhere were, as expected, important to many pay TV subscribers. Of interest is the fact that 53.4% of respondents said that local programming such as high school sports, school concerts, and other community events is important. That kind of hyper-local content is not available from the satellite providers. While Mediacom does have local programming channels, much of the content is of statewide, not local, interest. Many community broadband networks have implemented robust local programming schedules as a competitive advantage and to serve citizens.

Landline Telephone

45.2% of survey respondents reported subscribing to landline telephone service.

- Landline telephone penetration is consistent with nationwide trends showing most consumers moving away from landline telephone service in favor of cellular.
- Frontier was reported as the landline provider by 58.7% with Mediacom at 39.1%.
- Overall satisfaction levels were acceptable, with very-somewhat satisfied exceeding very-somewhat satisfied by 41.1% to 20%.
- Several respondents commented that they only maintain a landline because it is part of a bundle package or for emergency purposes only. That feedback is consistent with national trends.

Broadband Costs

Survey respondents were asked to report their total cost for all terrestrial-based telecommunications services (excluding cellular phone). A total of 176 usable responses were available; the average of these responses was $163.26. If that figure were applied to each of Belmond's estimated 1,047 households (2010 Census), that would mean that approximately $2.0 million annually is being spent on pay TV, internet, and landline telephone today.

The most common combination of services was the traditional "triple play", some combination of pay TV, internet, and landline telephone service.

Table 2: Triple Pay Reported Bills

	All Triple Play Customers			Count **69**	Ave. Bill **$200.09**		
				By Combination			
	Internet	TV	Phone	Count	Ave. Bill	Low	High
	Mediacom	Mediacom	Mediacom	18	$160.61	$105.00	$240.00
	Frontier	Dish Network	Frontier	16	$211.90	$150.00	$390.00
	Frontier	DIRECTV	Frontier	13	$220.15	$140.00	$355.00
	Frontier	Mediacom	Frontier	9	$194.22	$140.00	$284.00
	Mediacom	Dish Network	Mediacom	6	$208.33	$150.00	$240.00
	Other combinations			7	$237.86	$145.00	$400.00

The next most common combination of services reported was some combination of pay TV services and internet.

Table 3: Internet & Pay TV Reported Bills

All TV + Internet Customers		Count **63**	Ave. Bill **$169.40**		
Internet	TV	Count	Ave. Bill	Low	High
Mediacom	Mediacom	20	$179.55	$125.00	$275.00
Frontier	DIRECTV	12	$163.50	$110.00	$220.00
Mediacom	Dish Network	10	$177.90	$120.00	$280.22
Frontier	Dish Network	8	$131.93	$93.40	$232.00
Mediacom	DIRECTV	7	$122.43	$170.00	$250.00
Other combinations		6	$134.17	$75.00	$200.00

A total of 29 internet-only customers provided cost data. This would represent what many have called the "cord-cutters" or "cord-nevers". This small but growing share of consumers utilize cell phones for voice communications and obtain their entertainment via free and paid internet-based methods such as Netflix, Hulu, Amazon Prime Video, and others. With the right kind of antenna, these consumers can also view broadcast TV stations.

Table 4: Internet Only Reported Bills

Internet-Only	Count **29**	Ave. Bill **$65.72**		
Internet	Count	Ave. Bill	Low	High
Frontier	15	$58.47	$29.99	$160.00
Mediacom	9	$80.89	$50.00	$120.00
WmTel	4	$59.48	$29.95	$128.00

The other combinations of services (from largest to smallest were):

- Internet + Phone: 5 responses. These may be cord-cutters who have decided to keep a phone line for convenience or because their provider has incentivized them to do so.
- Pay TV + Phone: 4 responses
- Landline Telephone Only: 3 responses.

Demographics

We asked respondents to provide several demographic characteristics, namely age, gender, and household income. For the most part, the demographic responses were consistent with U.S. Census data for 2010 except where noted below. As a result, statistical weighting was not used during our analysis.

Age and Gender. The responses on the survey were consistent with 2010 US Census data for gender, with about a 1% discrepancy between Census data and gender of respondents. When controlling for adults-only (age 20 and higher), the age groups of the respondents were also consistent with 2010 Census data.

Household Income. Household income information was not available from the 2010 Census, so figures from the 2016 American Community Survey (ACS) were used instead. Respondents to the survey generally reported higher household income than the ACS data, with lower to moderate income households underrepresented. However, responses to key questions did not differ significantly among income groups.

Education. We asked respondents to report their highest level of education received. Results show that survey respondents were much better educated than what was reported by the 2016 ACS. For example, the ACS revealed that 14.4% of Belmond residents have at least a Bachelor year degree. A much higher number of survey respondents, 37.9%, such degrees. Again, our analysis of the survey results didn't find any significant impact of this education level bias on overall responses.

Broadband Future

The survey asked several questions designed to measure perceptions on the importance of fast, affordable, reliable, and universally-available broadband in Belmond. Large majorities of respondents (71% or better) agreed that broadband is very important for quality of life, education, economic development and jobs, and health care.

Respondents said the most important characteristic of a broadband provider is excellent customer service, with 92.0% ranking that aspect as very important. 90.5% said that utilizing the best available technology is very important, followed by involvement in the community (54%) and local ownership and control (31.8%).

The most important question in the community broadband survey was this:

> "If a community fiber broadband network were built in Belmond that offered superior service for a reasonable price, how likely would you be to switch from your current provider(s)?"

The answers represent the bottom line of this project, providing the City of Belmond with a measurement of support for future steps and providing guidance for whether a community fiber broadband network in Belmond is likely to be successful if built. The results are very encouraging.

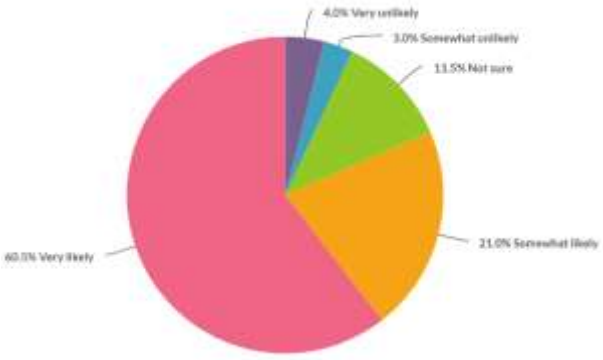


Figure 3: Residential Likelihood to Switch to Community Provider

Overall, 81.5% of survey respondents said they are somewhat or very likely to switch to a community broadband provider if one is built.

This likelihood to switch did not vary significantly between men and women. Among age groups, support was strongest among the middle age groups (35-60 years of age) with lower support from older residents. Differences among household income groups and education level were minor.

While the overall willingness to switch to a community provider was high among survey takers, the survey results will need to be supported with

additional information if Belmond decides to take additional steps. A municipal telecommunications referendum, required for the city to have legal authority to build a network, will provide an additional measure of community interest. If Belmond moves forward and conducts a full feasibility study, the survey results will provide guidance and direction on what possible take rates could be expected, but additional feedback and marketing research may be helpful, especially since response rates were lower than we would have liked.

Despite these cautions, we believe that the survey supports additional measures in the possible pathway to municipal broadband in Belmond.

Measurement: Business Broadband Survey

There were 22 responses to the business broadband survey. 19 of those responses were reported as businesses within the Belmond city limits. For purposes of the analysis we will focus on this group only.

Because of the small sample size, the margin of error for the results are quite high and should not be treated as a scientific sample. However, there is still much to learn from the responses that were received about how Belmond businesses use broadband and their levels of satisfaction with current providers. Below are a few observations, focusing on the most important business broadband service today – internet.

Business Demographics

The businesses that responded represent a mix of industries that are typical for a small town. Most were small, with 10 or fewer employees, although larger employers (50+ employees) did participate. 21.1% of the responses were from home-based businesses with the rest headquartered in a commercial property.

Internet Usage and Satisfaction

Mediacom was reported as the ISP for 50% of the respondents. 39.9% use Frontier, with small number reporting WmTel or using a cellular data plan. Businesses with Mediacom internet tended to have higher levels of overall satisfaction than Frontier customers. Speed and reliability were the two biggest complaints among Frontier customers, while price and customer service experience were the two biggest negatives among Mediacom customers.

Email was the most common use of business internet connections (94.4%). Other popular uses were data management, backup, or storage (66.7%), education and professional development (66.7%), and credit card processing, web surfing, and online purchasing/inventory (all at 61.1%). Many of these uses are mission critical to small businesses and are dependent on reliable connections. Extended service outages or slowdowns can significantly impact business operations.

To get an understanding of business satisfaction with their internet service and their choices, we asked questions about past, present, and future internet needs. 64.7% of respondents said that internet speeds have not kept up with their business needs over the past few years. When asked how important improved internet service is to their business today, only a small percentage (5.6%) said it isn't important and that current service meets their needs. 50% said its somewhat important but that they are able to operate with current service. 44% said internet is very important and that their internet service is not meeting their current needs. When asked about how important internet will be in the next few years, a large majority (77.8%) said it will be very important.

Broadband Future

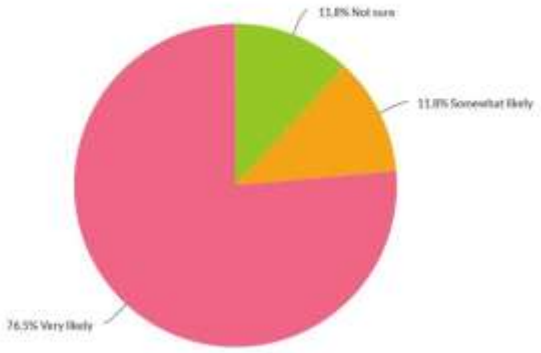


Figure 4: Business Likelihood to Switch to Community Provider

As with the residential survey, we asked businesses how likely they would be to switch to a community-owned broadband network in Belmond. The concept was supported by an even margin than the residential survey. 76.5% said they are very likely to move their services to a community network while 11.8% were somewhat likely. Although the sample size is small, that indicates that businesses could become a key driver of future exploration of a community network.

Conclusions

The **Community Broadband Engagement and Education Project** provided support for the following conclusions.

1. There is a strong consensus among Belmond residents that having fast, affordable, reliable, and universally available broadband is important for the future of the community. They understand that excellent broadband is a key to employment opportunities, education, health care, and general quality of life.
2. Belmond residents are not satisfied with the choices they have now for broadband services, especially the lack of competition among internet providers.
3. A community fiber broadband network, operated as a city utility or as part of a public-private partnership, would address the shortfalls identified during the project.
    a. Fiber optics would guarantee that Belmond has the access to and control of technology needed for world-class internet speeds as well as pay TV and telephone service.
    b. Reliability would be higher since fiber networks have fewer points of failure than copper networks and cables are not subject to disruption from other radio frequencies and water.
    c. Because of fiber's technological superiority over copper networks, internet speeds of a Gigabit or higher would be available to every home and business from the very beginning. And there is a clear upgrade path for higher speeds as the community needs them.
    d. Capacity on the network would be sufficient to meet community needs for decades to come without replacing the infrastructure itself.
    e. Because a community network is not driven by a need to generate profits (and by providing true competition to existing providers), prices for these vital services should be lower than they would otherwise be.

4. A community fiber broadband network would provide long-term benefits to the City of Belmond, enabling the kinds of "Smart City" applications that may be needed and desired in the future.
5. A feasibility study will likely demonstrate significant local economic benefits to construction a community fiber broadband network, including an increase in home values, retention of more broadband dollars within the community, and strong benefits to large and small businesses.
6. There is a strong probability that a detailed feasibility study will demonstrate that a community fiber broadband network can provide excellent broadband services (internet, pay TV, and telephone) at a competitive price.
    a. Take rates among residents are likely to be sufficiently high to create sufficient cash flow cover operational costs and debt obligations.
    b. The potential for shared service infrastructure with other community-based providers (municipals, cooperatives, etc.) can reduce the cost of the network significantly and bring access to advanced services that might otherwise be cost prohibitive.
7. Based on the competitive landscape and likely cost to construct a network, it is highly likely that a feasibility study will provide meaningful metrics that will support construction of a community fiber broadband network.

Recommendations

The overall goal of the Community Broadband Engagement and Education Project was to determine whether there is sufficient community interest in municipal broadband project to justify holding a referendum to authorize a municipal telecommunications utility and to invest in a detailed feasibility study. **It is our opinion that interest in a community fiber project is strong enough to justify these additional steps**. The referendum, if held, will provide another signal of the community's interest in the concept and provide the city with legal authority for additional steps.

After a referendum is held and assuming it is approved by voters, **we recommend that City of Belmond issue a Request for Proposals (RFP) to qualified firms to conduct a detailed feasibility study that includes a preliminary design, cost estimate, and business plan.**

Belmond may require assistance creating and issuing this RFP. To avoid the potential for a conflict of interest, this assistance should come from a firm or individual who would not be a prospective bidder on the RFP. Curtis Dean with SmartSource Consulting will provide this assistance to the City of Belmond at no additional charge if is interested in engaging for these services.

One factor that the City will need to consider if it moves forward is the fact that it does not have existing administrative infrastructure in place for an electric utility that can be an advantage to start-up municipal broadband utilities. Having an existing electric utility provides a new telecommunications utility with experienced utility customer service staff, overhead/underground repair equipment, and the ability to use the telecom network to lower electric system operating costs. It also places some limitations on financing as many Iowa communities have leveraged their electric utility for revenue bonds to achieve lower rates. Some mixture of telecommunications revenue bonds and general obligation bonds is the likely financing course for Belmond, each of which have some advantages and

disadvantages over electric revenue bonds. Those financial impacts should be fully explored in the feasibility study.

Exhibits List

Exhibit A-Iowa Municipal Telecommunications Referenda

Exhibit B-Iowa Municipal Broadband Map

Exhibit C-Incumbent Provider Published Rates and Competitive Analysis

Exhibit D-Mediacom Rate Card

Exhibit E-Mediacom Channel Lineup

Exhibit F-Complete Residential Survey Results

Exhibit G-Complete Business Survey Results

Exhibit H- Ten-Year Economic Benefits

Exhibit I-Project Team