

30% PROJECT REVIEW – COUNTY COUNCIL



23 Aug 2011

Agenda

- Project Review
- Fiber Optic Network Design
- Market Research Results
- Broadband Research
- Next Steps
- Q&A

Community Broadband Network

Project Review

- Provide open and advanced broadband communication access to LA citizens and businesses
- Conceptual design work will build on previous study (prepared for LAC in June 2009)
- Target speed 1 Gig (minimum)

Project Review (cont'd)

- Building fiber to the premise (FTTP) network
- Network Operations Center (NOC) evaluation
- Open Network – Allowing Multiple ISP's to provide competitive choice to LAC
- Business Plan – Operations, Staffing, Financial Plan, Maintenance, Budget, Legal Considerations

Project Timeline

Q4-FY11	Q1-FY12	Q2-FY12	Q3-FY12	Q4-FY12	Q1-FY13	>>>>>>
<< Conduct Quantitative Surveys >>	<< Conduct Qualitative Survey >>	<< Business Planning >>			<< RFP Process >>	
<< Design Research >>	<< Equipment Research >>	<< Network and Fiber Optic Design >>			<< Permitting Process >>	
	<< Council 30% Approval >>	<< Council 60% Approval >>		<< Council 90% & Final Approval >>	<< Funding Approvals >>	

Project Budget

Purpose	30% Budget	30% Actuals
LAC: Staffing, travel, training, materials, etc.	\$59,000	\$43,320
Design/Planning	205,270	90,210
Public Relations	25,000	8,960
Market Research	25,000	25,000
Contingency	8,235	2,285
Total	\$322,505	\$169,775

Portal



Network Design

- Technology/Equipment Assessment
- Cable Plant (fiber optic)
 - Aerial
 - Underground

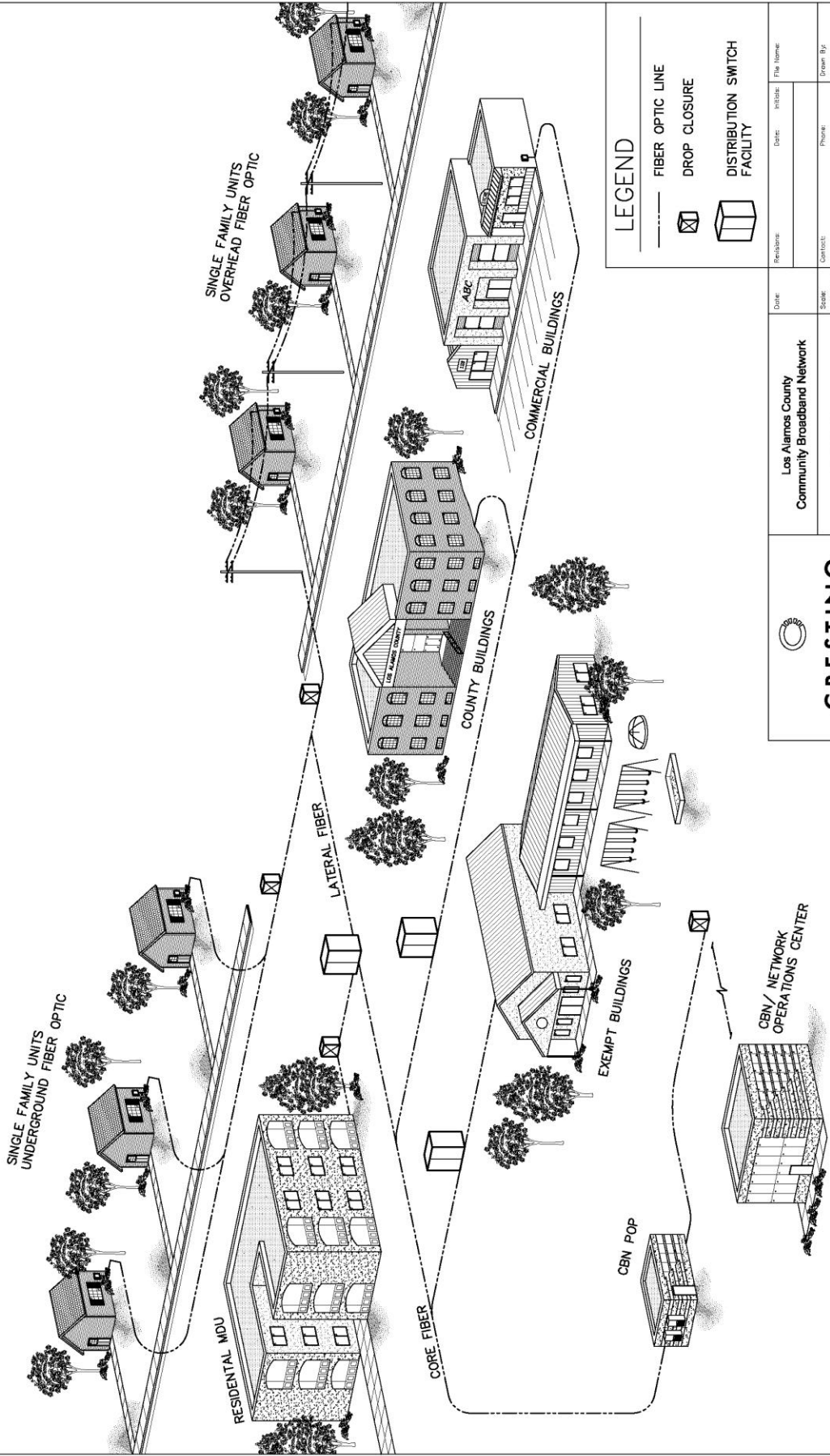
Equipment Assessment

- Functionality and capability
- Discussions and evaluation of equipment with leading industry vendors, such as:



Community Diagram

LOS ALAMOS COMMUNITY BROADBAND NETWORK



LEGEND

- FIBER OPTIC LINE
- DROP CLOSURE
- DISTRIBUTION SWITCH FACILITY

Revisions	Date:	Initials	File Name:
Scale	Date:	Initials	File Name:
Scale	Date:	Initials	File Name:
Scale	Date:	Initials	File Name:

Los Alamos County
Community Broadband Network

FTTP Architecture

CRESTINO
Telecommunications Solutions

Equipment/Technology

- ◎ Passive Optical Network (PON)
 - Point-to-multipoint
 - Distributes information via passive optical splitters
 - Single optical fiber serves multiple premises
- ◎ Active Ethernet (AE)
 - Point-to-point
 - Ethernet technology to distribute information via active switch components
 - Single optical fiber may serve single premise

PON

● Advantages

- G-PON standard for Verizon, AT&T Jan 03
- Multiple subscribers share same fiber
- Lower fiber plant costs

● Implications

- Bandwidth shared among multiple subscribers
- Open networks
- Evolving industry standards
- Star topology (single point-of-failure)
- Troubleshooting (locates)

AE

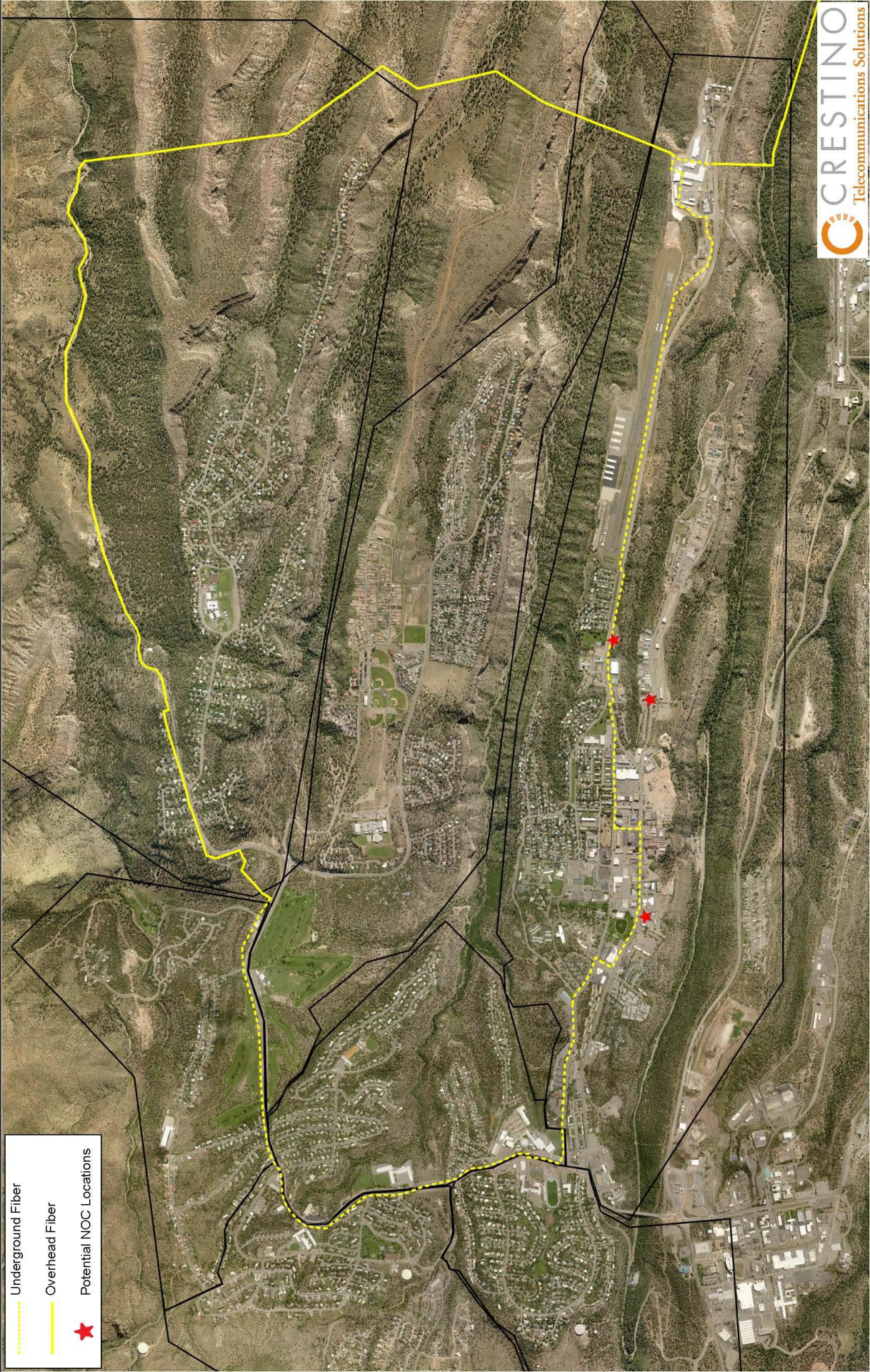
⦿ Advantages

- Mature industrial standard
- Symmetrical and dedicated bandwidth
- Scalable, flexible topology
- Greater distance for optical equipment

⦿ Implications

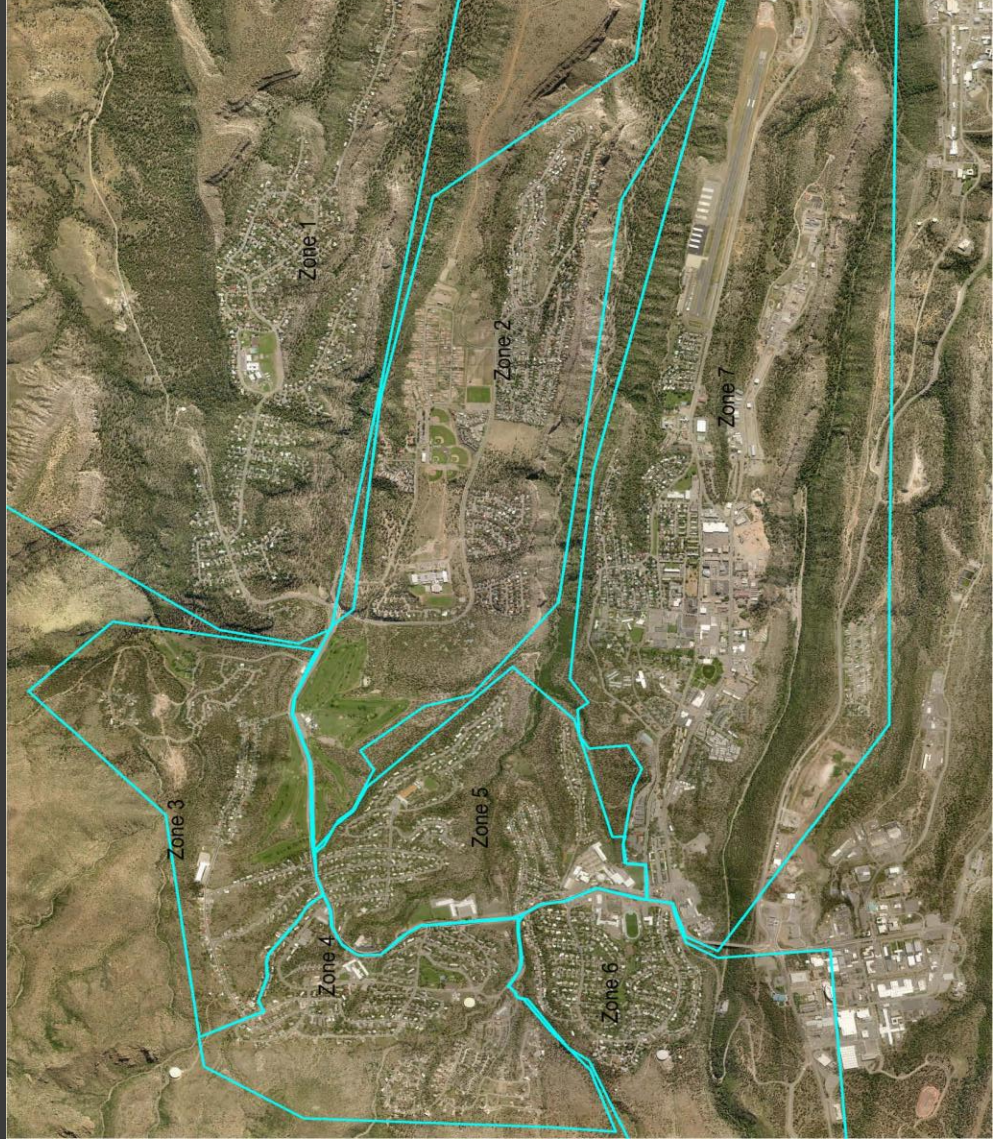
- Increased fiber cable infrastructure
- Equipment/power maintenance costs

Cable Plant/Pathway

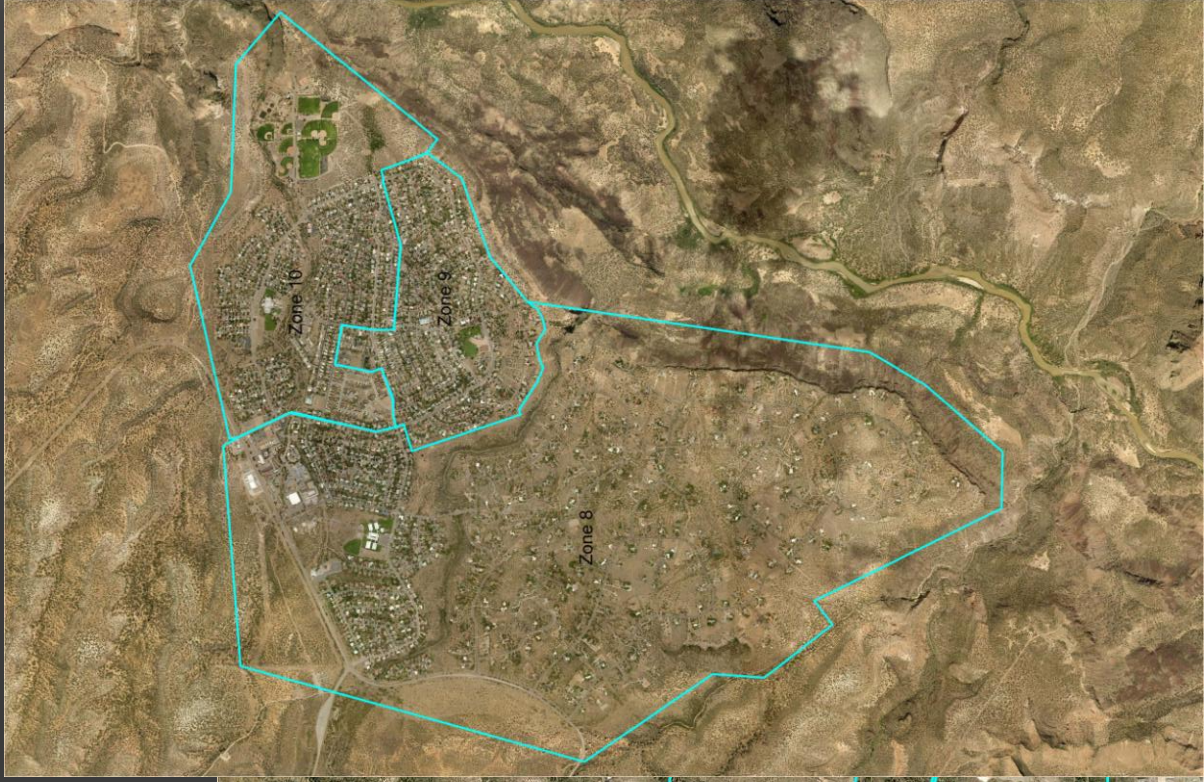


Zones

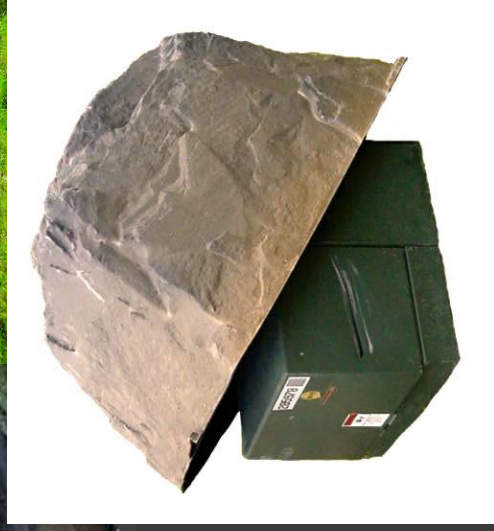
Los Alamos Townsite



White Rock

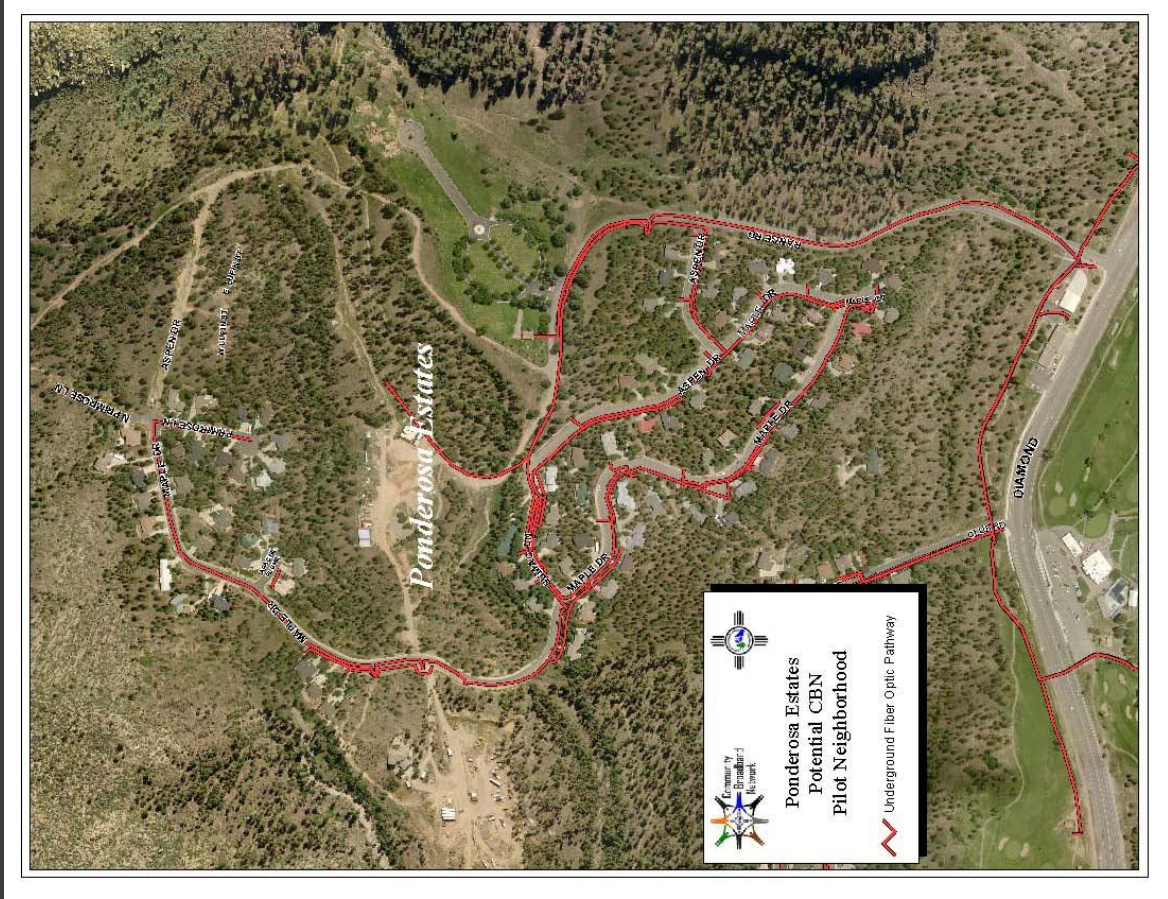


Land Use/Aesthetics



Pilot Community

- # Map of potential fiber optic pathway



Connecting CBN To Outside Markets

- ◎ Multiple internet connections
 - CenturyLink (Qwest)
 - REDI Net
 - Other Public/Private Partnerships (PPPs)
- ◎ The addition of REDI Net provides
 - Multiple 10 Gbps links to POP
 - Two Internet ISPs (East NM TelCom, Windstream)
 - 100% fiber optic based, end-to-end

Connecting CBN To Outside Markets

- ◎ Exploring additional route alternatives
 - Existing private infrastructure
 - Further redundancy and interconnect options

Market Research

- To provide quantitative analysis from both residents and local businesses which will provide input to business planning
- To obtain qualitative feedback for more in-depth understanding of community needs

Survey Results - Residents

- 92% LAC residents have internet at home
- Over 30% report some dissatisfaction with current ISP (slow speed/unreliable service)
- Only 30% were very satisfied with the overall quality of service provided
- 2/3 of respondents feel fiber optic technology is better compared to other technologies

“Puts us in the lead, instead of catch-up mode”

Survey Results – Residents (cont'd)

- 77% felt the economy could be stimulated by CBN
- 82% believe CBN would foster long-term educational growth
- 85% look forward to an “open network” to encourage competition and choice among ISP’s
- Only 22% of the residents of LAC reported reliable television service
- 67% responded they would be willing to switch their television service to providers that would offer this over broadband

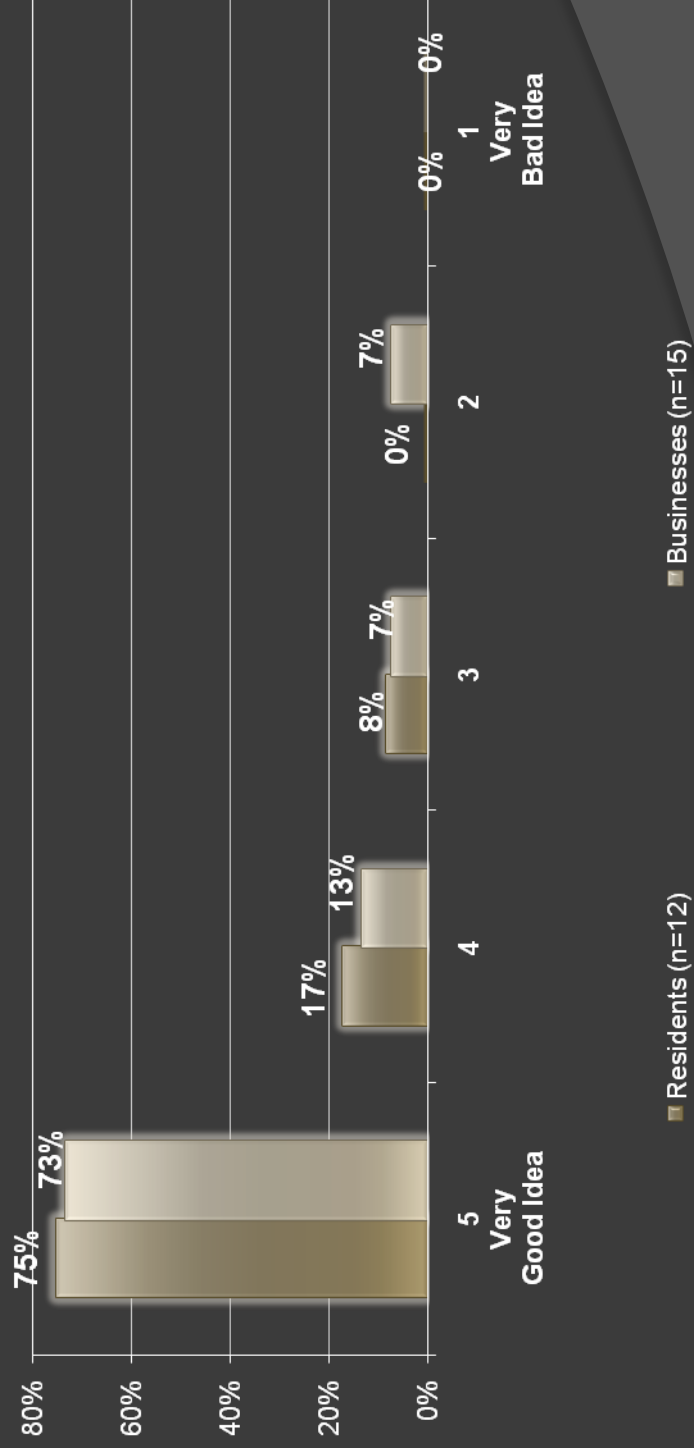
Survey Results – Business

- 96% have access to Internet services
- Approx. 61% bundled (landline phone, cable, data services)
- Data backup/disaster recovery (14%), data transport (10%), data storage (10%), video conference (5%)
- Top reasons for dissatisfaction – slow speed (23%), unreliable service (13%)

“This will help save local businesses.”

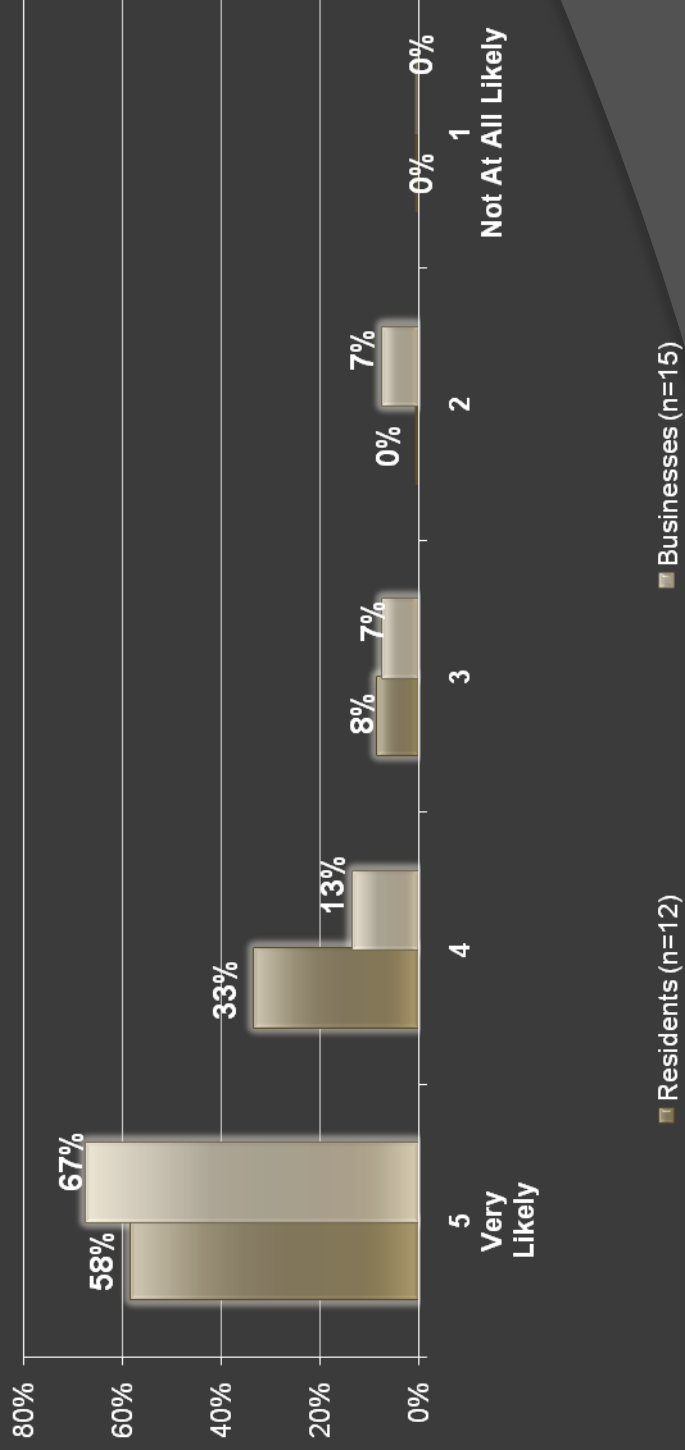
Public Meeting Feedback

Overall Rating of Proposed
Community Broadband Network



Public Meeting Feedback

Likelihood of Using a Service Through the Proposed
Community Broadband Network



Why Broadband?

- ◉ Advances in Ethernet equipment performance
 - Speed & distance
- ◉ Decline in equipment, fiber, construction prices
 - Standards based & widely deployed
- ◉ Cable plant
 - LAC additional conduit/infrastructure
 - Installation improvements in microduct and microtrenching

Why Broadband?

- ◎ General consumer behavior toward and uses for broadband
- ◎ Industry momentum (FTTH Council), adoption and deployment
- ◎ LAC shift to open access model
 - Add'l County collaboration opportunities
- ◎ Multiple interconnect options for LAC
 - Lower bandwidth pricing and route diversity

Fiber's Impact on Download Speeds

Type of Service/ Connection	Data Rate/ per second	E-mail w/ attachment (2MB)	X-ray Photo (8MB)	Instructional Video (600 MB)	DVD Movie (4.7GB)
Dial-Up	56 Kb	7.11 min	28.43 min	1.48 days	11.6 days
DSL	2 Mb	9.50 sec	38.01 sec	47.51 min	6.20 hours
Fiber	10 Mb	2.13 sec	8.53 sec	10.67 sec	1.39 hours
Fiber	100 Mb	.21 sec	.85 sec	1.07 min	8.36 min
Fiber	1 Gb	.02 sec	.09 sec	6.40 sec	50.10 sec

*Statistics from City of Cortez, CO (http://www.cityofcortez.com/government/general_services/cortez_fiber_home_project/fibers_impact_download_speeds)

National CBN's

- ⦿ Successful Initiatives
 - Chattanooga, TN
 - Lafayette, LA
 - Chelan County, WA
 - Urbana, IL
- ⦿ Challenged Implementations
 - *UTOPIA*, UT
 - Glenwood Springs, CO
 - Provo, UT

Recommendations

- Understand today's technology, but build for the future
- Business Plan is key – take rate, revenue estimates, on-going costs
- Consider objectives and design strategy to meet specific objectives
- SME (Gartner) review and input
- Think globally, act locally!

Some Reasons for Broadband

- AT&T CEO Randall Stephenson spoke 7/19/11 at the National Association of Regulatory Utility Commissioners meeting, where he called his company's copper-based DSL broadband technology "obsolete."
- Seventy-one percent of online Americans are using video-sharing sites such as YouTube and Vimeo as of May, up from 66 percent a year ago, according to a survey by the Pew Research Center.
- YouTube receives more than three billion views a day, according to the Google-owned video-sharing site, and 48 hours of video are uploaded every minute.
- Netflix accounts for approximately 30% of internet traffic.

Community Broadband Network

Next Steps

- ISP Workshop
- Network Design
- Business Planning
- Public meetings
- National CBN review

Thank you!



For additional information:
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