

The logo consists of the words "INTERNET FOR ALL" in white, uppercase, sans-serif font, enclosed within a red rounded rectangular border. To the right of the text are three red curved lines of increasing size, resembling a Wi-Fi signal icon.

**INTERNET
FOR ALL**

Internet for All Program Highlights Webinar: Stories from NTIA's Enabling Middle Mile Broadband Infrastructure Program

May 15, 2024



Housekeeping

Questions

Type questions in the Q&A box on the right-hand side of the screen.

Presentation

The presentation and recording of the webinar will be available on the BroadbandUSA website under Events/Past Events (<https://broadbandusa.ntia.doc.gov/events/past-events>)



Agenda

Enabling Middle Mile Broadband Infrastructure Program Overview

Pima County Regional Middle Mile Fiber Optic Ring

- Michelle Simon, Director, Pima County Office of Digital Inclusion

Nome to Homer Express Route

- Adaweze Maduakor, Senior Program Manager, QSH
- Arthur Paul, Grants Program Director, QSH
- Matt Peterson, Chief Technology Officer, QSH

Omaha Tribe of Nebraska Fiber-Based Middle Mile Grant

- Ruben Zendejas, General Manager, Quick Current

Q&A



Enabling Middle Mile Broadband Infrastructure Program Overview



BIL NTIA Broadband Programs

NTIA will administer ~\$48B through four programs that drive high-speed Internet access, affordability, and adoption.

NTIA will administer ~\$48B of funding from the Bipartisan Infrastructure Law

**FCC
\$14.2B**

BEAD

DIGITAL EQUITY

TRIBAL

MIDDLE MILE

**USDA
\$2.0B**

\$42.45B

\$2.75B

\$2.00B

\$1.00B

Broadband Equity, Access & Deployment Program

Digital Equity Act

Tribal Connectivity Technical Amendments

Enabling Middle Mile Broadband Infrastructure

A program to get all Americans online by funding partnerships between states or territories, communities, and stakeholders to build infrastructure where we need it to and increase adoption of high-speed Internet.

Three programs that provide funding to promote digital inclusion and advance equity for all. They aim to ensure that all communities can access and use affordable, reliable high-speed Internet to meet their needs and improve their lives.

A program to help tribal communities expand high-speed Internet access and adoption on tribal lands.

A program to expand middle mile infrastructure, to reduce the cost of connecting unserved and underserved areas.

**Private Activity Bonds
\$0.6B**



NTIA Middle Mile Program Awards

Broadbandusa.ntia.doc.gov/resources/data-and-mapping, then Public GIS Data and Middle Mile

NTIA Middle Mile Program Awards

Select a State
All

Award(s) Selection List

- Appalachian Power Company**
Federal Amount Awarded: \$25,054,092.63
 Total Project Cost: \$50,208,602.46
- Baltimore Gas and Electric Company**
Federal Amount Awarded: \$15,438,845.47
 Total Project Cost: \$30,889,369.68
- BIF IV Intrepid Opco LLC**
Federal Amount Awarded: \$2,710,970.97
 Total Project Cost: \$4,631,407.01
- Blackfoot Telephone Cooperative, Inc.**
Federal Amount Awarded: \$11,756,500.00
 Total Project Cost: \$16,795,000.00
- California Department of Technology**
Federal Amount Awarded: \$73,000,000.00
 Total Project Cost: \$187,586,206.04
- Commerce, Kansas Department of**
Federal Amount Awarded: \$42,514,219.13
 Total Project Cost: \$69,730,044.00
- Commonwealth Edison Company**
Federal Amount Awarded: \$14,557,740.21
 Total Project Cost: \$83,752,765.20
- Concho Valley Electric Cooperative, Inc.**
Federal Amount Awarded: \$3,276,667.98

Total Awards

(In Map View)

39

Federal Amount Awarded

\$979,998,024.84

Total Project Costs

\$1,851,797,889.42

Esri, USGS | Esri, TomTom, FAO, NOAA, USGS | Esri; U.S. Department of Commerce, Census Bureau; U.S. Department of Commerce (DOC), Nati... Powered by Esri

Pima County Regional Middle Mile Fiber Optic Ring



PIMA COUNTY
Office of Digital Inclusion

PIMA COUNTY MIDDLE MILE FIBER OPTIC RING

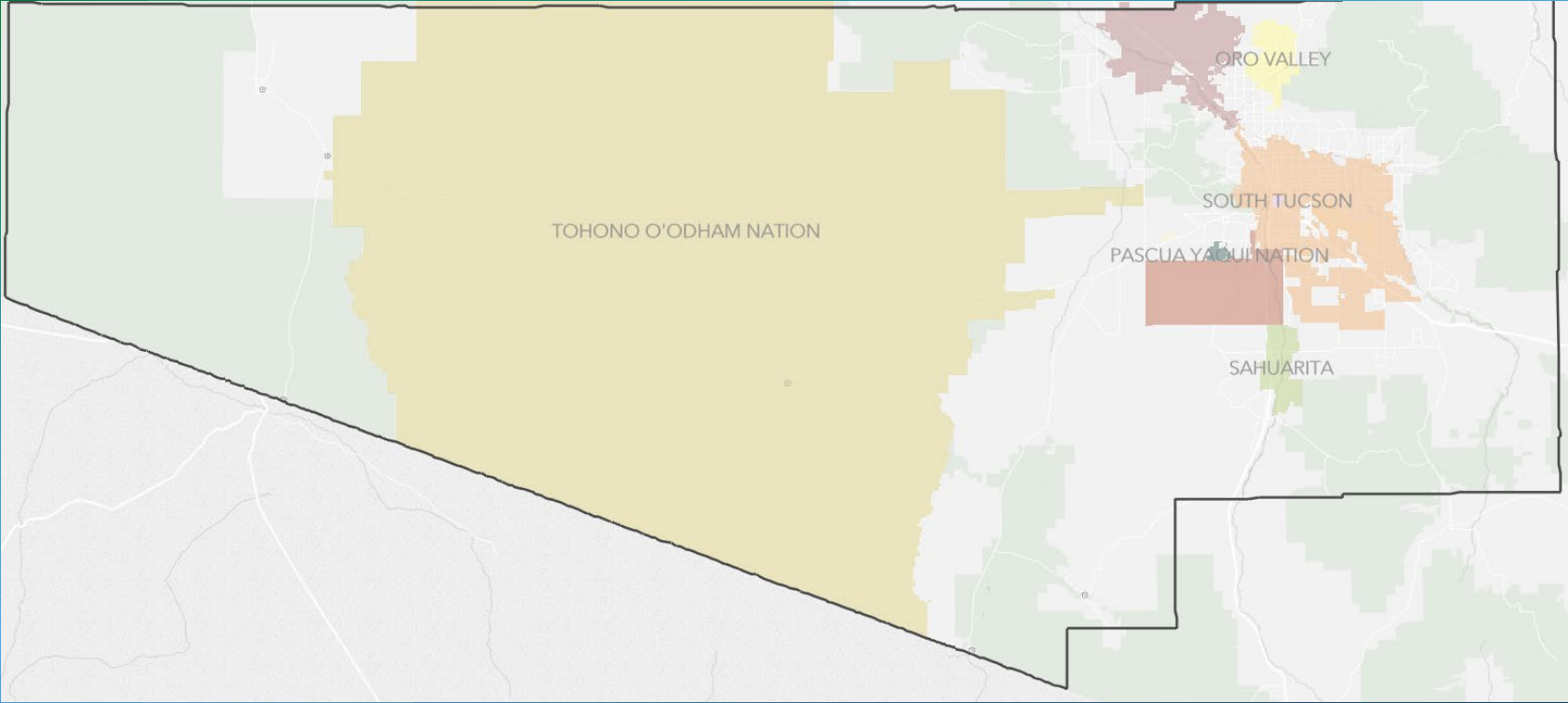
connect  pima

Digital Inclusion & Infrastructure Action Plan

Demographics

- 9,187 square miles
- Population 1,063,162
- Urban center includes approximately 700,000 community members
 - City of Tucson
 - Town of Marana
 - Town of Oro Valley
 - Town of Sahuarita
- 16th largest county in the United States by area
- More than 1/3 of our land area belongs to tribal nations

PIMA COUNTY, ARIZONA



PIMA COUNTY, ARIZONA

Understanding what infrastructure brings to the table

High-speed internet brings...

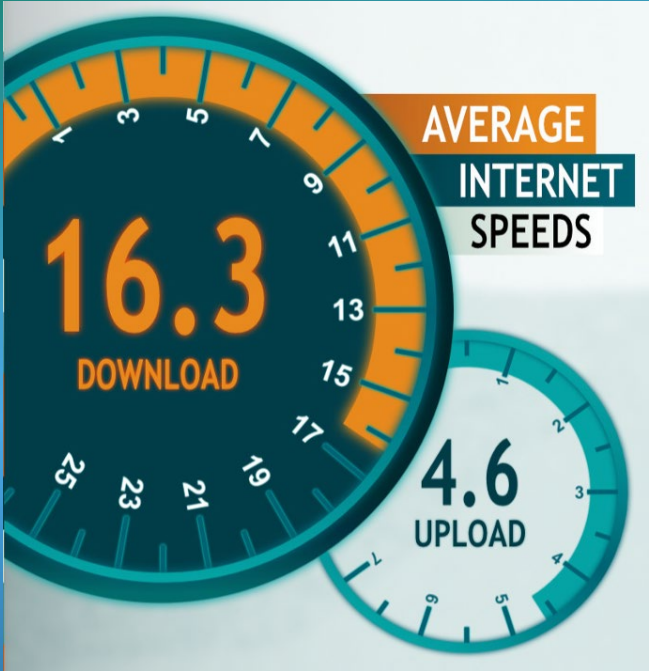
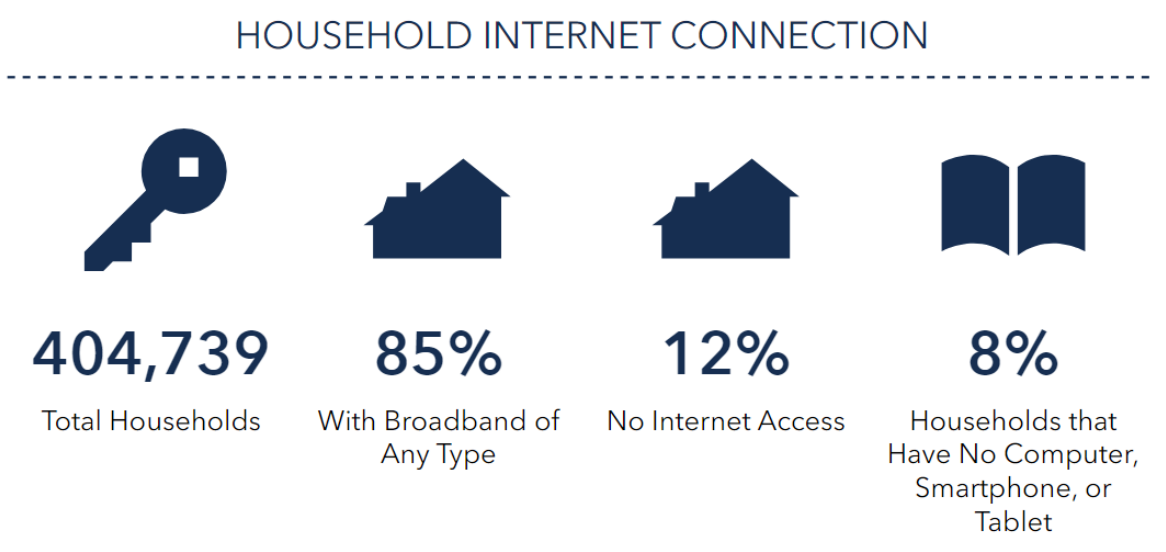
- Connection with others,
- Opportunity, and
- Innovation

Building capacity in our community

- Investment in scalable broadband infrastructure creates future-proofed communities (i.e., symmetrical 1 Gbps network)
- Implementation of government services, public safety, traffic control, and Smart Cities initiatives

DEVELOPING BROADBAND INFRASTRUCTURE

American Community Survey Reponses



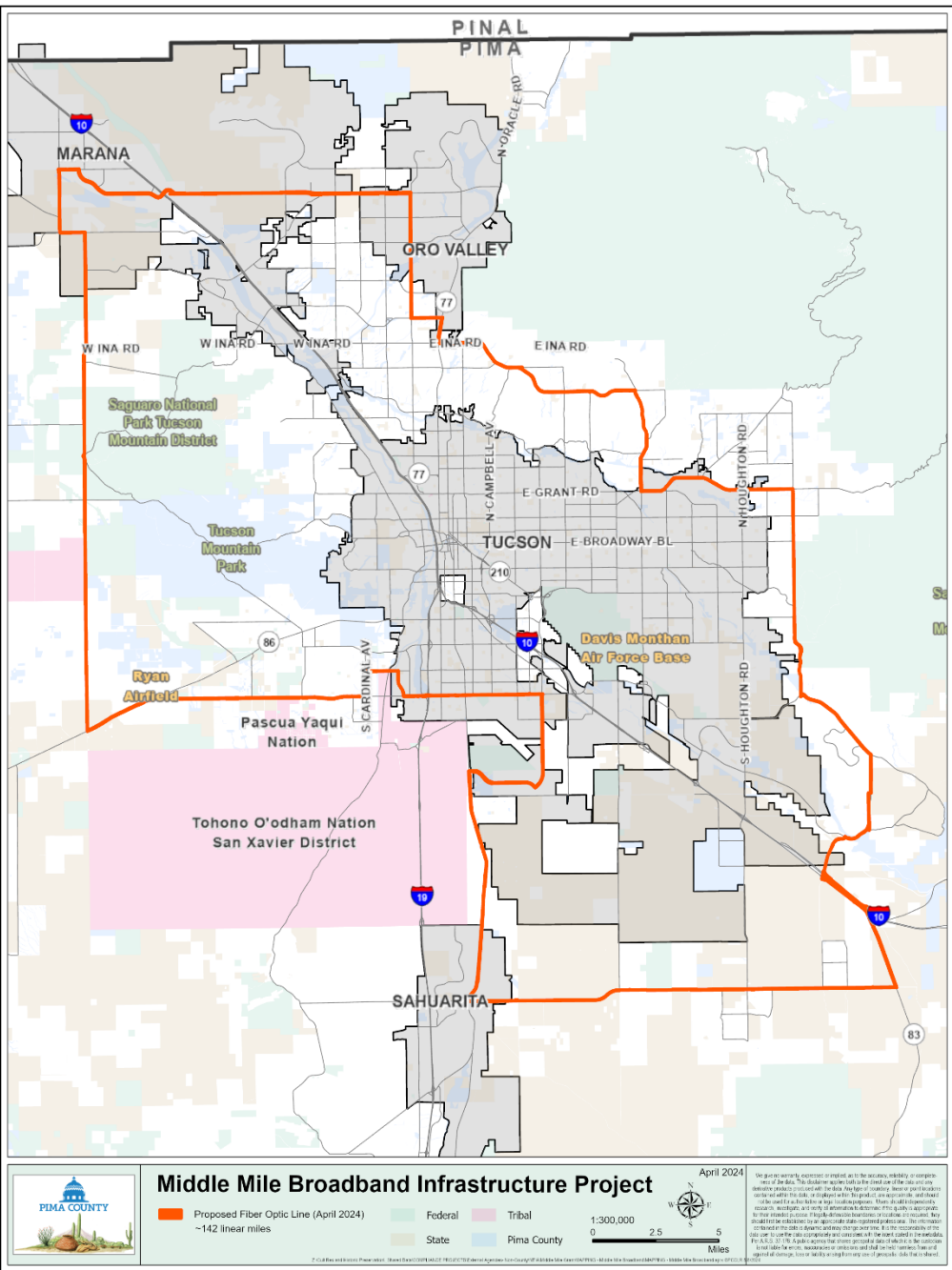
ACCESS IN PIMA COUNTY

NBAM Broadband Availability Report - County 2021 06 (sanbamdata.blob.core.windows.net)
Measurement Lab. 2021. NDT Statistics by County [October 15, 2020-October 15, 2021].
(<https://www.measurementlab.net/visualizations/>)

- Unserved and Underserved
 - Households with less than 25Mbps/3Mbps – unserved
 - Households with less than 100Mbps/20Mbps – underserved
- Barriers and Opportunities
 - Rural parts of the county lack reliable infrastructure
 - Greater connectivity and internet speed increase educational, healthcare, and workforce opportunities
- Workforce and Economic Development
 - Work and school from home
 - Business start-ups
 - Financial stability for families

IDENTIFYING PRIORITIES

OPEN ACCESS FIBER RING



Grant Application, Award and Schedule

- Application was submitted to NTIA in September 2022
- Pima County received \$30.3M award in June 2023
- 5-year project for open access fiber optic ring started July 1, 2023
- NEPA and NHPA Section 106 compliance required before construction begins

PROJECT OVERVIEW

Scope, Goals, and Benefits of Project

- Creation of carrier neutral, contiguous, open-access fiber network
 - Fully diverse, redundant fiber infrastructure path that all carriers can utilize
 - Two micro-ducts with 7 channel conduit
 - One 432 strand micro-fiber in each micro-duct
- Establishing infrastructure capacity
 - Remaining micro-ducts available for lease, share or swap
 - Future proof design can accommodate expansive future growth
- Government-owned infrastructure ensures access
 - Affordable, reliable, and accessible high-speed broadband services are available to communities due to low entry cost for ISPs
 - Public Wi-Fi, Smart Cities initiatives, government services, traffic control, public safety

PROJECT OVERVIEW



Pima County cultural and protected environmental resources

Evaluation of right to operate communication facilities

- Real property interest (cultural resource) in underlying ROW
- Adjacent landowner
- Municipal jurisdictions
- Other permitting/regulatory interests
- Multi-species conservation plan guidance for mitigation
 - Identification of ground disturbance as part of project
 - Avoidance of regulated riparian habitat

PROJECT OVERVIEW

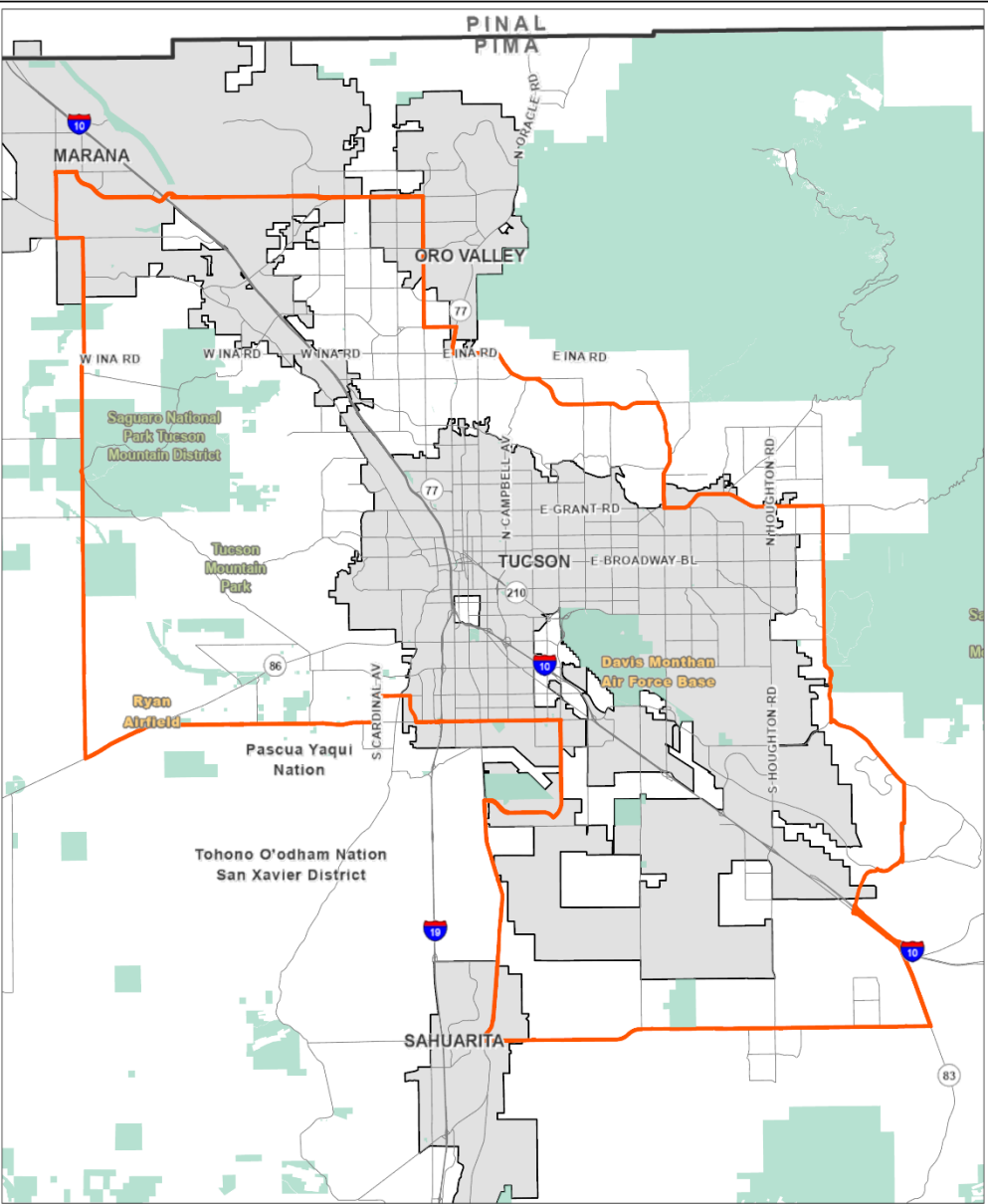
Consultants for Project

- Right of Way
- Cultural Resources Inventory, Monitoring and Mitigation
 - Board of Supervisors pending approval for contract at May 21 meeting
- Environmental Assessment and Design/Build
 - Contractor interviews completed, cost proposal phase of procurement underway

PROJECT OVERVIEW

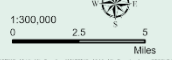
FEDERAL AGENCIES

- Advisory Council on Historic Preservation
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Federal Highways Administration
- Saguaro National Park (NPS)
- National Telecommunications and Information Administration
- U.S. Army Corps of Engineers
- Coronado National Forest (USFS)



Middle Mile Broadband Infrastructure Project

Proposed Fiber Optic Line (April 2024)
~142 linear miles



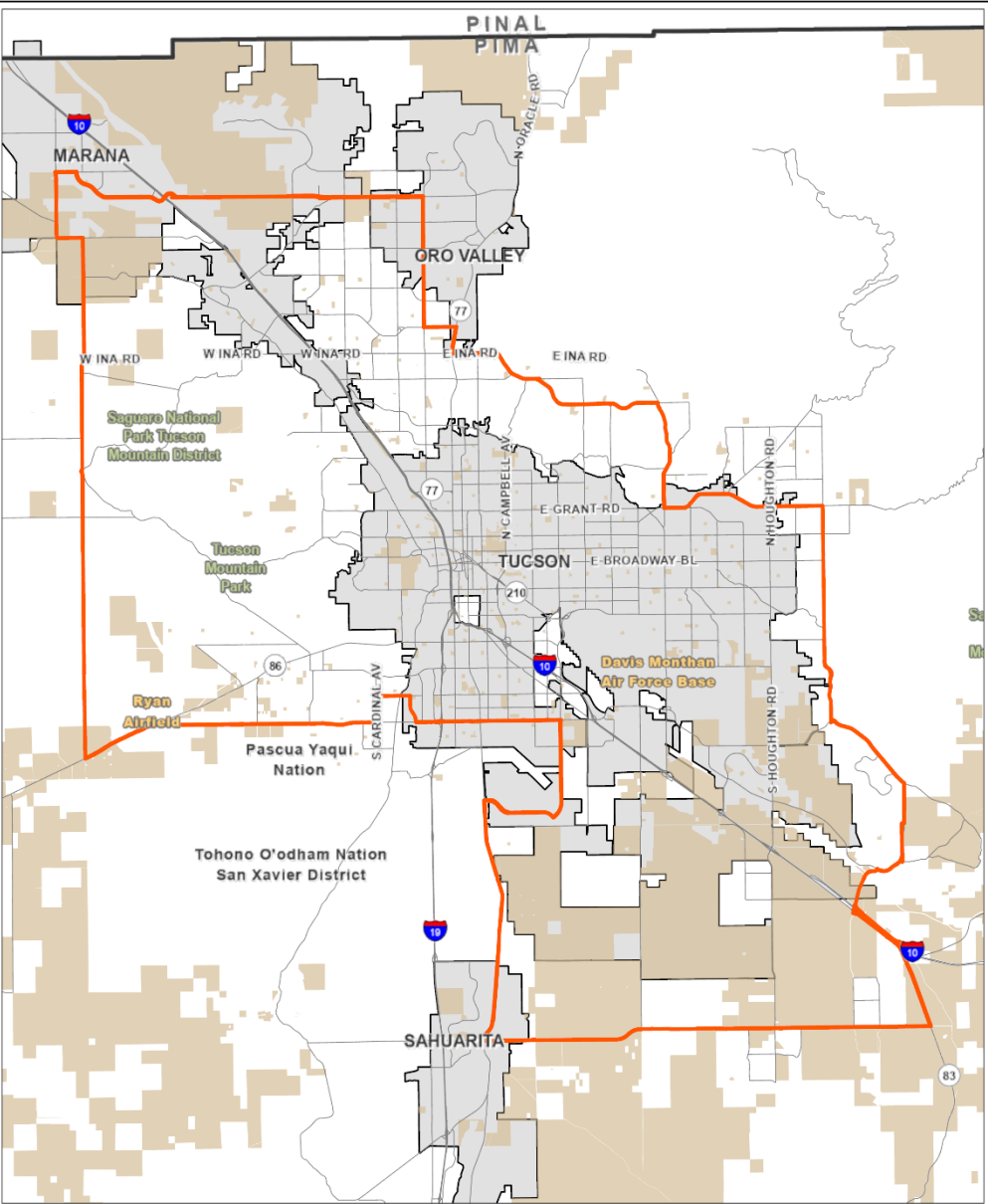
April 2024

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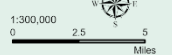
STATE AGENCIES

- Arizona Department of Transportation
- Arizona State Land Department
- Arizona State Historic Preservation Office
- Arizona State Museum



Middle Mile Broadband Infrastructure Project

 Proposed Fiber Optic Line (April 2024)
 State
~142 linear miles



April 2024

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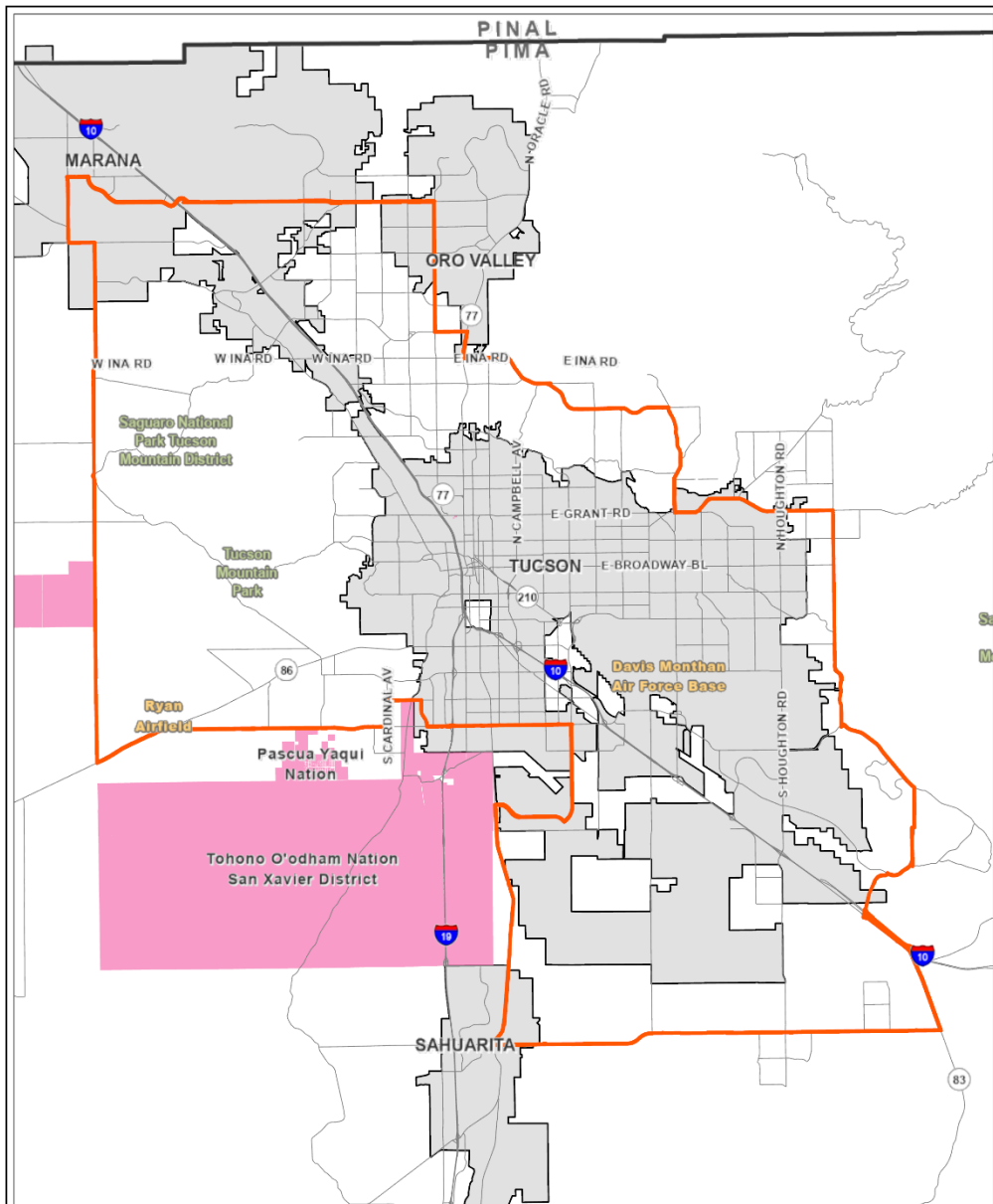


PIMA COUNTY

NATIVE NATIONS

- Ak-Chin Indian Community
- Fort Sill Apache Tribe
- Gila River Indian Community
- Hopi Tribe
- Mescalero Apache Tribe
- Pascua Yaqui Tribe
- Salt-River Pima-Maricopa Indian Community

- San Carlos Apache Tribe
- Tohono O'odham Nation
- Tonto Apache Tribe
- White Mountain Apache Tribe
- Yavapai Apache Tribe
- Pueblo of Zuni



Middle Mile Broadband Infrastructure Project
April 2024

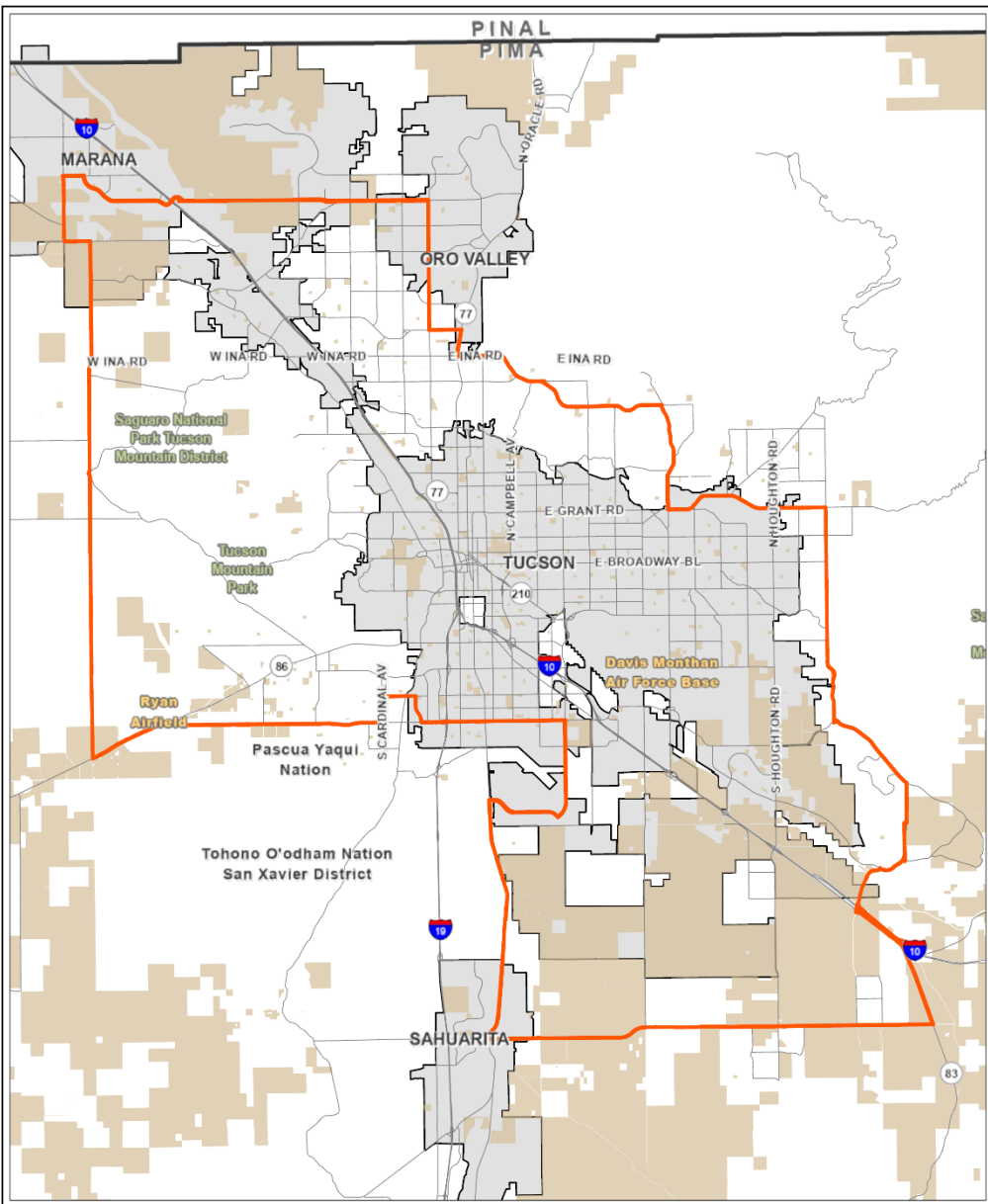
 Proposed Fiber Optic Line (April 2024) ~142 linear miles
 Native Nations

1:300,000
0 2.5 5 Miles

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UTILITIES AND RAILROADS

Tucson Electric Power
 Trico Electric Cooperative
 Kinder Morgan
 Union Pacific Railroad



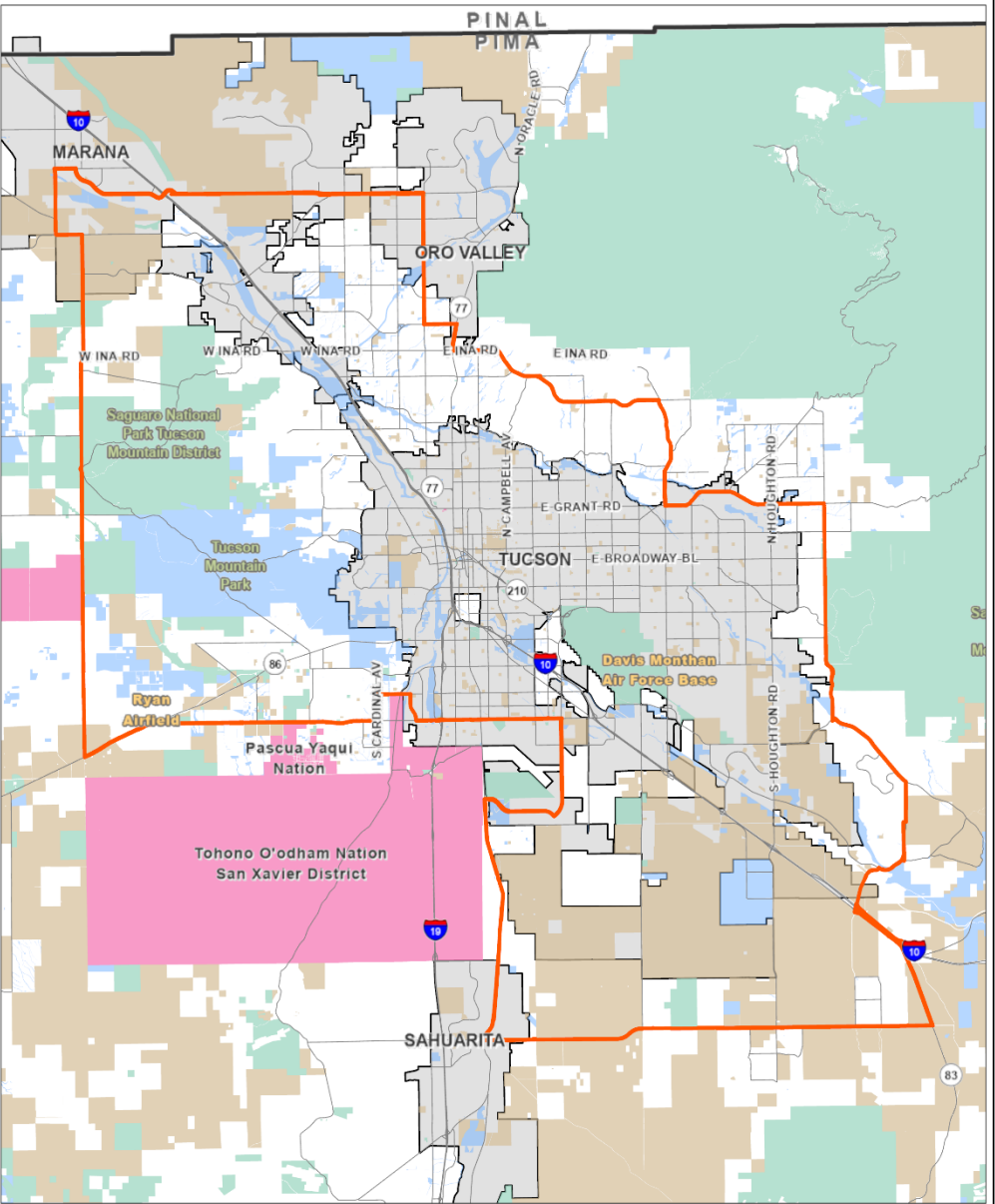
Middle Mile Broadband Infrastructure Project
 April 2024
 Proposed Fiber Optic Line (April 2024) ~142 linear miles
 State



NEPA & NHPA

Study Area/Area of Potential Effects (APE)

- ~142 Linear Miles
- 100% of existing ROW = 2,715 acres



Middle Mile Broadband Infrastructure Project
April 2024

Proposed Fiber Optic Line (April 2024) ~142 linear miles

Legend: Federal (Green), Native Nations (Pink), State (Brown), Pima County (Blue)

Scale: 1:300,000 (0, 2.5, 5 Miles)

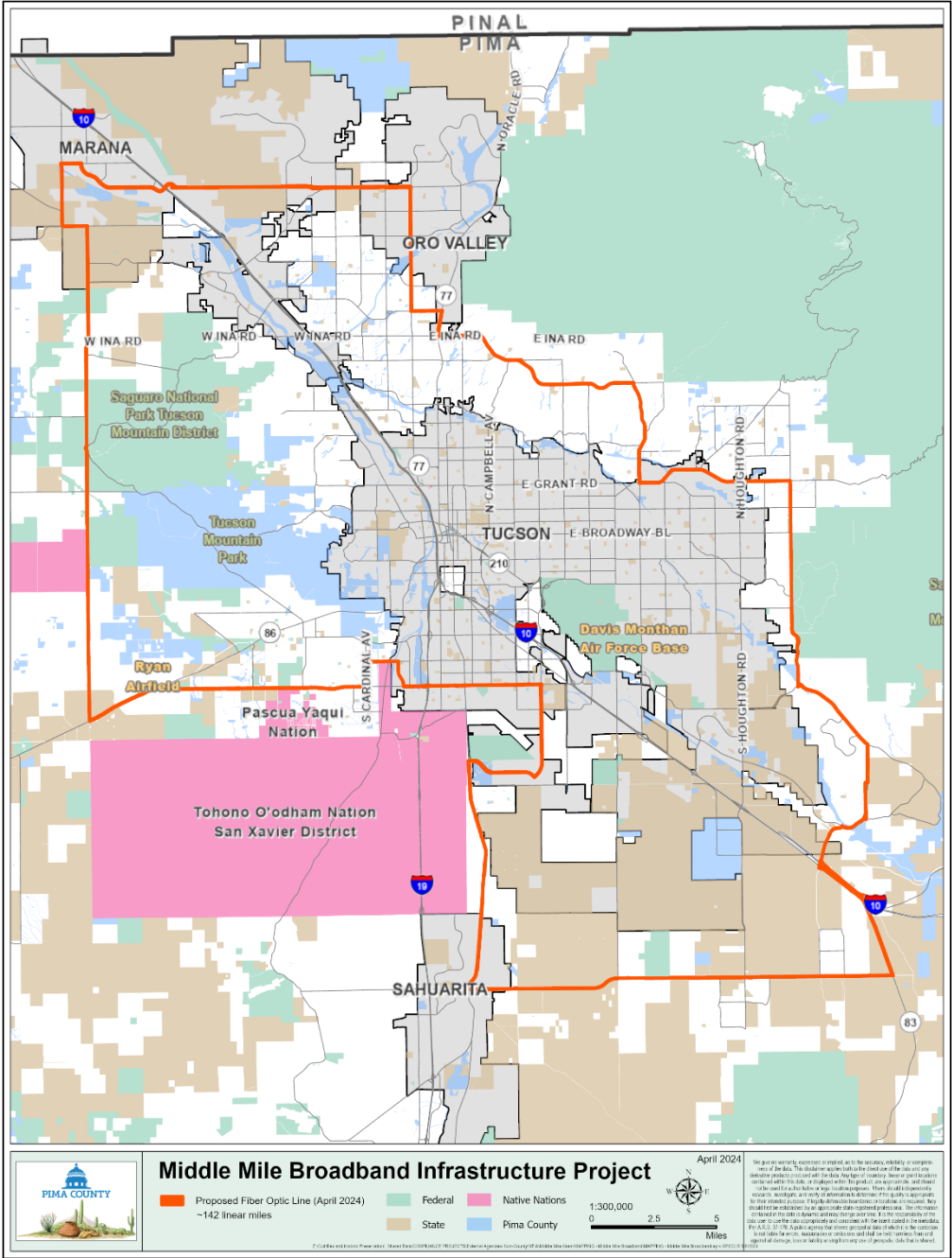
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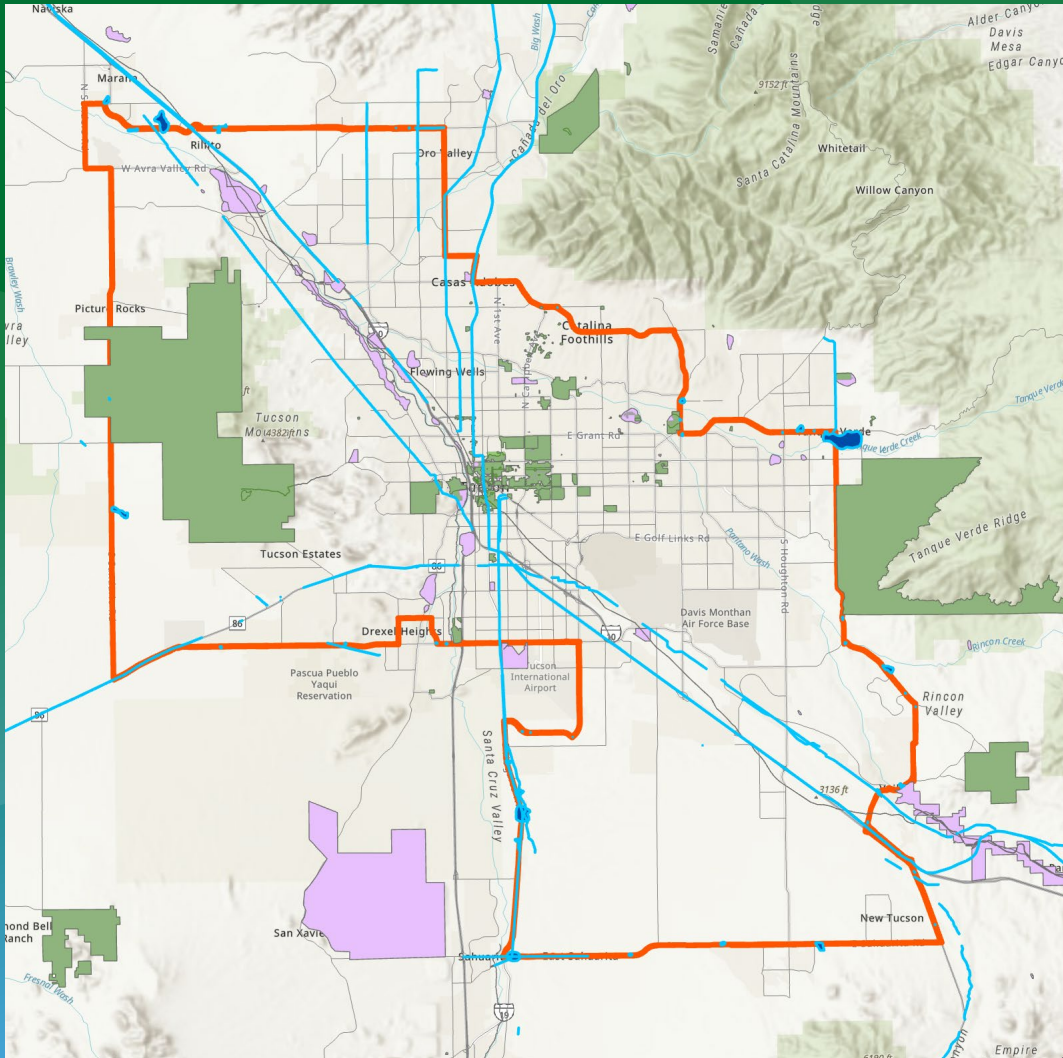


NEPA

Categorical Exclusion (CE) vs. Environmental Assessment (EA)

- Potential for adverse effects to historic properties trigger EA
- Preventative measures through adherence to Pima County’s Sonoran Desert Conservation plan





NHPA

PRELIMINARY DESIGN APE = ~142 Linear Miles/2,715 acres

Review of Pima County Databases

- 77 previously identified archaeological sites
- 14 Pima County Priority Heritage Resources
- 7 NRHP-listed properties

FINDING OF ADVERSE EFFECTS

**AVOID
MINIMIZE
MITIGATE**



Unique mixture of subject matter experts

- Office of Digital Inclusion
- Grants Management and Innovation
- Information Technology
- Projects, Design, and Construction
- Office of Sustainability and Conservation
- Regional Flood Control
- Real Property Services
- Department of Transportation
- Procurement Services
- Finance and Risk Management

PIMA COUNTY STAFF EXPERTS

Nome to Homer Express Route



QSH Parent Holdco: Nome to Homer Express Project An NTIA Middle Mile Grant Project

Quintillion Subsea Operations LLC: Project Implementation

Presenters:

Matt Peterson, *Chief Technology Officer*

Art Paul, *Grants Program Director*

Ada Maduakor, *Senior Program Manager*

Quintillion Overview

Company Profile

- Quintillion: Broadband Service Provider
- Services
 - Wholesale middle-mile services to Alaskan Service Providers (ISPs)
- Phase 1 System:
 - Operational since 2017
- Ownership:
 - Owned by Grain Management, LLC
 - Washington, D.C. based, minority-owned investment firm specializing in global broadband technology and telecommunications infrastructure.



Quintillion Project Team

George Tronsrue
Chief Executive
Officer

Mac McHale
President

Matt Peterson
Chief Technology
Officer

Clover McNeil
Chief Financial
Officer

Lance Dubsky
Chief Information
Security Officer

Art Paul
Grants Program
Director

Ben Cuttriss
VP Strategy

Dylan Prosser
Comptroller

Daniel Kerschbaum
VP of Network
Engineering

Ada Maduakor
Implementation/
Compliance
Sr. Program Manager

Debbie Dean
Procurement/
Contracts Manager

Katherine Beldin
Sr. Accountant

Hector Hernandez
Technical Project
Manager

Ryan Wopshall
Project Manager
Subsea

Frank Cuccio
Subsea
Consultant

Project Overview

Nome to Homer Express (NTHE)

- Region: Alaska, United States
- The Nome to Homer Express project creates a broadband superhighway, connecting much of Alaska
 - The project aims to revolutionize connectivity in remote Alaskan communities
 - With the support of NTIA MMG funding, this ambitious endeavor is poised to bring about transformative change.
- Connects multiple communities in Alaska and provides redundancy for many more.
- Number of miles: 1065 Total Fiber Miles (equivalent distance from New York City to Miami, FL)
- Communities Served: Nome, Emmonak, Yukon-Kuskokwim (YK) Delta coast, Naknek, Igiugig, Iliamna Lake, Pile Bay, Williamsport, Homer

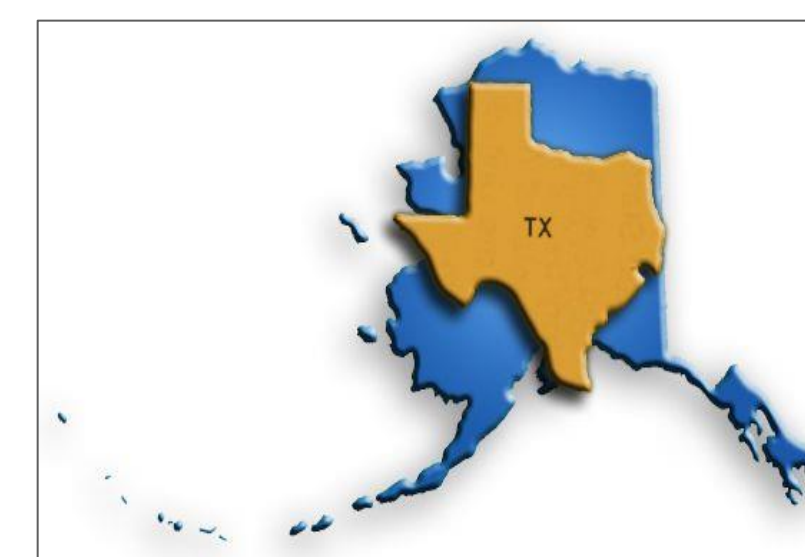
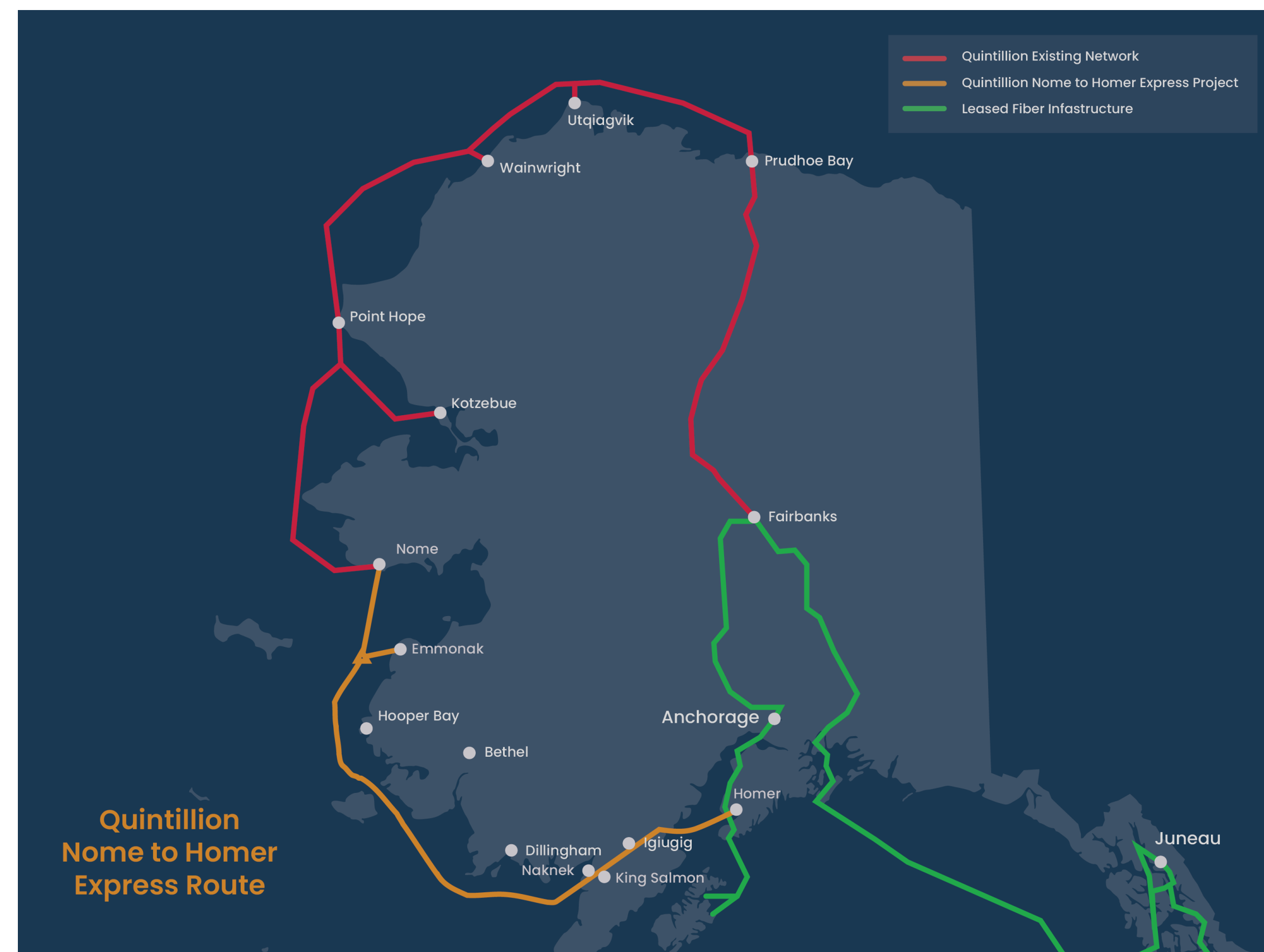


Single-armed Fiber
Optic Subsea Cable

Project Description

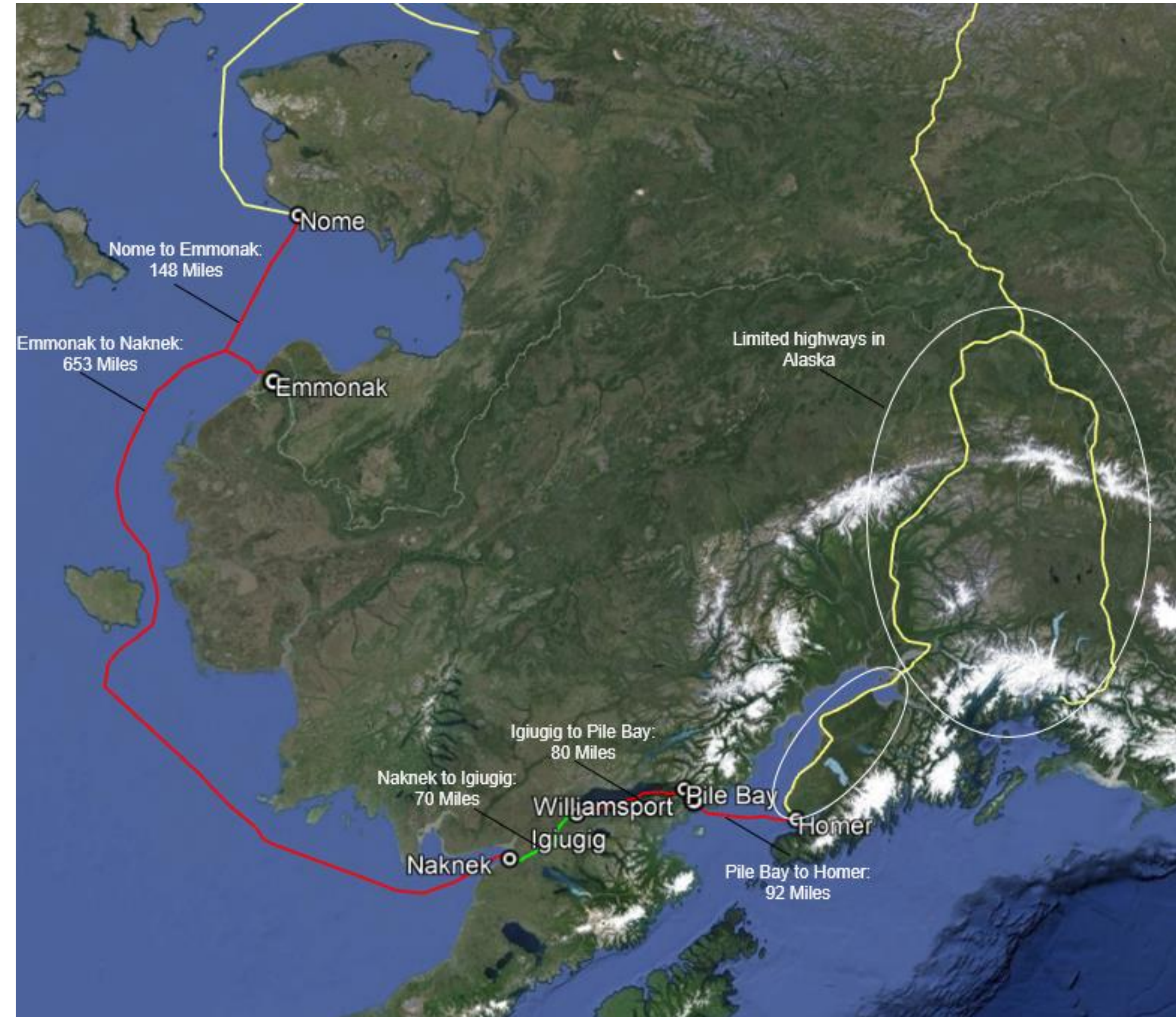
Key Project Facts

- Project Build with 1,065 Total Fiber Miles
 - 960 miles subsea
 - 105 miles terrestrial
- Four Year Timeline (Projected 4/1/23 to 3/31/27)
- Total Project Costs: \$150,799,819
- Federal Grant Awarded: \$88,896,493 (59% of total)
- Quintillion Match: \$61,903,326 (41% of total)
 - Quintillion Matching Funds (Cash): \$36,942,076
 - Quintillion Matching Funds (In-Kind): \$24,961,250



Miles Per Segment

System Component	Seg/Site	From	To	Length
Terrestrial FOC	T1	Nome CLS	Power Hut	3
Terrestrial FOC	T2	Power Hut	Nome BMH	0.1
Terrestrial FOC	T3	Emmonak BMH	Emmonak CLS	11.99
Terrestrial FOC	T4	Naknek BMH	Naknek CLS	2
Terrestrial FOC	T5	Naknek BMH	Igiugig BMH	70
Terrestrial FOC	T6	Pile Bay BMH	Williamsport BMH	14.29
Terrestrial FOC	T7	Homer BMH	Homer CLS	0.49
Submarine FOC	S1	Nome BMH	BU Emmonak	112.15
Submarine FOC	S2	BU Emmonak	Emmonak BMH	35.84
Submarine FOC	S3 - 6	BU Emmonak	Naknek BMH	653.54
Submarine FOC	S7	Igiugig BMH	Pile Bay BMH	80.34
Submarine FOC	S8	Williamsport BMH	Homer BMH	78.38
			Total	1065.25



Project Status



Project Milestones

Design

35% Outside Plant Engineering Design Plan of Work Completed: Our engineering team has successfully completed the 35% milestone for the Outside Plant Engineering (OSPE) design Plan of Work (POW).

Approval

Quintillion's Stamp of Approval: Following our completion of the 35% OSPE design POW, we received the much-anticipated acceptance from Leadership. This approval is a testament to our team's expertise and the robustness of our design strategy.

Environmental Assessment

Successful Engagements with Governmental Agencies: We have achieved key engagement milestones with several governmental bodies, including the National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), and U.S. Army Corps of Engineers (USACE).

Survey

Marine Survey Contract Negotiations Concluded: Our negotiations with the selected contractor for the marine survey have been successfully concluded, with all terms, conditions, and bonding requirements agreed upon. This agreement marks a significant step in managing and mitigating risks.

Project Implementation & Network Details

- Subsea team preparing branch cable connections on previous project
- Example of work coming in 2025/2026



Project Implementation & Network Details

- Remote Operated Vehicle used to jet-bury cable (upper right)
- Beach Manhole (BMH) team preparing fiber for splicing subsea to terrestrial (far upper right)
- Horizontal Directional Driller (HDD) (lower right)
- Cable Plow (far lower right)



Connecting Communities



“

“A lot of people think [data is] delivered over satellite, but it’s not. Pretty much all of it is over submarine cables...”



Four Exciting Project Concepts

Stability

- More reliable than satellite
- Lower latency than current offerings
- Supports multiple devices in most cases

Cost

- Competition introduced to each community
- Cost savings, allowing money to be spent on heating oil, etc.
- Decreased reliance on travel potentially


Speed

- Faster upload and download speeds available
- Better quality video/audio and transmission of large files, like radiology images

Impact

- The ability to have a full online education including training for trade schools
- An option to work remotely indefinitely and not having to move to a city

Contribution to Alaskans

- Community Benefits
 - Improved connectivity
 - Enhanced access to educational resources, healthcare services and economic opportunities
 - Economic Development:
 - Stimulating local economies through increased internet access
 - Facilitating business growth, innovation, and local hire
 - Social Equity:
 - Bridging the digital divide
 - Ensuring equitable access to essential services for all residents
- 

Collaborations & Future Opportunities

Project Future

- Partnerships:
 - Collaboration with stakeholders to expand network coverage
 - Identifying additional funding opportunities for further infrastructure development
- Expansion:
 - Continued efforts to connect underserved communities
 - Addressing evolving connectivity needs across Alaska





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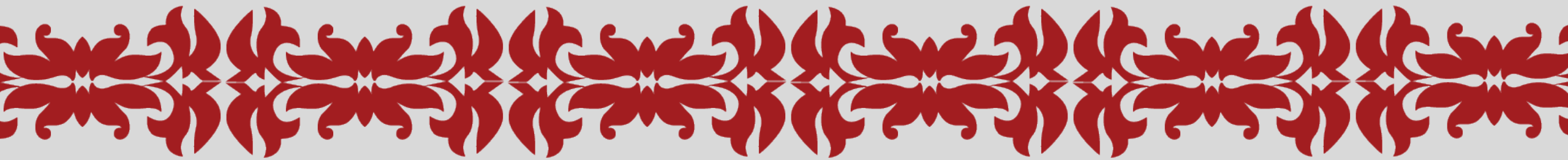
www.quintillionglobal.com

info@quintillionglobal.com



Quintillion Headquarters
201 East 56th Avenue, Suite 300
Anchorage, Alaska, 99518

**Omaha Tribe of Nebraska
Fiber-Based Middle Mile
Grant**



Omaha Tribe of Nebraska

Middle Mile Infrastructure Project



About the Umoⁿhoⁿ

- Traditional Homelands in Eastern Nebraska, Western Iowa and parts of South Dakota
- Pop. 7,043
- Rich History/Modern Struggles



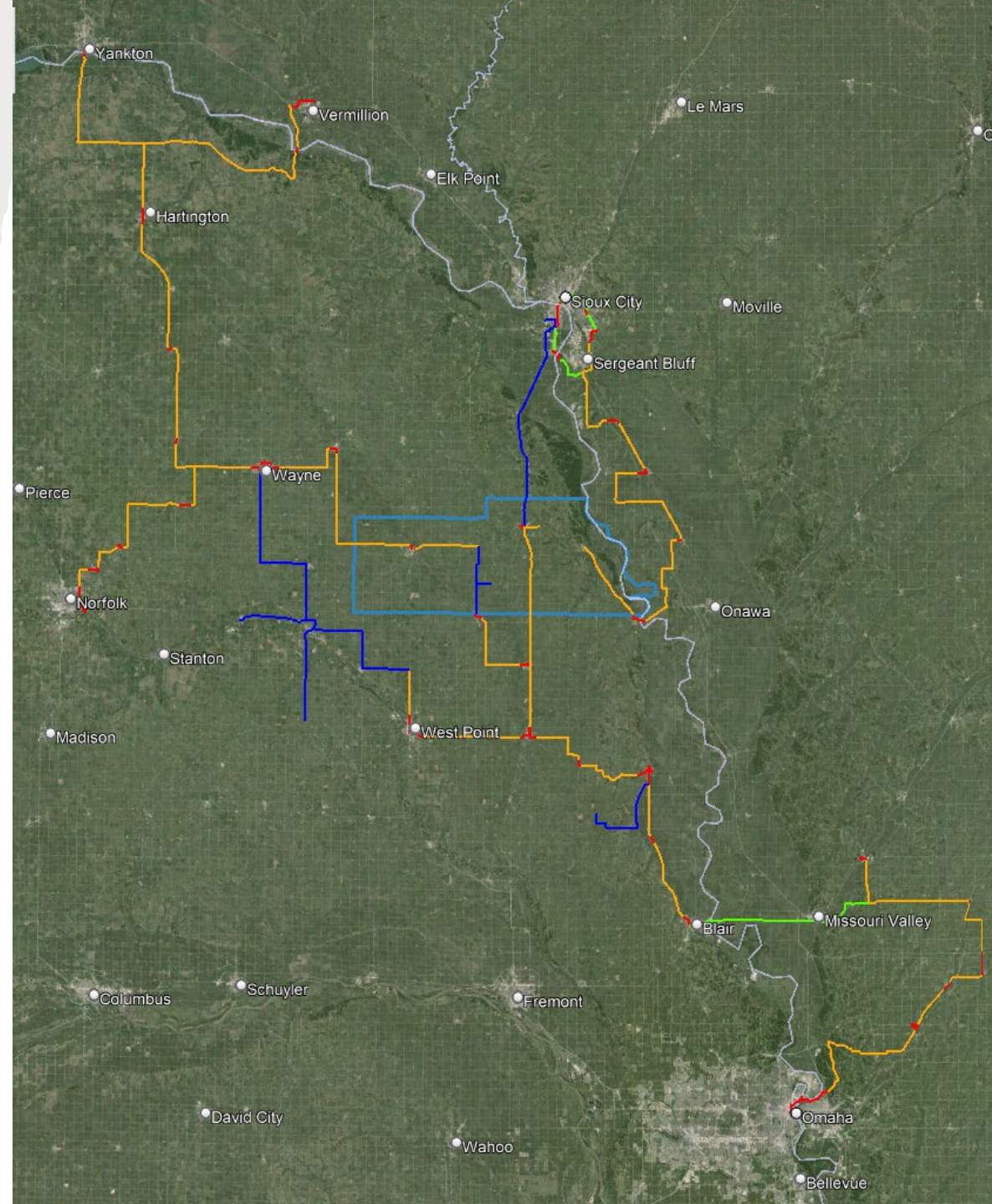
Project History

- Covid
- Spectrum Auction
- Partnership with Evolve Cellular and Formation of Quick Current
- TBCP
- Middle Mile Grant



Project Plans & Progress

- 384 mi of new fiber
- 100 mi of IRU dark fibers
- 34 mi of upgraded fiber.
- Direct peering and cross connect capability at regional data centers
- Tribal Job Creation and Training





Community Impact

- Jobs & Training
- Community Engagement & Excitement

Plans for the Future

- Last Mile buildout
- Partnership with High Schools and NICC



Q & A