New Mexico
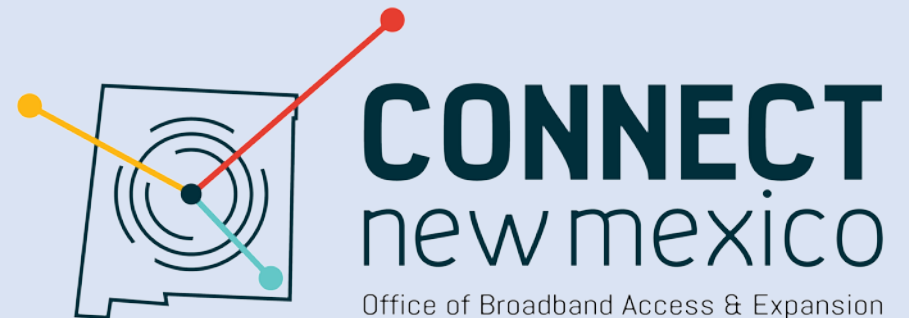# Office of Broadband Access and Expansion (OBAE)

Science Technology & Telecommunications Committee

October 31, 2023
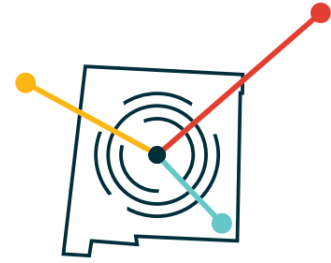
Drew Lovelace, *Acting Broadband Director*

(505) 795-1672

Drew.Lovelace@connect.nm.gov

Discussion Points

Topics

- OBAE Background
- Broadband 101
- OBAE Successes
- Programs
  - Broadband Equity Access and Deployment (BEAD)
    - Timeline
    - Definitions
    - Priorities
    - Unserved Map
- Challenges
- Legislative Priorities
  - Workforce development
  - Capital investments
  - Support services
- Additional Resources

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OBAE Background
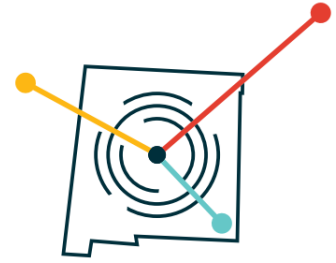
- Created in 2021 Legislation the Office got started in June 2022.
  - Captured $780M in Federal Funding
  - Managing $170M in State Funding

- Vision: Achieve enterprising, affordable broadband solutions for New Mexicans that honor the state's rich heritage and elevate quality of life for all

- Values: Seven values defining OBAE's people, processes, planning, and programs:

  1. courageous
  2. honest
  3. curious
  4. innovative
  5. respectful
  6. collaborative
  7. analytically rigorous

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OBAE Background
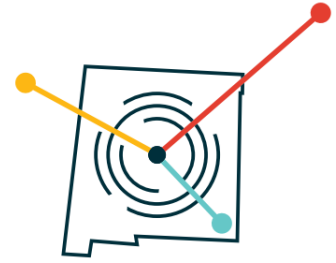
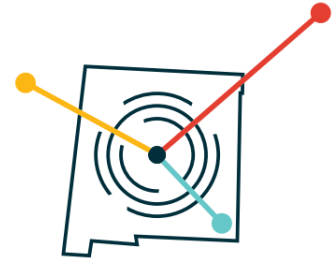OBAE Act and Connect New Mexico Act
- Technical Assistance
- Statewide Broadband Maps
- Broadband Grants and Programs
- Broadband Rights of way and permits
- Middle Mile Provider of last resort
- Digital Equity

By Memorandum of Understanding
- State Education Network

Broadband 101: Why Broadband

Broadband touches every part of our lives.

Health

- **Telehealth visit**
  - **From home**
  - **From clinic**
  - **Specialists**
  - **Reduced Wait times**
  - **Reduced wait times**

Education

- **State Education Network**
  - **Connect schools with one another**
  - **Connect children to resources**
  - **Online education Opportunities**
  - **Flexibility**
- **Tutoring**
- **Language services**
- **Digital Equity**

Entertainment

- **Streaming**
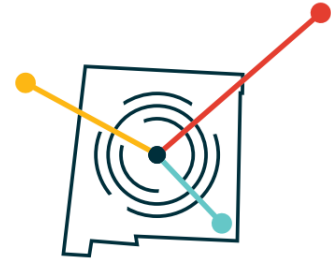- **Gaming**
- **Music**
- **Books**

Business

- **Credit Cards**
- **Support Services**
- **Sales**
- **Remote/Hybrid Work**

Other: Quality of Life

- **Government Services**: E-Government, taxes, etc
- **Real Time Communications**
- **Internet of Things**
- **Security systems**
- **Shopping**
- **Commerce**

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Broadband 101

Definition: Broadband is high-speed internet access that allows fast data transmission.

Analogy: Think of it as a wide, fast highway for data

Types of Broadband

- **DSL**: Uses phone lines.
- **Cable**: Through TV cable.
- **Fiber**: Fast, via optical cables.
- **Wireless**: Over the airwaves (like mobile data).
- **Satellite**: Via orbiting satellites.

How Broadband Works

- **Data Transmission**: Bits of data sent in packets.
- **Speed**: Measured in Mbps (Megabits per second).
- **Uploading and Downloading**: Two-way communication.
- **Latency**: Time delay (lower is better).

Why Broadband Matters

- **Connectivity**: Links people, businesses, and government.
- **Education**: Enables online learning.
- **Economy**: Boosts businesses, especially in rural areas.
- **Healthcare**: Telemedicine and patient data.
- **Government Services**: E-Government, taxes, etc.

Challenges and Gaps

- **Rural Areas**: Limited access due to infrastructure.
- **Affordability**: Not everyone can afford it.
- **Digital Literacy**: Understanding how to use it.
- **Data Security**: Protecting personal information.

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Broadband 101: Technology Types
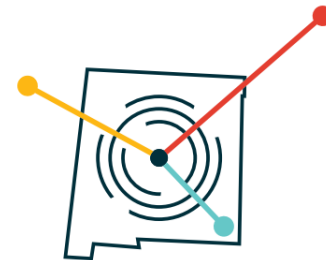
Wireless:

- Data transmitted through airwaves.
- Slower speeds (typically in Mbps).
- Shared bandwidth, can be affected by network traffic.
- Prone to interference (e.g., weather, physical obstacles).
- Higher latency (delay in data transfer).

Fiber:

- Data transmitted via optical cables.
- Only truly symmetrical tech type (e.g.,100/100 Mbps)
- Faster speeds (often in Gbps).
- Dedicated bandwidth, consistent performance.
- Highly reliable, immune to most interference.
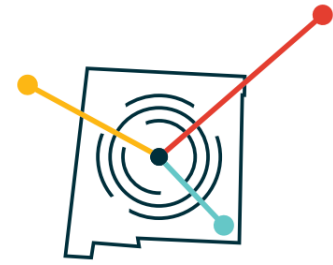- Low latency, ideal for real-time applications.

Satellite:

- Data transmitted via orbiting satellites.
- Slower speeds (typically in Mbps).
- Shared bandwidth, affected by network congestion
- Prone to interference (e.g., weather conditions).
- High latency due to the distance to orbiting satellites.

DSL:

- Data transmitted via signals carried over traditional copper phone lines.
- Shares bandwidth with other users in the same neighborhood.
- Slower speeds (typically in Mbps).
- Prone to slowdowns during peak usage times.
- Susceptible to interference, especially over long distances.
- High latency, usually due to network congestion

Completing the New Mexico Broadband Highway

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Broadband 101: Typical Needs for Family of Four

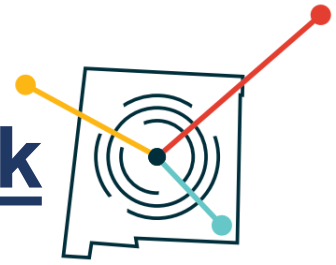| Peak Bandwidth Utilization – Family of Four (Daytime)	Download / Upload
Telework/Telehealth Video Conferencing (4 Mbps / 4 Mbps per user)	8 Mbps / 8 Mbps
Tele-Learning Remote Classroom (4 Mbps / 4 Mbps per user)	8 Mbps / 8 Mbps
HD Streaming Video Applications (Netflix, Disney+, etc.) (5 Mbps / 0.2 Mbps per stream	5 Mbps / 0.2 Mbps
Home security (Ring, etc.) and other household smart devices (Alexa, Cortana, etc.) (2 Mbps / 2 Mbps per system)	2 Mbps / 2 Mbps
TOTAL BANDWIDTH USE (rounded)	23 Mbps / 18 Mbps

Peak Bandwidth Utilization – Family of Four (Evening)	Download / Upload
Online Video Gaming (3 Mbps / 0.5 Mbps per user)	3 Mbps / 0.5 Mbps
Streaming Video Applications (1 UHD at 25 Mbps / 0.2 Mbps, 1 HD at 5 Mbps / 0.2 Mbps per stream)	30 Mbps / 0.4 Mbps
Surfing Internet (1.3 Mbps / 0.3 Mbps per user)	4 Mbps / 1 Mbps
Home security (Ring, etc.) and other household smart devices (Alexa, Cortana, etc.) (2 Mbps / 2 Mbps per system)	2 Mbps / 2 Mbps
TOTAL BANDWIDTH USE (rounded)	39 Mbps / 4 Mbps

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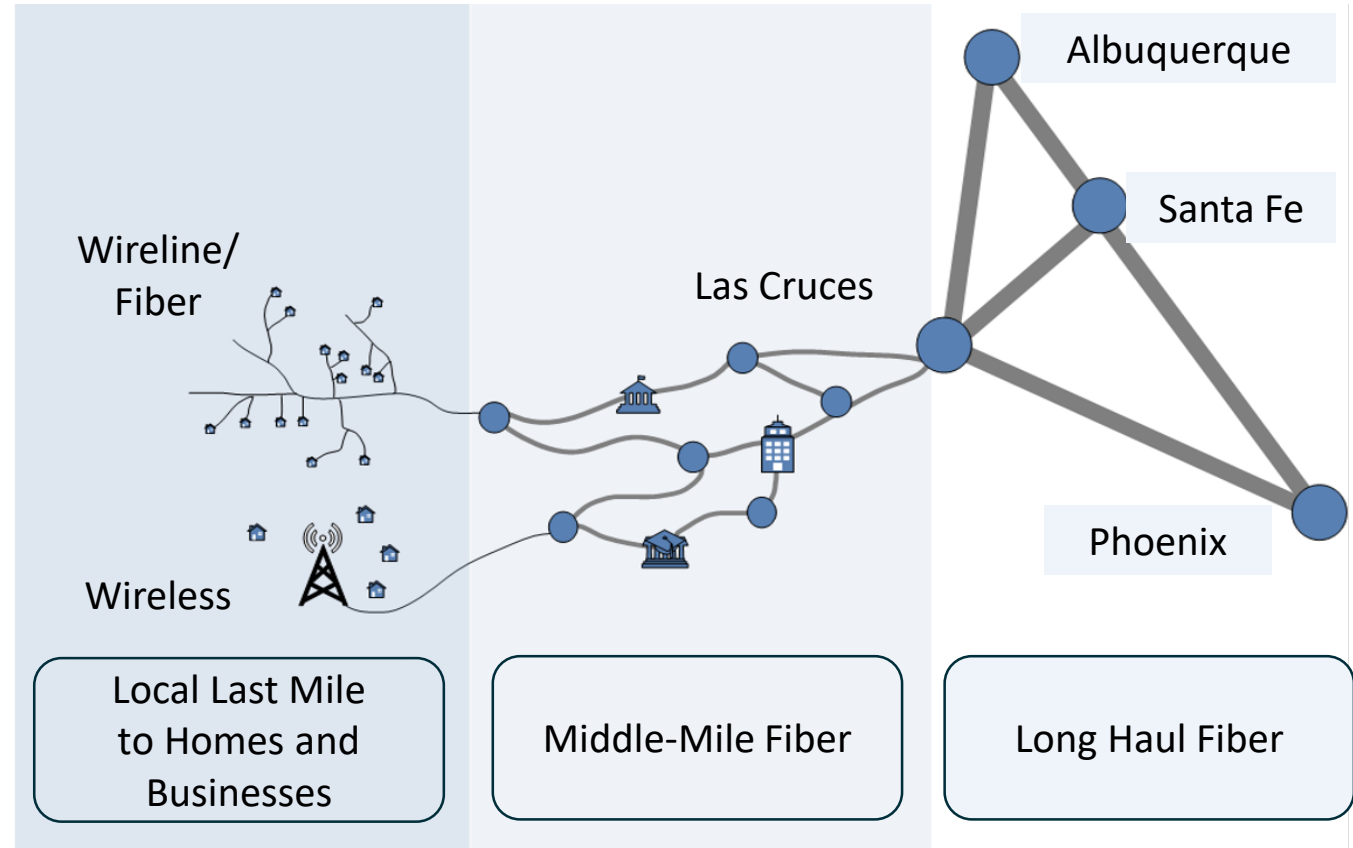# Broadband 101: Future Needs Will be Higher
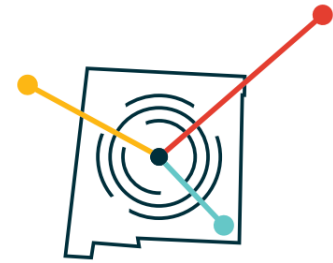
Future Peak Bandwidth Utilization Family of Four (Daytime)	Download / Upload
Home business operations (20 Mbps / 20 Mbps per user)	20 Mbps / 20 Mbps
Telework / Telehealth video conferencing (6 Mbps / 6 Mbps per user)	6 Mbps / 6 Mbps
UHD streaming video applications (25 Mbps / 0.2 Mbps per user)	25 Mbps / 0.2 Mbps
Distance learning remote classroom (6 Mbps / 6 Mbps per user)	12 Mbps / 12 Mbps
Home security (Ring, etc.) and other household smart devices (Alexa, Cortana, etc.) (2 Mbps / 2 Mbps per system)	2 Mbps / 2 Mbps
Augmented/virtual reality HD advanced level (400 Mbps / 400 Mbps per user)	400 Mbps / 400 Mbps
TOTAL BANDWIDTH USE (rounded)	467 Mbps / 442 Mbps

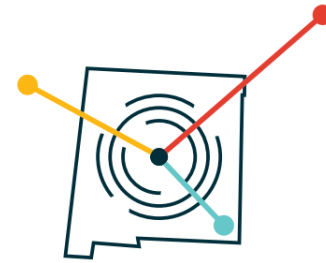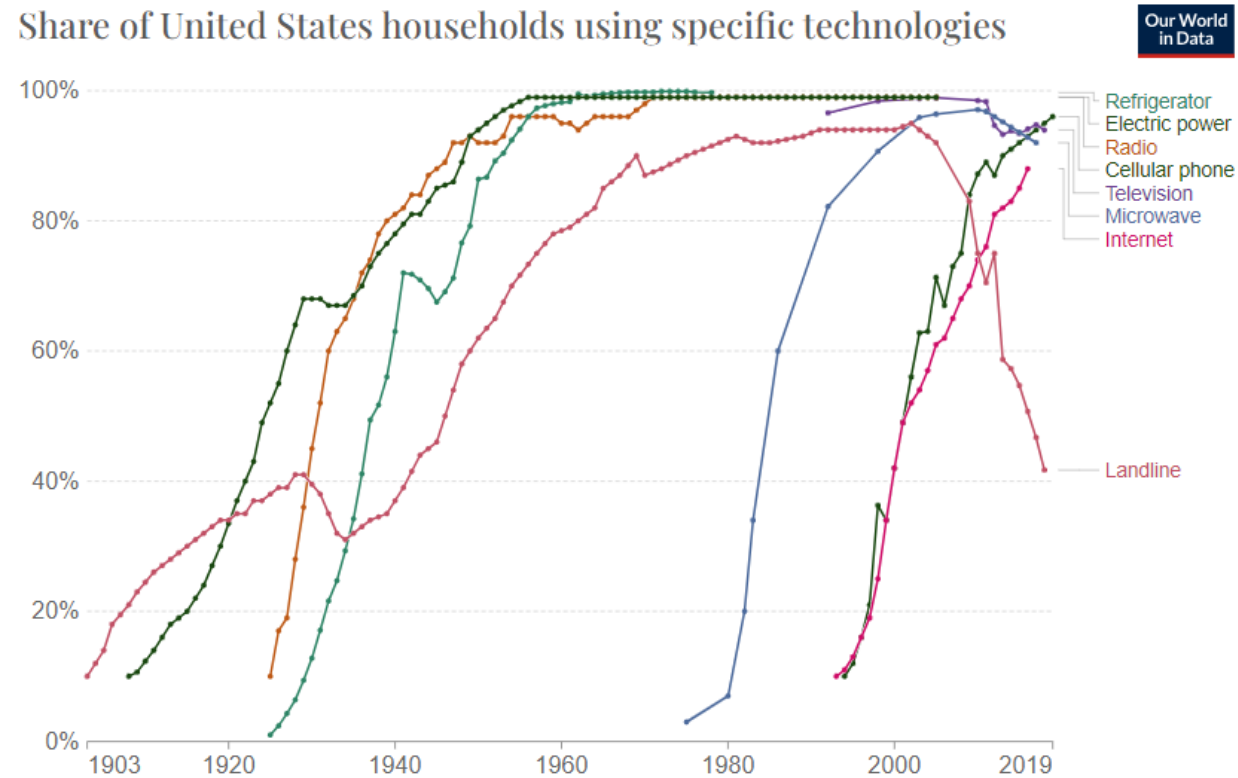| Future Peak Bandwidth Utilization Multi-Generational/Family of Four (Evening)	Download / Upload
Online video gaming (4 Mbps / 2 Mbps per user)	8 Mbps / 4 Mbps
UHD streaming video applications (25 Mbps / 0.2 Mbps per user)	75 Mbps / 0.6 Mbps
Surfing internet (2 Mbps / 0.7 Mbps per user)	6 Mbps / 2 Mbps
Video chat (Zoom, etc.) (6 Mbps / 6 Mbps per user)	6 Mbps / 6 Mbps
Home security (Ring, etc.) and other household smart devices (Alexa, Cortana, etc.) (2 Mbps / 2 Mbps per system)	2 Mbps / 2 Mbps
Augmented/virtual reality HD advanced level (1,200 Mbps / 1,200 Mbps per user)	1200 Mbps / 1200 Mbps
TOTAL BANDWIDTH USE (rounded)	1299 Mbps / 1217 Mbps

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Broadband 101: Elements of a Broadband Network

- Long haul fiber
- Middle mile fiber
- Last mile (wireline or wireless)

Completing the New Mexico Broadband Highway

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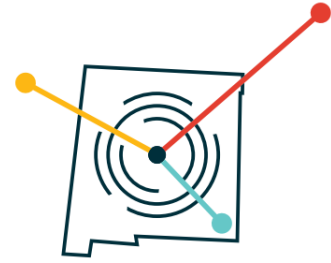# Broadband 101: Technology Adoption

Share of United States households using specific technologies

Data source: Horace Dediu; Comin and Hobijn (2004); other sources collated by Our World in Data
OurWorldInData.org/technological-change | CC BY

https://ourworldindata.org/grapher/technology-adoption-by-households-in-the-united-states?facet=none&country=Electric+power~Landline~Microwave~Refrigerator~Cellular+phone~Television~Internet~Radio

Completing the New Mexico Broadband Highway

OBAE Successes

Team is growing
- September 2022 – 2 employees
- September 2023 – 20 employees and growing
  - Adding
    - Program coordinators
    - Project managers

BEAD
- 22 of 23 Tribal consultations for BEAD are complete!
- 5-year strategy plan submitted
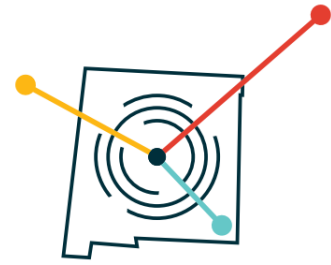- Initial Proposal Volume 1 posted for public comment

Connect New Mexico Fund
- Apply now

Tribal Dashboard Taskforce
- Dashboard

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Grant Writing, Engineering, & Planning Grant Program (GWEP)

New Mexico Grant Writing, Engineering, & Planning Program (GWEP)

What is the Grant Writing, Engineering, and Planning (GWEP) Grant:

- The Office of Broadband Access and Expansion (OBAE) will award financial assistance grants to aid Tribal governments and local governmental units in procuring grant writing, engineering, and/or planning assistance to help identify community broadband needs and to support applying for other funding sources for broadband-related projects.

Who may apply:

- Tribal governments
- Local governmental units (federal government, state government, local/municipal governments, public or municipal organizations that are government owned and operated, units of a state university system)
- Rulemaking is in progress to open this opportunity to rural telephone cooperatives and rural electric cooperatives at a future date; this will be announced when eligible

What kind of funding is available?

- Maximum grant award is $100,000
- Grant funds are limited; application will remain open until all funds are obligated.
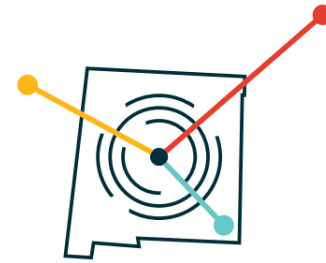- Matching funds are not required.

How to apply:

- We have created an application portal through Submittable . Use the button below to apply.

APPLY NOW

Connect New Mexico Fund $5 Million

- Launched 10-18-23
  - Tribes
  - Local Governments
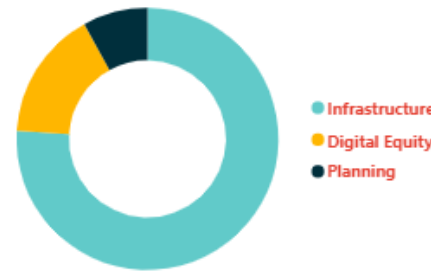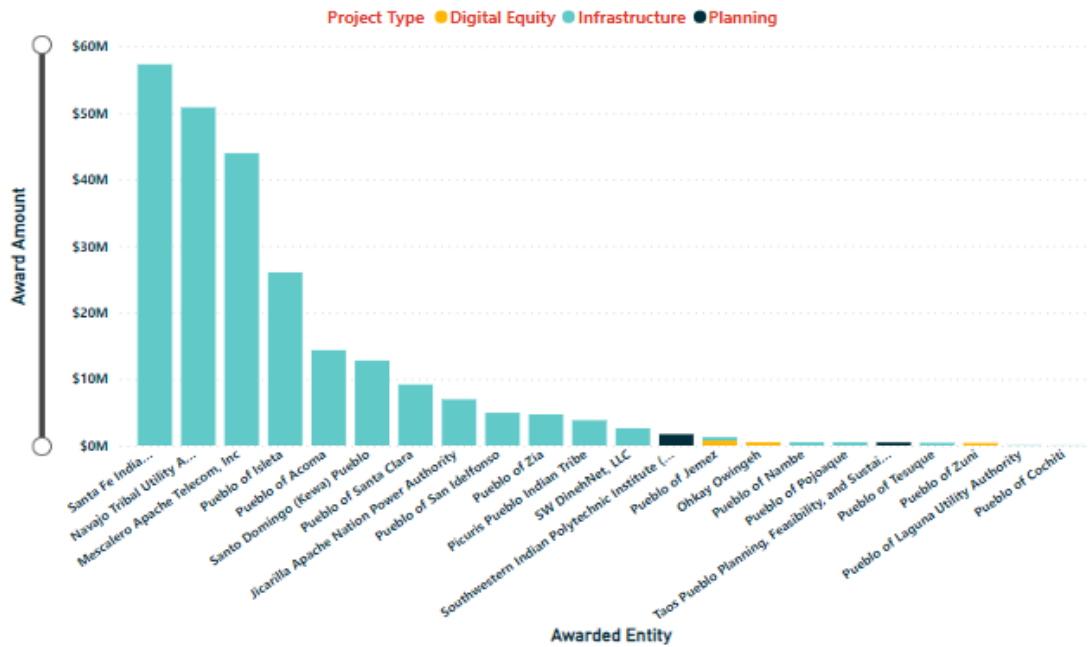 - Electric Co-ops
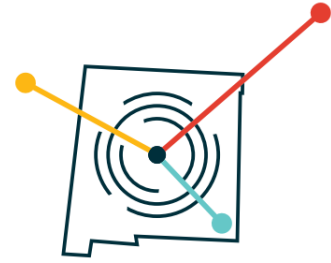 - Telco Co-ops

Tribal Task Force

Launched 10-20-23
- IAD
- Pueblo of Cochiti
- Pueblo of Laguna
- Pueblo of Jemez
- Shared with Tribal Leaders
- Will update when additional public facing data is available

OBAE Successes: Upcoming

BEAD

- Initial Proposal Volume 2
  - Public Comment November 15

Initial Proposal Deadline
- December 28

Digital Equity Plan
- Draft November 28 to NTIA
- Public Comment End of December/January
- Due February 28

3-Year Strategic Plan
- Update January 1
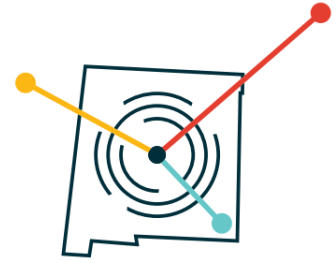
Be Pro Be Proud
- Bus Launch Nov 9th

Connect New Mexico Fund Infrastructure Grant
- $70 M launch Q4

DOT
- Middle Mile Project

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Programs

2023 Programs

- Connect New Mexico Pilot - $117M Awarded 2023
- Grant Writing, Engineering Planning – $5M Open October 2023
- Connect New Mexico Infrastructure Grant - $70M Q4 2023

2024-2025 Programs

- Broadband Equity, Access, and Deployment (BEAD) - $675M
- Connect New Mexico School Infrastructure - $25M
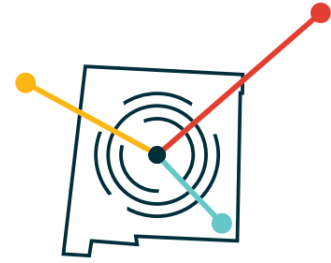- Digital Equity – $??? NTIA Grant releasing Summer 2024
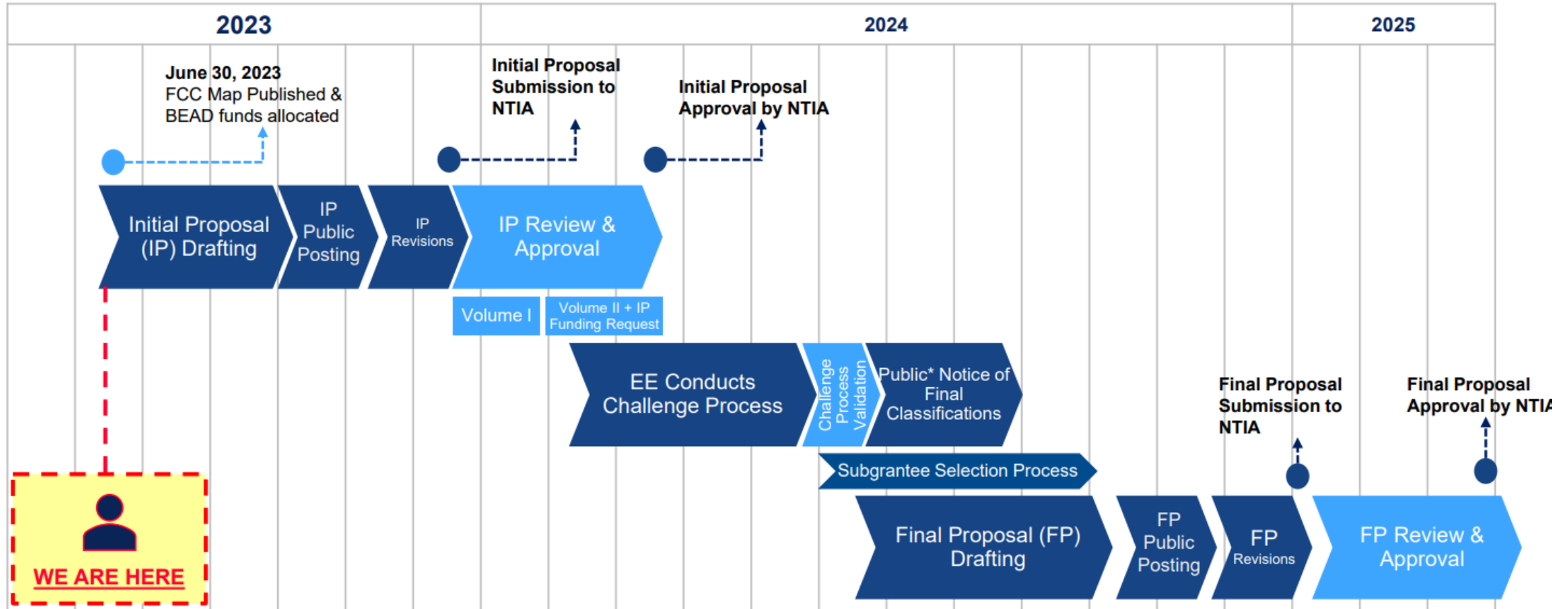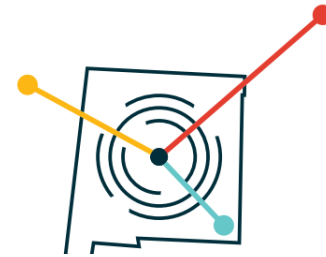
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Programs: BEAD

Programs: BEAD

Definitions you need to know:

- Unserved
  - 25 download / 3 upload and below
- Underserved
  - Between 25 download/ 3 upload and 100 download / 20 upload
- Served
  - 100 download / 20 upload and above
- BSL – Broadband Serviceable Locations (building)
- CAI - Community Anchor Institutions
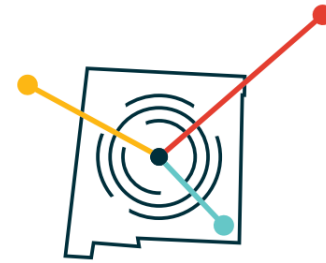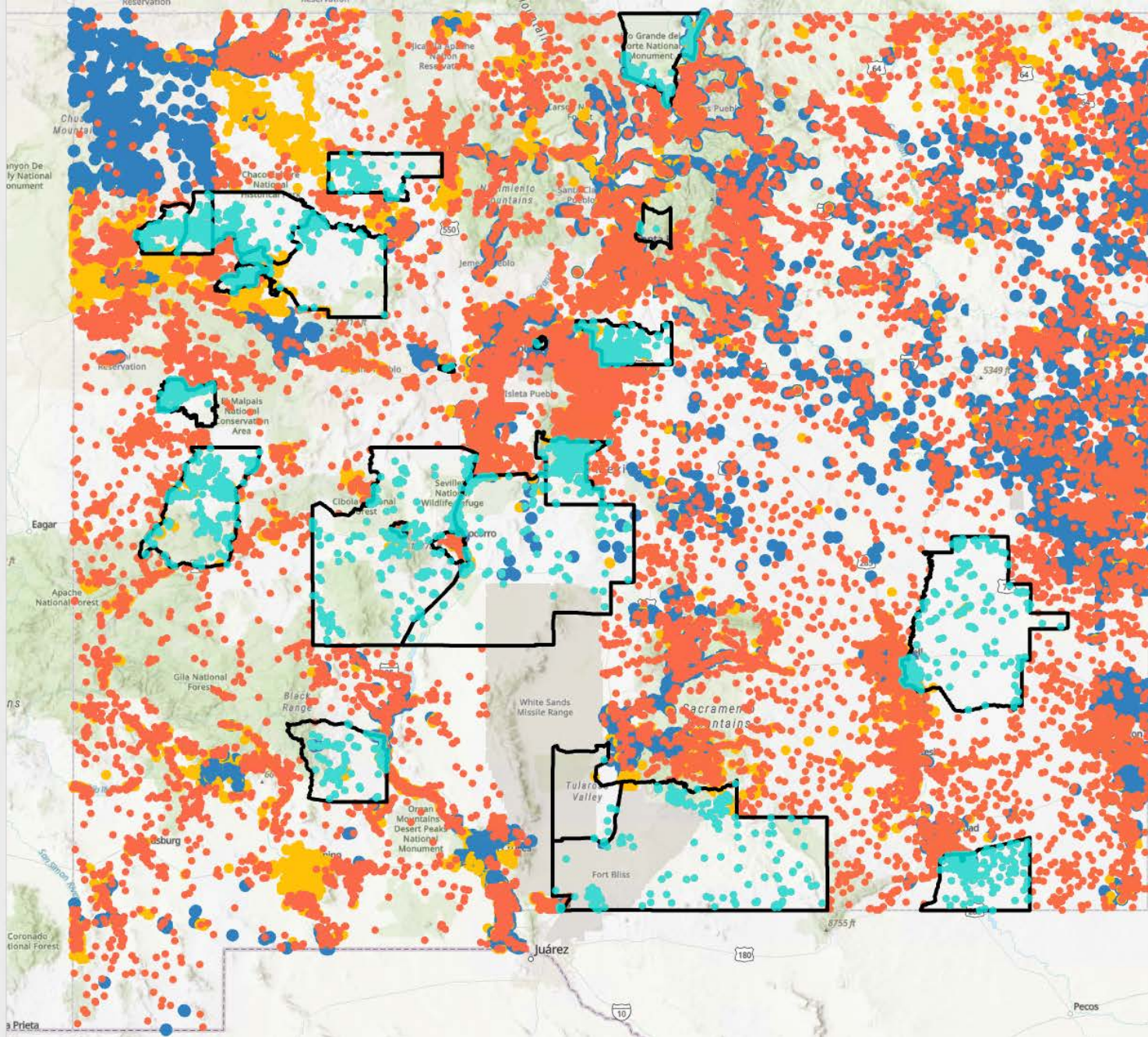- MDU – Low Income Multi-Dwelling Units

Programs: BEAD Priorities
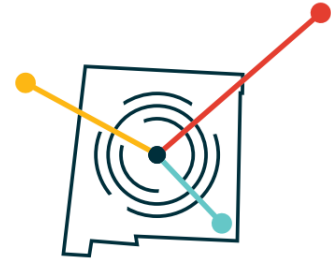
Priorities:

1. Unserved BSLs – 100%
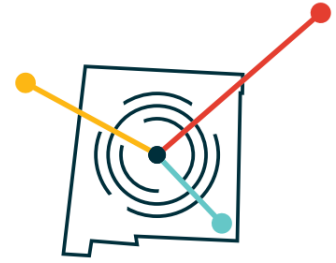2. Underserved BSLs
3. CAIs
4. MDUs

High-Cost Census Block Group

NM Best BSL BDC Service Data
- Served
- Underserved
- Unserved

10,192
Unserved BSL's

in NTIA BEAD
High-Cost Areas

70k Unserved
10k Unserved in
24 High-cost
areas

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Challenges: 2023-2029

Infrastructure Funding

BEAD

- $42.5 Billion dollars will be injected into 50 states and 6 territories

TBCP

- $3B across all tribal nations
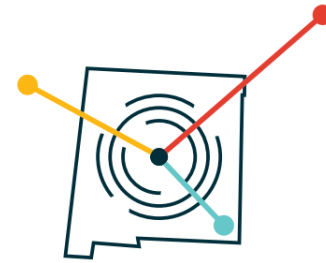
NEVI

- $4.1 Billion for Electric vehicles across 50 states

Federal Highway Programs

- $350 Billion for federal highways

State Summary: New Mexico

BEAD demand makes up 15% of New Mexico's cross-industry deficit

BEAD Occupation Group	BEAD Demand (FTEs)	Cross-Industry Deficit (FTEs)[1]	Deficit / Supply[2]
2026 Totals	(1.4K)	(9.8K)	-9.2%
Laborers and material movers	(372)	(2,874)	-10.3%
Trucking crew	(317)	(2,379)	-9.2%
Trenchers	(160)	(1,198)	-10.2%
Fiber and wireless technicians	(138)	(1,091)	-9.3%
Equipment operators	(91)	(509)	-7.6%
Structural engineers	(89)	(224)	-4.3%
Software engineers	(70)	(450)	-9.0%
Master and stage electricians	(61)	(402)	-8.9%
Network architects and coordinators	(43)	(186)	-6.1%
RF & field engineers	(38)	(120)	-4.4%
Surveyors and drafters	(30)	(216)	-8.8%
Inspectors (e.g., permit, health & safety)	(25)	(141)	-7.3%

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Challenges: What this means for NM business
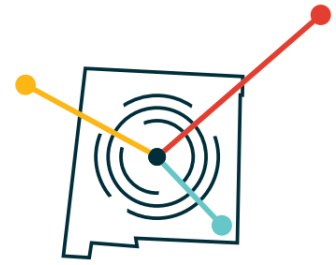
Over the next five years an estimated $3+ Billion dollars of infrastructure money will flow into NM.
Problem:
- That is a lot of infrastructure all at the same time.
  - Employees
    - Skilled labor
    - Administrative staff
    - Accountants
    - HR
  - Equipment
  - Supply chain
  - Letter Of Credit

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Challenges: Regional Competition
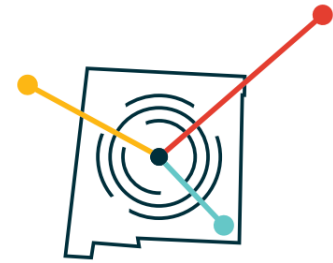
Texas is investing heavily in broadband (~$10B expected):

- Spend more for:
- Crews
- Materials
- Longer lasting technologies
- Get to:
  - Underserved
  - Community Anchor Institutions
  - Low-income housing

Texas to receive $3.3 billion in federal funds to boost broadband expansion efforts

The federal money will be added to the $1.5 billion investment made by state lawmakers this session to increase broadband availability across Texas.
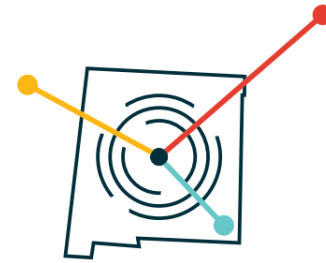
BY **JAYME LOZANO CARVER** AND **POOJA SALHOTRA**

JUNE 26, 2023   UPDATED: 1 PM CENTRAL

SHARE   REPUBLISH ↗

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Challenges: OBAE

Projected Infrastructure Gap - $230 Million

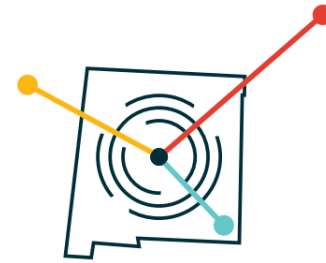| Projected Infrastructure Funding Gap		
Total Cost to build inrastructure (midpoint of $2.5B to $5.5B)	$ 4,000,000,000	
$ Awarded in NM for Infrstructure (not digital equity)	$ (728,000,000)	Awarded to Non-State Entities
ARPA Connect NM Pilot Funds for Broadband	$ (117,000,000)	Awards Complete
Additional Tribal TBCP Phase 2 expected	$ (40,000,000)	Projected based on Wave 1 awardees
NTIA BEAD Funding	$ (675,000,000)	Allocated - OBAE to meet federal requirements for fund distribution
25% estimated match from applying entities on eligible projects	$ (185,000,000)	Projected Private sector match from BEAD and ARPA
Connect New Mexico Fund	$ (99,000,000)	
State Middle Mile Funds	$ (13,000,000)	OBAE working on aquiring Needed Middle Mile routes
Miscellaneous funds (GEER2, EANS, SEN, Libraries etc)	$ (68,000,000)	Previous projects and appropriations from other State Entities
State Funding Needed	$ 2,075,000,000	GAP
Connect New Mexico Fund over 9 years	$ 230,555,556	Infrastructure only

Programs - $20 Million
- Grants writing
- Network Operations and Cyber Security
- State Education Network and Data Center
- ACP Student Supplement Support
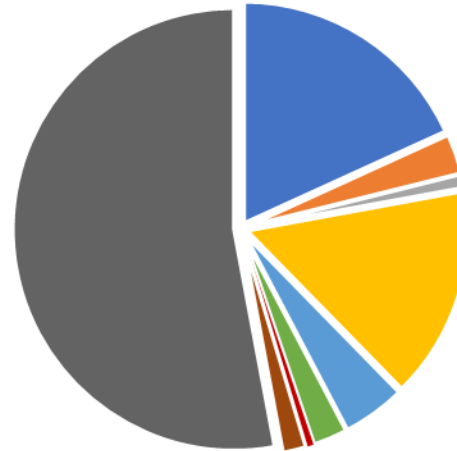- Workforce Development

Partnerships
- OBAE's mission is not every private entities mission

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Challenges: Gap

$4 billion estimated needed to build infrastructure in NM

- ■ $ Won so far in NM for Infrastructure (not counting Digital Equity)
- ■ ARPA Funds for Broadband
- ■ Additional Tribal TBCP Phase 2 expected
- ■ Expected NTIA BEAD funding
- ■ 25% match for ARPA and BEAD
- ■ CNMC fund
- ■ State middle mile fund
- ■ Miscellaneous funds (GEER2, EANS, SEN, libraries etc) over 6 years
- ■ State or other sources of investment needed

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Challenges: OBAE
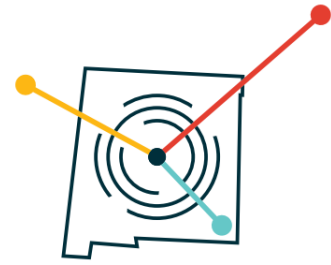
Administrative attachment
- $1 Billion organization
- Procurement and speed of mission
- Travel back and forth

State Education Network
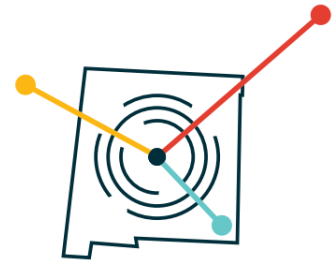- PSFA employees and funding continue to have obstacles

ROW, Permits, Pole Attachments
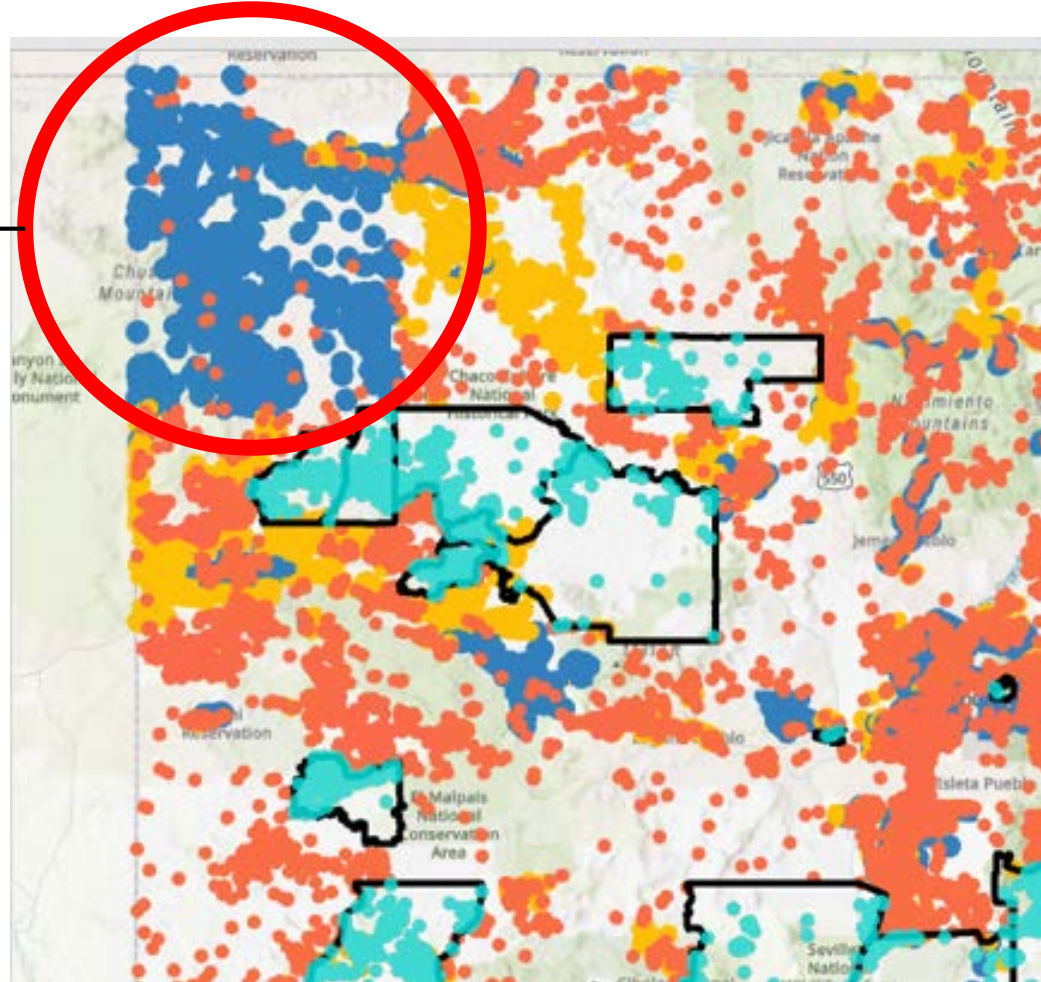- Active Projects Being descoped
- Unclear cost increases

Mapping
- Better Data
- Tribal Support
- County Support

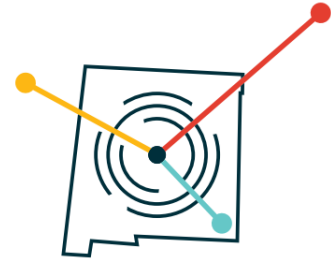CONNECT new mexico
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Challenges: Mapping

Served by Cable/fiber

Legislative Priorities

Financial Priorities
Operating Budget:
$8,087,200
- Increase from $1.2M
- 20 Employees moving from STRM to PERM
- 5 Employees moving from PSFA to OBAE

$250,000,000 Connect New Mexico Fund
- Programs and Grants
  - Infrastructure
    - Middle Mile
    - 5G and Towers
    - Last Mile
- Telehealth
- Community Anchor Institutions
- Match
- Affordable Connectivity Program Supplement for Students
- Workforce Dev

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Office of Broadband Access & Expansion

Legislative Priorities
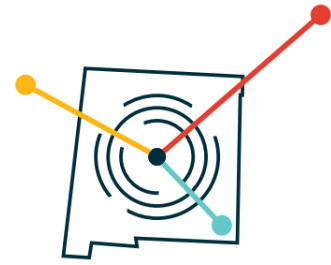
3 Bill Priorities

1. OBAE operating autonomously
   - Address ownership (DoIT vs. OBAE)
2. PSFA SEN Program, Employees, Fund
   - Move employees
   - State Education Network
   - E-Rate School Support
   - $10 Million fund to Connect New Mexico Fund
3. ROW
   - Electrical ROW Easements used for Broadband
   - Rate structure pole attachment
   - Make Ready Costs

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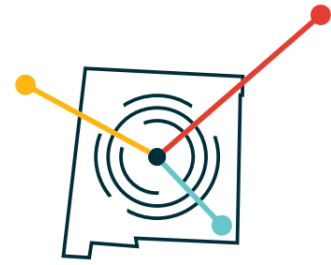Office of Broadband Access & Expansion

Questions?
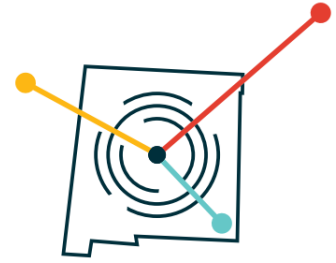
Drew Lovelace is the Acting Director for the Office of Broadband Access and Expansion (OBAE). He is guiding the OBAE team in orchestrating statewide initiatives to proactively secure and allocate over $675 million in federal broadband funding. Additionally, he is championing efforts to bolster New Mexico's connectivity on a statewide scale. Drew possesses more than two decades of diverse private sector expertise, spanning industries such as Information Technology and the Outdoor Industry. In his recent four-year tenure, he has dedicated his skills to serving the State of New Mexico. Drew holds Bachelor's degrees in English Literature and History from the University of Colorado at Boulder, an MBA from the University of New Mexico, and maintains both SHRM-SCP and PHR certifications. Residing in Santa Fe and Chamisal with his wife, two children, and loyal dog, he finds joy in both work and family life.

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Additional Resources

OBAE
https://connect.nm.gov/

Mapping
https://connect.nm.gov/nm-broadband-mapping.html

Tribal Dashboard
https://connect.nm.gov/tribal-broadband-resource-library.html

Broadband Project Video
https://youtu.be/Altg8BOP-Ww?si=v5v_nMbZDfGwAJwm