

## City Broadband Working Group

March 19<sup>th</sup>, 2015

3:30-5:30 p.m., Westview Conference Room, 3065 Center Green Drive

### Attendees:

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- City
  - Carl Castillo, Policy Advisor
  - Liz Hanson, Economic Vitality Coordinator
  - Don Ingle, Director of IT
  - Myles Wallingford, Economic Vitality Intern
  - Francis Duffy, Infrastructure Services Manager
  - Paul Williams, Network Planner
  - Bob Harberg, Project Manager- Energy Strategy and Electric Utility Development
- Working Group:
  - Claire Carlin, Student, Boulder High School
  - Angelique Espinoza, Boulder Chamber of Commerce
  - Dale Hatfield, Silicon Flatirons Center
  - Ken Leiden, Boulder Resident
  - Christopher Meier, Student, CU School of Law
  - Andrew Moore, Boulder Valley School District (BVSD), CIO [Joining by telephone]
  - Tim O'Shea, Engage Colorado
  - Lee Shainis, Director, Intercambio

### Meeting Notes:

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#### 1) Introductions

Don Ingle from the City of Boulder led introductions, asking each of the working group members and representatives from the city to state their names, hopes, and expectations for this working group project.

- Carl Castillo stated that he is eager to see how a public/ private partnership can be created for a cheaper price with a stronger signal for citizens.
- Claire Carlin stated how she does not know much about broadband, but wants to know more and contribute to the working group's efforts.
- Paul Williams stated how he has managed the network for 15 years with the City. He is familiar with the fiber network in Boulder.
- Angelique Espinoza stated how she has been part of the campaign that helped to spread awareness of the issue of broadband provisioning in the city. She is excited about opportunities for innovation and education that will come about with the Boulder's application of broadband.
- Liz Hanson stated how she is interested in the City's broadband effort and how it can serve the community. She has been involved with the City's broadband efforts in the past, including an application for Google Fiber.

- Chris Meier stated his interest in seeing Boulder obtain access to broadband. He noted his academic interest in seeing what happens at the Municipal level.
- Tim O'Shea stated his background included forming a steering committee chair for initiative 2C. He noted his background in network engineering,
- Francis Duffy stated his interest in seeing what the City can offer to constituents to improve broadband capabilities.
- Dale Hatfield stated his extended history of living in Boulder. He noted his fellowship at the Silicon Flatirons Center at the CU Law School and noted his national and local involvement in broadband.
- Lee Shainis explained his work with the immigrant population, including providing them with access to computer programs that help their families succeed.
- Ken Leiden said he works remotely from home, conducting meetings though the web. He currently subscribes to both Comcast and CenturyLink to prevent technological disruptions.
- Andrew Moore (via phone) stated how he oversees many students in the BVSD that face a digital divide. He noted how Boulder Valley Schools hopes to create a broader network through partnerships.

## **2) Governance and Logistics (Don Ingle)**

### *A. Logistical Considerations with the Broadband Working Group*

Don asked the group if the diversity of individuals present in the room was representative of the interests and expertise that ought to be represented. The group agreed. Don reviewed how the City wishes for the working group to help with forming actionable goals for broadband future. The City also seeks advice in assessing capabilities of infrastructure, something that hasn't yet been done. Don listed the purpose of the group, as outlined in the agenda document. These items included:

- To contribute ideas and help formulate the initial vision and overarching goals for Boulder's broadband future.
- Provide advice on a process to assess the capabilities and supplemental infrastructure needs of existing city telecommunications assets to attain the vision and goals; explore alternative business models and implementation strategies.
- Assist in the design and execution of initial public participation, communication, and engagement strategies.

Don discussed the strategy for communication and transparency within the working group. He noted:

- Meeting materials and agendas will be provided in advance.
- A website will be used to post documents covered by the group.
- The PowerPoint presentation for the meeting will be provided at the end of each meeting.
- The working group members' names would be posted on the website. There were no objections to this.
- Possible meeting times (the group discussed possible meeting times).

### 3) Background on the City's past and present telecommunication efforts

Don gave a brief presentation on the background of the City's telecommunication efforts. There are 100 miles of in-use and dark fiber throughout the city that has been incrementally acquired over 15 years through both in-kind compensation for the use of city right-of-way, and investment in conduit fiber by the City. Don directed the room's attention to an image posted on the wall of where the city's existing broadband infrastructure is located.

The City has no debt associated with its fiber lines and there are significant areas of vacant conduit. Boulder has broadband connectivity to Denver, Louisville, and other cities. The City of Boulder has a well-established relationship with BVSD, citing how in 2007 the City provided BVSD with vacant conduit in return for fiber.

Don discussed the Boulder Regional Administrative Network (BRAN), a cooperative engagement established in 2000 between the City of Boulder, federal labs, and CU to meet joint connectivity needs. The current Memorandum of Understanding (MOU) between these entities does not make this fiber available for public purposes, though Don noted that it might be possible to amend the MOU.

Other history detailed included Boulder's role as a founding member of the Colorado Wireless Communities in 2006 and the Google *Fiber for Communities* RFP in 2010, which proved to be a great example of public/private partnership. Liz Hanson noted how there were 39 cities (none from Colorado) that were chosen for this project.

Ballot issue 2C was discussed. This initiative – which passed with 83% of the vote - had no detailed business or technical planning prior to the November 4, 2014 vote. There are options for which model of operation the City pursues. A public/ private partnership may be desired due to the difficulty of establishing broadband infrastructure “from scratch.” Partnering on “last mile construction” would greatly reduce the public debt. The City of Chattanooga, TN was mentioned for their successful navigation of broadband implementation with an existing electric utility.

Other options for implementation were discussed, including an open process where prospective businesses conduct an analysis after signing a Non Disclosure Agreement (NDA). This would save the City money that would be spent on a consultant.

The topic of conversation shifted to discussing the Civic Area Wi-Fi project is released on April 7<sup>th</sup>. Don discussed the coverage area, logo, and formal brand of the “Connect Boulder” Wi-Fi project.

- Tim O'Shea asked if the City is using existing infrastructure and if there is going to be a “bleed over” signal. Francis Duffy responded that the Wi-Fi technology is new and there will likely be a small amount of “bleed over” Wi-Fi coverage. Paul Williams added that the antennas are being provided by CISCO.
- Angeliqe Espinoza asked when her organization could publically announce the Wi-Fi release. Liz answered that the City will get more information on when the announcement can be made.

Don asked the group if there were any questions on the information he had covered so far.

- Tim asked if this presentation would be posted. Don said it would.
- Ken Leiden asked what the proposed time frame was for this project. Don answered that the timeline is affected by the review of infrastructure, exploring business models, and briefing City Council on the group's recommendations. The procurement process could start as soon as the 4<sup>th</sup> quarter of this year.
- Don explained an agreement with a firm is to be reached about what dark fiber and spare conduit the City would be willing to dedicate and whether they would invest in last mile or supplement the middle mile construction.
- Tim asked if the City had been approached by potential new partners. Don stated that there have been many consulting firms that have approached the City, but no telecommunication firms. Liz said that one reason the City didn't think that these companies should be part of the working group is that it could lead to a potential conflict of interest if the City decided to contract with them.
- Angelique inquired into the City's relationship with Comcast. Carl answered that the City is in the process of renewing a 10-year franchise agreement with Comcast that is specific to cable. He also noted that there are six other cities and counties in Colorado that have also exempted themselves from SB 152.
- Tim asked if there was a sense of collaboration within the State of Colorado across cities that are exempt. Carl answered that Boulder stands to benefit from and support the rest of the state exempting itself from SB 152. The City has been involved as a party in a complaint that was filed to the FCC by Chattanooga where Boulder advocated that federal laws should preempt state laws that restrict the ability to be exempt.
- Tim asked if there were any federal aspects that could shift the outcome of this broadband initiative. Carl stated that there is no likely scenario where the City's authority will be taken away.
- Tim asked if potential regulation could be burdensome. Don assumed that if the exemption goes to the FCC, there would be a reaction from Congress.

#### **4) Facilitated Discussion of Vision and Goals**

Carl led a discussion that started with an invitation to mention any items that the group found important or unclear thus far.

- Ken asked if Google's "balloon" project that plans to provide Wi-Fi is being considered in light of what this working group is doing. Carl answered that the City wants the community to have the best access to Internet and currently there is little competition to provide such access. Wiring connection through broadband is always faster and more reliable than other options.
- Dale noted that the group ought to recognize "protocol stacks". As protocol stacks rise, he is concerned that an entity with police power has control over content.
- Dale noted that "wireless networks" are a misnomer; there is always wire close to have access points in Wi-Fi systems
- Tim noted that people might wonder what they are going to do with broadband infrastructure when there is civic area Wi-Fi.

- Ken inquired into the meaning of “dark fiber”. Don clarified that dark fiber is broadband wiring that is not connected to electronics or in current use.
- Angelique asked if someone from the group could bring a piece of actual fiber to the next meeting. Francis stated that he would obtain dark fiber for the next meeting.
- Tim noted the variety of fiber that exists and asked if the team has a plan for the best fiber to use. Don responded that there is uncertainty as to whether/ not there is the right number of strands in the fiber. Paul added that all the fiber currently in the streets is single mode fiber, meaning it is used for long distances. Multimode fiber is used in short distances and uses a lower power light source and less expensive equipment.
- Don pointed out that conduit pathways are expensive to dig and lay down.
- Dale noted how there are different ways of laying out networks that have an impact on capacity.
- Don added that bandwidth is always more expandable and significant through fiber.
- Carl stated the working group serves the function of adding a broader perspective that the City might not consider. He wishes for the working group to feel like their time is being used correctly and the city wants to provide broadband as quickly as possible.

Carl transitioned to a facilitated discussion of agenda items.

*A. Unmet broadband needs in the community*

Carl started the conversation by asking the working group to think of groups and businesses that aren’t getting what they need.

- Angelique noted the difficulty in participating in community conversations.
- Tim pointed that out businesses consider broadband connectivity to be a determining factor in whether/ not the businesses choose to operate in Boulder. Liz agreed, saying this matter is discussed during outreach meetings.
- Dale said individuals working at home cause enterprise/residential lines to blur.

A discussion ensued as to whether or not every individual in Boulder would be connected to the network.

- Dale did not believe there was still a universal service mandate requiring service for every individual. Dale noted how there used to be “mileage” charges for those who were further away from the center of service. Bob Harberg said that providing service for all may become an issue if service is expanded to Boulder County.
- Bob asked if there were other net neutrality concepts that the group might want to consider.

*B. Prioritization of customers/ beneficiaries of a future Boulder broadband network*

Carl said this part of the agenda was to consider the individuals the City ought to focus on when the first phase of service is turned on.

- Tim said that Boulder Housing Partners and first responders and emergency service could be a potential beneficiary.

- Claire Carlin added Boulder Mountain Fire.
- Don said asked if the vision should change if the City were capable of connecting with Longmont. Andrew Moore pointed out that students lack internet access in Boulder, Longmont, and Nederland. He advocated for the interconnection of the region.
- Tim said that the City must consider the telecommunication providers' benefit.
- Dale and Andrew asked about considerations of "last mile" construction. Without a focus on mechanics, the City could focus more energy on constructing the last mile.
- Dale noted that another beneficiary would be tourism.
- Andrew advocated for placing students parallel with the City's first customers.
- Andrew outlined the intent of the BVSD/Boulder Housing Partners project which provided Internet access that was filtered for content to an unconnected community near the East Recreation Center. Andrew mentioned that he would like to see the City maintain this project. He said that he does not believe the City should filter for content. A discussion of filtering Internet content ensued.

*C. Desired capabilities of Boulder broadband network, future and present*

Carl asked the group to mention the capabilities they desire from the City's broadband network including customer service and price.

- Don noted that the City would like to consider future-proofing mechanisms of systems.
- Dale asked if the City should consider issues of "symmetry", referring to the difference in upload and download speeds.

*D. Opportunities and challenges in pursuing a public/ private partnership*

Carl noted that should the group feel the City needs to spend more time focusing on the public/private aspect, they should make their thoughts known.

*E. Recommended next steps*

Carl recommended the group list people that could serve as guest speakers or full time working group members.

- Angelique asked if the City was looking to collect qualitative data from the Civic Area Wi-Fi project. Don noted the cost in providing tools to collect this data. Tim asked if Downtown Boulder Inc. (DBI) could collect data with their downtown project.
- Ken suggested that the working group consult an individual involved in the Chattanooga broadband initiative. The group agreed.
- Tim noted the importance in metering broadband capabilities. Carl assumed the group was operating with a 1 GB framework, but he questioned if the group should talk about what speed they desire. Tim felt this understanding was relevant and suggested discussing broadband in terms of 10 mbps. He mentioned future-proofing and the role of speed in this consideration. Angelique noted it's important for the ordinary person to understand differences in speed capacity. Dale noted that speed has implications in the structure of architecture.

- Angelique asked the group to consider if they saw their colleagues using the technology in a specific way.

Carl asked the group how they would describe their vision.

- Bob noted how the group should keep in mind the utility of the broadband system in facilitating emergency response and other municipal functions.
- Chris mentioned that an order from the FCC would require municipal providers to adhere to net neutrality.
- Don noted a question to extend signal into open space areas.
- Don mentioned a question asking whether or not the average user requires a gigabyte of data. He mentioned that 1GB may be necessary in the future. Tim noted that future demand is difficult to determine. Dale noted that more data requires more fiber.
- Carl said the City should have the capacity for downloading large files.

## 5) Summary and Next Steps

Carl suggested the group endorse a roadmap for future meetings. He listed items for consideration including whether or not the City should hire a consultant or open up an RFP.

- Don suggested the group consider bringing in Joanne Hovis, an expert on this topic. The group agreed with Don's suggestion.
- Angelique suggested Bruce Messinger, superintendent of BVSD, as a speaker to provide unique insight. Andrew said that his representation of BVSD's interests would be sufficient, but he would be willing to facilitate bringing in Bruce or a curriculum director.
- Dale noted it would be beneficial to speak with a representative from Chattanooga.

Carl concluded by listing several items for the next meeting.

- A document capturing the group's vision to be edited and endorsed by the group.
- Invite a first speaker; most likely Joanne Hovis or a representative from BVSD.
- New ideas and next steps the working group should take.

The group agreed with this proposition and said their time was used effectively.

Final thoughts:

- Tim stated that he would research other communities that have provided broadband service to their citizens.
- Dale noted that he would make his research articles on the subject available on the working group's website.
- Dale mentioned his involvement with the Center of Advanced Communication and the Department of Commerce. He indicated his potential to connect with these entities.

- Don noted that this information would be posted on the project website and a confirmation for the group's next meeting, along with an agenda, would be sent out as soon as possible.

The meeting concluded at 5:30pm on Thursday, March 19, 2015.