Community Broadband Network Study Presentation

County Council Meeting

January 24, 2023

Los Alamos Community Broadband Network

Team

LAC

- Jerry Smith, Broadband Manager

CTC Technology and Energy

- Ziggy Rivkin-Fish, VP of Strategy
- Teles Fremin, Deputy CTO
- Freny Cooper, Director of Regional & Local Consulting
- Danny Fortier, Staff Engineer
- Felipe Sanchez, Project Coordinator & GIS Specialist

Project Overview

What:

- Evaluate the feasibility and costs of implementing a Community Broadband Network (CBN) within Los Alamos County

Why:

- Council set a strategic priority of: Improving access to high quality broadband. Reliable high-speed broadband service throughout the community is essential; determining appropriate investments will advance the County efforts in ensuring this service.
- 2012/2013 CBN Report by Crestino needed updating (10 years old)
- Community interest in faster, more reliable broadband
- Federal funding opportunities (primarily outside County boundary)
- Statewide infrastructure planning
- Market changes
- Cost updates

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Summary Recommendations

How:

- Building fiber infrastructure to the premise
- Seeking contracted services to maintain, operate, and potentially build the needed infrastructure
- Allowing fiber access to interested and qualified Internet Service Providers (ISPs)
- Leveraging County investments to meet community goal of …*reliable high-speed broadband service throughout the community*

When:

- Over the next three to five years by establishing appropriate partnerships and funding

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Open Access Networks

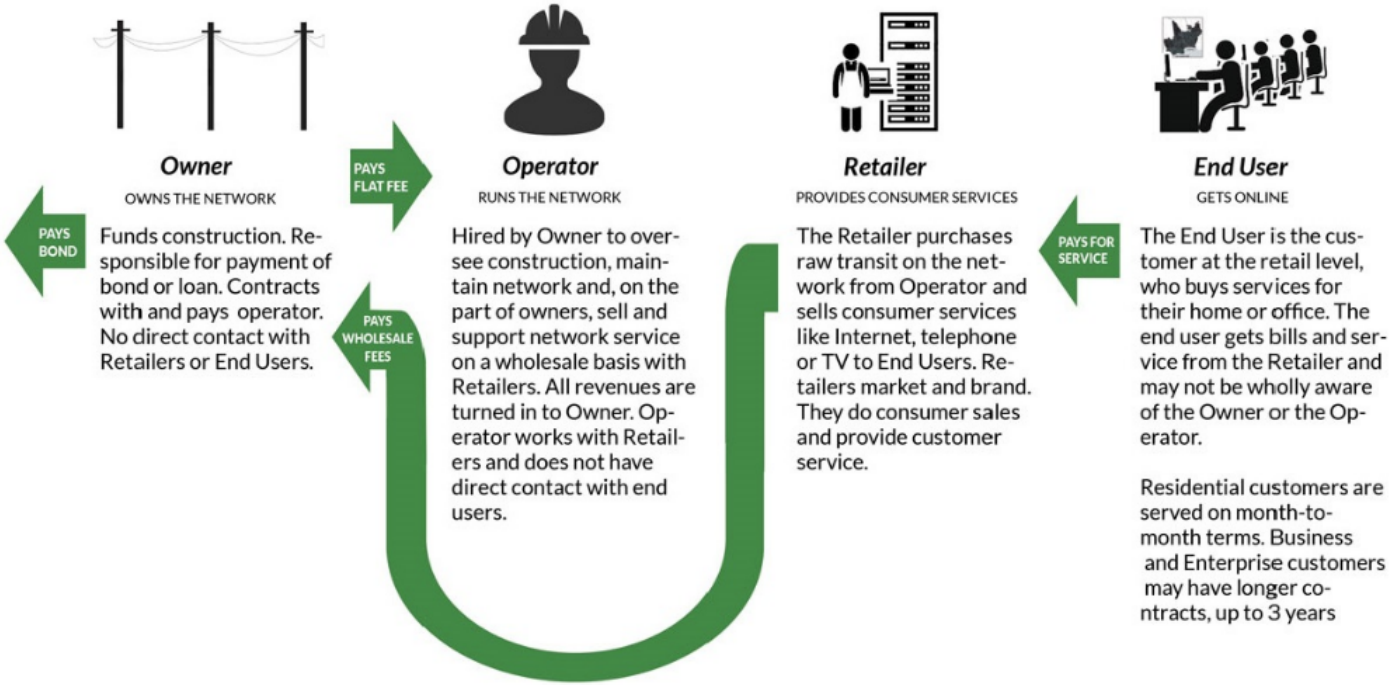
- Definition: An arrangement in which the broadband network infrastructure has a single neutral operator/manager, and the network is open to qualified independent internet providers to offer services to all end users.

- Links to a few examples of municipal and county open access network websites:
  - Ammon, ID (link) Demo login: username= coademo/ pwd= coademo / Also see FAQ page)
  - Idaho Falls, ID (link)
  - Bozeman, MT (link)

- Use the links above to see pricing and services from each municipality's list of ISPs. Monthly service cost ranges from $9.99* to $70 for 1 Gbps symmetrical service.

- *Any additional build-out cost recovery and/or maintenance fees collection method varies and may be in addition to the service cost listed.

Open Access Networks



Infographic from Peggy Dolgenos, Cruzio Internet

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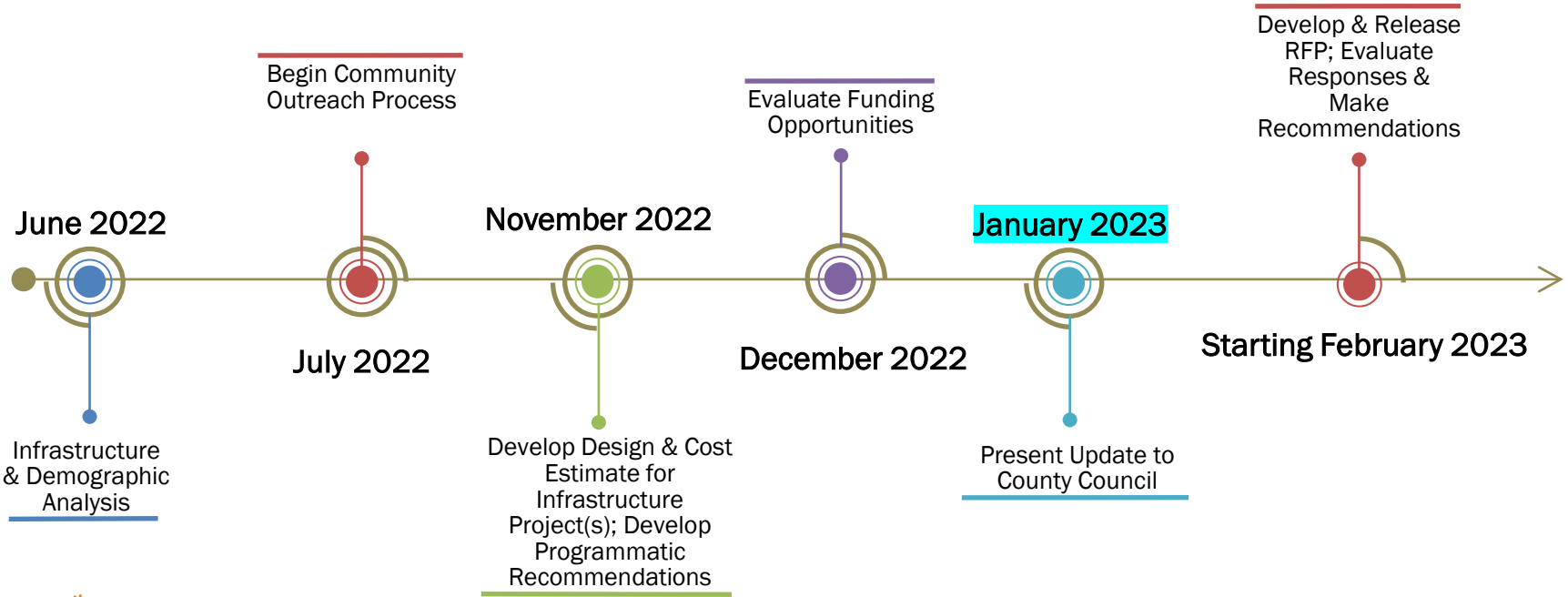
CBN Study Project Timeline



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Project Overview: Deliverables

- Community infrastructure assessment
  - Infrastructure mapping
  - Demographic analysis
  - Broadband coverage (technology types, reported speeds, costs)
- Public outreach
- Map routes, connections, priority areas, gaps and cost estimates for a broadband infrastructure project(s)
- Identify potential state and federal funding opportunities applicable to the recommended projects/priorities
- Develop a broadband strategic plan
- Support County through a procurement process for implementation project and/or program

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Project Overview: Community Outreach

- Stakeholder interviews
- Open Public Meeting (10/19/2022)
- Speed test website utilizing NM DoIT speed test
- Mail and online survey (October 2022)
  - Statistically valid
  - Hybrid paper/online
  - Integrated into speed test site

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Survey results

- 771 responses (4% of county population of 19,419)
  - Comparatively high response rate indicating high interest
- 97% reported home internet service; 3% reported no service
  - This is a very high number compared to other communities
- Providers:
  - Comcast 66%
  - Los Alamos Network 14%
  - CenturyLink/Lumen 17%
  - Other 8%

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Survey results

- 95% not enrolled in subsidy program
- 70% pay $60 or more per month for service (63% of respondents reported unbundled prices)
- Median price: $60 to $79 per month

Survey results

- Primary reasons for internet usage:
  - Streaming movies, TV, music: 74%reported frequent use
  - Shopping online: 70%
  - Banking/paying bills: 68% Social media: 58%
  - Connecting to work: 56%
- Respondents were overall confident in their internet skills
- Digital equity:
  - 75% strongly agreed that all students should have access to affordable high-quality broadband
  - 65% strongly agreed that all residents should have access to affordable high-quality broadband

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Broadband needs and concerns

- Needs
  - Faster speeds
  - More high-quality provider options
  - Affordability/ competitive pricing
- Concerns
  - County-owned and run broadband (comments in favor and against it)
  - Reaching all residents
  - County should not be responsible for training, just infrastructure

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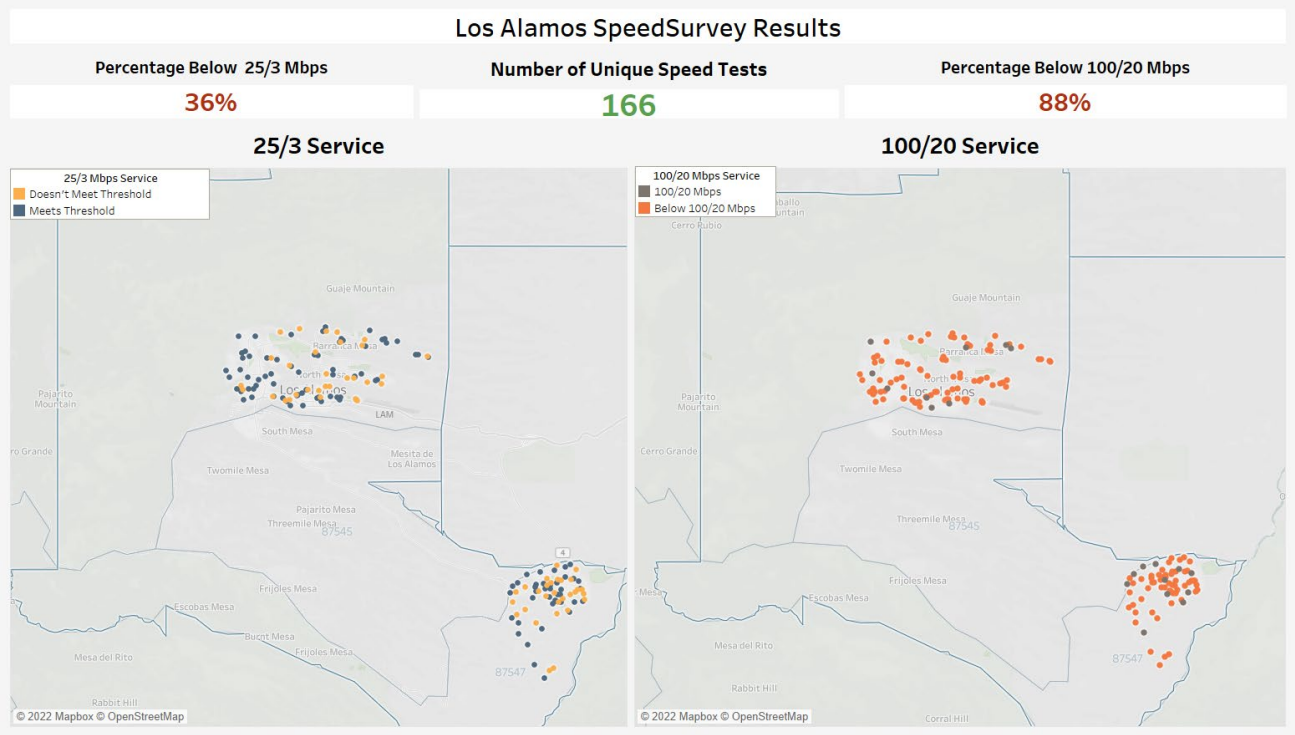
Speed test survey results



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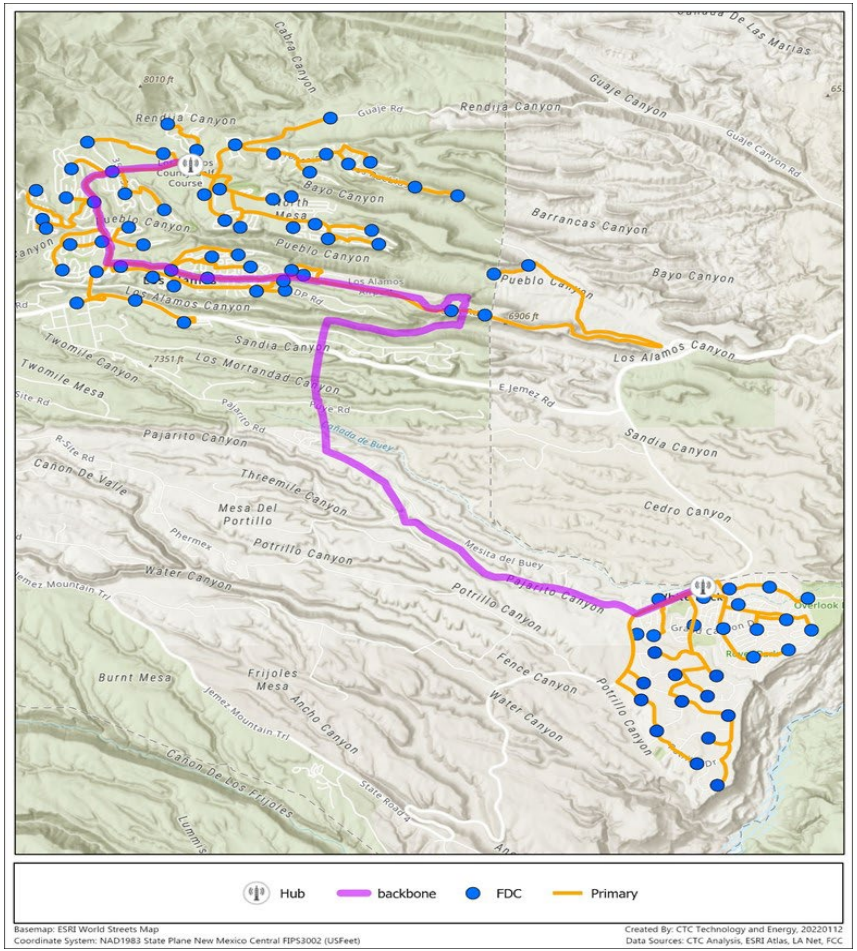
Design Overview

- Countywide FTTP comprised of 127 miles of fiber
  - 2 hubsites and 84 Fiber distribution cabinets
- Leverage existing infrastructure including conduit and fiber
- Scalability for future growth and technologies



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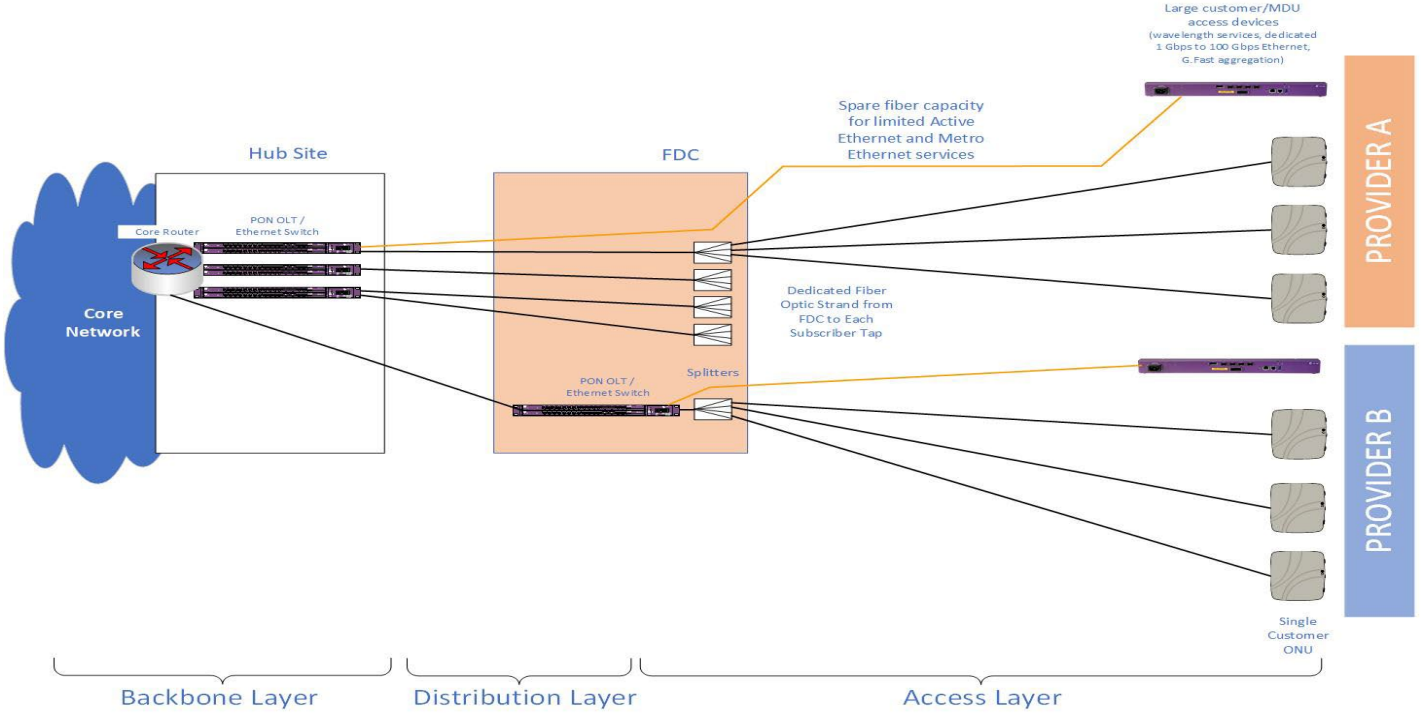
High level FTTP Architecture



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High-level Cost Estimate for CBN Infrastructure

Cost Attribute			Los Alamos	White Rock	Combined
		Total Fixed Costs*	$17.4 Million	$9.1 Million	$26.6 Million
		Total Passings	7,198	2,816	10,014
		Total Fixed Costs per Passing	$2,400	$3,240	$2,650
Totals (incl. distribution/ access electronics and subscriber activation costs)	60% take-rate	Total cost	$22.9 Million	$10.9 Million	$33.9 Million
		Cost Per customer	$5,300	$6,500	$5,650
	100% take-rate	Total cost	$25.9 Million	$12.2 Million	$48.2 Million
		Cost Per customer	$3,600	$4,300	$3,800

*These costs include a savings of $4.5 million for the use of existing conduit and fiber infrastructure

Note: Wireless option was explored for less dense areas in the County, but was not considered to be a significant cost variable-(~$1M for overall project)

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Comparison with Crestino Report

Similarities

- Both designs propose an open access network with a joint partnership agreement with a service provider or multiple service providers
- Hubsites (POPs) are strategically located along the core fiber route (connection between White Rock and Los Alamos) and placed on LAC property
- Both recommend the use of existing LAC-owned conduit where possible to reduce costs
- Both take into account hard rock contingency due to the geological conditions in the area

Buildout strategy

Can be done as community-wide project if partner and County put enough funding on the table

Can be implemented as a phased approach targeting particular neighborhoods and expanding one neighborhood at a time as County funding is made available over a few years

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Current grant funding environment

- Both current and future grant funds focus on unserved areas
- FCC has released new interim map that shows address level service data and confirms ubiquitous service in the County
- This map, when updated, will be used to calculate allocations to the state for BEAD funding
- State must tackle unserved areas before funding underserved ones
- Challenging the map on the basis of unreliable service to argue some locations are underserved (below 100/20) has a very high evidentiary burden
- If there are locations that are underserved, and some funding remains, it is unlikely that a grant application for the County would be successful

Three partnership models

Facilitation Model	The community makes efforts to make investment more attractive for companies
	This can be by lowering costs as well as by increasing revenues
Grant Model	The community makes a grant to the company
	The company makes enforceable commitments to build infrastructure and deliver service
Investment Model	Private partner designs and builds with public funds, but network assets are community owned
	Private partner operates and provides service to the public

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Why consider a broadband partnership?

- Manage objectives and leverage
- Manage/share risks
- Customize to risk appetite and market conditions

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Model 1 Strategies

Facilitation involves reducing costs and increasing revenues

Streamline processes & share data

- Permitting
- Inspections
- Access to assets
  - Fiber
  - Conduit
  - Real estate
  - Vertical assets for placement of wireless facilities
- Document and share data regarding your processes and your assets

Increase adoption

- Outreach campaign to those who do not subscribe
- Help eligible households access federal subsidy programs
  - Emergency Broadband Benefit
  - Affordable Connectivity Program
  - Lifeline
- Requires community-specific strategy
  - No one knows your community better than you

Strategy and goal

- Attracting private investment in broadband is often a numbers game
- Investors will deploy in areas where return is greatest, i.e., where costs are lowest relative to revenues
- Your community has the potential to reduce ISP costs by sharing data and assets and by ensuring efficient processes
- Your community has the potential to increase ISP revenues by helping eligible households get federal subsidy

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Model 2 Strategies

Grantmaking involves bridging the private sector business case

Funding strategies

- Use of traditional economic development incentives function as effective grants
- Foregone revenues do the same
- Option is restricted to using eligible funding sources (state/federal) in NM

Strategy and goal

- In this approach, the community makes a grant to a private internet service provider in return for commitments to deploy broadband
- Once again, we are playing a numbers game
- Investors deploy in areas where return is greatest
- Your community has the potential to make investment more attractive through grants
- It's critical that you secure enforceable promises in return

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Model 3 Strategies

Investment involves building your own assets and then making them available to your private partner

Private sector interest

- This model can be attractive to smaller providers who lack capital
- Larger companies (such as Google Fiber in Huntsville) have also embraced this model

Strategy and goal

- In this approach, the community funds construction of broadband infrastructure that it will own, but will be operated in the long term by a private partner
- As with any model, it's critical that you secure enforceable promises in return for access to your assets

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Summary of partnership strategies

Each model for partnership offers different levels of benefit and risk

Community strategy	Cost to County	Ability to reach public goals
Private Investment	Low	Low
Facilitation	Low	Low to Moderate
County Grant	Low to Moderate	Moderate to High
County Investment	High	High

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Partnerships are increasingly of interest to a wide range of private companies

- Competitive ISPs
- Incumbents
- Private equity and infrastructure investors
- P3 investors considering expanding to new asset classes
- Electric cooperatives and public entities

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Broadband Grants & Public-Private Collaboration

Community's goals	• Leverage private execution capabilities • Share risk • Improve grant competitiveness
Private partner goals	• Secure community facilitation with process and execution • Access public assets • Improve grant competitiveness
Granting agency goals	• Support mission • Reduce risk

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Public-private partnership examples

Rio Blanco County, CO	• County has built and owns and operates the network • ISPs provide services
Ammon, ID	• Currently expanding open access network using a utility fee model • Residents pay $3,200-3,600 for installation and $16.50/month maintenance fee • ISPs provide service at $10-25 a month for 1GB service
Mount Vernon, WA	• Leases fiber backbone • City leases network to ISPs

The Los Alamos Market will have interest from private funders

Multiple ISPs with some service overlap could lower appetite for private capital to fund build

Cable and some fiber just about everywhere makes it very unlikely grant funding would be available

Lots of dissatisfaction with incumbents, and sophisticated, relatively affluent consumers can make it very attractive

Less densely populated than most communities that are able to attract substantial private funding

Publicly funded open access model may attract multiple ISPs, but public investment may not be recoverable from future lease income

Incumbents are highly likely to accelerate upgrades of their networks if an open access FTTP infrastructure is built – which would help increase competition and improve services, but also drive down take rates

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Considerations for your partnership

Best-in-class infrastructure, secured through performance & design requirements
Universal service
Benchmark pricing
Benchmark technology & upgrade
Customer service
Competition & open access
Payments: revenue shares & fees
Opportunity to select new partner(s)
Oversight and enforcement

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ROI Considerations

- If the county funds the fiber installation, what portion, if any, could the county recover in addition to asset replacement costs?
- Any cost recovery (ROI) would come from subscriber fees.
- Scenarios could range from zero recovery to 100% recovery. More recovery = higher fees.
- Which approaches to partnership and funding best meet the County's goals?

Recommended Next Steps

Adopt a policy position that broadband is a basic essential service and that the County Manager is directed to pursue a procurement for an open access network operator to assist with the final network design, and potentially to build the infrastructure, that would enable the fiber to premise Community Broadband Network (CBN) project to proceed

General scope parameters of the procurement:

- Provide open access fiber and equipment network maintenance, Internet Service Provider (ISP) access management, billing, and general customer services
- Preference for County owned fiber
- Potential option for private investment financing
- Ensure adequate ISP participation
- Propose a cost recovery model including anticipated take rate, and fees for maintenance and infrastructure capital replacement (ROI strategy)
- Offer reliable, high-speed service at an affordable rate comparable to or better than other marketplaces with multiple ISPs

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High Level Schedule

- Partnership procurement – 6 to 8 months
- If successful, return to Council for contract award by end of CY2023
- Start implementation 2024, anticipated 3-year effort
- Concurrently with contract award and budget development, establish debt strategy for funding

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Questions / Discussion