LET'S TALK BROADBAND

October 3, 2018 – 4:00pm

Service Center Willow Room – 200 N. Wilson Ave.

REGULAR MEETING AGENDA

CALL TO ORDER

APPROVAL OF MINUTES – 09/12/2018

CITIZENS REPORT (*See procedural instructions on the following page.)

STAFF REPORTS

1. Draft of Packet & Presentation to City Council – Brieana Reed-Harmel

COMMISSION & COUNCIL REPORTS

DIRECTOR'S REPORT

ADJOURN

The password to the public access wireless network (colguest) is accesswifi

City of Loveland

*** Citizens Report Procedures**

Anyone in the audience may address the LCAB on any topic relevant to the commission. Members of the public will be given an opportunity to speak to the item during the Regular Agenda portion of the meeting before the LCAB acts upon it. If the topic is a Staff Report item, members of the public should address the LCAB during this portion of the meeting; no public comment is accepted during the Staff Report portion of the meeting.

Anyone making comment during any portion of tonight's meeting should identify himself or herself and be recognized by the LCAB chairman. Please do not interrupt other speakers. Side conversations should be moved outside the Service Center Board Room. Please limit comments to no more than three minutes.

Notice of Non-Discrimination

The City of Loveland is committed to providing an equal opportunity for services, programs and activities and does not discriminate on the basis of disability, race, age, color, national origin, religion, sexual orientation or gender. For more information on non-discrimination or for translation assistance, please contact the City's Title VI Coordinator at TitleSix@cityofloveland.org or 970-962-2372. The City will make reasonable accommodations for citizens in accordance with the Americans with Disabilities Act (ADA). For more information on ADA or accommodations, please contact the City's ADA Coordinator at adacoordinator@cityofloveland.org or 970-962-3319.

Notificación en Contra de la Discriminación

"La Ciudad de Loveland está comprometida a proporcionar igualdad de oportunidades para los servicios, programas y actividades y no discriminar en base a discapacidad, raza, edad, color, origen nacional, religión, orientación sexual o género. Para más información sobre la no discriminación o para asistencia en traducción, favor contacte al Coordinador Título VI de la Ciudad al TitleSix@cityofloveland.org o al 970-962-2372. La Ciudad realizará las acomodaciones razonables para los ciudadanos de acuerdo con la Ley de Discapacidades para americanos (ADA). Para más información sobre ADA o acomodaciones, favor contacte al Coordinador de ADA de la Ciudad en adacoordinator@cityofloveland.org o al 970-962-3319".

The password to the public access wireless network (colguest) is accesswifi

Commission Members Present: Adam Auriemmo, Richard Bilancia, David Hetrick, Paul Langfield, Tom McInerney, Korey Streich, and Vi Wickam

Commision Members Absent: JD Walker and Brian Martisius

Council Liaisons Present: none

Council Liaisons Absent: John Fogle, Don Overcash and Dave Clark (Alternate)

City Staff Members Present, Brieana Reed-Harmel, Coreen Callahan, Joe Bernoksy, Lindsey Johansen, Kim O'Field, Ryan Greene, Alan Krcmarik and Steve Adams.

Guest Attendance: Jamie Lebey and Andy Neeley

CALL TO ORDER: Richard Bilancia called the meeting to order at 4:02 pm

APPROVAL OF MINUTES: Bilancia asked for a motion to approve the minutes of the Aug 8, 2018 meeting.
Motion: Adam Auriemmo made the motion
Second: David Hetrick seconded the motion. The minutes were approved unanimously.

STAFF REPORTS

Item 1: Education and Outreach Update – Lindsey Johansen
Provided an update on the broadband education and outreach activities.

Staff report only. No action required.

Item 2: Outline of Report to City Council – Brieana Reed-Harmel
Provided a detailed outline of the information that will be contained in the packet and presentation to City Council Scheduled on October 23, 2018.

Staff report only. No action required.

Item 3: Regional Updates – Brieana Reed-Harmel
Provided an update of the activities of other jurisdictions in the region in relation to community broadband.

Staff report only. No action required.

COMMISSION/COUNCIL REPORTS

Item 5: Commission/Council Reports
Activities that board members attended within the last month

City Manager update: Draft Budget discussion at council meeting last night

DIRECTOR'S REPORT

Item 6: Director's Report – Joe Bernosky
Joe thanked the Board Members for volunteering for outreach opportunities and the staff's dedication

---

ADJOURN The meeting adjourned at 5:52 pm. The next LCAB Meeting will be October 3, 2018 at 4:00 pm.

Respectfully submitted,

Coreen Callahan
Recording Secretary
Loveland Communications Advisory Board

AGENDA ITEM:	1
MEETING DATE:	10/3/2018
SUBMITTED BY:	Brieana Reed-Harmel
STAFF TITLE:	Project Manager/ Senior Electrical Engineer

ITEM TITLE:

Draft of Packet and Presentation to City Council.

DESCRIPTION:

This item will provide a draft of the information that will be contained in the packet and presentation to City Council Scheduled on October 23, 2018.

SUMMARY:

Staff has prepared a draft of the information that will be presented to LCAB on October 10, 2018 and ultimately to City Council on October 23, 2018. This information includes the continued investigation of public-private partnerships, the detailed business plan and the detailed financials for the business model. Staff will be presenting the draft information and will be soliciting feedback from LCAB on the items.

Details of the specific financial information and investigations related to the bonds is still in process and will likely not be available prior to the meeting. Discussions surrounding this information will take place at the October 10, 2018 meeting.

RECOMMENDATION:

Informational item only. No action required.

ATTACHMENTS:

- Attachment A: Draft Public-Private Partnership Staff Memo
- Attachment B: Draft Education and Outreach Staff Memo
- Attachment C: Draft Business Plan with Draft Pro Forma

Attachment A

STAFF REPORT

Loveland Water and Power

TO: Loveland Communications Advisory Board

FROM: Brieana Reed-Harmel, Broadband Project Manager

DATE: 9/28/2018

SUBJECT: Public-Private Partnership Evaluation and Update

Over the course of 2017 the City of Loveland issued a Request for Information (RFI) followed by a Request for Proposal (RFP) for private partners to provide gigabit speed Internet within the community of Loveland. The purpose of the RFI and the RFP was to explore options to form a public-private partnership (P3) to jointly implement and operate a city fiber-to-the-premises (FTTP) broadband service business. The P3 would leverage the experience and resources from both the City of Loveland and the private partner to share risks and benefits of deploying fiber to homes and businesses within Loveland. Although the RFI and RFP explored the same topic, it was not a requirement to respond to the RFI prior to responding to the RFP.

The City requested proposals from private partners to meet the five City Council-directed primary objectives of the project:

1. **City-wide Access/Inclusivity** - To provide the opportunity for high-speed broadband service to all residents, businesses, schools, local government, non-profit organizations, healthcare service providers, and multi-tenant properties.
2. **High Speed** – Requires at least 1 Gigabit symmetrical broadband connection for residential and up to 10 Gigabit symmetrical broadband connection for non-residential, with higher speeds for both service types available in the next five to seven years.
3. **Reliable** – The service needs to be dependable, with minimal outages, as it will have many uses requiring high availability. Some examples are businesses - both storefront and home, residents, students, and healthcare professionals.
4. **Reasonable cost** – The monthly charges for such service should be reasonable and affordable.
5. **Customer Service Excellence** – Demonstrated consistent and reliable customer service to all subscribers.

The RFI closed on May 5, 2017 with the City receiving responses from 6 companies, listed below in alphabetical order.

- Advanced Broadband
- Allo
- CenturyLink
- Comcast
- Foresite Group
- Gigabit Now

Attachment A

The RFP closed on August 24, 2017. The City of Loveland received responses from 10 companies, listed below in alphabetical order.

- ALLO
- CenturyLink
- Comcast
- Foresite Group
- Fujitsu
- Gigabit Now
- Mox Networks
- SherpaFiber
- SiFi Networks
- Zayo

Both the RFI and RFP requested information that is considered proprietary and confidential to the business operations of these private entities and is expected to be protected from public disclosure. However, the RFP also requested respondents to provide a non-proprietary executive summary with their proposal that provides an overview of their proposed solutions, which have been previously provided to City Council during the December 12, 2017 City Council meeting. In order to honor the proprietary and confidential information contained in the responses the proposals will be presented below in general terms, rather than discussing them individually.

The responses were categorized into four main groups:

- Incumbent providers
- Infrastructure companies
- Start-up fiber networks
- Operators of fiber networks

Incumbent Providers

The incumbents' proposals included various methods to make installation of infrastructure within Loveland easier for them. This ranged from policy changes to assistance by the City with funding and advertising. However, none of the proposals would have guaranteed extension of infrastructure to every premise within the City of Loveland or throughout the electric service territory as an optional Phase II, which is one of the primary objectives of the project.

Infrastructure Companies

A number of the respondents are fiber infrastructure design consultants or providers. These companies are capable and competent in designing systems, supplying or manufacturing equipment, and troubleshooting networks, but have not operated or managed a network used for a commercial operation. These respondents provided proposals that included partnerships with third party companies to help with financing, business operations, and marketing. None of the solutions are tested ventures used in other communities, and Loveland would be the first location that these groups worked together to implement a fiber network for a commercial business. All proposals meet the five primary objectives.

Start-up Fiber Networks

Several of the respondents would best be described as start-up companies of fiber networks. They have teams of experienced people who have worked in various aspects of the communications, fiber, and telecommunications industries and have impressive experience and backgrounds. These companies have been formed specifically to serve in a public-private partnership environment, collaborating with municipalities and other government entities to extend fiber to the premise within the community. However, they have limited to no experience with actual partnerships to date as very few have been formed within the United States. All proposals meet the five primary objectives.

Operators of Fiber Networks

Several of the respondents are operators of existing fiber networks. These networks range from private networks set up by housing subdivisions, to small towns and rural communities. Some of these respondents operate within the commercial space and are responsible for providing operations and maintenance activities, marketing and advertising, and customer service activities. Others operate more in the private network space and are simply responsible for operating and maintaining a privately owned network. The respondents have varying levels of experience in a public-private partnership and varying levels of experience operating in a community the size of Loveland. All proposals meet the five primary objectives.

Additional Conversations in 2018

Following the discussion with staff during the December 12, 2017 meeting, City Council, through a rule of four action, provided direction to the City Manager to arrange for the RFP respondents to attend a future City Council meeting to publicly discuss P3s. An invitation to the respondents of the RFP was sent out for a special City Council meeting to be held on January 30, 2018. Six of the ten respondents to the RFP gave presented information on their company, their capabilities, and their offerings and thoughts regarding the proposed broadband project in the City of Loveland. During that presentation two of the respondents discussed information that was not presented in the RFP response and required additional due diligence to understand the proposals. This additional due diligence was conducted by city staff over the summer of 2018.

The additional information that was provided to staff could be divided into two different partnership structures.

The first structure entailed the City building out the backbone of the fiber network and the private partner would build the final connections, or drops, to the premises. The City would be responsible for the financing of the network and maintenance of the backbone. The partner would be responsible for financing the connections to the premises and for providing all customer interactions, content and services to the customer. The City would be expected to help advertise and promote the system in addition to efforts done by the partner, in order to leverage the City's brand equity. The City would receive a fixed cost for lease of the network over the term of the agreement, regardless of the number of customers served by the network. The City would have first right of refusal of the partner owned portion of the system at market value, in the event the partner company is sold or goes out of business. Because the drops would owned by the partner, they would have exclusive access to the customer and additional drops would be required from the backbone to the premise should another P3 partner wish to serve the community.

The second structure consisted of a fiberhood approach to build-out of the system, with the goal to eventually build out the entire city over time, coupled with an open access model of providing internet services. This approach requires that sufficient numbers of residents within a section of town commit to

receiving services before construction is started. This business model decouples the cost of the plant from the cost of services provided. A fee or charge for the network would be paid through a flat rate per subscriber fee that pays for the cost of the network construction, operation, and maintenance. All services provided through third parties would be ala carte and determined by the independent partners.

Risk and Reward Evaluation

One of the biggest benefits of a public-private partnership model is the ability to share risk with the private partner in order to improve the reward for both public and private entities. Risk can come in several different forms, ranging from cost and financing to operational, maintenance, and customer service obligations.

The nature of a public-private partnership is that all parties must rely on each other to perform their part of the business operation. Both parties must be comfortable with the level of experience and the ability of each partner to meet their obligations. The City, in a broadband public-private partnership, would be dependent on the private partner to not only meet operational and maintenance obligations, but to provide the residents and businesses of Loveland the high level of customer service delivered by other city services. The City's reputation and brand would be in the hands of the partner. The partner would have a majority of the responsibility for making the project successful, and the City's ability to recoup the costs of a very large capital infrastructure investment would depend on this success. This necessitates a high degree of confidence in the partner, thorough vetting of their abilities, and very carefully crafted agreements.

During the initial RFP investigation, city staff interviewed several of the respondents whose proposals could meet the five primary project objectives, as well as the incumbents, even though their proposals did not appear to meet all of the primary objectives. Staff's assessment of the responses is that none of the options offer the City of Loveland the ability to substantially reduce the risk of a large capital investment made by the City while still meeting the five primary objectives. Also, many of the partners require a minimum of 45% take rates to make the project viable, which is higher than is projected in our feasibility models. This increases the risk to the City if the partner's targets are not met.

Further due diligence has produced additional aspects and scenarios for consideration. Although the scenario with the partner owning the customer drops meets the five primary objectives, and it shares some portion of the network and construction costs between the partners, it does not sufficiently mitigate financial and reputation risk to the City of Loveland. It also introduces limitations to the use of the network and possible future revenue streams not seen in the other business structures In the event that the private partner is unsuccessful, has a change in ownership, or goes out of business, the City would need to determine whether or not to purchase the partner owned infrastructure, and may not have adequate access to capital. The City would also be placed in a difficult situation of either needing to rapidly take over customer services and operation of the network with little to no preparation, quickly find and negotiate another contract with a new private partner, or let the services to customers cease. All of these scenarios result in ramifications for the City both from a financial perspective and from a branding and reputation perspective. This risk is not unfounded, as Longmont has had two unsuccessful public-private partnership ventures prior to determining to move forward with a retail model. Due to this high risk to the city, and limited cost reductions of the project, staff assessment does not recommend this structure.

The fiberhood scenario with an open access network introduces different types of risk. This model does not meet one of the five primary objectives, city wide accessibility, and introduces the risk that certain

parts of our community either have significantly slower deployment or are left behind. As we have seen in other communities that have implemented this methodology, fiber buildout is prioritized to areas that are easily accessible or areas identified to have sufficient buildup of interest, often excluding other areas. This is also a new and untested business structure in the United States, with the most successful deployment (Ammon, ID) being in operation for just shy of one year at the writing of this memo. Ammon's business model is predicated on recipients of the services paying for their portion of the network up front or by financing the cost through the use of a Local Improvement District (LID) fee over the term of the bond. This fee stays with the property regardless of whether the customer continues to use the service for the term of the bond. In addition to the infrastructure fee, Ammon also assesses a monthly operational and maintenance fee for customers to access the system. Once the customer is connected, they can choose from a variety of different service offerings from different ISP providers through an open access platform with prices varying depending on the offering. Unlike the Ammon ID model which ensures that the network is paid for through an upfront or LID financed construction fee, the open access model proposed to the City of Loveland proposed a flat monthly fee per connected customer to cover the city's costs, including construction, financing, operation, and maintenance. The costs for providing products and customer services would be covered through the remaining costs of the product offerings over the open access platform. As this is a very new business model, there is risk that a sufficient number of ISPs would be able and willing to offer services. Additionally, there is risk that take rates would be lower than anticipated or would be unable to maintain consistent levels if products or customer services offered through the open access platform did not meet customer needs. This model introduces multiple partners and multiplies the risk.

Potential Impacts on Financing

An area of future discussion, should the City decide to further pursue a public-private partnership either in the near term or in the long term is the concern surrounding bonding and financing. During evaluation of the project by our bond council, Butler Snow LLP, has advised that use of the system by a private partner during the term of the bond could jeopardize the ability to issue tax exempt revenue bonds. Under federal tax law, if more that 10% of the proceeds of a tax-exempt bond issue are used for facilities used by private partners and more than 10% of the debt service is from private payments, the bond is no longer eligible for tax exempt status. Use would include a lease agreement, a management contract, an incentive payment contract, or any other type of similar arrangement. This would also include a contract with a private partner where the private partner pays a fee for use of the system in order to provide internet, phone and other services to its customers.

Conclusion

Based on this evaluation and the risk assessment, staff does not consider a public-private partnership to be an optimal solution at this time. The business plan proposed in the Broadband Utility Business Plan would not prevent the City from entering into a public-private partnership in the future if a viable opportunity arises. A public-private partnership may still be an option in the future, assuming that the City can thoroughly address the concerns identified above including vetting the partner, determining reasonable expectations and cost sharing models, addressing the concerns over federal tax law for financing, and contract terms can be successfully negotiated.

Attachment B

STAFF REPORT

Loveland Water and Power

TO: Loveland Communications Advisory Board

FROM: Brieana Reed-Harmel, Broadband Project Manager

DATE: 9/28/2018

SUBJECT: Broadband Community Education and Outreach Efforts

EXECUTIVE SUMMARY

In February 2018, City Council directed staff to implement an "aggressive education and outreach campaign" to the Loveland community. In March of 2018, Loveland Water and Power (LWP) commissioned Fyn Public Relations to assist in the campaign. Strategy, planning and preparation began in March with internal and external outreach beginning in April and running until October 23 when the final information is presented to City Council.

In the seven months of outreach and education conducted, staff, and the Loveland Communications Advisory Board (LCAB) members, worked to connect with residents, businesses and City staff in multiple ways including in-person meetings and events, flyers and printed educational material (print collateral), media outreach and several online methods. The team also launched three new and innovative ideas to help reach those who might not regularly interact with the City on the topic.

The campaign messaging evolved over time based on community feedback and interactions. The outreach began with an internal rollout to City staff and promotion of the openings for the LCAB. Education began with a focus on Broadband 101, a re-introduction on the history of the broadband initiative for the City and the extensive information gathered on the topic. However, many initial questions and comments indicated that those reached had a good understanding of these topics and wanted to know more, specifically:

1) what the City's broadband offering could look like and,
2) when they could subscribe for the service from the City or when a decision would be made.

As of September 26, the campaign had more than 82,000 touchpoints through our outreach efforts in-person, online, through mail and phone calls and through flyers and other printed educational material (print collateral). We were also able to capture more than 230 different questions and more than 50 comments about the project throughout these outreach efforts.

CAMPAIGN OVERVIEW

Attachment B

Goals:

- **Internal:**
  - Make sure all City employees, board members and volunteers are updated on the project and have their questions answered.
  - Support City staff by providing them with clear, concise information to discuss and share, and provide easy ways to direct the public to the right resources for information.

- **External:**
  - Educate all Loveland residents about broadband including what it is, what it does, how it works and details about how the City of Loveland's proposed broadband network would impact residents.
  - Engage with residents and encourage them to ask questions and let the City know how they feel about the project.

Communications Strategy:

- Help residents understand the basic information about broadband through a combination of simple, clear messaging and visuals: what, why, how, when, who it will impact.
- Clearly articulate what municipal broadband is and what it could mean for residents in the home, at work, at school, through services and in the community.
- Educate the community and answer questions based on facts and research found through surveys, the feasibility study, and the high-level business plan.
- Use a combination of communication strategies and tools to reach all intended audiences:
  - Communicate with words, visuals (photos, videos, infographics) and frequently asked questions (FAQs)
  - Reach the public online, through open meetings in the community, on the phone, through community partners and groups.

Target Groups:

- Internal: City of Loveland staff
- External: All Loveland residents, community groups, partners, and businesses
  - Reaching all Loveland residents was a goal, but a specific focus was placed on seniors, low-income, families, businesses and those who might not engage with the City regularly.

External Demographic Breakout:

Attachment B

	General Population	Seniors	Families	Low-Income	Business
Why	A diverse population within the City uses internet therefore reaching the general public is key.	17.3% of Loveland's population is age 65+ with ranges of use/need/understa-nding of the technology.	Loveland families are primary drivers of internet use and need - for work, education and more.	Accessibility for all is a key criteria for broadband if Loveland moves forward.	Loveland's business audience - including small businesses and entrepreneurs - have varying levels of knowledge about the broadband and technology.
How	General meetings and events	Presentations and meetings	Movies on Main	Free community events	Loveland Chamber Ambassadors Meeting
	Website	Thrive Loveland Senior Magazine	Corn Roast Festival	Direct Mail	Loveland Business Appreciation Breakfast
	Social Media	Direct Mail	Foote Lagoon Concert Serries	Social Media	DDA/LDP business meetings
	Direct Mail	Telephone Town Hall	Night on the Town	Select meetings and presentations	Made In Loveland Meeting
	Media	Newspaper	Direct Mail	Posters around town	Loveland Business Partnership Meeting
	Presentations	Broadband Phone Line	Newspaper	Telephone Town Hall	Business E-newsletters
	City Update Articles	City Update Articles	Social Media		

Tactics:

The campaign included a variety of in-person meetings and events, print collateral and online tools to reach the community. Additionally, staff felt that it was important to established multiple methods the community could in turn contact the broadband team and LCAB directly should they need to request information or ask questions. This included contacts established via phone, web, email and in-person.

In an effort to reach the community where they were and to interact with those who may not have interacted with the City previously, three new tactics/tools were also implemented.

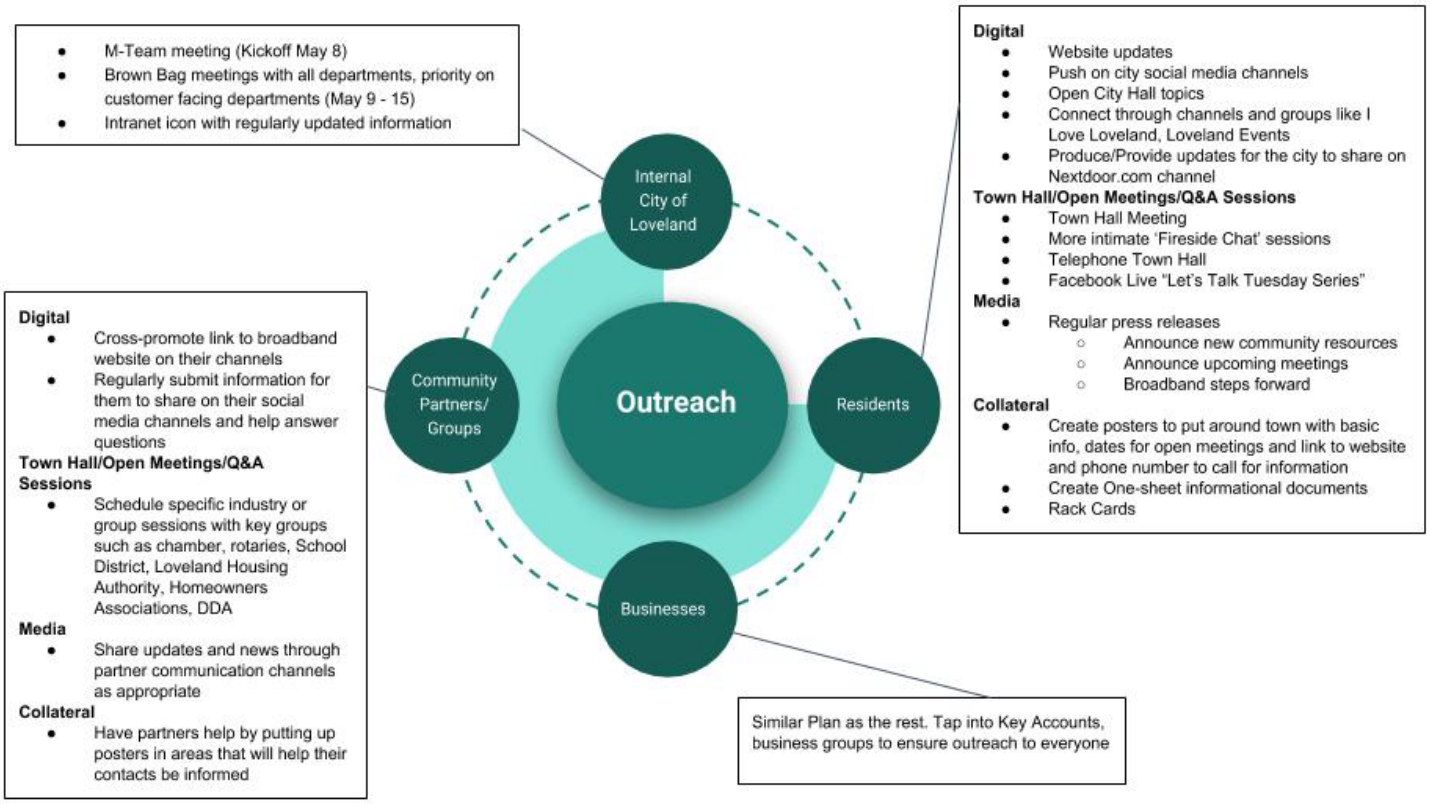
1) Loveland's first Telephone Town Hall – Hosted in conjunction with the Broadband Town Hall, the Telephone Town Hall event will call out to registered participants and local land lines. This provides an opportunity for individuals to participate from home and reaches those who may not have come across Town Hall event promotional materials.

2) A regular Facebook Live series called "Let's Talk Tuesday" – Staff hosted five question and answer sessions through the Facebook Live platform. Viewers could post questions about broadband and have them answered during the live broadcast. Recordings of the series were also saved and available for viewing on LWP's Facebook page and broadband website.

3) A new online engagement platform - To offer more unique and interactive ways for the community to receive information and engage on the topic staff launched the "Let's Talk

Loveland" webpage. Participants were drawn to the page through quick polls and opportunities for speed tests. LWP was able to not only share information about broadband and the project but also publicly answer questions and gather feedback.

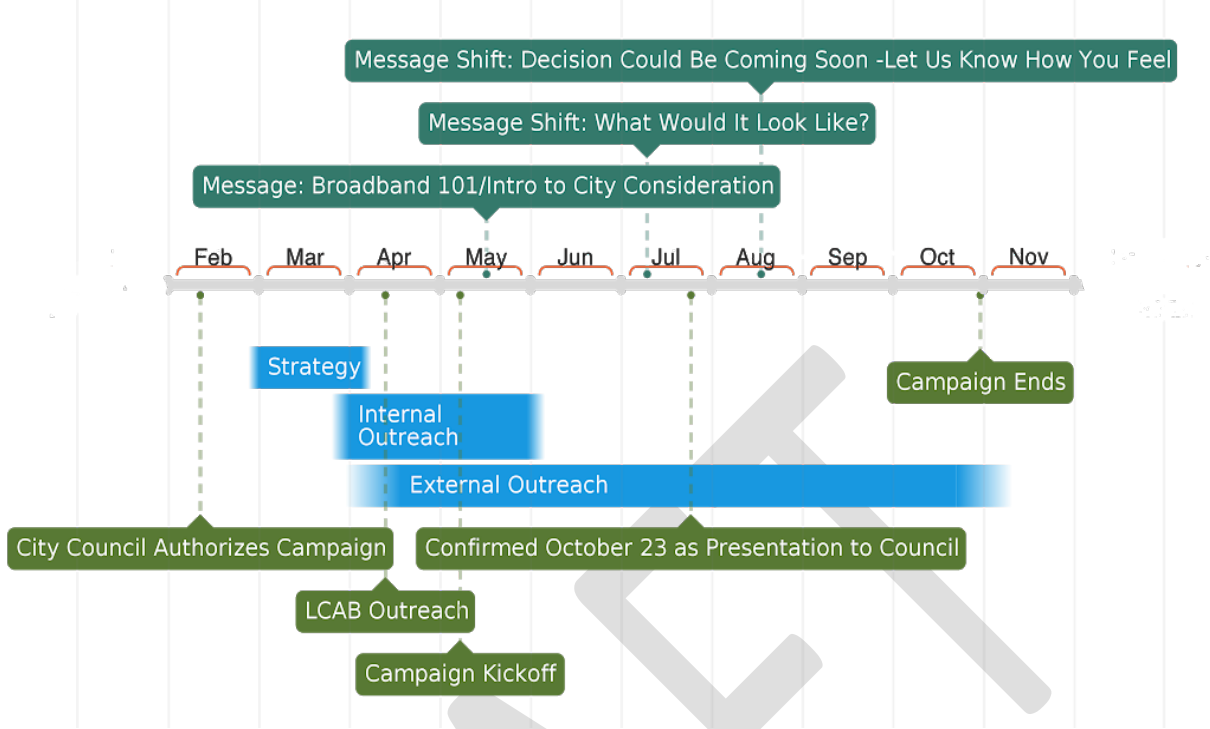
Additional tactics are outlined in the tactical roadmap below.



Timeline & Execution:

The campaign began in March 2018 with a rollout to City of Loveland staff and outreach for members of the newly formed LCAB. Following LCAB outreach, education heavily focused on Broadband 101 messaging - educating the community on what broadband is, how residents use it day-to-day and the history of what the City of Loveland has done to move forward on the possibility of broadband. Consistent messaging and question analysis throughout the campaign revealed a need for several messaging shifts. Target audiences were asking more questions about the service offering and when City broadband would be available to the Loveland community. This prompted two specific messaging shifts throughout the campaign, as indicated in the timeline below.

Attachment B



This execution calendar snapshot outlines strategy and outreach throughout the campaign. More specific details can be found in the Appendix.

	March/April	May	June	July
Strategy/Planning	- Strategy and planning - Updated messaging and FAQs - Finalized three one-sheet handouts	- Finalized Broadband 101 video and presentation for meetings - Worked to finalize the online engagement platform "Let's Talk Loveland"	- Began adjusting message from Broadband 101 to answering the "why" and "what would it look like"	- Shifted messaging focus to include more specifics found in the preliminary business plan
Outreach	**- Outreach Launch:** Internal meeting April 13 - Began outreach to schedule community group	- Five internal meetings: May 8 - 15 **- External Launch: May 18.** Met with LDP/DDA Business Members,	- Launched the online engagement platform "Let's Talk Loveland" June 8	- Continued community events/meetings: DDA Board Meeting, Loveland Housing Authority. Foote Lagoon Concert,

Attachment B

	March/April	May	June	July
	meetings and presentations - Met with LWP Staff for updates - Launched broadband page on City's intranet	Loveland Sertoma, Mountain View Rotary, Thompson Valley Rotary - Launched communication for LCAB member applications (press release, social media, advertisements, e-newsletters, posters)	- Launched "Let's Talk Tuesday" Facebook Live series on broadband - Continued community events/meetings: Night on the Town, Loveland Chamber Ambassadors, Loveland Lions Club - Announced appointed LCAB members - Launched engagement tools notice through e-newsletters	Night on the Town , LDP Board Meeting, Movies on Main - Promenade Shops - Partnered with I Love Loveland for Facebook Live Q&A about broadband to reach 20,000 people - Press release: Nokia as broadband network design partner - Included Broadband news in LWP e-newsletters

	August	September	October
Strategy/Planning	- With City Council date set, began shifting message to "Now is the time to ask questions and voice your opinions."		
Outreach	- Continued community events/meetings: Corn Roast Parade handouts and presence, First LCAB Community Meeting: Eastside - Launched new posters and rack cards	- Continued community events/meetings: LCAB Community Meetings: Westside, Downtown and Southwest, Ward 4 Meeting, Night on the Town - Meet LCAB, Business Appreciation Breakfast	Oct. 4 Town Hall (In-person, telephone, Facebook Live, Channel 16) - Follow-up social media, media and website polls to transition to Oct. 23 meeting.

Attachment B

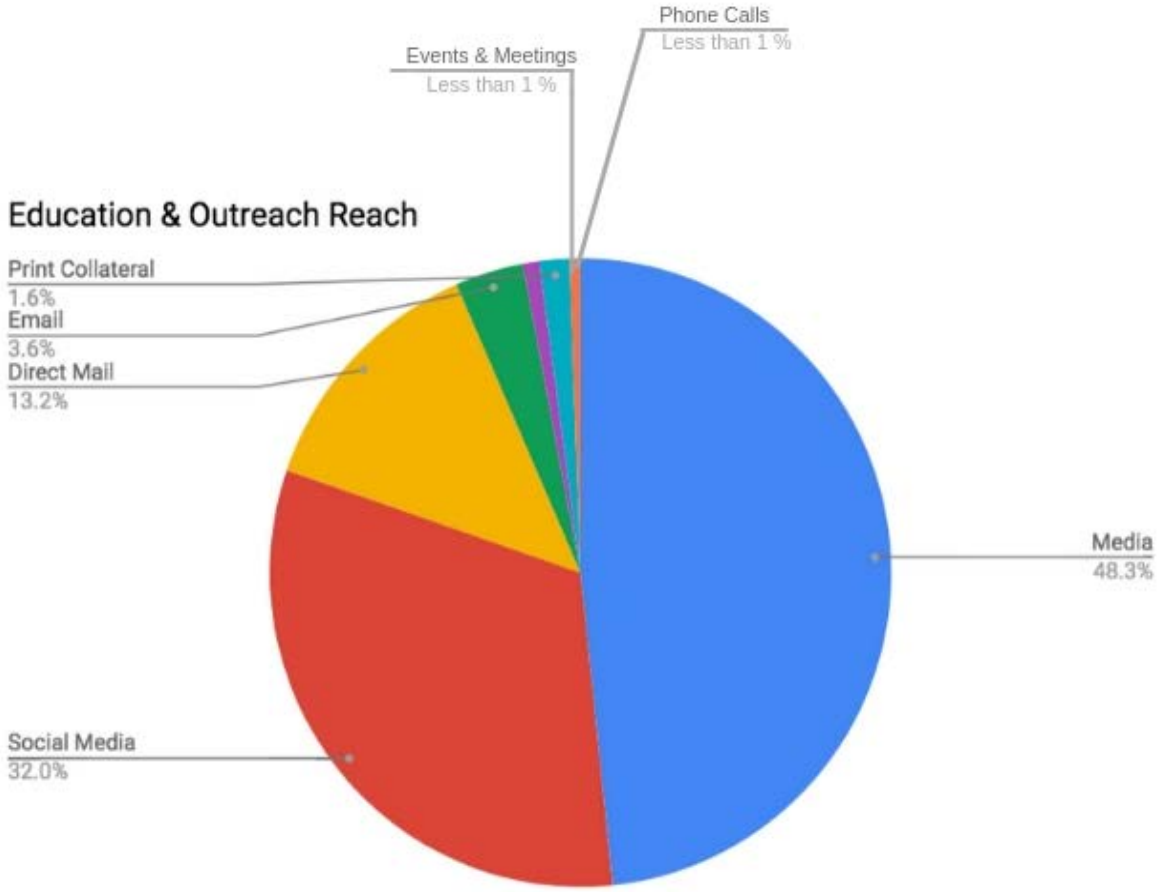
	August	September	October
	- Continued social media outreach - Let's Talk Tuesday Facebook Live: Education and the Internet - Press release: Announced Broadband Underwriter - Included broadband news in LWP e-newsletters - City Update headline article	- Direct mail piece distributed to every household Sept. 17 - Open City Hall email announcement of upcoming events and Oct. 4 Town Hall meeting - "Let's Talk Tuesday Facebook Live: Healthcare and the Internet" - Finalized planning and launched promotion for Oct. 4 Town Hall Meeting and the City's first ever Telephone Town Hall - Press release and media outreach for engagement tools and Oct. 4 Town Hall	

RESULTS

By the Numbers:
The following results are as of September 27, 2018.

Attachment B

How We Connected:



Overall, the broadband team connected with the community in the following ways:

In-Person: Staff was heavily invested in connecting with the community, providing opportunities to answer questions and provide information. In total staff, LCAB members, and volunteers spent over 178 hours in 30 meetings and events with community members, sharing information face-to-face regarding broadband. Total Reach: 1,245 people at events and meetings

-
- Phone: 21 calls
- Online:
    - Social Media: Total Reach: 72,326 | Total Engagement: 4,393
    - Website*:*
        - Total cityofloveland.org/Broadband website visits: 2,900
            - Aware visitors (visited at least one page): 1,918
            - Informed visitors (viewed, downloaded, clicked on link, engaged): 1,003
            - Engaged visitors (participated in survey, asked question, mapped pin, commented): 225
            - 221 residents signed up to receive follow-up information about the project.
    - Email:

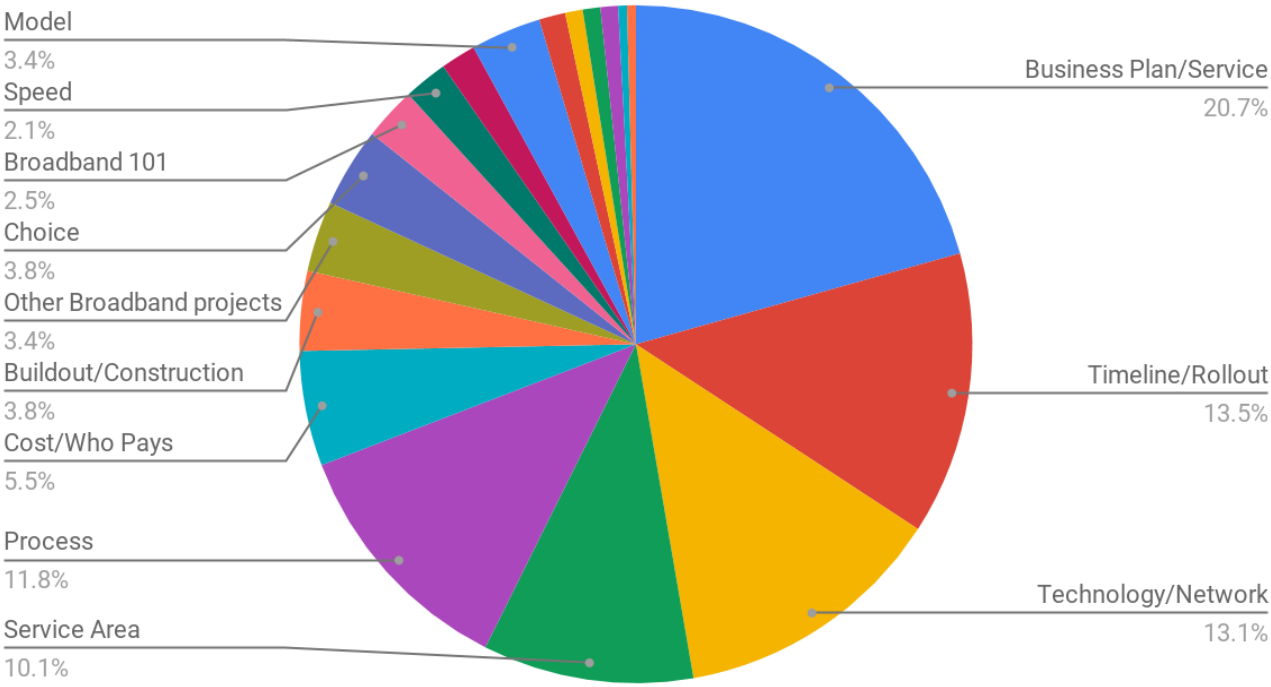
        - 15 emails to broadband@cityofloveland.org
        - LWP E-newsletters: Total opens: 3,441 | Total clicks: 341
        - Open City Hall emails: Total opens: 4,604 | Total clicks: 176
- Media:
    - Distributed four press releases and worked to engage with media
    - Guest opinion published from LCAB Chairman
    - 14 articles about broadband-related topics during campaign
        - Article reach: 7,487,324
        - 18 newspaper ads ran to-date for broadband topics
- Print Collateral/Mailings:
    - Residents reached through three City Update newsletters: 117,000
    - Households reached through direct mail 29,819 (all households in Loveland)
    - Posters hung around town: 60 posters total (Let's Talk Broadband and LCAB)
    - Rack cards and handouts distributed 1,500
    - Broadband 101 one-pagers distributed 1,500

Community Response:
Of those who engaged with us, the questions or comments spanned several different categories. 57.4% of all questions asked were about the **broadband business plan** (including prices, tiers, packages, equipment needed and more), **timeline/rollout** (when will it begin, how will it be rolled out, phases,) the **technology/network** (fiber versus wireless, 5G, existing fiber, keeping up with technology, etc.), and **service area** (who gets service, do I qualify?).

The following is a summary of sentiments expressed in written questions and comments and should be interpreted in conjunction with quantitative data from surveys conducted in conjunction with the broadband business plan.

Questions:

Attachment B



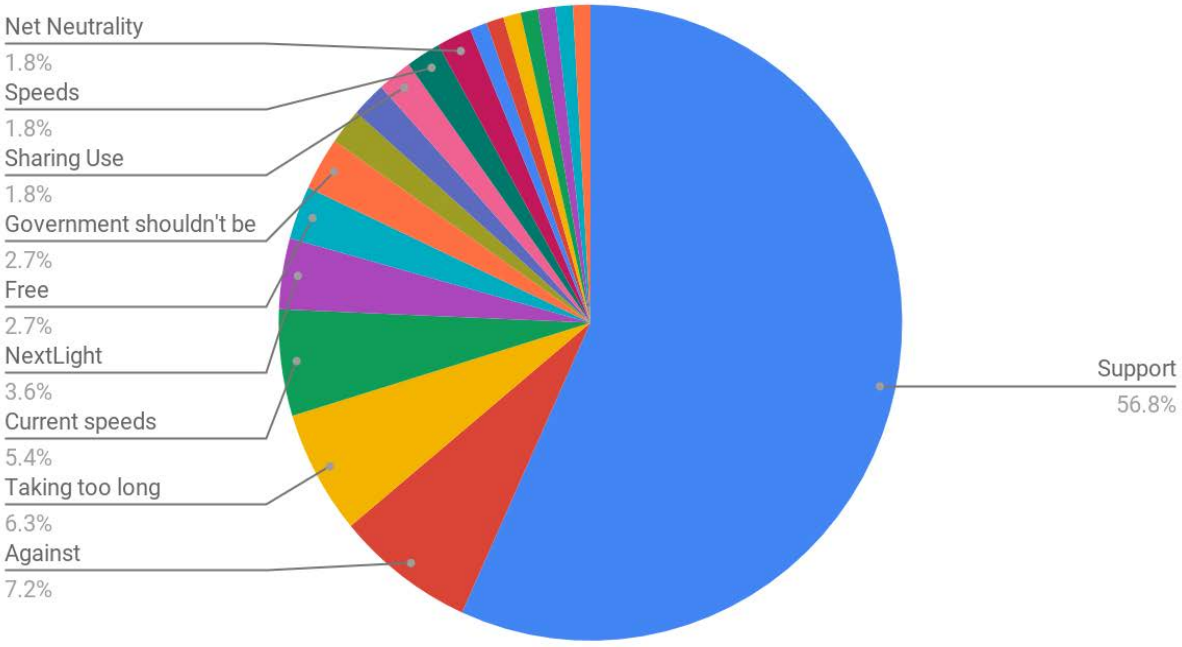
A complete list of questions asked can be found on page 31.

Question description details:

- Business Plan/Service Offering: 48
  - Prices, tiers, packages, equipment, how billed
- Technology/Network: 31
  - Fiber vs. wireless. 5G, what would increasing bandwidth do, connect through account across the City, etc.
- Timeline/Rollout: 30
  - Will you roll out all at once, when will service begin, phases
- Service Area: 23
  - Who is eligible for service, does my area get it
- Process: 23
  - What happens next, who decides, why is this taking so long, will this have to go to a vote, didn't we already vote, etc.
- Cost/Who Pays: 12
  - Who pays for it, bonding questions, etc.
- Buildout/Construction: 9
  - Construction questions including when and where, what has to be dug up, plan for last mile connections, etc.
- Other Broadband Projects: 8
  - How are other communities doing, who has been successful, have other communities failed, how are you working with the county
- Choice: 8
  - Will I have to use this or switch from my current provider
- Broadband 101: 6
  - What is broadband, how does it work, pros and cons of broadband
- Speed: 5
  - What speeds will you offer, data caps, How will speeds compare to what we have now
- Model: 4
  - Who will be the provider, private or public public, are we partnering with other cities, etc.
- Why Considering? 4
  - Why are we considering this
- Net Neutrality: 3
  - Policies around net neutrality
- Opposition: 2
  - Why would there be opposition to the project
- Risks: 2
  - What are the risks
- Service Quality: 2
  - Will broadband help improve service
- Health: 1
  - What does this mean for people with electromagnetic hypersensitivity
- LCAB: 1
  - Who is on LCAB

Attachment B

Comments:



A complete list of comments submitted can be found on page 31.

Comment description details:

- Support: 63
  - We support it, we want it
- Against: 8
  - Against City providing broadband
- Taking too long: 7
  - Why is this taking so long to decide
- Current speeds: 6
  - Sharing current speeds, needs and notes
- NextLight: 4
  - Had/loved NextLight
- Free: 3
  - Assumed it is free or want it to be free
- Government shouldn't be ISP: 3
- Thank you: 2
  - Thank you
- Technology: 2
- Net Neutrality: 2
- Sharing Use: 1
  - They shared how they use the internet
- Speeds: 2
  - Commenting on speeds and speed test
- TCP/IP Communication: 1
  - Need for a public conversation on TCP/IP Communication
- What City funds: 1
  - Commentary that they know the City's funding priorities
- Misc: 1
  - Map size in paper, vendor interest, financially justified, lower cost

Attachment B

ATTACHMENTS

1. **EVENTS**
2. **PRINT COLLATERAL**
3. **SOCIAL MEDIA**
4. **EMAIL**
5. **WEBSITE**
6. **MEDIA**
7. **FULL TEXT COMMENTS/QUESTIONS**

Attachment B

ATTACHMENT #1
EVENTS

Group/Meeting	Date	Internal/External	Type	Staff/LCAB Attendance
LWP Staff Meeting	4/13/2018	Internal	Meeting	Brie, Kim, Lindsey, Ryan
COL Executive Leadership Team	5/8/2018	Internal	Meeting	Kim, Lindsey, Nicole, Ryan
Utility Billing Staff Meeting	5/11/2018	Internal	Meeting	Brie, Lindsey, Ryan
May Brown Bag - Council Chambers	5/11/2018	Internal	Meeting	Brie, Lindsey, Ryan
May Brown Bag - PWA	5/14/2018	Internal	Meeting	Brie, Kim, Lindsey, Nicole, Ryan
May Brown Bag - Library	5/15/2018	Internal	Meeting	Brie, Kim, Lindsey, Nicole, Ryan
LDP/DDA Broadband Presentation	5/18/2018	External	Meeting	Kim, Ryan
Loveland Sertoma	5/23/2018	External	Meeting	Brie, Lindsey
Mountain View Rotary	5/23/2018	External	Meeting	Kim, Nicole, Ryan
Thompson Valley Rotary	5/31/2018	External	Meeting	Brie, Kim, Nicole, Ryan
Night on the Town	6/8/2018	External	Event	Brie, Nicole, Ryan
Loveland Chamber Ambassadors	6/14/2018	External	Meeting	Brie, Kim, Nicole, Ryan
Loveland Lions Club	6/20/2018	External	Meeting	Brie, Kim, Nicole, Ryan
DDA	7/9/2018	External	Meeting	Kim, Nicole, Ryan
Loveland Housing Authority	7/12/2018	External	Meeting	Brie, Nicole
Foote Lagoon Concert	7/12/2018	External	Event	Brie, Lindsey, Nicole, Ryan, Steve
Night on the Town	7/13/2018	External	Event	Brie, Nicole, Ryan
LDP	7/16/2018	External	Event	Brie, Lindsey, Ryan
Movies on Main - Promenade Shops	7/27/2018	External	Event	Nicole, Brie, Kim, Ryan, Marcus
Made Loveland	8/15/2018	External	Meeting	Kim, Lindsey, Ryan
Corn Roast Parade	8/25/2018	External	Event	Brie, Kim, Lindsey, Nicole , LCAB David, 20 LWP Staff & Family
Community Meeting	8/30/2018	External	Meeting	Kim, Lindsey, LCAB, David, Vi
Community Meeting	9/7/2018	External	Meeting	Kim, Nicole, LCAB Korey
Business Appreciation Breakfast	9/12/2018	External	Event	Brie, Kim, Lindsey, Nicole, LCAB Paul, Vi
Night on the Town - Meet LCAB	9/14/2018	External	Event	Kim, Nicole, LCAB Korey, Vi
Community Meeting	9/15/2018	External	Meeting	Brie, Kim, Nicole, Ryan, LCAB David, Korey, Vi

Attachment B

Ward 2 Meeting	9/15/2018	External	Meeting	Kim, Ryan
Community Meeting	9/20/2018	External	Meeting	Brie, Nicole, LCAB Vi
Town Hall	10/4/2018	External	Event	Brie, Kim, Lindsey, Nicole, Ryan, Steve, LCAB Paul, 7 City Staff
Telephone Town Hall	10/4/2018	External	Event	

Notes: Information as of September 26, 2018.

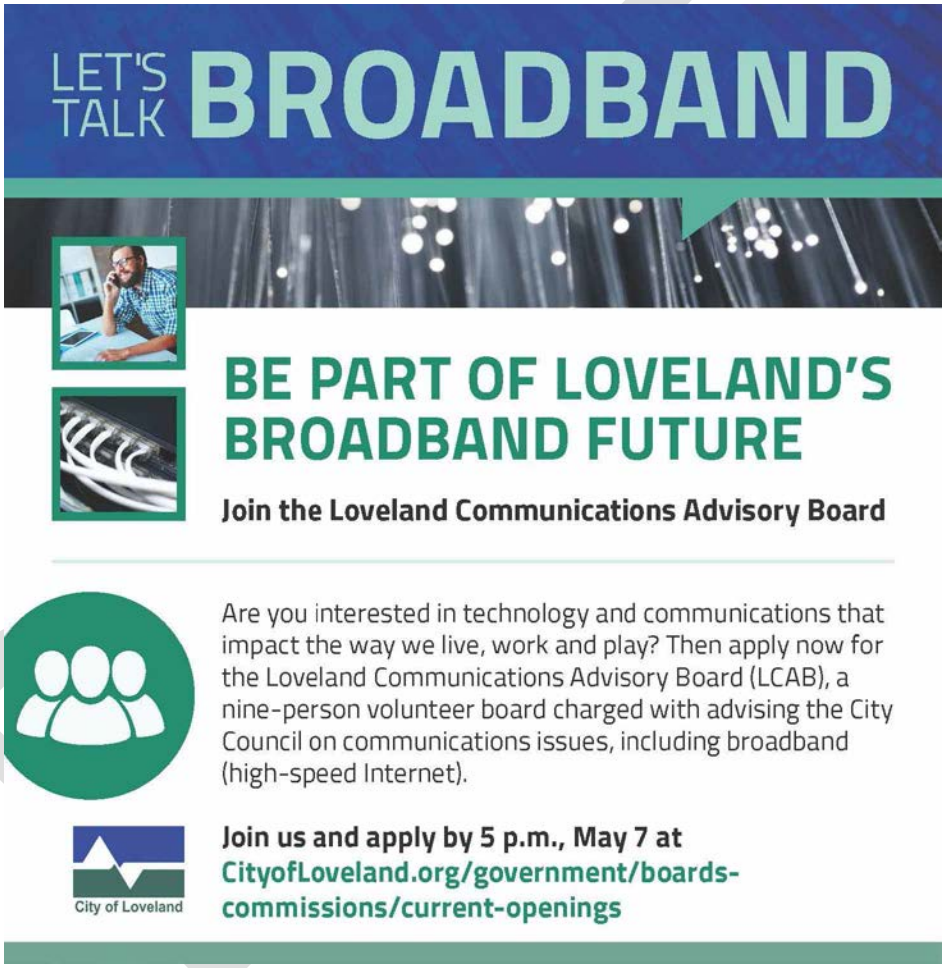
Attachment B

ATTACHMENT #2
PRINT COLLATERAL

Print Collateral/Mailings:

- Residents reached through three City Update newsletters: 117,000
- Households reached through direct mail: 29,819 (all households in Loveland)
- Posters hung around town: 60 posters total (Let's Talk Broadband and LCAB)
- Rack cards and handouts distributed 1,500
- Broadband 101 one-pagers distributed 1,500

Sample Ad:



Attachment B

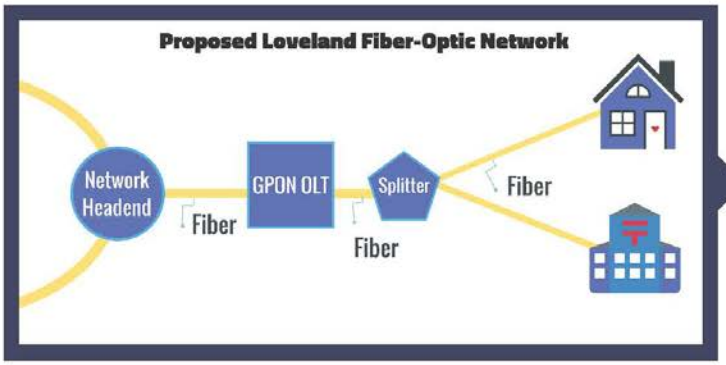
Sample One-Pager:

LET'S TALK **BROADBAND**

NETWORK DIFFERENCES »

SPEED AND PERFORMANCE

How an Internet network is built makes all the difference. What do communities, businesses, and consumers need to work, live and play? Over time, technology advancements have changed how communication networks are made. Here is a look at four different communication network designs and how their technology and speed compare.

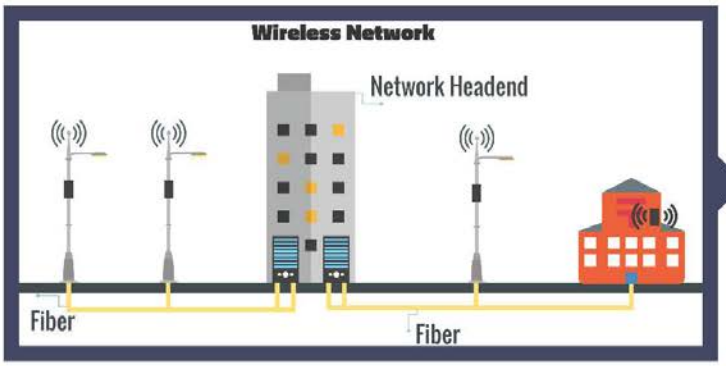


FIBER-OPTIC NETWORK
Throughput Maximum:

» Upstream:
1 to 40 Gbps

» Downstream:
1 to 40 Gbps

A 100 PERCENT FIBER GPON (gigabit passive optical network) uses fiber from start to finish. The synchronous connection begins at the headend, head to a midpoint "optical line terminal" and then runs through a splitter before coming to your home or business.



WIRELESS
Throughput Maximum:

» Upstream:
5 Mbps

» Downstream:
12 Mbps

A WIRELESS NETWORK starts with an underground network connection from the headend transmitting data to cell towers and antennas. A fiber-optic network and more evenly spaced cell towers and antennas are needed to support potential speeds of 4G and beyond.

Sample of Direct Mailing:

Attachment B

Here are some commonly asked questions. Find out more at cityofloveland.org/Broadband.

WHY IS LOVELAND LOOKING INTO BROADBAND?

A dynamic community supports the needs of the public now and into the future. Today, the rapid exchange of digital information through high-speed internet is as essential as other infrastructures such as roads, water, and electricity for a competitive economy and thriving community. Yet, not everyone in Loveland currently has the same access, or choice when selecting a provider.

81%

of residential survey respondents said that having a choice in internet service provider was moderately to extremely important.*

CHOICE

Increased Market Competition = Choice of internet service provider, improved customer service, higher speeds and lower prices.

- **2015 Ballot Measure 2C Passed by 82% of Participating Voters**
- **City Council Approved Supplemental Budget for Broadband Assessment/Feasibility**
  April 2016
- **City Staff Completes Feasibility Studies, Surveys and Research**
  2016-2017
- **City Council Approves New Measures to Continue Broadband Development**
  February 6, 2018
- **Establish Loveland Electric and Communication Enterprise**
  February 2018
- **Broadband Community Education Campaign**
  April 2018 - present
- **Establish Loveland Communication Advisory Board**
  June 2018
- **Design Broadband Network Buildout**
  June 2018 - present
- **Evaluate Financing Options**
  August 2018 - present
- **Town Hall/Telephone Town Hall Meeting**
  October 4, 2018
- **Options Presented to Council for Direction**
  October 23, 2018

*Statistics from a 2016 community broadband survey conducted by the City of Loveland.

WHAT WOULD LOVELAND'S BROADBAND SERVICE LOOK LIKE?

The City's vision statements for broadband service include:

KEY VALUES

FAST · AFFORDABLE · INCLUSIVE · RELIABLE · CUSTOMER SERVICE EXCELLENCE

RESIDENTIAL SPEEDS AND PRICES

50 MBPS	300 MBPS	1 GBPS
$19.95/MO	$49.95/MO	$79.95/MO

If City Council approves broadband, actual pricing and service plans will be announced. These prices are for business and financial modeling purposes only. Actual prices or subscriptions may differ.

HOW WOULD THIS BE PAID FOR?

If approved by City Council, broadband would be funded by those who subscribe to the service. As customers are added, all costs for broadband, including debt service of the bonds, operations and maintenance activities, etc, would be paid for by subscribers.

- ✖ TAXPAYERS
- ✖ ELECTRIC & WATER CUSTOMERS
- ✔ BROADBAND SUBSCRIBERS

WHEN WOULD BROADBAND SERVICE BE AVAILABLE?

2-3 years to bring broadband to every home and business in the city.

SERVICE TERRITORY

›› **Loveland city limits and electric service area**

If City Council approves broadband buildout, the City anticipates that the complete network buildout to all businesses and residents within the service territory would take 2-3 years. If City Council decides not to move forward, then the city would not have any ownership or role in broadband services within the city.

WE WANT TO HEAR FROM YOU.

VISIT US ONLINE AT CITYOFLOVELAND.ORG/BROADBAND.

OR JOIN OUR TOWN HALL MEETING ON OCTOBER 4.

Attachment B

ATTACHMENT #3
SOCIAL MEDIA

"Let's Talk Tuesday" Facebook Live Q&A's

- June 19: Broadband 101
  - Reach: 3,444; Engagement: 103; Video Views: 1,300
- July 3: Bandwidth and Speeds
  - Reach: 4,235; Engagement: 97; Video Views: 1,700
- July 17: Co-Hosted with I Love Loveland - Ask Your Broadband Questions
  - Reach: 6,381; Engagement: 2,950; Video Views: 2,789
- August 28: Education and the Internet
  - Reach: 2,071; Engagement: 23; Video Views: 183
- September 25: Healthcare and the Internet
  - Reach: 32; Engagement: 0

Event Promotion

- June 6: Let's Talk Broadband at Night on the Town (Facebook)
  - Reach: 805; Engagements: 5
- June 6: Let's Talk Broadband at Night on the Town (NextDoor)
  - Reach: 2482; Engagements: 9
- June 8: Let's Talk Broadband (Instagram)
  - Reach: 191; Engagement 15
- June 14: Let's Talk Tuesday Promotion Post
  - Reach: 263; Engagements: 0
- June 28: Let's Talk Tuesday Promotion Post
  - Reach: 6,665; Engagements: 51
- June 29: Let's Talk Tuesday Promotion Post (Twitter)
  - Reach: 891; Engagements: 4
- July 2: Let's Talk Broadband (Twitter)
  - Reach: 892; Engagement: 4
- July 10: Let's Talk Broadband (Facebook)
  - Reach: 103; Engagement: 1
- July 16: Let's Talk Tuesday (NextDoor)
  - Reach: 1964
  - Engagement: 2
- July 17: Let's Talk Broadband (Twitter)
  - Reach: 899; Engagement: 1
- July 27: Movies on Main: Wonder (Facebook)
  - Reach: 259; Engagements: 11
- July 27: Community Listening Session (Facebook)
  - Reach: 72; Engagements: 2
- August 23: Let's Talk Tuesday Promotion Post (Facebook)
  - Reach: 3,457; Engagement: 73
- August 24: Broadband Community Meeting August 30 (Facebook)
  - Reach: 20; Engagement: 0
- August 24: Broadband Community Meeting September 7 (Facebook)
  - Reach: 24; Engagement: 0
- August 30: Broadband Community Meeting (Facebook)
  - Reach:132; Engagements: 0
- September 7: Broadband Fireside Chat (Facebook)
  - Reach: 224; Engagement: 0

Attachment B

- September 10: Meet LCAB/Broadband Reception at Night on the Town (Facebook)
    - Reach: 146; Engagement: 0
- September 13: Broadband Events This Weekend (Facebook)
    - Reach: 1,668; Engagements: 11
- September 18: Broadband Fireside Chat (Facebook)
    - Reach: 138; Engagement: 0
    - Reach: 5,365; Engagement: 2.2%; Video Views: 1.7k
- September 20: Let's Talk Tuesday Promotion Post (Facebook)
    - Reach: 798; Engagement: 12
- Foote Lagoon/July Night on the Town Promotion
    - Facebook- Reach: 3,441; Engagements: 14; Video Views: 1,204
    - Twitter- Reach: 2,230; Engagement: 2
    - Instagram- Reach: 200; Engagement: 0; Video Views: 42
- July 26 Ward 4 Meeting (NextDoor)
    - Reach: 2157
    - Engagement: 2
- July 27: Ward 4 Meeting Post
    - Reach: 904; Engagement: 0
- September 14: LCAB Downtown/Beignets and Broadband meetings (Twitter)
    - Reach: 2,316; Engagement: 2
- September 14: LCAB Downtown/Beignets and Broadband meetings (Instagram)
    - Reach: 229; Engagement: 14; Video Views: 33
- September 12: Ward 2 Meeting (NextDoor)
    - Reach: 1554
    - Engagement:

All Others (Educational, the Engagement Video)

- June 12: Let's Talk Broadband Engagement Tools (Facebook)
    - Reach: 11,559; Engagement: 750
- June 12: Let's Talk Broadband Engagement Tools (Twitter)
    - Reach: 2,393; Engagement: 2
- June 12: Let's Talk Broadband Engagement Tools (NextDoor)
    - Reach: 3129; Engagement: 11
- June 12: Let's Talk Broadband Engagement Tools (Instagram)
    - Reach: 191; Engagement: 14
- June 22: Let's Talk Broadband: Broadband 101 (Facebook)
    - Reach: 13,797; Engagements: 40; Video Views: 4,900
- June 22: Let's Talk Broadband: Broadband 101 Video (Twitter)
    - Reach: 889; Engagements: 14
- June 30: LCAB Promotion (NextDoor)
    - Reach: 2156
    - Engagement: 3
- July 6: Broadband Quick Poll
    - Reach: 2,534; Engagements: 54
- August 15: Request Presentation for community group (Twitter)
    - Reach: 3,569; Engagement: 3
- August 21: Broadband 101 (Facebook)
    - Reach: 654; Engagements: 9
- August 23: Corn Roast- Let's Talk Broadband Banner (Twitter)

Attachment B

    - Reach: 156 Engagements: 1
- August 25: Corn Roast- Let's Talk Broadband Banner (Instagram)
    - Reach: 220; Engagements: 19; Video Views: 64
- August 25: Corn Roast- Let's Talk Broadband Banner (Facebook)
    - Reach: 525; Engagements: 34
- August 26: Online Engagement Platform Tutorial Video (Facebook)
    - Reach: 2,663; Engagements: 9; Video Views: 509
- September 10: #MythbusterMondays (Facebook)
    - Reach: 589; Engagements: 21
- September 12: Let's Talk Broadband Event
    - Reach: 1,069; Engagement: 1

Notes: Includes LWP social media channels only. Does not include City channels and community shares. Information as of September 26, 2018.

Attachment B

ATTACHMENT #4
EMAIL

Direct Emails:
15 emails to broadband@cityofloveland.org

Notes: Does not include emails sent directly to staff email addresses.

E-Newsletters:
Total opens: 8,045 | Total clicks: 517

Newsletter	Date	Opened	Open %	Clicks
Loveland Water and Power - E-publications				
Key Points - What's new at Loveland Water and Power?	5/1/2018	34	36.6	7
Utility E-Newsletter - Diamond-level Reliable Public Power Provider designation	5/4/2018	1101	42.1	67
Key Points - What's going on at Water and Power?	6/11/2018	25	27.2	2
Utility Release - Let's Talk Broadband	6/18/2018	1181	45.5	185
Key Points - Summer news from Loveland Water and Power	8/6/2018	31	34.4	12
Key Points - Share your thoughts with us!	9/4/2018	29	32.6	4
Utility Release - Let's Talk Broadband with Upcoming Events	9/6/2018	1040	39.6	64
City of Loveland - Open City Hall				
Residents invited to join LCAB	5/1/2018	2627	30	12
Got Questions About Broadband?	9/13/2018	1977	22.4	164
TOTAL		**8045**	**34.5**	**517**

Notes: Information as of September 26, 2018.

Attachment B

ATTACHMENT #5
WEBSITE METRICS

Website: www.cityofloveland.org/Broadband
Homepage Sample:

Home » Broadband Project Details

Broadband Project Details

Since 2015, the City of Loveland has been exploring the possibility of bringing broadband, otherwise known as high-speed internet, to the community. We've done the research, received recommendations and now, it's time for you to learn more, ask questions and understand how broadband would affect you, your family or business. This is an important decision for our community and we want to hear from you. Connect with us and *Let's Talk Broadband!*

Want the technical details? Check out some facts on how internet technology differs. Interested in the research and data behind the possibility of broadband in Loveland? Dive into the high-level broadband business plan.

LCAB Updates | Technology Overview | Broadband Task Force Archive | City Council Archive

CHECK YOUR I... | Q & A | NEWS & UPDA... | GUESTBOOK | QUICK POLL

Telephone Town Hall

CLICK TO REGISTER
October 4
Telephone Town Hall

Google Translate

Select Language

STAY INFORMED
Subscribe for project updates

You're already following this project
Manage your subscriptions
96 members of your community are following this project

Timeline

2015 Ballot Measure 2C Passed

City Council Approved Supplemental Budget for Broadband Assessment/Feasibility

Attachment B

Visitor Summary & Highlights:

Participant Summary:

ENGAGED

INFORMED

AWARE

256 ENGAGED PARTICIPANTS

	Registered	Unverified	Anonymous
Contributed on Forums	0	0	0
Participated in Surveys	0	0	0
Contributed to Newsfeeds	0	0	0
Participated in Quick Polls	17	0	70
Posted on Guestbooks	9	0	0
Contributed to Stories	0	0	0
Asked Questions	9	0	0
Placed Pins on Places	176	0	0
Contributed to Ideas	0	0	0

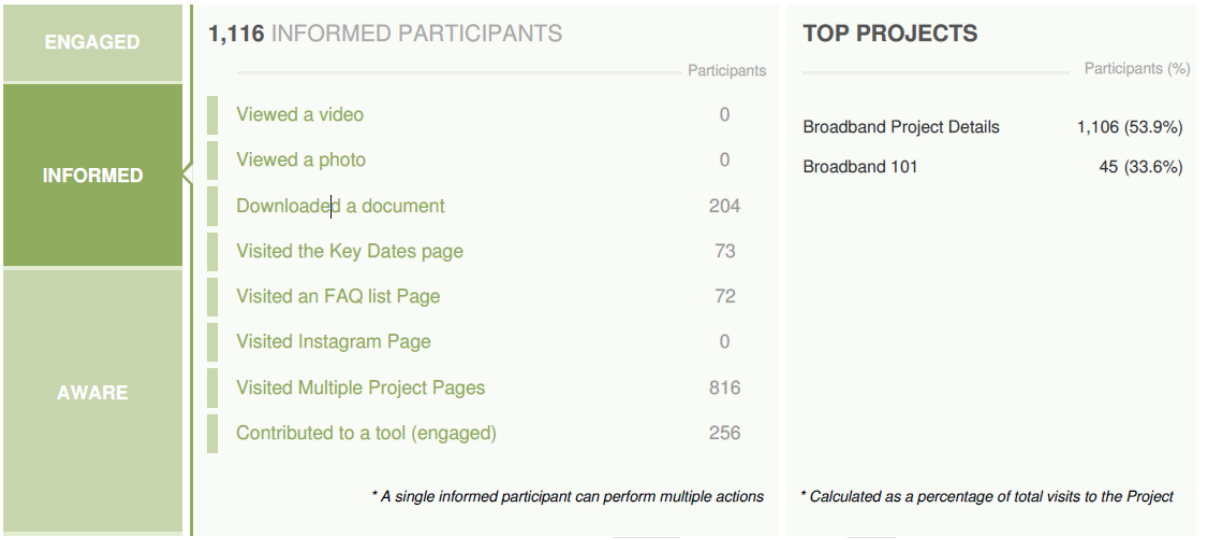
** A single engaged participant can perform multiple actions*

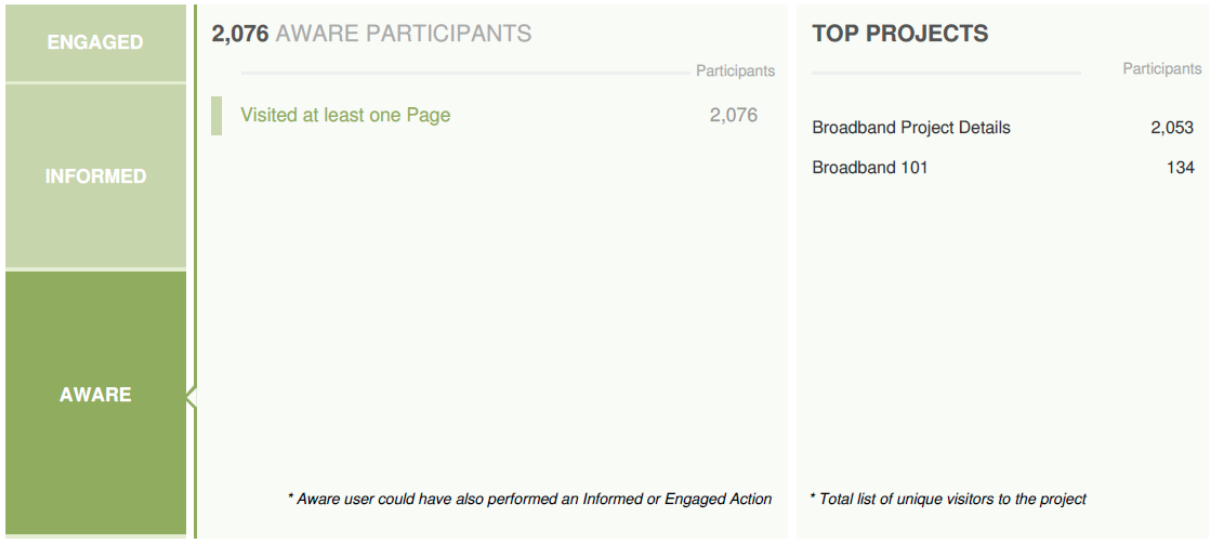
TOP PROJECTS

	Participants (%)
Broadband Project Details	256 (12.5%)

** Calculated as a percentage of total visits to the Project*

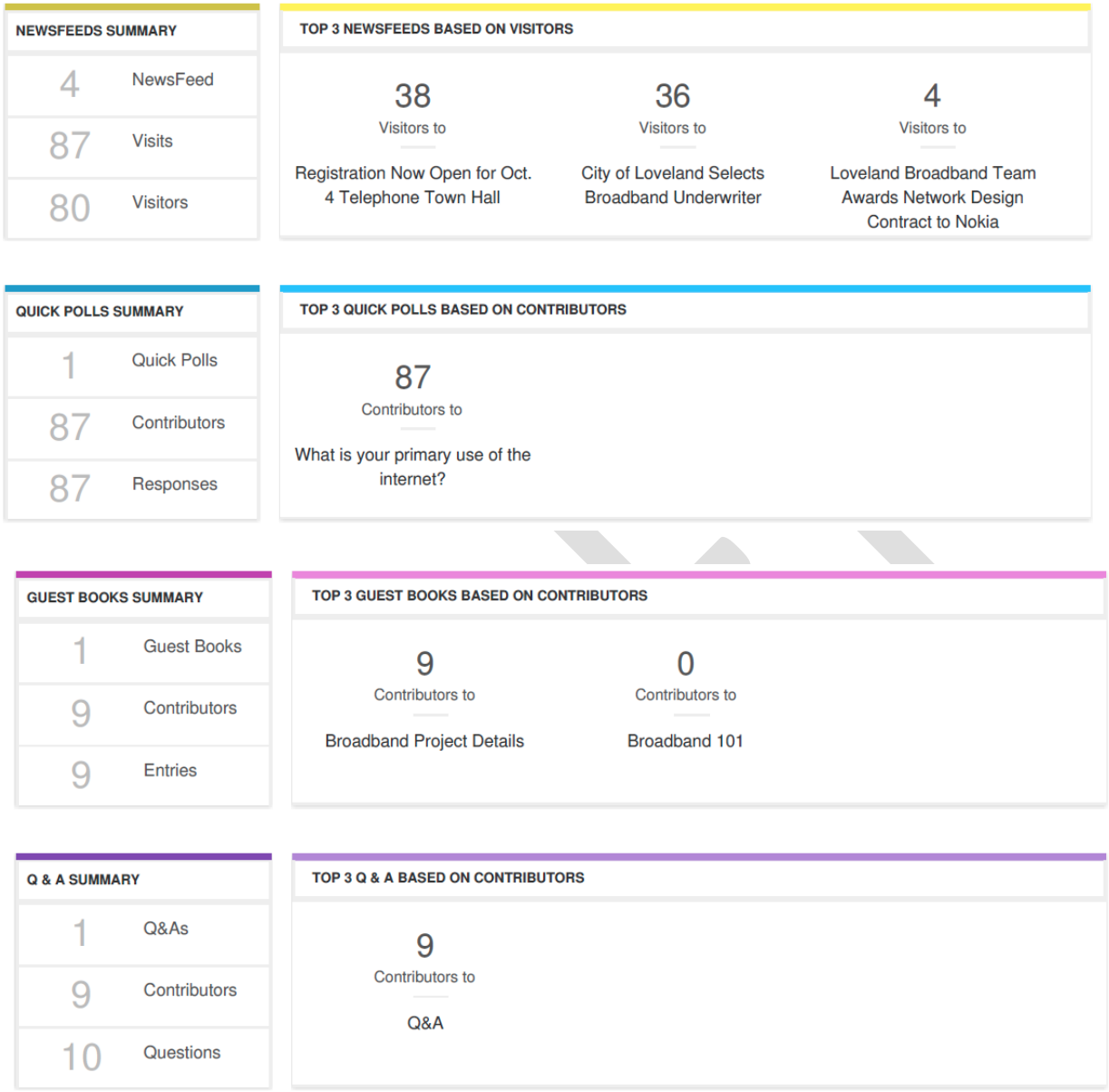
Attachment B





Attachment B

Engagement Tools Summary:



Note: The Map Your Speed summary is included below.

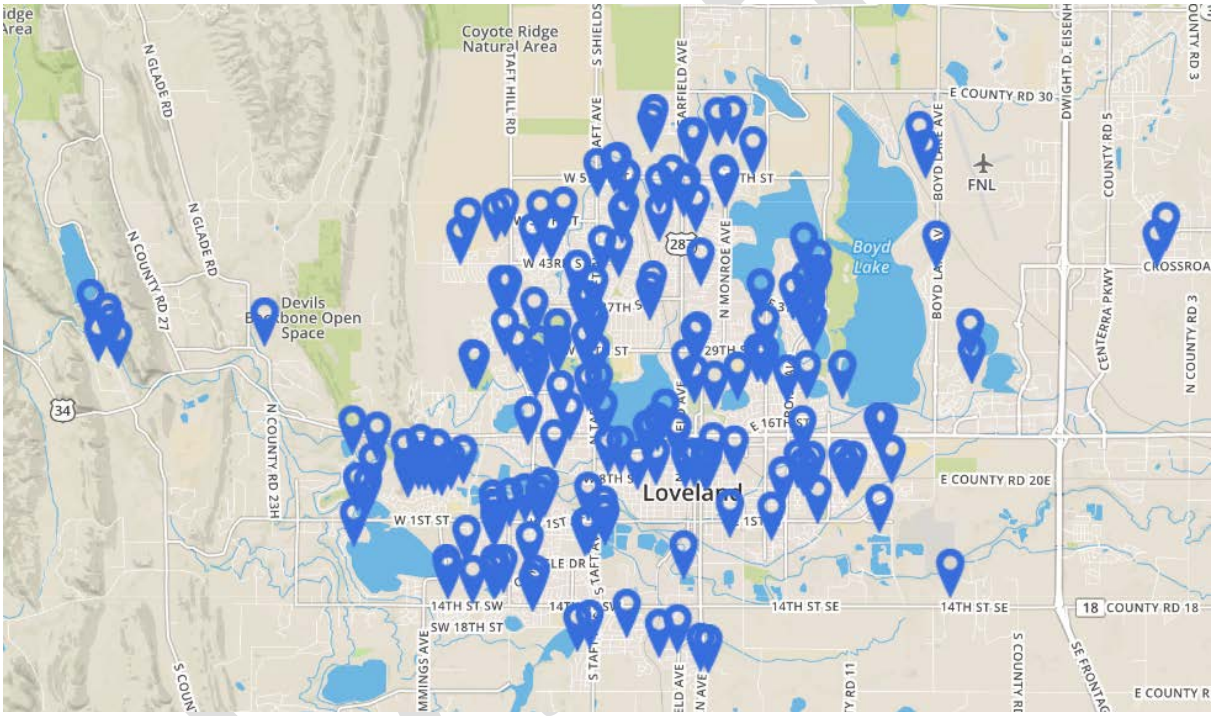
Attachment B

Map Your Speed:
The places tool is an interactive mapping tool that allowed LWP to capture geo-spatial feedback as part of the online engagement. Website visitors were encouraged to run a speed test, note the download and upload speeds and answer several questions when placing a pin on a map.

PLACES SUMMARY	
1	Places
176	Contributors
181	Pins

TOP 3 PLACES BASED ON CONTRIBUTORS

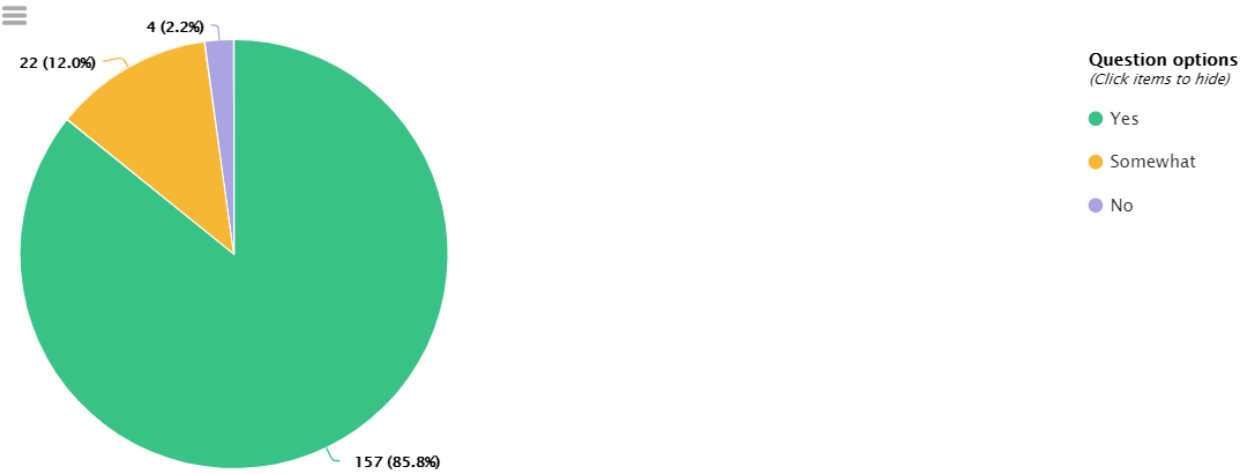
176
Contributors to
Map Your Speed



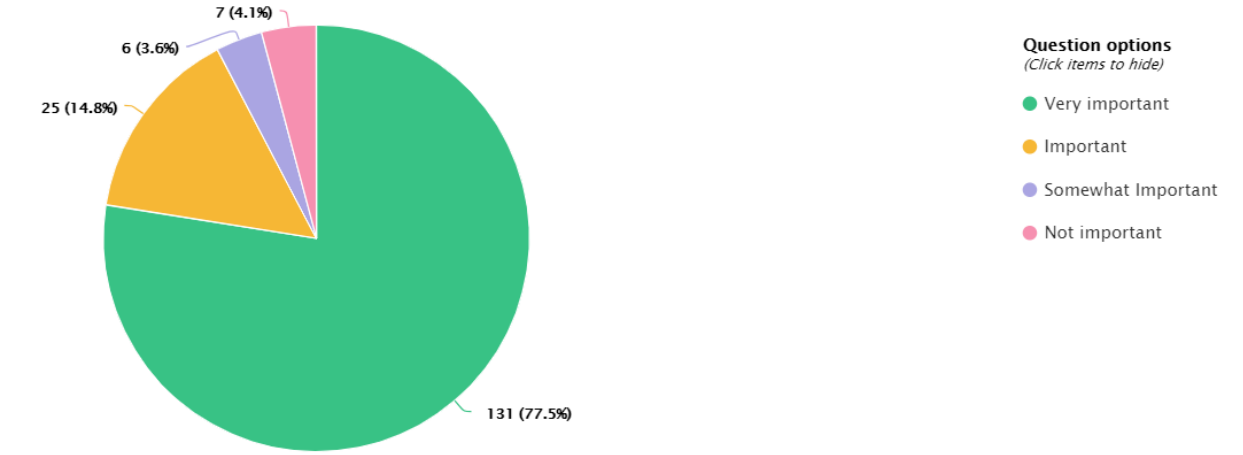
Map Your Speed Survey Responses:

Attachment B

Q4 Do you consider internet access to be an essential service much like water, electricity and other utilities?

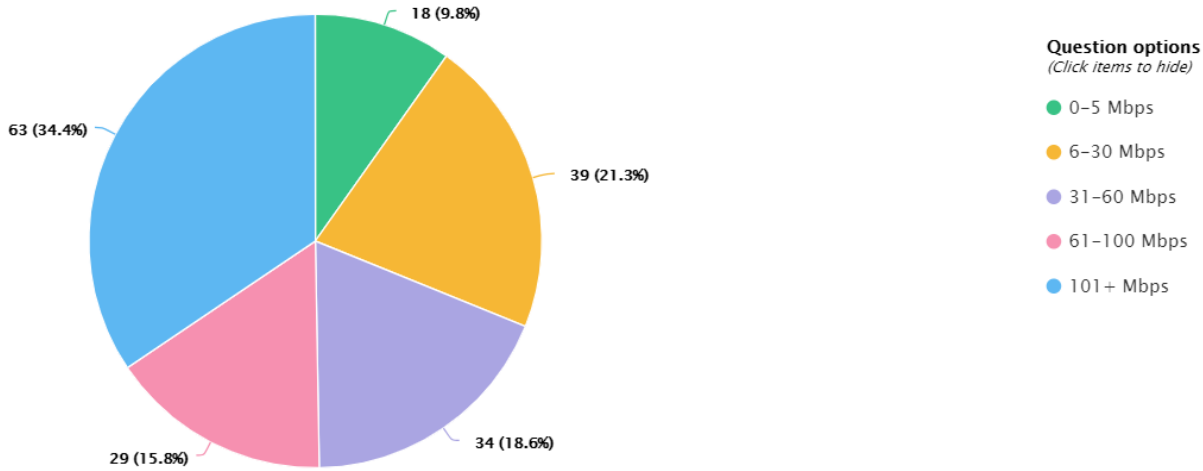


How would you rank the importance of building out broadband for the Loveland community?

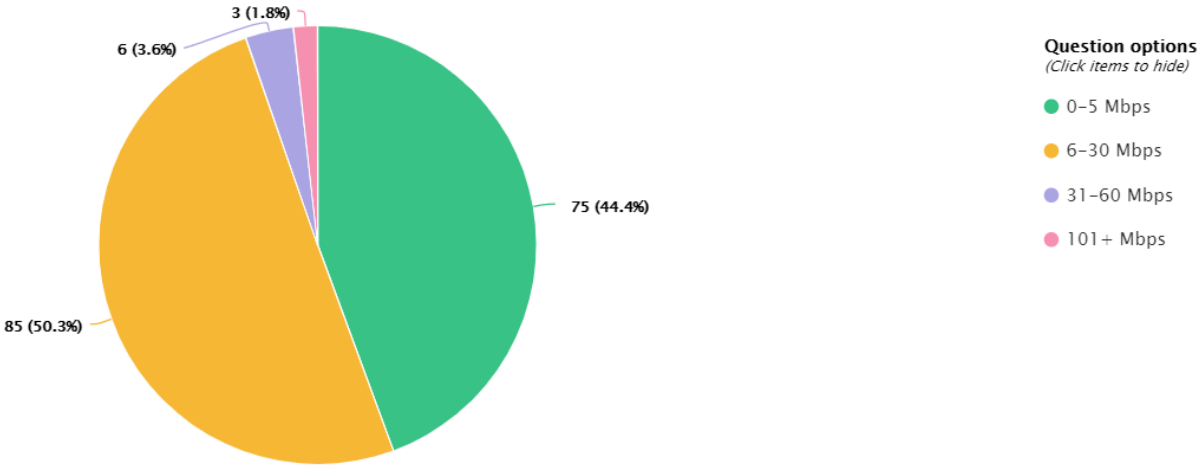


Attachment B

What is your download internet speed at this location?



What is your upload internet speed at this location?



Notes: Information as of September 26, 2018.

Attachment B

ATTACHMENT #6
MEDIA

City Distributed Press Releases:

- Newly formed City board actively seeking applicants; April 29, 2018
- Loveland Communications Advisory Board Names; July 3, 2018
- City of Loveland Selects Broadband Underwriter; August 27, 2018
- City of Loveland Announces Oct. 4 Broadband Town Hall and City's First-Ever Telephone Town Hall; September 6, 2018

Guest Opinion:

- LCAB - Now's the time to learn more about Loveland broadband plans; August 26, 2018

Title	Date	Publication	Link
Loveland City Council votes to move ahead on development of municipal broadband	2/6/2018	Reporter Herald	http://www.reporterherald.com/news/loveland-local-news/ci_31648711/
Loveland council won't seek public vote on municipal broadband	2/7/2018	Coloradoan	https://www.coloradoan.com/story/news/2018/02/07/loveland-council-wont-seek-public-vote-municipal-broadband/314175002/
Loveland Leaps Forward At Last; Moving Sans Vote	2/8/2018	Community Networks	https://muninetworks.org/content/loveland-leaps-forward-last-moving-sans-vote
City of Loveland seeks applicants for new communications advisory board	4/6/2018	Reporter Herald	http://www.reporterherald.com/ci_31786412/city-loveland-seeks-applicants-new-communications-advisory-board
Loveland council to vote on awarding contract for municipal broadband network design to Nokia	6/2/2018	Reporter Herald	http://www.reporterherald.com/news/loveland-local-news/ci_31919398/loveland-council-vote-awarding-contract-municipal-broadband-network
Loveland picks Nokia to design broadband network, sets aside money for new community park	6/5/2018	Reporter Herald	http://www.reporterherald.com/news/loveland-local-news/ci_31926144/loveland-picks-nokia-design-broadband-network-sets-aside?source=rss
Loveland City Council appoints first members to new communications advisory board	7/5/2018	Reporter Herald	http://www.reporterherald.com/news/loveland-local-news/ci_31989597/loveland-city-council-appoints-first-members-new-communications

Attachment B

Josh Thomas: Loveland need faster traffic, not faster internet	8/10/2018	Reporter Herald	http://www.reporterherald.com/opinion/letters/ci_32061086/josh-thomas-loveland-need-faster-traffic-not-faster
J.P. Morgan to underwrite utility	8/28/2018	Reporter Herald	http://lovelandreporterherald.co.newsmemory.com/?token=0ftuWVKKE%2bm%2fcQDFfc1WNTw9VS%2fbCFz7&product=eEdition_rh
RH Line calls printed Aug. 28, 2018	8/28/2018	Reporter Herald	http://www.reporterherald.com/opinion/rh-line-calls/ci_32099096/rh-line-calls-printed-aug-28-2018
J.P. Morgan to underwrite Loveland's broadband utility	8/28/2018	Denver Post	https://www.denverpost.com/2018/08/28/jp-morgan-loveland-broadband-utility/
City, community experts answer questions on municipal broadband in Loveland	8/30/2018	Reporter Herald	http://www.reporterherald.com/lovelandreporter-herald/ci_32106659/city-community-experts-answer-questions-municipal-broadband-loveland
Loveland to host broadband meetings	9/7/2018	BizWest	https://bizwest.com/2018/09/07/loveland-to-host-broadband-meetings/
Loveland business leaders encouraged to imagine success	9/12/2018	Reporter Herald	http://www.reporterherald.com/business-top-stories/ci_32133187/loveland-business-leaders-encouraged-imagine-success

Attachment B

ATTACHMENT #7
FULL TEXT COMMENTS/QUESTIONS

The following is a list of written comments and questions received during the education and outreach campaign from LWP's social media channels, email, website and the City's 2018 Quality of Life Survey. Comments and questions have not been edited from their original entry other than to redact personally identifiable information. Entries received should be interpreted in conjunction with quantitative data from surveys conducted with the broadband business plan.

- Do you have any cost or data cap estimates?
- Free Broadband for the city it's about time And it's a wonderful gift
- How are you planning on paying for the expensive equipment? How are you going to pay to bury fiber?
- Does anyone at the city have any experience in running an ISP? Do you really think the government can maintain a fiber network when they can't even maintain our roads?
- Hi, i missed this. When you say 'Broadband', are you talking about 5G?
- My name is [redacted]. I live in [redacted]. I am a Microsoft A+ certified tech and I use the Internet for not just communicating, but research and tech support. I really need sites that are not the normal commercial sites. I do not want restrictions on or slowdowns of, any channels. Additionally the Internet is a bastion of free speech and should not be controlled by any group or entity. Access would have been in the Bill of Rights, had the Internet been available then. I think the Internet should be considered the free press, a Benjamin Franklin stated American right. An open Internet is a requirement for me. Any contractors or ISP s should be required to have that policy, if licensed in Loveland.
- I work from home and use the internet a lot, so thank you for your efforts in bringing this kind of service to Loveland. I would sign up today if I could!
- I can't make this time. I was told that the fiber optic line going through the canyon would service those of us in the canyon. As a resident with a Loveland mailing address I asked specifically if it would reach us here at Idlewild lane. I was told that it does. Why is my address not included on the mapped area?
- Best & Worst case timelines for city wide implementation, or start & completion dates ??
- Will the big thompson canyon be included?
- How will you determine which part of the city will get it first
- How much fiber dose the city already have?
- As a general rule, I am not convinced that a government program will be as effective as the competitive market, Cost would also be a consideration for the future to keep up with the technical improvements. 3. The ladies making the presentation were very professional and responded to the questions well, but there are many of the Seniors who are hearing impaired, hence the comment regarding visual displays, Also, I find that younger people talk much faster and do not annunciate clearly. Maybe others could understand the conversation, but some of us need people to speak more clearly and more slowly. 4. We know that monthly cost from private vendors can increase without competition. How will this plan handle increases in cost in the long term?
- I see that the currently estimated price to consumers will be roughly $80/m for 1Gbps.
- Will there be less expensive options for those that are not looking for that level of service? For instance I currently have 12Mbps with Centurylink for $40/m and I would be interested in 20 Mbps to 100 Mbps, But I would be unwilling to pay $80 for it.
- Also another concern with billing is added fees taxes and service charges. When we are quoted the above $80 or any other Price for service are we to understand that this is the ALL Inclusive Price?"
- Will this extend to Glen Haven?
- When will the Big Thompson Canyon get fiber optic?
- If you have an account would you be able to connect at a city event
- If we go forward with broadband who would pay for it?

Attachment B

- I saw that Nokia was awarded the contract ... is there a timetable for next steps? e.g. When the design will be finished, and then once that is in place, an ETA on construction and availability? Thank you.
- I did the speed test and answered the questions. I was bewildered that they did not ask who my internet provider was. Wouldn't that be useful info?
- Any idea on what cost to consumers would be for this service yet?
- Are fiber optics faster and more reliable than wireless broadband?
- Hey! So, I stream Netflix most nights. Would increasing bandwidth help make streaming faster?
- How does the fiber optics get to my house?
- What does this mean for residents that live out of town in Larimer county near Cty rd 29?
- I've checked my internet speed before and it's been slow for the most part. Will this project make my speeds faster?
- what speeds are we talking
- When will Loveland residents be able to get on the list for city broadband? Will there be a way to sign up early?
- I feel like these are loaded questions. Coax can deliver gigabit speeds, which is what Google fiber did and other big ISPs, run fiber to a local trunk, and then split that up into traditional wired connections. I highly doubt residents will get fiber to their home. But any city and it's residents will benefit from upgrading it's infrastructure.
- What I don't understand is why the library is capped at 1Mb or 128KB. I understand limits so all patrons get good service but it's so low that none are getting good service. At least double it... I even asked the library about it. They already have fiber. They just have to change a setting. The answer I got was that they have to vote to approve funding, to change a setting... It's intensional misleading people. CO is so shady
- Hello, I just read a news letter about the possibility of a Loveland based fiber-optic internet. I am very excited about this possibility but I would like to better understand the annual price increases for the internet. I am currently a comcast customer and they really know how to drive the price up once your 1st year is over. What is the city's plan to maintain broadband affordability long-term? Thank you,
- Dear City of Loveland, Can you please share with us, who is on your LCAB board? Do you have any local business representation on your board? We are very interested in the out come of your Broadband Project! It has been tough finding affordable bandwidth in Loveland since we moved here. We have sister ministries in other states that have Gigabit for a 1/4 of what we are paying for 70 Mbps here. As a World Headquarters, we could use some better options. Thanks,
- Streaming shows, social media and graphic design programs.
- Will this include cable TV as well as internet services?
- What is the plan for "last mile" connections of houses to the main internet centers? Will there need to be a lot of infrastructure improvements in neighborhoods to run all of the required cables?
- Is the City of Loveland considering deploying a wireless mesh network to the community? I would love to see you as an affordable provider.
- How will you get service to hard to reach areas that have trees or other issues blocking superior service?
- Will we have to destroy anymore of our beautiful open land in our city? Will we have to cut down trees or displace more animals?
- Where exactly will there be broadband? What are the boundaries?
- What are the prices going to be like????
- Will I be able to connect to the internet when I'm enjoying my gift cards at the Boar & Bull?
- Will there be data caps or limits?
- Once approved and ready to move forward, what is the predicted timeline until completion
- Is there any reason we can't just have what Longmont has? Everyone I know in Longmont loves their internet.
- NextLight is fast. We love it!
- What is the timeframe for this happening and what will prices be like?
- Will it be underground ? If so will all the roads in Loveland be dug up at some point ?
- Who is paying for this?
- Is this only within city limits?
- Will there be different tiers of service options offered at varying cost levels?
- Is it going to be affordable as of right now everything is outrageous on prices including electric and water
- What will it cost? It sounds good but I can't say I know enough info on it...but do think we could use faster Wi/fit connections.
- What will it do to our current pricing?

Attachment B

- How will it compare to Comcast's pricing? How does the city intend to deal with Comcast's dominance?
- How will we be billed for this service and when do you expect to role this out?
- AGAINST, AGAINST, AGAINST There's no guarantee it will work and the money is not refundable. IT WILL COST A LOT OF MONEY
- NextLight in Longmont is cheaper and MUCH faster than the old company we had. We love it. So happy that Longmont put in the new network
- All surrounding cities have it, do some research. Also why wouldn't it work?
- What dates are y'all proposing to begin and complete the project?
- When will this project be completed? What problems are expected to occur?
- Where will service extend to? What is the order of areas receiving service? In other words...When can I tell Comcast good bye?
- I keep hearing this term . But what is Broadband exactly
- Will there be different tiers? Will speeds be in excess of 1gbs up and down? Will it require new hardware (modems, house connections)? Will rate increases be voted for or imposed?
- The fiber in the Canyon is part of the USBR fiber support for dam management. It is mostly airial cable and subject to wind, snowload and treefall damage. Will Loveland be using this "dark" fiber or will they run new and how will they mitigate some of these issues? Fiber is capable of Gig plus speeds depending on the nodes installed. Gig service is now becoming the standard and norm. What is the plan for provider contracts and will they be required to provide gig service? I imagine that wireless "last mile" to residences will be used in most cases. Will the subcontractors have minimum requirements to meet their contracts and will there contracts have price control for the residents?
- How will the speed compare to comcast and centurylink
- Will broadband help improve service? A large area of businesses and homes had no internet service today for over five hours. That impedes productivity and earnings
- Because it is Loveland will I be able to use my own internet all over loveland or will I still have to connect to others when out and about? Not familiar with this and how much will it cost? When is this a possibility of being done?
- Is this planned to be free for the city? How about the random city streets that are considered unincorporated larimer county? Like east 41st which sits right in between "city" streets.
- I live west of town where there is no broadband and thought thats who this was designed to help. Is it?
- What's the annual operations and maintenance cost. Including service on weekends, appointments and the like, similar to Comcast and Century Link. We need apples for apples
- When would the City broadband be up and running? How will it compare to speeds of existing companies in the area, ie Comcast, CenturyLink? What is the planned price comparison between what the City will offer and other companies? Will parts of the City be restricted to data speeds the way they are with other companies? Will there be restrictions on location usage? (Meaning, I know in some parts of Loveland only Comcast and CenturyLink are offered but other parts of town have more options.)
- What does this mean for people with Electromagnetic Hypersensitivity?
- Has Loveland considered the benefits of installing a 5g wireless system for its municipal broadband?
- For what comcast charges it should be free at a lower bandwidth as a wifi signal.
- No more questions from me, lets just get it here quickly!
- We've been told by nearly every independent wireless company (those that aren't CenturyLink or Comcast) that comes (and subsequently leaves) to Loveland that we can't get their service because our older, 1970s neighborhood "has too many trees." Will we be able to get municipal service despite our trees?
- There is much to be concerned about in regard to tcp/ip communication. Having it not be the exclusive bailiwick of private capitalism is one important concern. Thus, having a public access to the conversation is important.
- Which ISP's will have access to the proposed broadband utility? We currently are with Comcast and are very pleased with their service and performance.
- Is the coverage area in the "map your speed" graphic accurate? That is, will residents of Thompson Canyon benefit from the service? If not, will it be considered for these folks who are currently underserved?
- When would the City broadband be up and running? How will it compare to speeds of existing companies in the area, ie Comcast, CenturyLink? What is the planned price comparison between what the City will offer

Attachment B

and other companies? Will parts of the City be restricted to data speeds the way they are with other companies? Will there be restrictions on location usage? (Meaning, I know in some parts of Loveland only Comcast and CenturyLink are offered but other parts of town have more options.)

- Will broadband be implemented incrementally as it is installed, or will it all go live on the same day after installation is finished in all locations?
- When will City Council make a decision?
- Thank you all so much for the detailed information and explanations
- I just wish it would happen already.. 3 years worth of research and studying. Who knows if we will ever get broadband service.
- Just here for support, I have no questions. :) [redacted] already has told me as much as I need to know. LOL
- So exciting! Thanks for the information
- Wiggins Co put in free broadband for everyone.....YAY....BUT, it cuts us off till ya get discouraged and use the gigabites on your phone instead. I LOVE my COMCAST! will we have to pay twice if we want to keep Comcast ?
- 100% for this utility!!!
- So proud of our city
- Thank you!!! You have my support!!!
- Can I beta test?
- With the installation of fiber, what are the chances of the lines being damaged? Is there any risk of attenuation?
- Will broadband make it up to Drake
- Any idea which areas of town might be connected first?
- Great information!
- Why not one spped/price/plan?
- I just can't help but wonder if the city council is stalling on making a decision by saying they need more information. They have three years of information, how much more information could they possibly need.
- How cost effective with broadband be?
- Subsidies...yep Sculptures...yep Incentives for big developers. ..yep City bought real estate....yep Anything Centerra....yep Foundry....yep Broadband...maybe Sidewalk....well it would take to much work and money...and there's other ways to walk...and that's on the plan for 2085. Look I could work for city of Loveland now...I got all the right answers.
- We recently bought a home in Loveland and currently use Century link internet service. We have purchased the modem/router from Century link, rather than leasing it, with the expectation of using it for several years. Will we (and users of alternative internet service providers) be able to continue using these services, or will Loveland residents eventually become "captive customers" of Loveland's proposed broadband system, as currently exists with for our electric service, provided by City of Loveland?
- What is/are the city's estimate of costs for employee wages, or salaries, and fringe benefit costs expected to be to support technology for the future, Or does the City of Loveland expect to subcontract the support functions to 3rd party providers & at what cost initially and future inflation expectations?
- City of Loveland - Water and Power , thank you. No specific questions right now. Very excited to get a response. Looking forward to learning more about the planned network.
- [redacted] and [redacted] and [redacted] and... this is a . years in the making and still nothing. there's a meeting on wed. somewhere to discuss this mishugas. we should go... but...
- I was wondering, even if we have the finest, gigabyte capable local service to all of loveland, it has to connect to one of the large internet providers at the edge. What is to ensure we will have sufficient aggregate bandwidth to serve most people simultaneously? What is to prevent the internet provider from reducing our bandwidth to help give them or their partner an advantage over the city?
- Keep up the good work. We need competition for broadband!
- I see on the web page fall of 2018. That's coming up soon. Are there dates, actual available and speed options and costs? Starting in certain areas? Is it truly city infrastructure or is some other vendors building this out ? Like Comcast or CenturyLink?
- Just wanted to voice support for this initiative. Part of the reason my wife & I chose to move to Loveland is that this project was going to be advanced in the next few years.
- Thanks and keep up the good work!
- It won't let me to the web page. I don't understand. We could get internet along with our city utilities?
- Will it be raised without use like water and electricity is? I wouldn't trust anything they do now.
- I just want to know how it affect my taxes and utility bill. Will I be charged if i already have another broadband isp?

Attachment B

- I saw that the broadband service will be available to all Loveland residents. What are the proposed technical and economic solutions to providing service to remote homes where laying access lines is extremely expensive? What is the maximum (not average) cost you will invest to construct access to a home?
- If you guys are able to lay fiber optic line and get me gigabit speeds I will sign up for that in a heartbeat, and I know I'm not the only one. I know plenty of people that are chomping at the bit for gigabit speeds.
- City of Loveland - Water and Power thanks very much for your reply. My question was focused on the city of Loveland"s cost and not the consumer price. My concern is that the city will be faced with significant investment cost to make universal service available to homes that will require many years to recover it's investment. I remain interested in how much the city is willing to invest to provide access for a residence.
- YES!!! We need broadband in our city of Loveland.
- Hello, I saw the article in the Loveland City Update brochure discussing broadband access. My son has a house at a neighborhood west side of the Devils backbone ridge. It has non-existent internet service to the point where he ultimately had to purchase Hughes satellite service as a last resort. Even the Rise broadband service cannot get a clear line of site. No Xfinity, etc. If there were a transmitter on the backbone ridge, this would provide service to many people in this area. Hope you are considering this. Wondering if the service would be available to non-City of Loveland residents? The map provided in the article highlights a very strange geography with many residents outside. Hope you can provide some insights. Regards,
- I fully endorse--and highly anticipate--having community broadband available to users such as myself. I cannot imagine the frustrations experienced by current business owners...I (usually) have none of the immediency needs that they often encounter. And I'm going nuts out here in east Loveland. I have Xfinity. There are times of day -- around noon and from about 5p-7p -- when it's all but impossible to connect. And...those are times when I WANT/NEED to connect because that's when my kids/grandkids are most available/on line. Please, please, please give us broadband as another well-run, efficient and cost-effective public utility!!!!
- I am TOTALLY in favor of the city bringing high-speed internet to our community.
- Some areas in the city already have fiber to the home. Will the city be able to use that existing infrastructure, or do our yards need to be dug up to put in additional fiber?
- Internet speeds in Loveland are more than sufficient. There is no reason to socialize Internet connectivity any more than there was to do so with trash and recycling. It eliminates competition and will lead to poorer service in the long term, not to mention steeling business away from for-profit companies. It is very deceptive to couch this issue as if people do not already have broadband. It should state "is city-run broadband access necessary". The answer is no.
- What is taking so long to get Loveland Broadband? 3 years of study and still not a decision? My Longmont friends love their City Broadband. They have had it for over 3 years, meanwhile, Loveland is still considering. I see it as a utility such as electricity and water. Let's get on with the inevitable! Thanks!
- Just a email to say that we were stunned that you think it's awesome to start high speed Internet in Loveland . The workers on Monroe cut a cable and we have had no internet for 3 days . It's a joke really how backward America is compared to the rest of Europe .
- I live in an apartment, so I wonder who will install the fiber to my apartment. Will it be the building owner or the city? Also, I would rather that the city owns and runs the network as a utility, because internet access has become so necessary in our society, so the city would be best at managing this resource.
- This is very nice when can we expect to see construction begin on this? What's the soonest, latest,and most likely thank you. You're best guess.
- Booooo socialism....booooo Government run services...boooo booo booo
- Considering that other Colorado cities have made broadband available to all it's citizens at an affordable price.....Why is it taking so long for Loveland to even be able to provide basic information about pricing and services that may be available ??? We're not reinventing the wheel here. Can't the city figure out faster what works and what hasn't based on other city's experience at providing broadband ? At this pace I'll be long dead before Loveland gets a product available !
- And just what are the "site standards" that warrant censorship from being publicly posted ???
- The importance of the internet has evolved drastically these last 20+ years, and will continue to evolve over the next 20. The corporations that make up most ISPs naturally prioritize shareholder value over investing in

Attachment B

their infrastructure, offering premium service at an affordable price, or extending their offerings to poorly-served neighborhoods on the outskirts. As a household of two telecommuters, the internet is our highway to work. Just like people that drive to work, our decision to live in a community is based on our "commute".

- It's difficult to believe that it's been two years since I was installing fiber to the home with NextLight in Longmont. It works! It's amazing! And the community loves it!
- Quit talking about it and simply copy and paste their system. OnTrac is great. Jiggsa is great. Go get them and let's get moving!!!!
- For crying out loud! How long before we enter the 21st Century?
- Hello, I would like to express my opinion of the city of Loveland getting involved in broadband. I do not agree that it is something we need. I have cell service with AT&T and home phone with DSL from Century Link, so I don't understand the purpose of the city getting involved. Do you experts in telecommunications working for you? The rates on your flyer are nothing to brag about, it's not very competitive.
- I advise letting the existing companies that supply the telecommunications service do their job and you do your job of managing the city of Loveland. Start by opening up all the dead ends on the streets, an example is the round-a-bout on 1st street and Sculptor Drive...can't go north to get to Lowe's or Kohl's. Get rid of the fiasco at Madison and Hwy 34. There are more important things to take care of than broadband. Thank you,
- I am a small time serial entrepreneur. I have owned several types of businesses over the years, all of which required communications through the internet. I can think of no more powerful method of supporting the future well-being of the community than this particular initiative. Communication methods have grown in sophistication, and this has lead to increasing reliance on high speeds and thus greater demands on existing infrastructure. Unfortunately, in this case, the private sector has failed us dramatically, both in terms of service and support. I am "over the moon", as they say, at the prospect of having access to this level of price and service. I am in full support of your efforts to provide the citizens of Loveland the opportunities and prosperity they deserve.
- Monopolies never provide as good of value as a competitive environment. I am concerned that over time the service level will decline as competitors are unable to compete with a government agency. Loveland in general attempts to do all services in-house rather than contract to private companies. The lack of performance metrics yields an inferior service level at an inflated cost. My concern is Broadband System will go the same way as the other city services.
- Our vote is to get on with a publicly owned Broadband ISP. We voted on this almost 3 years ago. I bet that most of the delay is based on ideology. Time to Rock and Roll!!
- Hello: I am a registered nurse who works at [redacted] in Loveland. I moved here from southern colorado several years ago to be a part of a dynamic and growing community. I have seen this community be forward looking but also very slow to respond to the changes that are happening to the area and in particular to the infrastructure. The roads (hwy 34/hwy 287/I-25 in particular) were designed a built in an era of small towns and cities that were seperated by farmland and open range and were never designed to handle the flow of traffic that they are handling now. The empirical evidence is there to everyone who drives these roads at 5pm on any given weekday or a saturday at 1100 am that this area is out growing its infrastructure. Today we are seeing unlooked for growth and we need to be realistic and not backwards thinking. We should be embracing this growth and doing our best to help guide it and nurture it to build the best loveland that we can. The west has seen changes that are often rapid and will sometimes leave people shaking their heads. The railroad and telegraph provides a history lesson for us all. The communities that built good railroad connections were able to service their farmers and businesses with efficency and were able to communicate to their customers and suppliers rapidly and efficently and those communities thrived but those that did not were forced to pay more for services and goods and often the communities suffered for it. The high speed internet is not going away and communities that are going to be able to provide this service to their businesses and citizens are going to thrive and those that rely on outmoded technology or outside sources to provide it at whatever price the market will bear...well those communities without a broadband capacity are going to suffer. Business will be attracted to options and it will drive commerce. Please instill this fundamental truth to our community that we all win if we vote in the broadband...there are no losers. Not even Comcast. It is good to have competition as it makes you work harder and provide better service at a better cost. Right Now, if you want to have JUST internet at 20mps you will pay 69.00 per month. (that is a recent quote to me here in loveland). That is 3 times higher than the cost that the city of loveland

Attachment B

can provide to it's citizens with better service. That is a savings of 600.00 per year! That is money that is reinvested in the community. Thanks for listening.

- The city already charges us for water/waste/street when we are away from our house for 5 months (it stays empty and water is shut off) so we would NOT pay the city for broadband for 5 months of NO service.
- In my opinion, private ISP companies do not focus enough on keeping prices affordable. Internet is now a utility and a necessity for every household. It is my belief that the City of Loveland would be better equipped to provide quality broadband service to residents and would be more focused on providing an excellent customer experience at a more reasonable price. I would be one of the first to sign up for service!
- Dear Sirs, While I won't be able to attend the Oct 4th meeting, I fully support the city's efforts to provide Broadband services. With Showtime Video now out of business, the needs for a reasonably priced broadband system in the city is even higher. I am constantly surprised at how expensive our current Broadband services are compared to places I visit. The service received by our current provider is also unbelievably bad. I look forward to joining the new service.
- Current speed is 40Mbps down, 5Mbps up. Gigabit is available, but I don't want to pay extra for it.
- Although I would welcome some competition for Comcast, I'm not sure that a municipality should be in direct competition with a private company. Other essential services are not provided by any private company.
- Anxious for high-speed other than Xfinity.
- Broadband provided by the city would be wonderful!
- Comcast "60MB/s" service. Unusually slow this am. However, illustrates the point that it never matches the stated speed they claim and varies frequently. Comcast service claims it is operating within expected ranges.
- Glad you're moving forward with this broadband project. I'd like to have a better Gigabit option.
- I hope the broadband efforts are financially justified. It would be good to have a cost effective, reliable, and utility grade service for the community.
- Internet speeds in Loveland are more than sufficient. There is no reason to socialize Internet connectivity any more than there was to do so with trash and recycling. It eliminates competition and will lead to poorer service in the long term, not to mention steeling business away from for-profit companies.
- Let's build a Super High speed broadband service and take Loveland as a competitor into the future.
- Please have City-wide broadband!!!!!! Comcast has a monopoly of reasonably fast internet and they keep raising their rates. (I already pay a premium) I would gladly agree to your pricing plan.
- We have what is supposed to be high speed interybut most of the time dial up is faster
- City broadband would be very welcome in my household!!
- Loveland should provide quality internet service that competes with Comcast and Centurylink.
- We need to get a move on fiber internet!
- I would love to see a city-provided internet service with higher speeds.
- The roll-out of Loveland broadband is taking way too long. By the time it rolls out, Gigabit 5G home internet will be available from providers like Verizon and T-mobile.
- Provide fiber utility and not to corporations.
- Free internet! Especially useful when playing Pokemon in downtown and in parks
- Put in city internet. Xfinity is not providing good enough service in older neighborhoods.
- Broadband would be nice. Where are we on that issue?
- If you offer internet access, please promote net neutrality, provide competitive speeds and rates, and an easy way to pay.
- PLEASE support the city-run internet network (especially since Washington D.C. is destroying net neutrality).
- Please hurry and get the city broadband service up and running. I hate Comcast.
- Publicly-owned high-speed internet would enhance my quality of life. I would like to know where the city council is in the approval process of offering internet service to those who want to pay the city.
- The city is wasting money doing survey and study after survey and study on the broadband service! We already voted to do it. Just because two council members don't agree, that doesn't mean we should have wasted valuable tax money doing more research instead of beginning to implement the plan!

Attachment B

- Please consider accelerating broadband and smart city initiatives. High quality competitive Telco/Tech infrastructure is critical to the community.
- The city technology is quickly evolving with the times. Kudos!
- Please ensure that solid plans are in place with a major carriers to ensure small cell and large cell towers are numerous and adequate in Loveland.
- We need our own internet.

Notes: Information as of September 26, 2018.

Attachment C

BROADBAND UTILITY BUSINESS PLAN

Loveland Water and Power

September 28, 2018 – Version 2

Attachment C

This document is intended to offer a high-level business plan for initiating and operating a broadband utility within the City of Loveland. It is intended to be a living document that will be updated as needed to reflect changes in the project and market.

This business plan has been written with information gathered though the Assessment and Feasibility Analysis conducted by Magellan Advisors, market research study conducted by Jill Mosteller from Insights2Use, various advisors and contractors throughout the entirety of the project, and research performed by City staff.

Cover photo was taken by Dick Knapp from Dick's Photography.

Attachment C

Contents

Attachment C

Attachment C

Executive Summary

This Broadband Utility Business Plan provides a background of the City of Loveland's Broadband Initiative, survey conclusions, community-focused network design, and an analysis and evaluation of proposed business and financial models, including mitigating potential risks.

To date, the City has invested over $2.75 million, and over four years of staff, advisory, and contractor's time studying the potential business and added value opportunities, risks, and costs of providing municipal broadband. This effort has allowed staff to identify potential business models and to determine the most viable path forward. This plan charts a course for how the City of Loveland could most effectively provide Fiber-to-the-Premise (FTTP) service throughout our community.

When you consider current internet service provider (ISP) options in Loveland for high-speed internet, the majority of Loveland residents and businesses have limited choice, with only one or two options typically available. The City is in a position to increase marketplace competition, drive economic development, and leverage the benefits of community ownership with our broadband service offering. Marketplace competition has proven to be a vital motivation for lowered pricing, innovation, and increased performance. Whether a consumer subscribes to the City's broadband service or not, they stand to gain from this increased competition through lower prices and enhanced services from incumbent providers striving to remain competitive. Increased competition typically comes from consumers having more choice and businesses innovating to attract new customers. Over 81% of residential survey respondents stated that having a choice in an ISP was moderately to extremely important. Having access to multiple high-speed internet providers in our community is a driving factor for residents and for economic development in Loveland.

According to the Federal Communications Commission (FCC), "High-speed Internet access, or broadband, is critical to economic opportunity, job creation, education, and civic engagement."[1] The benefits of a community owned utility have been proven by Loveland's electric utility. Loveland's electric utility is consistently within the lower third of electric rates and has been awarded the highest level in reliability, safety, workforce development, and system improvement by the American Public Power Association.[2] A top priority for a municipally-owned broadband utility's quality of service for the community. Money is reinvested within the community rather than maximizing profits for shareholders, and decisions are made locally, allowing for the highest positive impact to customers. Jobs ranging from executive to engineering, operations, technicians, and customer support will be needed to run a viable and effective broadband utility. Other ISPs will likely need to add to their current staff to compete, creating local job creation and resource investment within the community.

In May 2015, the Loveland City Council provided primary objectives that City offered broadband service must meet. These are: city-wide accessibility, fast, reliable and affordable service, and customer service excellence. These objectives have served to guide the project and have been considered through every critical decision point. Taking into account these objectives as well as the analysis throughout the two and a half year assessment and feasibility study, the business option that offers the City the least amount of risk with the most control and flexibility is a retail model that incorporates regional collaboration.

An enterprise utility would operate under a unique brand to offer tiered high-speed internet and voice telephone services designed to meet the individual needs of potential residential and business customers. The current plans include monthly residential internet pricing starting at $19.95 and business internet pricing starting at $49.95. This utility would be located within Loveland Water and Power (LWP), allowing the broadband and electric utilities to utilize and maximize potential economies of scale by sharing established resources of the other three utilities. Efforts would focus on collaborating with

[1] www.fcc.gov/about-fcc/fcc-initiatives
[2] www.publicpower.org/rp3-designated-utilities

regional partners such as Fort Collins, Longmont, Estes Park and Platte River Power Authority (Platte River) to share experiences, cost, and operational matters to further take advantage of economies of scale at a regional level.

The network installed to provide these services in Loveland will be a complete fiber-optic network, one that connects fiber-optic cable to every subscriber. Fiber-optic networks have been demonstrated to be the most reliable, robust, and future proof technology currently available. Loveland's broadband utility will utilize a network architecture that can handle download and upload speeds of 1 gigabyte per second (Gbps) or 1000 megabytes per second (Mbps) and is positioned to handle speeds of 10 Gbps or greater in the future.

The broadband utility will be financed by the issuance of 20-year revenue bonds, backed by electric utility revenues. A combined total of $93 million of taxable, tax-exempt, and small-denomination bonds will offer the most variation and opportunities to all potential investors for local, small and large retail, and institutional buyers. The bonds will be paid back by the customers that subscribe to the broadband utilities services - no increase in taxes or electric and water rate increases will be used to service the bonds.

A governing structure, provided from City Council and Loveland Communications Advisory Board (LCAB) that allows a municipally-owned broadband utility to nimbly adapt to changing and competitive market conditions by remaining confidential and proprietary is vital for success. Many municipally-owned utilities have successfully managed this by establishing a governance model that allows for non-policy decisions to be made at the utility and City Manager level.

Extensive research has been performed to understand successful municipal broadband utilities throughout the country, as well as evaluate lessons learned from utilities who have not been as successful. The City has performed risk management planning for the broadband utility and identified mitigation plans to reduce adverse effects.

This Broadband Utility Business Plan is a comprehensive and thorough assessment on how the City of Loveland can best provide broadband services to the Loveland community

Attachment C

Background and Purpose

Project Background

The City of Loveland began investigating community broadband after the January 2015 City Council Workshop. At this workshop, City Council directed staff to bring back more information on the topic. In November 2015 Loveland voters approved a ballot initiative as allowed by Senate Bill 152 (SB 152), which authorizes local governments to provide broadband service upon approval of a majority of the voters. SB 152, which was passed in 2005, prohibits municipal organizations from engaging in telecommunications services either directly or with a private sector partner, unless the people of the community vote to exempt the City from the restrictions.[3] On November 3, 2015, of those who participated in the election, 82% voted to exempt the City of Loveland and the electric service territory from the restrictions imposed by SB 152.

In April 2016, City Council approved a supplemental budget appropriation of $250 thousand to fund the assessment and feasibility study. The feasibility study was conducted through December 2017 and the findings were presented to City Council. The results highlighted several potential and feasible business models for the City, consisting of retail, public-public, and public-private, including how the projected organization could work.

During the feasibility study, two surveys were given to both residents and businesses, one given in the fall of 2016 and the other in the fall of 2017. The first survey was designed to understand many aspects of our community including how people are using the internet, their current provider, and their opinions on current service and reliability experiences while the second used a methodology called conjoint-analysis to determine what our community values – both to determine the wants and needs of the community and how many people would subscribe to the service if it was offered to them.

A broadband community task force was created as an informal body to help understand community input, provide advice for the broadband team, and assist and consult during the feasibility study. In December of 2017, the task force along with City staff provided their findings and recommendations to City Council. Following a review of the survey results and collected data, the task force recommended that the city pursue a retail or public-public business model. It further stated that future activities should not preclude a public-private venture should such a feasible option arise. The task force also recommended that the city should further develop a detailed business plan, issue a request for proposal (RFP) for a build-ready network design, evaluate financing options, implement an aggressive community outreach and education campaign, and transition the task force to a formal city board or commission. City Council adopted this recommendation in February of 2018. The product of that meeting established the Loveland Communications Advisory Board (LCAB), appropriate $2.5 million from the Electric Enterprise Unrestricted Fund to pay for the build ready network design and professional services, establish the Loveland Electric and Communication Enterprise, and launch an aggressive community education and outreach campaign.

In July 2018 nine members were appointed to LCAB by City Council. Through a lengthy RFP and interview process the City selected Nokia partnered with Bear Communications for the build-ready network design. From this build ready network design, Nokia along with the City, has determined a more accurate cost for the network buildout of $52.4 million. In August 2018, the City announced J.P. Morgan as the broadband underwriter to help craft and issue the bond series. The community education and outreach efforts have reached thousands of residents and businesses through a variety of speaking engagements, community events and online efforts. Common themes collected from community feedback strongly continued to

[3] www.leg.state.co.us/clics2005a/csl.nsf/billcontainers/FA216226F45192FE87256F41007B483C/$FILE/152_enr.pdf

support the need for competition within the current market and the benefits of a community owned and operated broadband utility.

Why Fiber-to-the-Premise?

As the world continues to become more connected, access to the internet is becoming an essential service. Hundreds of communities across the U.S. have chosen to offer this service to their community, each with a different and unique business model to fit needs of the community.

FTTP is often regarded as the best option among communication connections. It is far more reliable, and easier to maintain. The network is flexible and robust to handle future technology changes than any other current network. Key drivers for broadband utility success are making a positive impact in economic and community development, to increase competition in the marketplace, and to have the fiber-optic network and business structure be community owned and benefited. Each business decision was constructed to offer the highest potential for these key drivers.

Economic Development

A dynamic community supports the needs of the public today and into the future. For the City of Loveland, this includes a vision to be a well-planned community with integrated networks that provide equal access to all – fostering a stable and diverse economic foundation. Today, the rapid exchange of digital information is as essential to us as other infrastructures such as roads, water, and electricity for a competitive economy and thriving community.

With quality infrastructure as a requirement for economic growth, the ability to connect and share information is vital to support ongoing economic opportunity and productivity. The internet in recent years has lead the economy with some of the largest companies in the world due to creation of the internet and leveraging its ability to reach a large audience.

All community offerings including City-provided utilities are used to evaluate a communities potential for economic, political, and social well-being. Residents want to know their needs will be supported today and in the future. This includes community, schools, retail, recreation, potential work, and many more. As residents draw businesses to the local community, so too, do businesses draw residents. Each requires the other to be successful, this being no different than a thriving ecosystem. Business location decision-making reflects this new technological reality as well. Twenty years ago, internet service was not a factor in business site selection – today, fast, reliable internet service is paramount. Businesses need quality, speed, reliability, and demand robust connectivity.

Investments in broadband provide communities with a strong competitive advantage.

Competition

When more than one or two providers are available in a marketplace, there is a substantial positive impact to consumers regarding cost and quality of services provided. According to years of research done by the FCC, the root of slow and costly internet is directly related to a lack of competition in the marketplace.[4] Competition spurs innovation as companies try to provide new and innovative options and solutions to their customers. Incumbent providers typically try to maximize the use of their existing infrastructure and as this infrastructure nears the end of its useful life, costs to maintain their system or upgrade will be significant. This is true for many communities across the U.S. and is not unique to Loveland.

Competition doesn't just benefit the customers who choose to subscribe to the service, but rather everyone in the community. In order to compete, incumbents often lower their prices. Even in Loveland, in

[4] www.fcc.gov/wireline-competition

response to the city merely considering the possibility of municipal broadband, the dominant incumbents have lowered their prices, encouraging customers to sign multi-year contracts. But this model only works if there is constant pressure in the market. If there is no competition and the market returns to the previous service and pricing plans.

A great example of a successful municipally-owned broadband network and subsequently altered competitive market is Longmont, Colorado. They began construction of a fiber to the premise network in 2014, with substantial completion in early 2018. The Longmont community has seen significant price reductions of more than 20 percent from the incumbents. Not only is Longmont's NextLight offering internet at more competitive rate, but the entire community is experiencing cost savings from other providers as well.

Community Owned – Community Benefited

There are significant benefits of a community owned broadband network. A City owned broadband utility would be a not-for-profit entity, with a goal of reinvesting in our community and network rather than maximizing profits. In other words, the money invested by residents and businesses to buy services stays within the Loveland community.

A City-owned broadband utility provides significant employment opportunities in our community. The City of Loveland already employs over 770 people, making the City one of the area's largest area employers. Many additional utility staff members would be locally hired and live within the community they serve. Therefore, response time to customer service calls or outage events is quick, and reliable service is offered to customers.

Local control allows for local decisions to be made that provide the highest positive impact to customers. These local decisions can include clearer pricing plans, privacy and security policies, and tailored programs to benefit and better serve customers.

Community ownership allows the utility to continually work to identify and maximize the most effective collaboration areas to achieve economies of scale, efficient operational practices, and maintain a community focus. A City owned, regionally cooperative, broadband utility could create similar benefits to those experienced by the electric utility through its co-ownership of Platte River. LWP has consistently leveraged its relationships and operational expertise to keep electric rates low. According to the most recent Colorado Association of Municipal Utilities (CAMU) rate survey, Loveland is in the lower third or better among electric utility rates throughout the state compared to other municipally-owned, cooperative, or investor owned utilities. The same economies of scale could be applied to all northern Colorado municipally-owned broadband efforts.

City Council Objectives

In May 2015, City Council provided staff with their primary objectives and vision statements regarding this project. These are the guidelines that have been used to guide the feasibility analysis and narrow down the business model options. Every decision, has been guided by these filter.

Vision Statements	
City-wide Accessibility	Service must be available to all homes, businesses, schools, non-profit groups, health service providers, and other users within Loveland.
Fast	Any broadband system must deliver symmetrical service at the rate of 1 Gbps (1000 Mbps). Consider future proofing for higher speeds when new technologies become available.

Reliable	The service must accommodate diverse uses, from home entertainment, to business, education and health care, with high reliability.
Affordable	Our efforts have the goal of delivering broadband service to all at a reasonable cost, regardless of how broadband service is used.
Customer Service Excellence	Provide consistent and reliable customer service.

Market Profile and Analysis

Global, National, and Local Market

The internet used to be considered a nonessential service. Access was limited to special use cases, in developed and wealthy countries, with governments, universities, and private parties have been the main users. Twenty-five years ago, only a few people and countries had access. Now over 3.2 billion people in over 214 individual countries and territories have access to the internet.

The U.S. ranks 10th globally for average connection speeds and 16th for average peak connection speeds. Countries such as South Korea, Norway, Sweden, Hong Kong, Switzerland, and Singapore lead the way. With the average download connection of the U.S. at 18.7 Mbps, most communities are not even meeting the FCC's broadband threshold of 25 Mbps. Delaware and the District of Columbia, were the only places ranked above the FCC threshold at 25.2 Mbps and 28.1 Mbps respectively.[5]

Colorado has a diverse market, with few ISPs in larger, more urban areas and even fewer in rural areas. Connection speed differs in each city and county. Some of Loveland's neighboring communities such as Longmont, Fort Collins, Estes Park, Boulder, Windsor, Greeley, and Weld County are either offering broadband service, completing feasibility studies, or within the business planning phase. Two, Longmont and Fort Collins, will be or are currently offering, the fastest speeds within their community, presently at 1 Gbps (1000 Mbps).

Loveland Market

The City of Loveland lies along the Northern Front Range of Colorado. The City has an estimated population of 76,701 and, as part of the metropolitan area of Loveland-Fort Collins, is considered one of the faster growing communities in the country.

Loveland is at the center of the tri-city area of Fort Collins, Loveland, and Greeley. This tri-city region boasts two universities and two community colleges, creating a highly educated workforce. Northern Colorado also has a high number of technology-based companies that draw on knowledge-based employees. In most recent estimates, 34% of the adult population over the age of 25 has a bachelor's degree or higher and over 94% are high school graduates.[6] However, Loveland's employment population is diverse with jobs ranging from arts, retail, and construction, to engineering, healthcare, and finance.

There are currently 31,293 residential premises and 4,405 business premises. A compounded annual population growth rate of 1.81% could make the city exceed 100,000 in population by 2034.[6] The City of Loveland can be segmented into three main categories for the purposes of understanding market needs and behavior: residential customers, small and medium businesses, and large business and anchor institutions.

[5] www.akamai.com/us/en/multimedia/documents/state-of-the-internet/q1-2017-state-of-the-internet-connectivity-report.pdf
[6] www.cityofloveland.org/home/showdocument?id=44674

Profile and Survey Results

Two market demand surveys were conducted, one through Magellan Advisors, performed in the fourth quarter of 2016,[7] and another through Jill Mosteller Ph.D. with Insights2Use, performed during the third and fourth quarter of 2017.[8]

Magellan Advisors conducted a traditional survey that asked respondents a series of questions about speed, pricing, and other information about their current service. This survey received responses from 1,028 residential households and 288 businesses. Both the residential and business surveys yielded statistically valid responses rates with a 95% confidence level with ±5% margin of error for residential and 95% confidence level with ±6% margin of error for businesses. In addition to the survey, Magellan Advisors conducted in-depth qualitative interviews with Loveland's large businesses and anchor institutions. Respondents specified a need for competition, redundancy, and connections for students, employees, and customers.

Jill Mosteller Ph.D. with Insights2Use, conducted a second survey using conjoint analysis to determine take rates of internet offers by varying the provider, download speed, and price. The survey received responses from 4,527 residential households and 273 businesses. Both the residential and business survey yielded statistically valid responses rates with a 95% confidence level with ±1% margin of error for residential and 95% confidence level with ±6% margin of error for businesses.

Residential

As in most communities the majority of Loveland internet subscribers are residential. Though each user is unique, increased connectivity needs are not limited to just entertainment. Home offices, education, medicine, news, and access to services and products are some of the many ways residents are using the internet – with more emerging uses every day. Both residential surveys found that, over 97% of household's subscribe to internet services and over 90% consider the internet to be an essential service.

Loveland has a high percentage of people who operate a business from their home. In the most recent survey conducted, about 19% of respondents said they operate a business from their home, much higher than the national average of 12.6% of U.S. households.[9] Additionally 44% of respondents in the same survey said they work from home at least some of the time. With more companies becoming flexible and conscious of their employees schedule and lifestyle, it is becoming increasingly popular and attractive to families, to have the ability to work from home.

Do you run a business from your home?

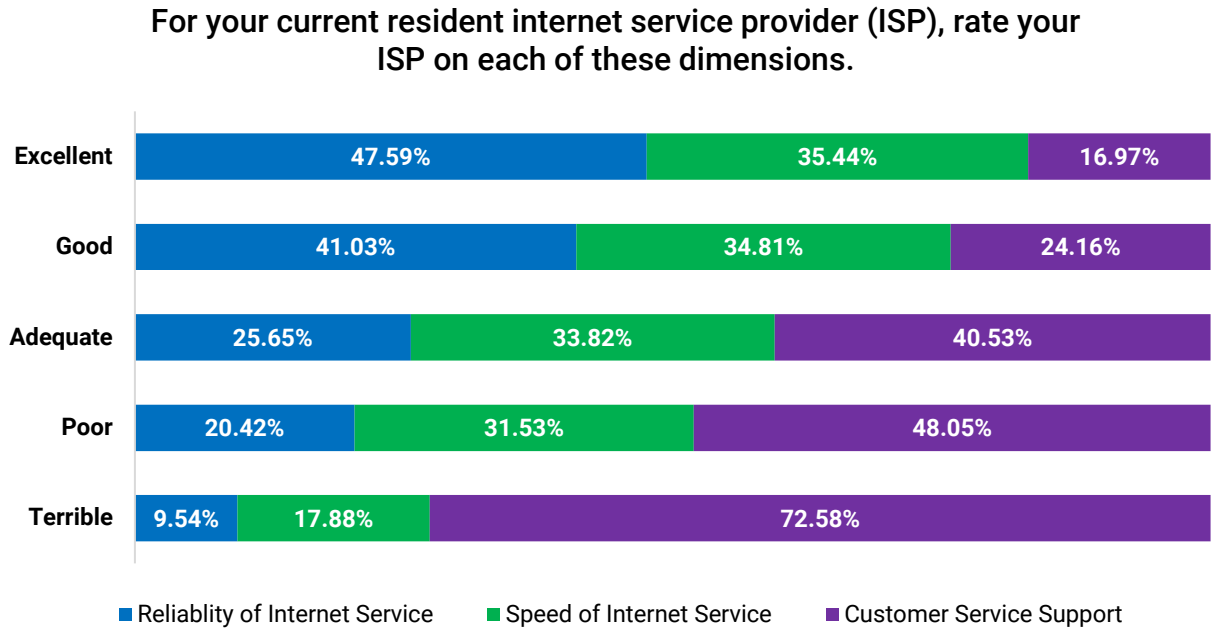
Do you telecommute to work from your home?

The private industry generally agrees that speeds between 75 Mbps and 100 Mbps will handle the requirements of a vast majority of internet users in the current market. Demand will grow with more devices in the household sharing bandwidth, as well as more bandwidth, being consumed per device. More consumer applications are being offered as an online service, with increasingly more diversity and potential. With the growing use of cloud based services, the ability to access data from any device is becoming more important to individuals.

[7] www.letstalkloveland.org/1880/documents/1891
[8] www.letstalkloveland.org/1880/documents/1886
[9] www.sba.gov/sites/default/files/advocacy/SB-FAQ-2017-WEB.pdf

Attachment C

The chart below is a normalized representation of residents' ratings of their current providers on reliability, speed and customer service. Residential customers responded that their current ISP provider's strongest attribute was reliable service, compared to their weakest attribute being customer service. Speed of service was well distributed between all ratings. This indicates that although customers are generally satisfied with reliability, there is room for competition in the areas of speed and particularly improved customer service offerings.



There are more devices being connected to the internet. As devices become more diverse more and more consumers will look to solve problems with technology and the internet. Devices that can be internet connected include smart TVs, smart appliances, lighting controls, thermostats, doorbells and locks, monitoring/security systems, smoke/carbon monoxide detectors, irrigation controllers, electric vehicles, solar and electric storage, etc. The Institute of Electronics and Electrical Engineers (IEEE) estimates that over 30 billion Internet of Things (IoT) devices will be connected by 2020.[10] All of these current and future devices will have to operate on existing internet infrastructure. IEEE along with IHS's current 2018 estimates of 17.6 billion connected devices including computers, smartphones, tablets, etc., must share bandwidth with all future IoT devices. The needs for high-speed, high-bandwidth, robust, and flexible networks are becoming the new expected norm.

Small and Medium Business

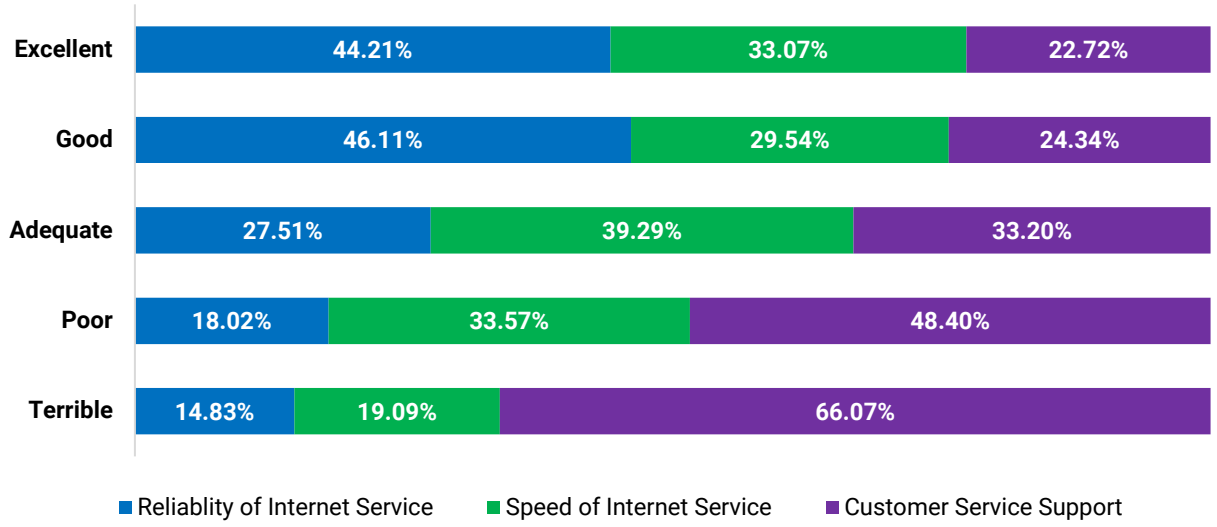
Loveland's business community is diverse and, although major employers such as hospitals and large retail/distribution operations are the largest employers by count, the vast majority of 4,000+ businesses in Loveland have 10 or fewer employees. Loveland is also home to many high tech, engineering, and technical based companies. There are many startups being founded in Northern Colorado due to the proximity to Colorado's top universities, Colorado State University in Fort Collins and University of Colorado in Boulder, as well as access to a diverse and skilled workforce. The Loveland-Fort Collins area is the second densest metropolitan area for high-tech startups in the nation, with continued growth.[11] Surveys found that, of the businesses that participated, over 97% subscribe to internet services and over 93% consider it to be an essential service.

[10] spectrum.ieee.org/tech-talk/telecom/internet/popular-internet-of-things-forecast-of-50-billion-devices-by-2020-is-outdated
[11] www.cityofloveland.org/home/showdocument?id=16677

Attachment C

When benchmarking business attributes, similar trends to the residential surveys were found when surveying Loveland businesses. The business community responded that the strongest attribute of their current ISP provider was reliable service and speed was evenly split between the ratings. Customer service continued to be the weakest attribute for the incumbent providers. As was seen in the residential survey, this indicates that although customers are generally satisfied with reliability of service, there is an opportunity for competition in the areas of speed and improved customer service offerings.

For your current business internet service provider (ISP), rate your ISP on each of these dimensions.



Small and medium businesses are utilizing the internet more than ever before. Businesses employ many productivity, management, billing, and other software platforms. Software used to be “installed” or “desktop” based software, but with the increased use of the internet, those applications are becoming either completely web-based or more connected versions of themselves. With online applications, consumers are able to have the most recent and updated version, allowing access to new features, timely security fixes, and accessible data from anywhere in the world with an internet connection. These applications use the cloud and have data stored in virtual offsite data centers or as back-ups for the original data. The use of the cloud takes significant bandwidth and most non-fiber-optic networks struggle to handle the continuous flow of information. If more businesses use the cloud and web-based software, a network that can support future requirements and growth is required.

Large Business and Key Accounts

LWP identifies 33 key account entities that fall into this category. Loveland’s large businesses and key accounts include the Thompson School District, Medical Center of the Rockies, Walmart locations and their distribution center, Rocky Mountain Innovation Center, The Ranch Events Complex, Centerra, Hach, and others. Each entity has their own unique needs including bandwidth, number of connections, and redundancy.

Magellan Advisors and City staff conducted interviews with the large employers and key accounts to identify their current and future needs, as well as identify areas where they are currently underserved. In total, 20 interviews were conducted in the fall of 2016.

The emerging themes from these interviews were:

1. **Competition:** Only two incumbent providers currently control most of the large business and institutional market. These providers actively compete to serve companies and similar local organizations at a national level.
2. **Redundancy:** Incumbent providers are not meeting the infrastructure redundancy needs of businesses that have mission-critical systems for constant communication.
3. **Connection for Employees/Students/Customers:** Even though most of the large organizations have high-speed internet provided by fiber-optic cable, leaders within each organization expressed concerns over the lack of connection for their staff, students, and customer base at the same or similar speeds. The range of these issues depends on the type of organization, but consistent need for high-speed connection to the home of each employee, student, or customer greatly impacts their current and future business models.

The concern over a lack of competition is a growing trend among large organizations due to the potential financial risk and stagnation of growth. Although most large businesses and key accounts have access to fiber-optic connections, their needs for long-term sustainability and constant, predictable growth within the community are not being met. With more employees and students working and learning from home, access to reliable and high-speed internet is an essential part of offering employees flexibility within their unique lifestyles.

Take Rate Analysis

One of the measures of success for a municipal broadband project is the "take rate". This number is found not by the simple question of "would you take the service if it was offered," but by looking at the entirety of the responses and formulating a robust metric. Of particular concern is the price associated with the service offered. The Magellan survey estimated a take rate of 41% for residential customers and 27% for business customers, while the survey conducted by Insights2Use projected a take rate of 42.5% and 27% respectively for residential and business customers.

Take Rate	Magellan Advisors	Insights2Use
Residential	41%	42.5%
Business	27%	27%

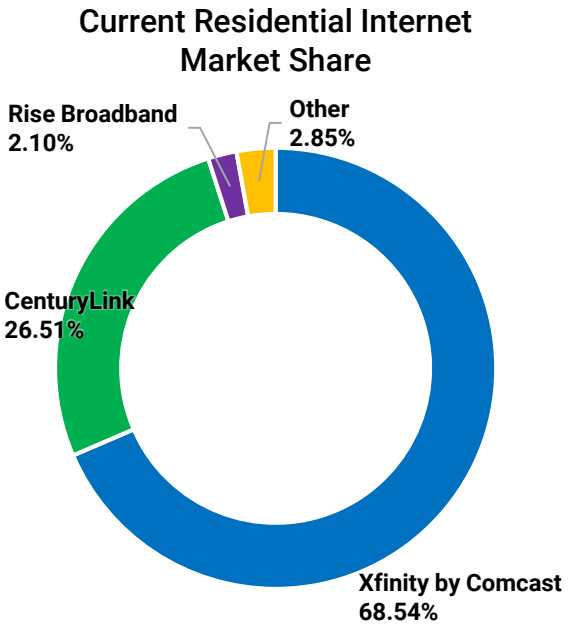
How do these take rates compare with other Front Range communities? Longmont's expected take rate was 37% while their actual take rate after three years is approximately 56%. Fort Collins is estimating a take rate of 28%. Both Longmont and Fort Collins have a different demographic, internet market, and proposed pricing plans than Loveland. Even though Loveland is close to each of the above cities, residential and business customers are all unique and have different needs and internet offerings.

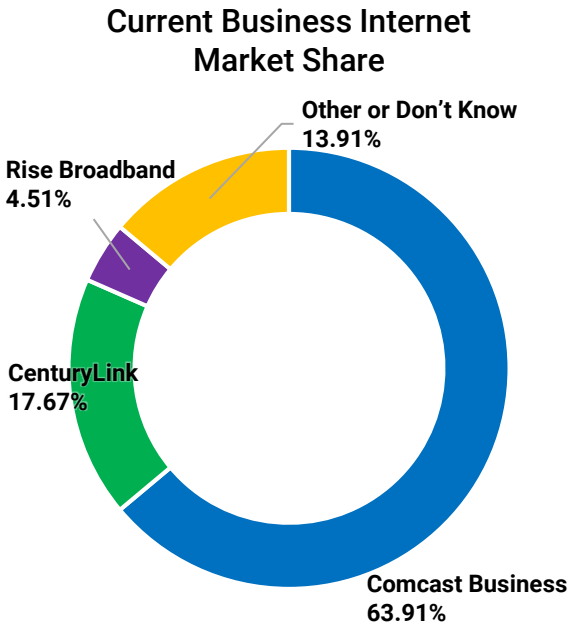
The City has observed that the take rate found from municipal surveys is often conservative. The initial take rate can be reached within three to five years on average, if the utility is competitive within the market. Given the statistical validation of the two surveys, feedback from residents and businesses, and overall interest of the public from our education and outreach campaign, the City is confident that residents and businesses would take this service consistent with the take rate. Nevertheless, it is still important to plan for contingencies and risk mitigation. Because the take rate is so imperative within a working broadband utility, the City took extra precaution in planning for a potential lower and higher take rate. More information can be found in Scenarios (Page 34). For the entirety of the business plan, 42% for residents and 27% for businesses will be used for business and financial modeling.

Competition

Attachment C

Two major providers, CenturyLink and Comcast, dominate the current internet market in Loveland. Other providers such as Rise Broadband, Front Range Internet, Dish Network, and Verizon, among others, make up a small percentage.





The incumbents will likely respond to increased competition in the broadband arena, as they have in other communities with municipally-owned broadband networks. Both CenturyLink and Comcast have extensive financial resources, marketing and advertising teams, and operational capabilities and will actively compete with the new broadband utility.

CenturyLink is primarily a digital subscriber line (DSL) internet provider. With DSL being one of the more outdated and least future-proof infrastructures, they have begun installing FTTP primarily in new development and multi-dwelling units with high-density and a higher return on investment. CenturyLink shared that based on their research, consumers only need at most 75 Mbps. CenturyLink also stated they do not intend to build a fiber network throughout the entire city.

Comcast is a cable TV and internet provider that uses a type of infrastructure called hybrid fiber-coaxial (HFC). Only at some select businesses does Comcast offer FTTP in Loveland. Comcast has no plans to deploy fiber to every home and business, but they have publicly stated that they plan to utilize technology to help solve the need for greater bandwidth.

Though CenturyLink and Comcast have extensive fiber backbone networks throughout Loveland, they do not plan on operating within the FTTP space for all residents and businesses. Currently their operational model is to continue using their legacy infrastructure and to invest in technologies that provide more speed and bandwidth – technologies with future-proof limitations and only accessible to a percentage of Loveland.

Competing Technologies

HFC is a type of infrastructure where fiber is deployed to a node in a neighborhood; coaxial copper cable is used then between the node and the home or business. Similarly, DSL companies deploy fiber to a node and twisted copper cable is used from the node to the home or business. Distance and physical condition of the infrastructure can greatly impact the ability to transmit data. Copper can support very high bandwidth for short distance, however the longer the signal has to travel on copper, the lower the

bandwidth becomes. A method for solving this problem is data over cable service interface specification (DOCSIS).

Although DOCSIS technology is based on coaxial cable, it is important to describe the most recent version of this standard separately as it has been successful in allowing cable TV companies to greatly increase broadband speeds without replacing large portions of their existing infrastructure. The newest version of this standard is DOCSIS 3.1, which promises speeds up to 10 Gbps for download and up to 1 Gbps upload. There is also a symmetrical version currently under development, known as Full Duplex DOCSIS 3.1, which promises speeds up to 10 Gbps for download and up to 10 Gbps upload speeds. Actual speeds for DOCSIS technology have varied. However, ISP's are slowly improving infrastructure and providing customers with high-speed options.

Wireless internet connectivity is most widely available through two types of technologies: mobile and fixed Wi-Fi. Wireless technologies transmit information through radio frequencies. Mobile wireless technologies are used to connect cellular phones, smart phones, and other mobile devices. Fixed wireless is designed to connect homes and businesses to broadband services.

Wireless technology is particularly susceptible to interference from environmental factors such as vegetation, moisture in the air (snow or rain), "crosstalk" interference from multiple devices, and buildings, and other obstructions in the line of sight. The higher frequencies needed to obtain increased bandwidth and speeds, increase the likelihood of interference issues, and higher frequencies come with significantly shorter ranges, such as the early 5G wireless. These limitations make it unlikely that wireless technologies will be able to provide a community-wide solution to broadband connectivity and will instead be a supplemental and complementary technology to wired networks for the foreseeable future.

Fiber-Optic Network

The communications industry generally agrees that fiber-optic cable is the most robust and flexible technology to meet the growing needs of any community. Fiber has virtually unlimited capacity for data transport, with engineers and scientists continuously discovering higher transportation bandwidth, and fiber is the most future-proof technology currently known.

FTTP offers far more bandwidth, reliability, flexibility, and security than other available technology. It also has a longer economic life than other types of broadband technologies. Despite the comparable deployment costs, it is less expensive to own and operate. For this reason, fiber forms the backbone of most, if not all, internet, cable TV, telephone, and private business networks.

The annual Visual Networking Index prepared by Cisco, tracks and forecasts global data and connection needs both in the U.S. and the rest of the world.[12] This report projects that the data bandwidth needs of users will increase nearly two fold between now and 2021, and the number of connected devices per person will increase from an average of 7 to over 13.

Architecture, Topology, and Equipment

Fiber-optic cable is made up of strands of glass that transmit information via pulses of light. A single fiber can carry multiple streams of information at the same time by utilizing different wavelengths or colors of light simultaneously.

FTTP can be generally categorized into two types of systems: passive or active. Active systems require powered devices throughout the system to power the switches and routers that actively route bandwidth and traffic. This type of system is most commonly used in corporate networks, campuses, and data

[12] www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/complete-white-paper-c11-481360.html#_Toc484813970

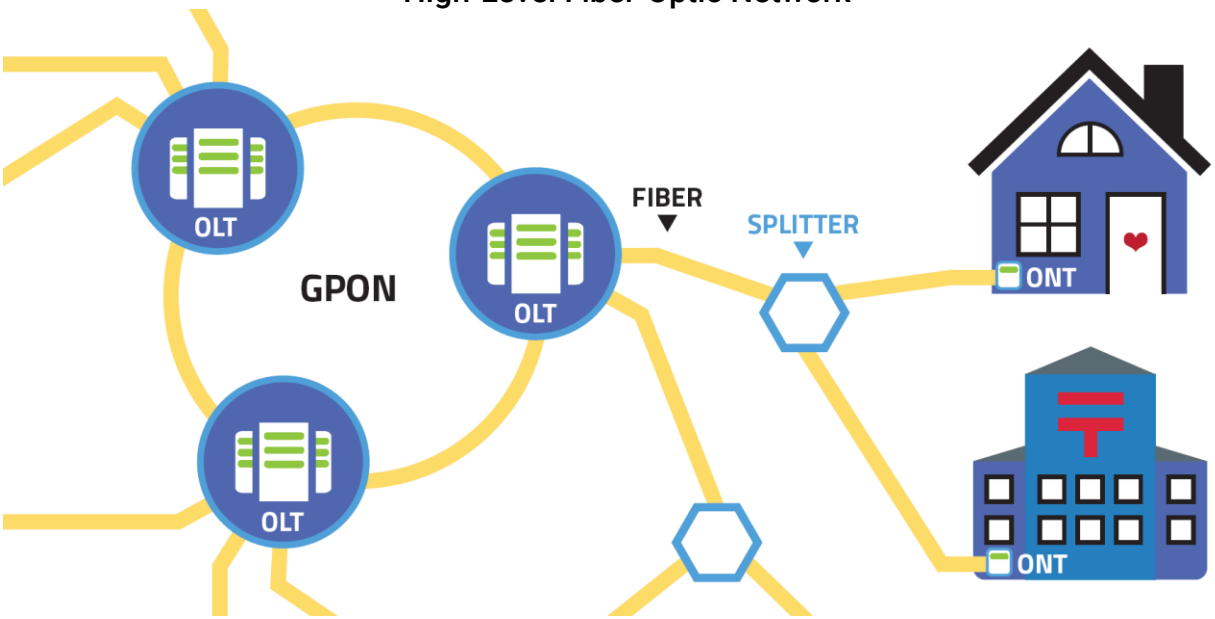
centers due to the flexibility and control of data transmission. However, these are not commonly used for large system deployments due to the increased cost of equipment, requirement for electrical power through the system, and the increased cost to operate and maintain the system.

Most network operators utilize a Passive Optical Network (PON). PON networks, as the name implies, use passive devices throughout the network to split and route broadband traffic. An Optical Line Terminal (OLT) or "server room", is in central location, and communicates with the customer's premise device called an Optical Network Terminal (ONT), similar to a cable or DSL modem. The OLT and ONT send pulses of light back and forth to communicate and to upload and download data from the internet. From a high-level view the network looks like a nervous system, sending information to whomever is requesting it. In Loveland this network will closely follow the electric grid network already routing through the city.

Every network is built to fit the specific and unique needs of the community it serves. Although they are using standard design practices, each physical topology is completely different. Given the physical requirements of Loveland and the City Council's vision statements, it was clear that a ring topology with added capacity for future growth was the most logical solution. Along with the ring topology, a Gigabit Passive Optical Network or G-PON architecture, is planned to provide symmetrical 1 Gbps (1000 Mbps) connections, with the ability to convert network equipment to Next-Generation Passive Optical Network 2 (NG-PON2), which will provide a network throughput of 10 Gbps – a truly future-proof network.

Speed, redundancy, and city-wide accessibility are the governing factors of the design process. The City decided to employ standard and best practices to ensure the design has been thoroughly tested and will perform as expected. Three OLT's will be distributed throughout Loveland being connected by a ring topology. Fiber-optic cables will radiate from each OLT to small, low-profile fiber cabinets spread throughout the city. Inside the cabinets are optical splitters that allow for less fiber within the system, dropping the cost and time of deployment. Fiber will then run past every home and business, only connecting to customers who choose to subscribe. If a customer chooses to subscribe, a dedicated fiber will be run from the curb to the outside of the house where the fiber will be terminated and brought into the home where the ONT is connected.

High-Level Fiber-Optic Network



City of Loveland Assets

The City has significant amounts of conduit that have been installed along major corridors and street, railroad, ditch, and river crossings in the last five to ten years. However, conduit in not sufficiently installed

within most neighborhoods or business districts for full deployment of a fiber system and additional conduit installations would be required in these areas for such deployment. The City will follow the requirements and standards it is creating to best utilize the current and available infrastructure. Some existing fiber conduits have adequate “air-space” within the conduit to allow for more fiber to be installed.

Electric substations and City-owned land will be used for the large OLT or server rooms. Several of the substations have adequate space to install additional equipment for broadband without impacting the current or future needs of these sites for the electric utility. These spaces provide access to enough electricity, and an enclosed area with security and entrance/exit protocols.

Platte River Asset Background and Ownership Transfer

In the late 1990s, Platte River installed fiber-optic cable throughout its distribution system connecting Loveland, Fort Collins, Longmont, and Estes Park. The fiber is used for electric substation supervisory control and data acquisition (SCADA) communication, replacing a radio and telephone line system that was outdated and unreliable. Each city has a local fiber route connecting each of its substations to the network, as well as connecting each local loop to the other cities. As Loveland is in the middle of the four cities, the fiber long-haul from the surrounding communities and Platte River connects with Loveland’s local loop.

Platte River installed the fiber infrastructure with additional capacity than was needed to support the electrical utility needs to allow for additional uses of the system by each community. Doing this allowed future potential use of the fibers throughout the cities. Additionally, the City has installed approximately 12 miles of laterals off this ring with fiber counts between 48 and 144 strands to serve city-owned facilities. These fibers are used by various city departments including LWP, Traffic, and IT, as well as leased to third-party entities such as Larimer County, hospitals, and other carriers.

Platte River has maintained this infrastructure from the time it was installed and although they will be transferring ownership of the local fiber loops to the respective communities, including Loveland, Platte River will continue to maintain the infrastructure going forward. The City of Loveland will be able to continue to utilize this loop to support the needs of the network and the community.

Organizational Structure

Broadband Utility

In February 2018, City Council approved Ordinance 6185 to amend the Electric Utility Charter and include communications services, thereby establishing the City of Loveland Electric and Communications Enterprise. The broadband utility will operate as an enterprise utility and will be located within LWP, allowing the broadband and electric utilities to utilize and maximize resources and economies of scale. These can include institutional and technical knowledge as well as asset resources. This structure is similar to what has been successful in other municipally-owned broadband utilities such as Longmont, Colorado’s NextLight utility, Wilson, North Carolina’s Greenlight utility, and many more.

The broadband utility will be fully owned and operated by the City of Loveland with complete ownership of all network infrastructure. Combining the best of both potential businesses models of a retail and public-public partnership, the end result recommended is a retail model with regional collaboration.

The City of Loveland broadband utility will be marketed under a distinctive brand designed to clearly communicate what customers can expect from the services while differentiating the Loveland broadband utility from competitors. The brand strategy and broadband utility operations will continue to uphold the strong brand equity that the City of Loveland already possesses in the community and continue to strengthen the distinctive City of Loveland brand as a whole.

Attachment C

Directors and Key Advisors

Many people have made this project a success thus far, a few are mentioned below. With their management and leadership of this project, the broadband utility will contain people with experience and passion for the success of the new broadband utility.

Steve Adams
City Manager

Steve Adams has served as the Loveland City Manager since July, 2016. Prior to his appointment, Steve served as Loveland's Water and Power Director. As the City Manager, Steve is the chief executive officer of the City, appointed by City Council. He is responsible for the execution of the City Council policies, directives, and legislative action. All City staff report to Steve as the City Manager, except the Municipal Court and City Attorney's Office.

Joe Bernosky
Director of Water and Power

Joseph "Joe" Bernosky is the Loveland Water and Power Director, overseeing the water, wastewater and electric utilities for the City of Loveland. Joe is a water engineer with two decades of public and private engineering experience. Prior to joining the City in 2017, Joe worked as the water treatment program manager for the North Texas Municipal District in Wylie, Texas.

Brieana Reed-Harmel
Senior Electrical Engineer & Broadband Project Manager

Brieana Reed-Harmel is a Senior Electrical Engineer for the Loveland Water and Power and for the last three years has served as the project manager for the broadband project. She brings extensive knowledge of operations, management, budgeting, project management, design, and construction from the electric utility industry. This background will help ensure the integration of the broadband utility into the electric utility will meet the needs of both.

Jim Lees
Utility Accounting Manager

Jim Lees has served as the Utility Accounting Manager for Loveland's Water and Power Department since 2005. He is responsible for the oversight of the development of the annual budget, long-range financial plans and updating of the rates, charges and fees, as well as oversight of the day-to-day accounting functions of the Water and Power Utilities. Jim has a total of 30 years of experience with the City's Power Utility, and the last 24 years have included the Water and Wastewater Utilities, as well.

Alan Krcmarik
Executive Fiscal Advisor

Alan Krcmarik currently serves as the Executive Fiscal Advisor for the City of Loveland and is also serving as Acting Director of Finance. Alan comes from a rich background of finance, investment and strategic planning, government, policy, and economic development. He has previously worked for the City of Fort Collins as their Finance Officer, leading the Finance Team to issue bonds for a multitude of projects.

The City of Loveland has also engaged other advisors to help assist and vet the assumptions and proposed business plan from third party and impartial perspective.

Colman Keane is the Executive Director for the City of Fort Collins' broadband network, Connexion. Prior to joining Fort Collins he served as the Director of Fiber Technology for EBP, a non-profit agency of the City of Chattanooga. Colman is a certified public accountant by trade and brings more than twenty years of experience in IT and project management. Colman has worked with the City of Loveland as an advisor to the broadband initiative since 2017.

Jim Manire, Director, Hilltop Securities Inc., provides municipal financial advisory services to the City of Loveland in the development and issuance of new debt and financing obligations. He has advised dozens of Colorado cities, counties, and special districts, on their debt transactions over the last twenty years, including the issuance of enterprise debt, general governmental debt, and annually-appropriated lease transactions. He has recently worked with the City of Longmont and the City of Fort Collins in the successful financing of municipal broadband systems.

The Loveland Communications Advisory Board (LCAB) was created by City Council on February 20, 2018. LCAB is a nine member board who serves three year terms. They act as an advisory body to City Council on all issues and matters related to communications services, including high-speed broadband services, and provide policy recommendations to the City Manager and Director of the Water and Power Department consistent with any previously adopted City Council policies concerning communications services. LCAB holds regular monthly meetings.

Richard Bilancia currently serves as Chairman on the Loveland Communications Advisory Board. Richard has a vast background in IT, accounting, and management covering a diverse range of industries including healthcare, automotive, aerospace, building, hospitality management, insurance, non-profit, retail and communications. He is an active member in several technology associations and previously served on the City of Loveland's Citizen's Finance Advisory Commission (CFAC).

Paul Langfield currently serves as Vice-Chairman on the Loveland Communications Advisory Board. Paul's background includes mental health, higher education, non-profit, IT, and technology start-ups. His current role is founder and CEO of an organizational development firm called Cohesive SOULutions. Paul served on the Broadband Task Force in an advisory role during the 2016-2017 Broadband Feasibility Analysis conducted by the City, and is invested within the community to understand broadband's potential as a positive economic development impact.

Governance

Unlike the other City-owned utilities, the broadband utility must operate in a uniquely competitive environment. Services will be voluntary and will be directly competing with other service providers in the community. Through research, discussions, and case study analysis of other communities that have had varying degrees of success, the topic of governance becomes central.

In a regulated and non-competitive market such as the water, wastewater, and electric utilities, the deliberative and public process is imperative to ensure that rates, charges, and fees are thoroughly discussed, vetted and approved through a traditional governmental process. This ensures that expectations and needs of the community are being met and that there is sufficient oversight. However in a competitive market, such as broadband, customers have the ability to vote with their dollars. If a service is not competitive in price, customer service, or service offerings, customers can easily chose to move to another provider. Customers will provide their feedback of whether the broadband utility is living up to its expectations by either continuing services or choosing to subscribe to a competitor.

This difference in the marketplace necessitates a difference in governance than the other established City-owned utilities. The broadband utility will need to be nimble in order to remain competitive on pricing, promotions, service offerings, and staffing levels. Certain tasks, such as rate setting and negotiation,

promotional pricing, and marketing decisions may require immediate response in order to stay competitive with the other providers in our community. Based on staff research of other communities as well as recommendations from our consultants and financial advisors, these tasks must be delegated to the City Manager in order to ensure success.

The governance structure of the broadband utility assumes that the City Manager will be delegated the ability to establish and change rates, charges, and fees for services, and will be responsible for informing City Council and any other governing or advisory boards of any changes. Additionally, the City Manager should have latitude to make decisions regarding marketing, promotions and specials, and operational and staffing-level decisions within established budgets approved by City Council.

Regional Collaboration

The City of Loveland is at unique and timely position for a regional collaboration. As mentioned before, our neighboring cities, Longmont, Estes Park and Fort Collins, have already or are in the process of implementing a municipally-owned broadband utility to their communities. With each utility around the startup phase, the ability for regional collaboration from the start of Loveland's broadband utility allows for immediate cost savings and operational efficiencies.

Loveland and its neighboring cities have many of the same goals such as afterhours call centers, long-haul wholesale internet transport, and design standards and requirements. Due to the fact that each community is at a slightly different stage in development, the proposal for regional collaboration will be iterative over time. Shared long haul and transport will be the first item that Loveland will collaborate regionally on, followed by an agreement to share resources and staffing during emergency periods, and exchange of information on standards and design practices for mutual support. Everything from design to maintenance protocols, fiber-splicing, locating, database and naming conventions, etc., can be potentially shared amongst the four cities and Platte River.

Ultimately, Loveland and the other communities would move towards shared resources such as after-hours call center and service support once each community is operational and through the initial construction and build out phases. There may be other opportunities for the cities to collaborate in the future that will be discovered with time and experience. Though every collaboration will not be immediate, having an objective to work towards to offer each of their respective cities cost savings and more added value to their communities is quantitatively and qualitatively improved. This will greatly maximize every community's ability to provide quality broadband and maintaining and operating fiber infrastructure.

Startup and Operational Plan

Forecasted Staffing

Given the broadband utility organizational structure, new staff will be needed to run, operate, and manage the new utility. As stated before, the broadband utility would be housed within LWP. This structure allows for the leveraging of existing workflows, departmental groups, and management, as well as creating the most cost effective and staff efficient structure. For financial modeling, the salaries listed below and benefit overhead and an annual raise equivalent to each position – a standard for the City.

Position Title	Salary	Year 1	Year 2	Year 3
Deputy Director of Broadband	$135,900	1	1	1
Broadband Engineering Manager	$112,800	1	1	1
Network Engineer	$90,350		1	2
Network Operations Controller	$78,800		1	2

Technical Services Representative	$63,500		1	2
Broadband Operations Supervisor	$103,000	1	1	1
Field Services Technicians	$53,200	1	2	3
Installation Technician	$47,900	3	3	3
Customer Connections Manager	$112,800		1	1
Customer Experience Coordinator	$71,600			1
MDU & BDP Account Manager	$71,600		1	1
Communications & Marketing Coordinator	$71,600	1	1	1
Strategic Sales & Marketing	$57,900			1
Customer Service Representative Supervisor	$62,000	1	1	1
Customer Service Representative	$47,900	3	6	6
GIS Specialist	$63,500	1	1	1
Accountant & Utility Rate Analyst	$71,600		1	1
Buyer	$53,200	1	1	1
Warehouse Worker	$41,400	1	1	1
Utility Locator	$47,900	1	1	1
Business Services Professional	$47,900		1	1
Total FTE		**16**	**27**	**33**

The head-count will vary during the ramp-up period to align with start-up activities. As it is challenging to model expected staffing needs for certain positions, we are including several termed employees during the start-up of the organization. Install Technicians are the face of the organization and these employees interact with customers throughout the installation process. It is important that the broadband utility hire these employees directly rather than contract to an additional firm. A total of four termed Install Technicians, two two-year and two one-year, are planned in the financial model. Various contractors are included in capital expenses and will fluctuate given the work and skill needed.

Position Description and Purpose

Each member of the broadband utility has their own specific purpose and goal. Like all beginnings, some of the expectations of each position may shift to meet the needs of the organization. However, from examining other municipally-owned broadband networks as well as the current incumbents, each position has its purpose, been thoroughly tested in the market, and is the nature of properly building and managing a broadband utility.

Position Title	Description and Purpose
Deputy Director of Broadband	The Deputy Director of Broadband is the leader in directing all activities of the broadband utility. This position determines the objectives and establishes operating procedure to create and maintain utility soundness while ensuring optimum service to customers. The Deputy Director of Broadband serves in a supportive role to the Director.
Broadband Engineering Manager	The Broadband Engineering Manager provides supervisory work over the Network Engineers, Network Operations Controllers and Technical Services Representatives. They provide professional and technical support over broadband services including network architecture, reliability, cost evaluations, risk mitigation, and construction design for fiber optic outside plant to ensure optimum service to customers.

Attachment C

Network Engineer	The Network Engineer performs a variety of complex tasks in analysis, design, testing, installation, monitoring, integration and maintenance of the fiber network. They install, maintain and integrate all core network and server infrastructure as required. This position also provides escalation support for Technical Service Representatives.
Network Operations Controller	The Network Operations Controller is responsible for overall network engineering support, including diagnosing, troubleshooting and resolving issues through monitoring, testing, and servicing equipment. This position works directly with engineering to provide specifications for network architecture, evaluate technologies to enhance capabilities, and perform needs assessments.
Technical Services Representative	Technical Services Representatives are responsible for assisting broadband utility customers with high-level troubleshooting, technical support, provisioning new accounts, issuing service orders to field personnel, and making account modifications. This position integrates with engineering, field services and customer service.
Broadband Operations Supervisor	The Broadband Operations Supervisor provides technical and supervisory functions for the Field Services Technicians and Installation Technicians. They coordinate the installation of fiber infrastructure with Engineering, the MDU & BDP Account Manager, Designers and Warehouse personnel to ensure accurate and efficient construction activities.
Field Services Technician	Field Services Technicians are primarily responsible for the installation of fiber, including fiber drops to residential and business customers. They coordinate with engineering, the MUD, Commercial, Account Manager, Designers and Warehouse personnel to ensure accurate and efficient construction activities.
Installation Technician	Installation Technicians are primarily responsible for fiber and equipment installation, and troubleshooting for customer fiber installations. This involves working inside, underneath and around customer's homes and businesses to install wiring, outlets and equipment as needed. This position will work with customers to demonstrate equipment, troubleshoot, and explain service features.
Customer Connections Manager	The Customer Connections Manager has a passion for customers with a customer-focused vision of identifying, developing and maintaining customer connection approaches. This position manages the customer service group who has an overall goal of attracting and retaining customers.
Customer Experience Coordinator	The Customer Experience Coordinator is responsible for maintaining customer loyalty through high-quality interactions by continually revising and improving the customer experience, with the goal of increasing customer satisfaction. They also identify, develop and implement programs designed to attract and retain various customer segments. These programs may focus on areas such as bridging the digital divide, E-rate programs and low income programs.

Attachment C

MDU & BDP Account Manager	The MDU & BDP Account Manager (multi-dwelling unit, business and development programs) works closely with all customer service positions to build the market position of the broadband utility. This position actively works to build and maintain strong relationships with builders, developers, property owners, homeowner associations and commercial businesses to maximize service installations.
Communications & Marketing Coordinator	The Communications & Marketing Coordinator coordinates the marketing, branding, advertising, sales and public relations for the broadband utility. They utilize multiple marketing techniques to reach a broad range of customers with a goal of enhancing brand awareness, driving website traffic and engaging and acquiring customers. They are responsible for supervisor functions over the Strategic Sales & Marketing Coordinator.
Strategic Sales & Marketing Coordinator	The Strategic Sales & Marketing Coordinator works with the marketing team to provide strategy, execution and reporting for marketing initiatives in order to attract and retain broadband utility customers. This position is also responsible for identifying potential customers, developing relationships and facilitating customer engagement.
Customer Service Representative Supervisor	The Customer Service Representative Supervisor provides supervisory work over the Customer Service Representatives. This includes scheduling and assigning of work, hiring and training, implementing new work methods, billing processes, regulatory compliance, refining procedures and reviewing work. This position works closely with the Customer Experience Strategist to promote exceptional customer service.
Customer Service Representative	The Customer Service Representative assists customers over the phone and in person with a wide variety of questions, requests and troubleshooting regarding their broadband utility service. This position works closely with the Customer Experience Strategist to promote exceptional customer service.
GIS Specialist	The GIS Specialist supports the broadband utility's Geographic Information System (GIS) by creating and updating broadband GIS features based on construction drawings and field data. They perform a high level of work and maintenance on GIS and other integrated systems to accurately perform asset management for the broadband utility.
Accountant & Utility Rate Analyst	The Accountant & Utility Rate Analyst performs a variety of analytical duties. These include strategic financial planning and scenario analysis, gathering data for rate studies and fee updates, assembling and maintaining long-range financial planning, assembling annual budgets and producing various general accounting reports. This position will support and enhance the work of the current Utility Financial staff and operations.
Buyer	The Buyer is responsible for procuring inventory for the utility including what is needed for maintenance and new construction. They are responsible for maintaining levels of inventory necessary to meet demand and standardization of materials.
Warehouse Worker	The Warehouse Worker works in the warehouse facility to coordinate the shipping, receiving, inspecting, storage, issuing, staging and distribution of materials, tools and equipment necessary for the broadband utility.

Utility Locator	The Utility Locator performs utility locates on all phases of water, wastewater, stormwater, electrical, broadband and traffic facilities. This position will support and enhance the work of the current Utility Locating staff and operations.
Business Services Professional	The Business Services Professional provides administrative support and completes high level projects and analysis to support the broadband utility as needed for the Water and Power Department. This position serves as the Recording Secretary for the Loveland Communications Advisory Board (LCAB).

Facilities

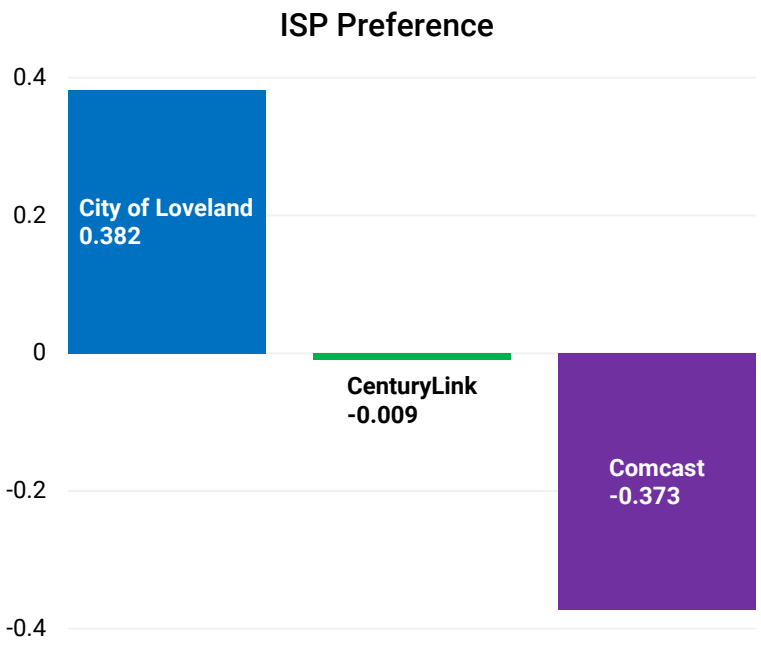
A broadband utility office that includes facilities for office staff and field personnel will be required. Adequate space is not currently available within the Loveland Service Center campus and will eventually require the addition of a new building. Because the building is not already built, and the need to house staff is sooner than the completion of the broadband utility building, leasing space is a necessity.

The Loveland Service Center is a desirable location due to proximity and connection to existing City-owned fiber infrastructure, as well as enough physical space to house any additional LWP utility needs. As the Electric and Communications Enterprise is closely intertwined with the Water and Wastewater utilities to leverage economies of scale, it is a natural fit that all the utilities be housed on the same campus. In order to fully evaluate the current and future needs of the entire department, as well as allow for planning a budgeting of the new facility, the broadband utility will lease space for the interim.

The City has determined multiple potential lease options. As leases are extremely time dependent, we have averaged the cost of a 7000 sq. ft. lease until a permanent facility is determined. That associated time and cost is factored into the operational cost of the utility. LWP has engage an architectural consultant to prepare a plan to thoroughly evaluate the needs of the current and potential future utilities for the next 20 to 30 years of growth.

Brand and Marketing

The most recent survey conducted by Insights2Use found that the Loveland community, both residential and business, are value-oriented. The City of Loveland has strong brand equity when compared to the other incumbent service providers. Note that negative utility/value score represents unfavorable preferences, while a positive utility score represents favorable preference to brand name.



The consistently high ratings of utility services in the annual Quality of Life survey conducted by the City shows the City of Loveland name already has strong brand equity.[13] A cornerstone of the marketing and customer service plan will be to leverage the position of City-provided utilities as reliable, stable, efficient, and quality products to the broadband service offerings. The City will leverage its strong local and recognizable brand in defining its broadband services to the community. The trust built by electric utility brands has been a major driver of success in similar municipal-owned broadband networks.

Market share will be obtained and maintained by focusing on promotion, delivering the service advertised, and providing excellent customer service. It has been shown that spending less on advertising and marketing and putting more money into offering better services is a better approach to customer approval and satisfaction. This model has been tested with many private businesses as well as municipally-owned broadband providers. The marketing and sales objectives are governed by the minimum take rate of 32% by the end of year three. Of course, a higher market share of 42% has been validated by both surveys and planned for.

Initial Capital and Operational Requirements

Designing and constructing a fiber-optic network is difficult to build in pieces, as fiber-optic physical networks do not scale as efficiently as other types of infrastructure. The entire network needs to be considered or opportunities for efficiency and effectiveness could be lost. With that said, city staff along with Nokia and Bear Communications, designed a complete fiber-optic network coverage of Loveland to better understand the complete cost of the project. As the network construction is the largest capital expense of the project, it is imperative that the accuracy of the capital requirements can be used for the Financial Model (Page 34).

Capital Requirements Line Item	Cost
Design – Build	
Build Ready Network Design	*$2,170,137*
Engineering & As-Built Documentation	$1,068,586

[13] www.cityofloveland.org/government/public-information/quality-of-life-surveys

Network Construction	$52,412,397
Network Headend & Equipment	$3,365,514
Fiber Drops and Premise Connections	$13,619,199
Subtotal	**$72,635,833**
Operations for Start-Up	**$26,400,226**

The accuracy of the cost estimate was accomplished through a build-ready design with associated labor and materials cost. As with each engineering and design number, there is associated lifespan. The City and Nokia see the lifespan of these costs to be accurate within six months; any time after the six month period, the accuracy of the costs exceeds the percentage of contingency, and another updated design cost estimate will need to occur.

Costing Analysis

Passing Cost

The “passing cost” is the cost of building a network to pass by every property, business, or residence for connection to the network. This cost is fixed and is determined solely by the design created by Nokia in conjunction with City staff. Important design based decisions were made by applying the methodology of value-engineering. This methodology is used when resources can and should be saved. Lowering the passing cost lowers the overall network construction while still creating a quality network.

The estimated cost of installing fiber throughout the city limits is calculated by analyzing the system, neighborhood layout, premise density, and existing overhead or underground infrastructure. Multi-dwellings units (MDU) and multi-tenant units (MTU) were included, although the cost for installation to these types of sites is slightly lower and unique due to the high density nature. With Loveland’s soil conditions and geography, City staff added a typical 10% contingency for projects of this size and nature.

Passing Cost	
Network Construction	$52,412,397
Residential Premises	32,097
Business Premises	4,600
Total Premises	36,697
Average Cost per Passing	**$1,428**

These number are more conservative than estimates from Fort Collins of $984 and Longmont’s actual costs averaging $825, however are in line with average costs for similar electric utility lines costs across the city averaging $1,078.

Drop Cost

The passing cost is fixed and can be calculated based on the number of premises and the community layout. However, the “drop cost” is variable and is dependent on the number of customers that choose to connect to the network. In other words, the take rate is the most cost-differentiating variable for total premise connections (This cost is not incurred until the resident or business chooses to sign-up for services).

The drop costs have two essential components: the pre-installation and the premise installation cost. Pre-installation includes trenching and underground installation of fiber in a micro-duct from the network at the edge of the property to the side of the building on the premise. The premise installation includes connection of equipment within the customer’s building. This cost includes materials such as the ONT,

electronics, connectors, and other hardware. It also includes labor costs for inside and outside the home or business. Contract labor will likely be used for the pre-installation with City staff performing a majority of the premise installation.

Drop Cost	Average per Drop
Materials (avg. 200 ft.)	$196
Equipment	$140
Labor	$420
10% Contingency	$76
Total Average Drop Cost	**$832**

These number are more conservative than estimates from Fort Collins of $592 and Longmont's actual costs averaging $900, however are in line with average costs for similar electric service drops across the city averaging $958.

Services and Subscriptions

Fast, reliable, and robust networks are typically built with fiber because of their flexibility in use. The City is currently proposing internet and voice to be offered to all residents and businesses. Though the City may decide that more services could be offered in the future, for business and financial modeling purposes only, internet and voice are the only services options.

Pricing Assumptions

Costs were determined based on competitive market pricing of similar products in the Loveland market and the requirements to cover costs of operating the utility and debt services. The surveyed take rate was found given these pricing models for both residents and businesses. Actual pricing may differ slightly once the services are launch due to changes in the market and competition, but the principles will remain the same.

Residential

When surveying Loveland in 2016 and 2017, the City of Loveland found that people thought the pricing models for the current incumbents were expensive or confusing. City staff sought to make the City's offerings easier to understand and more affordable. Under City Council's vision statements, these were the result of design and business iterations:

- Symmetrical upload and download speeds
- No data cap
- No hidden fees
- No hidden installation costs

Every subscription includes an ONT with the price, but each resident can decide whether to also rent a wifi access point from the city or purchase their own network-supported device for wifi. All costs of service are included within the listed pricing over the lifetime of the subscription. Device and service subscription details will continue to be improved as feedback from customers is heard.

Residential Subscription Pricing*	
25 Mbps	$19.95
300 Mbps	$49.95
1 Gbps (1000 Mbps)	$79.95
Voice	$19.95

Low income and fixed income services and prices are currently being assessed. Governmental assistance programs and non-profits such as Lifeline, ConnectHome, and EveryoneOn are only but a few potential programs and advisors that can help Loveland provide payment assistance and continue to bridge the digital divide. It is imperative that everyone within the Loveland community who wishes to get service from the broadband utility - has many potential avenues of doing so.

Business

Commercial service pricing plans are more difficult to model due to the complex and diverse needs of a business versus a residential customer. Commercial services will include a full range of possibilities that include various speeds and business support services. Some of these options could include:

- Dedicated or shared capacity connection over a G-PON connection
- Contractual or no contractual agreements with service level agreement (SLA)
- High capacity direct fiber access connections
- Point to point or active Ethernet connections
- Customized access solutions for multi-site or campus businesses and organizations

Given the wide range of commercial possibilities, it is not practical to model each option at this stage as it produces diminishing returns with false precision. Therefore, the model focuses on the standard business plan options that will account for the majority of the commercial customers.

Business Subscription Pricing*	
50 Mbps	$49.95
100 Mbps	$109.95
250 Mbps	$199.95
500 Mbps	$399.95
1 Gbps (1000 Mbps) – Dedicated	$799.95
Voice (3 Lines)	$119.95

Potential Future Services

Although broadband is the only revenue taken into account for the financial modeling, industry shows that other services can be offered from a network with this capacity and operational model. Other municipally-owned networks have allowed for other revenue streams such as dark fiber leases, open access, white label internet to other providers, bandwidth leasing to other carriers both wired and wireless, Wi-Fi in parks and congested areas such as downtown, and others.

All of the extra value propositions listed above add revenue to the overall utility. However, due to issues such as equipment and technology and staff needed, and inability to time such service, these services are also being considered in the future.

* This pricing is for business and financial modeling purposes only. Actual prices or subscriptions may differ.

Risk Factors and Mitigation Tools

Inadequate Capital

Time and Cost Overruns

Due to the size and complexity of the project, if left unmanaged, time and cost overruns can dramatically take over the project. Whatever the scope may be, a well-managed project requires time, cost, and quality management. The City has selected Keith Meyers and his team from Ditesco to aid in project and construction management prior to and during the years of network construction. Ditesco has experience with many large capital construction projects, and most recently with the City of Loveland's Foundry project, water plant expansion and wastewater treatment plant upgrade. Ditesco has also managed several large fiber construction projects in Larimer County and will provide additional expertise and staffing resources to mitigate delays or cost overruns. Costs associated with project and construction management have been factored into the business and financial model.

Take Rate not Met

There is a possibility, although very slim, that the take rate does not meet even the minimum sustainable break-even value of 32%. This has only happened in communities that have seen changes to the political landscape and are no longer allowed to proceed with the original business model. An example of this scenario is Provo Utah. Should this scenario happen, the broadband utility may need to be restructured, the debt may need to be restructured, and other alternative methods would need to be explored to address the cause of the take rate not being met. The financing mechanism for this project is based on electric revenue backed bonds, and in order to prevent a negative impact on the electric utility, options such as lease or sale of the system could be considered as a last resort. The fiber infrastructure, once installed, is an asset that has monetary value. Again, we believe that the risk of this happening is very low and the response would be tailored based on the severity and the cause.

Competition

In a truly competitive market, businesses are constantly lowering their service prices and increasing their service options, all while providing the customer with more value. Loveland's broadband utility will have to compete with the current incumbents within the market. With a potential of 42% of the customer base in Loveland migrating to the city broadband service, much is at stake for the current incumbents. Their profit margins for this region would shrink and in order for their market share to remain stable, a lowered price offering and increased service options would need to occur.

In short, the incumbents will have to compete, and depending on how aggressive they price their services, it could become a potential risk for Loveland's broadband utility. As was seen in Longmont throughout the buildout of NextLight's network, their main competitor, Comcast, lowered their prices by more than 20% in an effort to retain customers. In Loveland, the incumbents are likely to lower their prices and engage in promotional or other techniques to maintain their market share. This has been seen in other communities across the country that have launched community owned broadband services, and it is expected to be no different in Loveland. However, price is not the only variable when deciding which service provider to use. Factors such as customer service and brand can also impact choice. In order to account for the additional competition expected and the potential for lower take rates than anticipated, scenarios (Page 34) have been considered to ensure that the business can be sustainable at much lower take rates. This in explored in more depth in the sections below.

Open Access and White Labeled Services

Open access and white labeled services can be discussed jointly in that they both entail allowing other ISPs to operate over the City owned fiber network. White labeled services are very common in

communities that offer FTTP, and mean that an ISP would pay the City for the use of the network to their customer and that ISP would offer services directly. The customer often does not know that the fiber infrastructure is not owned by their provider. This opportunity could allow the current incumbents, as well as smaller ISP providers, to be more competitive in the community without the need to invest in additional infrastructure. Open access is a new take on this model in that the ISP providers are decoupled from the infrastructure provider, however the premise is essentially the same. In the open access scenario, Loveland would charge each provider for access to the system which would most likely be passed onto the customer, but services would be offered by the independent ISP and not by a city operated ISP. Because the City owns the entire network, both these scenarios are options and will further increase the use of the network over time either directly or indirectly.

Technological Developments

As technology increases at an even higher rate, certain technological developments stand to create risk for the broadband utility. Whether that technology is wireless or wired connections, new developments in either category pose a potential risk. This being more of a competitive risk rather than the ability to dramatically increase connection speeds or decrease service costs. A FTTP connection is the most future proof solution currently known, offering speeds which cannot be reached by current technologies. With wireless or other wired connections trying to match the current offered speeds of FTTP, and if customers are requesting higher and higher speeds than the previous years, soon wireless and other wired connections would not be able to compete with FTTP technology.

As wireless offers the ability to go further than an infrastructure connection and allows the customer to bring their services virtually anywhere, wireless technology offers a higher threat than other wired infrastructure which is future proof limited. Though wireless technology has the ability to take the customer's service anywhere, implementing higher speeds at greater coverages is becoming recognized as limited and impractical.

Having fiber throughout the entire city will make wireless deployment easier and make the City more likely to be an early deployment site. This will ultimately benefit the residents and businesses of the City, and these data-intensive wireless technologies could potentially be additional users of a city-wide fiber infrastructure — which could lead to an additional revenue stream for the fiber plant. The City believes that wireless technology promises a lot of value to the customer and is seen as a complimentary service, and not a direct competitor to FTTP.

Business Cycles

Economic, Social, or Political Developments

Legislative changes could impact the City of Loveland from providing retail broadband services. This has happed in other communities such as several projects in the state of Utah, and is a difficult problem to mitigate. It often requires restructuring of the business model to accommodate the change in landscape. The City of Loveland will need to remain active in lobbying organizations such as Colorado Municipal League (CML), Colorado Association of Municipal Utilities (CAMU) and others to help our state Legislature understand the needs of the City of Loveland and the new broadband utility.

Recessions and Economic Downturn

Economic downturns are difficult situations for any resident or business to go through. Hard times require action and often involve creative ways to save costs without limiting your capability. Everyone, regardless of their financial standing, work, or demographic can be impacted by recessions or economic downturns.

From the perspective of the City, a recession can mean a cut in consumer spending which directly relates to a cut in general funds and slowed growth. This exact occurrence happened with Chattanooga, Tennessee EPB as they were in the middle of building their fiber network. But because of contractors in

need of work, they ended up negotiating better construction costs due to lowered demand. Anecdotally, they have shared that the spillover from the large fiber construction project included high occupancy rates at their hotels and other temporary lodging, and stable levels of activity in their restaurants and other service industry sectors. This helped mitigate the impacts of the larger recession within their community. This is similar to effects seen in Loveland and Estes Park after the 2014 Flood. Although occupancy from tourism was drastically reduced, the needs from the construction to repair damaged roads and other facilities lessened the financial impact to the community.

During the last recession of 2007-2009, 69% of all Americans were termed, “online economic users”. These users have used the internet for recession-related purposes. Price comparisons, online retail savings, seeking financial professionals, and possibly the most intriguing are improving skills for a job, looking for new jobs, or earning money through the internet as an additional income are only but a few ways the internet was used during the recession.[14] From this research, Americans have better weathered the economic hardship due to the ability to access the internet, not just for searching for new work, but creating new work through a lowered barrier to entry and ease of accessing the appropriate market that the global network offers.

Financial Model

Current Financial Position

Information about the electric utility, including audited financial statements, budgets, continuing disclosures, and operating indicators can be found in the City’s Comprehensive Annual Financial Reports (CAFR).[15] Additional information on the City’s budgets and comprehensive annual financial reports is available in the City’s Financial Reports.[16]

Scenarios

Sales and Profitability Objectives

This scenario reflects our anticipated business objective for the business model, or in other words a base-case scenario. Given the surveyed take rate outcomes of 42% of residential and 27% of businesses will take the service if it was offered to them, the scenario assumes that bonds would be issued as soon as January of 2019.

- Take Rate: 42% of Residential and 27% of Businesses
- Total Network Construction Cost: $52.4 M
- Total Drop Capital Cost: $13.6 M
- Bond Total: $93 M
- Bond Interest Rate: 3.85% for Tax-Exempt and 5.05% for Taxable
- Bond and Capitalized Interest Total: $155.6 M
- Positive Net Revenue: Year 5
- Bond Payback: 20 years

All of the financial modeling, financial metric charts, and Pro Forma reflect the same data as the sales and profitability objectives unless otherwise stated.

Break-Even Analysis

[14] www.pewinternet.org/2009/07/15/the-internet-and-the-recession/
[15] www.cityofloveland.org/departments/finance/administration/financial-reports/comprehensive-annual-financial-report-cafr
[16] www.cityofloveland.org/departments/finance/administration/financial-reports/

Attachment C

A break-even analysis is crucial to understanding the flexibility of the provided business plan. Rather than using data from surveys and expected outcomes, this model considers the minimum financial metrics for a successful broadband utility. This can be considered the lower boundary case of the business plan.

- Take Rate: 32% of Residential and 27% of Businesses
- Total Network Construction Cost: $52.4 M
- Total Drop Capital Cost: $10.7 M
- Bond Total: $93 M
- Bond Interest Rate: 3.85% for Tax-Exempt and 5.05% for Taxable
- Bond and Capitalized Interest Total: $155.6 M
- Positive Net Revenue: Year 6
- Bond Payback: 20 years

The variables of the financial metrics were changed to meet the minimum debt services payback and extend to the end of the 20-year bond. From that the take rate was derived and the break-even analysis was reached. Due to the difference in needs of operation, the broadband utility would react accordingly in staffing and other operational expenses.

Fast-Growth Analysis

There is a potential for a greater than anticipated market share. This could be due to customer perception of the City of Loveland brand having higher satisfaction and confidence than expected. Though this does mitigate the risk of the take rate being too low to meet the debt services payback and an increase in operations due to new staff and increased cash flow would give the utility the ability to restructure its debt if it made business and financial sense.

- Take Rate: 53% of Residential and 35% of Businesses
- Total Network Construction Cost: $52.4 M
- Total Drop Capital Cost: $17.1 M
- Bond Total: $93 M
- Bond Interest Rate: 3.85% for Tax-Exempt and 5.05% for Taxable
- Bond and Capitalized Interest Total: $155.6 M
- Positive Net Revenue: Year 4
- Bond Payback: 20 years

For many businesses, fast-growth signals success. It can create new opportunities and can possibly generate a faster return on investment. But growing quickly isn't without risks, such as higher advertising costs, potential lowered service quality, and diminution of prices which can lower overall profit. This could imply that prices were set artificially lower than their market equivalent or their customers are valuing your service over other providers more strongly than anticipated. However, if the higher than expected take rate is due to brand value and excellent service, and not a lower service price, this would allow the broadband utility to restructure its debt sooner and create even more competitive services.

Delayed Project

This scenario accounts for a delayed project, including design, bonding, construction, and market analysis. There is a potential that this decision is left to the public voters provided through a special election in spring of 2019. In this case we assume that we have the ability to issue bonds during May or June 2019 and that construction starts immediately after the bonds have been issued and funding is received.

- Take Rate: 42% of Residential and 27% of Businesses
- Total Network Construction Cost: $54.7 M
- Total Drop Capital Cost: $13.7 M

- Bond Total: $99 M
- Bond Interest Rate: 4.35% for Tax-Exempt and 5.55% for Taxable
- Bond and Capitalized Interest Total: $174.5 M
- Positive Net Revenue: Year 5
- Bond Payback: 20 years

The construction capital cost includes 4% extra contingency due to it being after the six month lifespan of that number, as we have seen an increase in cost of materials and construction in recent years. Bond interest rates have continued to rise throughout this year, 0.25% every quarter, and they are anticipated to continue with four additional raises every quarter in 2019. By the time the bond would be issued an additional 0.50% will be added to the bond interest, for a total of 4.35% for tax-exempt and 5.55% for taxable. This dramatically increases the bond and capitalized interest total, and extends when the debt is paid off and positive net revenue is reached. If a delayed project were to take place, additional expenses such as a special election, added construction contingency cost, increased bond and capitalized interest cost, and general inflation could amount to over $18.9 million.

Funding and Expenses

Bonding‡

The City issued an RFP in April of 2018 for an underwriter and investment banker for the City of Loveland Electric and Communications Utility Enterprise revenue bond series. Through an extensive interview process, J.P. Morgan was chosen to be the underwriter of revenue bonds if Loveland choses to move forward with the project.

The City together with J.P. Morgan has found a workable approach to the unique wants of the community and City Council. Within the bonding package, there will be three bond series: taxable, tax-exempt, and small denomination bonds. This gives the Loveland community the ability to interact with the broadband utility from the very beginning of the project, and local, small and large retail, and institutional buyers will have the opportunity to purchase bonds that meet their individual investment needs. A total of $100 million will be issued to cover the cost of capital and operational costs.

Bonding Breakdown	
Tax-Exempt	$65.1 M
Taxable	$27.9 M
Total	**$93 M**

The small denomination bonds will be offered through a separate program than the traditional bonds, and will be provided at $500 increments. City staff have worked with J.P. Morgan to offer the local community an easy and straightforward way to purchase bonds to engage with and support the project.

Through the advice of J.P. Morgan, the City has received a preliminary credit rating from Standard & Poor (S&P). City staff attended a credit rating meeting with S&P in TBD, 2018 that resulted in a preliminary credit rating of "to be determined". A preliminary credit rating can be used for financial programs and modeling and gives an indication of the final credit rating, though it may differ. Should the City decide to bond, a final credit rating performed by S&P will need to occur.

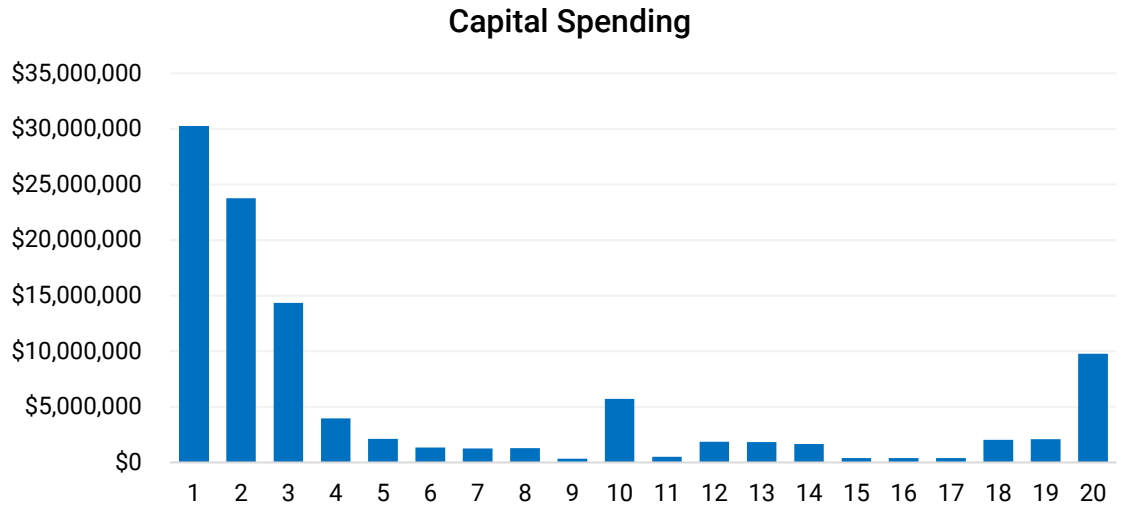
Capital Spending Timeline

‡ The information provided in the Bonding section is not a bond official statement from the City of Loveland or any of our advisors or consultants, but rather a shortened purposed bond offering.

Attachment C

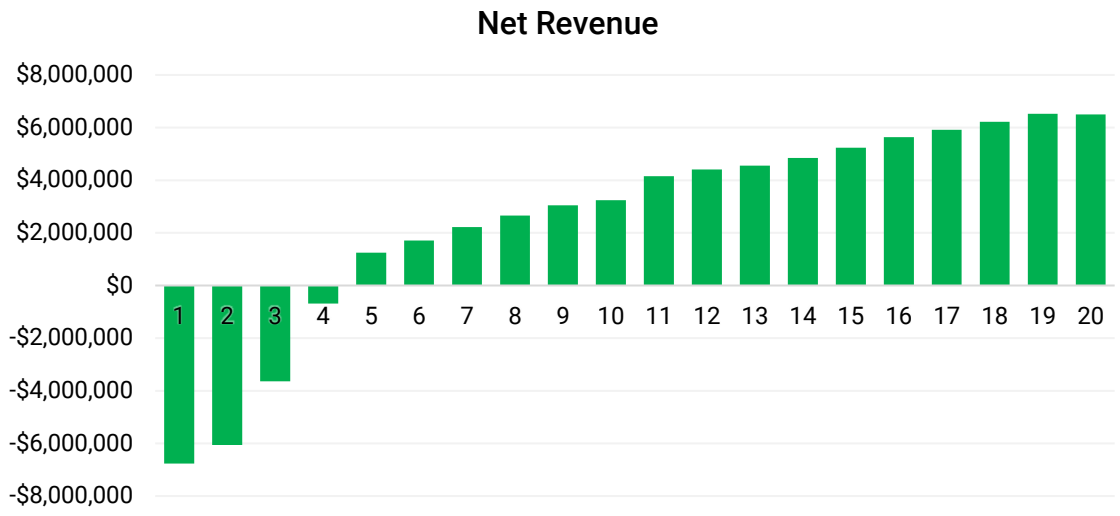
The capital spending timeline will focus on the sales and profitability objectives scenario breakdown and can also be seen graphically in the capital spending timeline chart – our base case for the project. The only items of focus are network construction, network headend and equipment, and fiber drops and premises connections.

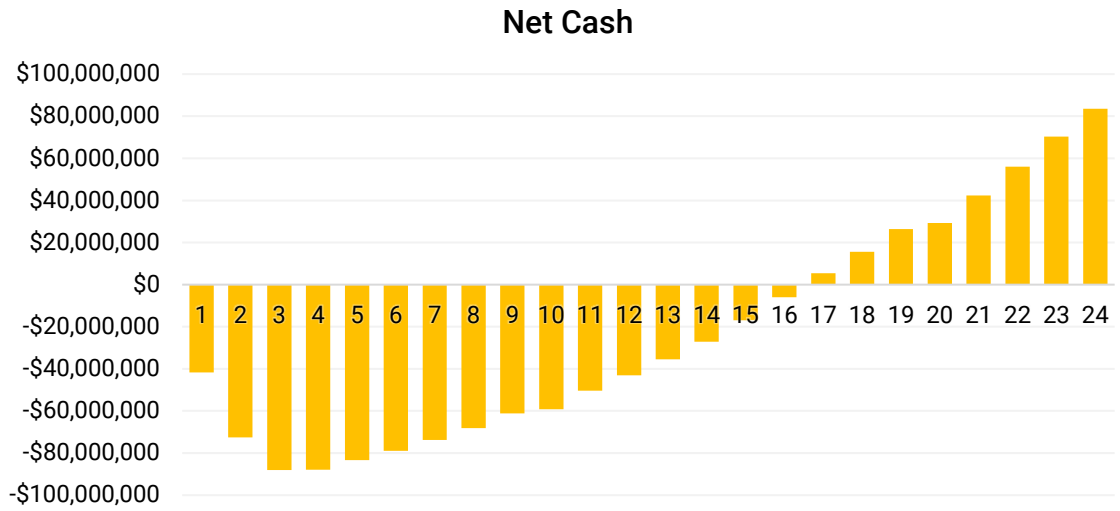
Timeline	
Year 1	Construction expenses, material acquisition, and the construction of the facility will be the focus during the first year. • Network Construction: $24.0 M • Network Headend and Equipment: $3.3 M • Fiber Drops and Premises Connections: $1.1 M
Year 2	Construction expenses, material acquisition, and finishing construction of the facility will also be the focus during the second year. Fiber-to-the-premise installs are less expensive this year than in the future, due to the network still under construction. • Network Construction: $19.4 M • Fiber Drops and Premises Connections: $2.7 M
Years 3-5	With the majority of the network mostly deployed, fiber-to-the-premise installs and maintaining customer approval and loyalty will be the focus. • Network Construction: $8.9 M • Fiber Drops and Premises Connections: $9.8 M
Years 5+	Once the network is completely built out and the initial customers are connected, the project will enter into the operations phase. Expenses during this phase will be primarily from staffing, maintenance and upkeep, and marketing and customer service activities. Capital investments to replace the network headend and electronic equipment will also be a major expense expected in year 10 and 20, with other smaller capital replacement costs spread out throughout the lifetime of the network.



Attachment C

Revenue





Attachment C

Pro Forma

The assumptions and key facts listed are the assumptions that will be used in the Pro Forma as seen in Appendix.

Assumptions and Key Facts	
Total Premises	• Residential Premises: 32,097 • Business Premises: 4,600
Take Rate	• Residential Internet: 42% • Business Internet: 27% • Wi-Fi Access Equipment Rental: 75%
Borrowing Assumption	$93 M Total 20 Year Electric Utility Revenue Bond • Capitalized interest only for the first three years • $65.1 M as Tax-Exempt at 3.85% • $27.9 M as Taxable at 5.05%
Inflation Adjustment	3.50%
Operating Reserves	15% of Operating Expenses
1% for Arts	1% of Capital Construction Expenses (Estimated $1 M in Arts in Public Places Program over 20 years)
Payment-in-lieu-of-Taxes (PILT)	7% of Revenue (Estimated over $25 M in PILT to General Fund over 20 years)
Building Lease	7,000 sq. ft. building at $17.50 per square foot with 3.0% inflation
Growth from New Development	Growth rate consistent with other utilities
Service Rate Increase	2.0% per Year
Network Construction	$52.4 M
Drop Cost	$832 per Drop
Staffing	33 full-time, benefited employees (FTE) (In addition to current LWP staff's percentage allocation to the broadband utility)

Attachment C

Glossary

BDP - Business and Development Programs
CAFR - Comprehensive Annual Financial Report
CAMU - Colorado Association of Municipal Utilities
DOCSIS - Data over Cable Service Interface Specification
DSL - Digital Subscriber Line
FCC - Federal Communications Commission
FTE - Full Time Employee
FTTP - Fiber-to-the-Premise
Gbps - Gigabits per second
G-PON - Gigabit Passive Optical Network
HFC - Hybrid Fiber-Coaxial
IEEE - Institute of Electronics and Electrical Engineers
IoT - Internet of Things
ISP - Internet Service Provider
LCAB - Loveland Communications Advisory Board
Mbps - Megabits per second
MDU - Multi-Dwelling Unit
MTU - Multi-Tenant Unit
NG-PON2 - Next Generation Passive Optical Network 2
OLT - Optical Line Terminal
ONT - Optical Network Terminal
Platte River - Platte River Power Authority
PON - Passive Optical Network
RFP - Request for Proposal
SB 152 - Senate Bill 152
SCADA - Supervisory Control over Data Acquisition
SLA - Service Level Agreement

LOVELAND WATER AND POWER
BROADBAND
FINANCIAL FORECAST
2019 - 2048

	BUDGET 2019	Projected 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024	Projected 2025	Projected 2026	Projected 2027	Projected 2028	Projected 2029	Projected 2030	Projected 2031	Projected 2032	Projected 2033	Projected 2034	Projected 2035	Projected 2036	Projected 2037
BEG'G WORKING CASH BALANCE:	**$0**	**$58,020,612**	**$28,298,807**	**$10,418,806**	**$6,002,952**	**$5,500,120**	**$6,206,857**	**$7,503,413**	**$9,208,111**	**$12,269,192**	**$10,140,857**	**$14,150,965**	**$17,088,483**	**$20,208,669**	**$23,801,717**	**$29,072,067**	**$34,762,619**	**$40,740,757**	**$45,412,020**
REVENUES & SOURCES:																			
Service - Residential	194,898	1,563,964	4,666,098	8,123,836	11,189,531	12,041,085	12,576,727	13,038,591	13,509,575	13,987,663	14,333,025	14,683,997	15,039,706	15,395,664	15,757,740	16,124,786	16,492,022	16,865,019	17,237,912
Service - Business	57,993	481,216	1,456,535	2,551,692	3,530,417	3,822,969	4,000,019	4,152,980	4,292,231	4,427,210	4,550,987	4,670,356	4,771,688	4,875,455	5,006,611	5,134,488	5,238,233	5,355,769	5,469,722
Service Anchor Institutions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Installation - Residential	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Installation - Business	6,930	26,962	39,552	41,604	21,968	5,246	2,676	2,729	1,392	2,839	2,896	2,954	1,507	3,073	3,135	3,198	1,631	3,327	1,697
Installation - Anchor Institutions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Integrated WIFI - Residential	23,520	185,130	541,485	924,255	1,248,075	1,316,745	1,348,335	1,370,430	1,392,030	1,413,045	1,433,565	1,454,085	1,474,605	1,494,540	1,514,565	1,534,500	1,553,940	1,573,380	1,592,235
Integrated WIFI - Business	700	5,520	16,350	28,065	38,110	40,440	41,490	42,210	42,735	43,290	44,010	44,730	45,255	45,810	46,530	47,250	47,775	48,330	48,855
Integrated WIFI - Anchor Institutions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fiber Leases	100,000	102,000	104,040	106,121	108,243	110,408	112,616	114,869	117,166	119,509	121,899	124,337	126,824	129,361	131,948	134,587	137,279	140,024	142,825
Source - Interest on Investments	1,525,371	824,237	283,781	157,819	149,809	198,283	253,739	328,544	449,161	380,648	531,172	641,435	758,554	893,423	1,091,252	1,304,853	1,529,249	1,704,590	1,890,279
Source - Bonds Issued	93,000,000																		
TOTAL REVENUES	**$94,909,413**	**$3,189,029**	**$7,107,840**	**$11,933,392**	**$16,286,153**	**$17,535,176**	**$18,335,602**	**$19,050,353**	**$19,804,290**	**$20,374,205**	**$21,017,555**	**$21,621,894**	**$22,218,139**	**$22,837,327**	**$23,551,781**	**$24,283,661**	**$25,000,128**	**$25,690,438**	**$26,383,525**
OPERATING EXPENSES:																			
Wholesale Costs	14,098	95,373	276,260	481,101	672,307	734,400	777,850	819,004	860,687	900,969	949,023	995,859	1,045,397	1,095,476	1,149,612	1,206,596	1,264,104	1,322,888	1,386,383
Distribution	1,320,289	2,041,124	2,844,600	2,550,141	2,742,375	2,836,663	2,952,505	3,053,152	3,192,174	3,317,471	3,471,164	3,611,822	3,801,805	3,911,447	4,044,634	4,151,937	4,302,648	4,426,664	4,577,645
Customer Relations	556,150	1,114,026	1,359,818	1,386,996	1,452,745	1,496,961	1,532,426	1,562,773	1,637,356	1,687,204	1,726,982	1,760,861	1,845,473	1,901,672	1,946,286	1,984,098	2,080,097	2,143,458	2,193,490
Admin	799,226	816,485	835,903	861,727	898,680	922,263	944,106	973,286	1,015,224	1,041,805	1,066,374	1,099,349	1,146,948	1,176,909	1,204,546	1,241,811	1,295,840	1,329,612	1,360,698
Workers Comp & Gen'l Liability	275,000	284,625	294,587	304,897	315,569	326,614	338,045	349,877	362,122	374,797	387,915	401,492	415,544	430,088	445,141	460,721	476,846	493,536	510,810
1% for Arts Transfer	284,861	221,334	128,090	39,642	21,044	13,352	12,540	12,892	3,290	57,210	3,480	15,683	16,135	16,679	3,908	3,940	3,970	20,265	20,765
Payment in-lieu-of taxes PILT	26,883	165,535	477,684	824,290	1,129,544	1,213,582	1,265,730	1,310,527	1,354,859	1,399,549	1,434,047	1,468,632	1,502,171	1,536,073	1,572,237	1,608,517	1,642,962	1,679,009	1,714,527
Services rendered-other depts.	200,000	207,000	214,245	221,744	229,505	237,537	245,851	254,456	263,362	272,579	282,120	291,994	302,214	312,791	323,739	335,070	346,797	358,935	371,498
Building Lease	122,500	126,175	129,960	133,859	137,875	142,011	146,271	150,660	155,179	159,835	164,630	169,569	174,656	179,895	185,292	190,851	196,577	202,474	208,548
Debt Service - Internal Loan Power	67,500	75,000	70,000	67,500	70,000	555,000	555,000	555,000	555,000	555,000	555,000	0	0	0	0	0	0	0	0
Debt Issuance Cost	1,000,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Debt Service	1,957,650	3,999,123	3,999,123	5,504,662	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200
TOTAL OPERATING EXP'S (excl depn)	**$6,624,156**	**$9,145,800**	**$10,630,270**	**$12,376,558**	**$14,679,844**	**$15,488,584**	**$15,780,524**	**$16,051,826**	**$16,409,453**	**$16,776,619**	**$16,495,935**	**$16,825,462**	**$17,260,543**	**$17,571,231**	**$17,885,594**	**$18,193,740**	**$18,620,040**	**$18,987,041**	**$19,354,563**
NET OPERAT'G REV/(LOSS) (excl depn)	**$88,285,256**	**($5,956,771)**	**($3,522,429)**	**($443,166)**	**$1,606,309**	**$2,046,592**	**$2,555,078**	**$2,998,527**	**$3,394,838**	**$3,597,586**	**$4,521,620**	**$4,796,432**	**$4,957,596**	**$5,266,096**	**$5,666,187**	**$6,089,921**	**$6,380,088**	**$6,703,397**	**$7,028,961**
CAPITAL EXPENDITURES	30,264,644	23,765,034	14,357,572	3,972,687	2,109,141	1,339,855	1,258,522	1,293,830	333,756	5,725,920	511,512	1,858,913	1,837,411	1,673,048	395,836	399,369	401,951	2,032,134	2,081,999
NET CHANGE IN WRK'G CASH BAL	$58,020,612	($29,721,805)	($17,880,001)	($4,415,854)	($502,832)	$706,737	$1,296,556	$1,704,698	$3,061,081	($2,128,335)	$4,010,108	$2,937,519	$3,120,185	$3,593,048	$5,270,351	$5,690,552	$5,978,138	$4,671,263	$4,946,962
(Net Oper Rev/(Loss) less Cap Exp)																			
ENDING WORKING CASH BALANCE	**$58,020,612**	**$28,298,807**	**$10,418,806**	**$6,002,952**	**$5,500,120**	**$6,206,857**	**$7,503,413**	**$9,208,111**	**$12,269,192**	**$10,140,857**	**$14,150,965**	**$17,088,483**	**$20,208,669**	**$23,801,717**	**$29,072,067**	**$34,762,619**	**$40,740,757**	**$45,412,020**	**$50,358,982**
Operating Reserve (15% of Operating Exp)	$993,623	$1,371,870	$1,594,540	$1,856,484	$2,201,977	$2,323,288	$2,367,079	$2,407,774	$2,461,418	$2,516,493	$2,474,390	$2,523,819	$2,589,081	$2,635,685	$2,682,839	$2,729,061	$2,793,006	$2,848,056	$2,903,185
Stabilization Reserve		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fav/(Unfav) to Desired Balance	$57,026,988	$26,926,937	$8,824,265	$4,146,469	$3,298,144	$3,883,569	$5,136,334	$6,800,337	$9,807,774	$7,624,364	$11,676,575	$14,564,664	$17,619,587	$21,166,032	$26,389,228	$32,033,558	$37,947,751	$42,563,964	$47,455,797
Loan Balance	94,957,650	94,957,650	94,957,650	93,452,112	90,378,109	87,175,580	83,839,063	80,362,859	76,741,025	72,967,356	69,035,381	64,938,349	60,669,214	56,220,623	51,584,907	46,754,060	41,719,728	36,473,194	31,005,359

A	Growth from New Development - Res & Bus	2.22%	1.43%	2.07%	2.84%	1.73%	1.69%	1.66%	1.62%	1.57%	1.47%	1.44%	1.41%	1.38%	1.35%	1.32%	1.29%	1.26%	1.23%	1.21%
B	Residential Take Rate		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	Residential Churn Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
D	Service Rate Increase - Residential		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Service Rate Increase - Business		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Service Rate Increase - Anchor Institutions		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Installation Rate Increase Business		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Installation Rate Increase Anchor Institutions		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Integrated WIFI Rate Increase - Residential		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	WIFI Take Rate - Residential	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%
	Fiber Lease Increase		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
E	Interest on Investments	2.70%	3.00%	2.80%	2.70%	2.80%	3.30%	3.50%	3.70%	3.80%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%
F	Payment in Lieu of Taxes (PILT)	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
G	General Inflation Rate	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%

LOVELAND WATER AND POWER
BROADBAND
FINANCIAL FORECAST
2019 - 2048

	Projected 2038	Projected 2039	Projected 2040	Projected 2041	Projected 2042	Projected 2043	Projected 2044	Projected 2045	Projected 2046	Projected 2047	Projected 2048
BEG'G WORKING CASH BALANCE:	**$50,358,982**	**$47,620,304**	**$54,368,557**	**$61,313,287**	**$68,766,665**	**$74,954,138**	**$88,614,293**	**$102,834,865**	**$119,914,867**	**$137,812,243**	**$156,313,974**
REVENUES & SOURCES:											
Service - Residential	17,616,947	18,001,397	18,399,978	18,808,744	19,224,692	19,646,307	20,068,358	20,497,394	20,918,465	21,340,768	21,768,587
Service - Business	5,589,116	5,718,166	5,838,794	5,969,618	6,108,028	6,227,394	6,358,833	6,517,207	6,639,895	6,774,165	6,911,033
Service Anchor Institutions	0	0	0	0	0	0	0	0	0	0	0
Installation - Residential	0	0	0	0	0	0	0	0	0	0	0
Installation - Business	3,461	3,530	1,800	3,673	3,746	1,911	3,897	3,975	2,027	4,136	2,109
Installation - Anchor Institutions	0	0	0	0	0	0	0	0	0	0	0
Integrated WIFI - Residential	1,611,180	1,630,035	1,649,565	1,669,500	1,689,525	1,709,460	1,728,900	1,748,340	1,766,610	1,784,475	1,802,250
Integrated WIFI - Business	49,410	50,130	50,655	51,210	51,930	52,455	53,010	53,730	54,255	54,810	55,335
Integrated WIFI - Anchor Institutions	0	0	0	0	0	0	0	0	0	0	0
Fiber Leases	145,681	148,595	151,567	154,598	157,690	160,844	164,061	167,342	170,689	174,102	177,584
Source - Interest on Investments	1,787,480	2,040,783	2,301,461	2,581,232	2,813,485	3,326,234	3,860,019	4,501,136	5,172,933	5,867,416	6,170,362
Source - Bonds Issued											
TOTAL REVENUES	**$26,803,275**	**$27,592,637**	**$28,393,820**	**$29,238,575**	**$30,049,097**	**$31,124,604**	**$32,237,077**	**$33,489,124**	**$34,724,874**	**$35,999,872**	**$36,887,261**
OPERATING EXPENSES:											
Wholesale Costs	1,451,830	1,518,300	1,591,191	1,664,296	1,743,990	1,824,466	1,909,360	2,000,107	2,091,054	2,186,559	2,284,538
Distribution	4,698,868	4,869,845	5,010,130	5,181,297	5,318,253	5,512,240	5,670,939	5,865,008	6,019,749	6,239,861	6,419,405
Customer Relations	2,235,683	2,344,611	2,416,048	2,472,153	2,519,223	2,642,831	2,723,377	2,786,286	2,838,783	2,979,064	3,069,882
Admin	1,402,814	1,464,148	1,502,216	1,537,182	1,584,784	1,654,416	1,697,329	1,736,657	1,790,463	1,869,524	1,917,899
Workers Comp & Gen'l Liability	528,688	547,192	566,344	586,166	606,682	627,915	649,892	672,639	696,181	720,547	745,766
1% for Arts Transfer	97,600	4,479	4,726	4,876	24,581	25,193	26,183	5,540	5,331	5,773	112,789
Payment in-lieu-of taxes PILT	1,751,106	1,788,630	1,826,465	1,866,014	1,906,493	1,945,886	1,986,394	2,029,159	2,068,636	2,109,272	2,150,183
Services rendered-other depts.	384,500	397,958	411,886	426,302	441,223	456,666	472,649	489,192	506,313	524,034	542,376
Building Lease	214,804	221,249	227,886	234,723	241,764	249,017	256,488	264,182	272,108	280,271	288,679
Debt Service - Internal Loan Power	0										
Debt Issuance Cost	0	0	0	0	0	0	0	0	0	0	0
Debt Service	7,010,200	7,010,200	7,010,200	7,010,200	7,010,200	0	0	0	0	0	0
TOTAL OPERATING EXP'S (excl depn)	**$19,776,093**	**$20,166,611**	**$20,567,092**	**$20,983,208**	**$21,397,192**	**$14,938,630**	**$15,392,610**	**$15,848,769**	**$16,288,617**	**$16,914,906**	**$17,531,518**
NET OPERAT'G REV/(LOSS) (excl depn)	**$7,027,182**	**$7,426,026**	**$7,826,728**	**$8,255,367**	**$8,651,905**	**$16,185,974**	**$16,844,467**	**$17,640,355**	**$18,436,257**	**$19,084,966**	**$19,355,743**
CAPITAL EXPENDITURES	9,765,860	677,773	881,998	801,990	2,464,431	2,525,819	2,623,895	560,352	538,881	583,235	11,284,945
NET CHANGE IN WRK'G CASH BAL	($2,738,678)	$6,748,253	$6,944,730	$7,453,377	$6,187,474	$13,660,155	$14,220,571	$17,080,002	$17,897,376	$18,501,731	$8,070,798
(Net Oper Rev/(Loss) less Cap Exp)											
ENDING WORKING CASH BALANCE	**$47,620,304**	**$54,368,557**	**$61,313,287**	**$68,766,665**	**$74,954,138**	**$88,614,293**	**$102,834,865**	**$119,914,867**	**$137,812,243**	**$156,313,974**	**$164,384,773**
Operating Reserve (15% of Operating Exp)	$2,966,414	$3,024,992	$3,085,064	$3,147,481	$3,209,579	$2,240,794	$2,308,892	$2,377,315	$2,443,293	$2,537,236	$2,629,728
Stabilization Reserve	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fav/(Unfav) to Desired Balance	$44,653,890	$51,343,566	$58,228,223	$65,619,183	$71,744,559	$86,373,499	$100,525,973	$117,537,552	$135,368,950	$153,776,738	$161,755,045
Loan Balance	25,306,729	19,367,393	13,177,008	6,724,779	(563)	-	-	-	-	-	-

A	Growth from New Development - Res & Bus	1.19%	1.16%	1.19%	1.21%	1.19%	1.16%	1.14%	1.12%	1.00%	1.00%	1.00%
B	Residential Take Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
C	Residential Churn Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
D	Service Rate Increase - Residential	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Service Rate Increase - Business	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	Service Rate Increase - Anchor Institutions	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Installation Rate Increase Business	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Installation Rate Increase Anchor Institutions	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Integrated WIFI Rate Increase - Residential	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	WIFI Take Rate - Residential	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%	75.00%
	Fiber Lease Increase	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
E	Interest on Investments	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%
F	Payment in Lieu of Taxes (PILT)	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
G	General Inflation Rate	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%

AGENDA ITEM:	2
MEETING DATE:	10/3/2018
SUBMITTED BY:	Joe Bernosky
STAFF TITLE:	Director

ITEM TITLE:

Commission & Council Report

SUMMARY:

Discuss events that the Loveland Communications Advisory Board Liaisons attended, special topics and any City Council items related to the Broadband Project from the past month.

- City Council Report – Verbal

RECOMMENDATION:

Commission/Council report only.

AGENDA ITEM:	3
MEETING DATE:	10/3/2018
SUBMITTED BY:	Joe Bernosky
STAFF TITLE:	Director

ITEM TITLE:
Director's Report

SUMMARY:

Discuss events that the Director attended, special topics and items directly related to the Broadband Project from the past month.

- Director Report – Verbal

RECOMMENDATION:
Director's report only.