

## Jemez-Zia Pueblo Tribal Consortium

San Diego Riverside (NM Charter) • Walatowa High School (NM Charter)  
Jemez Tribal Library • Zia Tribal Library



## Middle Rio Grande Pueblo Tribal Consortium

Pueblo de Cochiti Tribal Library • Santo Domingo Tribal Library  
San Felipe Pueblo Community Library • Santa Ana Pueblo Community Library

# Beginnings

MRG CONSORTIUM MEMBERS	BEFORE			
School/Library Name	Connection Type/Qty	Current Speed (Mbps)	Monthly Recurring Cost (MRC)	Current Cost/Mbps
Santa Ana Community Library	Microwave	70	\$960	\$13.71
San Felipe Pueblo Community Library	2 x T1s	3	\$700	\$233.33
Santo Domingo Tribal Library	Satellite	3	\$116	\$38.67
Pueblo de Cochiti Tribal Library	LTE Mi-Fi	10	\$1,400	\$140.00

**Tribal Libraries:  
Critical  
Community  
Computing  
Centers**

JEMEZ / ZIA CONSORTIUM MEMBERS	BEFORE			
School/Library Name	Connection Type/Qty	Current Speed (Mbps)	Monthly Recurring Cost (MRC)	Current Cost/Mbps
Jemez Pueblo Community Library	1x DSL	12	\$95	\$7.92
Jemez Day School	6x T1s	9	\$2,549	\$283.24
San Diego Riverside Charter School	2x DSL	12	\$1,200	\$100.00
Walatowa Charter High School	3x T1s	4.5	\$550	\$122.22
T'siya Pueblo Elementary School	1x T1	1.5	\$303	\$202.00
Pueblo of Zia Tribal Library	Ethernet	10	\$0	\$0.00

**Very Underserved  
Little IT  
Support**

**Barely  
Using  
E-rate**



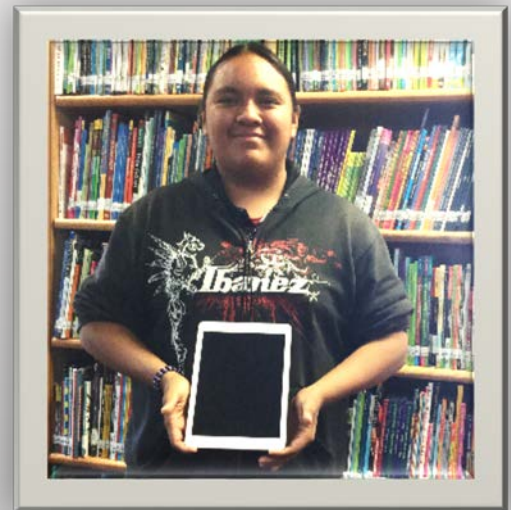
# Broadband in Tribal Libraries

## Critical community infrastructure for computer services

- K-12: After school homework and live tutoring often using cloud apps, Kahn Academy
- Adults: On-line classes for college degrees, GED, basic literacy, certificates, i.e. food handlers
- On-line college applications, scholarships, FAFSA
- Video-Conferencing for language and/or culture
- Website Portals for on-line banking, bill pay
- Required on-line testing for NM Drivers License, Food Handlers Classes, Permits and Safety course for NM Game and Fish
- Social services for senior, disabled and veterans e.g. Social Security, Medicare, Veteran benefits
- Filing federal and state taxes, managing refunds
- Job searches, applications, resume writing, unemployment claims
- Public Internet access for personal devices, including parking lot Wi-Fi
- Center for connectivity during emergencies



SD Youth ages 18-20 update their resumes and apply for federal and tribal financial aid for college



Winner of a logo contest receives an iPad that cannot be used in the pueblo due to connectivity issues

# Broadband in Schools

## Conduit of teaching, learning, and school operations

- Using Internet content in teaching and learning, *e.g.*, Kahn Academy, digital textbooks, YouTube
- Communication and collaboration with students and teachers, *e.g.*, Google Classroom
- Mobile devices provide new opportunities but require high-speed Internet, *e.g.*, iPads, Kindles, and Chromebooks
- NASIS Parent Portal to check assignments and grades (BIE)
- Mandatory online testing, *e.g.*, PARCC, MAPS
- Distance learning, *e.g.*, college dual enrollment
- Videoconferencing back to Tribes in native language classes
- Virtual field trips across the globe
- Administration: Online human resources, accounting, phone, safety, and e-mail systems



Santa Fe Indian School students use computers in all classes in all grades as part of instruction



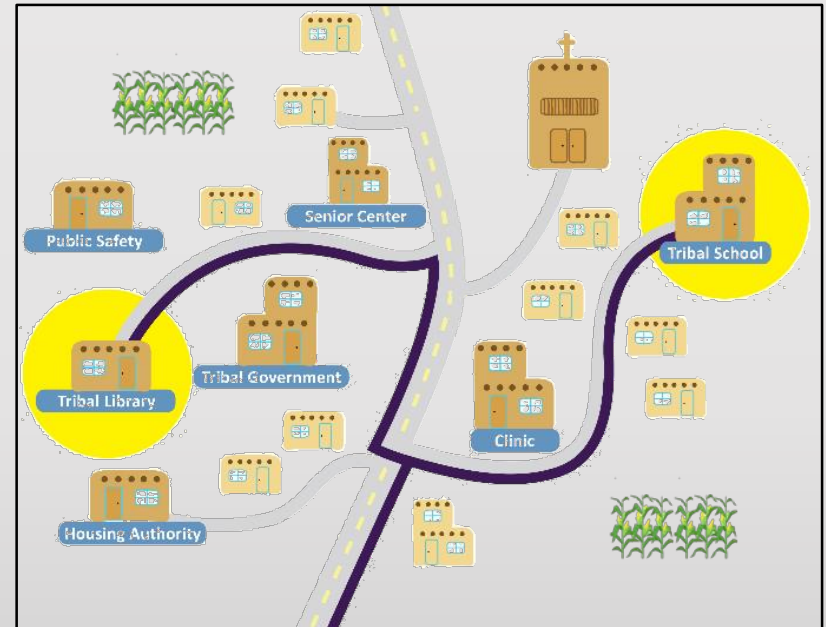
# The Opportunity

## E-rate Modernization

- New: Discounts on fiber construction
- Up to a 90% subsidy
- Limited time: Additional 5% discount if match is from Tribal, State, Federal Source

## E-rate Strategy

- Consortia Method
- Geographical Approach: All Schools & Libraries
- Small Communities: Aggregated Demand
- WAN Design – Aimed for 505 Marquette
- Technical Assistance: Santa Fe Indian School, AMERIND Risk, University of New Mexico, New Mexico State Agencies, Industry



# The Result

## Special Fiber Construction

- Two Self-Provisioned Networks
  - Our discount 95% off \$4.2M projects
  - The other was 5% was paid by NM State Matches
- Participating Entities
  - 2 NM State Charter Schools
  - 6 Tribal Libraries
  - Intended to connect 3 BIE-Operated Schools
- 12 Strand 60-mile network from Albuquerque to Cochiti
  - 30 Miles Leased Dark Fiber
  - 30 Miles Self-Construction (12 Strands)
  - DWDM Electronics
  - Tribally-Owned and Operated
- New Capabilities
  - UNM GigaPop Benefits – Google, Microsoft Caching
  - Peering with all higher education in NM  
➔ Increased Dual Enrollment
  - Internet2 Membership
  - Increase collaboration between tribal school and libraries for native language revitalization and culturally-relevant curriculum



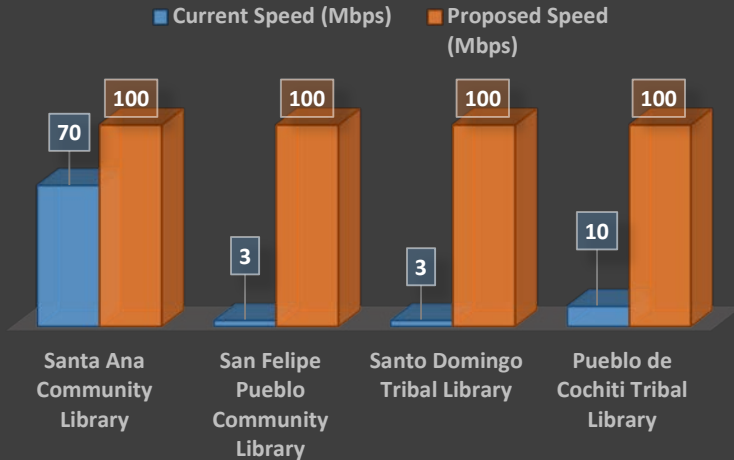
# Finances

Middle Rio Grande Pueblo Consortium E-Rate Funding Commitment Decision (FCDL)					
Vendor	Product/Service	Discount Level	One-Time NRC	E-rate Pays	Consortia Match
UNM	Equipment Installation	90%	\$4,600	\$4,140	\$460
Zayo	20 Year Leased Dark Fiber IRU (2 strands)	90%	\$462,000	\$415,800	\$46,200
Kelly Cable of NM	Construction 30 Miles: 1 conduit, 12 Strands	95%	\$3,543,724	\$3,366,537	\$177,186
Deltaware (Kelly)	DWDM Equipment	90%	\$200,174	\$180,157	\$20,017
Kelly Cable of NM	Maintenance and Operations	90%	\$16,560	\$16,560	\$16,560
Total: \$3,983,193.94					\$260,423.57

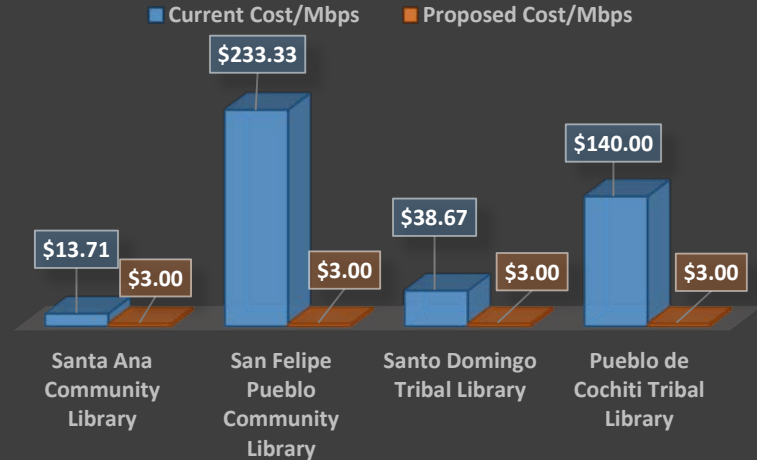
Funding Sources				
	Santa Ana	San Felipe	Santo Domingo	Cochiti
Match per FCDL	\$65,105.89	\$65,105.89	\$65,105.89	\$65,105.89
Funding Sources	Pueblo of Santa Ana	2016 Library GO Bond	2014 Library GO Bond	Sandoval County GO Bond/ 2014 State GO Bond
Libraries Out-of-Pocket Costs	\$0.00	\$0.00	\$0.00	\$0.00

# Before / After

## BROADBAND SPEEDS



## BROADBAND COSTS



MRG CONSORTIUM MEMBERS	BEFORE					AFTER				
School/Library Name	Connection Type/Qty	Old Speed (Mbps)	Monthly Recurring Cost (MRC)	Old Cost/Mbps	Old Cost/Mbps w/E-Rate	Connection Type/Qty	New Speed (Mbps)	Monthly Recurring Cost (MRC)	New Cost/Mbps	New Cost/Mbps w/E-Rate
Santa Ana Community Library	Microwave	70	\$960	\$13.71	N/A	Fiber	100	\$300	\$3	30 cents
San Felipe Pueblo Community Library	2 x T1s	3	\$700	\$233.33	\$23.33	Fiber	100	\$300	\$3	30 cents
Santo Domingo Tribal Library	Satellite	3	\$116	\$38.67	\$3.87	Fiber	100	\$300	\$3	30 cents
Pueblo de Cochiti Tribal Library	LTE Mi-Fi	10	\$1,400	\$140.00	\$14.00	Fiber	100	\$300	\$3	30 cents



# E-rate Next Steps

## Build the Pueblo Education Network:

- Following other 23 State Network models
- Tribally-owned network hub at the Santa Fe Indian School
- Help NM Public Schools and Libraries
- Connect the Tribal schools and/or libraries to each other for increased collaboration, prioritizing language and culture
- Connect to the University of New Mexico Albuquerque GigaPop:
  - Peering with NM Higher Ed
  - Internet2
  - Caching with Google, Netflix, Microsoft, etc.
- Continued participation in E-rate through a consortium application
- Sandia National Labs – Cybersecurity grant award to develop the network
- Coordinate tribal libraries and schools to develop educational programs
- Work with tribal IT departments to grow next gen of IT professionals

