

Update regarding analysis of emerging broadband options

June 2016

City of Boulder

Broadband Working Group



Goals for this Meeting

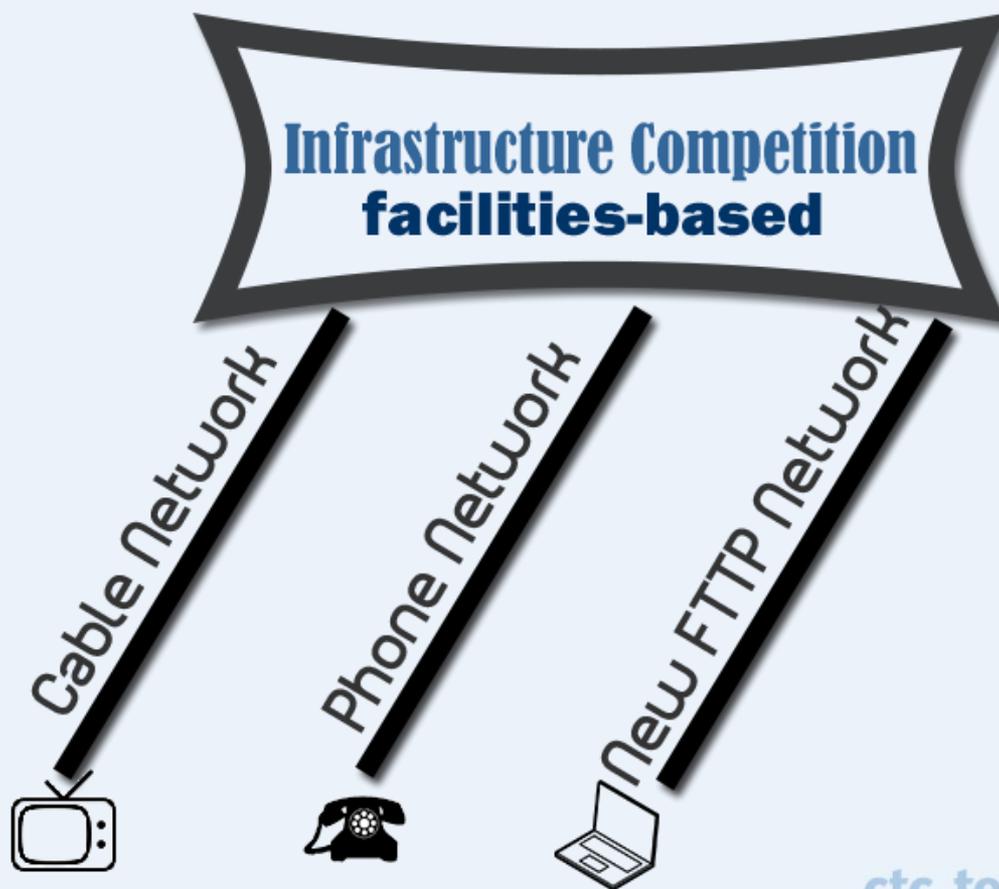
- Update regarding efforts to date
- Update regarding results of RFI process seeking private interest
- Describe current opportunities and preliminary recommendations
- Seek input



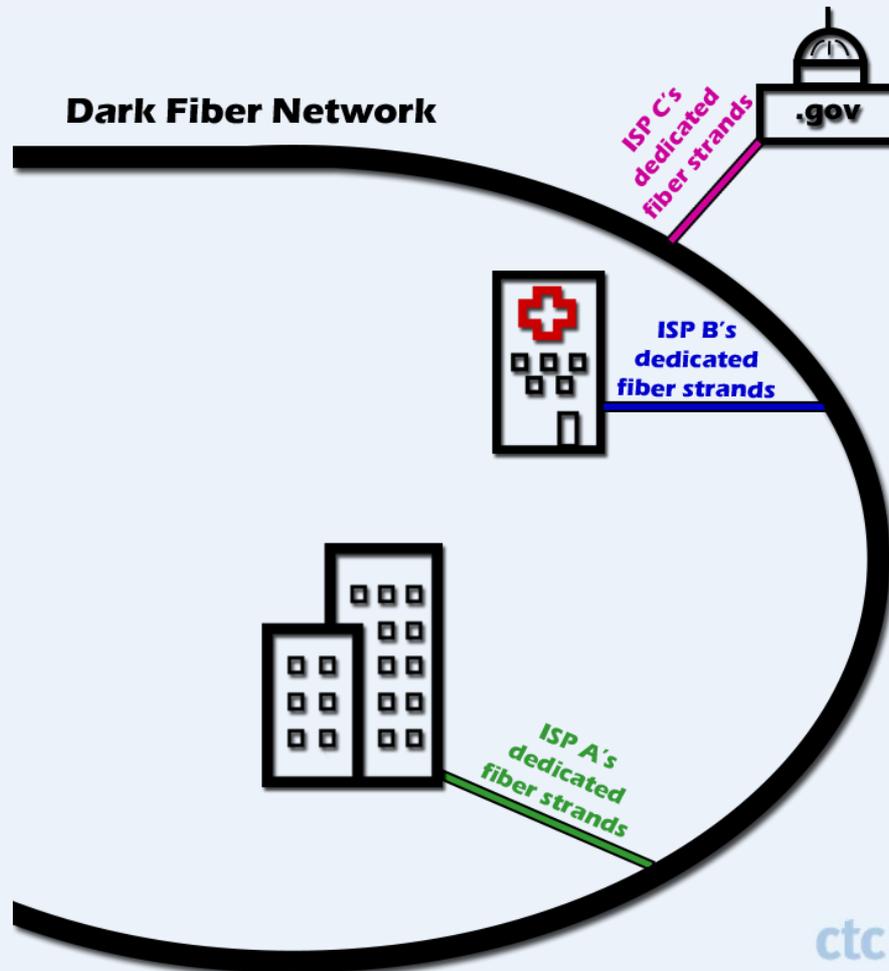
Identified Priorities and Goals

- Ubiquity/service to all in community
- Consumer choice, competition (open access)
- Long-term control or influence
- World class services and pricing

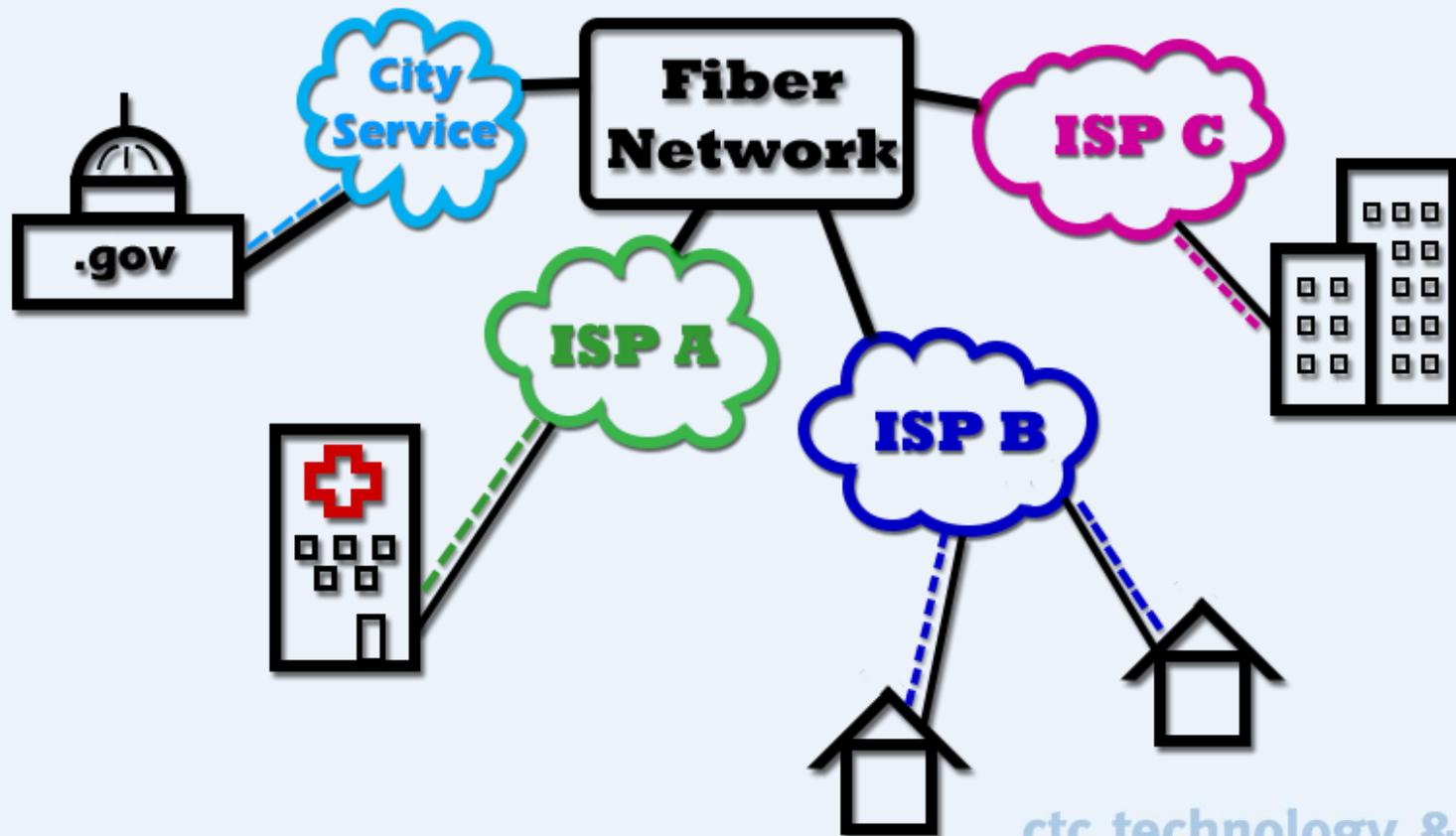
Facilities-Based Competition



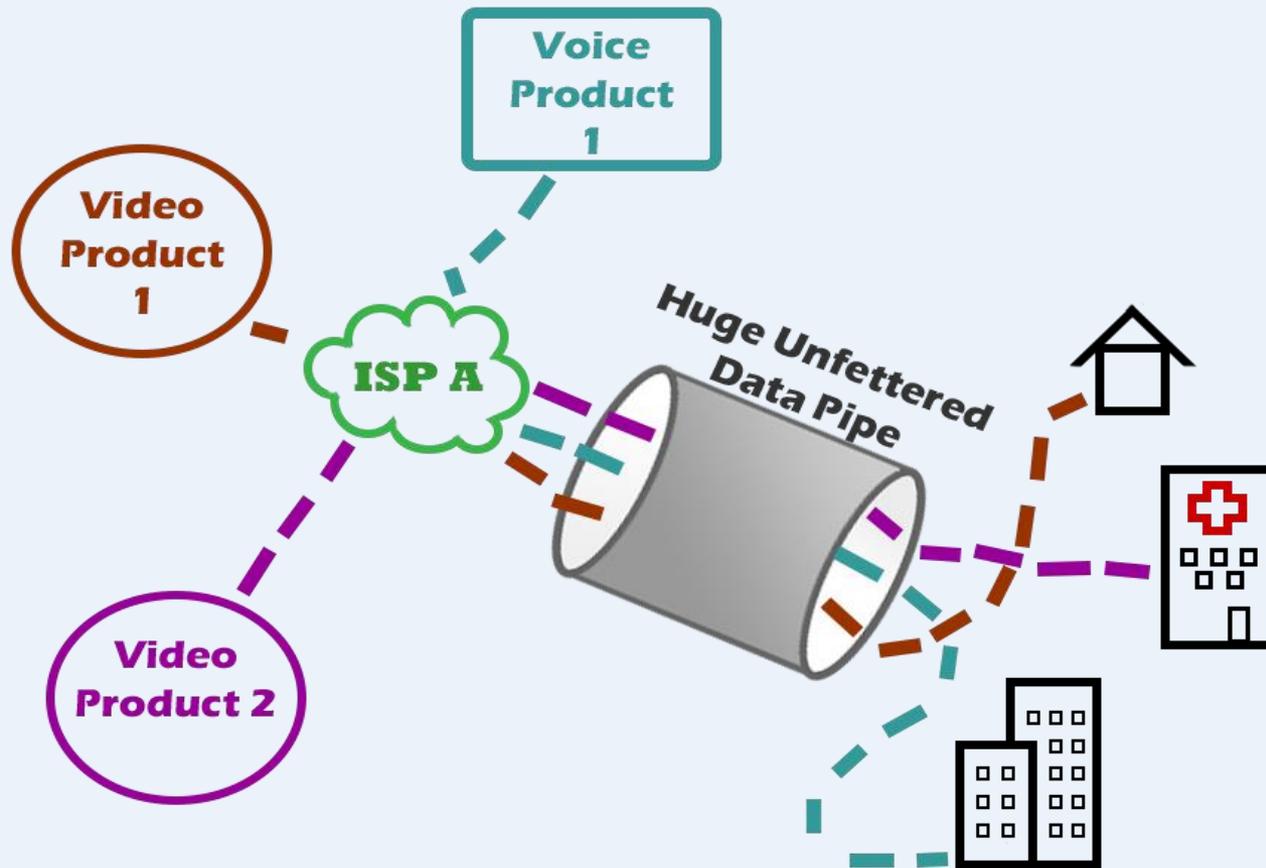
Competition over Dark Fiber



Competition over Lit Fiber



Over-the-Top (OTT) Competition





Where We Are

- Boulder is a uniquely desirable market
- Boulder is a costly place to build broadband
- Multiple companies show preliminary interest in investing in Boulder
- Boulder has an enviable set of choices: private investment only or partner with private sector



Cost parameters

- Outside plant
 - Ubiquitous fiber construction = \$70-90M to “pass” all premises
 - Annual maintenance = 1-1.3M
 - Fiber “drops” to connect homes/businesses = \$12M (assumes 35% take-rate)
- Electronics and operations
 - Equipment to “light” network = \$20M
 - All operating costs for operating network, service provision, content fees, customer service, etc.

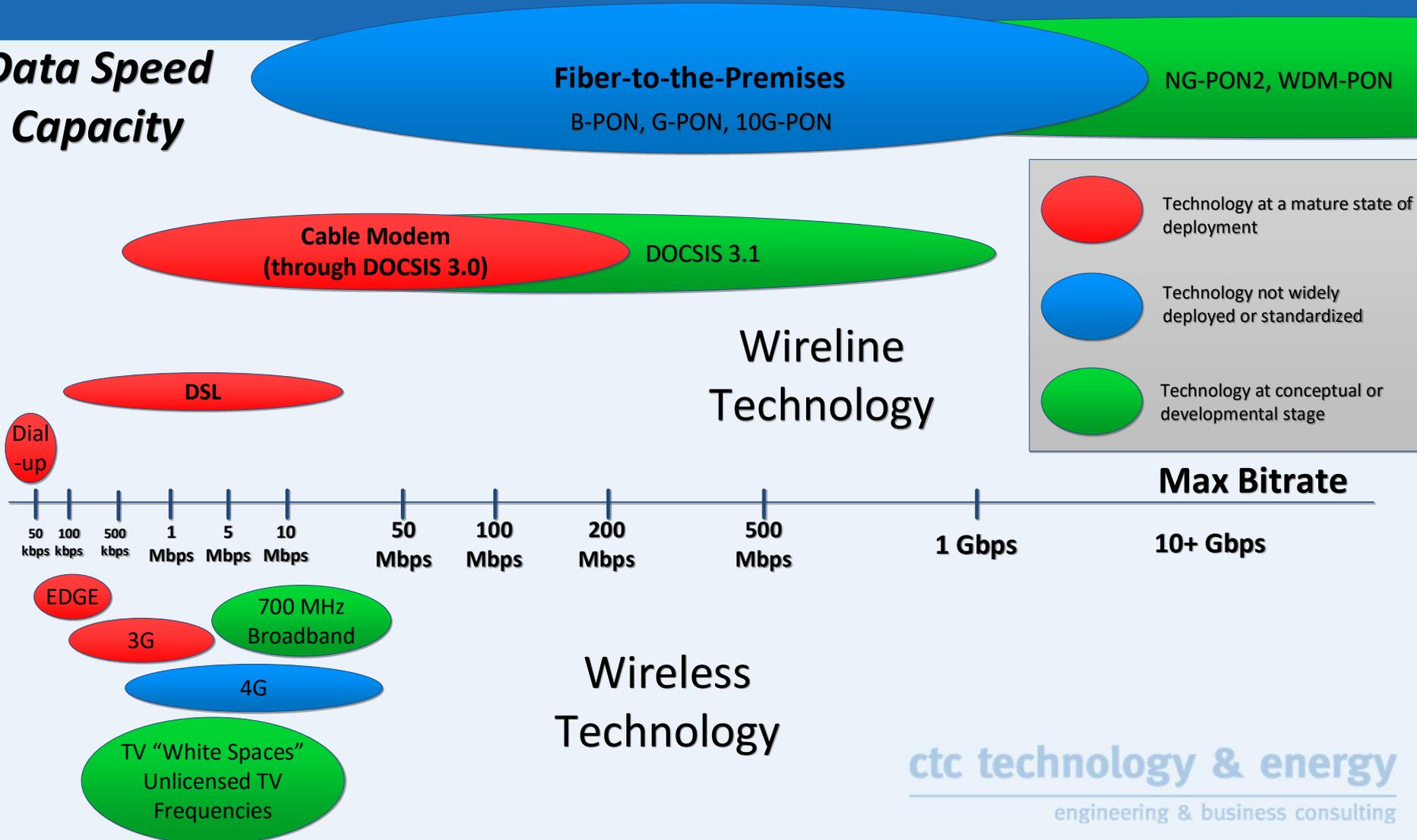
Outside Plant Costs, low estimate

	Plant Mileage	Total Cost (w/ drops)	Total Cost (no drops)	Passings	Cost per Passing (Distribution Only)	Cost Per Plant Mile (Distribution Only)
Total:	520.6	\$83M	\$71M	51,000	\$1,400	\$140,000

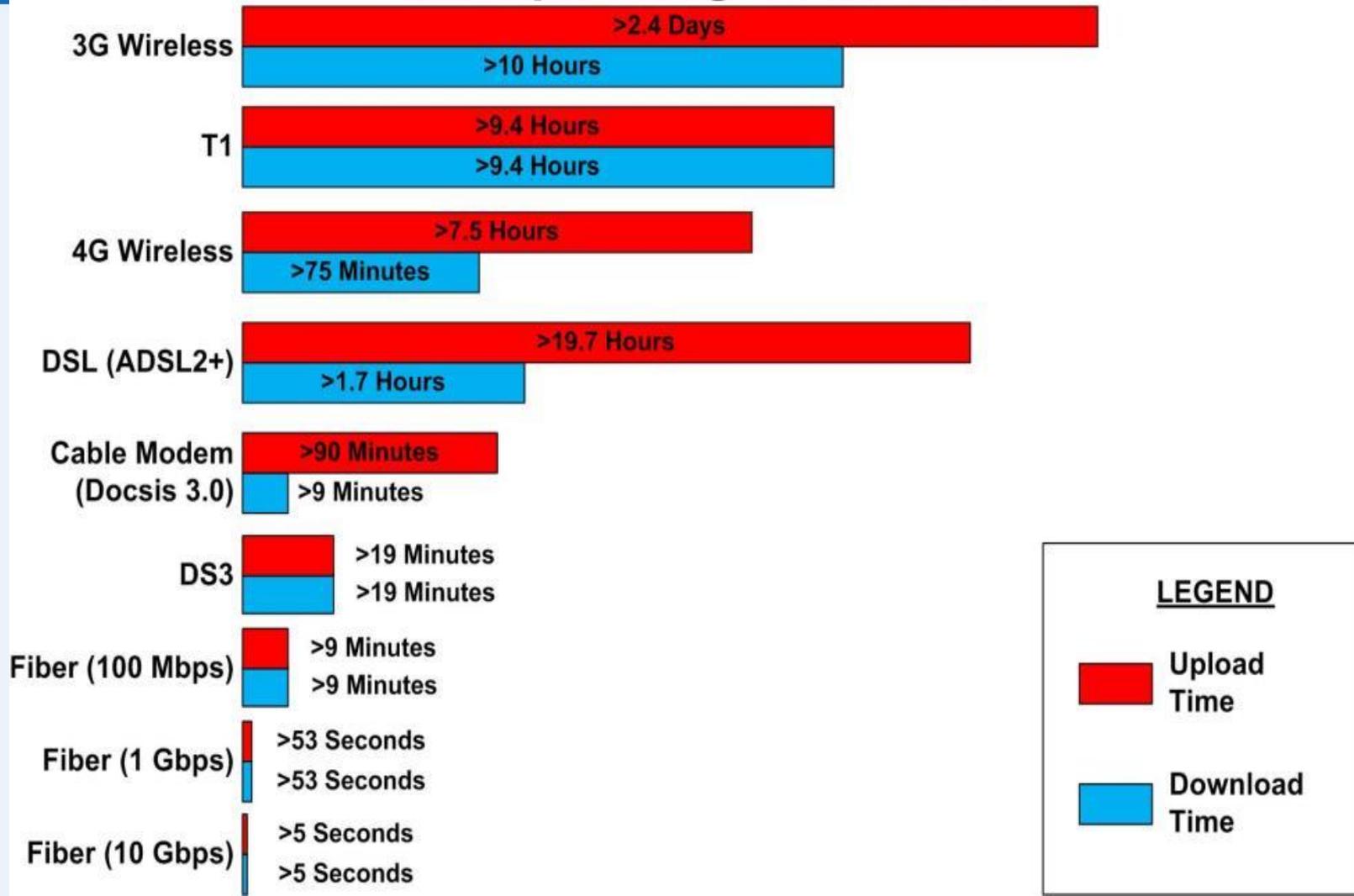
Total Capital Costs

Cost Component	Total Estimated Cost
Backbone Outside Plant Construction Costs	\$71,200,000
Network Electronic Costs	7,300,000
FTTP Service Drops and Laterals	11,600,000
Customer Premises Equipment and Installation	12,300,000
Total Estimated Cost:	\$102,400,000

Data Speed Capacity



Minimum Time Required for Downloading and Uploading a 5 GB File





Framework for Options

1. Incumbent upgrade
2. Municipal broadband
3. P3: public risk, private execution
4. Private investment: private risk, City facilitation
5. Shared investment: City fiber, private operations



Framework for Options

1. Incumbent upgrade
2. Municipal broadband
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Incumbent Upgrade

- Largely catalyzed by prospect of competition (100% overlap with Google Fiber builds)
 - Easy upgrade path for cable companies—can deliver solid speed and good competition for FTTP
 - Telco upgrade path more challenging, requires significant investment
- Reasonable assumption that this will flow from City efforts on other model(s)



Framework for Options

1. Incumbent upgrade
2. **Municipal broadband**
3. P3: public risk, private execution
4. Private investment: private risk, City facilitation
5. Shared investment: City fiber, private operations



Municipal Broadband

- Maximum risk, reward, control
- Established strategies
- Electric utility confers huge efficiencies, reductions in cost
- Longmont model
 - Emerging in Ft. Collins?



Framework for Options

1. Incumbent upgrade
2. Municipal broadband
3. **P3: public risk, private execution**
4. Private investment: private risk, City facilitation
5. Shared investment: City fiber, private operations



Traditional P3: Public risk with private execution

- Uses traditional P3 structure of transportation and traffic project
 - Turn-key private execution with purported private sector efficiency
- First time applied to broadband in US
- Guaranteed revenue stream to private partner
 - Financial risk held by City
 - Legal risk? Untested



Macquarie Capital Proposal

- “Goldman Sachs of Australia”
- Turn-key financing, deployment, operations, and services
- Guaranteed public funding through utility fee to all property owners for 30 years
- Public execution risk
 - Or financing costs will increase
- Potential for cost-offset through share of long-term revenues (not guaranteed)
- Entirely untested



Symmetrical Networks Proposal

- Oregon-based company
- Private financing and deployment
- Key to financing is effective public guarantee of the debt
 - Financial projections suggest low risk, but the risk falls nonetheless to City
- Untested, with no partner for service provision



Framework for Options

1. Incumbent upgrade
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3. P3: public risk, private execution
4. **Private investment: private risk,
City facilitation**
5. Shared investment: City fiber, private operations



Private risk, City facilitation

- City facilitates private investment
- Reduced risk, no control, potential benefit
- Can include tax benefits, economic development incentives
- Other than Google Fiber, virtually non-existent in past decade
 - Small providers cherry-picking neighborhoods



Received 3 Tentative Proposals

- Caveats:
 - Limited diligence thus far from proposers (ie, around costs)
 - Very new development in market
 - Boulder would be large market for all three
- Axia
- Allo
- Ting



Axia

- Calgary company
- Mixed track record
 - Experienced and expert
 - But limited will to invest in past
- Likely acquisition by private equity
 - New, significant capital
- Have suggested willingness to:
 - Build on ubiquitous basis (based on 40% interest)
 - Offer paid access to competitors



Allo

- Nebraska company
- Primarily in smaller markets
 - Building now in Lincoln
 - Particularly interested in university towns, Colorado
- Recent acquisition by private equity
 - Backed by significant capital
 - Question re customer service as operations merge with student loan servicing company
- Have suggested willingness to:
 - Build on ubiquitous basis
- Potential willingness to wholesale services



Ting Internet

- Toronto company, division of TUCOWS
 - Second largest domain name host in world
 - Fast growth in mobile market
- Publicly traded on NASDAQ
 - Access to sufficient capital
- Expanding into FTTP in handful of markets
 - Particularly interested in university communities
- Singular customer service
- Have suggested willingness to build on ubiquitous basis
- Unwilling to lease to competitors

Case study: Holly Springs, NC

- Town promised highly efficient processes, facilitation, data
- Fiber lease agreement with Ting Internet
 - Ting will lease public fiber for backbone
 - Ting will build to homes & businesses





Framework for Options

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Shared Risk

- Opportunity for innovation
- Plays to strengths of both parties
- Risk shared but 100% of network benefit realized
 - Public benefit does not show up on financial statements
 - Private partner gets financial benefit



Partnership parameters

- City role: “passive” infrastructure
 - Build fiber optics to “pass” all premises
 - Build fiber “drops” to connect homes/businesses
 - Build “huts” on public property for carrier electronics
 - Maintain fiber and huts
- Partner role: “active” infrastructure, services
 - Responsible for all active electronics
 - Responsible for all elements of operations, service provision, content delivery, sales and marketing, billing and collections, customer service, etc.



Cost parameters

- City costs
 - Ubiquitous fiber construction = \$70-90M to “pass” all premises
 - Fiber “drops” to connect homes/businesses = \$20-80M
 - Annual maintenance = 1-1.3M
- Partner costs
 - Equipment to “light” network = \$10M
 - All operating costs for operating network, service provision, content fees, customer service, etc.



Ting Internet

- Proposed to lease City-owned fiber in long-term
- Willing to negotiate terms that would potentially cover most City costs (debt service, maintenance)
- Open access
 - City able to lease to other entities
 - Ting willing in other markets to wholesale service to competitors



Case study: Westminster, MD

City will own fiber and huts only; lease to Ting Internet

- Non-exclusive—City can lease to other
- Ting committed to open access after two years
- Shared financing, market risk
 - Ting pays City per no. of premises passed + no. of customers
 - Ting backstops 50% of debt
 - Ting payments have potential to cover all City costs based on marketing success



Case study: Huntsville, AL

- February announcement that Google Fiber will lease fiber to be built by Huntsville
- Google to offer service wherever fiber built
 - Residential and SMB only
 - Google does not serve large businesses
- Other carriers can lease and compete
- Economics not easily replicable in higher cost environment, without public utility
 - Based on Huntsville rate sheet, Google fees cover less than 50% of likely Boulder costs

Comparison of Options

Objective	Private investment (Axia, Ting, Allo)	Private investment with City supplement	City fiber investment with private lessee (Google, Ting)
Ubiquity	Possibly	Yes	Yes
City Guarantee	No	Partial	Yes
City Control	No	Partial	Yes
Financial Risk to City	Negligible	Partial	Partial