STUDY SESSION MEMORANDUM

TO:	Mayor and Members of City Council
FROM:	Jane S. Brautigam, City Manager
	Tanya Ange, Deputy City Manager
	Julia Richman, Interim Chief Information Officer
	Carl Castillo, Policy Advisor
	Bob Eichem, Chief Financial Advisor
	Bob Harberg, Project Manager/Principal Engineer – Utilities
	Paul Williams, Network Planner
	Sarah Huntley, Engagement Manager
	Chris Meschuk, Assistant City Manager
DATE:	Jan 9, 2018
SUBJECT:	Study Session on Boulder's Broadband Initiative

EXECUTIVE SUMMARY

The purpose of this study session is to check in on the next phase of work for the community broadband initiative, working toward consideration of a potential ballot item in November 2018.

The project is entering a new phase, building upon two years of research and analysis. The completed work includes: a community survey and needs assessment; the creation of guiding principles through a working group process; consultant analysis of costs and partnership potential; discussions with, and vetting of, possible private partners; and consultation with and solicitation of direction from city council.

Specifically, staff is seeking feedback from council members on:
- Minor revisions to the project purpose and objectives,
- Project scope and timing to consider a potential 2018 ballot item, and
- A draft plan outlining potential community engagement approaches.

Based on feedback from council, staff intends to begin the detailed analysis of the options, working group formation and community engagement in early January. A preliminary analysis of the options will be presented to council on March 6.

QUESTIONS FOR COUNCIL
The following questions are included to guide the discussion. Does council have any questions or feedback about the:
1. Revisions to the project purpose, vision and objectives?
2. Project scope and phasing in order to consider a 2018 ballot item?
3. Draft community engagement plan?

BACKGROUND
In November 2014, the community approved a ballot measure (Item 2C) exempting the city from state limitations on telecommunication services. This measure established city autonomy to invest in community broadband services, which had previously been limited by Colorado Senate Bill 05-152. Without a voter-approved exemption, this law significantly restricts the ability of municipal governments to provide broadband services, either independently or in partnership with private entities. The passage of Item 2C opens exciting new opportunities to explore alternative broadband initiatives that would leverage and expand the community's telecommunication resources.

Given Boulder's tech-savvy demographic, community readiness for next-generation services, and publicly available fiber optic infrastructure, the community could benefit from more economical, higher-capacity broadband services. The related efforts to provide free Wi-Fi in certain city parks and to explore and implement community broadband are called "Connect Boulder."

The city is now actively studying how to serve the broadband needs of the community through construction of a citywide fiber-to-the-premises network, including leveraging its existing citywide fiber optic and conduit infrastructure where feasible.

A Broadband Working Group composed of community representatives was established in 2015 and continued to meet until early in 2017. The group demonstrated a key advisory role for the project in:
- Assessing needs, contributing ideas and helping guide the initial vision for Boulder's broadband efforts.
- Advising on the work of the city's consulting partner to assist in developing a comprehensive broadband action plan.
- Advising city staff on the analysis and options for a city-wide fiber network.

A formal, consultant-assisted broadband feasibility study was presented to council in a study session on July 12, 2016. In addition to outlining alternative public-private partnership options and cost scenarios in July 2016, council directed staff to enter into more detailed discussions with three private firms (whose responses to a request for information (RFI) were deemed worthy of further negotiation and analysis), as well as a fourth local company, Zayo, that had, subsequent to the RFI, demonstrated significant interest in a partnership.

In providing support for these continued talks, council identified specific policy objectives (based on recommendations from the working group) including: a ubiquitous

buildout, competitive access to the network, opportunities to provide high-speed access to those with limited financial resources, and protections against the sale of the network to existing incumbents. In doing so, however, council asked staff to continue to retain and explore the option of a network buildout fully funded by the city. Depending on alternative construction scenarios, a ubiquitous, city-funded fiber build was estimated at that time to cost between $100 million to $140 million. Cost estimates are currently being refined as part of the technical analysis described in the Project Scope and Phasing section of this memo. A new revenue source would be needed if a public build out option is chosen.

On April 18, 2017, a public hearing was held to consider recommendations about how best to proceed. In the weeks leading up to the April council meeting, one company, Axia FibreNet, was showing particular promise given its unique open access business model and its willingness to offer various levels of fiber infrastructure and related services to other private Internet firms. Its proposed retail pricing for gigabit service was also attractive.

Just a few days after the April 18 public hearing on broadband, however, staff received surprising word from Axia that its parent company – The Partners Group – had decided to pull back from negotiations with communities that had been considering a partnership. Concerns over the economic sustainability of Axia's open access model appear to have been a major consideration.

This change – along with an assessment that additional analysis was needed – led staff in May 2017 to recommend against pursuing a ballot issue in the election that was then just several months away. Council agreed.

Since the passage of 2C in 2014, the city has been completing small projects that have had a positive impact on public spaces. In April 2015, the first such project – an outdoor public Wi-Fi network called "Connect Boulder" – began service in the downtown Civic Area. In addition, free outdoor Wi-Fi went live in highly-used areas around Scott Carpenter Park and the Boulder Reservoir in April 2017. These and related projects would not have been possible without the exemption vote.

ANALYSIS

Project Purpose & Objectives

During the July 2016 Study Session, a proposed project purpose and objectives were presented. Below are some minor updates to the purpose, vision and objectives to reflect the social aspects of a broadband network, that a robust communications network is needed as a basic infrastructure for the future of the community, and to update the objectives with more understandable terms and a stronger emphasis on net neutrality. Staff is seeking feedback from the council on the project purpose, vision and guiding principles.

Purpose Statement – Why are we doing this project?
In November 2014, the community approved a ballot measure (Item 2C) exempting the city from state limitations on telecommunication services. The passage of this measure established city autonomy to invest in community broadband services.

The city believes a citywide broadband network is beneficial, from both business and social equity perspectives.

- Boulder is a tech-savvy community with a diverse local economy. The business community has provided feedback that limitations and cost barriers to high-speed Internet are causing difficulty attracting and retaining the types of businesses that maintain and strengthen the local economy.
- Boulder is a socially and politically conscious community. Access to high-speed broadband services, at an affordable rate, is becoming increasingly more important in breaking down barriers and helping all community members succeed in today's world.
- An open network with equity and inclusion is essential. A broadband fiber network is necessary to support the future of digital communications of smart cities, including utility communications, traffic management including autonomous vehicles, etc. Having a fiber broadband network throughout the city will help position Boulder for the future as one of the core services needed in our community.

Vision & Guiding Principles for this project
The city's vision is to provide a world-class community telecommunications infrastructure to Boulder for the 21st century and beyond, facilitated by new access to the public's local telecommunications assets. This recognizes that broadband connectivity is a critical service for quality of life, as is the case with roads, water, sewer, and electricity. Every home, business, non-profit organization, government entity and place of education should have the opportunity to connect affordably, easily and securely. Boulder's broadband service will be shaped by the values of the community.

The City of Boulder is considering the development of a fiber broadband network throughout the community. To guide the work, the following guiding principles were developed by the broadband working group, and endorsed by the council in July 2016. Additional refinements and additions have been included as the project has evolved to include:
1. **Citywide access to broadband:** The solution will provide the infrastructure to enable every Boulder home, business, visitor, and public or private institution the opportunity to access affordable high-speed broadband connections to the Internet and other networks.
2. **Equitable and Inclusive:** The solution should be equitable and inclusive to all in the community.
3. **Future-oriented infrastructure:** The solution should meet the community's long-term needs for residential and business broadband, as well as 4G wireless network densification, future 5G wireless technologies, Internet of Things, Smart City, autonomous and connected vehicles, and other innovations.

4. **Open access to the broadband network:** The solution will result in a non-discriminatory, open-access infrastructure that should, to the maximum extent possible, be open to all users, service providers, content providers and application providers, and be usable via all standard commercial devices.
5. **A competitive marketplace:** The solution will facilitate a local broadband marketplace that is as competitive as reasonably possible.
6. **Unfettered Access:** The network will deliver a "net-neutral" competitive unfettered data offering that does not impose caps or usage limits on one use of data over another (i.e., does not limit streaming or charge rates based on type of use). All application providers (data, voice, video, cloud services) are equally able to provide their services, and consumers' access to advanced data opens up the marketplace.

Key Questions to be answered as a part of this project

1. Should the city take steps to build out its fiber capacity to encourage next-generation broadband capabilities?

   If yes, which model should it pursue:
   A. A public/private partnership with shared risk, financial responsibilities and benefits; or
   B. A public build-out, which could result in higher costs but also clear ownership and control?
2. And if yes, how should the effort be funded?

> Question for council:
>
> Does council have any questions or feedback regarding the proposed revisions to the project purpose and objectives?

Project Scope and Phasing

Project Scope
This project includes the following items within the project scope:
1. Exploration of development of infrastructure for a broadband fiber network, with options ranging from private to public funding and ownership, including public/private partnerships.
2. Identification and analysis of financing options and approaches to pay for the development of infrastructure for a broadband fiber network.

The project scope assumes that at least at the outset the city will not be an Internet service provider, regardless of the outcome of the infrastructure funding and ownership decision. This would not preclude, however, the option for the city to become an Internet service provider in the future if conditions were to change to make that advisable.

Project Phasing
The project has four main phases:

Phase 1: Technical Analysis
October 2017 – January 2018
Purpose: Refine network analysis, develop backbone design, refine alternative cost estimates.
Outcomes: Technical, policy and financial analysis memo from CTC.
Anticipated Decision: None

Phase 2: Options Analysis & Partner Engagement
January – February 2018
Purpose: Reconfirm project purpose, scope, objectives; develop and analyze options.
Outcomes: Council feedback on project purpose and goals; matrix and narrative analysis of options, exploration of current partner options through issuance of a request for information/proposals (RFI/RFP).
Anticipated Decision: Staff and council (informed by feedback from the community, as called for by the engagement plan) will identify preferred option(s) for further analysis to highlight along with presentation of other options.

City Council Study Session: Jan 9
> Anticipated Decision/Direction: Council feedback will inform next phase

City Council Meeting: March 6
> Anticipated Decision/Direction: Council feedback will inform next phase

Phase 3: Options refinement and preferred option selection
March – June 2018
Purpose: Refinement of options, analysis and selection of a preferred option.
Outcomes: Refined analysis, decision on an option and whether to proceed to ballot.
Anticipated Decision: Staff (informed by feedback from, or perhaps with, the community, as called for by the engagement plan) will make a recommendation on whether council should proceed to ballot and with what option(s)

City Council Public Hearing: June 19
> Anticipated Decision/Direction: Council will decide whether to proceed to ballot

Phase 4: Ballot Item preparation (if decision to proceed)
July – September 2018
Purpose: Prepare preferred option for 2018 ballot.
Outcome: decision by Boulder voters to proceed with option
Anticipated Decision: Council will decide whether to adopt ballot language with the following critical dates:
> Aug. 7 – 1st Reading
> Aug. 21 – 2nd Reading
> Sept. 4 – 3rd Reading (if needed)
> Nov 6, 2018 – Election Day

Question for council:

Does council have any questions or feedback regarding the proposed project scope and phasing in order to consider a 2018 ballot item?

Engagement Plan

The community broadband initiative is one that could benefit significantly from more outreach to the Boulder community, both residents and businesses. The project was identified as a pilot project to implement the city's engagement framework.

The engagement for this phase of the project will utilize various levels of engagement along the city's engagement spectrum, including *Inform, Consult* and *Involve*. A summary of potential engagement techniques is included below. The entire draft engagement plan for this project can be found in **Attachment A**. The engagement plan includes:
- Background
- Decision to be made
- Who will be impacted by the decision and the anticipated interest area
- Overall engagement objectives
- Proposed engagement level and tactics by phase
- Budget and staff resources needed

Phase 2: Options Analysis & Partner Engagement (Inform, Consult, Involve)
Inform Techniques:
- Updated website with clear and easy-to-navigate information about project
- Update brochure on project and distribute in public spaces around town; translate into Spanish and provide a hotline number for Spanish speakers who have questions
- Leverage existing email list of interested community members and send out a monthly "What's happening" update
- Host and publicize February informational session to answer preliminary questions, tell people where the project has been and where it is going

Consult Techniques:
- Leverage citywide digital engagement platform (once it goes online, likely in mid- to late February) to collect concerns and aspirations about community broadband (short polls, stories about how Internet access helped solve a problem or change someone's life, feedback about current services offered by private companies)

- Reach out to ambassadors of various demographic groups (utilizing schools and social service/housing partners/mobile home park liaisons), seniors (via Senior Services and perhaps CareConnect partners) and the Latinx population (through the Human Relations Commission and others) to ask them to help us facilitate in-person interviews and survey options to assess current barriers and needs/aspirations related to this project

Involve Techniques:
- Create a working group of eight to 15 individuals with a diverse mix of interests and technical backgrounds to explore challenges and propose solutions about both the public build and the public-private partnership models
- Work with the Chamber for assistance in updating and understanding the distinct needs of businesses in Boulder (might include webinar or telephone town hall)

Phase 3: Options refinement and preferred option selection (Inform, Consult, Involve)
Inform Techniques:
- Continue to update the website and provide monthly e-mail updates primarily pushing out survey information and materials prepared for council deliberation (in digestible and easy to understand formats)
- Social media and/or engagement platform updates
- Provide an update to local media

Consult Techniques:
- Execution of two surveys: one statistically valid (by phone or mail) and one online
- Creation of a summary report of findings based on inclusivity research

Involve Techniques:
- Working group produces a problems and potential solutions report for each of the base options
- Summary report of business interest and needs

Phase 4: Ballot Item preparation (if decision to proceed) (Inform and Consult)
Inform Techniques:
- Creation of informational guide that focus on what council is asking, why, costs, what other options were considered, etc.
- Continue to update the website and provide monthly e-mail updates primarily pushing out survey information and materials prepared for council deliberation (in digestible and easy to understand formats)
- Social media and/or engagement platform updates

> Question for council:
>
> Does council have any questions or feedback regarding the proposed project engagement plan?

NEXT STEPS

Based on the feedback from city council, staff intends to begin the detailed analysis of the options, working group formation, and community engagement.

A preliminary analysis of the options will be presented to the council on March 6.

ATTACHMENTS

    A – Broadband Engagement Plan

Engagement Plan for 2018 Community Broadband Decision-Making Process

Background

In November 2014, the community approved a ballot measure (Item 2C) exempting the city from state limitations on telecommunication services. The passage of this measure established city autonomy to invest in community broadband services.

The city has previously framed this work as beneficial, from business, educational and social equity perspectives.

Boulder is a tech-savvy community with a diverse local economy. There are several categories of businesses that rely upon next-generation Internet capabilities, including innovators and entrepreneurs, research labs, data centers, a university and many small work-from-home enterprises. While some larger businesses have been able to create special arrangements or construct work-arounds to obtain higher-capacity broadband service, there are limits to what most mid- to small-sized businesses can purchase on the market. Options that do exist are often too costly. The business community has provided feedback that this is causing difficulty attracting and retaining the types of businesses that maintain and strengthen the local economy.

Boulder is a highly educated town, with a flagship university and federal labs. Faculty, staff and students at these institutions rely upon fast and convenient access to information and frequently have higher bandwidth and reliability needs than an average customer.

Boulder is also a socially and politically conscious community. Access to high-speed broadband services, at an affordable rate, is becoming increasingly more important in breaking down barriers and helping all community members succeed in today's world. While Boulder is perceived as affluent, there are community members who currently do not have access to the Internet or could be priced out without thoughtful creation of new options. Providing community broadband is one strategy, among others, for addressing what experts call the "digital divide."

Since the 2014 vote, the city has completed foundational work related to evaluating the community's broadband-related interests and needs, defining project objectives (through a working group process) and assessing the overall market landscape, while also identifying and vetting potential private partners. This work has been guided by survey results, a working group, some limited input from other community members and several conversations with city council.

Decision to be made

The following issue statement, or set of questions, has emerged:

Should the city take steps to build out its fiber capacity to encourage next-generation broadband capabilities?

If yes, which model should it pursue:

1. A public/private partnership with shared risk, financial responsibilities and benefits; or

2. A public build-out, which could result in higher costs but also clear ownership and control?

And if yes, how should the effort be funded?

Who will be impacted by decision/anticipated interest area

- **Boulder telecommunication service consumers** (residents, businesses, and users of free public Wi-Fi) seeking more cost-competitive, higher-speed, reliable and equitable access to broadband internet services.
- **Boulder City Council and city staff** who seek to design and implement a broadband model that meets the city's stated broadband vision and objectives, while responding to the public desires espoused in the November 2014 vote.
- **The City of Boulder organization,** which seeks to leverage better broadband services to support city operations more effectively, deliver enhanced public services, and empower new "smart city" technologies.
- **Under-represented groups** that may already feel left behind with current technology and market options with an interest in accessing new opportunities
- **Potential private partners** who seek to aid the city in the accomplishment of its goals while meeting their profitability objectives.
- **Telecommunication service incumbents** who wish to expand local market share and seek a model that does not utilize public resources to provide an inequitable competitive advantage to new local broadband market entrants.
- **Taxpayers and voters** who may have to decide whether they are willing to pay more in taxes or through the issuance of debt to cover the city's costs associated with the various broadband options.

Expected project timeline

Work related to this project from now until November 2018 is expected to occur in four phases with a few check-in points with City Council:

Phase 1: Technical Analysis – October through January 2018
Purpose: Refine network analysis, develop backbone design, refine cost estimates.
Outcomes: Technical, policy and financial analysis memo from CTC.
Anticipated Decision: None

City Council Update: Jan 9
Anticipated Decision/Direction: Council feedback will inform next phase

Phase 2: Options Analysis & Partner Engagement – January and February 2018
Purpose: Develop and analyze options
Outcomes: Matrix and narrative analysis of options, exploration of current partner options
Anticipated Decision: Staff (informed by feedback from, or perhaps with, the community, depending on engagement plan) will identify preferred option(s) to highlight along with presentation of other options

City Council Update: March 6
Anticipated Decision/Direction: Council feedback will inform next phase

Phase 3: Options refinement and preferred option selection - April through June 2018
Purpose: Refinement of options, analysis and selection of a preferred option.
Outcomes: Refined analysis, decision on an option and whether to proceed to ballot

Anticipated Decision: Staff (informed by feedback from, or perhaps with, the community, depending on engagement plan) will make a recommendation on whether council should proceed to ballot and with what option(s)

City Council Public Hearing: June 19
Anticipated Decision/Direction: Council will decide whether to proceed to ballot

Phase 4: Ballot Item preparation (if decision to proceed) - July through September 2018
Purpose: Prepare preferred option for 2018 ballot.
Outcome: Proposed ballot language for council consideration
Anticipated Decision: Council will decide whether to adopt ballot language with the following critical dates:
Aug. 7 – 1st Reading
Aug. 21 – 2nd Reading
Sept. 4 – 3rd Reading (if needed)

Nov. 6, 2018 – Election Day
Anticipated Decision/Direction: Voters will decide whether to approve or reject ballot item(s)

Overall engagement objectives

1. Raise awareness among all impacted individuals and groups about the project, the reasons the community may need enhanced broadband, the options that are being explored and the possibility of a voter decision in November.

2. Tap into technical and financing expertise that exists in our community and give highly interested community members a way to contribute to the analysis in a meaningful way

3. Reach audiences who may already be feeling the effects of the "digital divide" to collect information about the needs they have so that these can be incorporated into the analysis about the different approaches the city might take

4. Effectively assess public opinion about the different approaches and funding options to help council make an informed decision about what, if anything, to put on the ballot

5. Model the engagement framework approaches adopted by City Council on Nov. 21, 2017: specifically, the decision-making wheel; levels of engagement; inclusive participation; and more feedback about feedback.

Proposed engagement level and tactics by phase

Phase 2: Options Analysis & Partner Engagement – January and February 2018
Inform, Consult and Involve

Recommended potential techniques:

Inform (Communications support)

- Updated website with clear and easy-to-navigate information about project

- Utility bill corner blurb directing people to website
- Update brochure on project and distribute in public spaces around town; translate into Spanish and provide a hotline number for Spanish speakers who have questions
- Leverage existing mailing list of interested community members and send out a monthly "What's happening" update
- Explanatory article in February print edition newsletter
- Series of social media blurbs in "did you know" format, directing people to website
- Host and publicize February informational session to answer preliminary questions, tell people where the project has been and where it is going
- Provide an update to local media

Consult (Engagement support)

- Leverage citywide digital engagement platform (once it goes online, likely in mid- to late February) to collect concerns and aspirations about community broadband (short polls, stories about how Internet access helped solve a problem or change someone's life, feedback about current services offered by private companies)
- Reach out to ambassadors of various demographic groups (utilizing schools and social service/housing partners/mobile home park liaisons), seniors (via Senior Services and perhaps CareConnect partners) and the Latinx population (through the Human Relations Commission and others) to ask them to help us facilitate in-person interviews and survey options to assess current barriers and needs/aspirations related to this project
- Contract with a survey company to start preparing for statistically valid mail or phone survey during next phase

Involve (Engagement support)

- Create a working group of eight to 15 individuals with a diverse mix of interests and technical backgrounds to explore challenges and propose solutions about both the public build and the public-private partnership models
- Work with the Chamber for assistance in updating and understanding the distinct needs of businesses in Boulder (might include webinar or telephone town hall?)

Phase 3: Options refinement and preferred option selection - April through June 2018
Inform, Consult and Involve

Recommended potential techniques:

Inform (Communications support):

- Continue to update the website and provide monthly e-mail updates primarily pushing out survey information and materials prepared for council deliberation (in digestible and easy to understand formats)
- Social media and/or engagement platform updates
- Provide an update to local media

Consult (Engagement support with assistance from Communications in publicizing the survey, in developing key messages and editing summary report on inclusivity research)

- Execution of two surveys: one statistically valid (by phone or mail) and one online
- Creation of a summary report of findings based on inclusivity research

Involve (Engagement support)

- Working group produces a problems and potential solutions report for each of the base options
- Summary report of business interest and needs

Phase 4: Ballot Item preparation (if decision to proceed) - July through September 2018
Inform and Consult

Recommended potential techniques:

Inform (Communications support):

- Creation of informational guide that focus on what council is asking, why, costs, what other options were considered, etc.
- Continue to update the website and provide monthly e-mail updates primarily pushing out survey information and materials prepared for council deliberation (in digestible and easy to understand formats)
- Social media and/or engagement platform updates

Budget and staff resources

While some of this work can be accomplished in-house, there are several tasks they city would need to contract with others to complete. The figures provided are estimates.

1. Creation, execution, conclusions and reporting out of statistically valid survey - $20,000
2. Partnership with Chamber and possible webinar with business community - $10,000
3. Graphic design and printing of informational guide - $4,000

The project team would also need a smaller budget to pay for other basic printing costs (like the updated brochure) as well a room rental and light refreshments for the working group meetings and any public sessions. Estimated ($3,000).