



Office of the President and Vice President – Navajo Nation Broadband Office

Navajo Nation Broadband Development Plan – Chinle Agency Summary

Section A - Navajo Nation Broadband Development Plan

1. Mission

Build the Foundation for the Broadband Equity Access and Deployment Program (BEAD) and Fifth Generation (5G) Wireless Service across the Navajo Nation.

2. Summarized Navajo Nation Broadband and Telecommunications Plan for 2030

- Construction: Over 78 new multitenant and public safety capable towers.
- Fiber Deployment: Lay 1265 miles of fiber to existing and new telecommunications towers.
- Chapter Houses: Lay 270 miles of fiber to Chapter Houses.
- Middle Mile: Establish a Middle Mile build-out as the foundation for the BEAD program.
- Last Mile: Plan the Last Mile build-out funded by BEAD; implement the middle mile built and owned by the Navajo Nation.

3. Funding Objectives

- 5G Technology Foundation: Establish the foundation for 5G technology across the Navajo Nation.
- Middle Mile Infrastructure: Enhance the middle mile infrastructure.
- Tower Infrastructure: Build tower infrastructure in unserved and underserved areas.
- Fiber Extensions: Extend fiber connections to both new and existing wireless structures and unconnected Chapter Houses.
- BEAD Program: Lay the groundwork for the BEAD Program to deploy infrastructure for last-mile connectivity to households and Community Anchor Institutions (CAI) in Arizona, New Mexico, and Utah.
- Governmental Connectivity: Allocate funds to projects improving connectivity for governmental institutions in Window Rock and St. Michaels (DIT Project).

4. Budget Requirements

4.1. BEAD-5G Deployment - Towers Infrastructure:

- Deployment Scale: Deployment scale and site numbers depend on the spectrum used and coverage-capacity objective.
- New Sites: Over 78 new sites needed to provide macro 5G coverage.
- Budget Allocation: Budget covers engineering, construction, and site improvements (roads and power).

4.2. BEAD-5G Deployment - Data Transport via Fiber Optics:

- Fiber Connection: Connecting 5G towers to fiber in phases due to logistical and cost considerations.
- Existing Fiber: 15-20% of towers are currently near or connected to fiber infrastructure.
- New Fiber Requirement: 1265 miles of new fiber needed.

4.3. Chapter House Connectivity:

- Current Connectivity: Currently, 50-60% of chapter houses have fiber connectivity.
- Fiber Requirement: 270 miles of fiber required for ongoing projects.

4.4. Budget Summary:

- Total Requested Budget: \$ 271,426,810.21
 - New Towers: 78
 - Fiber to Towers: 1265 miles
 - Fiber to Chapters: 270 miles

The budget includes Contingency fund, administrative cost, permitting, Operation and Maintenance expenses until year 2029 and Navajo Nation Tax.

5. Timeline

- Draft Tower RFP Released: May 6, 2024
- Final Tower RFP Estimated Release Date: September 15, 2024
- Fiber RFP Estimated Release Date: October 11, 2024
- Proposed Encumbrance Date: December 31, 2024

6. Regulatory-Deployment Policy

- **Interim Policy:** To execute the plan, the Navajo Nation must enact an interim policy facilitating rapid deployment of open-access infrastructure owned by the tribal government. The network will operate on an open-access basis to encourage competition, enhance consumer choice, reduce prices, and stimulate economic development.
- **Collaboration:** The Navajo Nation Broadband Office and the Digital Equity Initiative team are working with the Navajo Nation Land Department and other stakeholders in telecommunications services, including the general public and community, on policy details.
- **Public Review:** The first draft of the Telecom Regulations was issued for public review on July 9, 2024, with public comments expected by the end of July 2024. The drafting of the regulations follows a Notice of Public Rulemaking (NPRM).

7. Maps

- **Current, In-Progress, and Proposed Infrastructure:** This section shows the current in-progress and proposed infrastructure development within the Navajo Nation and its surroundings. Maps are shown at the end in Annex 1.
 - Detailed Chinle Agency Summary Map
 - Existing Structures and Fiber
 - Broadband Projects in Progress
 - Proposed Structures and Fiber
 - Combined Map of Existing, In-Progress, and Proposed

8. Draft Tower RFP Project List

- A preliminary list with the location of the RFP tower project is shown at the end in Annex 2.

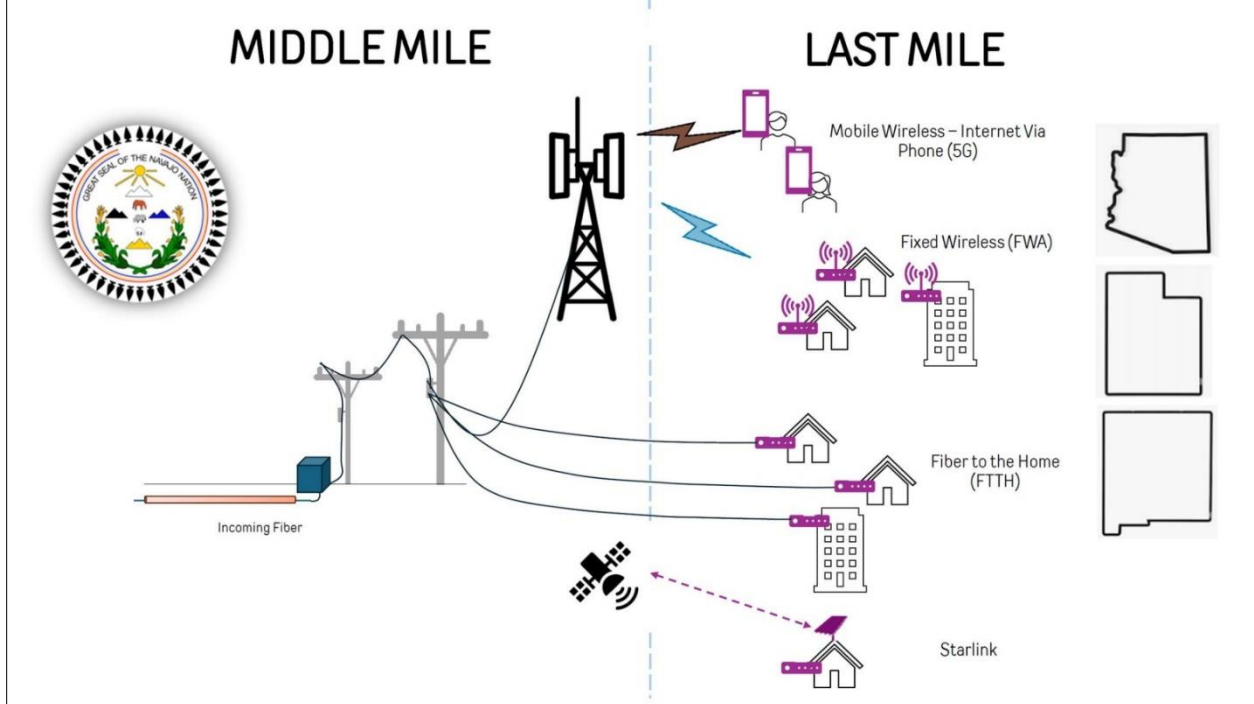
9. Funding for Middle Mile and Last Mile

- **Middle Mile:** Covered by \$271.4 M funding.
- **Last Mile:** Covered by BEAD funding from the States.
- **Funding Imperative:** It is imperative the Nation funds as much of the Middle Mile as possible to leverage incoming BEAD funding.

Navajo Nation Council (NNC) allocated \$77.8M to the Navajo Nation Broadband Office (NNBO) for Middle Mile infrastructure in CMY-28-24. NNBO is requesting an additional \$193.6M for Middle Mile infrastructure. The total will build 78 new towers, 1,265 miles of fiber to the towers, and 270 miles of fiber to the Chapters

The NNBO must build the Middle Mile infrastructure foundation then the State Broadband, Equity, Access, and Deployment (BEAD) funding will build the Last Mile.

NOTE: This is a connection only. Does not include internet service. The client is responsible for the monthly recurring cost.



10. Strategic Allocation of Resources

- Principles: The optimal use of funding is based on the strategic allocation of resources using engineering principles to maximize impact. Prioritizes efficiency and effectiveness.

Section B – Justification of Investment in the Navajo Nation Broadband Plan

1. Economic Growth and Development

- Job Opportunities:** Broadband can help job seekers find, apply for, and continue searching for jobs. It can also help businesses recruit candidates more cheaply by accessing a larger pool of applicants.
- Digital Literacy:** A digitally fluent workforce can increase productivity, leading to higher wages for employees. Many government services and Fortune 500 companies now require digital literacy for job applications and other processes.
- New Services:** Broadband can introduce new consumer applications and services such as telehealth, entertainment, and public safety alerts.

- **Business Growth:** Broadband can help new businesses grow and existing businesses expand into new markets. Studies have shown that broadband access is important for attracting new businesses to rural areas and can even increase farm profits.
- **Communication:** Broadband can improve communication between firms and the capabilities of the labor force. Faster connection speeds can reduce search and transaction times, leading to wealthier information.
- **Property Values:** Broadband access in rural areas can lead to higher property values.

2. Education

- **Distance Learning:** Broadband allows students to participate in distance learning from any location with internet access, such as home, school, or a library.
- **Collaborative Learning:** Students can communicate and work together using online tools like video conferencing, document sharing, and discussion forums. This can help students develop critical thinking, teamwork, communication, and problem-solving skills.
- **Personalized Learning:** Broadband can give students access to high-quality, low-cost, and relevant educational materials. Students can also choose their preferred teaching methods and even design their own courses.
- **Learning Continuum:** Broadband allows for a learning experience that can update with the times, rather than needing to be updated every few years. Teachers can guide students through a constantly changing body of information and teach them how to distinguish opportunities to learn from biased attempts to influence.
- **Improved Decision Making:** Broadband can improve the flow of educational information, helping teachers, parents, and organizations make better decisions based on each student's needs and abilities.
- **Professional Development:** Broadband can provide enhanced professional development opportunities for educators.

3. Public Safety

- **Early Warning and Alerts:** Broadband enables early warning systems and disaster preparation programs. It allows for timely dissemination of critical information during emergencies, such as natural disasters or security threats.
- **Real-Time Information Sharing:** With broadband networks, public safety agencies can access real-time multimedia information. This includes video feeds, floor plans, and other critical data. For instance, responders can view live video of a crime in progress or download building layouts during a fire.
- **Improved Connectivity:** Broadband networks provide better connectivity than traditional radio communication systems. First responders can access data from environmental sensors, surveillance cameras, and other sources to make informed decisions and prevent disasters.

4. Transportation

- **Autonomous Vehicles:** Broadband is required to connect autonomous vehicles to each other and the road, helping to keep passengers and pedestrians safe. It also enables benefits like fewer accidents, lower emissions, and reduced service costs. The large amount of data these networks generate will require evolving federal and state regulations.
- **Highway Operations:** Broadband can affect highway operations, including signal systems, variable speed limits, cameras, and incident response and timing.
- **Connected Technology:** Broadband can enable connected technology to help companies save money on shipping. For example, drivers can access information about weather conditions, rest stops, and parking lots. Analysts can also use driving distance and road conditions to predict fuel consumption and find better lanes and modes.

5. Housing

- **New Construction:** Since 2017, HUD has required broadband installation in all new construction and substantial rehabilitations of federally assisted housing.
- **Subsidies:** Federal initiatives can help low-income households pay for broadband service.
- **Income-Generating Potential:** Managed broadband Wi-Fi networks can provide recurring monthly revenue for housing providers.
- **Property Value:** Broadband can increase property value, even though private property within the Navajo Nation is not applicable; property values still play an important role in the internal economy.
- **Amenities:** Broadband improves the experience of local life in communities, providing incentives to stay within the community and attract inhabitants to return to their origins.
- **Property Management:** Broadband can improve and streamline property management with tools like a resident communication portal.

6. Job Creation

- **Business Efficiency:** Broadband allows businesses to operate more efficiently, reach new customers, and compete globally.
- **Remote Work:** Broadband creates new opportunities for remote work and reduces the inconvenience of long commutes.
- **Entrepreneurship:** Broadband can foster entrepreneurship.
- **Job Search:** Broadband can provide access to job search opportunities.
- **Online Education:** Broadband can provide access to online education.
- **Specialized Training:** Broadband can provide access to specialized training and professional development resources for employers.

- Construction: Broadband deployment programs can create jobs in construction on a short-term basis.
- Employment Attraction: In emerging countries, broadband deployment can attract employment from industrialized economies, especially low-paid business process outsourcing jobs.
- Job Advertising: Firms can post job advertisements on the web for a fraction of the cost of newspaper classifieds and receive quick responses through online applications.

7. Healthcare

- Telemedicine: Patients can consult with doctors remotely using video conferencing, and doctors can monitor patients using home health devices. This improves access to healthcare, especially for people in rural areas with fewer medical facilities.
- Large File Transmission: Doctors can send large files like X-rays, CT scans, and medical records to hospitals across the country.
- Access to Health Information: Patients can access healthcare information like counseling, coaching, and educational materials online. Care providers can also access patient records, test results, and practice guidelines from the examination room.
- Cost-Effective Care: Telemedicine can avoid expensive house calls and give patients real-time feedback.

8. Commerce

- Retail: Retailers can use data analytics to understand consumer preferences and buying habits, which helps them make decisions about products and marketing. Broadband also helps retailers connect with customers, build stronger relationships, and improve customer service.
- Businesses: Broadband increases the productivity and profitability of businesses, allowing them to compete in local, national, and global markets. Businesses can use online platforms to communicate directly with consumers, gather feedback, and personalize their offerings. This direct-to-consumer model gives businesses more control over the customer experience, brand messaging, and product development.
- Rural Areas: Rural businesses and industries rely on broadband to buy and sell products, process transactions, and post job opportunities. Employers also need access to broadband to promote a skilled workforce by accessing specialized training and professional development resources. Broadband acts as a catalyst for small business growth.

9. Tourism

- Southwest Sunbelt Area: The Navajo Nation is strategically located in the heart of the Southwest Sunbelt area, a region known for its vibrant tourism industry. This area attracts millions of visitors each year who come to experience its unique cultural heritage, breathtaking landscapes, and numerous recreational opportunities.

- **Enhanced Visitor Experience:** Developing telecommunications infrastructure within the Navajo Nation will significantly enhance the visitor experience. Tourists increasingly rely on digital connectivity for travel planning, navigation, and sharing their experiences in real-time through social media and other online platforms.
- **Economic Impact:** Improved broadband access can boost tourism-related businesses by providing them with the tools to attract and engage visitors more effectively. This includes offering online booking systems, digital marketing, and virtual tours of cultural and historical sites.
- **Safety and Convenience:** Enhanced connectivity can also improve safety and convenience for tourists. Reliable communication networks are essential for emergency services, ensuring that visitors can access help quickly if needed. Additionally, better connectivity enables the use of smart technologies for crowd management, traffic control, and real-time updates on weather conditions or local events.
- **Promotion of Local Culture:** Broadband infrastructure can help promote the rich cultural heritage of the Navajo Nation to a global audience. Virtual experiences, live-streamed events, and online educational resources can attract more visitors and foster a deeper appreciation for Navajo culture.

By investing in broadband infrastructure, the Navajo Nation can harness these wide-ranging benefits, driving economic development, improving public safety, enhancing education, fostering job creation, boosting healthcare and commerce, and capitalizing on the tourism potential of the Southwest Sunbelt area. This comprehensive plan is a pivotal step towards a more connected and prosperous future for the Navajo Nation.

Section C – Chinle Agency Summary

1. Introduction

The Navajo Nation Broadband Plan is a strategic initiative aimed at expanding high-speed internet access to underserved and unserved areas within the Navajo Nation. The plan emphasizes building critical infrastructure to close the digital divide and support economic development, education, healthcare, and other essential services. Within the Chinle Agency, there are two significant infrastructure initiatives currently underway to enhance broadband connectivity. The first map in Annex 1 provides a visual representation of the current and planned infrastructure developments as detailed below.

2. New Infrastructure Planned per Navajo Nation Broadband Plan (Pending Funding)

- **10-13 New Towers:** The construction of 10 to 13 new telecommunications towers is planned to support the Broadband Equity, Access, and Deployment (BEAD) program and to facilitate the future rollout of 5G services across the region. These towers will be strategically located to maximize coverage and provide robust connectivity to rural and remote communities.

- **110-130 Miles of Fiber to New and Existing Towers:** To ensure these new and existing towers are fully operational, 110 to 130 miles of fiber optic cable will be deployed. This high-capacity infrastructure is essential for delivering high-speed internet from the network core to the towers, enabling them to serve as reliable hubs for wireless broadband services.
- **5-7 Miles of Fiber to Connect Chapter Houses:** In addition to connecting towers, the plan includes laying 5 to 7 miles of fiber to directly link Chapter Houses, which serve as local government centers for Navajo communities. This connection will enhance the ability of these centers to offer essential services and act as digital hubs for surrounding residents.

3. Secured Infrastructure in Progress

- **5 Towers Under Development:** Currently, five new towers are in the construction phase, representing a critical step forward in expanding the network's reach. These towers will provide foundational support for both current and future broadband initiatives, including potential 5G upgrades.
- **18-20 Miles of Fiber Installation:** Alongside tower construction, 18 to 20 miles of fiber optic cable are being installed. This work is crucial for linking the towers to the broader network and ensuring that they can deliver high-speed, reliable internet to connected areas.

Annex 1 - Maps

Figure 1 Overall Situation Chinle Agency

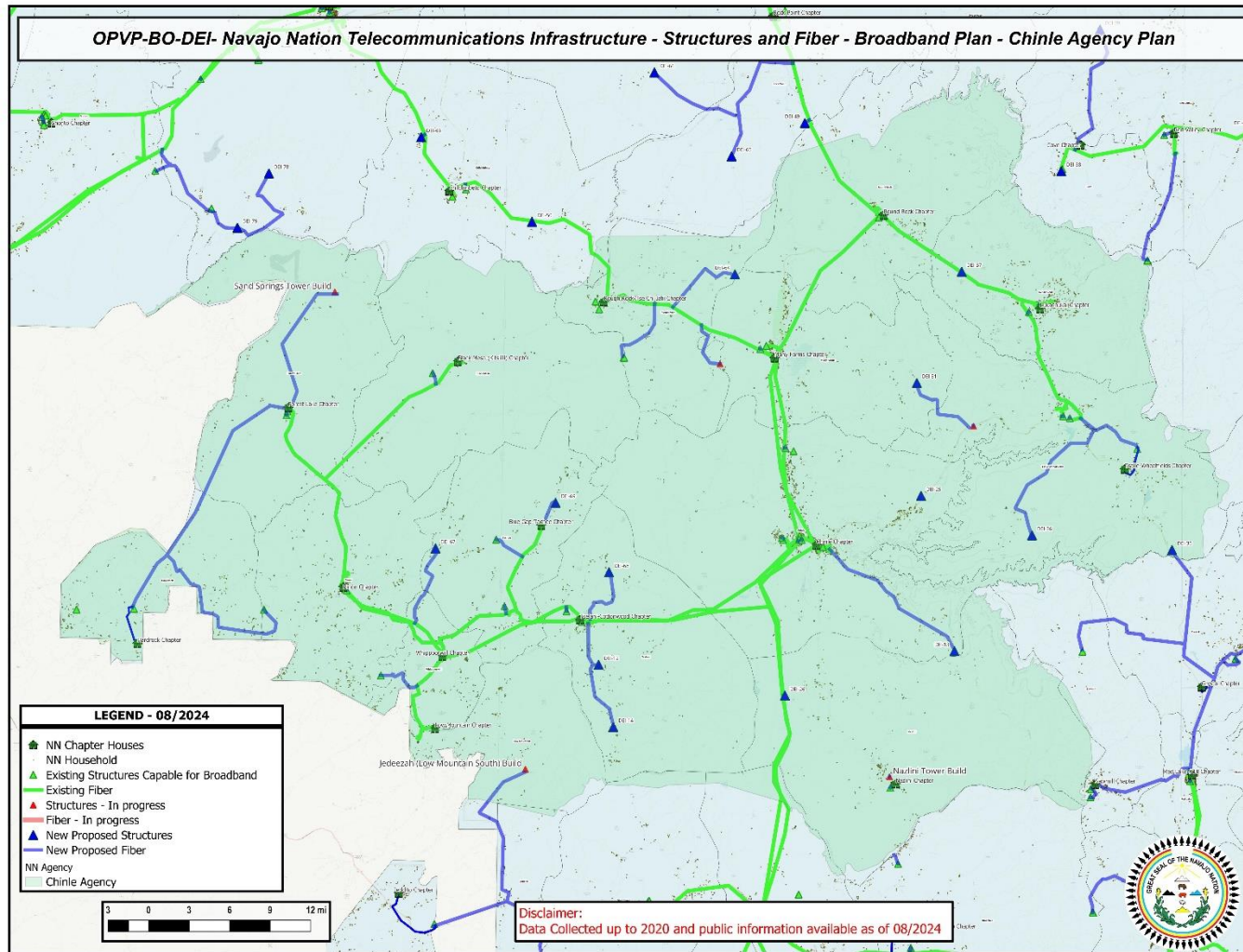


Figure 2 Existing Structures and Fiber

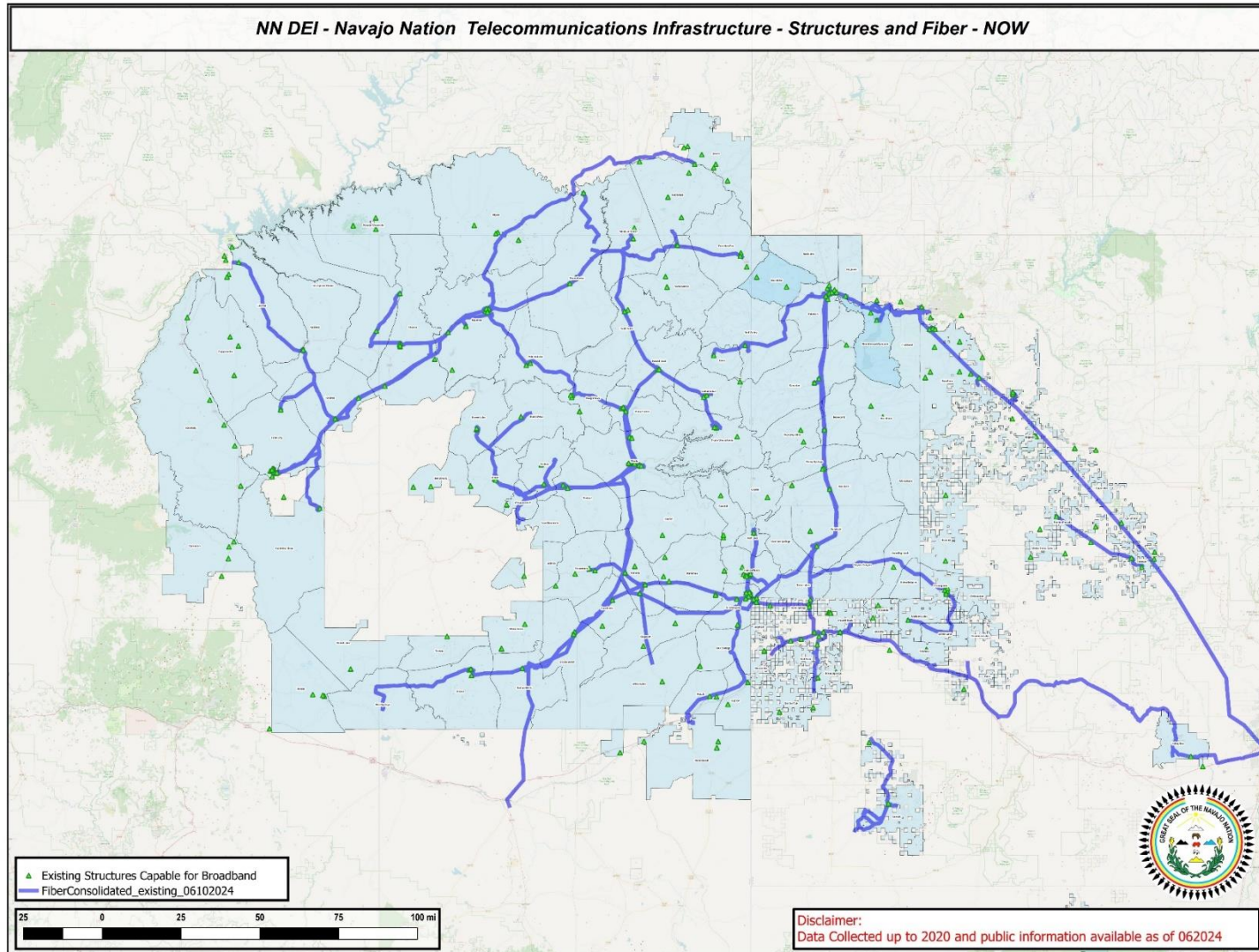


Figure 3 Broadband Projects in Progress

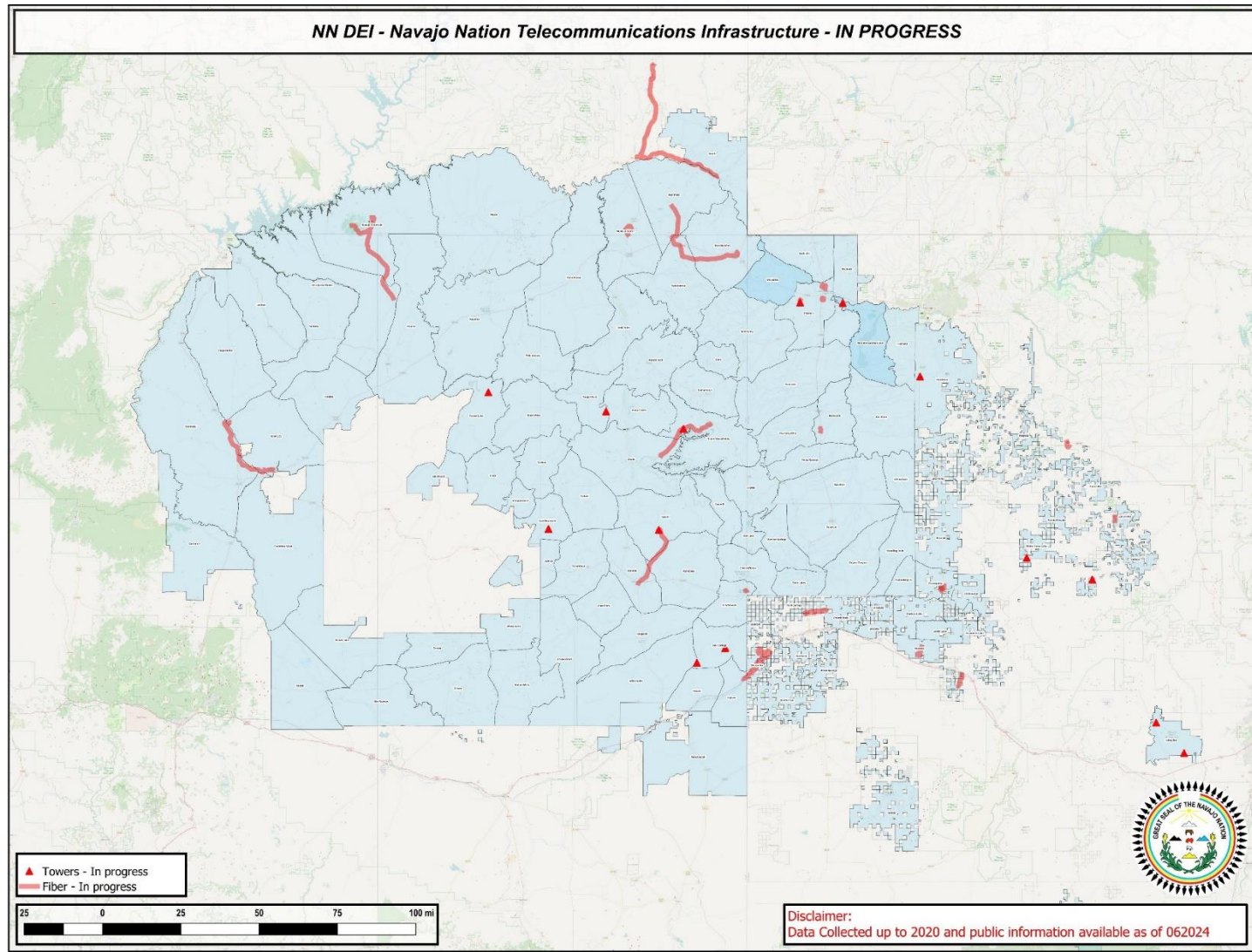


Figure 4 Proposed Structures and Fiber

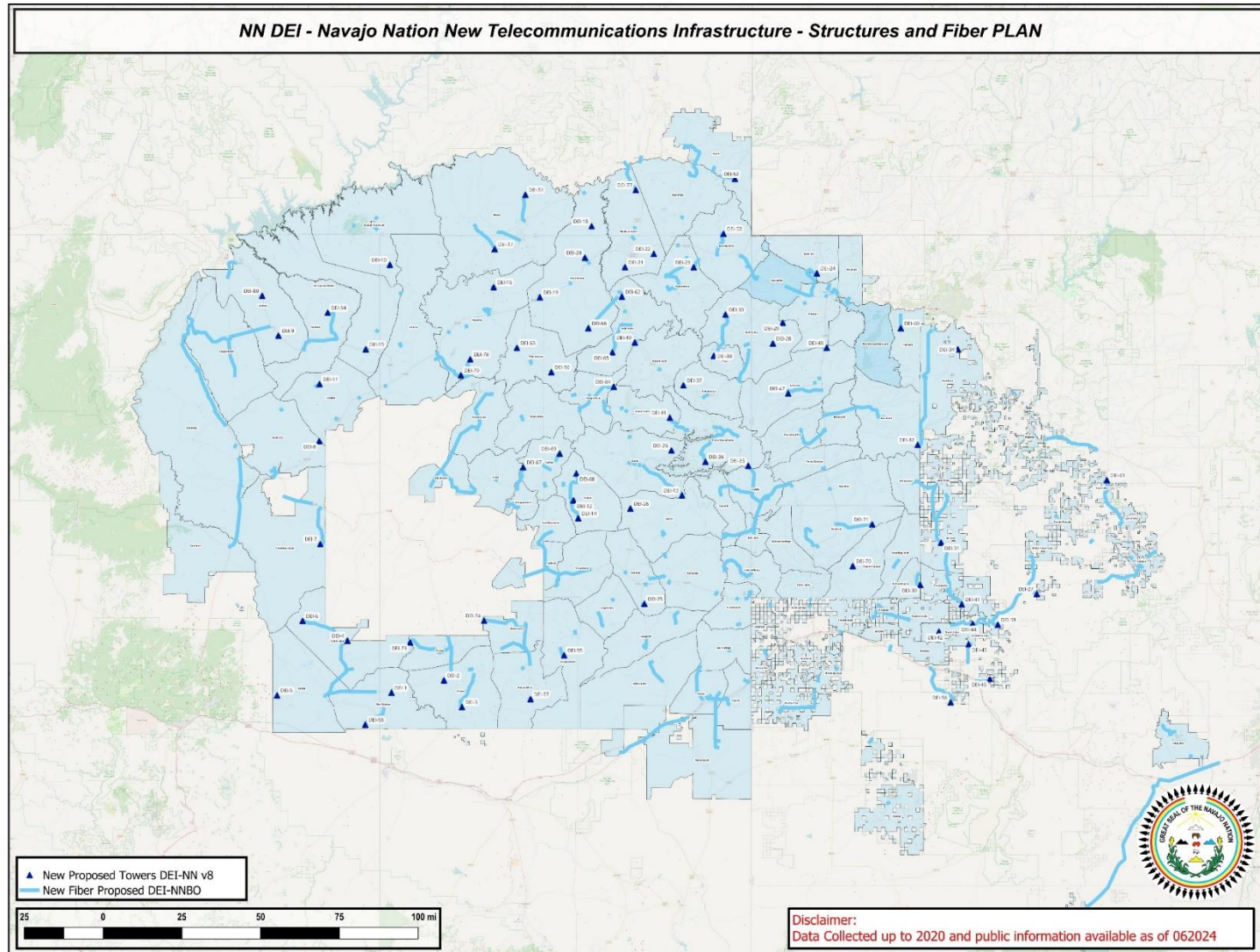
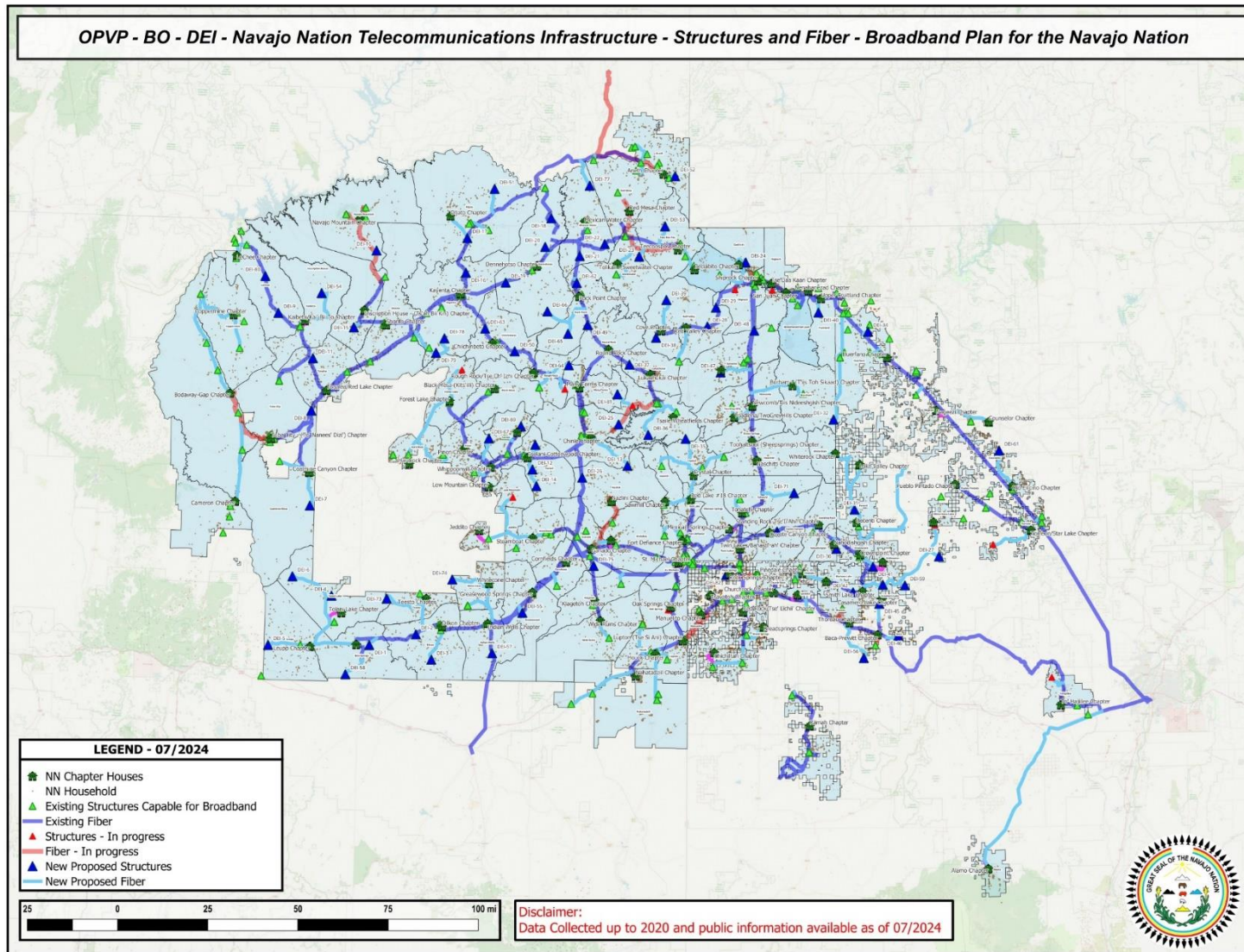


Figure 5 Existing + In Progress + Proposed



Annex 2 - Draft Tower RFP project list

Project ID	FullName	Short Name	Latitude	Longitude	Tower height	Chapter Location
1	DEI-1_Bird Springs Chapter	DEI-1	35.30525802	-110.6973846	180	Bird Springs Chapter
2	DEI-2_Dilcon Chapter	DEI-2	35.35192685	-110.4565073	180	Dilcon Chapter
3	DEI-3_Dilcon Chapter	DEI-3	35.25151876	-110.3738155	180	Dilcon Chapter
4	DEI-4_Tolani Lake Chapter	DEI-4	35.50010081	-110.8993756	180	Tolani Lake Chapter
5	DEI-5_Leupp Chapter	DEI-5	35.29564155	-111.2225049	180	Leupp Chapter
6	DEI-6_Tolani Lake Chapter	DEI-6	35.57391857	-111.1054102	180	Tolani Lake Chapter
7	DEI-7_Coalmine Mesa Chapter	DEI-7	35.8599769	-111.0241833	180	Coalmine Mesa Chapter
8	DEI-8_Tuba City Chapter	DEI-8	36.24201862	-111.0288995	180	Tuba City Chapter
9	DEI-9_LeChee Chapter	DEI-9	36.63101094	-111.2164277	180	LeChee Chapter
10	DEI-10_Navajo Mountain Chapter	DEI-10	36.89142299	-110.704661	180	Navajo Mountain Chapter
11	DEI-11_Tonalea Chapter	DEI-11	36.45277999	-111.027656	180	Tonalea Chapter
12	DEI-12_Tselani Chapter	DEI-12	36.02232445	-109.8619948	180	Tselani Chapter
13	DEI-13_Chinle Chapter	DEI-13	36.04086902	-109.3640604	180	Chinle Chapter
14	DEI-14_Tselani Chapter	DEI-14	35.95568626	-109.8404045	180	Tselani Chapter
15	DEI-15_Inscription House Chapt	DEI-15	36.58063877	-110.8154791	180	Inscription House Chapter
16	DEI-16_Kayenta Chapter	DEI-16	36.80928009	-110.2283391	180	Kayenta Chapter
17	DEI-17_Oljato Chapter	DEI-17	36.94877733	-110.2240662	180	Oljato Chapter
18	DEI-18_Dennehotso Chapter	DEI-18	37.03267494	-109.7788326	180	Dennehotso Chapter
19	DEI-19_Dennehotso Chapter	DEI-19	36.77192512	-110.0165003	180	Dennehotso Chapter
20	DEI-20_Dennehotso Chapter	DEI-20	36.91763133	-109.809603	180	Dennehotso Chapter
21	DEI-21_Mexican Water Chapter	DEI-21	36.88230323	-109.6255198	180	Mexican Water Chapter
22	DEI-22_Mexican Water Chapter	DEI-22	36.93132166	-109.4933223	180	Mexican Water Chapter
23	DEI-23_Sweetwater Chapter	DEI-23	36.88216971	-109.3101987	180	Sweetwater Chapter
24	DEI-24_Gadi'ahi Chapter	DEI-24	36.86020426	-108.7449967	180	Gadi'ahi Chapter
25	DEI-25_Chinle Chapter	DEI-25	36.20706791	-109.4124722	180	Chinle Chapter
26	DEI-26_Nazlini Chapter	DEI-26	35.99164479	-109.6008183	180	Nazlini Chapter
27	DEI-27_White Horse Lake Chapte	DEI-27	35.6744204	-107.7356868	180	White Horse Lake Chapter
28	DEI-28_Red Valley Chapter	DEI-28	36.60205245	-108.946837	180	Red Valley Chapter
29	DEI-29_Red Valley Chapter	DEI-29	36.6786152	-108.901908	180	Red Valley Chapter
30	DEI-30_Nahodishgish Chapter	DEI-30	35.70820425	-108.2707483	180	Nahodishgish Chapter
31	DEI-31_Becenti Chapter	DEI-31	35.86542637	-108.174994	180	Becenti Chapter
32	DEI-32_Burnham Chapter	DEI-32	36.22800381	-108.2822946	180	Burnham Chapter
34	DEI-34_Huerfano Chapter	DEI-34	36.58055942	-108.0980562	180	Huerfano Chapter
35	DEI-35_Tsaile-Wheatfields Chap	DEI-35	36.15064005	-109.0598849	180	Tsaile-Wheatfields Chapter
36	DEI-36_Tsaile-Wheatfields Chap	DEI-36	36.16557432	-109.2563807	180	Tsaile-Wheatfields Chapter
37	DEI-37_Lukachukai Chapter	DEI-37	36.44776323	-109.3577502	180	Lukachukai Chapter
38	DEI-38_Cove Chapter	DEI-38	36.55645871	-109.2183093	180	Cove Chapter
39	DEI-39_Red Valley Chapter	DEI-39	36.70847959	-109.1645279	180	Red Valley Chapter
40	DEI-40_Fruitland Chapter	DEI-40	36.65828748	-108.3598222	180	Fruitland Chapter
41	DEI-41_Littlewater Chapter	DEI-41	35.63545663	-108.080207	180	Littlewater Chapter
42	DEI-42_Smith Lake Chapter	DEI-42	35.53336473	-108.1848856	180	Smith Lake Chapter
44	DEI-44_Casamero Lake Chapter	DEI-44	35.56291066	-108.029639	180	Casamero Lake Chapter
45	DEI-45_Casamero Lake Chapter	DEI-45	35.48642669	-108.0487124	180	Casamero Lake Chapter
46	DEI-46_Baca Chapter	DEI-46	35.35701557	-107.9512269	180	Baca Chapter
47	DEI-47_Sanostee Chapter	DEI-47	36.41797998	-108.8766051	180	Sanostee Chapter
48	DEI-48_Shiprock Chapter	DEI-48	36.58607127	-108.6995948	180	Shiprock Chapter
49	DEI-49_Rock Point Chapter	DEI-49	36.60586158	-109.5806565	180	Rock Point Chapter
50	DEI-50_Chilchinbeto Chapter	DEI-50	36.49638105	-109.9639406	180	Chilchinbeto Chapter
51	DEI-51_Oljato Chapter	DEI-51	37.14799047	-110.0829275	180	Oljato Chapter
52	DEI-52_Aneth Chapter	DEI-52	37.20610398	-109.1212052	180	Aneth Chapter
53	DEI-53_Teec Nos Pos Chapter	DEI-53	37.00476992	-109.1735015	180	Teec Nos Pos Chapter
54	DEI-54_Kaibeto Chapter	DEI-54	36.7153407	-110.9901861	180	Kaibeto Chapter
55	DEI-55_Greasewood Chapter	DEI-55	35.44557913	-109.9051967	180	Greasewood Chapter
56	DEI-56_Near Baca	DEI-56	35.26879506	-108.1311515	180	Near Baca
57	DEI-57_Indian Wells Chapter	DEI-57	35.28125319	-110.0593439	180	Indian Wells Chapter
58	DEI-58_Bird Springs Chapter	DEI-58	35.18566504	-110.817815	180	Bird Springs Chapter
59	DEI-59_Littlewater Chapter	DEI-59	35.5595574	-107.9146221	180	Littlewater Chapter
61	DEI-61_Counselor Chapter	DEI-61	36.09721439	-107.4142697	180	Counselor Chapter
62	DEI-62_Rock Point Chapter	DEI-62	36.77404459	-109.6400601	180	Rock Point Chapter
63	DEI-63_Chilchinbeto Chapter	DEI-63	36.5855135	-110.1219914	180	Chilchinbeto Chapter
64	DEI-64_Rough Rock Chapter	DEI-64	36.44275971	-109.6770608	180	Rough Rock Chapter
65	DEI-65_Rock Point Chapter	DEI-65	36.56943103	-109.6835434	180	Rock Point Chapter
66	DEI-66_Dennehotso Chapter	DEI-66	36.65832729	-109.7938677	180	Dennehotso Chapter

Project ID	FullName	Short Name	Latitude	Longitude	Tower height	Chapter Location
67	DEI-67_Tachee Chapter	DEI-67	36.14471667	-110.0928284	180	Tachee Chapter
68	DEI-68_Tselani Chapter	DEI-68	36.12169956	-109.8490398	180	Tselani Chapter
69	DEI-69_Tachee Chapter	DEI-69	36.19543618	-109.9253584	180	Tachee Chapter
70	DEI-70_Coyote Canyon Chapter	DEI-70	35.77819464	-108.5803697	180	Coyote Canyon Chapter
71	DEI-71_Tohatchi Chapter	DEI-71	35.93305601	-108.4908727	180	Tohatchi Chapter
73	DEI-73_Teesto Chapter	DEI-73	35.49330654	-110.611845	180	Teesto Chapter
74	DEI-74_White Cone Chapter	DEI-74	35.57493909	-110.2723246	180	White Cone Chapter
75	DEI-75_Ganado Chapter	DEI-75	35.63730524	-109.5365337	180	Ganado Chapter
77	DEI-77_Mexican Water Chapter	DEI-77	37.16545611	-109.5760882	180	Mexican Water Chapter
78	DEI-78_Kayenta Chapter	DEI-78	36.54388503	-110.3359671	180	Kayenta Chapter
79	DEI-79_Kayenta Chapter	DEI-79	36.48496662	-110.3789628	180	Kayenta Chapter
80	DEI-80_LeChee Chapter	DEI-80	36.77759191	-111.2908369	180	LeChee Chapter
81	DEI-81_Many Farms Chapter	DEI-81	36.32819916	-109.4196676	180	Many Farms Chapter