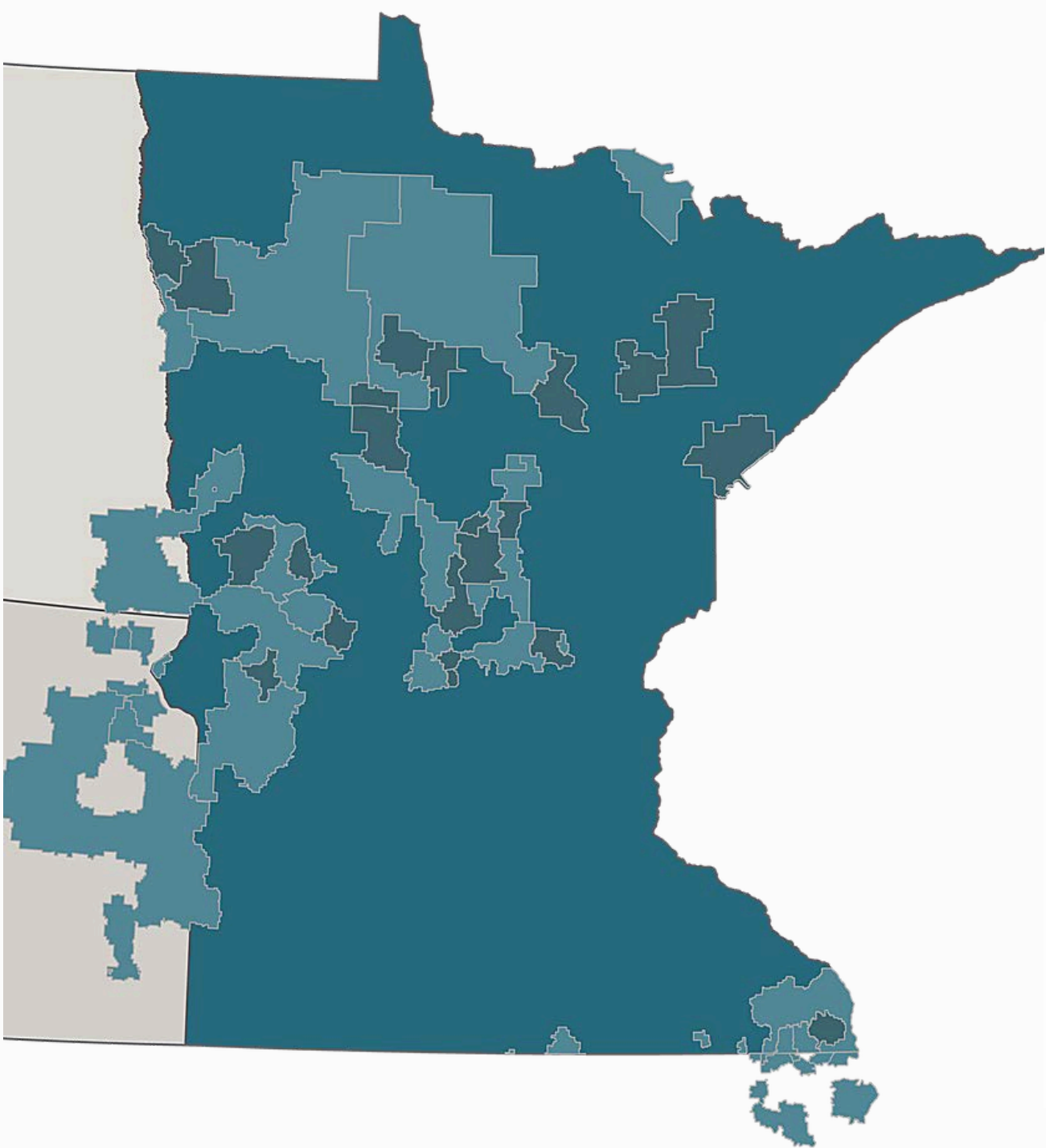


Visualizing Data for Broadband Deployment



Hello

Our member-owners



We help ISPs bring “More Broadband to More Rural Places”



GIS
Consulting



FTTH
Engineering



Transport
Network



HR Support



Video Product
Consulting

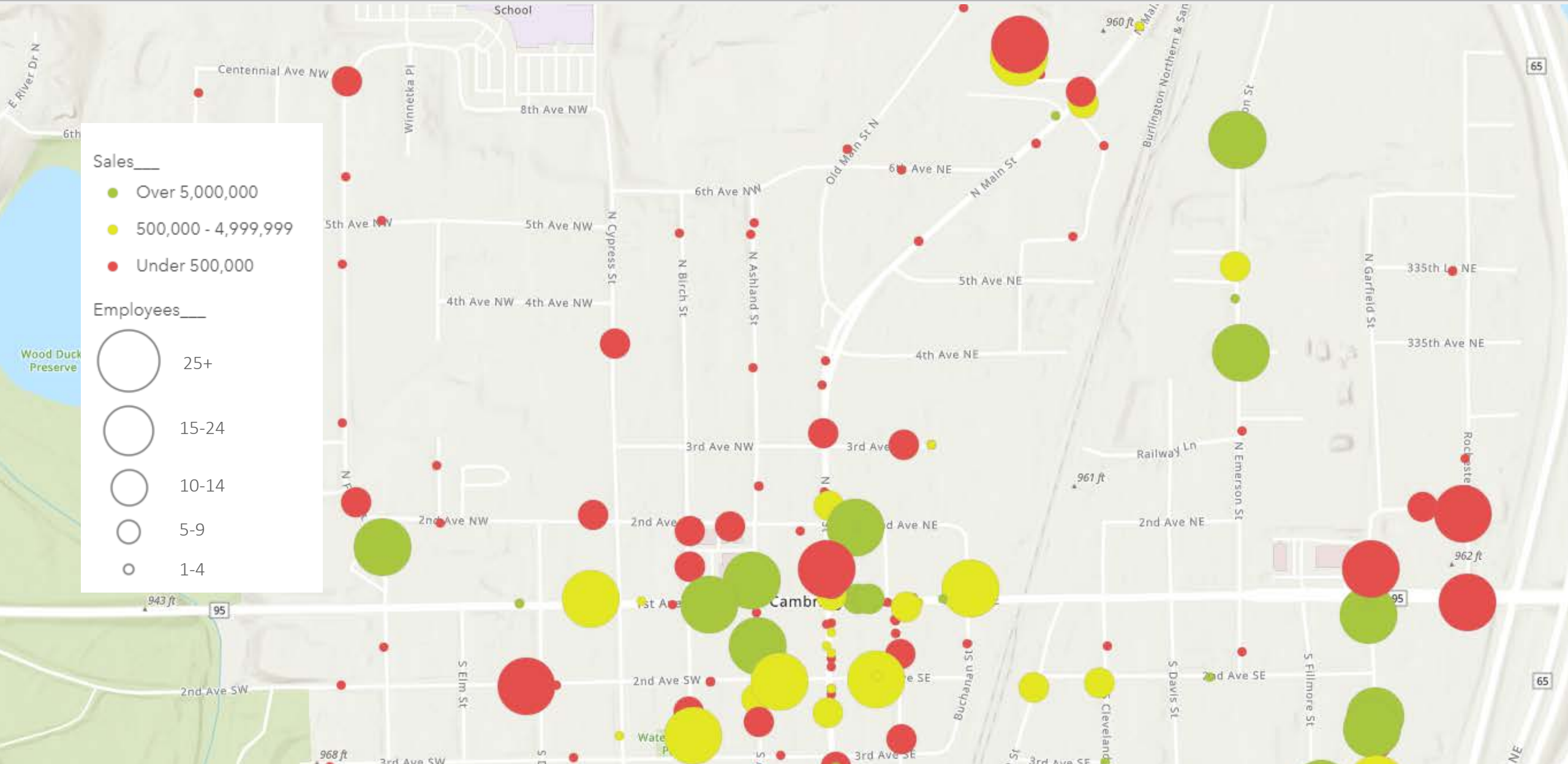
Mapping and GIS Improve Every Day

- GIS/Mapping Software has more functionality than ever
- Ability to read and transform large datasets is faster
- Datasets getting better, but there's more work to do

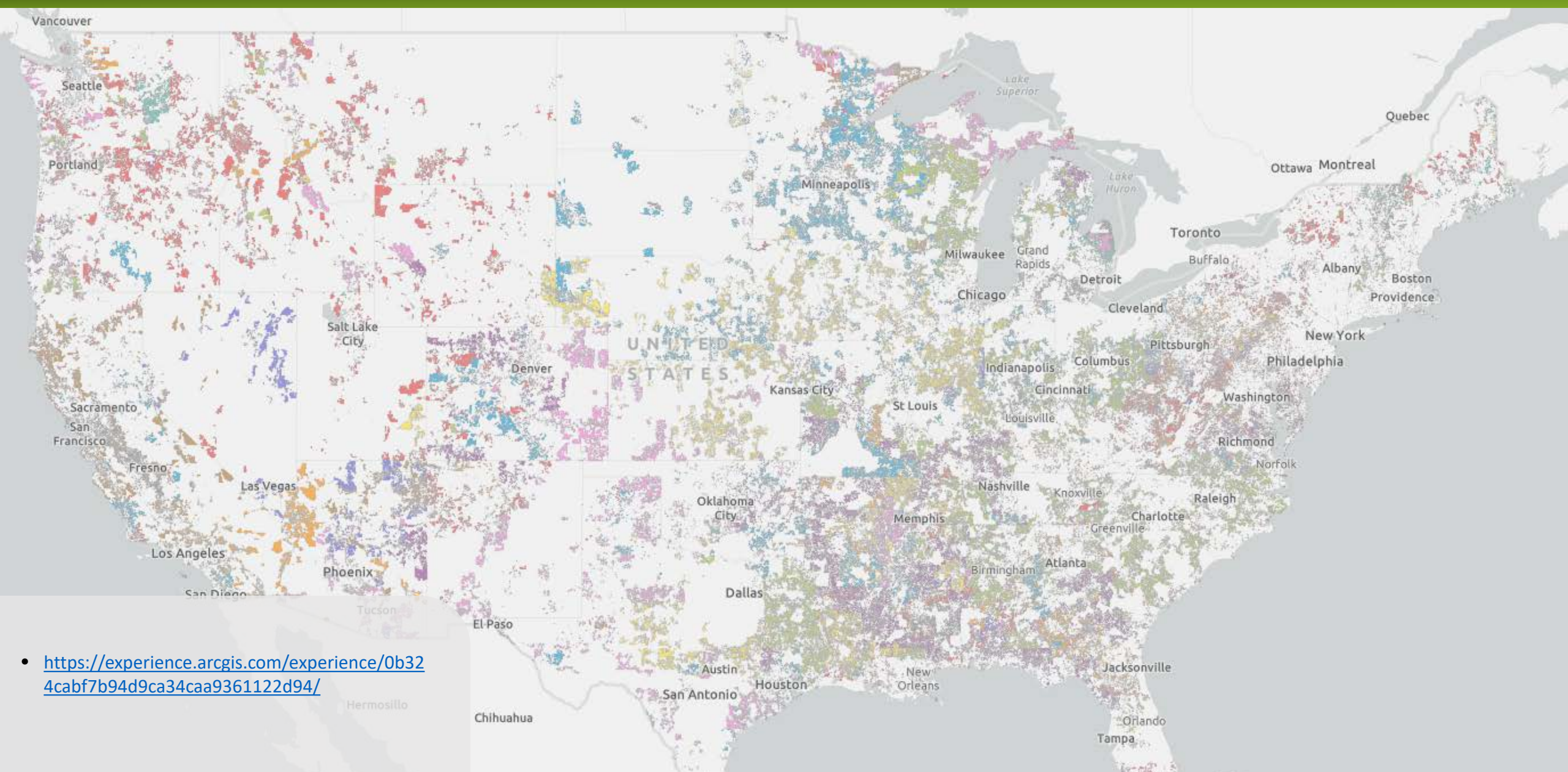
Our Approach

- Out of the box ESRI ArcGIS software
- Enable anyone to use the tools
- Combine ISP-specific data with National/State
- Create maps to plan for what's next
- Help ISPs communicate with their stakeholders – clearly
What, where, why, how

Visualizing Broadband Data



RDOF Updates



- <https://experience.arcgis.com/experience/0b324cabf7b94d9ca34caa9361122d94/>

Planning for what's next



Areas unserved with 100Mb, 25/3Mb, 25/3 Wireline broadband

A look at areas that could be eligible for future funding based on eligibility threshold.



Layers

- ☑ Served less than 25/3 (0+HH) (June 2020 477) ...
- ☑ Served less than 25/3 (1+HH) (June 2020 477) ...
- ☑ Served Less than 25/3 Wireline Only (1+HH) (June 2020 477) ...
- ☑ Served Less than 25/3 Wireline Only (includes 0 HH) (June 2020 477) ...
- ☑ Served less than 100Mb (1+ HH) (June 2020 477) ...
- ☑ Served less than 100Mb (includes blocks with 0 HH) (June 2020 477) ...

Legend

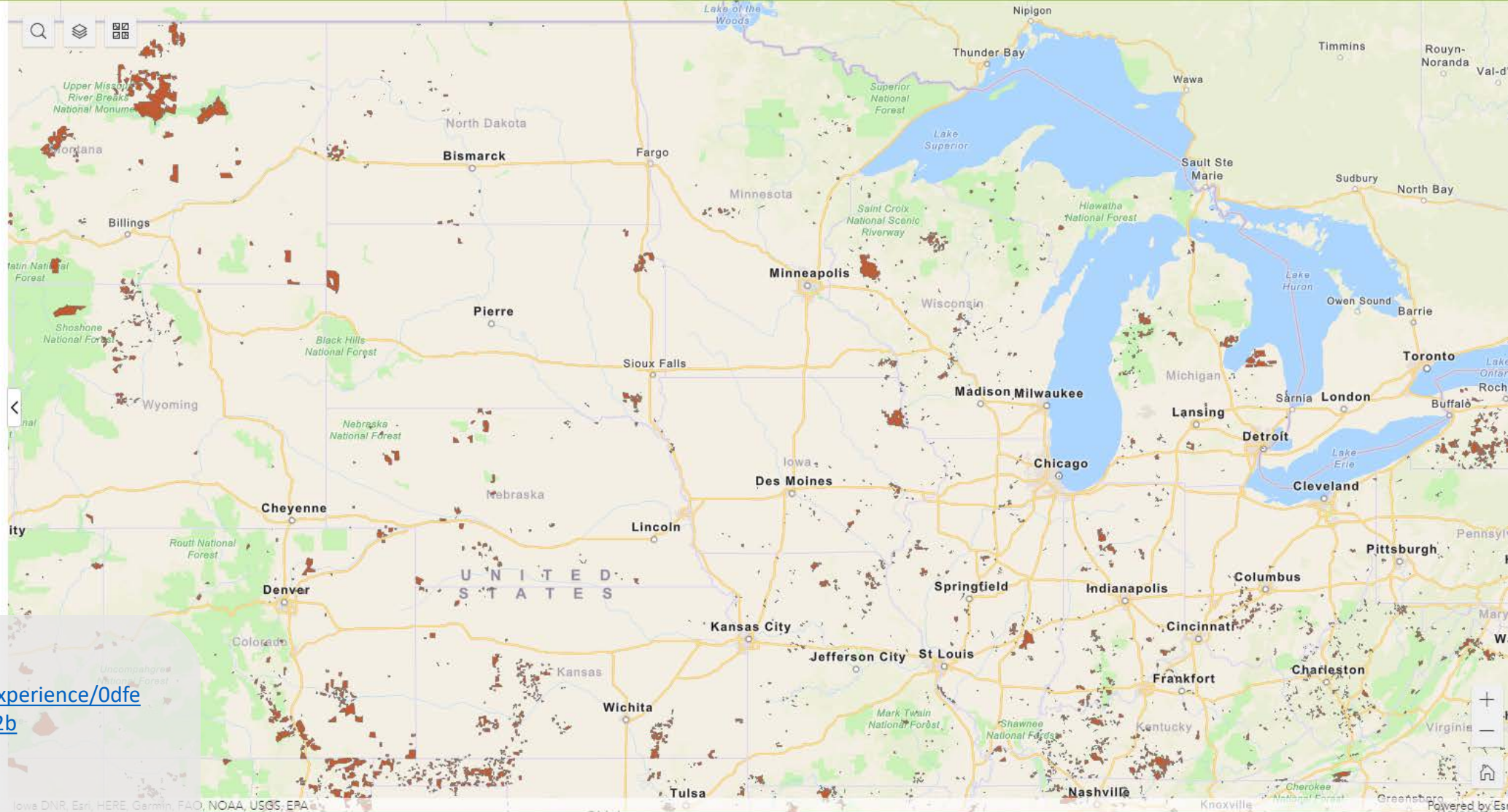
- Less than 25/3Mb
- Less than 25/3 Mb Wireline
- Less than 100Mb

See the rest of the picture:

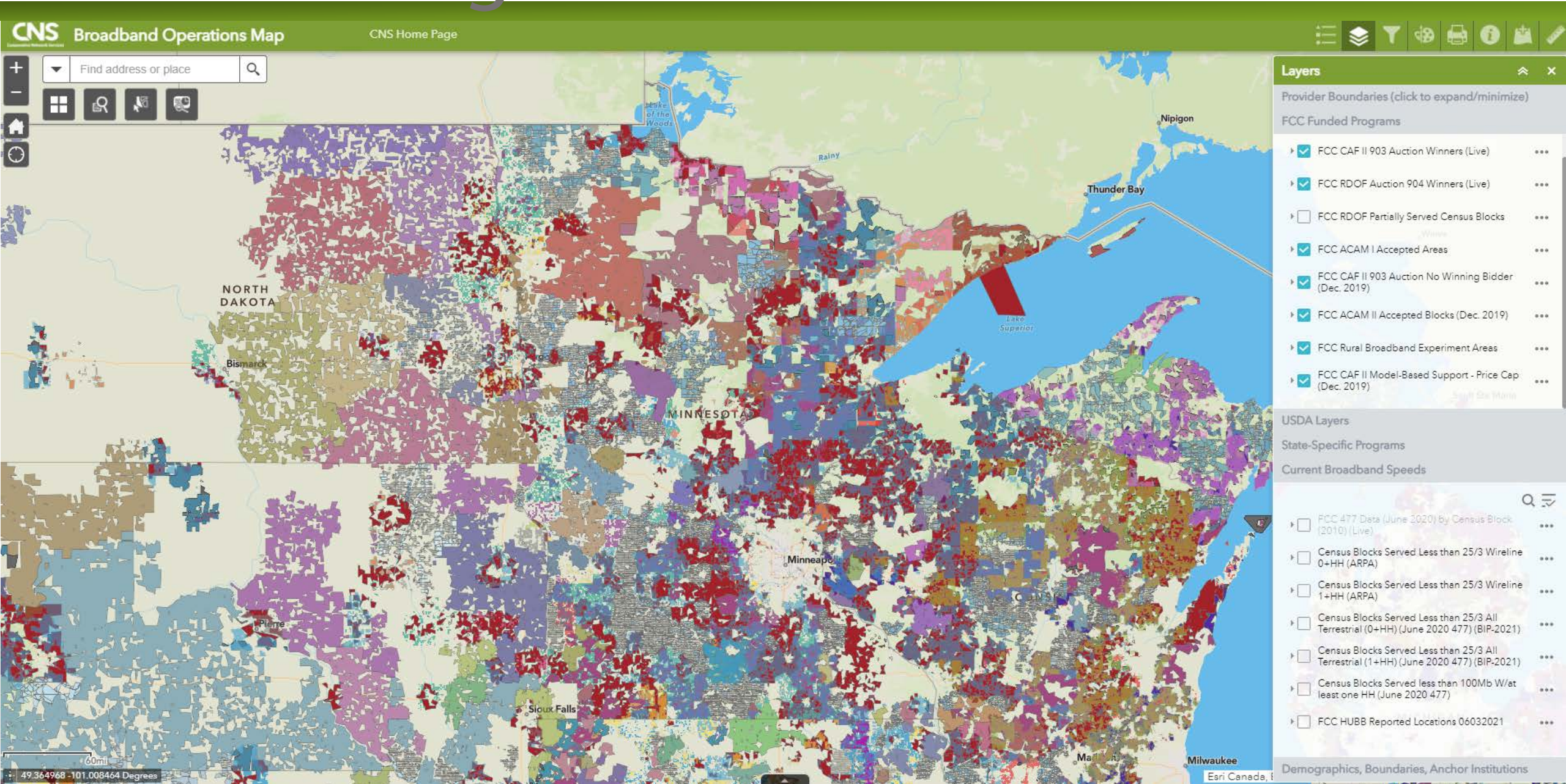
To see how these areas compare with actual reported speeds, RDOF, ACAM, CAF, USDA, boundaries and more,

- <https://experience.arcgis.com/experience/0dfe06e58ec04e6db9c73c767ca8132b>

Get the Broadband Operations Map



FCC Funding Mechanisms



USDA Borrowers, ReConnect, Community Connect

CNS Broadband Operations Map | CNS Home Page

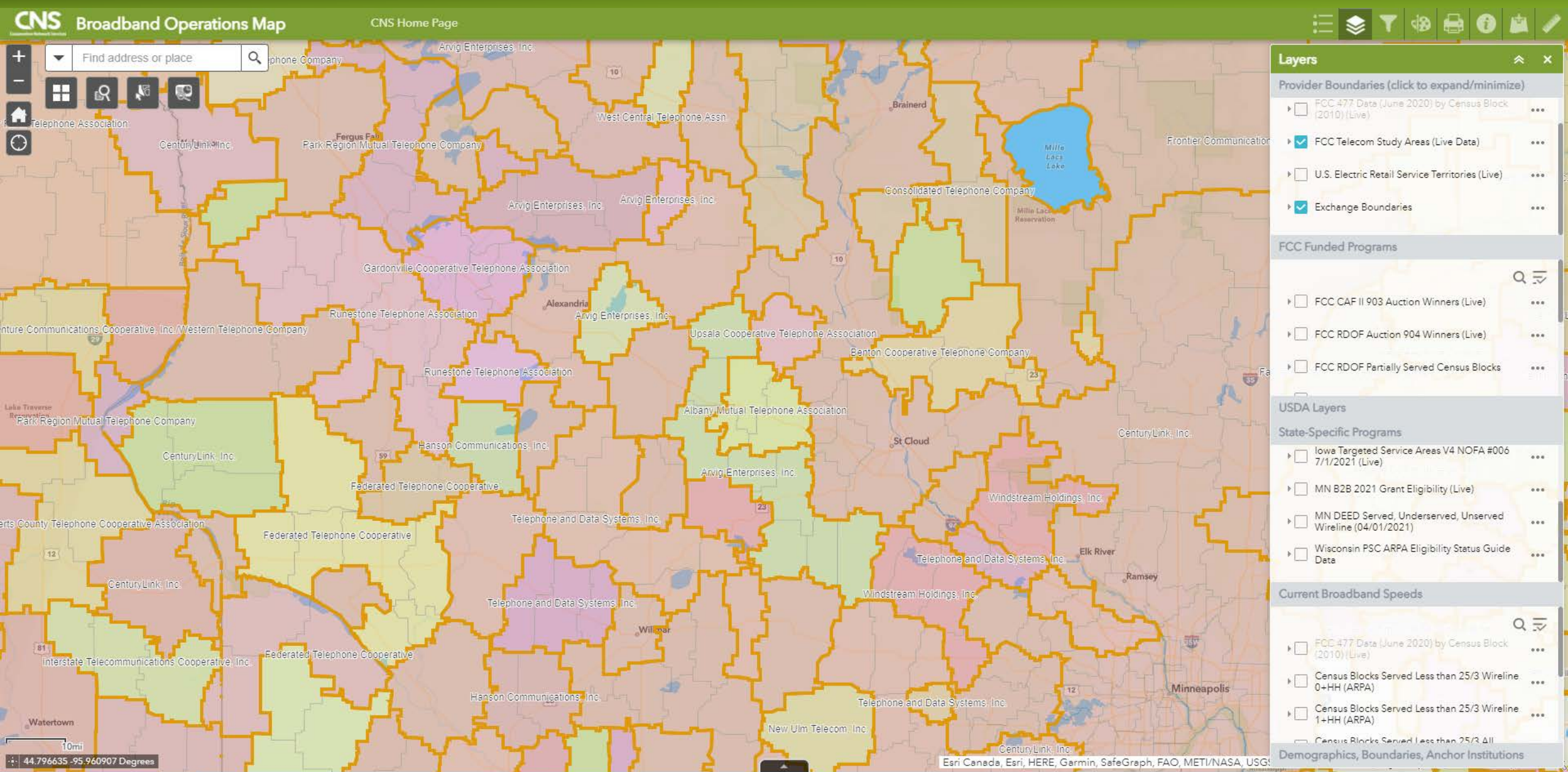
Find address or place

Layers

- Provider Boundaries (click to expand/minimize)
 - FCC 477 Data (June 2020) by Census Block (2018) (Live)
 - FCC Telecom Study Areas (Live Data)
 - U.S. Electric Retail Service Territories (Live)
- FCC Funded Programs
 - FCC CAF II 903 Auction No Winning Bidder (Dec. 2019)
 - FCC ACAM II Accepted Blocks (Dec. 2019)
 - FCC Rural Broadband Experiment Areas
 - FCC CAF II Model-Based Support - Price Cap (Dec. 2019)
- USDA Layers
 - USDA RUS - ReConnect Borrowers (Live Data)
 - USDA RUS ReConnect Proposed Grant/ Loan Areas (Live Data)
 - USDA RUS Protected Borrowers (Live Data)
 - USDA RUS Grant/ Loan Areas (Live Data)
- State-Specific Programs
- Current Broadband Speeds
 - Census Blocks Served Less than 25/3 All Terrestrial (0+HH) (June 2020 477) (BIP-2021)
 - Census Blocks Served Less than 25/3 All Terrestrial (1+HH) (June 2020 477) (BIP-2021)
 - Census Blocks Served less than 100Mb W/at least one HH (June 2020 477)
 - FCC HUBB Reported Locations 06032021
- Demographics, Boundaries, Anchor Institutions

60mi | 49.329182 -103.205729 Degrees | Esri Canada

Telephone Study Areas, Exchanges



Real-time 477 Data

The screenshot displays the CNS Broadband Operations Map interface. At the top, the title "CNS Broadband Operations Map" and "CNS Home Page" are visible. A search bar on the left contains the text "Find address or place". The map shows a grid of streets and a highlighted area. A popup window is open over the map, displaying the following data:

POP100	20.00
Custom	Hoco Name: CenturyLink, Inc. DBA Name: CenturyLink Max Ad Down: 100 Max Ad Up: 10 Tech Code: VDSL FRN: 18626853 Hoco Number: 130228 Provider ID: 70057
	Hoco Name: CenturyLink, Inc. DBA Name: CenturyLink Max Ad Down: 40 Max Ad Up: 5 Tech Code: Fiber FRN: 18626853 Hoco Number: 130228 Provider ID: 70057

Below the popup is a "Zoom to" button. On the right side, a "Layers" panel is open, showing various data layers. The "Provider Boundaries" section includes:

- FCC 477 Data (June 2020) by Census Block (2010) (Live)
- FCC Telecom Study Areas (Live Data)
- U.S. Electric Retail Service Territories (Live)

The "FCC Funded Programs" section includes:

- FCC CAF II 903 Auction Winners (Live)
- FCC RDOF Auction 904 Winners (Live)
- FCC RDOF Partially Served Census Blocks

The "USDA Layers" section includes:

- MN DEED Grant TO BE BUILT (04/01/2021 - Live)
- MN DEED Built Grant Areas (04/01/2021 - Live)
- Iowa Targeted Service Areas V4 NOFA #006 7/1/2021 (Live)

The "Current Broadband Speeds" section includes:

- FCC 477 Data (June 2020) by Census Block (2010) (Live)
- Census Blocks Served Less than 25/3 Wireline 0+HH (ARPA)
- Census Blocks Served Less than 25/3 Wireline 1+HH (ARPA)
- Census Blocks Served Less than 25/3 ΔII

At the bottom left, a scale bar indicates 0.4mi and the coordinates are 45.664204 -94.388575 Degrees. At the bottom right, the map data is attributed to Esri, Canada, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Ce.

Real-time 477 Data

CNS Broadband Operations Map CNS Home Page

Find address or place

Select Features

Select Clear

Layer	Count	More
<input type="checkbox"/> LMI City/Place (Live HUD LOWMODPCT)	0	...
<input type="checkbox"/> LMI Block Group (Live HUD LOWMODPCT)	0	...
<input checked="" type="checkbox"/> FCC 477 Data (June 2020) by Census Block (2010)
<input type="checkbox"/> FCC Telecom Study Areas (Live Data)	0	...
<input type="checkbox"/> U.S. Electric Retail Service Territories (Live)	0	...
<input type="checkbox"/> FCC CAF II 903 Auction Winners (Live)	0	...
<input type="checkbox"/> FCC RDOF Auction 904 Winners (Live)	0	...

Layers

Provider Boundaries (click to expand/minimize)

- FCC 477 Data (June 2020) by Census Block (2010) (Live)
- FCC Telecom Study Areas (Live Data)
- U.S. Electric Retail Service Territories (Live)

FCC Funded Programs

- FCC CAF II 903 Auction Winners (Live)
- FCC RDOF Auction 904 Winners (Live)
- FCC RDOF Partially Served Census Blocks

USDA Layers

State-Specific Programs

- Iowa Targeted Service Areas V4 NOFA #006 7/1/2021 (Live)
- MN B2B 2021 Grant Eligibility (Live)
- MN DEED Served, Underserved, Unserved Wireline (04/01/2021)
- Wisconsin PSC ARPA Eligibility Status Guide Data

Current Broadband Speeds

- Census Blocks Served Less than 25/3 All Terrestrial (0+HH) (June 2020 477) (BIP-2021)
- Census Blocks Served Less than 25/3 All Terrestrial (1+HH) (June 2020 477) (BIP-2021)
- Census Blocks Served less than 100Mb W/at least one HH (June 2020 477)
- FCC HUBB Reported Locations 06032021

Demographics, Boundaries, Anchor Institutions

Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS

477 Visualization Tool



Need Help? Click here



477 Mapper

1. Method

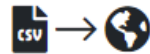
2. Search

3. Choose ISP

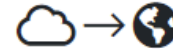
4. Generate

The simple way to visualize 477 census blocks

Please choose a method below

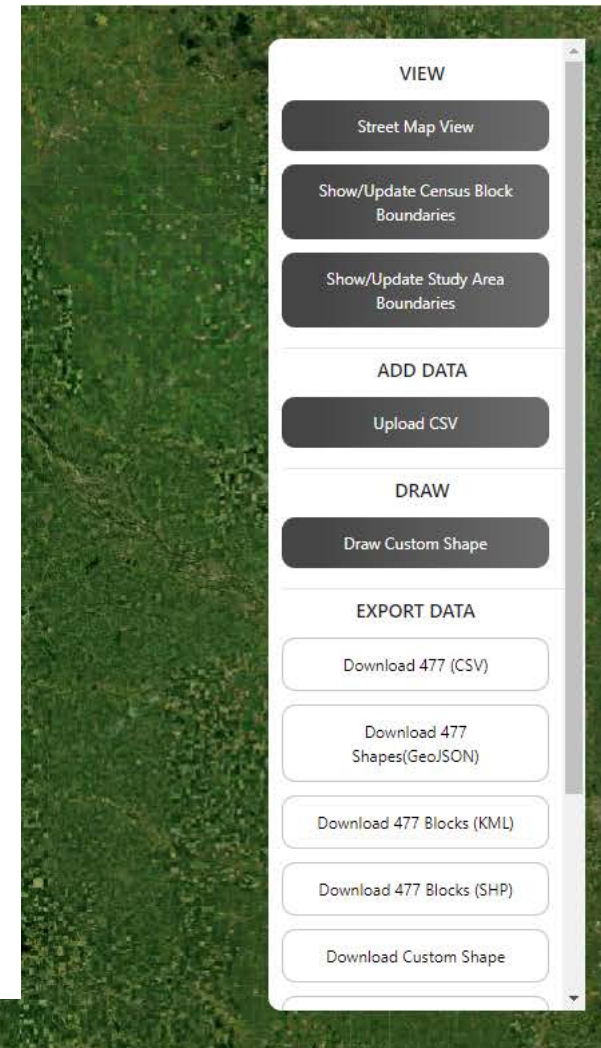


Map your 477 data
(csv file upload)



See and download 477 data and
census blocks from the FCC's
database.

Next Step



VIEW

Street Map View

Show/Update Census Block
Boundaries

Show/Update Study Area
Boundaries

ADD DATA

Upload CSV

DRAW

Draw Custom Shape

EXPORT DATA

Download 477 (CSV)

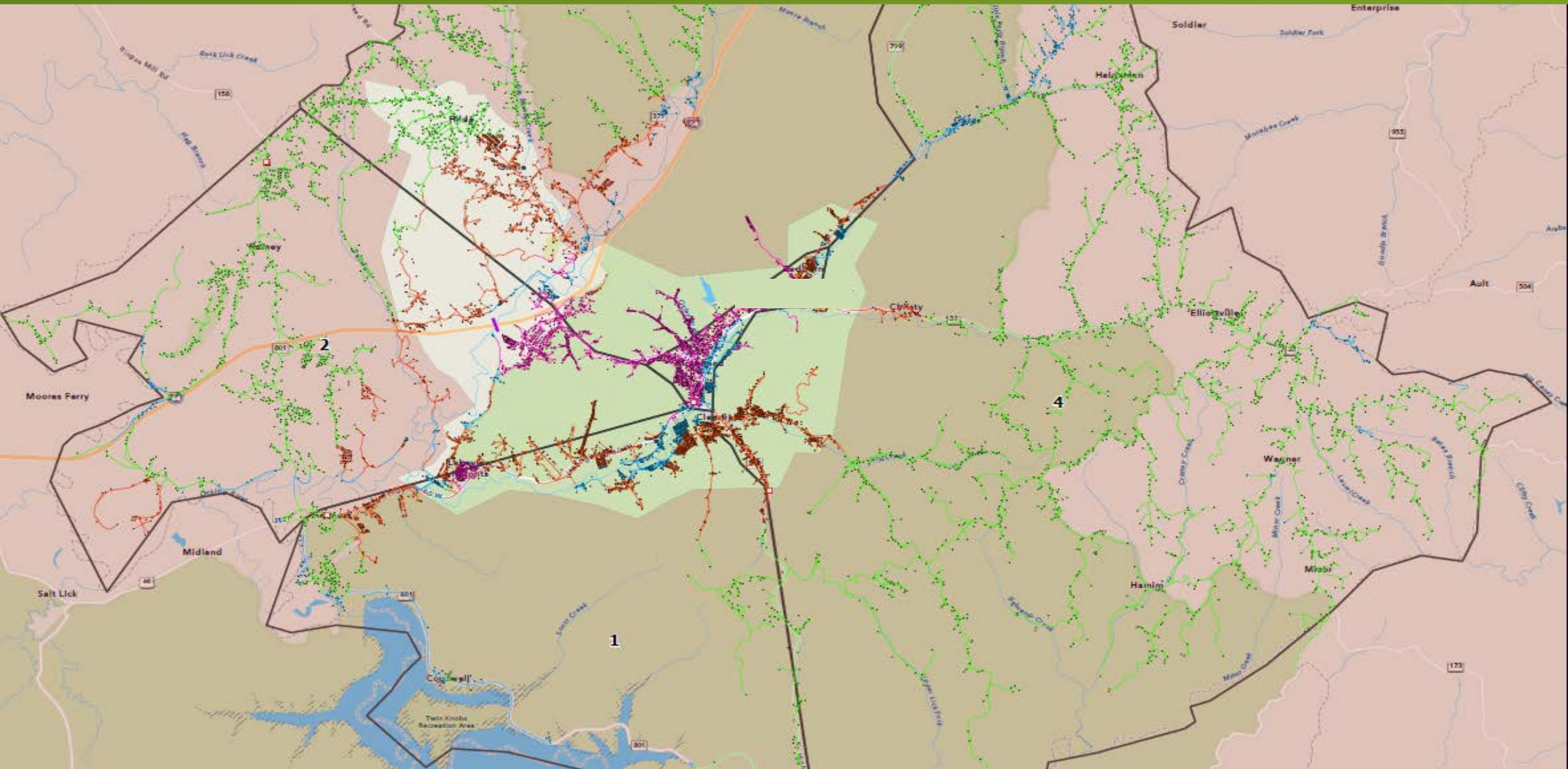
Download 477
Shapes(GeoJSON)

Download 477 Blocks (KML)

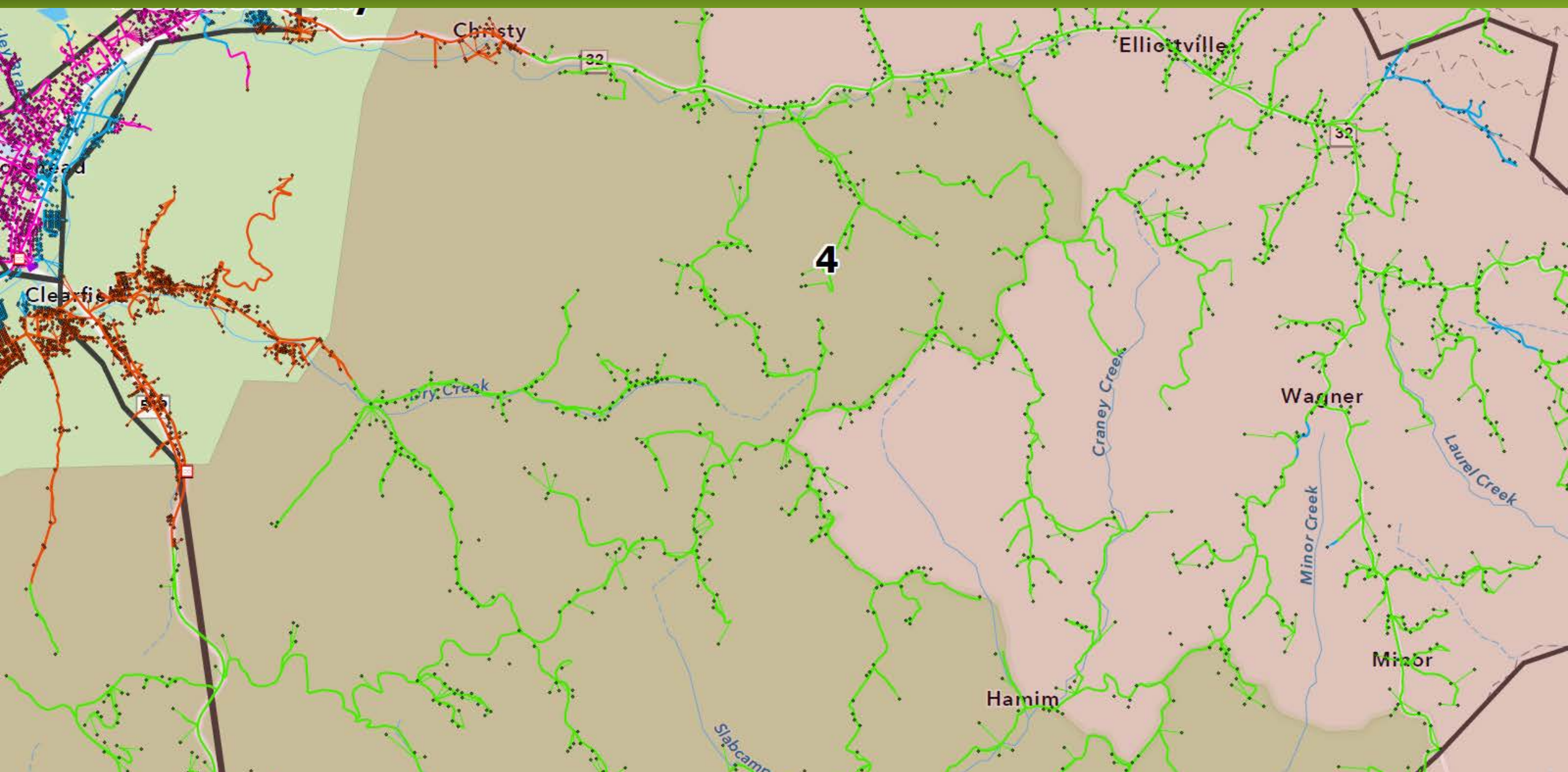
Download 477 Blocks (SHP)

Download Custom Shape

Automated Routing and Estimation



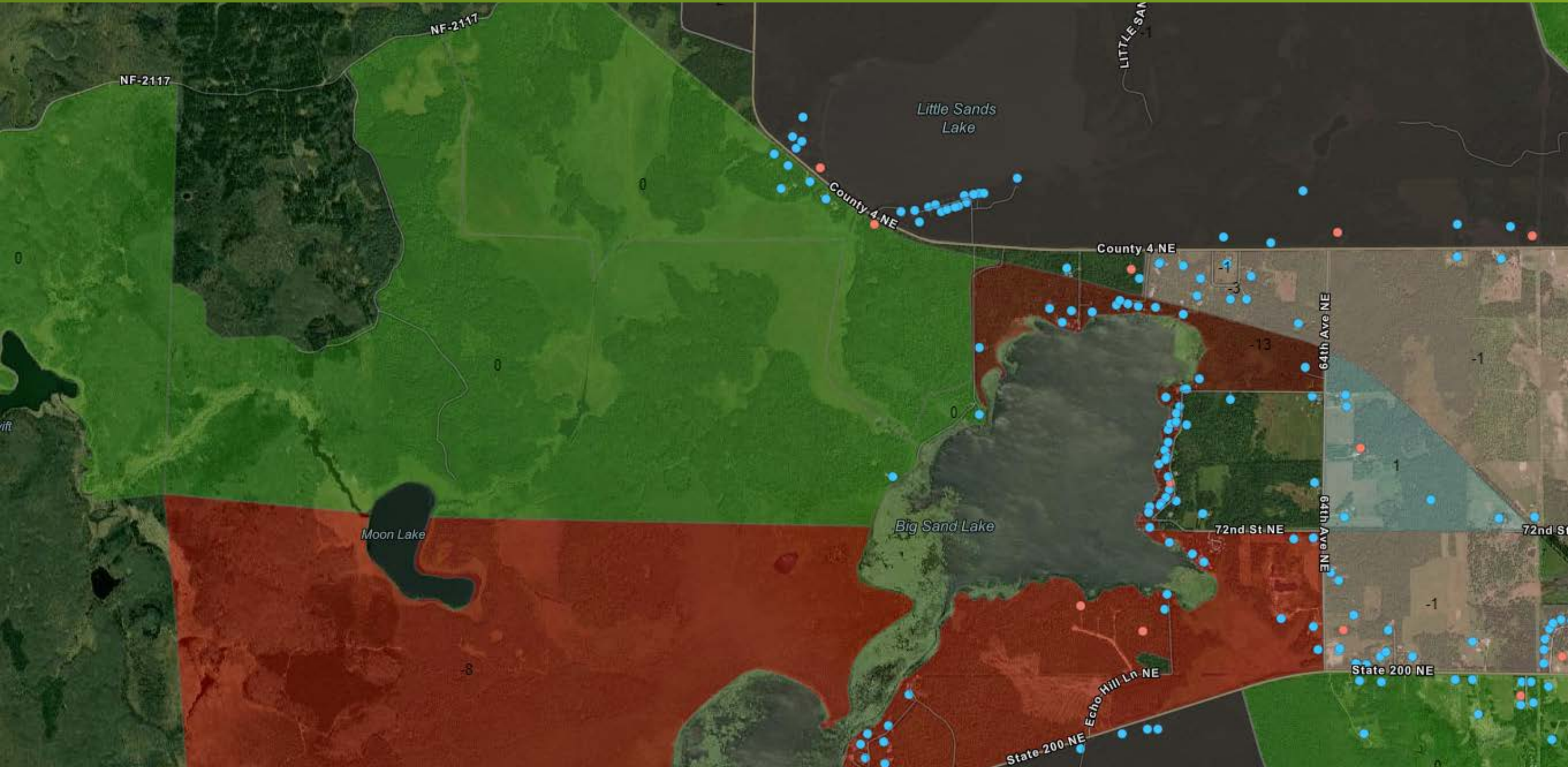
Automated Routing and Estimation



Automated Routing and Estimation

Project Area 1					
CorridorType	Locations	Corridor Feet	Corridor Miles	Drop Feet	Drop Miles
Lake/River shore	410	78,612	14.89	133,036	25.2
Rural	279	161,651	30.62	104,452	19.78
Suburban	853	114,911	21.76	252,687	47.86
Urban	63	18,394	3.48	12,804	2.42
Total	1605	373,568	70.75	502,978	95.26
Project Area 2					
CorridorType	Locations	Corridor Feet	Corridor Miles	Drop Feet	Drop Miles
Lake/River shore	76	36,508	6.91	28,230	5.35
Rural	728	248,455	47.06	277,088	52.48
Suburban	432	77,692	14.71	168,934	32
Urban	386	44,550	8.44	110,567	20.94
Total	1,622	407,204.82	77.12	584,819.47	110.77
Project Area 3					
CorridorType	Locations	Corridor Feet	Corridor Miles	Drop Feet	Drop Miles
Lake/River shore	373	105,333	19.95	133,013	25.19
Rural	1180	408,507	77.37	451,239	85.46
Suburban	671	138,320	26.2	230,716	43.7
Urban	330	55,843	10.58	101,037	19.14
Total	2,554	708,003.68	134.1	916,005	173.49

HUBB / Location Identification



Discussion

Operations Map Demo

CNS Broadband Operations Map CNS Home Page

Find address or place

Layers

Provider Boundaries (click to expand/minimize)

FCC Funded Programs

- FCC CAF II 903 Auction Winners (Live) ...
- FCC RDOF Auction 904 Winners (Live) ...
- FCC RDOF Partially Served Census Blocks ...
- FCC ACAM I Accepted Areas ...
- FCC CAF II 903 Auction No Winning Bidder (Dec. 2019) ...
- FCC ACAM II Accepted Blocks (Dec. 2019) ...
- FCC Rural Broadband Experiment Areas ...
- FCC CAF II Model-Based Support - Price Cap (Dec. 2019) ...

USDA Layers

State-Specific Programs

Current Broadband Speeds

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- Census Blocks Served Less than 25/3 Wireline 0+HH (ARPA) ...
- Census Blocks Served Less than 25/3 Wireline 1+HH (ARPA) ...
- Census Blocks Served Less than 25/3 All Terrestrial (0+HH) (June 2020 477) (BIP-2021) ...
- Census Blocks Served Less than 25/3 All Terrestrial (1+HH) (June 2020 477) (BIP-2021) ...
- Census Blocks Served less than 100Mb W/at least one HH (June 2020 477) ...
- FCC HUBB Reported Locations 06032021 ...

Demographics, Boundaries, Anchor Institutions

Map Labels: NORTH DAKOTA, Bismarck, MINNESOTA, Rainy, Lake Superior, Thunder Bay, Nipigon, Minneapolis, St. Paul, St. Cloud, Sioux Falls, Pierre, Milwaukee, Madison, Eau Claire, Duluth, Superior, Grand Marais, Soudan, Lake of the Woods.

Scale: 0mi

Coordinates: -99.364968 -101.008464 Degrees

Esri Canada, Inc.