

# Broadband Strategies

## For Barbour County



# Scope of Work

- ▶ Needs Assessment
- ▶ Residential and Business broadband surveys
- ▶ Asset Analysis: what do you have now in the county?
- ▶ Gap Analysis: what do you need for the future?
- ▶ Fiber and Wireless technical designs and cost estimates
- ▶ Recommendations
- ▶ Potential Areas for Partnership

# Why Plan for Broadband?

- ▶ **Private sector incumbents are not providing what businesses and residents need**
- ▶ Broadband requires infrastructure
- ▶ Treated as a shared infrastructure, it decreases capital expenditures and lowers operating costs for businesses
- ▶ Airports and roads are infrastructure that support both public and private enterprise



# Public/Private Partnership

A continuum, not a choice

- ▶ All telecom is some form of public/private partnership
- ▶ Even the private sector telephone and cable companies are public/private partnerships
  - ▶ They use public right of way
- ▶ Even a municipal retail business model is a public/private partnership because the county purchases content and services from the private sector and resells it to citizens and businesses
- ▶ The government is **NOT** going to sell services to businesses and residents
  - ▶ Shared infrastructure creates private sector business opportunities

# Key Residential Survey Results

96% of respondents are interested in faster and more reliable Internet service

69% of residents are "dissatisfied" or "very dissatisfied" with current Internet speeds

98% of respondents said that they believe the County government should help facilitate better broadband

24% of residents have 9 or more Internet-connected devices in their home

70% of respondents report they have trouble using common Internet services

28% indicate that availability of broadband Internet is affecting where they choose to live

# Do the math for Barbour County

<b>Total Households</b>	6,324			
<b>Businesses</b>	208			
<b>Estimated Internet Access Type</b>	Households using Cell Phone for Internet	Households with "little" broadband DSL	Households with Cable Modems	Households with no Internet
<b>Household Percentage</b>	9%	42%	32%	17%
<b>Number of households</b>	569	2,656	2,024	1,075
<b>Average monthly telecom expenditures</b>	Cell Phone for Voice/ Internet \$90 Cable/satellite TV: \$65 bundle	Cell Phone \$70 Phone: \$13 Satellite TV: \$60 Broadband Internet: \$45	Cell Phone \$70 Phone \$15 TV \$43 Broadband Internet \$45	Cell Phone, no Internet, \$70 Cable/satellite TV: \$65
<b>Monthly Cost of Services</b>	\$155	\$188	\$173	\$135
<b>Annual household cost</b>	\$1,860	\$2,256	\$2,076	\$1,620
<b>Annual cost all households</b>	\$1,058,638	\$5,992,116	\$4,201,160	\$1,741,630
<b>30 year expenditure</b>	\$31,759,128	\$179,763,494	\$126,034,790	\$52,248,888
<b>Total residential expenditures</b>	\$389,806,301			
<b>Total Estimated Cost of Hidden Fees</b>	\$57,465,581			
<b>Total Business Costs</b>	\$12,916,800			
<b>Total expenditures</b>	<b>\$460,188,682</b>			



# About Basic Infrastructure

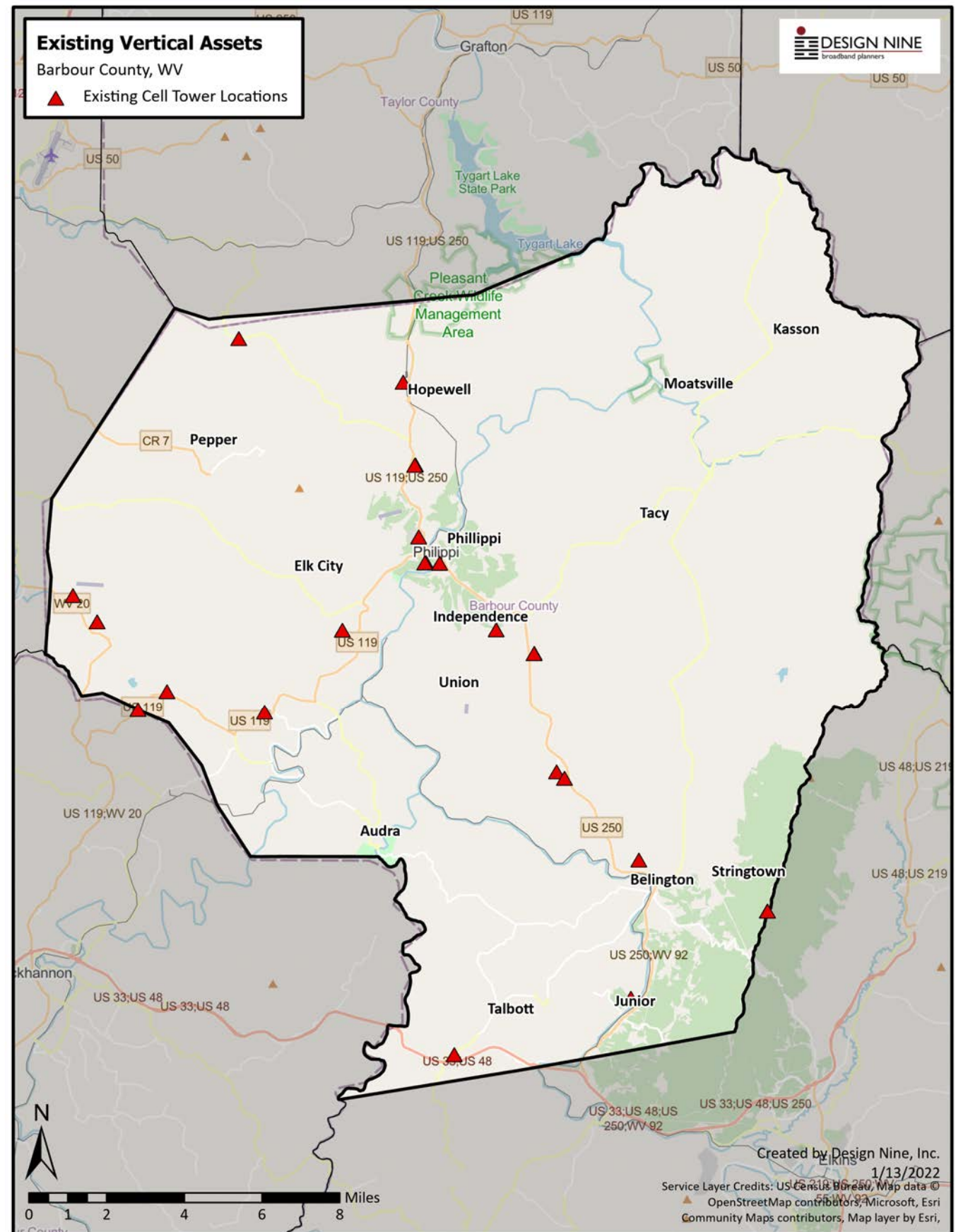
- ▶ Investments can vary
  - ▶ Passive infrastructure — No network electronics
  - ▶ Could be....
    - ▶ Conduit/handholes
    - ▶ Dark fiber cable
    - ▶ Wireless tower access
  - ▶ Very low maintenance/operations responsibilities
  - ▶ Also low revenue
  - ▶ Towers have a long payback period (15-20 years)



# Existing Fiber

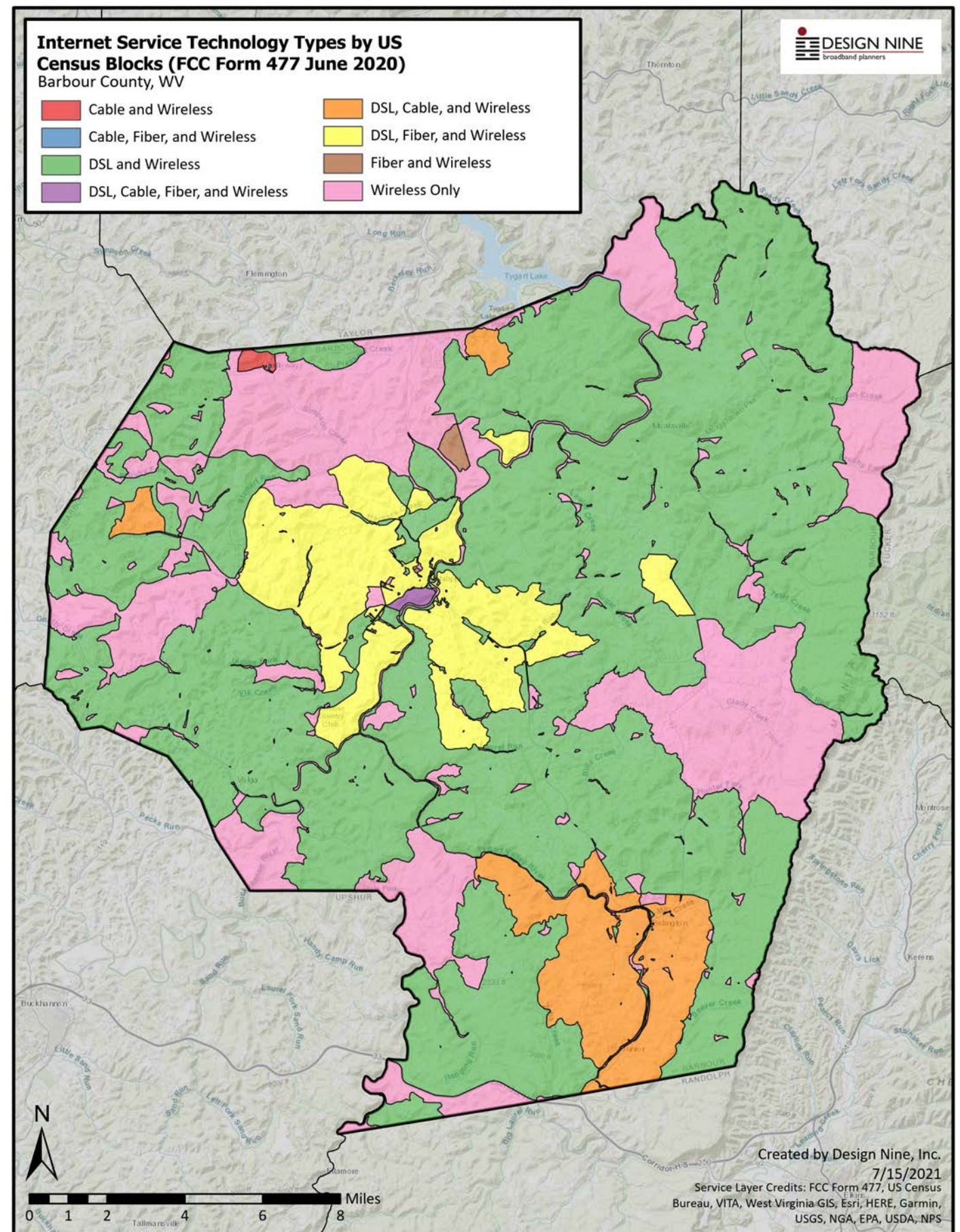


# Existing Towers

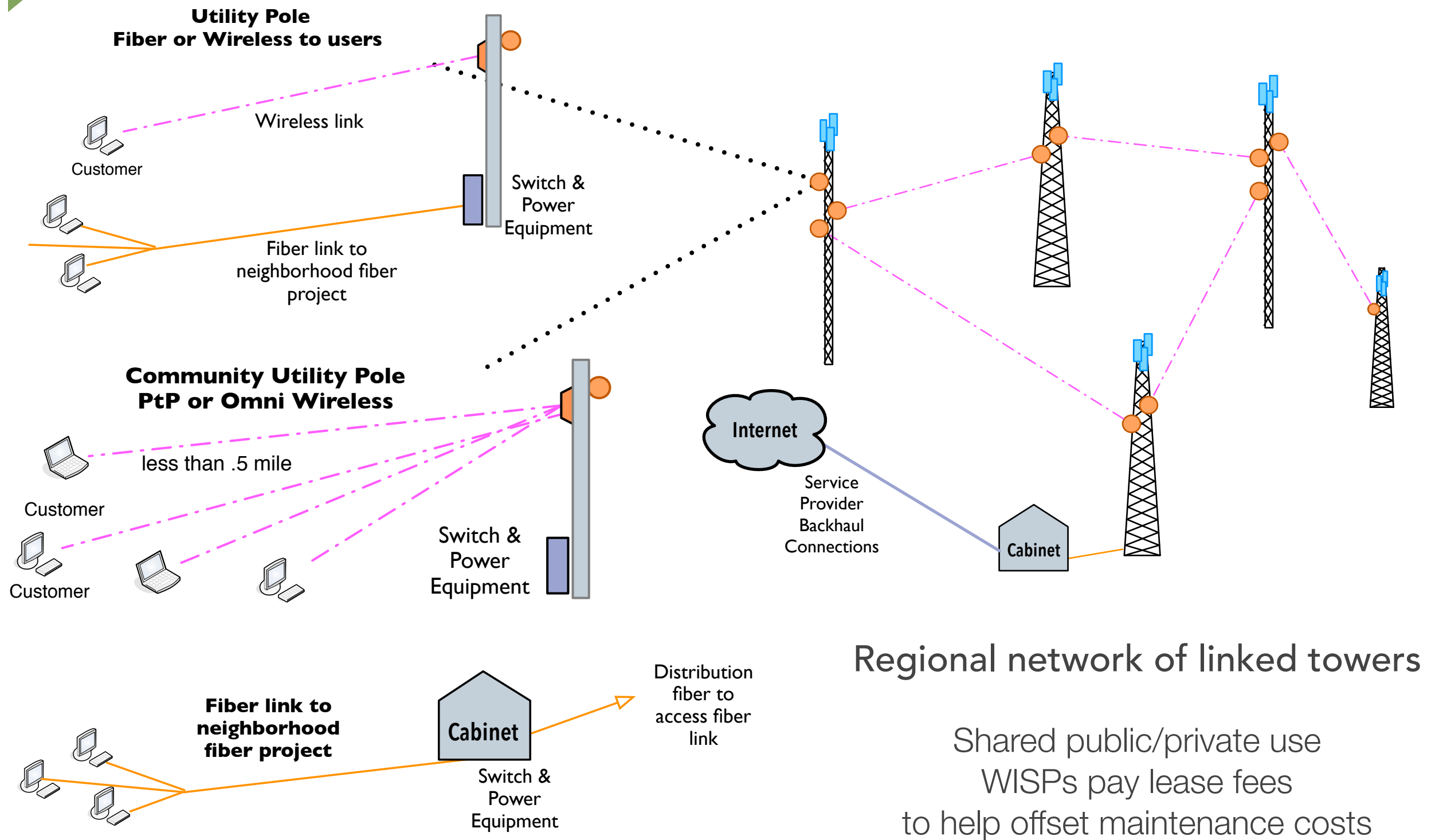




# Current Technology

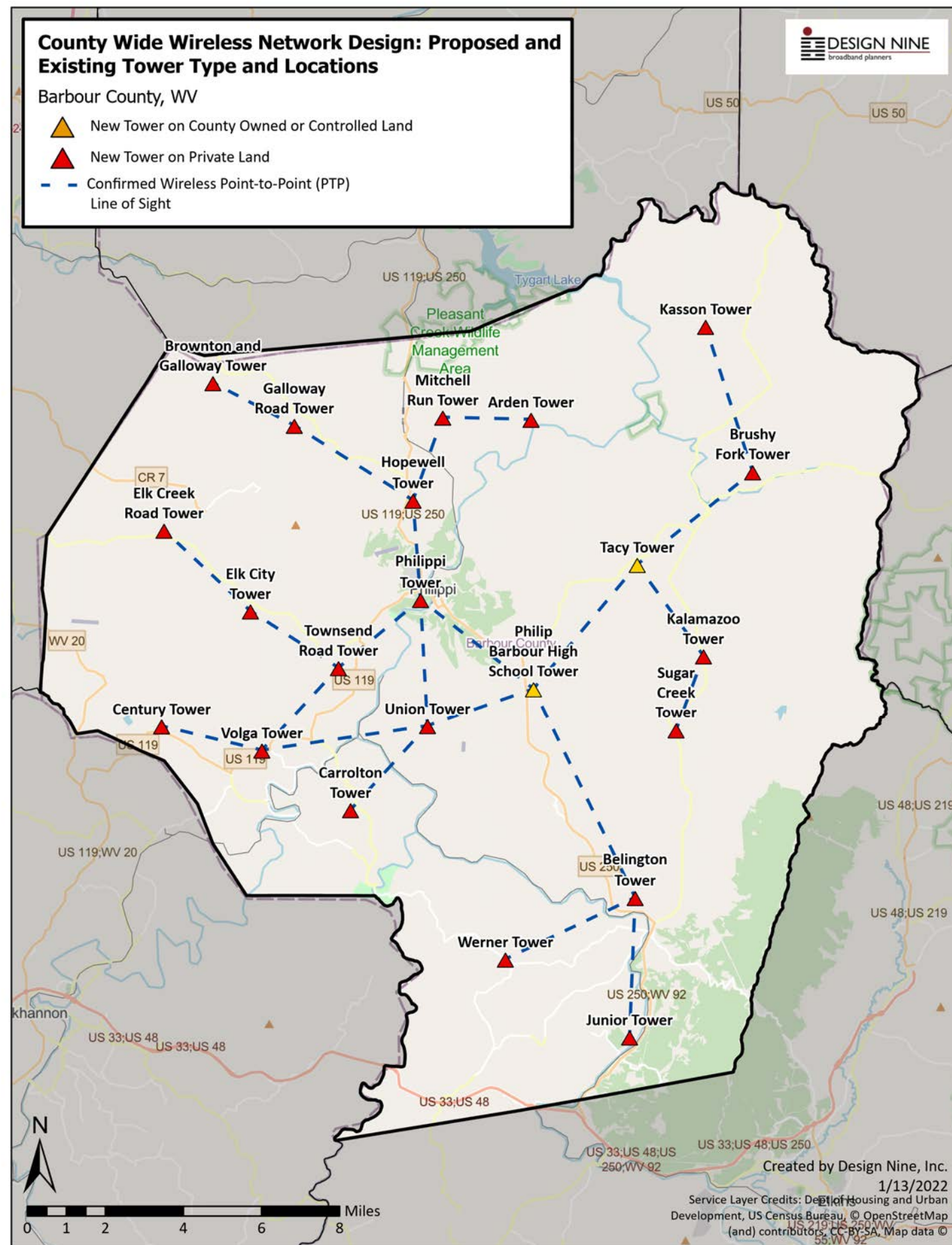


# Many Solutions, Not Just One





## Fixed Point Wireless County-Wide Solution

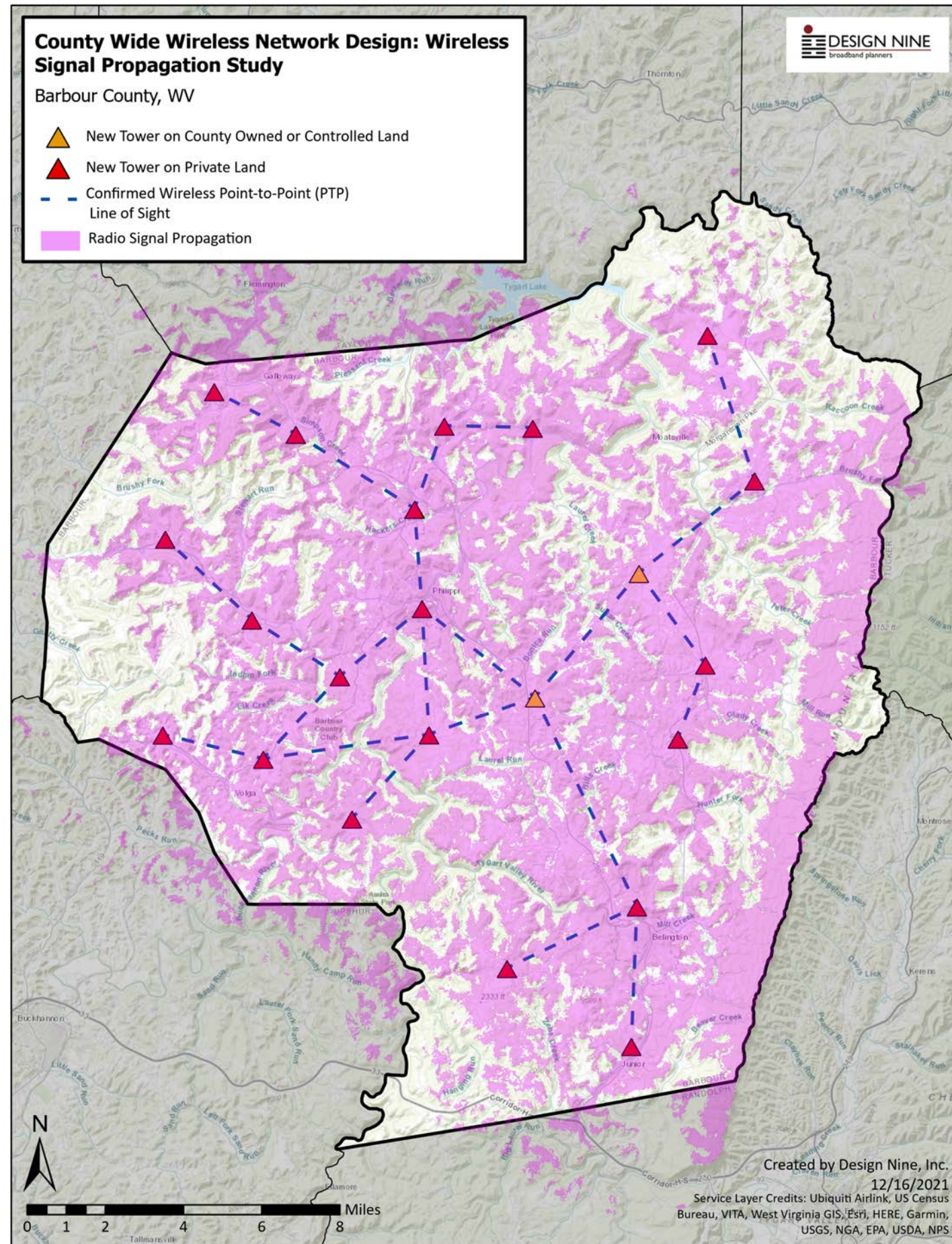




Fixed Point Wireless

Most of the county is covered

Terrain is very difficult

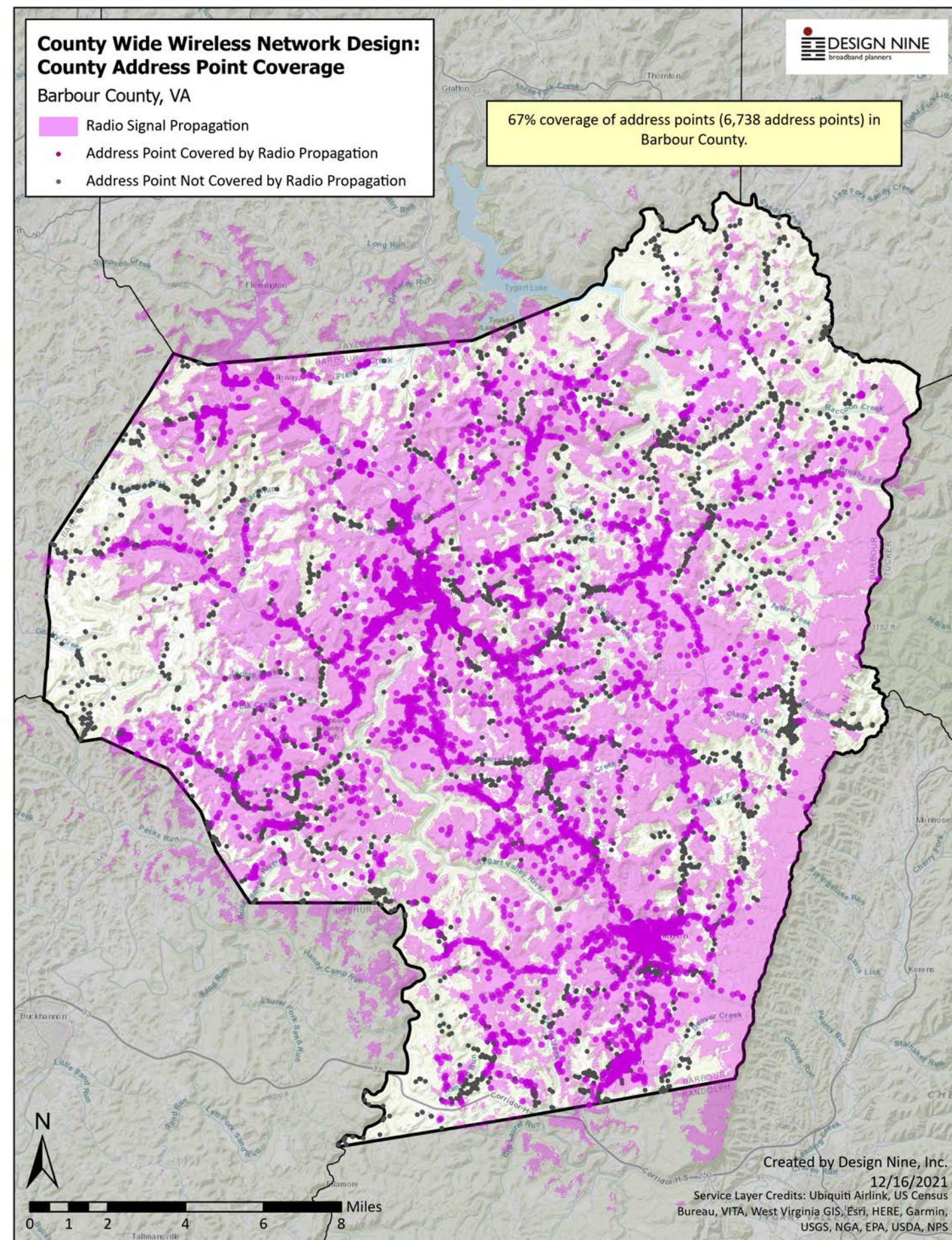




Fixed Point Wireless

Most of the county is covered

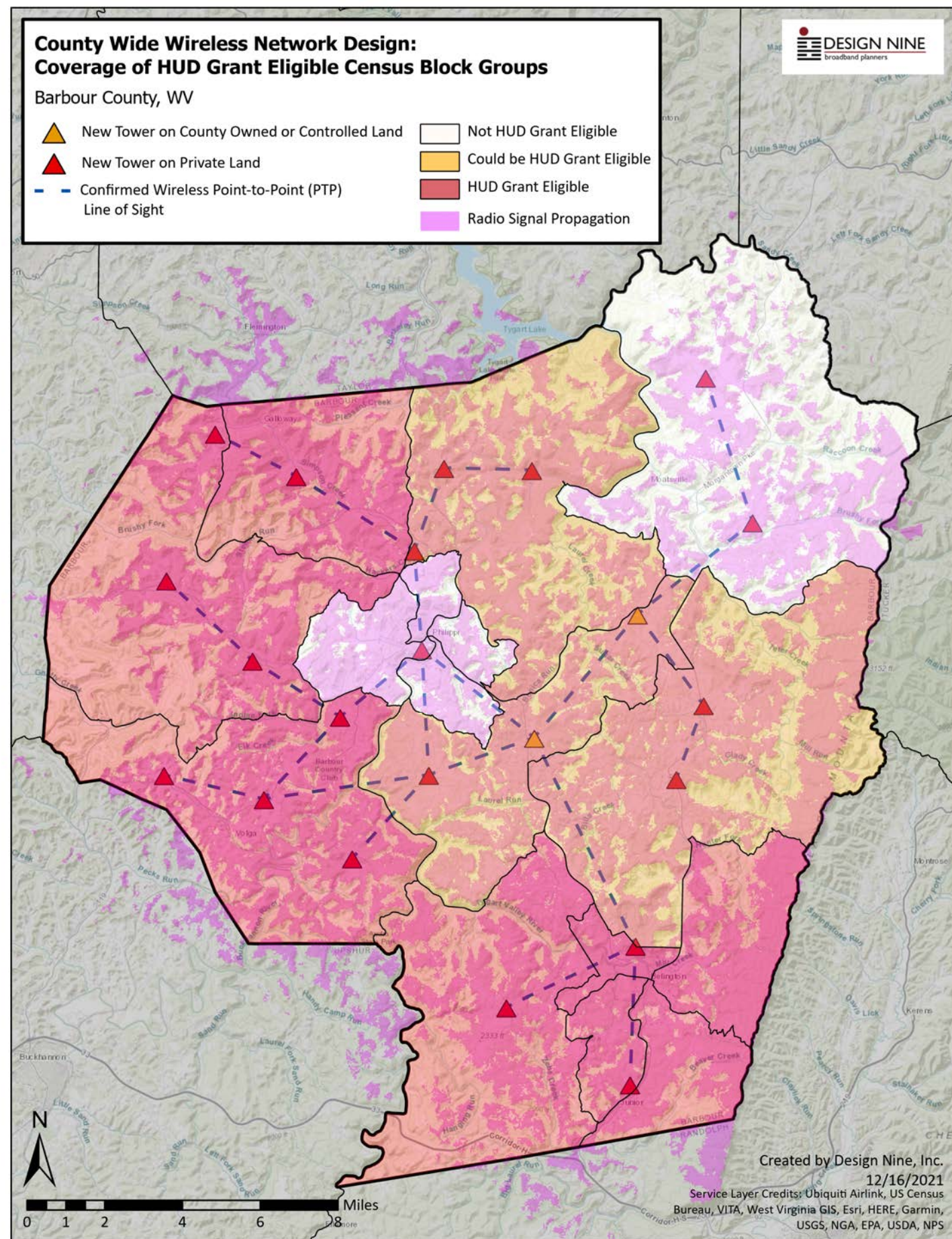
67% of households could potentially get service





## Fixed Point Wireless

Most of the county is eligible for HUD grants





# Increased Utility Pole Use

- ▶ Wood utility poles allow rural residents and businesses to get wireless antennas above the tree line
- ▶ Low cost or no cost to local government
- ▶ Provide “by right” in designated areas with minimal restrictions
- ▶ Neighbors can share a pole
  - ▶ Could easily serve 5-20 homes in some cases
- ▶ Better broadband can improve cellular service in rural areas with nano cell boxes and WiFi calling



## Fixed Point Wireless Cost Estimate

SITE	TOTAL COST
Philippi Tower	\$240,138
Philip Barbour High School Tower	\$212,781
Tracy Tower	\$212,781
Kalamazoo Tower	\$221,425
Sugar Creek Tower	\$212,069
Brushy Fork Tower	\$221,425
Kasson Tower	\$212,069
Union Tower	\$240,138
Carrolton Tower	\$212,069
Volga Tower	\$230,781
Century Tower	\$212,069
Townsend Road Tower	\$230,781
Elk City Tower	\$221,425
Elk Creek Road Tower	\$212,069
Hopewell Tower	\$230,781
Mitchell Run Tower	\$221,425
Arden Tower	\$212,069
Galloway Road Tower	\$221,425
Brownton and Galloway Tower	\$212,069
Belington Tower	\$230,781
Werner Tower	\$212,069
Junior Tower	\$212,069
	<b>\$4,844,706</b>

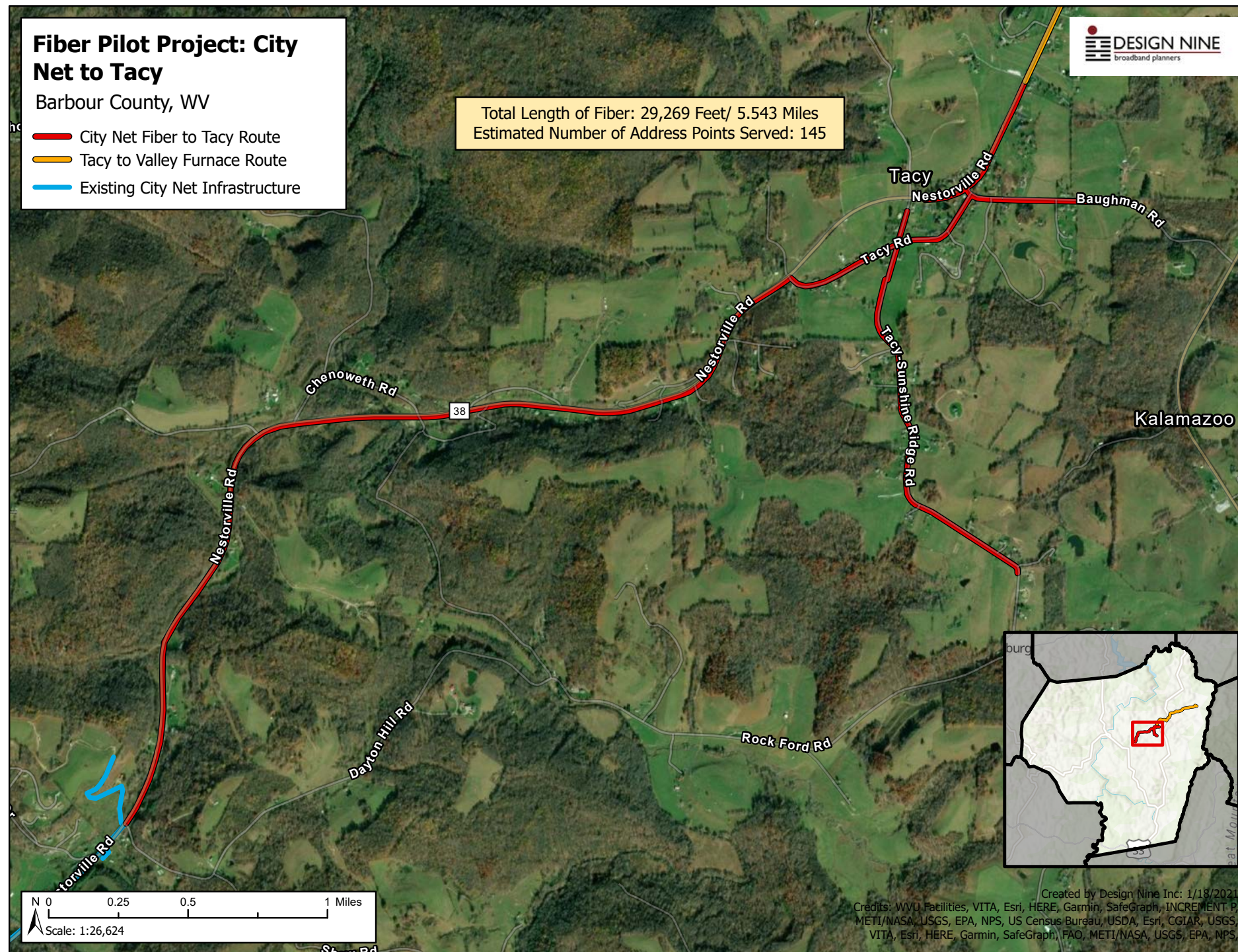
# Fiber Pilot Study: CityNet to Tacy

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- Route A: CityNet to Tacy is about 5.5 miles of fiber and passes an estimated 145 homes and businesses.
- Route B: Tacy to Valley Furnace is about 5.8 miles of fiber and passes an estimated 125 homes and businesses.



# Fiber Route: CityNet to Tacy



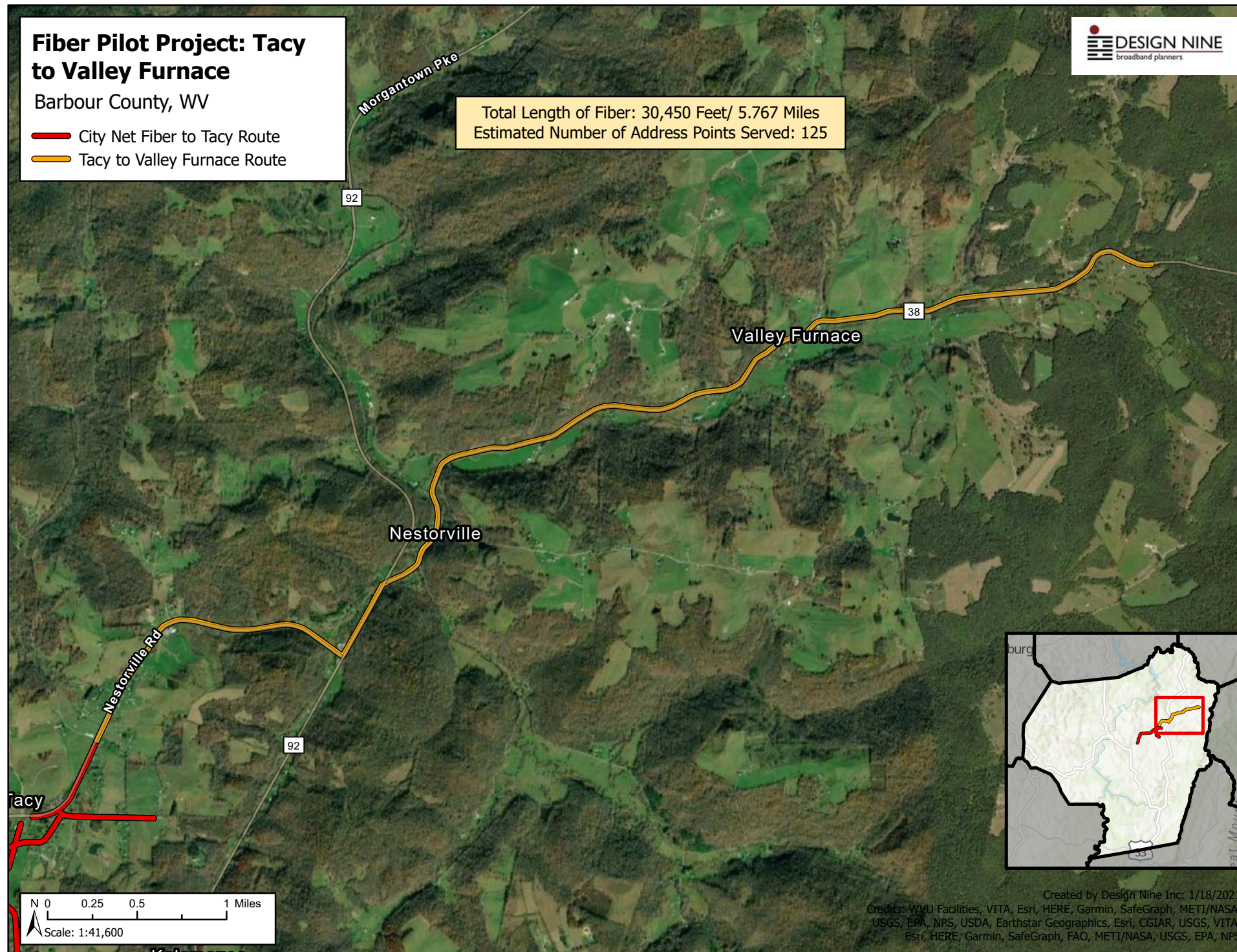


# Fiber Cost Estimate

Fiber Pilot - City Net to Tacy Cost Summary

0	ITEM/PROJECT	ESTIMATED
1	Fiber Pilot - City Net to Tacy Construction Materials	\$150,486
2	Fiber Pilot - City Net to Tacy Distribution Labor	\$380,081
3	Fiber Pilot - City Net to Tacy Structures, Cabinets, and Equipment	\$26,030
4	Fiber Pilot - City Net to Tacy Drop Construction	\$52,113
5	Network Construction Subtotal	<b>\$608,709</b>
6	Project Mgmt, Network Engineering, Integration, and Testing	\$109,568
7	Misc Fees, Advertising, Technical Services	\$6,087
8	Bookkeeping and Administration	\$4,565
9	Engineering, Permitting	\$42,491
10	Legal Costs	\$6,087
11	Other Costs Subtotal	\$168,798
12	Project Total	<b>\$777,507</b>
13	Contingency at 5%	\$38,875
14	Project Total (with contingency)	<b>\$816,382</b>

# Fiber Route: Tacy to Valley Furnace





# Fiber Cost Estimate

Fiber Pilot - Tacy to Valley Furnace Cost Summary

0	ITEM/PROJECT	ESTIMATED
1	Fiber Pilot - Tacy to Valley Furnace Construction Materials	\$154,782
2	Fiber Pilot - Tacy to Valley Furnace Distribution Labor	\$390,073
3	Fiber Pilot - Tacy to Valley Furnace Structures, Cabinets, and Equipment	\$26,030
4	Fiber Pilot - Tacy to Valley Furnace Drop Construction	\$45,250
5	Network Construction Subtotal	<b>\$616,135</b>
6	Project Mgmt, Network Engineering, Integration, and Testing	\$110,904
7	Misc Fees, Advertising, Technical Services	\$6,161
8	Bookkeeping and Administration	\$4,621
9	Engineering, Permitting	\$44,175
10	Legal Costs	\$6,161
11	Other Costs Subtotal	\$172,023
12	Project Total	<b>\$788,158</b>
13	Contingency at 5%	\$39,408
14	Project Total (with contingency)	<b>\$827,566</b>



# A “basket” of strategies

- ▶ Different solutions for different parts of each county
- ▶ Ordinance changes can have a big impact, cost little
- ▶ Both wireless and fiber are important
  - ▶ Fiber makes wireless work better
- ▶ Identify “phase one” projects that can be implemented quickly
- ▶ A multi-year effort
- ▶ Look for partners: Service providers are needed
  - ▶ CityNet could be a good candidate