Broadband Brainstorming!

April 11, 2018
Broadband Brainstorm - Program for Tonight

1. Broadband Initiative Background
2. Service Factors
3. Options
4. Timing
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Broadband Initiative
Background
Why are we doing this project?

The city’s vision is to provide a world-class community telecommunications infrastructure to Boulder for the 21st century and beyond...

- Connectivity is essential
- Everyone should have opportunity
- Broadband as an urban service
What is broadband Internet?

Broadband commonly refers to high-speed Internet access that is always on and faster than the traditional dial-up access. Broadband includes several high-speed transmission technologies such as:

- **DSL** - Transmits over traditional copper telephone lines
- **Cable** - Same cables that deliver images to your TV
- **Fiber** - Data and light sent via transparent glass fibers
- **Wireless** - Using a radio link between customer/provider
Guiding Principles

- Citywide Access
- Equitable and Inclusive
- Future-oriented
- Competitive Marketplace
- Unfettered Access
- Open Access
The Internet: Yesterday and Tomorrow

Where We’ve Been

- Selective services to parts of our community
- Inconsistent/low speeds based on location
- Estimated 2-4% of community without access to reliable high speed internet at all
- Net-neutrality advanced, rescinded
- In 2016 – Global Trends:
  - Available speeds of 27.5 Mbps
  - Monthly GB per capita just over 13GB
  - Mobile devices >50% of internet traffic
  - 8 connected devices per person
  - 15.3 billion devices connected by the internet of things (IoT)

Where We’re Going

- Need for equitable and inclusive internet services to all parts of our community
- Consistent reliable fast internet essential
- Possible internet metering, throttling and pay for play access
- By 2021 – Global Trends:
  - Available speeds of 53 Mbps
  - Monthly GB per capita just over 35GB
  - Mobile devices >60% of internet traffic
  - 13 connected devices per person
  - 30 billion devices connected by the internet of things (IoT)
Project History

2017 - 2018: Fiber network refinement and decision

2016 - 2017: Fiber partnership options

2015 - 2016: Wireless expansion & fiber feasibility

2014 - 2015: Wireless expansion & fiber feasibility

Nov 2014: Voters Exempt Boulder from SB 152
Technical Analysis

Broadband Feasibility Study
Prepared for the City of Boulder
June 2016

Legend
- Existing
- Proposed
- Future
What are we working on now?

- Options for the city to provide broadband citywide
- Financial analysis of options
- Case studies
- Relationship to municipalization
Project Timeline

2016 – Oct 2017

Feasibility Analysis

• Feasibility Study
• Broadband working group
• Partner RFI


Phase 1 – Tech. Analysis

• Refine network/ backbone design
• Refine cost estimates
• Jan. Study Session check-in

Jan. – May 2018

Phase 2 – Options Analysis

• Develop & Analyze Options
• Re-engage potential partners
• May City Council Meeting

May – June 2018

Phase 3 – Option Selection

• Refine options
• Selection of preferred option
• Decision on ballot item
• June City Council public hearing

June – Sept. 2018

Phase 4 – Ballot Item Prep

• Prepare option for ballot
• Aug/Sept City Council public hearings
Decisions to be made

1. Do we do this; and if so, when?
2. Which approach or business model should we pursue?
3. How should it be funded?

City Council:
- Study Session: May 8
- Public Hearing: June 12
How to use your clickers!

• You will know if your vote registers if the light on your clicker flashes solid green twice.

• Want to change your vote? The last button you press will be your vote, so just vote again.
Warm up!
When did you first use the Internet?

1. As a grown adult
2. I was in college or just graduated
3. I’m part of the Oregon Trail Generation!
4. There was life without Internet?
Warm up!
The best thing about spring is...

1. Spring showers
2. Shorts & flip flops
3. Planting a garden
4. I hate spring – achoo!
Service Factors
Factors for a City Service

The factors that are most likely to cause Boulder residents and businesses to switch Internet service from their current provider to a “city” service.
Take Rate

Take Rate is the percentage of potential subscribers who are offered the service that actually subscribe, aka “take” the service.

The take rate influences the price the service provider can offer.

Nationwide average take rate for broadband is 35%. 
Factors that might make you switch

1. Pay the same or less than I do today
2. Experience better reliability and customer service
3. My speeds would be better
4. My speed would be consistent throughout the day
5. My service would uphold net neutrality
6. I would understand and be able to control how my data is protected
7. I would be able to purchase Internet as a freestanding service (not driven to bundle)
Factors for a City Service

The **factors** that are most likely to cause you to **switch** Internet service from your current provider to a “city” service.
What is the most important factor to make you switch? (pick one)

1. Pay the same or less than I do today
2. Experience better reliability and customer service
3. My speeds would be better
4. My speed would be consistent throughout the day
5. My service would uphold net neutrality
6. I would understand and be able to control how my data is protected
7. I would be able to purchase Internet as a freestanding service (not driven to bundle)
What is the second most important factor to make you switch? (pick one)

1. Pay the same or less than I do today
2. Experience better reliability and customer service
3. My speeds would be the better
4. My speed would be consistent throughout the day
5. My service would uphold net neutrality
6. I would understand and be able to control how my data is protected
7. I would be able to purchase Internet as a freestanding service (not driven to bundle)
What is the third most important factor to make you switch? (pick one)

1. Pay the same or less than I do today
2. Experience better reliability and customer service
3. My speeds would be better
4. My speed would be consistent throughout the day
5. My service would uphold net neutrality
6. I would understand and be able to control how my data is protected
7. I would be able to purchase Internet as a freestanding service (not driven to bundle)
What issues do you experience with your current service?  (Pick up to 6)

1. Websites load slowly
2. Streaming buffers or stops
3. Downloading or uploading files takes a long time or cuts out
4. Poor customer service
5. Pay too much
6. My Internet speed varies by day or time
7. Other
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3 Options
## Broadband Network Defined

<table>
<thead>
<tr>
<th>BROADBAND</th>
<th>STREETS</th>
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<tbody>
<tr>
<td>Internet Backhaul</td>
<td>Highways (Hwy. 36, Diagonal Hwy, etc.)</td>
</tr>
<tr>
<td>Backbone Fiber</td>
<td>Arterials (Broadway, Canyon, 28&lt;sup&gt;th&lt;/sup&gt;)</td>
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<tr>
<td>Distribution Fiber</td>
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<tr>
<td>Service Drop</td>
<td>Driveway</td>
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</tbody>
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Models

- Public-Private Collaboration
- Partnership – City Backbone
- City Build – Fiber only
- City Build – Fiber + ISP
- Refrain from Acting
Model 1: Public-Private Collaboration

City would work with private company that would develop a network and provide service
Model 2: Partnership – City Backbone

City would build a backbone for the network, then work with a private company that would extend that network to homes and businesses and provide service.
Model 3: City Fiber Only

City would build a fiber network, and lease it to a private company to provide service.
Model 4: City Fiber + ISP

City would build a fiber network and provide Internet service to subscribers.

- Privately Owned
- City Owned
Models discussion at your table

1. What are some reasons city control and ownership of the network could be important to the community?

2. What are some of the benefits of having a private partner to help build the network and/or provide service?
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Timing

4
Broadband & municipalization

Would it be better to pair broadband with municipalization?

**Construction:** About 13% of the backbone could align with electric construction (estimated $2M cost savings)

**Operational:** Could have joint operations center, maintenance equipment, some shared staffing

**Customer Service:** Could have joint billing system, customer service agents, call center

**Financial:** Cannot join finances; both need revenue; likely no debt capacity to carry broadband through electric utility until mature
Timing and funding

2020 Ballot: Go/No-Go & Separation Funding

Design/Acquisition

Separation Construction

2018 Ballot: Debt & New Tax

Technical & Financial

Design & Construction

Municipalization

Broadband

Pulse - Which model do you prefer?

1) Model 1: Public-Private Collaboration
2) Model 2: Partnership – City Backbone
3) Model 3: City Fiber Only
4) Model 4: City Fiber + ISP
5) Model 5: Do Nothing
Pulse - Which timing do you prefer?

1) Now – 2018 Ballot
2) Soon – 2018 or 2019 Ballot
3) With Muni – 2020 Ballot
4) After Muni – Post 2020 Ballot
5) I need more info first
6) Don’t put it on the ballot at all
Please hand in your clickers!
Next steps

Engage on Be Heard Boulder:
www.beheardboulder.org

May 8, 2018 City Council Study Session

• Options, financial and technical information presented

• Watch in person, 1777 Broadway 2nd floor, or on TV, Boulder Channel 8, 880, or on boulderchannel8.com
As you leave...

Tell us your thoughts!

- Should city government play a role in building out the network? (blue dot under yes or no)

- Should city government play a role in providing Internet service? (green dot under yes or no)

- Tell us how we did! (red dots, one on each scale)