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November 21, 2018

Via Electronic Filing

Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: *Transforming the 2.5 GHz Band* – WT Docket No. 18-120 – *NOTICE OF EX PARTE PRESENTATION*

Dear Ms. Dortch:

I am writing pursuant to Section 1.1206(b)(2) of the Commission's rules to report that on November 19, 2018, Dr. Patrick Gossman, Deputy CIO, Wayne State University and Executive Director, Community Telecommunications Network, Inc., Eric Smith, Director of Broadcast and Audio Visual Services, Northern Michigan University, Joel Phillips, Director of Technology Services and Security, Newaygo County (MI) Regional Educational Service Agency, Fred Sharpsteen, Director of Technology, Mecosta-Osceola (MI) Intermediate School District, and the undersigned counsel for Wayne State University and Community Telecommunications Network, Inc., met with Rachael Bender, Wireless and International Advisor in the Office of Chairman Pai, regarding the referenced proceeding.

The visiting Michigan educators presented extensive information showing how Educational Broadband Service ("EBS") frequencies have been successfully deployed by Northern Michigan University to provide broadband service to chronically underserved populations throughout sparsely populated areas of Michigan's Upper Peninsula, thus closing the "homework gap," and that critical needs for broadband service exist in other rural and underserved areas of Michigan that could be met if EBS frequencies were made available by the Commission to local educators. The 2.5 GHz band is particularly well suited for educators seeking to close the "homework gap" in rural communities because of its propagation characteristics, which are superior in terrain-challenged, rural, forested areas as compared, for example, to frequencies in the 3.5 GHz band.

The visiting educators acknowledged that, to date, there have been a limited number of education-based EBS network deployments such as Northern Michigan University's, but pointed out that new EBS spectrum has not been available for this purpose for the last 23 years except through a rare waiver process. Even though EBS rules were changed in 2005 and wireless network technology in the 2.5 GHz band has since become affordable, rural educators have not

had access to EBS spectrum to build networks and reach unserved and underserved students and their families.

The visiting educators also described that there is no realistic prospect these sparsely populated rural areas would be fully served by commercial operators if the Commission merely auctions EBS spectrum to the highest bidder, even if accompanied by government subsidy programs that might be funded through auctioning of EBS spectrum. Commercial offerings, even if available, suffer from high cost and geographic and service limitations that fail the needs of modern education. The visiting educators urged that the Commission should therefore adopt priority filing windows as a licensing mechanism for EBS, as proposed in the Notice of Proposed Rulemaking in WT Docket No. 18-120 and widely supported by the EBS, educational and public service communities.

The visiting educators shared the attached documents, including an outline of their presentation, a description of Northern Michigan University's EBS deployment and Educational Access Network and how that Network could easily be expanded to provide service in other areas of rural Michigan, a description of an educational network in Newaygo County that has relied to date on unlicensed spectrum but now needs to obtain EBS spectrum to fully serve that rural county's educational needs, and a description of the "homework gap" problem in rural and poor counties in Michigan, including Mecosta, Osceola and Lake Counties.

Respectfully submitted,



Todd D. Gray

cc Rachael Bender

1. Introductions

Patrick Gossman, Deputy CIO, Wayne State University and Executive Director, Community Telecommunications Network, Inc.

Todd Gray, Gray Miller Persh, Counsel for CTNI

Joel Phillips, Director of Technology Services and Security, NCATS, Newaygo County Regional Educational Service Agency

Fred Sharpsteen, Director of Technology, Mecosta-Osceola Intermediate School District

Eric Smith, Director of Broadcast and Audio Visual Services, Northern Michigan University

2. Goal: Bridge the Homework Gap in Rural Areas

Problem: Commercial providers are not meeting the needs of education

- Commercial entities haven't and won't reach the really low population density areas with the services education needs, even with government assistance.
- Where services are provided they fall short of needs and are too expensive.
- There isn't a business case for services in more rural areas
- Only rural educators are motivated to provide necessary services.
- Unlicensed spectrum is inadequate.
- Rural educators need EBS

What is needed for modern education now:

- 25 mbps or better
- Low latency
- Uncapped
- No throttling
- Affordable
- CIPA compliant
- No long term contract needed

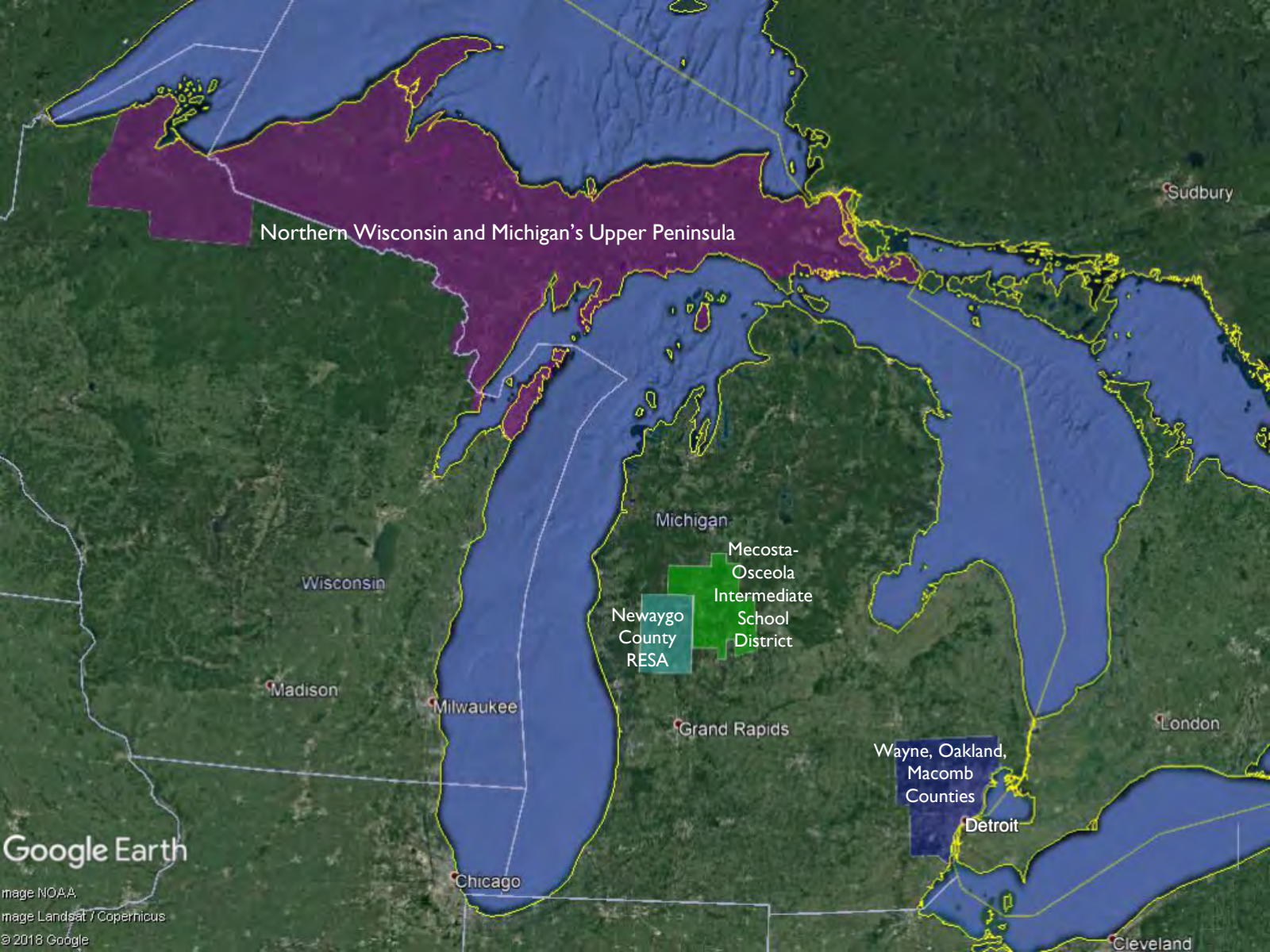
Solution: Keep EBS in the Hands of Educators

- Auctions will kill rural educators ability to bridge the homework gap
- Open an EBS application window for educators
- Educators can partner with providers or where necessary, build their own.
- Local control in the hands of educators is key.

Education can do it!

- Northern Michigan University is doing it
- Newaygo County needs EBS to expand its services
- Mecosta-Osceola School District, one of many crying for services

After 23 years, open an EBS application window for educators



Northern Wisconsin and Michigan's Upper Peninsula

Michigan

Mecosta-Osceola
Intermediate
School
District

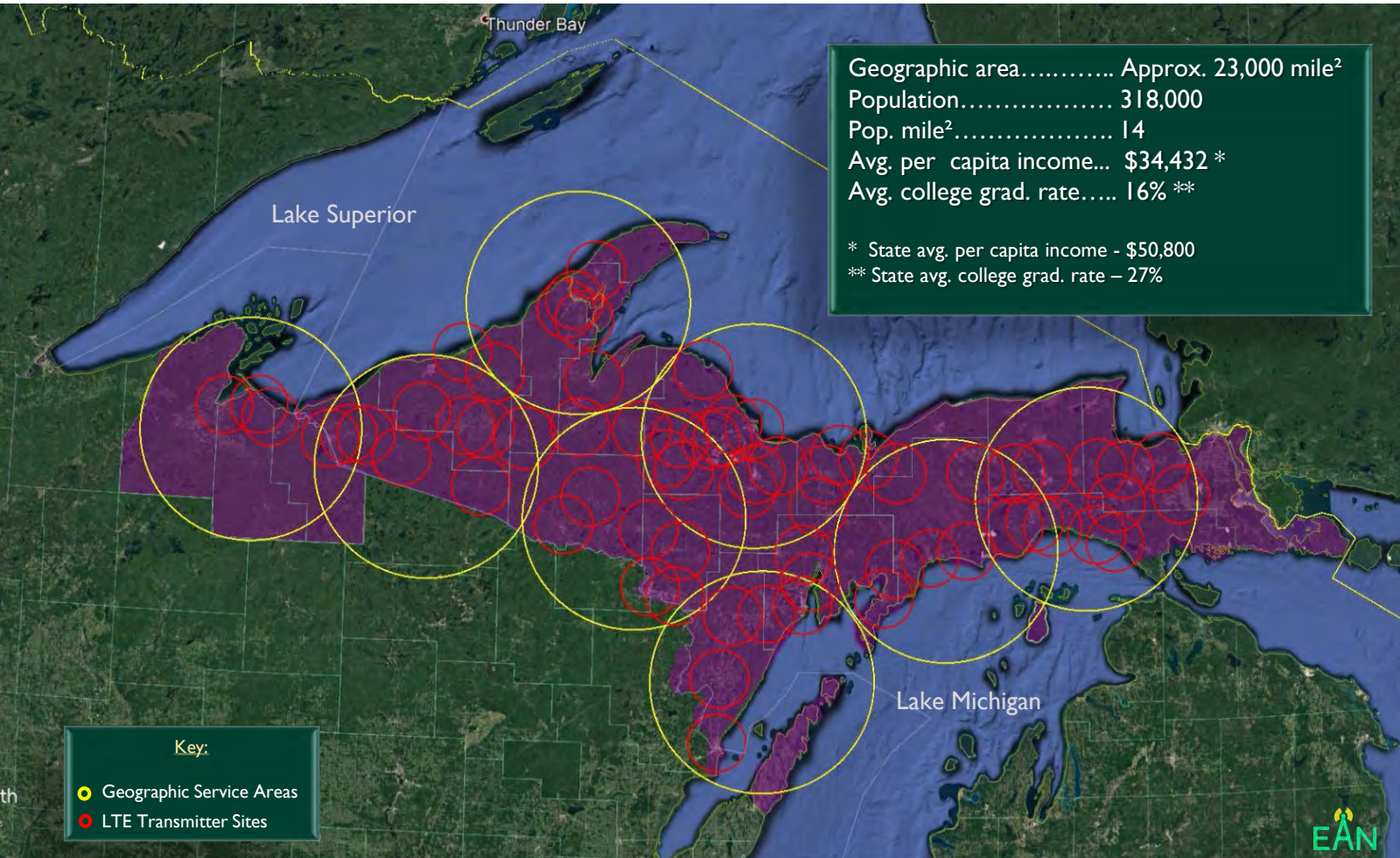
Newaygo
County
RESA

Wayne, Oakland,
Macomb
Counties

Google Earth

Image NOAA
Image Landsat / Copernicus
© 2018 Google

LTE BROADBAND – NMU'S EDUCATIONAL ACCESS NETWORK



NORTHERN MICHIGAN UNIVERSITY

NMU's BROADBAND NETWORK: AT-A-GLANCE

Currently

- Provides educational broadband service to..... 8,500+ NMU students, faculty/staff, nearly 3,000 community residents and three Native American tribal nations
- 4G* LTE coverage..... 2,867 mile²
- Avg. monthly data consumption per device..... 124Gb
- Broadband speeds..... 25Mbps down and 5Mbps up

*NMU recently upgraded its network core to 5G in preparation for a planned migration to faster data transmission speeds.

When Fully Constructed

- Will provide last mile connectivity to..... Approx. 23,000 sq. miles of rural U.P. & Northern Wisconsin communities
- Will offer educational broadband service to..... 60,000 K-16 students and lifelong learners
- Will connect middle college links between..... 40,891 K-12 students and 6 colleges & universities
- Will provide educational broadband to..... 6 Native American tribal nations

Project Funding & Ongoing Operations

- Educational Access Network funding provided by Northern Michigan University, State of Michigan and EAN enrollment fees



EAN* CONNECTS USERS WITH CONTENT PROVIDERS

LTE / Educational Access Network

Community Members

Continuing professional education

Workforce / economic development

Lifelong Learning

Health care information

Educational Partners

K-12 School Districts

Community Colleges

Universities

Tribal Communities

Degree Seeking Students

Online degrees

Online certificates

Individual credit courses (including dual/concurrent enrollment)

COMMUNITY



\$34.95 per month

ALUMNI & VETERANS



\$24.95 per month

AFFILIATE



\$19.95 per month

* Educational Access Network

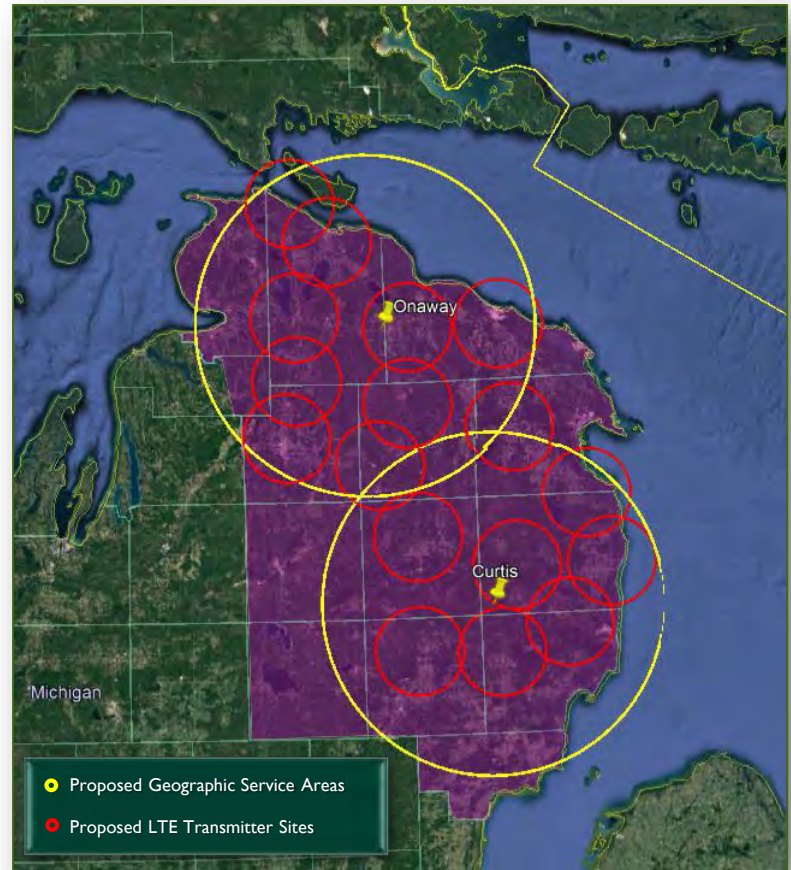
EXAMPLE OF SPECTRUM NEEDS IN RURAL MICHIGAN

Proposed Service Areas

- *Onaway Township GSA*: 67.5Mhz of unlicensed EBS spectrum available for educational use
- *Curtis Township GSA*: 134.5Mhz of unlicensed EBS spectrum available for educational use
- Request for NMU EAN service received from:
 - Michigan's Governor & Economic Development Council
 - Alpena – Montmorency Intermediate School District
 - Cheboygan – Otsego Intermediate School District
 - Presque Isle Fiber Consortium

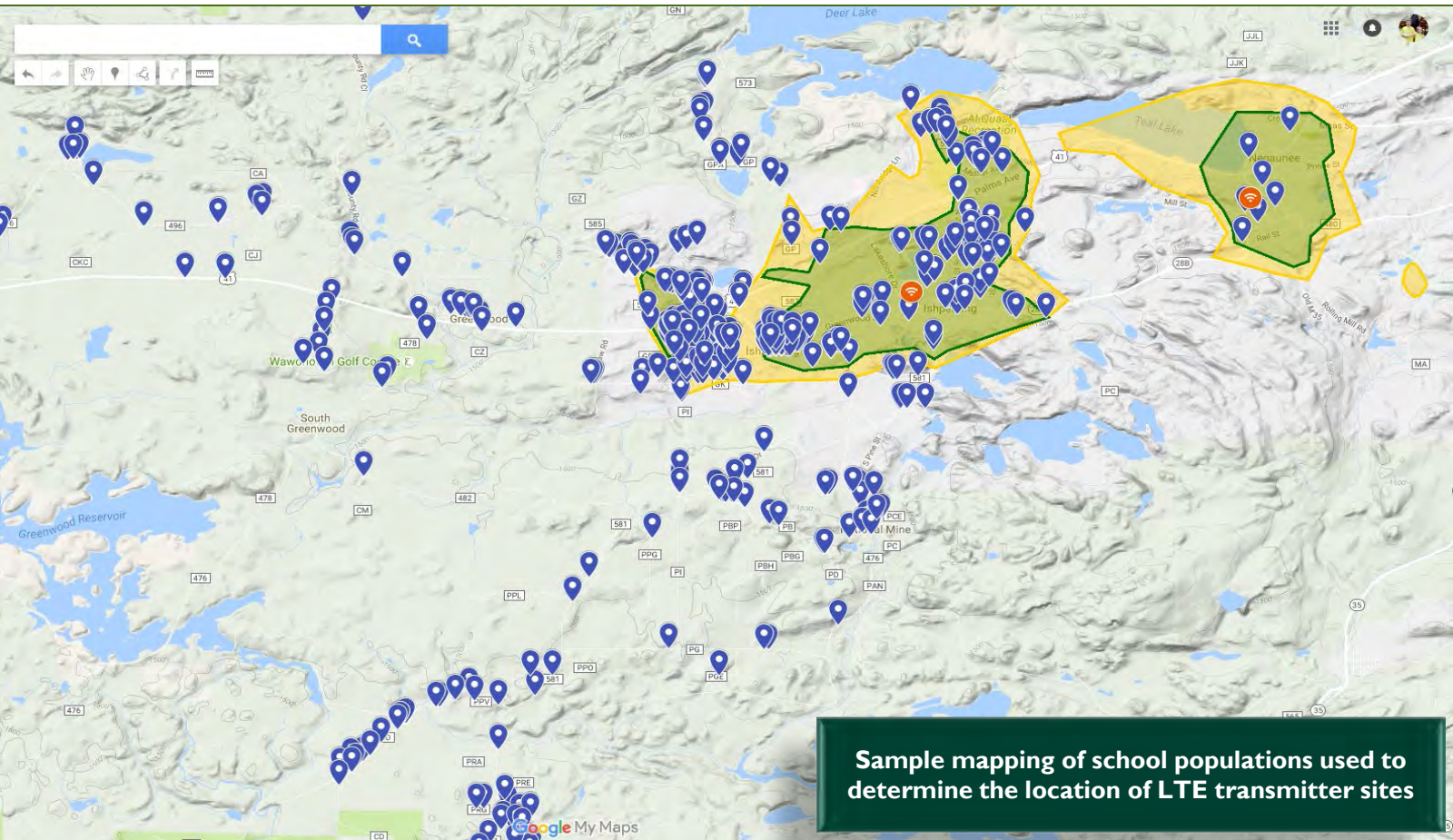
GSA Geography & Demographics

- Population: approx. 315,000
- Geographic area: 8,000 mile²
- Average college graduation rate: 13%
- Average income: \$37,500



Northern Lower Michigan

LTE CONSTRUCTION DESIGNED TO MATCH STUDENT POPULATIONS

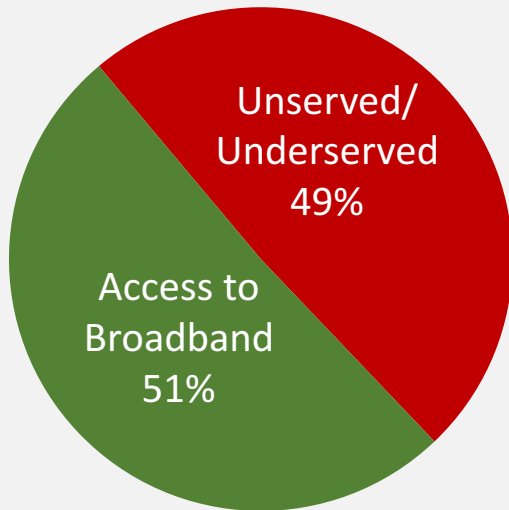


NORTHERN MICHIGAN UNIVERSITY

Newaygo County Advanced Technology Services (NCATS)

Educational Telecommunications Network At a Glance

Broadband Access in Newaygo County



https://connectednation.org/wp-content/uploads/sites/13/2018/02/newaygo_county_michigan_technology_plan_final.pdf

About the Network

- Newaygo County contains 17,730 total households. The NCATS network currently serves 2,400 eligible households. It also connects 9,000 students from 6 public school districts and numerous anchor institutions including county and local government.
- 78% of NCATS wireless members can receive services that meet or exceed the FCC broadband benchmarks of 25Mbps download/3Mbps upload.
- The network has an exceptional 97% customer satisfaction rating.
- Wireless service covers a 450 square mile area using a mix of 900Mhz, 2.4Ghz, 3.65Ghz, 5Ghz, 11Ghz, and 24Ghz technologies. The network also consists of 72 miles of fiber optic cable.

Newaygo County needs access to the 2 available EBS channel groups. EBS is necessary to meet the broadband needs of Newaygo County's rural students and families.

About Newaygo County

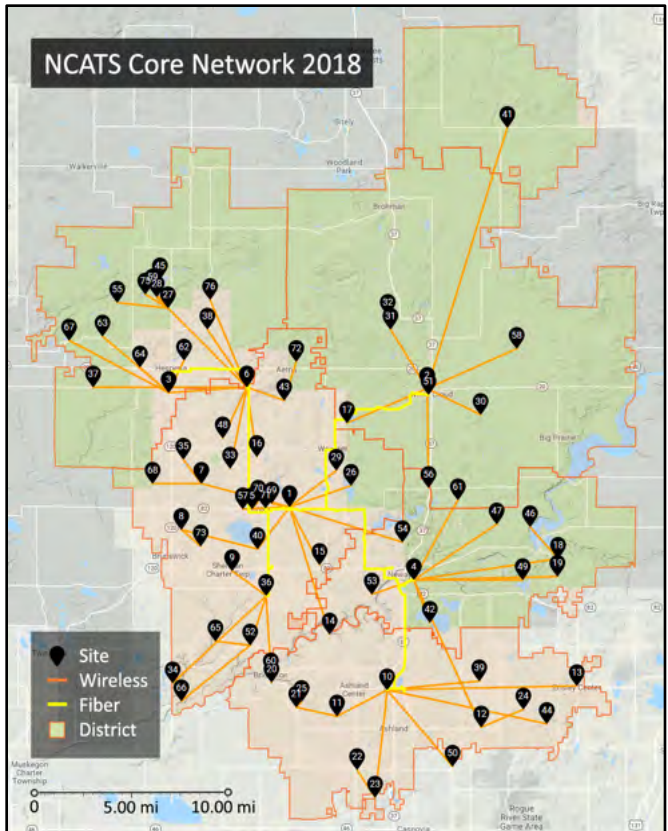
Newaygo County is an isolated, rural community in western Michigan, surrounded by the Manistee National Forest. Nearby communities include four rural cities and one village.

A significant number of unserved households exist in Newaygo County's 862 square mile boundaries. The population density of Newaygo County is 59 mi², with some township's population densities as low as 7 mi².

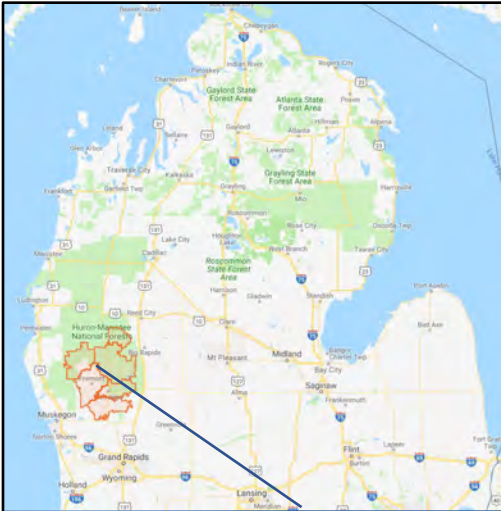
Since its creation in 1995 through a US Department of Education Challenge Grant, the NCATS network has existed to serve the education and technology needs of Newaygo County Michigan.

The NCATS network is an Educational Telecommunications Network of Newaygo County RESA.

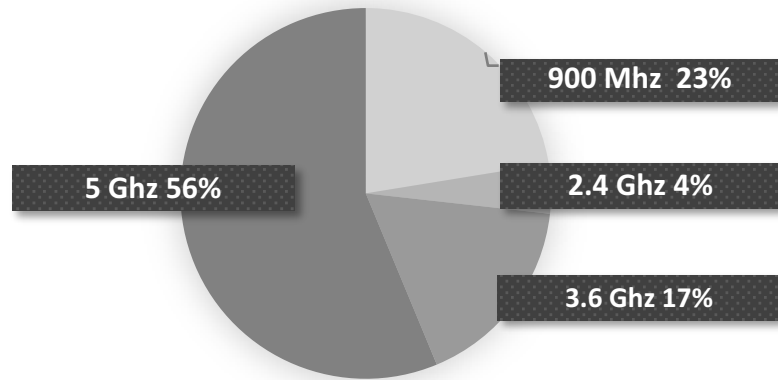
NCATS Core Network 2018



Newwaygo County Advanced Technology Services



NCATS Users by Technology



Newwaygo County Community Factbox

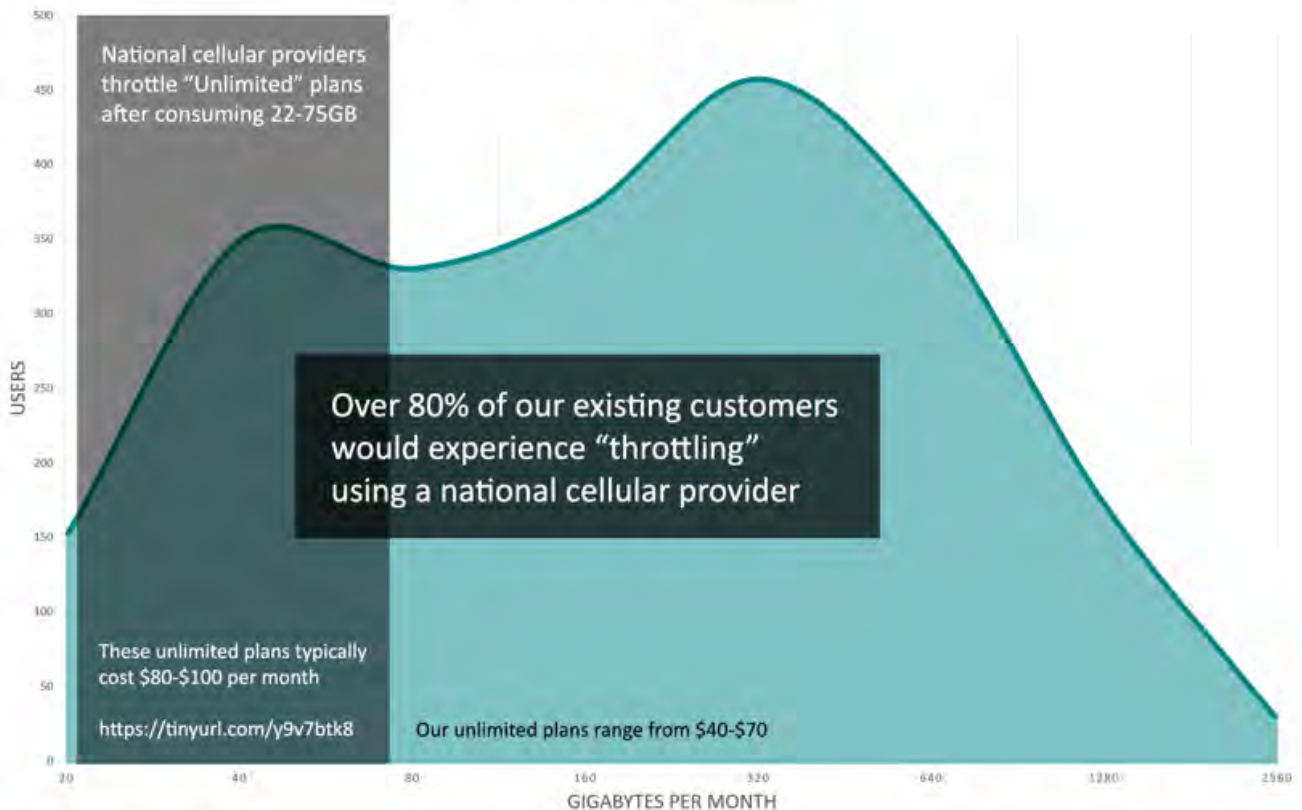
- Size of area: 862/mi²
- Population density:
 - Average: 59.6/mi²
 - Low-High: 7/mi²-1309/mi²
 - Households: 20.6/mi²
- 49% without adequate broadband

NCATS Member Bandwidth Usage

- Average Use by Member:
 - 232GB/User/Month Average
- NCATS Network Speeds Served:
 - <10Mbps: 45%
 - 10Mbps: 37%
 - 25Mbps: 18%

Our low population density and rural forested area perpetuates a poor commercial business case. NCATS needs an opportunity to obtain the 2 available EBS channel groups to meet growing needs.

MONTHLY DATA CONSUMPTION BY USER



Mecosta, Osceola, and Lake Counties in Michigan - The Homework Gap

THE NEED FOR EBS IN THE STATE OF MICHIGAN

FRED SHARPSTEEN, CTO – TECHNOLOGY DIRECTOR OF MECOSTA-OSCEOLA ISD

The Education Homework Gap is Real

We need equity for all students.

POVERTY IN MICHIGAN

BY THE NUMBERS: A QUICK LOOK

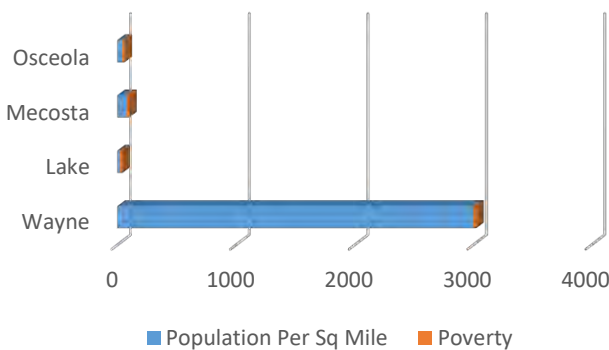


15% Poverty rate in Michigan
12.7% National poverty rate

People considered poor had incomes below the poverty line—\$24,250 for a family of four—in 2016.

The poverty in these rural counties is higher than the state and national average and there is a low population per square mile in these counties. Thus, the return on investment for broadband providers is extremely low as compared to Detroit and Wayne County. Lake County has 21 people per square mile and Mecosta and Osceola just slightly more.

Population per sq mile and poverty



Mecosta County:
Area: 571 mi² Population: 43,391 (2017)
Population Density 77/sq. mi (30/km²)

Osceola County:
Area: 573 mi² Population: 23,260 (2017)
Population Density 40/sq. mi (30/km²)

Lake County
Area: 573 mi² Population: 12,013 (2017)
Population Density 21/sq. mi (30/km²)

Fixed Broadband Options

Mecosta and Osceola

Local provider offers \$40.00/month, 3 Mbps down and 1 Mbps up.

Local provider will be offering \$100.00/month, 100 Mbps down in limited areas.

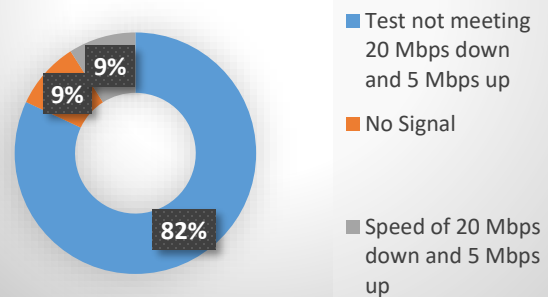
Mobile broadband providers have limited speeds or they have data caps.

Kajeet \$19.95 with local tests showing far less than 20 Mbps down and 5 Mbps up outside of the city and villages. They have data caps on these services.

T-Mobile \$10/month for 2GB high speed data (unlimited data is included at no additional cost; however, speeds slow to 3G once 2GB is exceeded).

\$19.74/month for unlimited high speed data. Tests showed less than 20 Mbps down and 5 Mbps up in rural areas, limited availability.

Hotspot Tests with Verizon and T-Mobile for a Total of 55 Test Sites across Mecosta County



Villages and Cities Cable provider \$52.00 100 Mbps down by 5 Mbps up.