

# APPENDIX 1

## County Broadband Profiles

In this section you will see a regional overview of broadband availability in the ten OMEGA counties as well as individual county profiles with detailed maps for project planning.

For a complete view of each county profile scan the QR code with your smartphone, click, or copy this url into your browser:



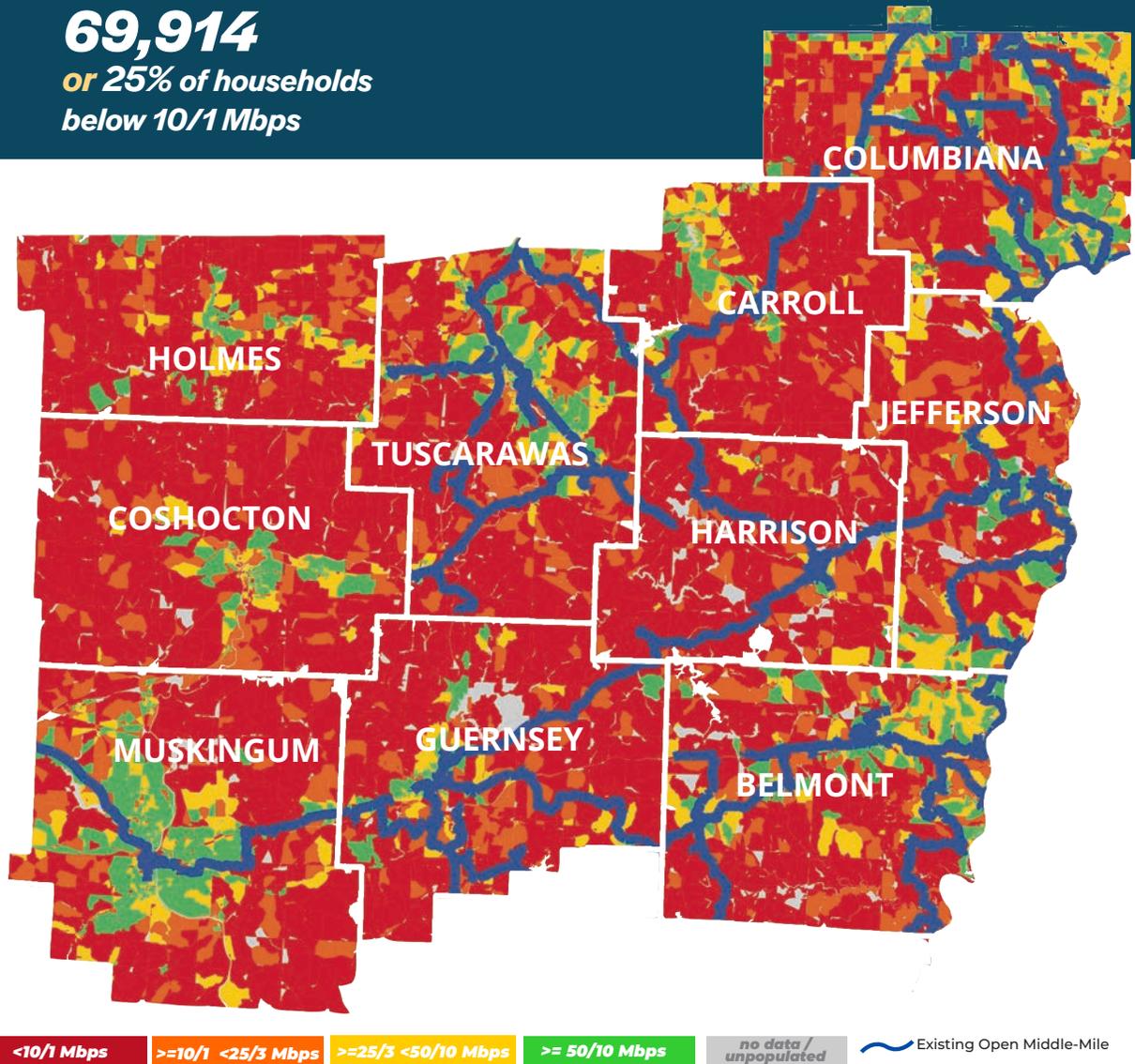
<https://omegadistrict.org/regionalbroadband/>

# OMEGA Development District

## REGIONAL OVERVIEW

**38%** = **106,434**  
of households households without access  
to minimum 25/3 Mbps

**69,914**  
or 25% of households  
below 10/1 Mbps



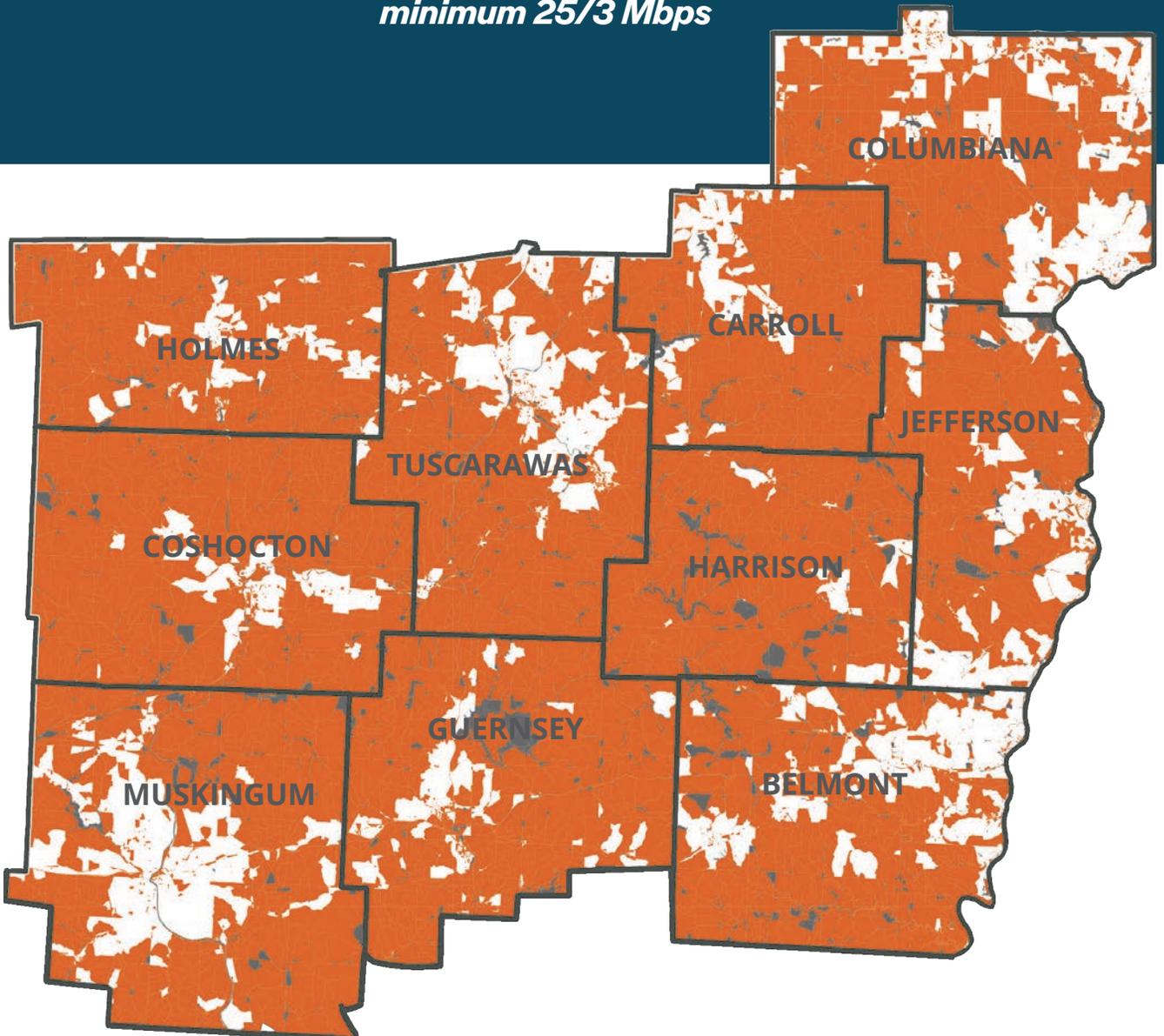
\*Coverage ratings reflect multiple sources, including Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021. See Appendix 3 for detailed methodology

# OMEGA Development District

UNSERVED AREA

**81%** → **3,937 miles<sup>2</sup>**

*of the populated area do not have access to minimum 25/3 Mbps*



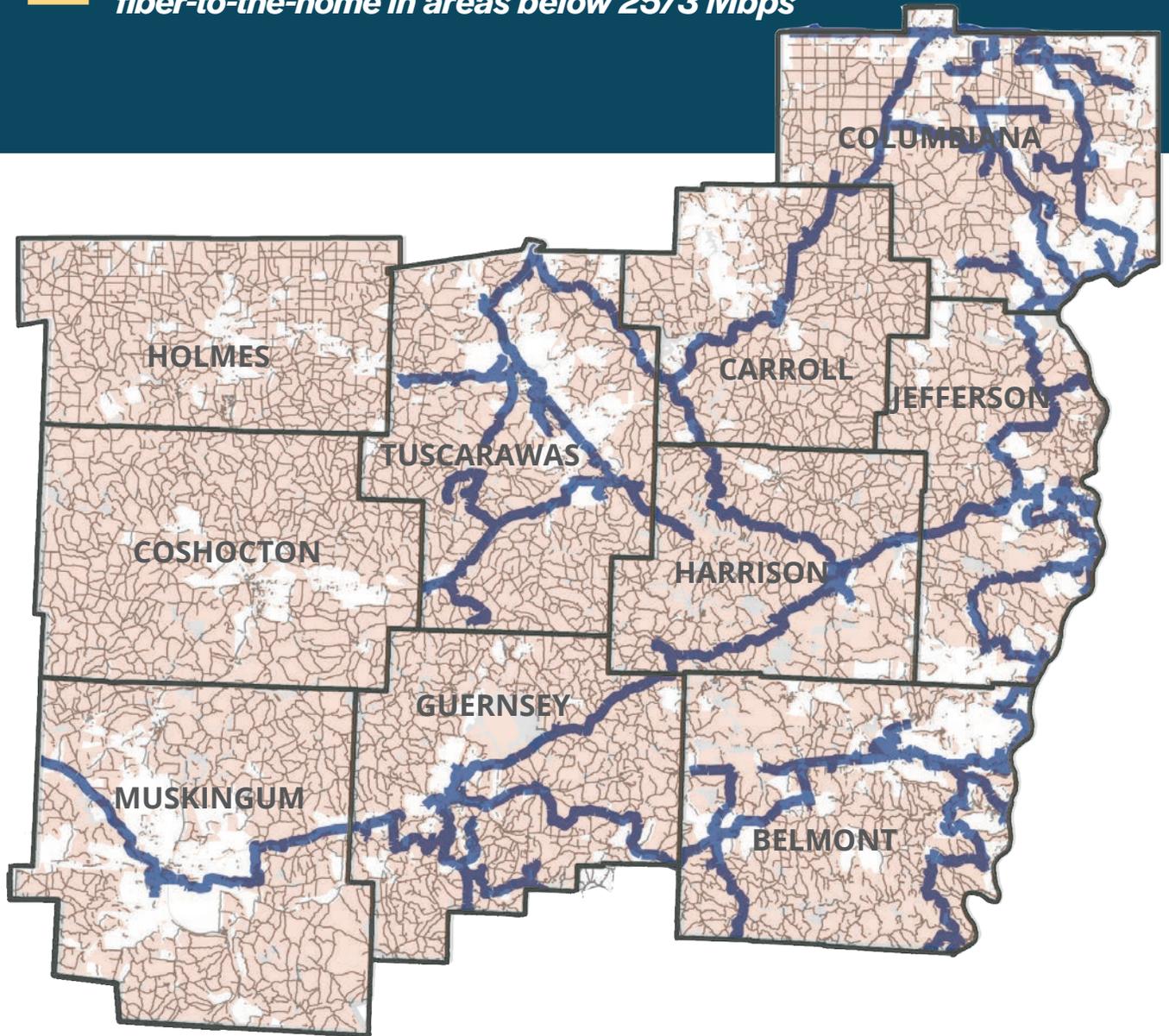
● Areas below 25/3 Mbps ○ Areas above 25/3 Mbps ● Unpopulated area /no data

# OMEGA Development District

UNSERVED ROADS

# 8,198 miles

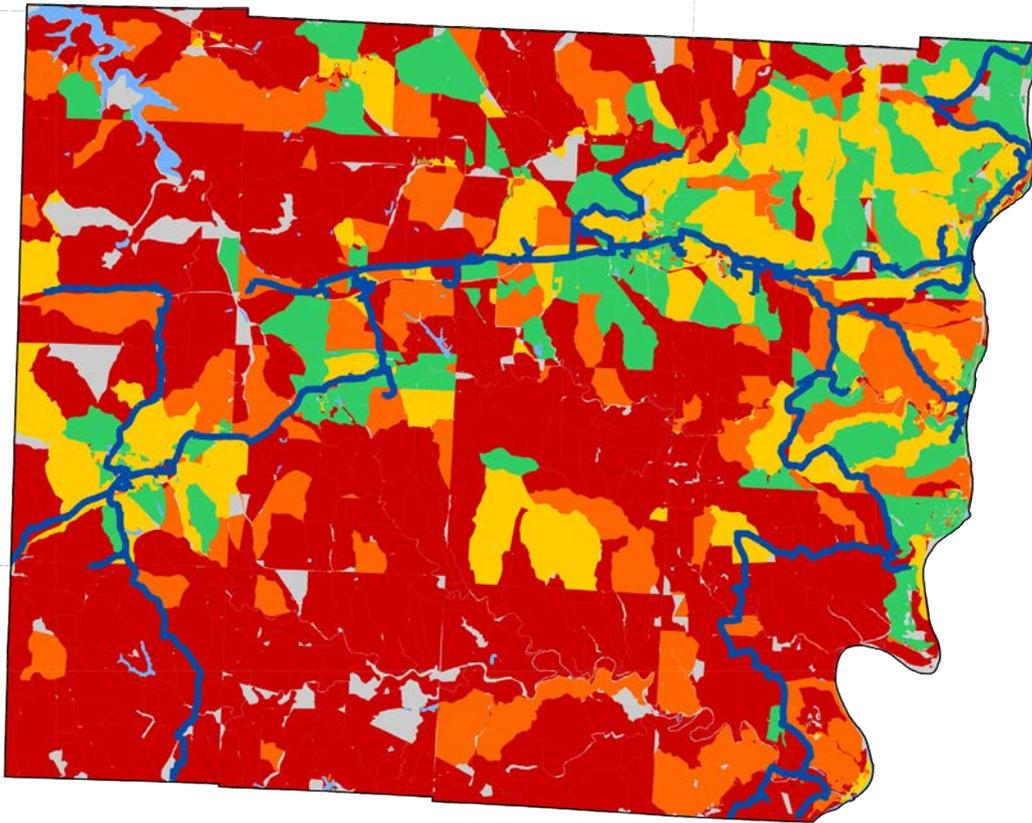
 the amount of fiber needed to install  
 fiber-to-the-home in areas below 25/3 Mbps



 Areas below 25/3 Mbps  Areas above 25/3 Mbps  Unpopulated area /no data  Unserved Roads  Existing Open Middle-Mile

# BELMONT COUNTY

## broadband profile



# 34%

of households

▶ **11,187**  
households

DO NOT HAVE  
ACCESS TO  
MINIMUM 25/3 Mbps

**6,065**

= 19% of  
households  
below 10/1 Mbps

<10/1 Mbps

>=10/1 <25/3 Mbps

>=25/3 <50/10 Mbps

>= 50/10 Mbps

no data /  
unpopulated

Existing Open Middle-Mile

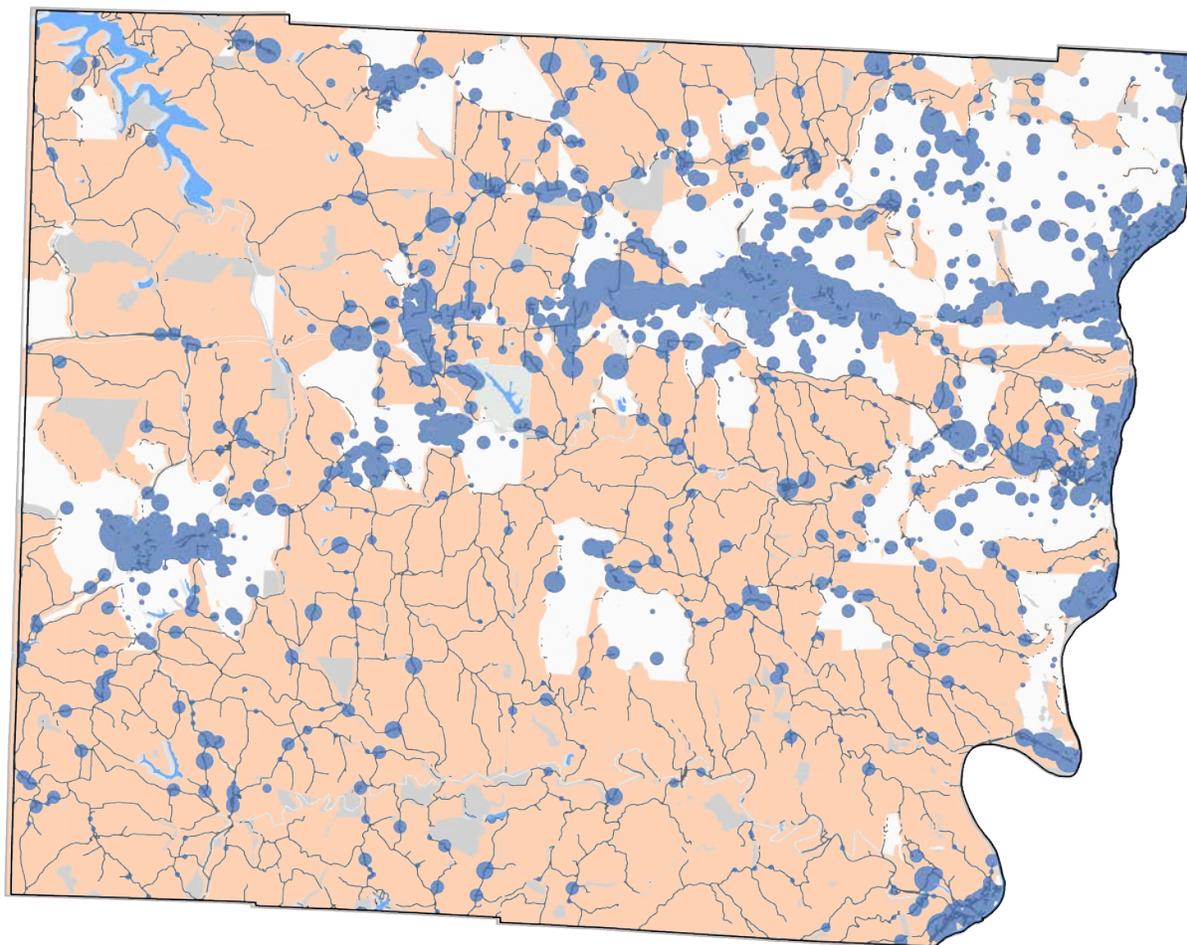
**73%** of the  
populated area

▶ **376 miles<sup>2</sup>** do not have access to 25/3 Mbps

\*Coverage ratings reflect multiple sources, including Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021. See "About the Mapping" (page 7) for detailed methodology

# BUSINESS OPPORTUNITY AREAS

below 25/3 Mbps



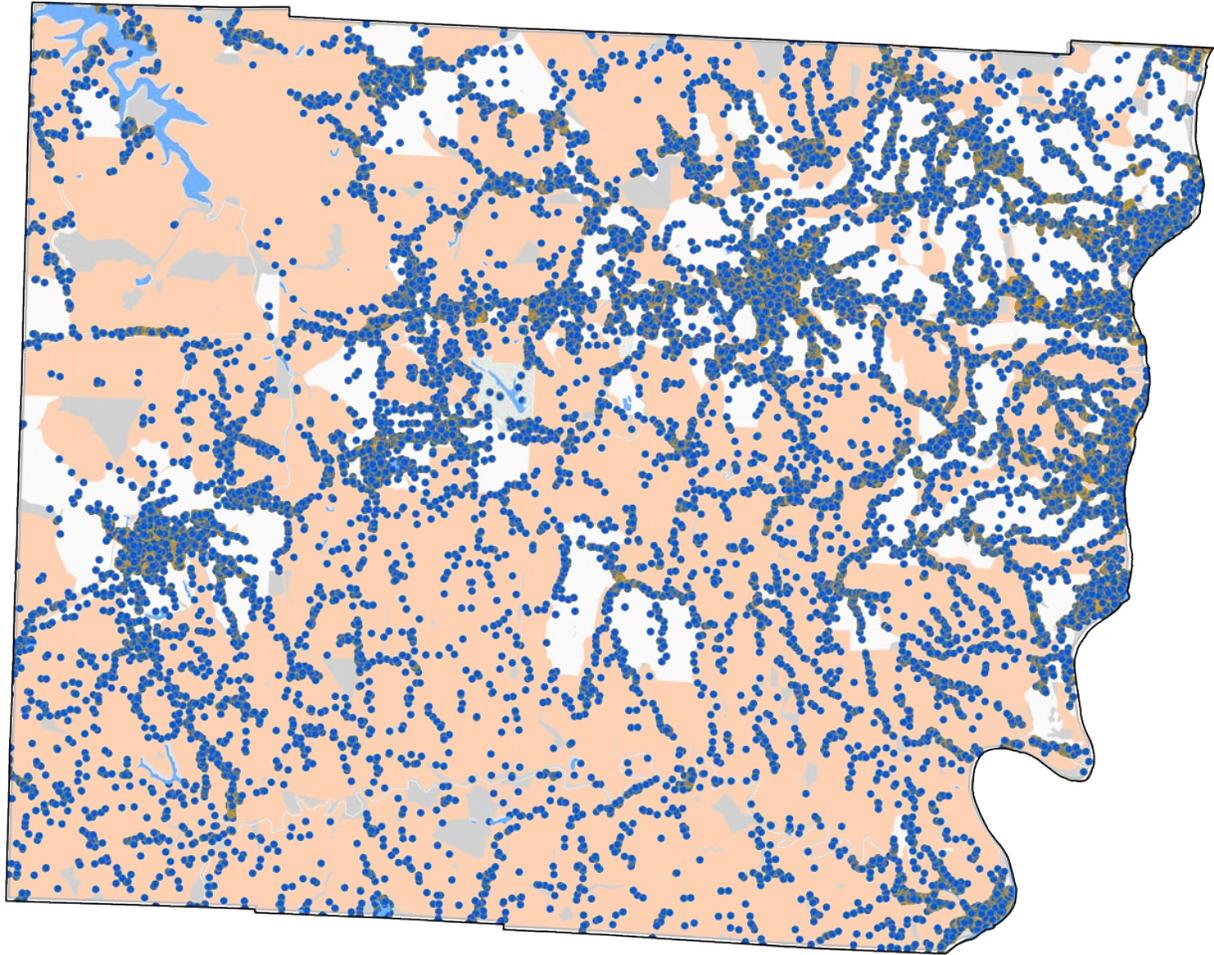
● business location   ● Areas below 25/3 Mbps   ○ Areas above 25/3 Mbps   ● Unpopulated area /no data   ~ Unserved Roads

Business demand for broadband varies based on company size and economic sector. The greater the demand, the bigger the dot. The presence of a high-demand business or multiple businesses of any size will make that area significantly more attractive to a broadband provider.

*\*See "Business Broadband Opportunity Index" (page 8) for a detailed explanation of how dot size was determined*

# RESIDENTIAL OPPORTUNITY AREAS

below 25/3 Mbps

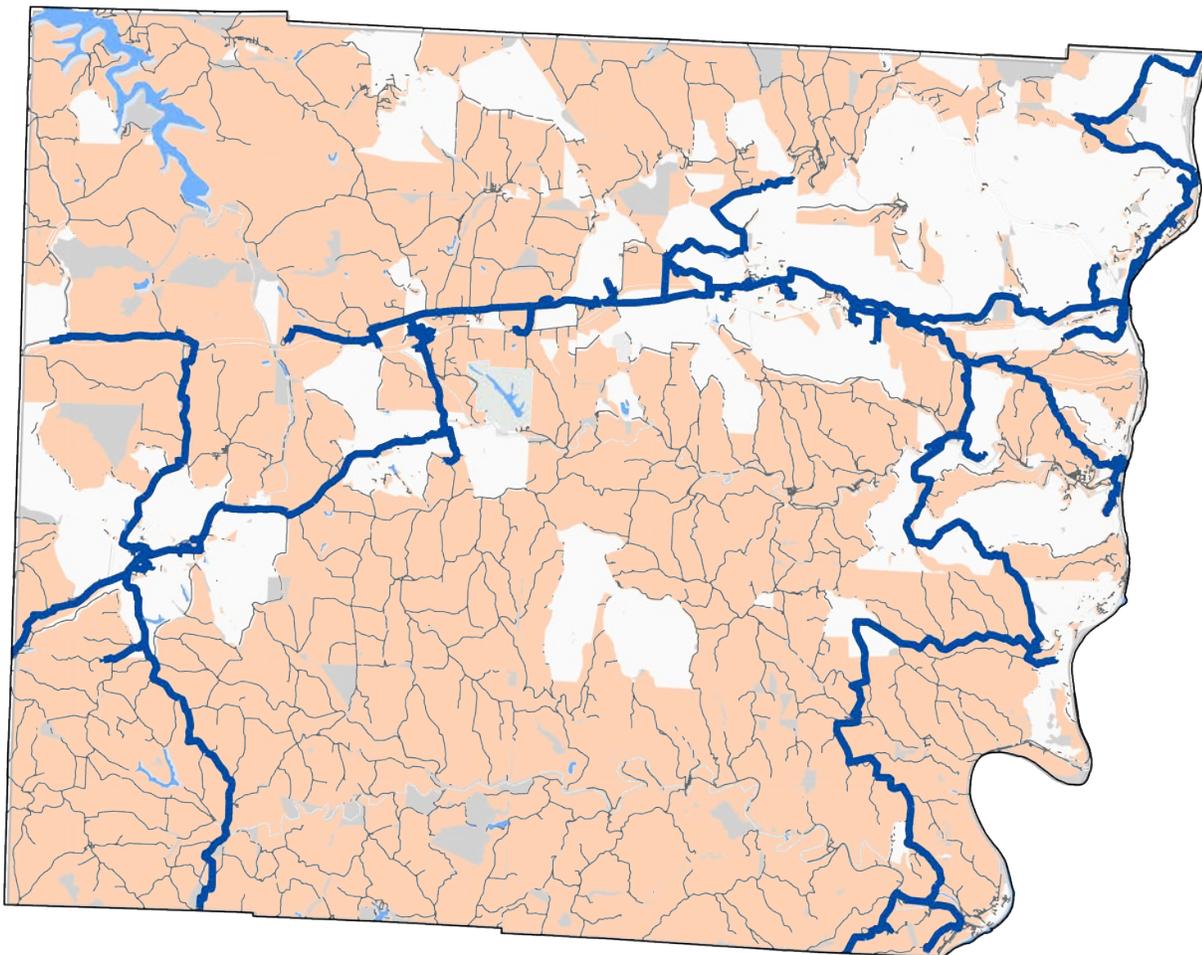


● Household   ● Areas below 25/3 Mbps   ○ Areas above 25/3 Mbps   ● Unpopulated area /no data

**32,728** households ▶ **11,187** are below 25/3

# BELMONT COUNTY

..... *unserved roads*



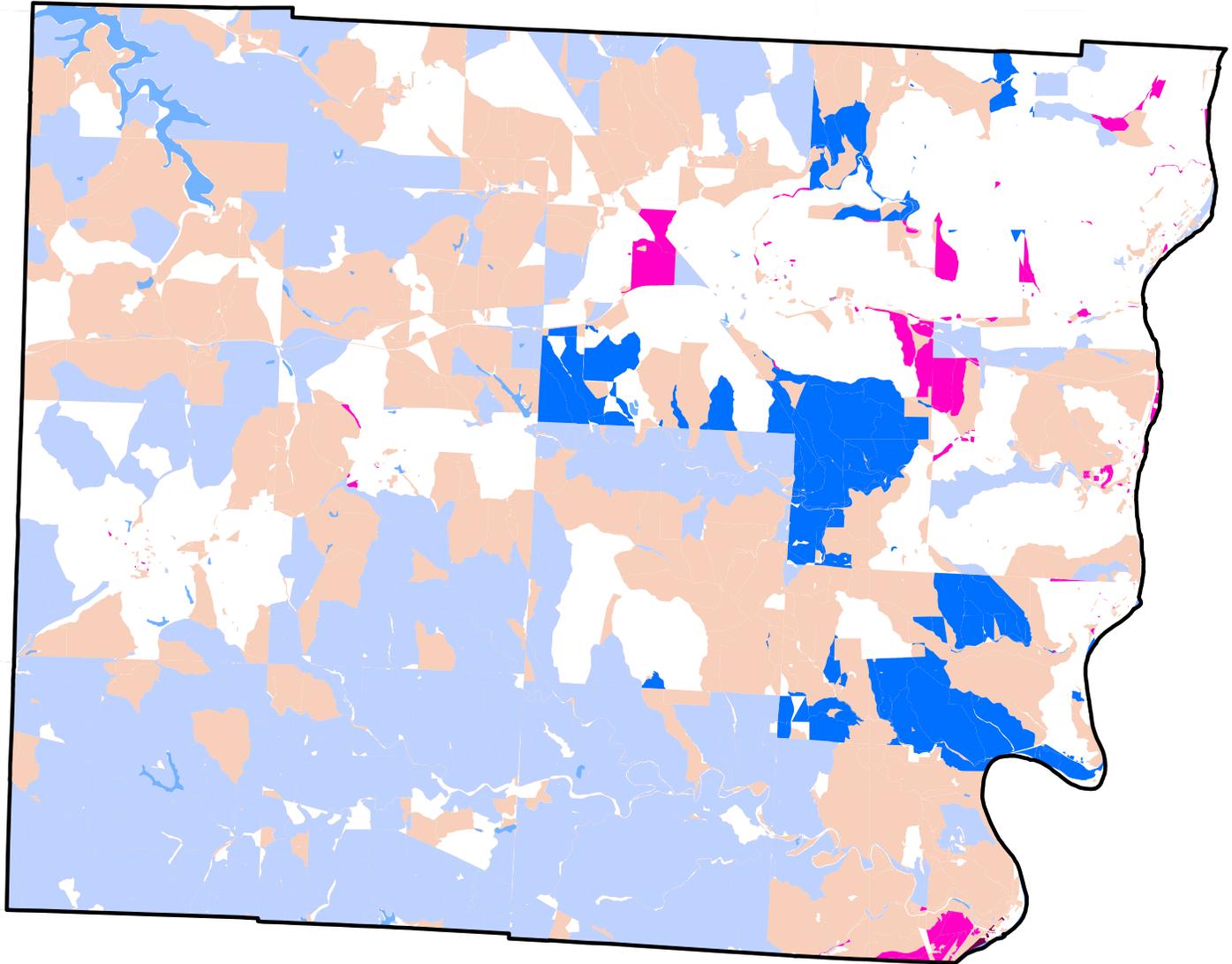
● Areas below 25/3 Mbps    ○ Areas above 25/3 Mbps    ● Unpopulated area /no data    ~ Unserved Roads    **—** Existing Open Middle-Mile

**876 miles**  
*of unserved roads*

**=** *the amount of fiber needed to install fiber-to-the-home in areas below 25/3 Mbps*

# TENTATIVE AWARDS

## Rural Digital Opportunity Fund (RDOF)



● Unfunded Areas below 25/3 Mbps   ● Connect Everyone   ● Mercury Wireless   ● LTD Broadband

The FCC's Rural Digital Opportunity Fund (RDOF) subsidizes internet providers to deploy broadband in unserved rural locations. In 2020, the FCC awarded a total of \$170 million to 11 internet providers in the state of Ohio. The majority of this funding remains tied up in financial due diligence, so many other funding programs consider such awards tentative.

# BELMONT COUNTY

cost to close the gap

**A FIBER NETWORK  
for the next 40 years**

## BUDGET

**\$79 MILLION**  
Total County Cost

## OUTCOME

**11,187** Unserved households passed  
**12.8** Households per fiber mile

**\$19.2 MILLION** →  
Projected internet provider investment

**\$1,720**  
Investment per household

## FUNDING GAP

**\$59.8 MILLION**

**876 MILES OF FIBER**

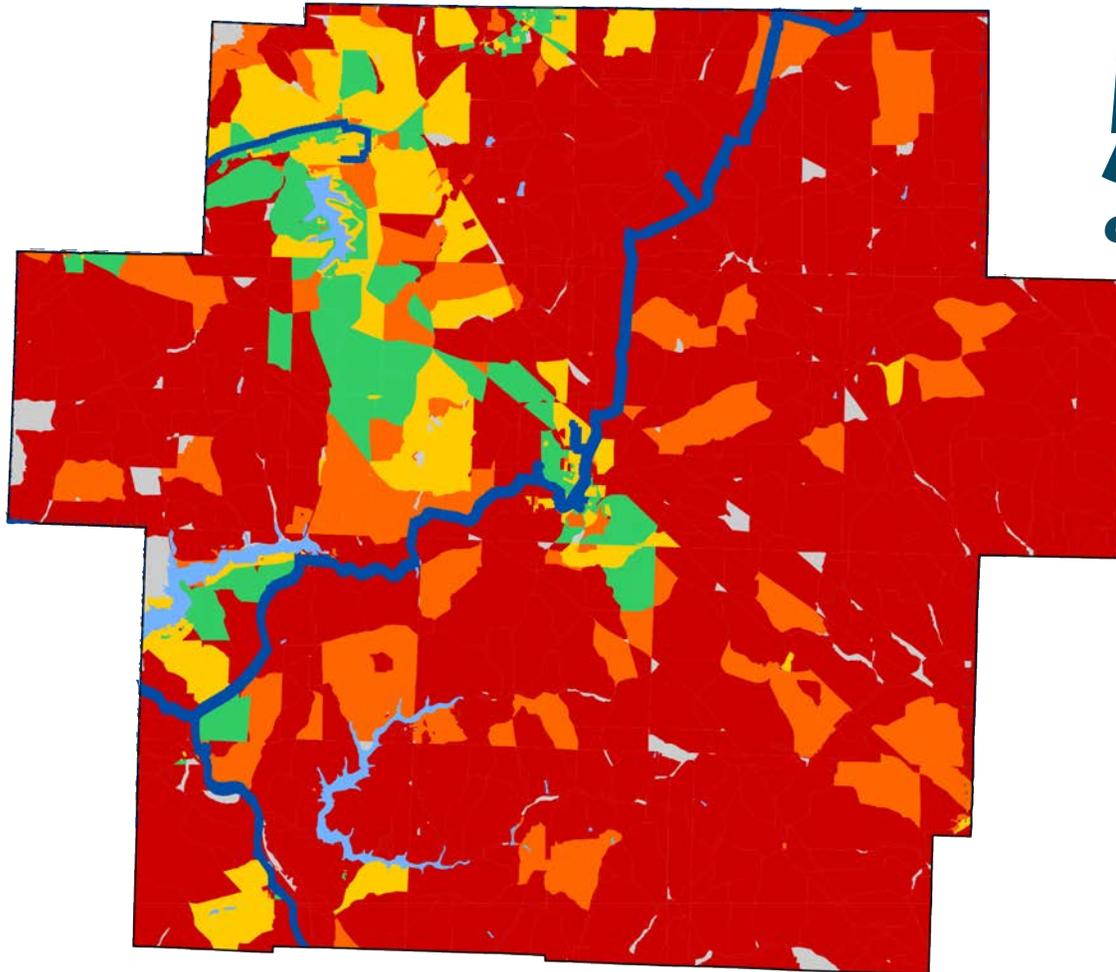
**= \$5,346**  
Gap per household

Cost estimates assume \$41,000 per mile for utility pole make-ready, \$40,000 per mile for high strand-count, aerial fiber.

\*See "Estimating Costs and Distances" (page 9) to learn more about these calculations.

# CARROLL COUNTY

## broadband profile



**56%**  
of households

▶ **7,827**  
households  
DO NOT HAVE  
ACCESS TO  
MINIMUM 25/3 Mbps

**6,064**  
= 43% of  
households  
below 10/1 Mbps

<10/1 Mbps

>=10/1 <25/3 Mbps

>=25/3 <50/10 Mbps

>= 50/10 Mbps

no data /  
unpopulated

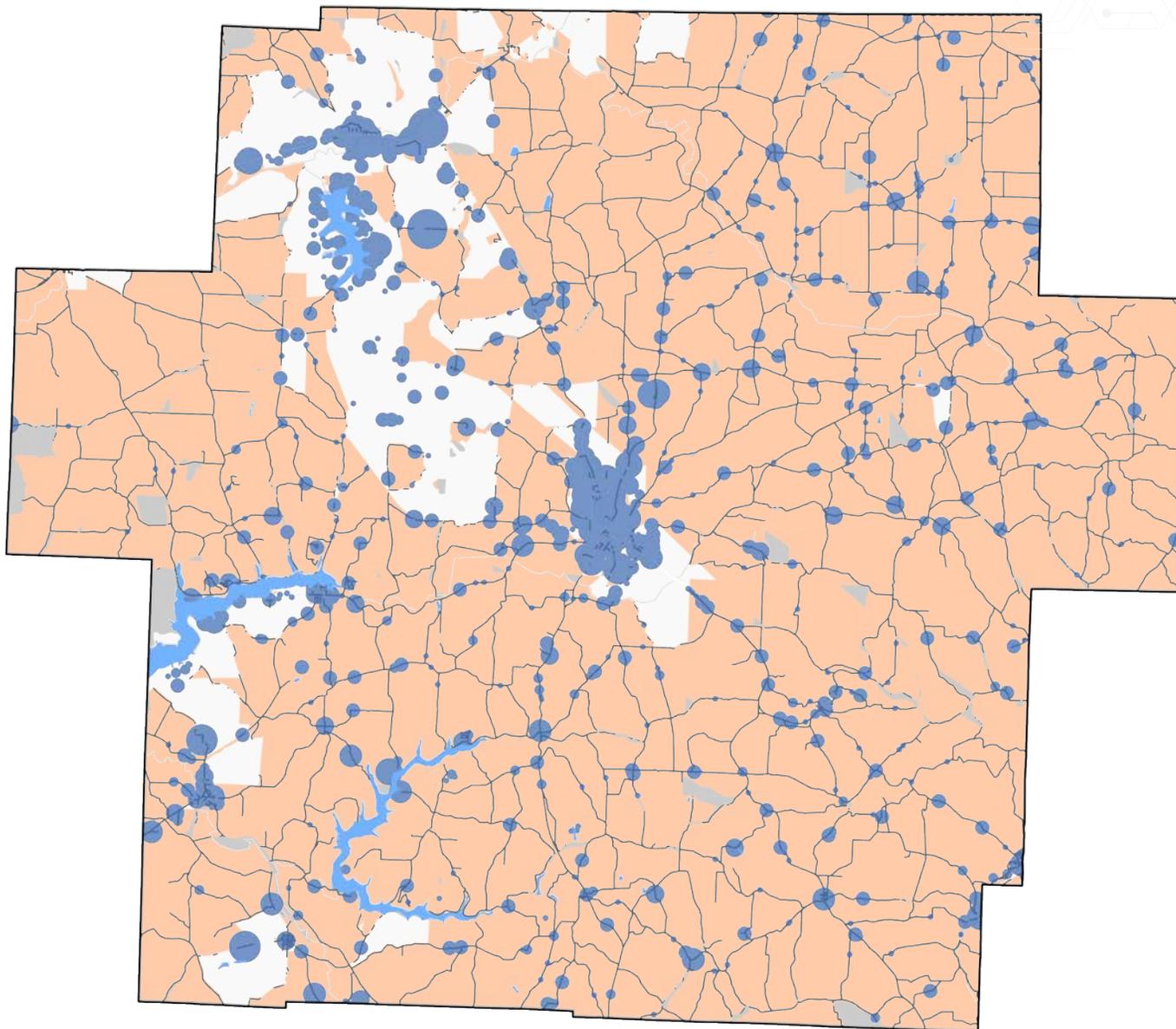
Existing Open Middle-Mile

**87%** of the populated area ▶ **337 miles<sup>2</sup>** do not have access to 25/3 Mbps

\*Coverage ratings reflect multiple sources, including Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021. See “About the Mapping” (page 7) for detailed methodology

# BUSINESS OPPORTUNITY AREAS

below 25/3 Mbps



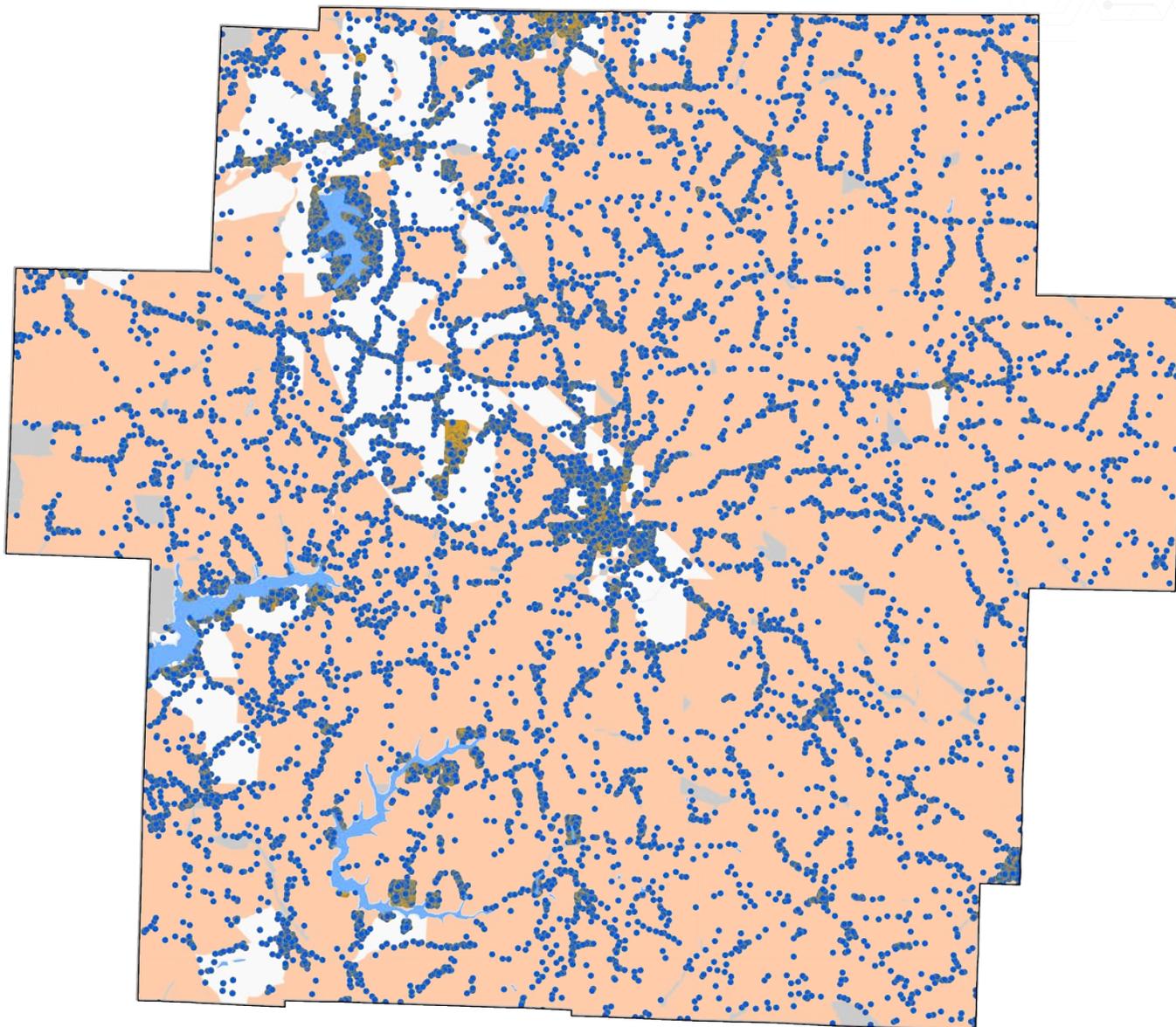
● business location   ● Areas below 25/3 Mbps   ○ Areas above 25/3 Mbps   ● Unpopulated area /no data   ~ Unserved Roads

Business demand for broadband varies based on company size and economic sector. The greater the demand, the bigger the dot. The presence of a high-demand business or multiple businesses of any size will make that area significantly more attractive to a broadband provider.

*\*See "Business Broadband Opportunity Index" (page 8) for a detailed explanation of how dot size was determined*

# RESIDENTIAL OPPORTUNITY AREAS

below 25/3 Mbps

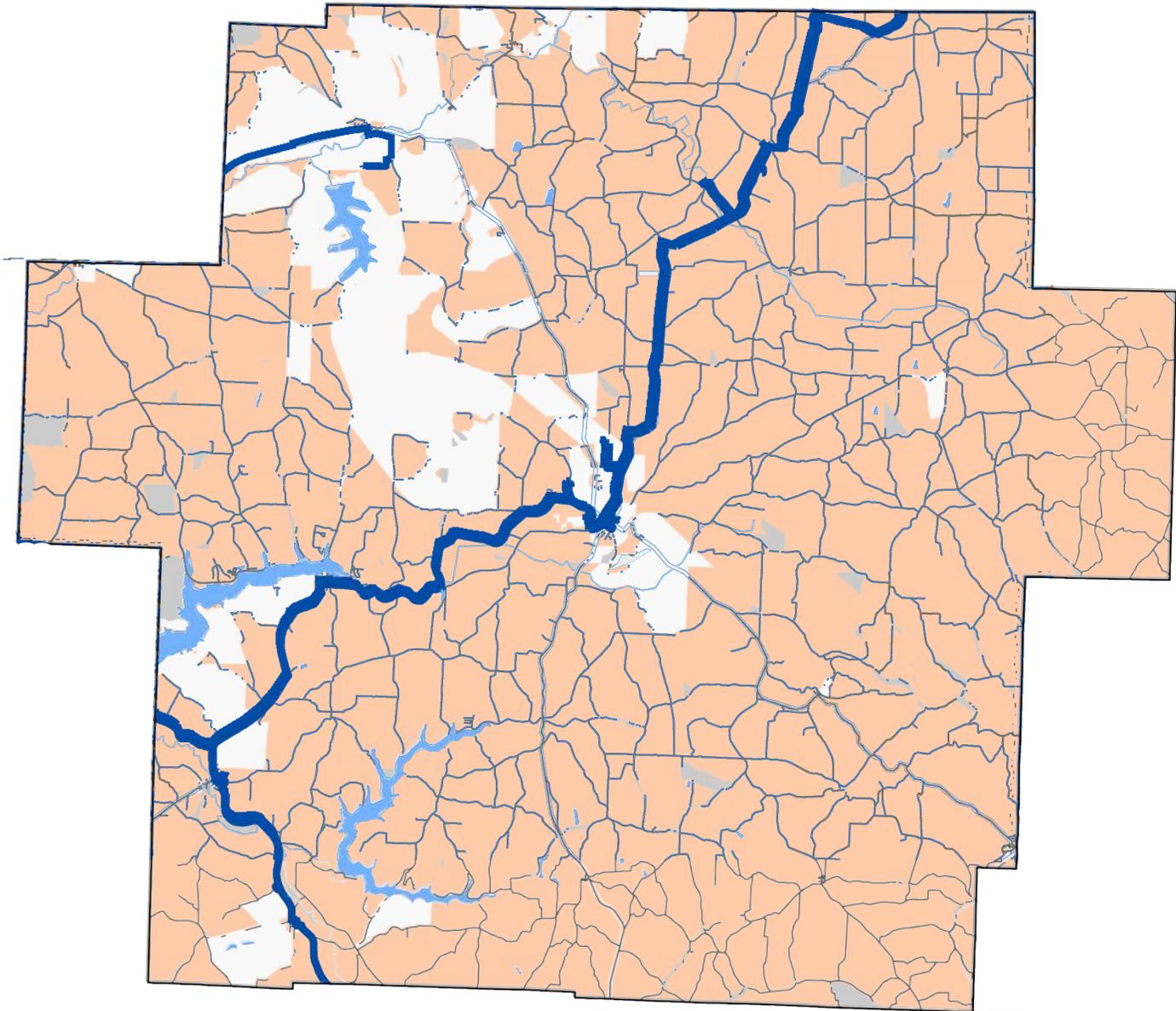


● Household   ● Areas below 25/3 Mbps   ○ Areas above 25/3 Mbps   ● Unpopulated area /no data

**13,995** households ▶ **7,827** are below 25/3

# CARROLL COUNTY

..... unserved roads



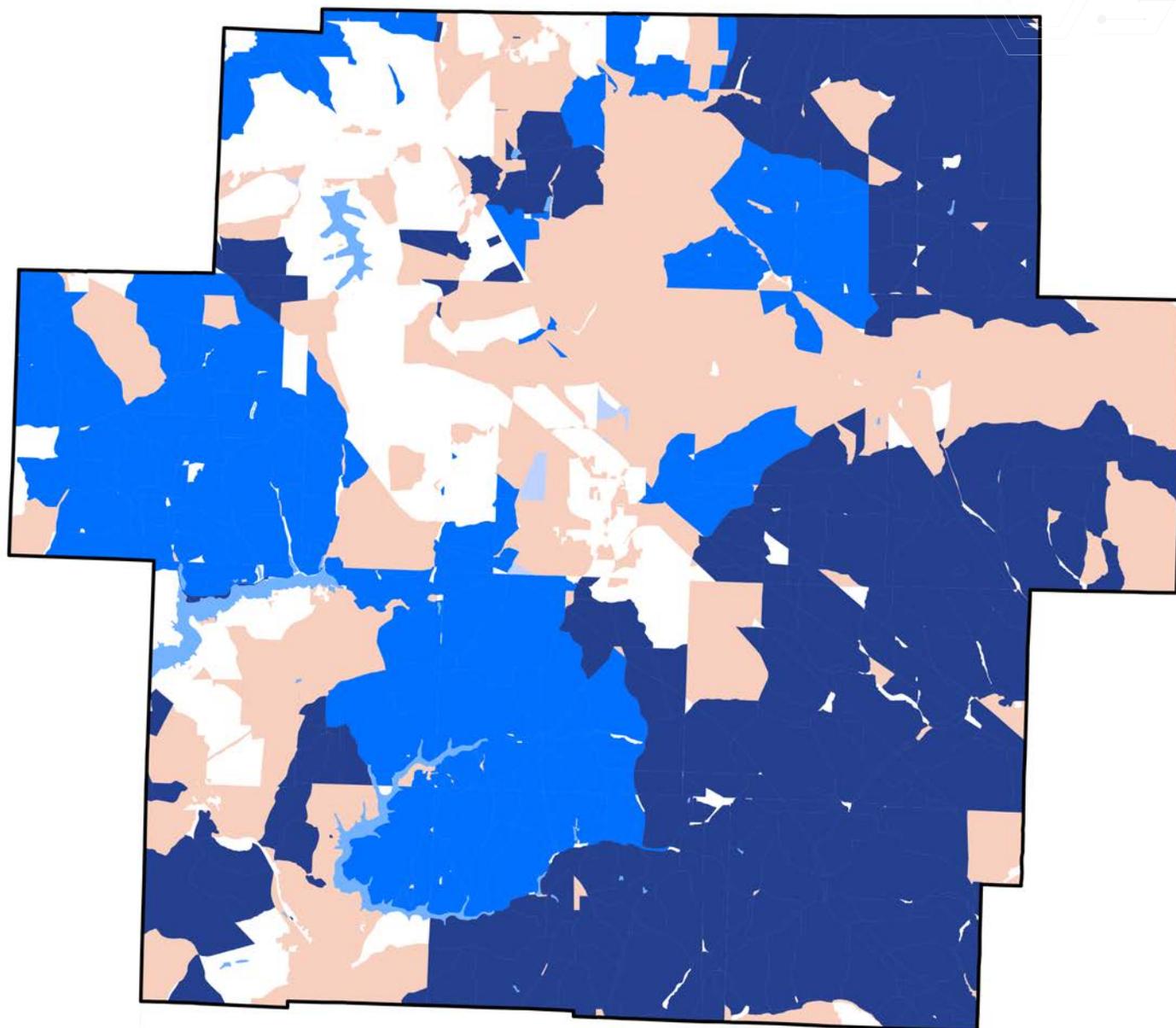
● Areas below 25/3 Mbps   ○ Areas above 25/3 Mbps   ● Unpopulated area /no data   ~ Unserved Roads   **—** Existing Open Middle-Mile

**695 miles**  
of unserved roads

**—** the amount of fiber needed  
to install fiber-to-the-home  
in areas below 25/3 Mbps

# TENTATIVE AWARDS

## Rural Digital Opportunity Fund (RDOF)



Unfunded Areas  
below 25/3 Mbps

Charter Communications

Mercury Wireless

Connect Everyone

The FCC's Rural Digital Opportunity Fund (RDOF) subsidizes internet providers to deploy broadband in unserved rural locations. In 2020, the FCC awarded a total of \$170 million to 11 internet providers in the state of Ohio. The majority of this funding remains tied up in financial due diligence, so many other funding programs consider such awards tentative.

# CARROLL COUNTY

..... cost to close the gap

**A FIBER NETWORK  
for the next 40 years**

## **BUDGET**

**\$61.9** MILLION  
*Total County Cost*

## **OUTCOME**

**7,827** *Unserved households passed*  
**11.3** *Households per fiber mile*

**\$13.5** MILLION  
*Projected internet provider investment*

**\$1,720**  
*Investment per household*

## **FUNDING GAP**

**\$48.4** MILLION

**695** MILES OF FIBER

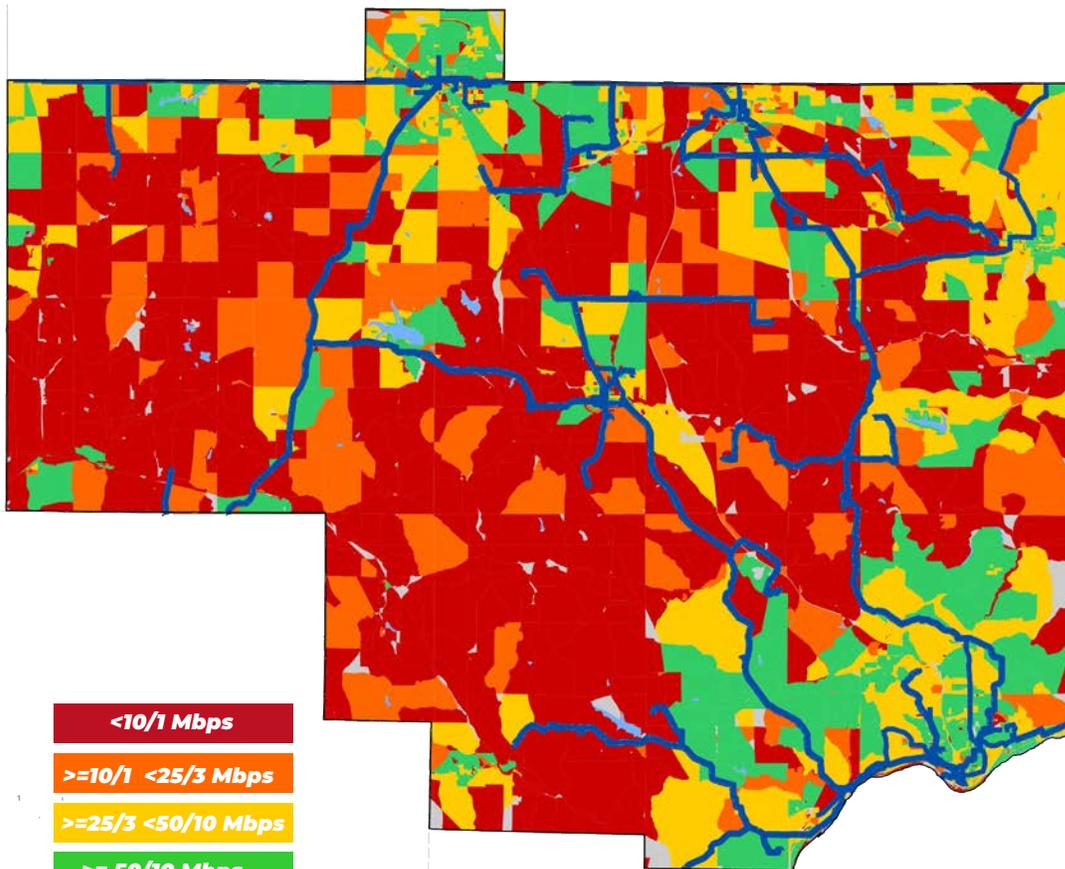
**= \$6,193**  
*Gap per household*

*Cost estimates assume \$41,000 per mile for utility pole make-ready, \$40,000 per mile for high strand-count, aerial fiber.*

*\*See "Estimating Costs and Distances" (page 9) to learn more about these calculations.*

# COLUMBIANA COUNTY

## broadband profile



# 28%

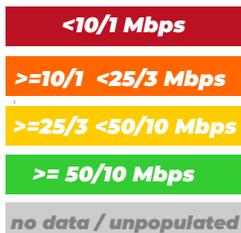
of households

▶ **13,739**  
households

DO NOT HAVE  
ACCESS TO  
MINIMUM 25/3 Mbps

**9,123**

= 19% of  
households  
below 10/1 Mbps



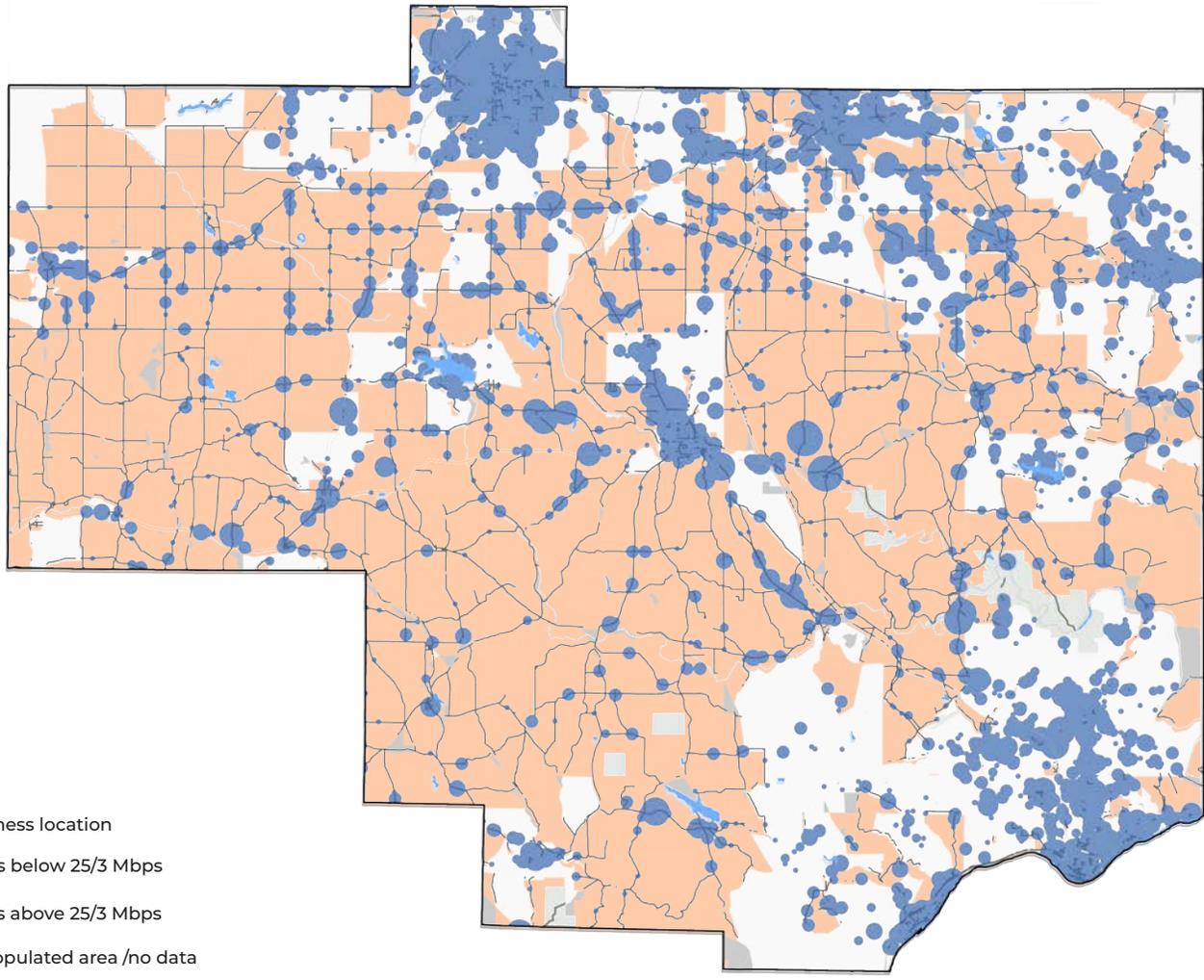
Existing Open Middle-Mile

**67%** of the populated area ▶ **348 miles<sup>2</sup>** do not have access to 25/3 Mbps

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# BUSINESS OPPORTUNITY AREAS

below 25/3 Mbps



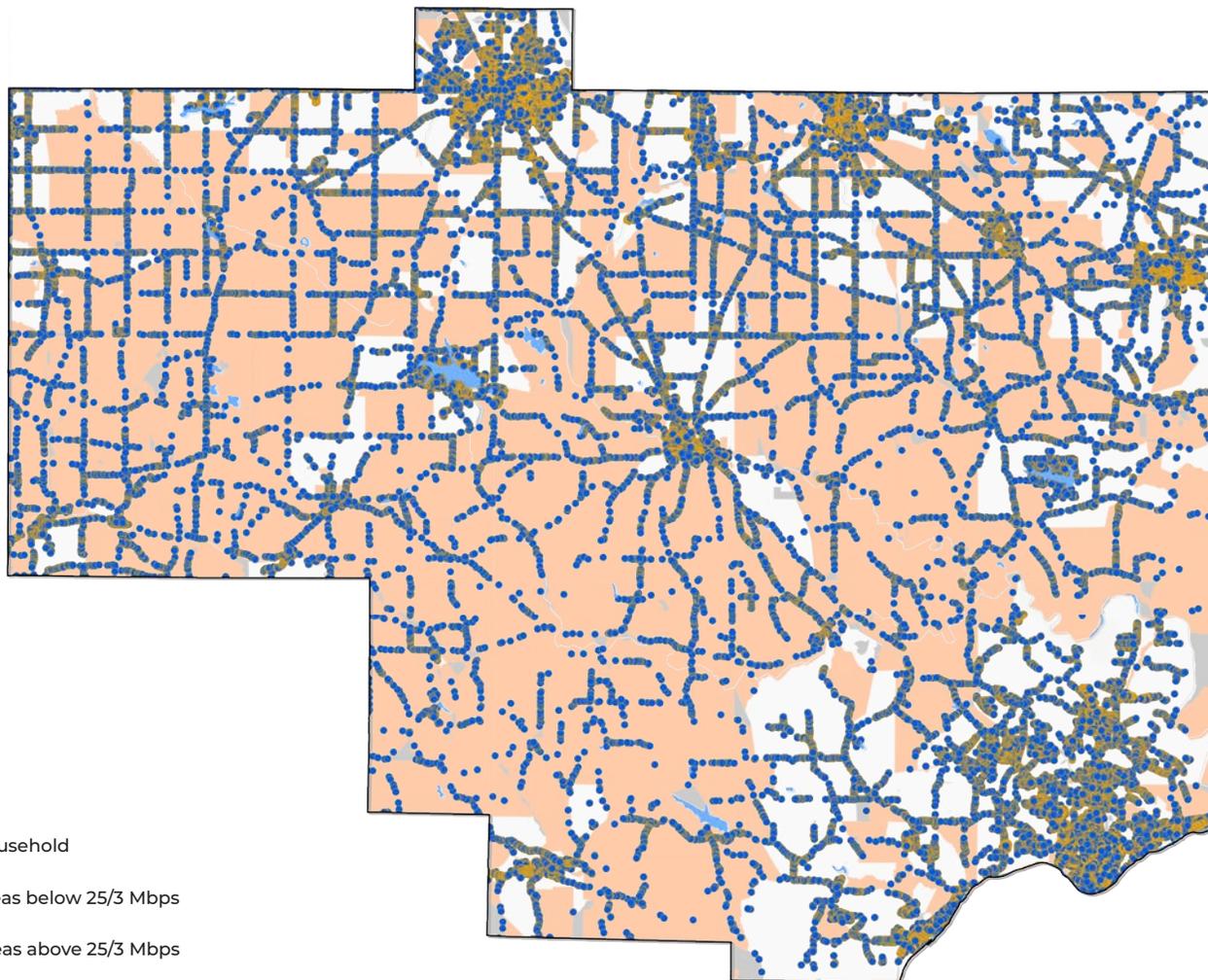
- business location
- Areas below 25/3 Mbps
- Areas above 25/3 Mbps
- Unpopulated area /no data
- ~ Unserved Roads

Business demand for broadband varies based on company size and economic sector. The greater the demand, the bigger the dot. The presence of a high-demand business or multiple businesses of any size will make that area significantly more attractive to a broadband provider.

*\*See "Business Broadband Opportunity Index" (page 8) for a detailed explanation of how dot size was determined*

# RESIDENTIAL OPPORTUNITY AREAS

below 25/3 Mbps



- Household
- Areas below 25/3 Mbps
- Areas above 25/3 Mbps
- Unpopulated area /no data

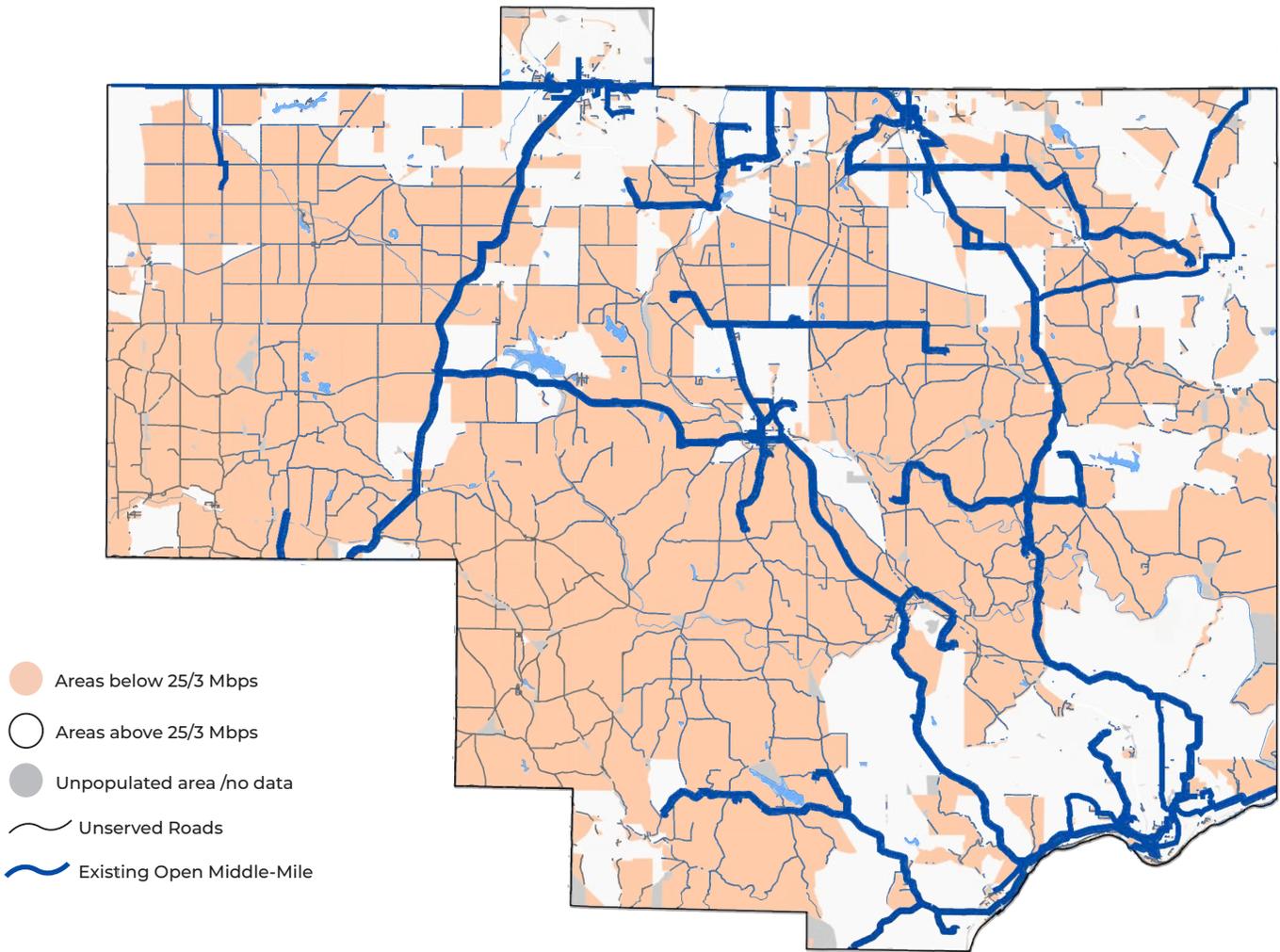
**48,611**  
households

▶ **13,739** are below 25/3

# COLUMBIANA COUNTY

# COUNTY

*unserved roads*



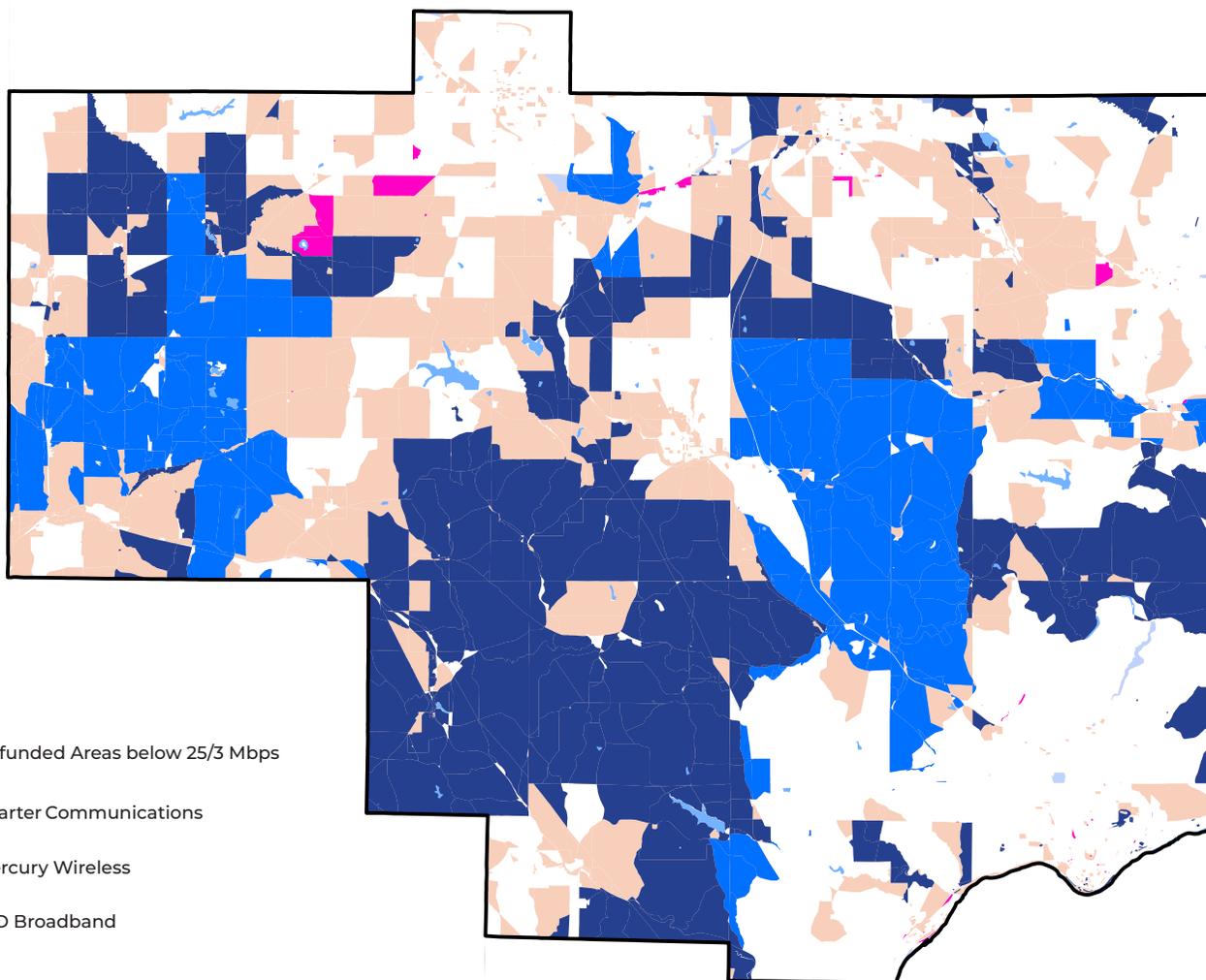
**759 miles**  
*of unserved roads*



**the amount of fiber needed  
to install fiber-to-the-home  
in areas below 25/3 Mbps**

# TENTATIVE AWARDS

## Rural Digital Opportunity Fund (RDOF)



The FCC's Rural Digital Opportunity Fund (RDOF) subsidizes internet providers to deploy broadband in unserved rural locations. In 2020, the FCC awarded a total of \$170 million to 11 internet providers in the state of Ohio. The majority of this funding remains tied up in financial due diligence, so many other funding programs consider such awards tentative.

# COLUMBIANA COUNTY

cost to close the gap

**A FIBER NETWORK  
for the next 40 years**

## BUDGET

**\$71.3** MILLION  
*Total County Cost*

## OUTCOME

**13,739** *Unserved households passed*  
**18.1** *Households per fiber mile*

**\$23.6** MILLION **➔**  
*Projected internet provider investment*

**\$1,720**  
*Investment per household*

## FUNDING GAP

**\$47.7** MILLION

**759** MILES OF FIBER

**= \$3,474**  
*Gap per household*

*Cost estimates assume \$41,000 per mile for utility pole make-ready, \$40,000 per mile for high strand-count, aerial fiber.*

*\*See "Estimating Costs and Distances" (page 9) to learn more about these calculations.*

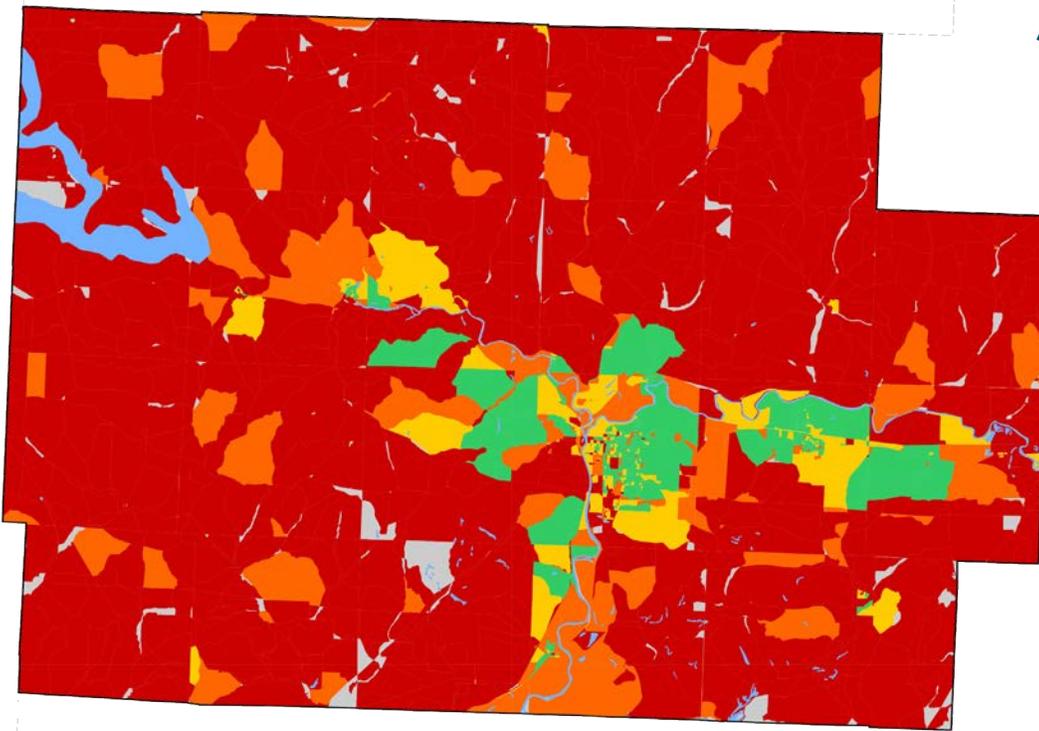
# COSHOCTON COUNTY

## broadband profile

**52%**  
of households

▶ **9,206**  
households  
DO NOT HAVE  
ACCESS TO  
MINIMUM 25/3 Mbps

**7,244**  
= 41% of  
households  
below 10/1 Mbps



<10/1 Mbps

>=10/1

<25/3 Mbps

>=25/3 <50/10 Mbps

>= 50/10 Mbps

no data /  
unpopulated

Existing Open Middle-Mile

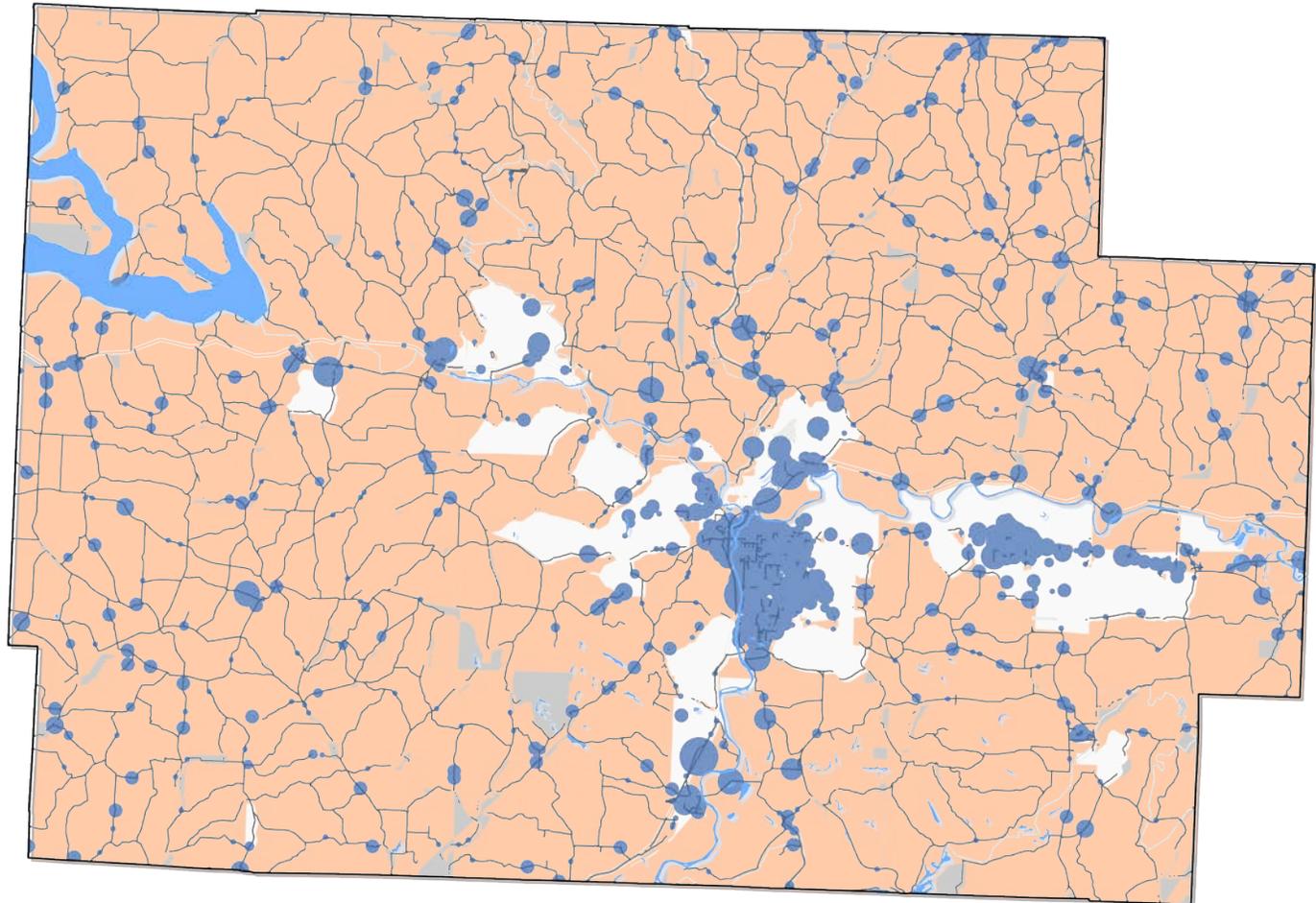
**91%** of the  
populated area

▶ **501 miles<sup>2</sup>** do not have access to 25/3 Mbps

\*Coverage ratings reflect multiple sources, including Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021. See “About the Mapping” (page 7) for detailed methodology

# BUSINESS OPPORTUNITY AREAS

below 25/3 Mbps



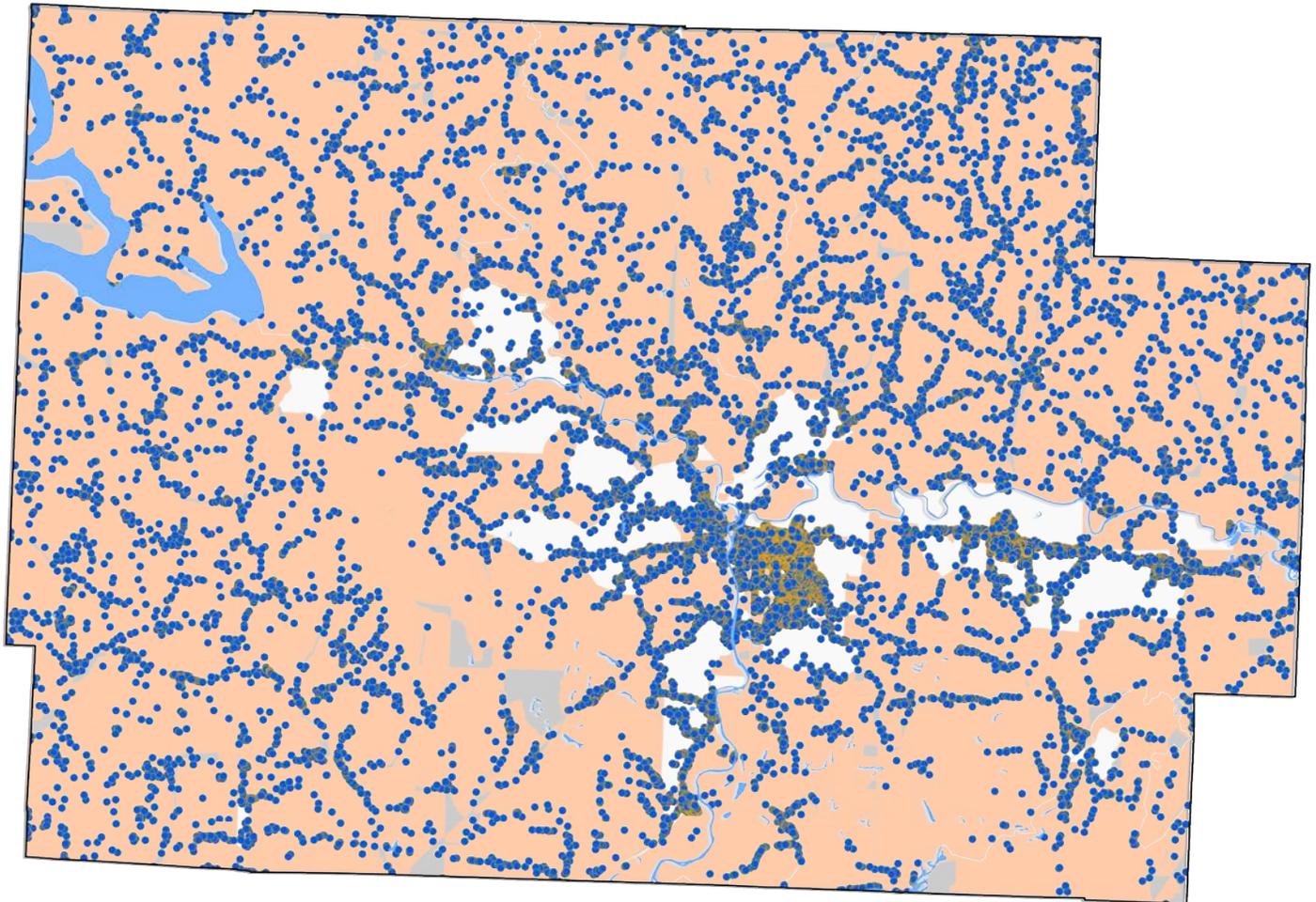
- business location
- Areas below 25/3 Mbps
- Areas above 25/3 Mbps
- Unpopulated area /no data
- ~ Unserved Roads

Business demand for broadband varies based on company size and economic sector. The greater the demand, the bigger the dot. The presence of a high-demand business or multiple businesses of any size will make that area significantly more attractive to a broadband provider.

*\*See "Business Broadband Opportunity Index" (page 8) for a detailed explanation of how dot size was determined*

# RESIDENTIAL OPPORTUNITY AREAS

below 25/3 Mbps

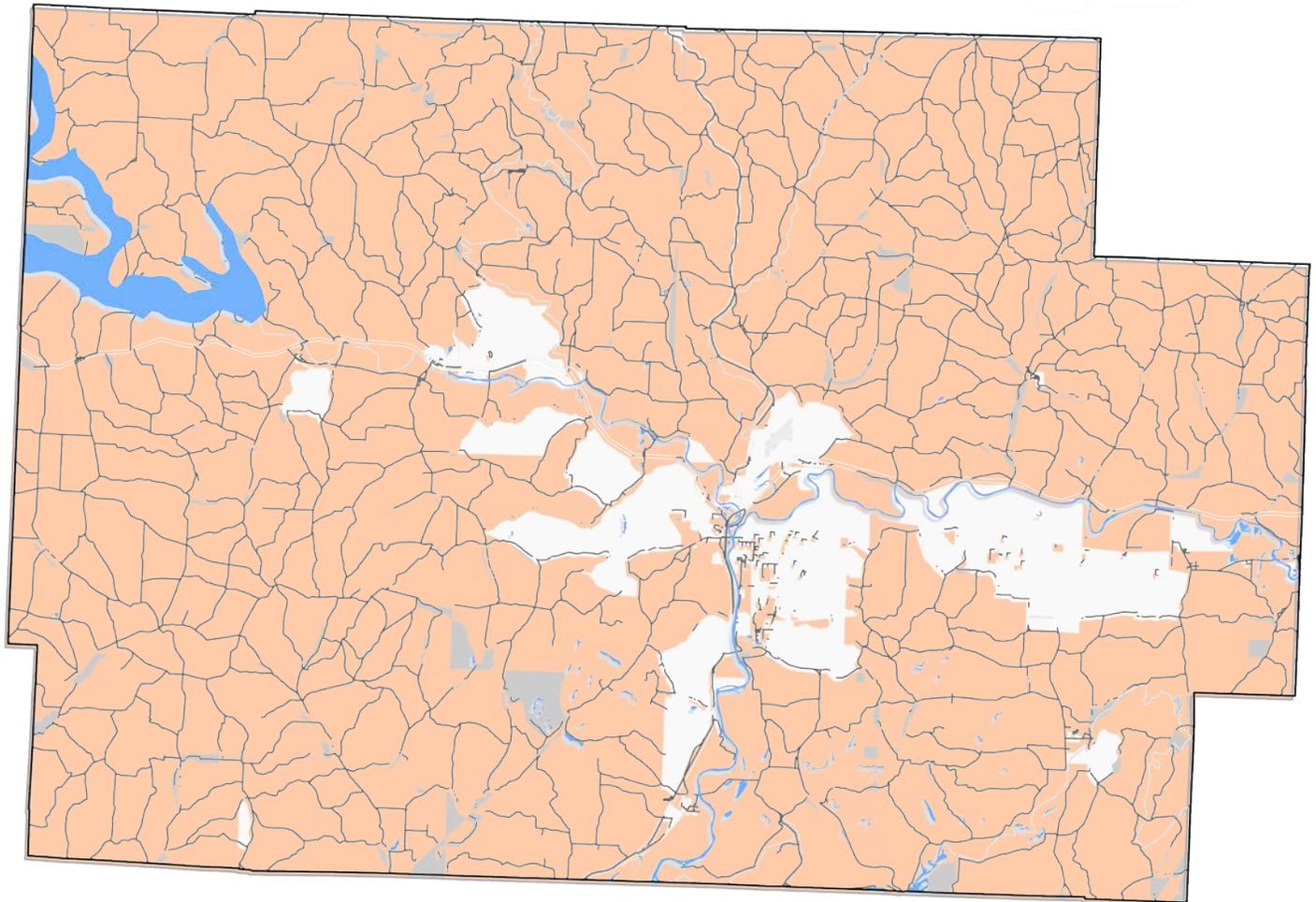


- Household
- Areas below 25/3 Mbps
- Areas above 25/3 Mbps
- Unpopulated area /no data

**17,547** households **▶ 9,206** are below 25/3

# COSHOCTON COUNTY

*unserved roads*



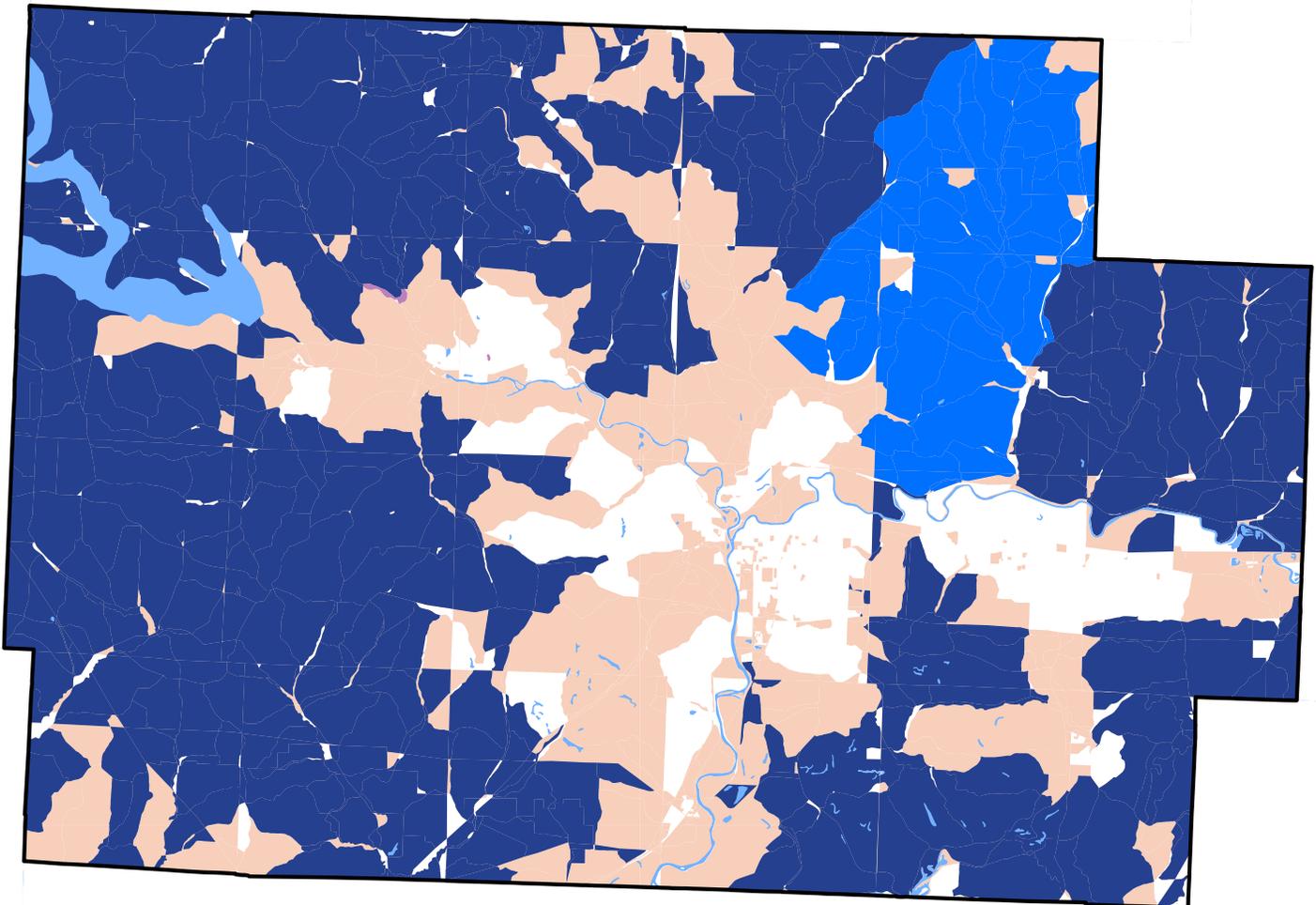
- Areas below 25/3 Mbps
- Areas above 25/3 Mbps
- Unpopulated area /no data
- Unserved Roads
- Existing Open Middle-Mile

**899 miles**  
of unserved roads

**— the amount of fiber needed to  
install fiber-to-the-home in  
areas below 25/3 Mbps**

# TENTATIVE AWARDS

## Rural Digital Opportunity Fund (RDOF)



- Unfunded Areas below 25/3 Mbps
- Charter Communications
- Mercury Wireless

The FCC's Rural Digital Opportunity Fund (RDOF) subsidizes internet providers to deploy broadband in unserved rural locations. In 2020, the FCC awarded a total of \$170 million to 11 internet providers in the state of Ohio. The majority of this funding remains tied up in financial due diligence, so many other funding programs consider such awards tentative.

# COSHOCTON COUNTY

cost to close the gap

**A FIBER NETWORK  
for the next 40 years**

## BUDGET

**\$79.4** MILLION  
*Total County Cost*

## OUTCOME

**9,206** *Unserved households passed*  
**10.2** *Households per fiber mile*

**\$15.8** MILLION **➔**  
*Projected internet provider investment*

**\$1,720**  
*Investment per household*

## FUNDING GAP

**\$63.6** MILLION

**899** MILES OF FIBER

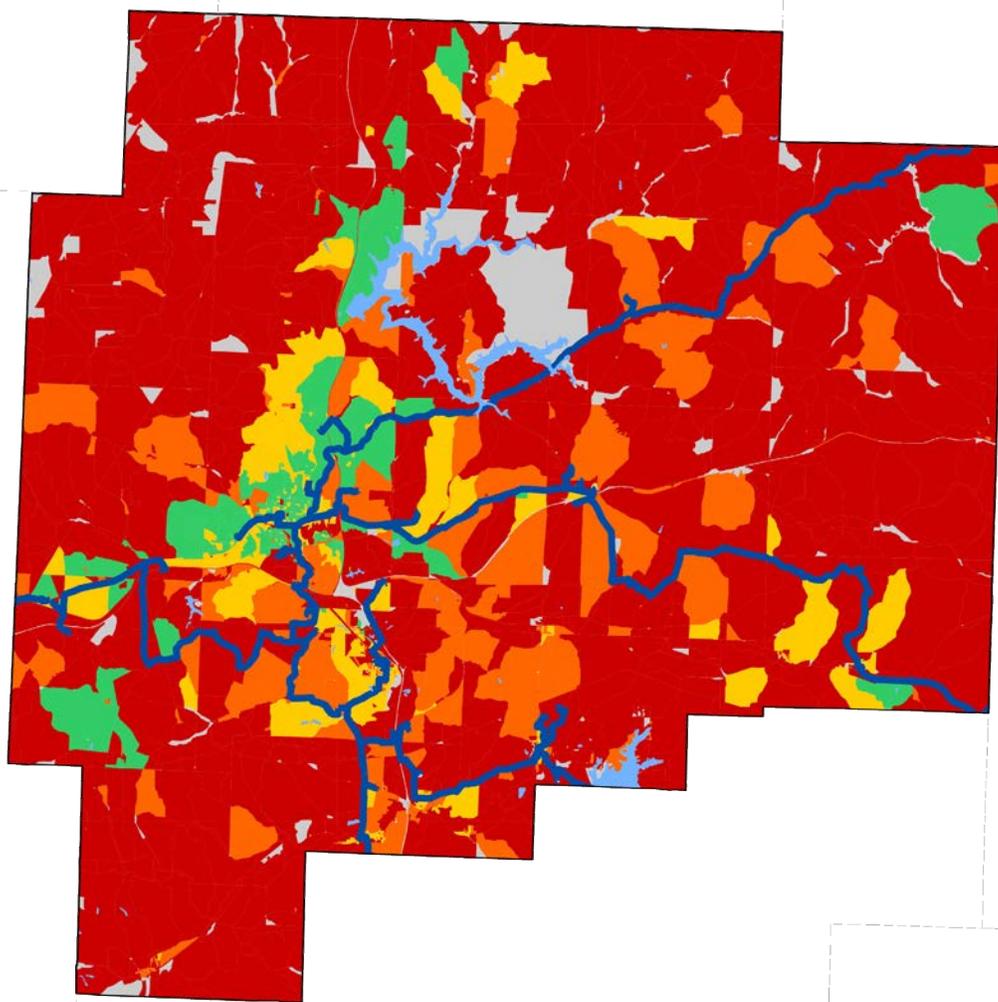
**= \$6,912**  
*Gap per household*

Cost estimates assume \$41,000 per mile for utility pole make-ready, \$40,000 per mile for high strand-count, aerial fiber.

\*See "Estimating Costs and Distances" (page 9) to learn more about these calculations.

# GUERNSEY COUNTY

## broadband profile



# 52%

of households

▶ **10,984**  
households

DO NOT HAVE  
ACCESS TO  
MINIMUM 25/3 Mbps

**7,598**

= 36% of  
households  
below 10/1 Mbps

<10/1 Mbps

>=10/1 <25/3 Mbps

>=25/3 <50/10 Mbps

>= 50/10 Mbps

no data /  
unpopulated

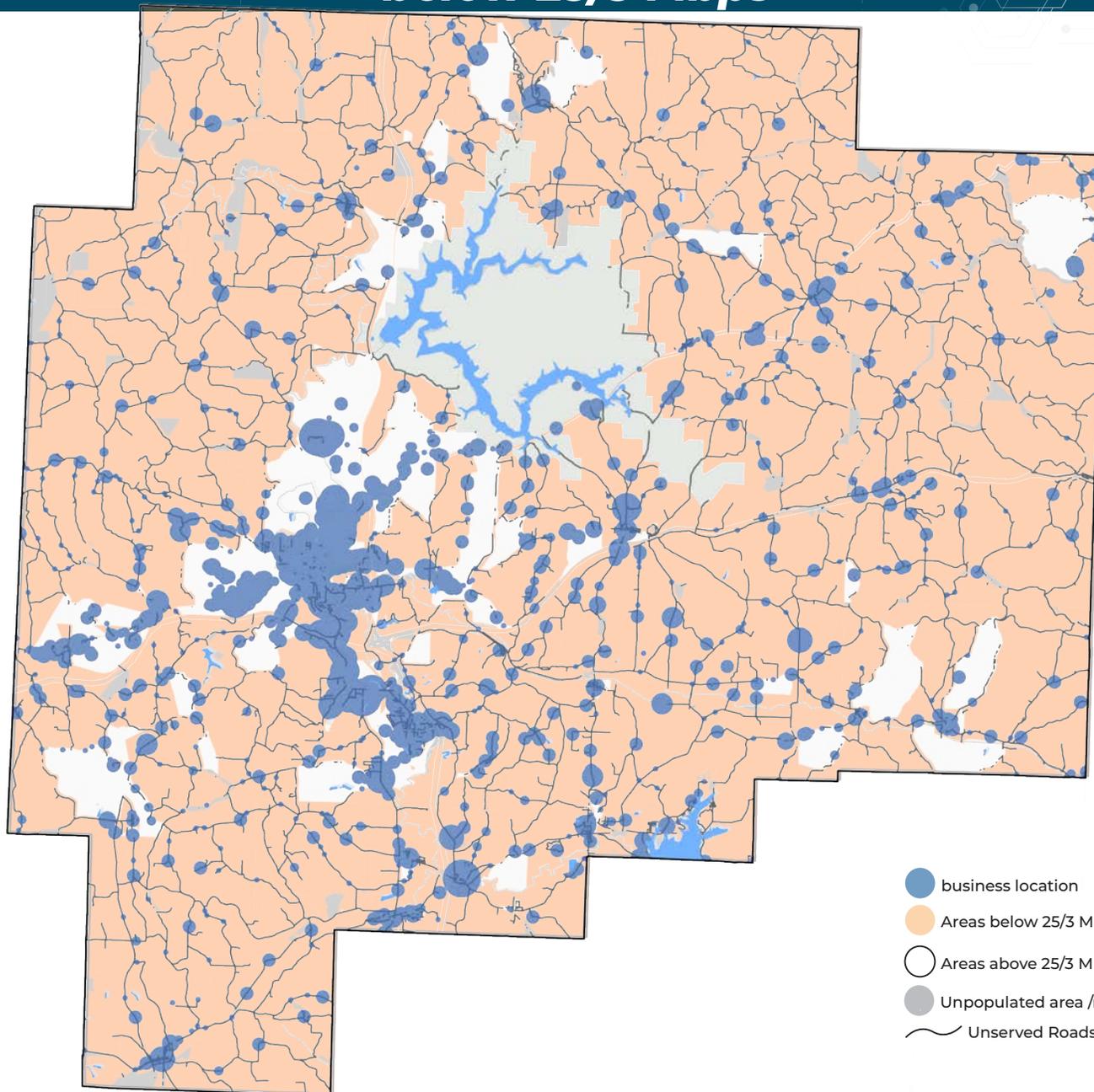
Existing Open Middle-Mile

**88%** of the populated area ▶ **443 miles<sup>2</sup>** do not have access to 25/3 Mbps

\*Coverage ratings reflect multiple sources, including Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021. See "About the Mapping" (page 7) for detailed methodology

# BUSINESS OPPORTUNITY AREAS

below 25/3 Mbps

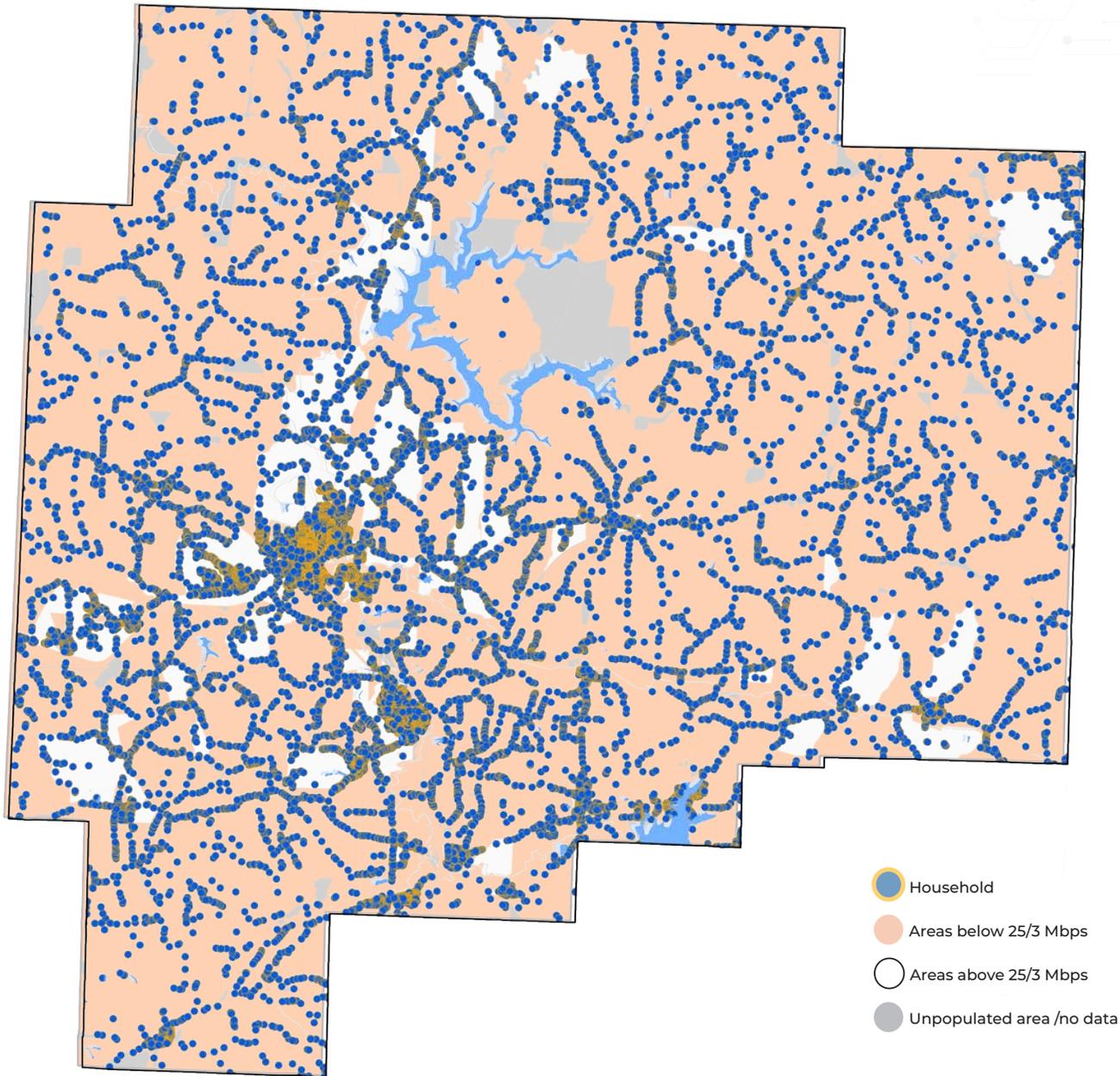


Business demand for broadband varies based on company size and economic sector. The greater the demand, the bigger the dot. The presence of a high-demand business or multiple businesses of any size will make that area significantly more attractive to a broadband provider.

*\*See "Business Broadband Opportunity Index" (page 8) for a detailed explanation of how dot size was determined*

# RESIDENTIAL OPPORTUNITY AREAS

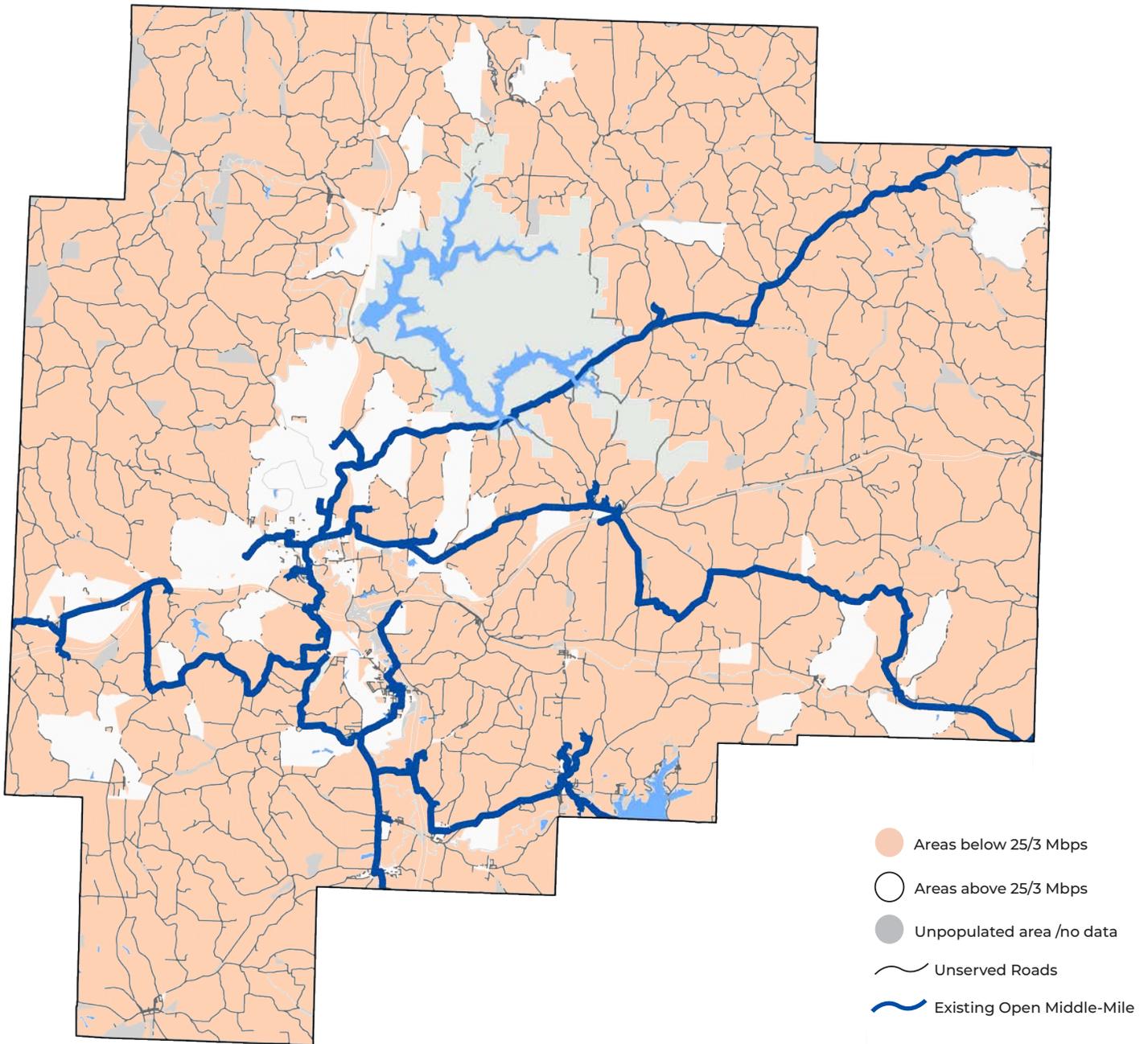
below 25/3 Mbps



**21,043** households **▶ 10,894** are below 25/3

# GUERNSEY COUNTY

..... *unserved roads*



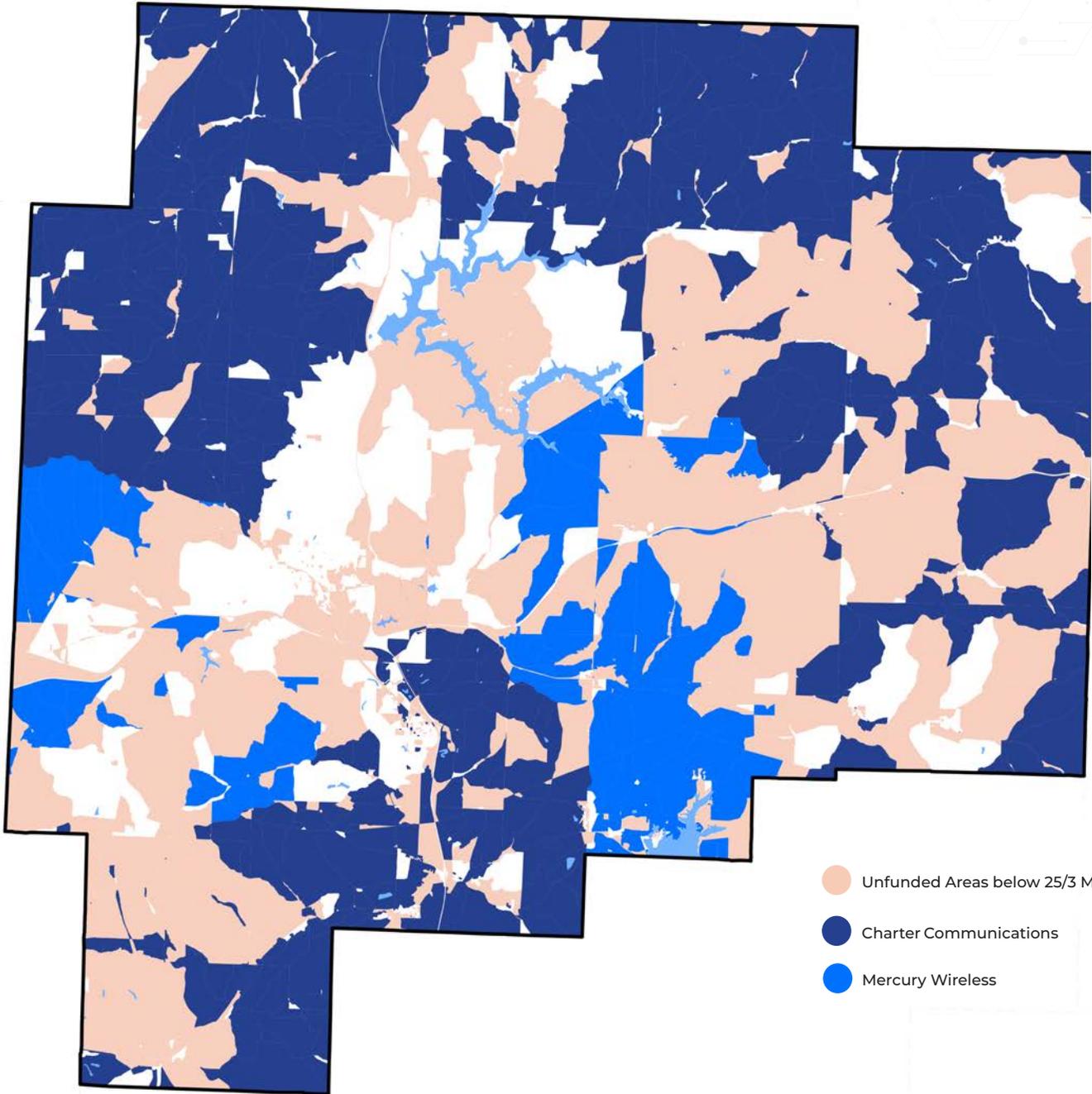
**975 miles**  
of unserved roads



**the amount of fiber needed  
to install fiber-to-the-home  
in areas below 25/3 Mbps**

# TENTATIVE AWARDS

## Rural Digital Opportunity Fund (RDOF)



The FCC's Rural Digital Opportunity Fund (RDOF) subsidizes internet providers to deploy broadband in unserved rural locations. In 2020, the FCC awarded a total of \$170 million to 11 internet providers in the state of Ohio. The majority of this funding remains tied up in financial due diligence, so many other funding programs consider such awards tentative.

# GUERNSEY COUNTY

cost to close the gap

**A FIBER NETWORK  
for the next 40 years**

## BUDGET

**\$86.8** MILLION  
*Total County Cost*

## OUTCOME

**10,894** *Unserved households passed*  
**11.2** *Households per fiber mile*

**\$18.7** MILLION **➔**  
*Projected internet provider investment*

**\$1,720**  
*Investment per household*

## FUNDING GAP

**\$68.1** MILLION

**975** MILES OF FIBER

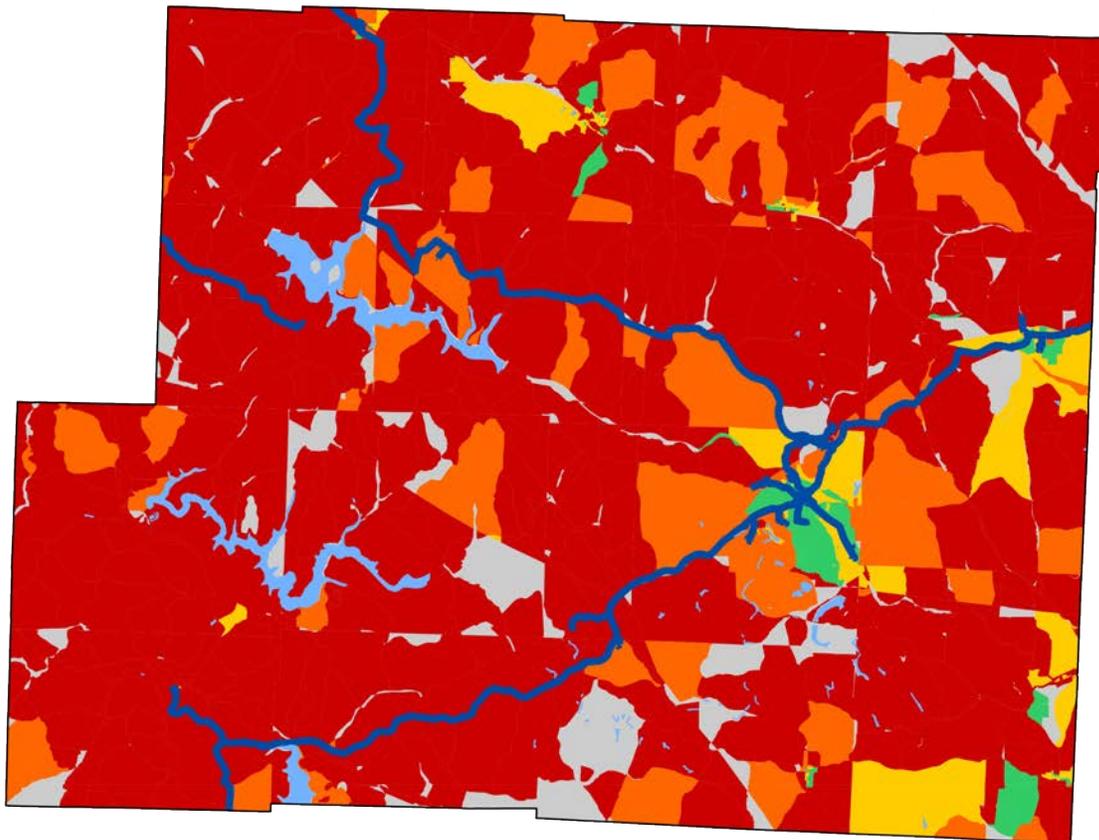
**= \$6,246**  
*Gap per household*

Cost estimates assume \$41,000 per mile for utility pole make-ready, \$40,000 per mile for high strand-count, aerial fiber.

\*See "Estimating Costs and Distances" (page 9) to learn more about these calculations.

# HARRISON COUNTY

## broadband profile



# 66%

of households

▶ **5,772**  
households

DO NOT HAVE  
ACCESS TO  
MINIMUM 25/3 Mbps

**4,318**

= 49% of  
households  
below 10/1 Mbps

<10/1 Mbps

>=10/1 <25/3 Mbps

>=25/3 <50/10 Mbps

>= 50/10 Mbps

no data /  
unpopulated

Existing Open Middle-Mile

# 94%

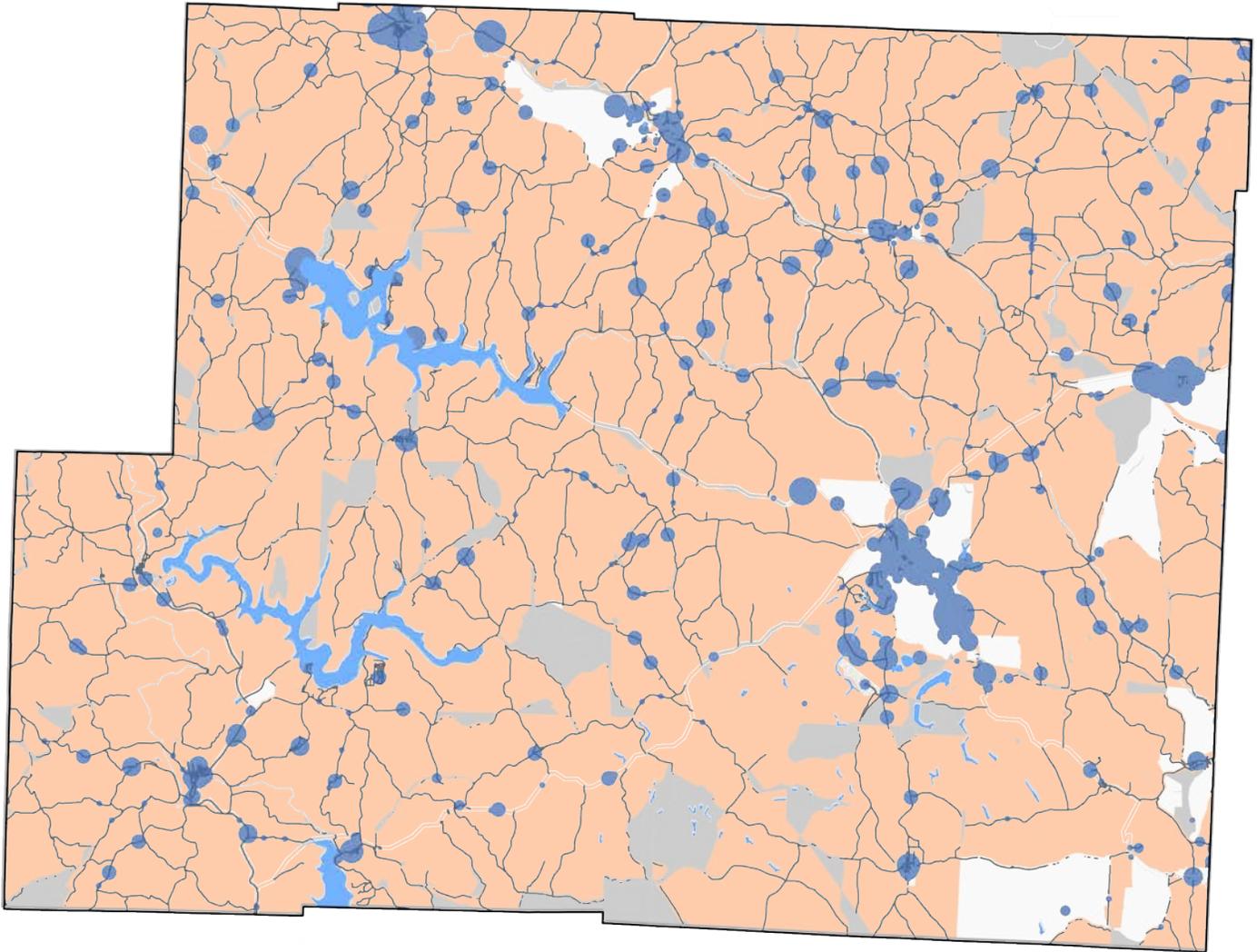
of the  
populated area

▶ **356 miles<sup>2</sup>** do not have access to 25/3 Mbps

\*Coverage ratings reflect multiple sources, including Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021. See "About the Mapping" (page 7) for detailed methodology

# BUSINESS OPPORTUNITY AREAS

below 25/3 Mbps



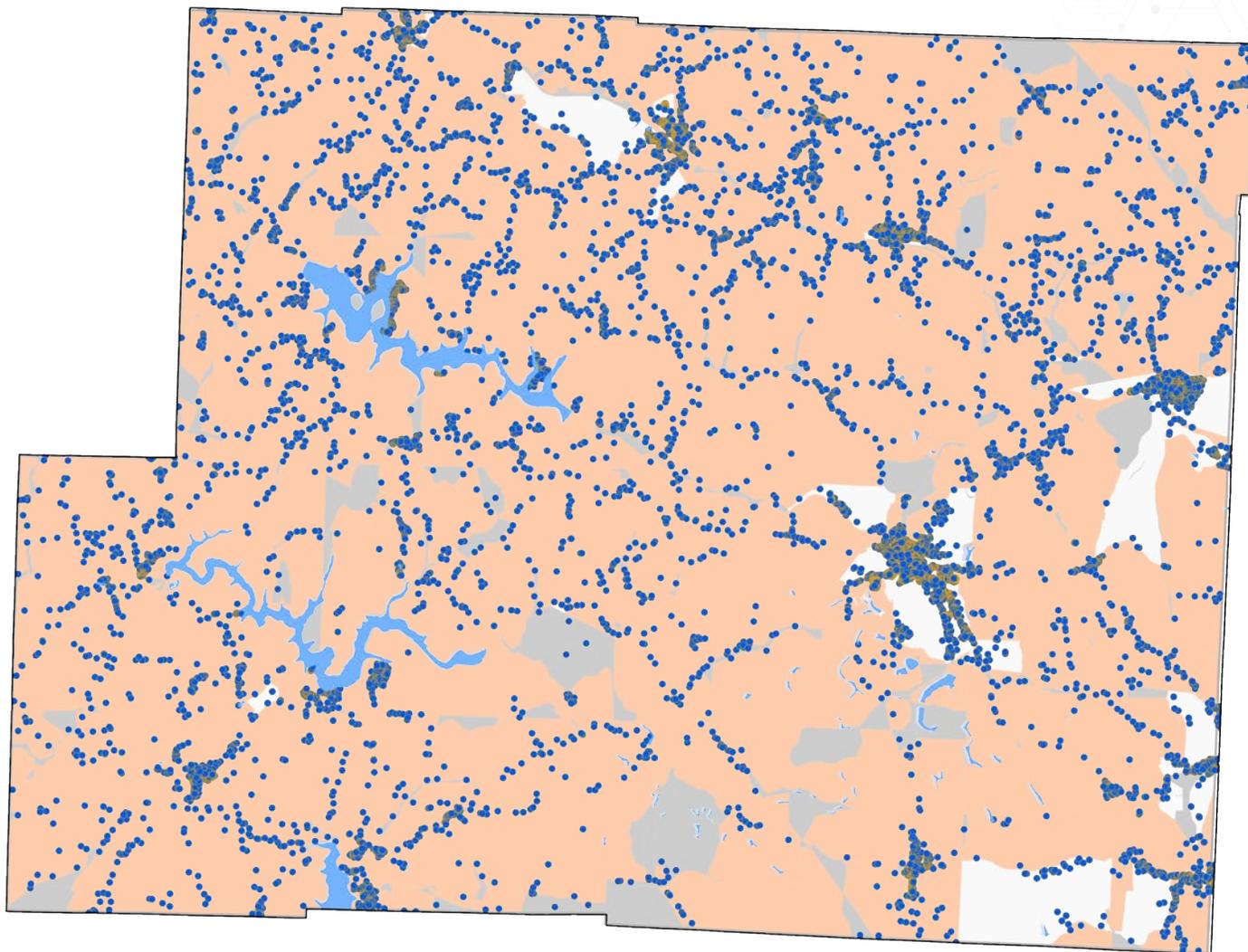
● business location   ● Areas below 25/3 Mbps   ○ Areas above 25/3 Mbps   ● Unpopulated area /no data   ~ Unserved Roads

Business demand for broadband varies based on company size and economic sector. The greater the demand, the bigger the dot. The presence of a high-demand business or multiple businesses of any size will make that area significantly more attractive to a broadband provider.

*\*See "Business Broadband Opportunity Index" (page 8) for a detailed explanation of how dot size was determined*

# RESIDENTIAL OPPORTUNITY AREAS

below 25/3 Mbps

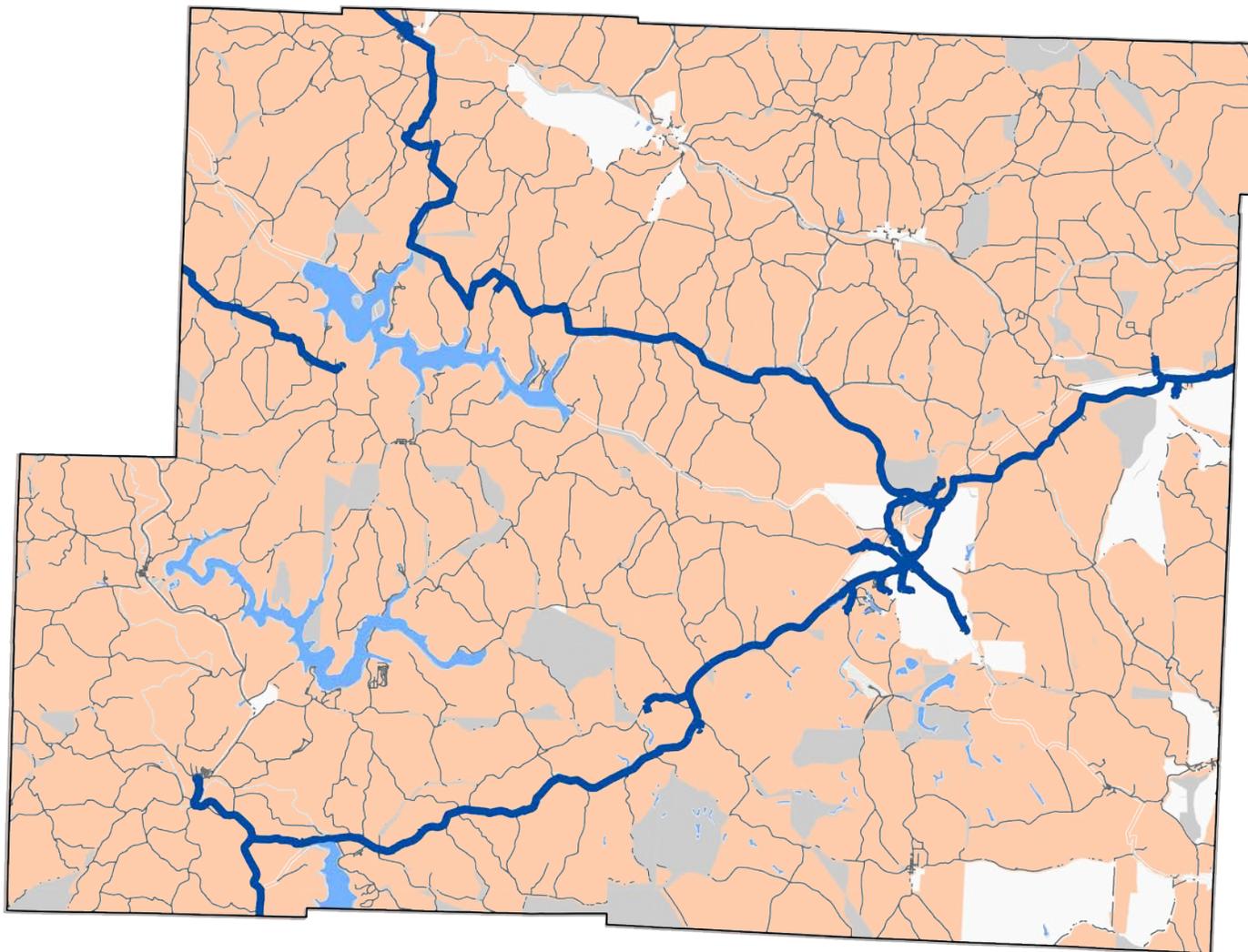


● Household ● Areas below 25/3 Mbps ○ Areas above 25/3 Mbps ● Unpopulated area /no data

**8,776** ▶ **5,772** are below 25/3  
households

# HARRISON COUNTY

unserved roads



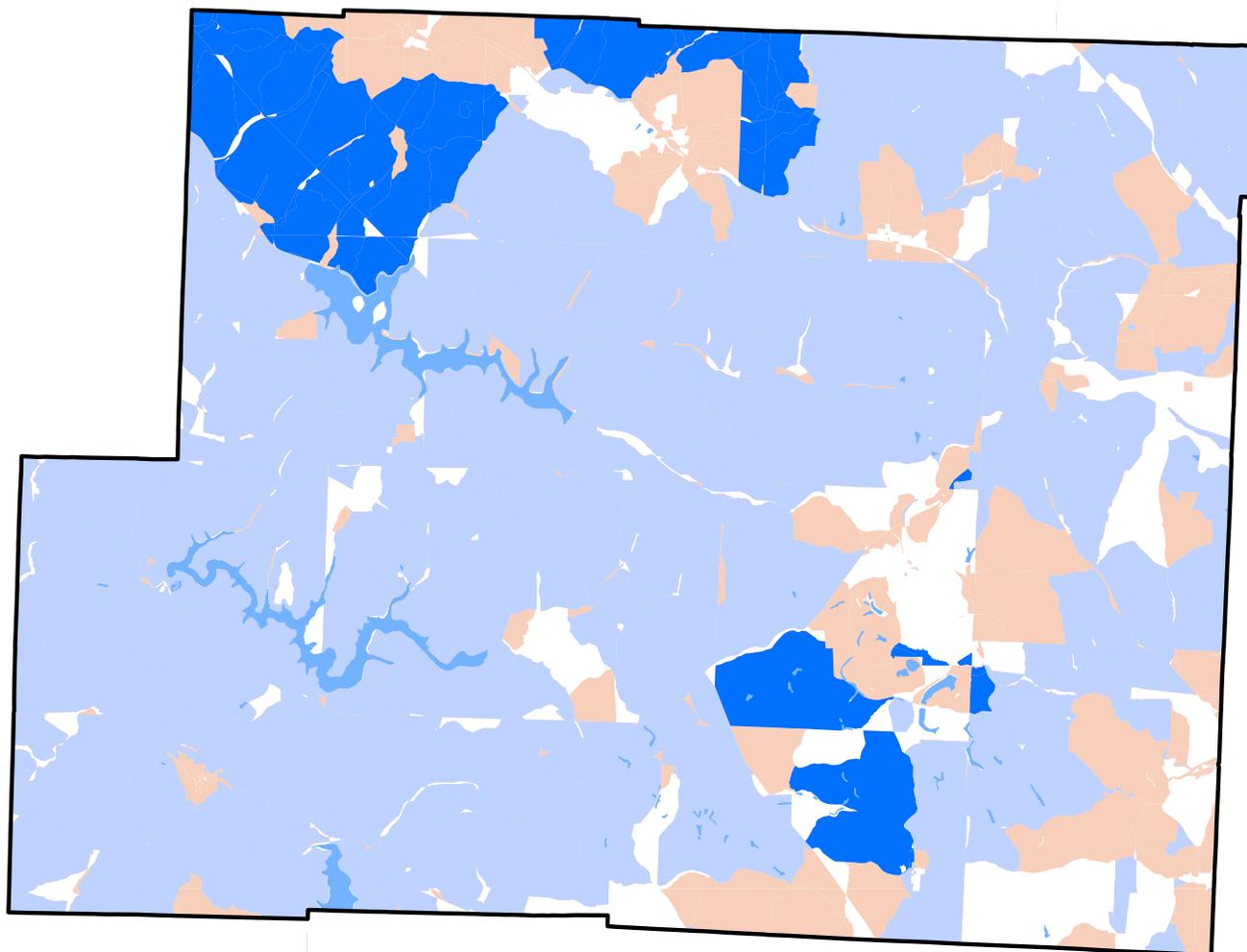
● Areas below 25/3 Mbps   ○ Areas above 25/3 Mbps   ● Unpopulated area /no data   ~ Unserved Roads   〰 Existing Open Middle-Mile

**695 miles**  
of unserved roads

**= the amount of fiber needed to install fiber-to-the-home in areas below 25/3 Mbps**

# TENTATIVE AWARDS

## Rural Digital Opportunity Fund (RDOF)



● Unfunded Areas below 25/3 Mbps    ● Connect Everyone    ● Mercury Wireless

The FCC's Rural Digital Opportunity Fund (RDOF) subsidizes internet providers to deploy broadband in unserved rural locations. In 2020, the FCC awarded a total of \$170 million to 11 internet providers in the state of Ohio. The majority of this funding remains tied up in financial due diligence, so many other funding programs consider such awards tentative.

# HARRISON COUNTY

cost to close the gap

**A FIBER NETWORK  
for the next 40 years**

## **BUDGET**

**\$60.4** MILLION  
*Total County Cost*

## **OUTCOME**

**5,772** *Unserved households passed*  
**8.3** *Households per fiber mile*

**\$9.9** MILLION  
*Projected internet provider investment*

**\$1,720**  
*Investment per household*

## **FUNDING GAP**

**\$50.5** MILLION

**695** MILES OF FIBER

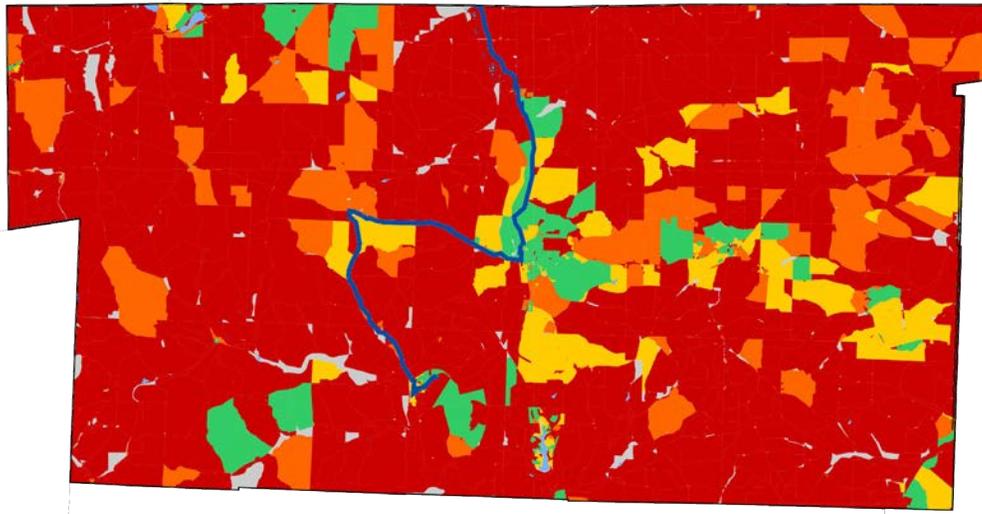
**= \$8,752**  
*Gap per household*

*Cost estimates assume \$41,000 per mile for utility pole make-ready, \$40,000 per mile for high strand-count, aerial fiber.*

*\*See "Estimating Costs and Distances" (page 9) to learn more about these calculations.*

# HOLMES COUNTY

..... broadband profile



**73%**  
of households

▶ **12,177**  
households  
DO NOT HAVE  
ACCESS TO  
MINIMUM 25/3 Mbps

**9,284**  
= 56% of  
households  
below 10/1 Mbps

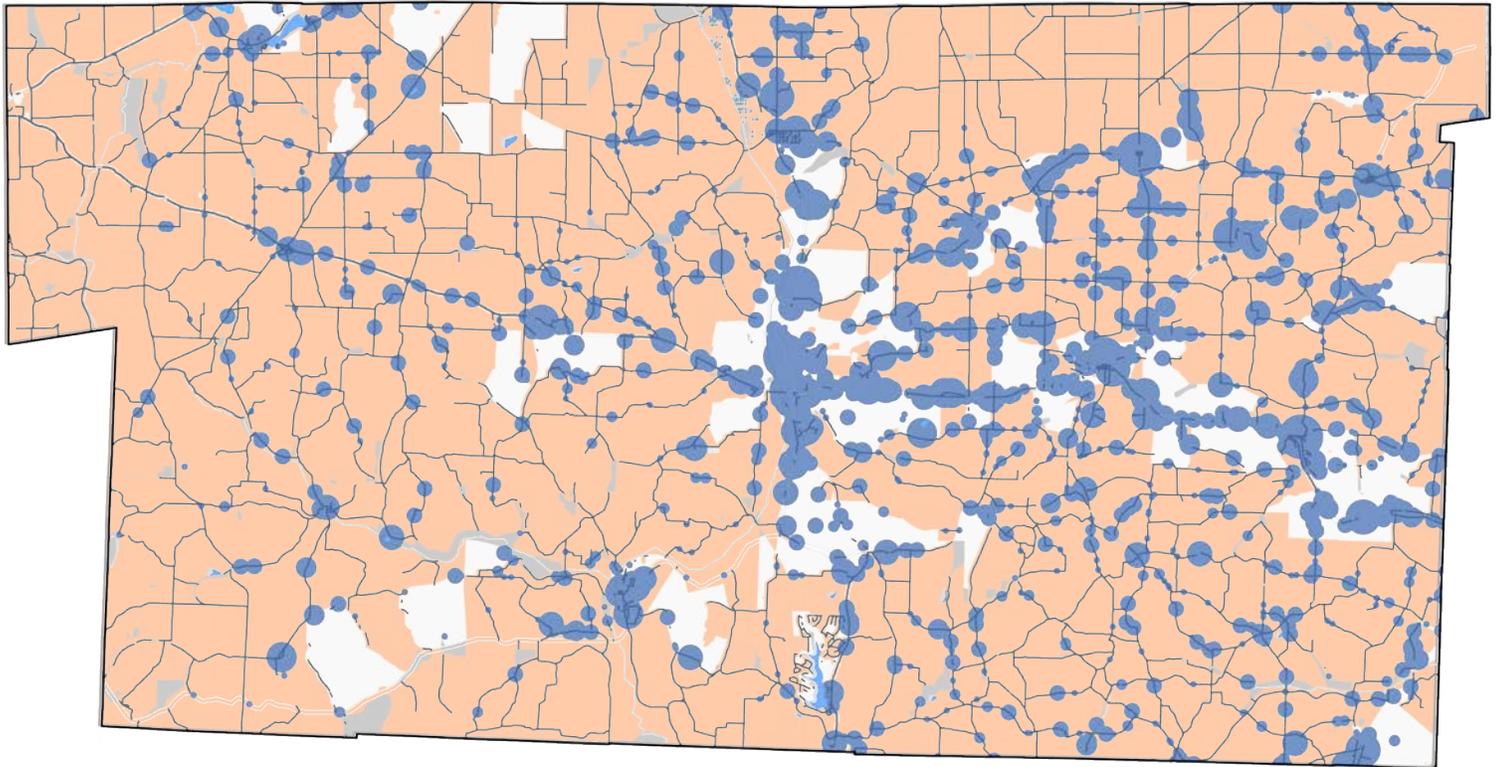


**88%** of the populated area ▶ **365 miles<sup>2</sup>** do not have access to 25/3 Mbps

\*Coverage ratings reflect multiple sources, including Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021. See "About the Mapping" (page 7) for detailed methodology

# BUSINESS OPPORTUNITY AREAS

below 25/3 Mbps



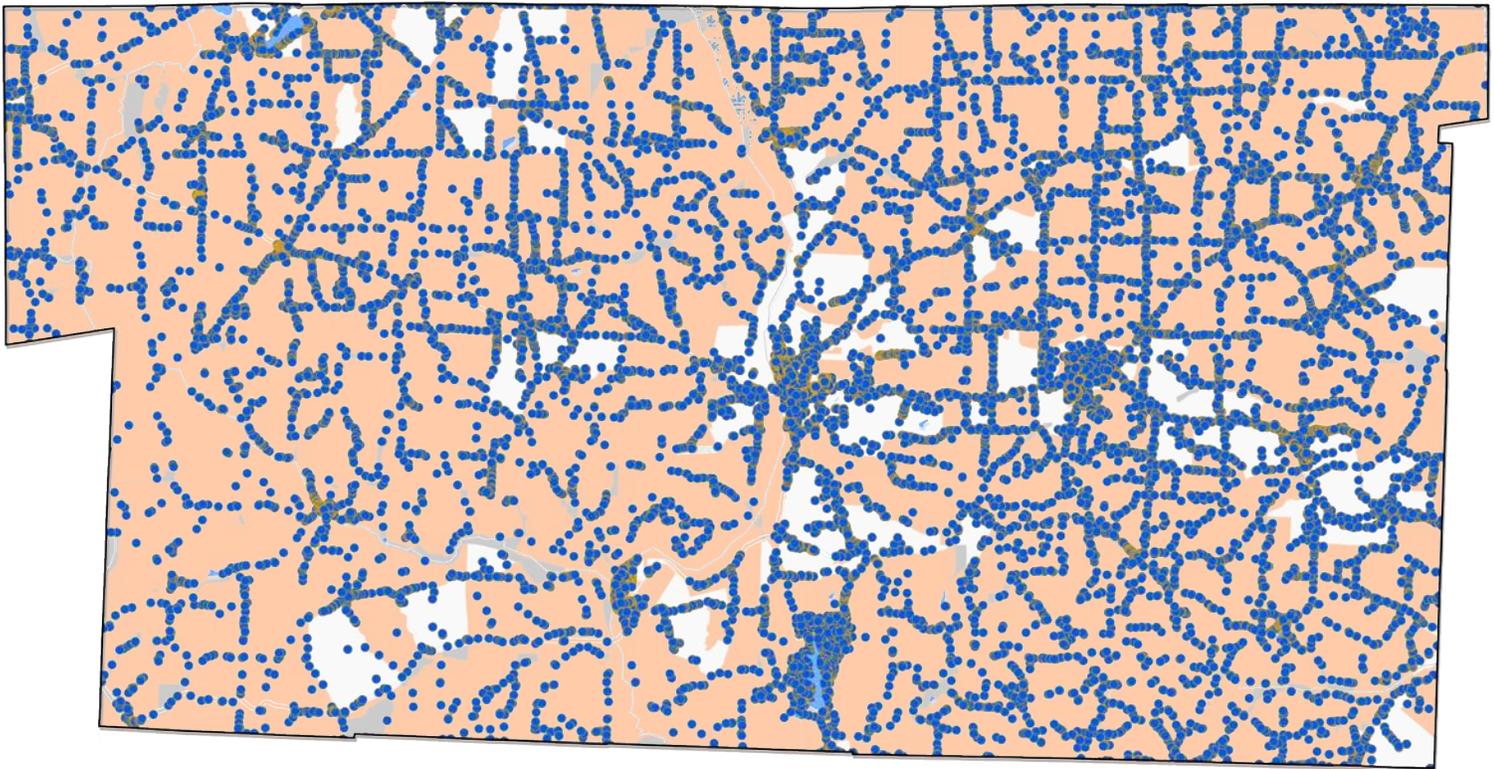
- business location
- Areas below 25/3 Mbps
- Areas above 25/3 Mbps
- Unpopulated area /no data
- ~ Unserved Roads

Business demand for broadband varies based on company size and economic sector. The greater the demand, the bigger the dot. The presence of a high-demand business or multiple businesses of any size will make that area significantly more attractive to a broadband provider.

*\*See "Business Broadband Opportunity Index" (page 8) for a detailed explanation of how dot size was determined*

# RESIDENTIAL OPPORTUNITY AREAS

below 25/3 Mbps



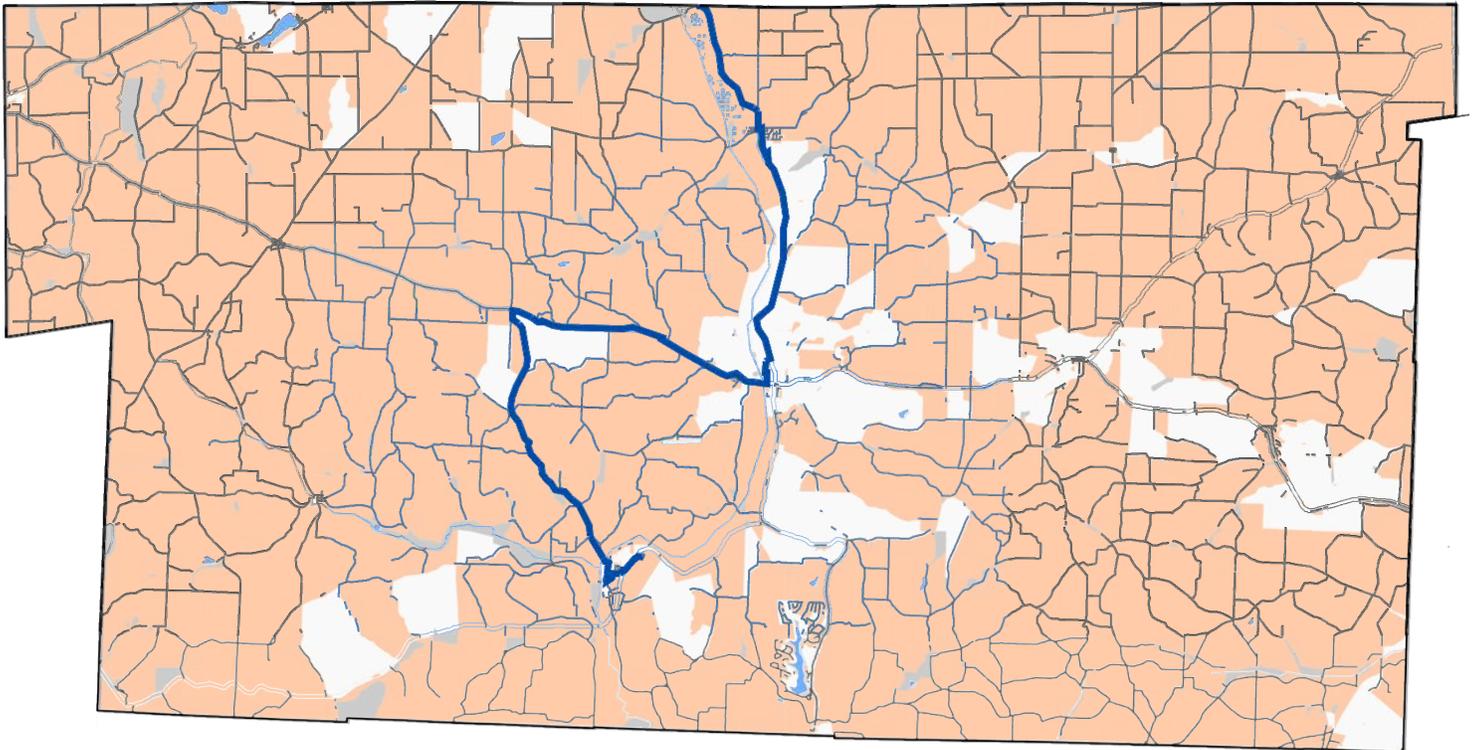
-  Household
-  Areas below 25/3 Mbps
-  Areas above 25/3 Mbps
-  Unpopulated area /no data

**16,581**  
*households*

▶ **12,177** are below 25/3

# HOLMES COUNTY

..... unserved roads



- Areas below 25/3 Mbps
- Areas above 25/3 Mbps
- Unpopulated area /no data
- ~ Unserved Roads
- ~ Existing Open Middle-Mile

**784 miles**  
of unserved roads

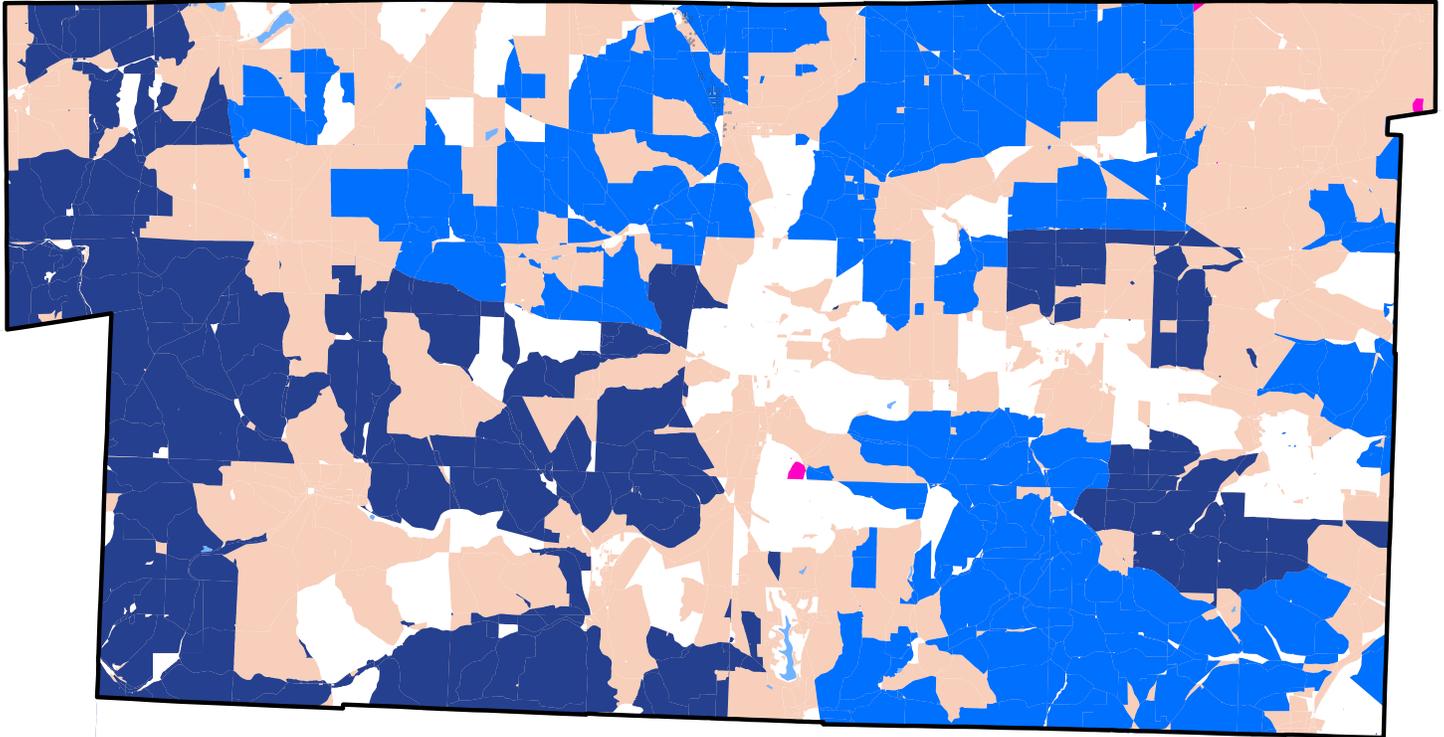


**the amount of fiber needed to  
install fiber-to-the-home in  
areas below 25/3 Mbps**



# TENTATIVE AWARDS

## Rural Digital Opportunity Fund (RDOF)



- Unfunded Areas below 25/3 Mbps
- Charter Communications
- Mercury Wireless
- LTD Broadband

The FCC's Rural Digital Opportunity Fund (RDOF) subsidizes internet providers to deploy broadband in unserved rural locations. In 2020, the FCC awarded a total of \$170 million to 11 internet providers in the state of Ohio. The majority of this funding remains tied up in financial due diligence, so many other funding programs consider such awards tentative.

# HOLMES COUNTY

cost to close the gap

**A FIBER NETWORK  
for the next 40 years**

## BUDGET

**\$74.4** MILLION

Total County Cost

## OUTCOME

**12,177** Unserved households passed

**15.5** Households per fiber mile

**\$23.1** MILLION

Projected internet provider investment

**\$1,900**

Investment per household

## FUNDING GAP

**\$51.3** MILLION

**784** MILES OF FIBER

**= \$4,214**

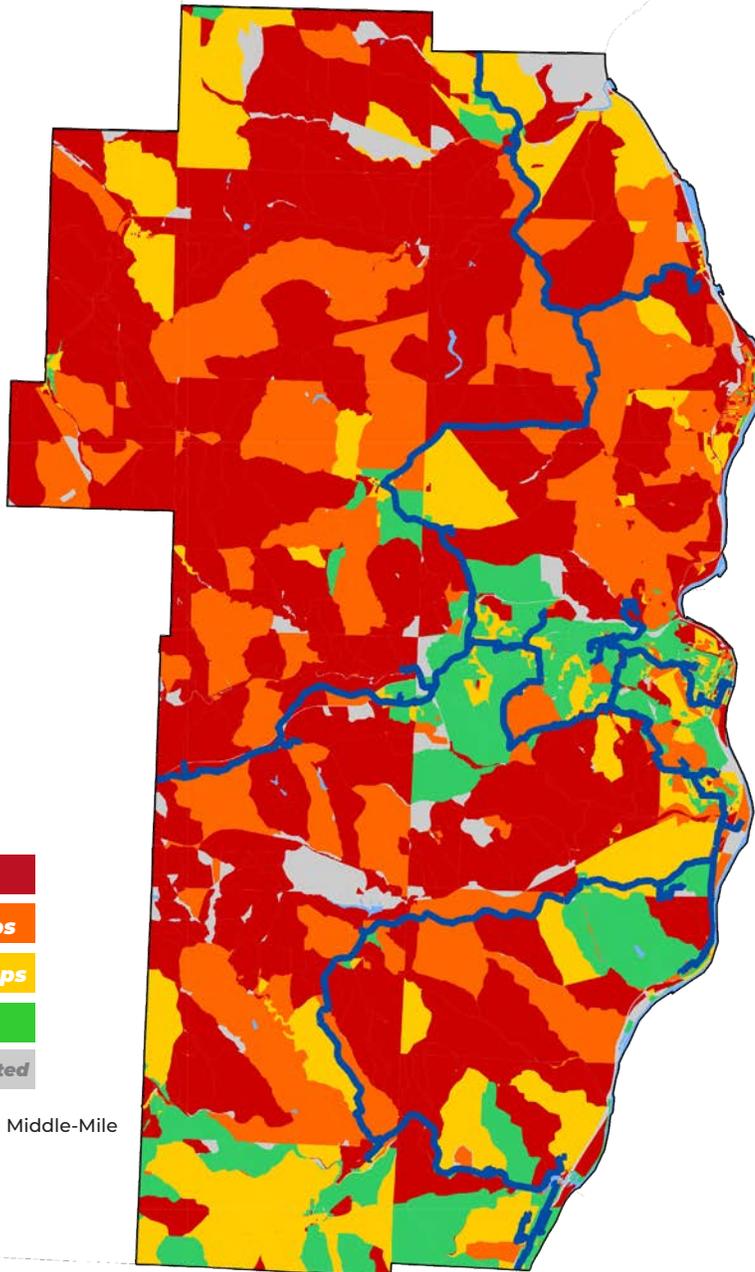
Gap per household

Cost estimates assume \$41,000 per mile for utility pole make-ready, \$40,000 per mile for high strand-count, aerial fiber.

\*See "Estimating Costs and Distances" (page 9) to learn more about these calculations.

# JEFFERSON COUNTY

## broadband profile



# 38%

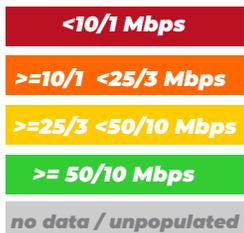
of households

▶ **12,503**  
households

DO NOT HAVE  
ACCESS TO  
MINIMUM 25/3 Mbps

**5,815**

= 17% of  
households  
below 10/1 Mbps



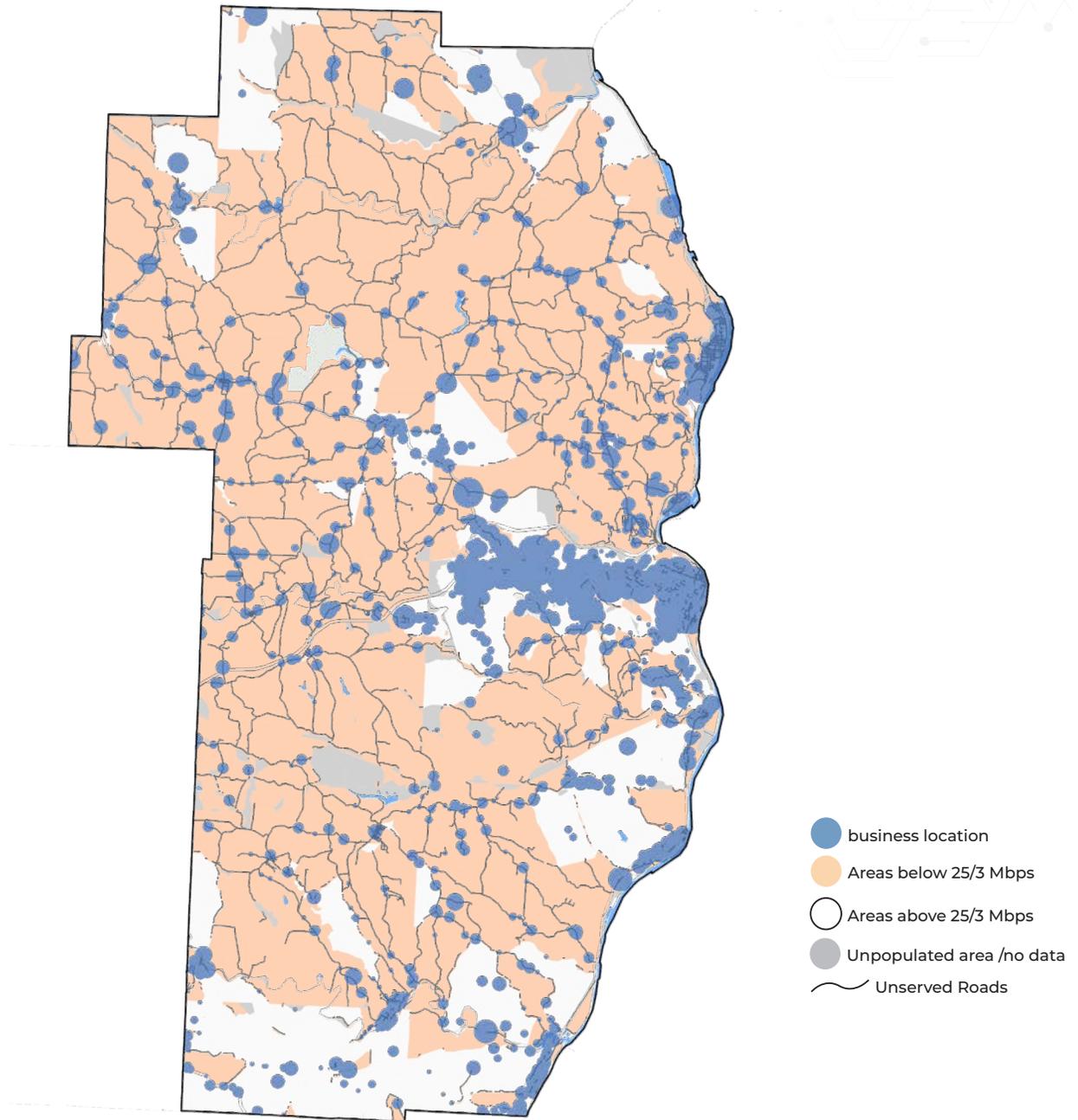
Existing Open Middle-Mile

**75%** of the populated area ▶ **293 miles<sup>2</sup>** do not have access to 25/3 Mbps

\*Coverage ratings reflect multiple sources, including Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021. See "About the Mapping" (page 7) for detailed methodology

# BUSINESS OPPORTUNITY AREAS

below 25/3 Mbps

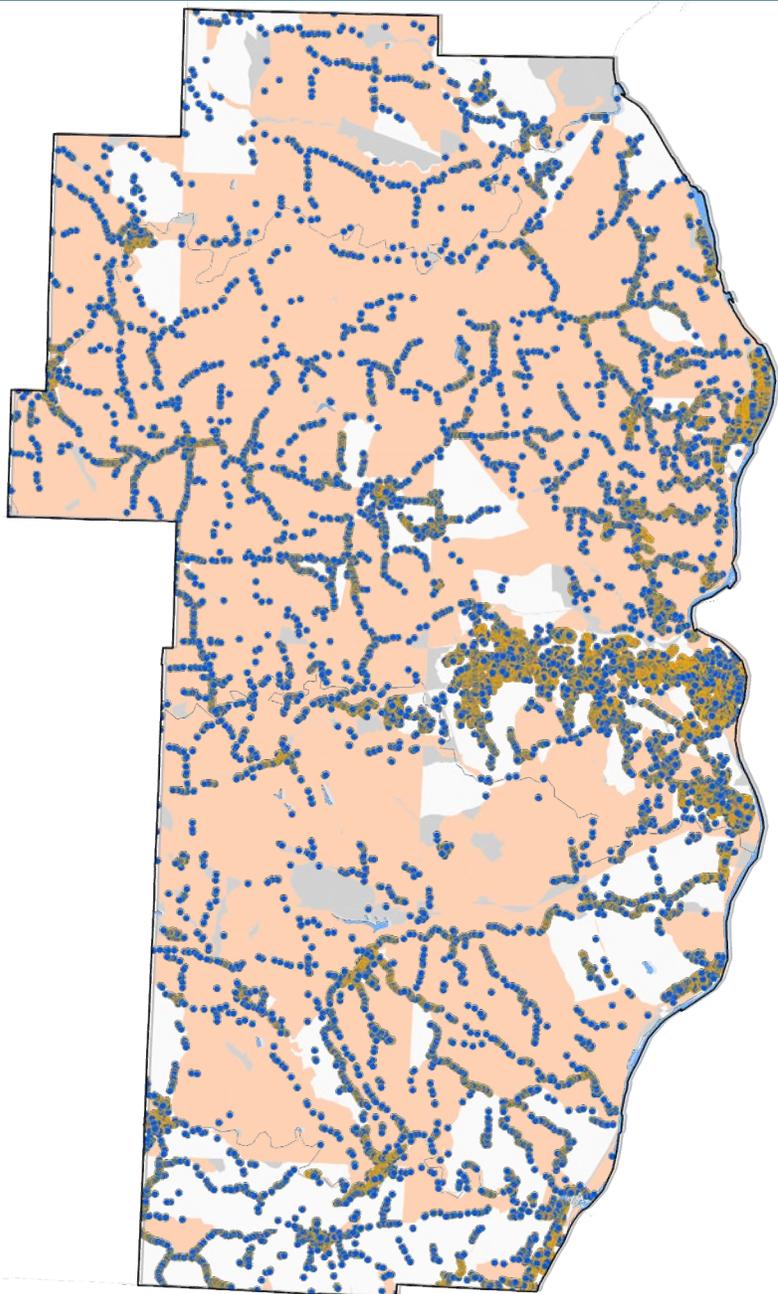


Business demand for broadband varies based on company size and economic sector. The greater the demand, the bigger the dot. The presence of a high-demand business or multiple businesses of any size will make that area significantly more attractive to a broadband provider.

*\*See "Business Broadband Opportunity Index" (page 8) for a detailed explanation of how dot size was determined*

# RESIDENTIAL OPPORTUNITY AREAS

below 25/3 Mbps



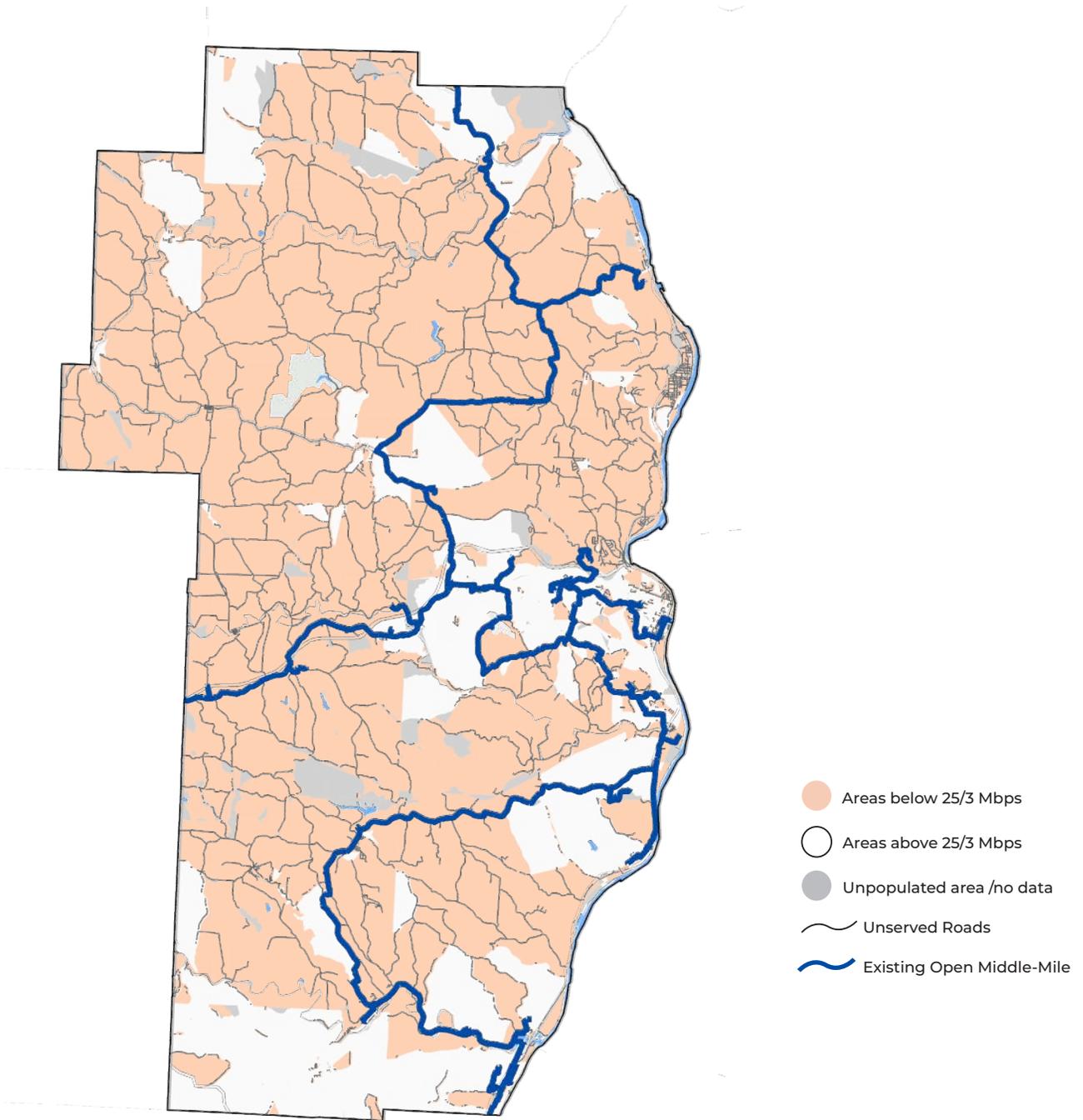
-  Household
-  Areas below 25/3 Mbps
-  Areas above 25/3 Mbps
-  Unpopulated area /no data

**33,289**  
households

▶ **12,503** are below 25/3

# JEFFERSON COUNTY

..... unserved roads

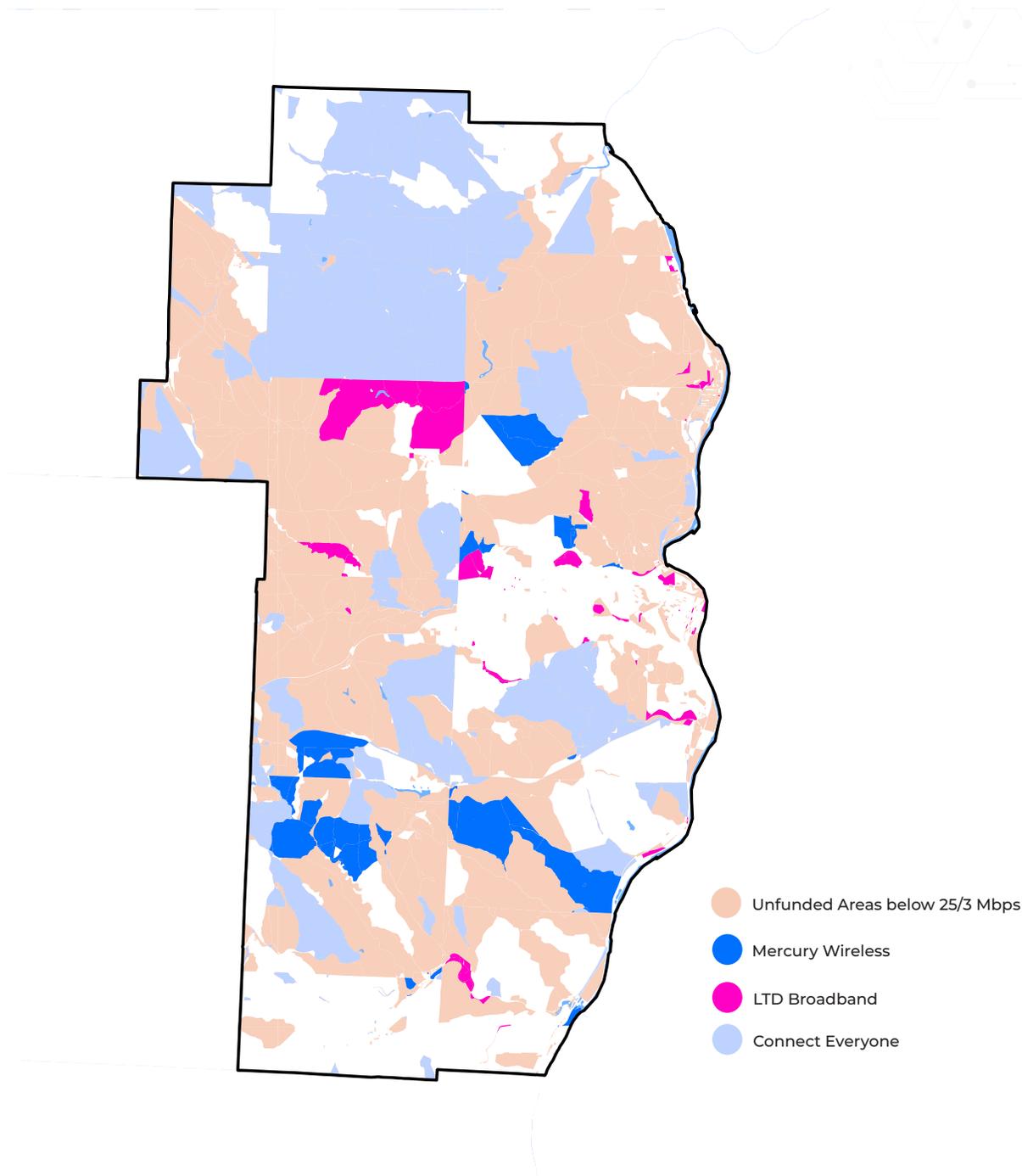


**673 miles**  
of unserved roads

**= the amount of fiber needed to install fiber-to-the-home in areas below 25/3 Mbps**

# TENTATIVE AWARDS

## Rural Digital Opportunity Fund (RDOF)



The FCC's Rural Digital Opportunity Fund (RDOF) subsidizes internet providers to deploy broadband in unserved rural locations. In 2020, the FCC awarded a total of \$170 million to 11 internet providers in the state of Ohio. The majority of this funding remains tied up in financial due diligence, so many other funding programs consider such awards tentative.

# JEFFERSON COUNTY

cost to close the gap

**A FIBER NETWORK  
for the next 40 years**

## BUDGET

**\$63.5** MILLION

*Total County Cost*

## OUTCOME

**12,503** *Unserved households passed*  
**18.6** *Households per fiber mile*

**\$21.5** MILLION ➔

*Projected  
internet provider investment*

**\$1,720**

*Investment per household*

## **FUNDING GAP**

**\$42** MILLION

**673** MILES OF FIBER

**= \$3,359**

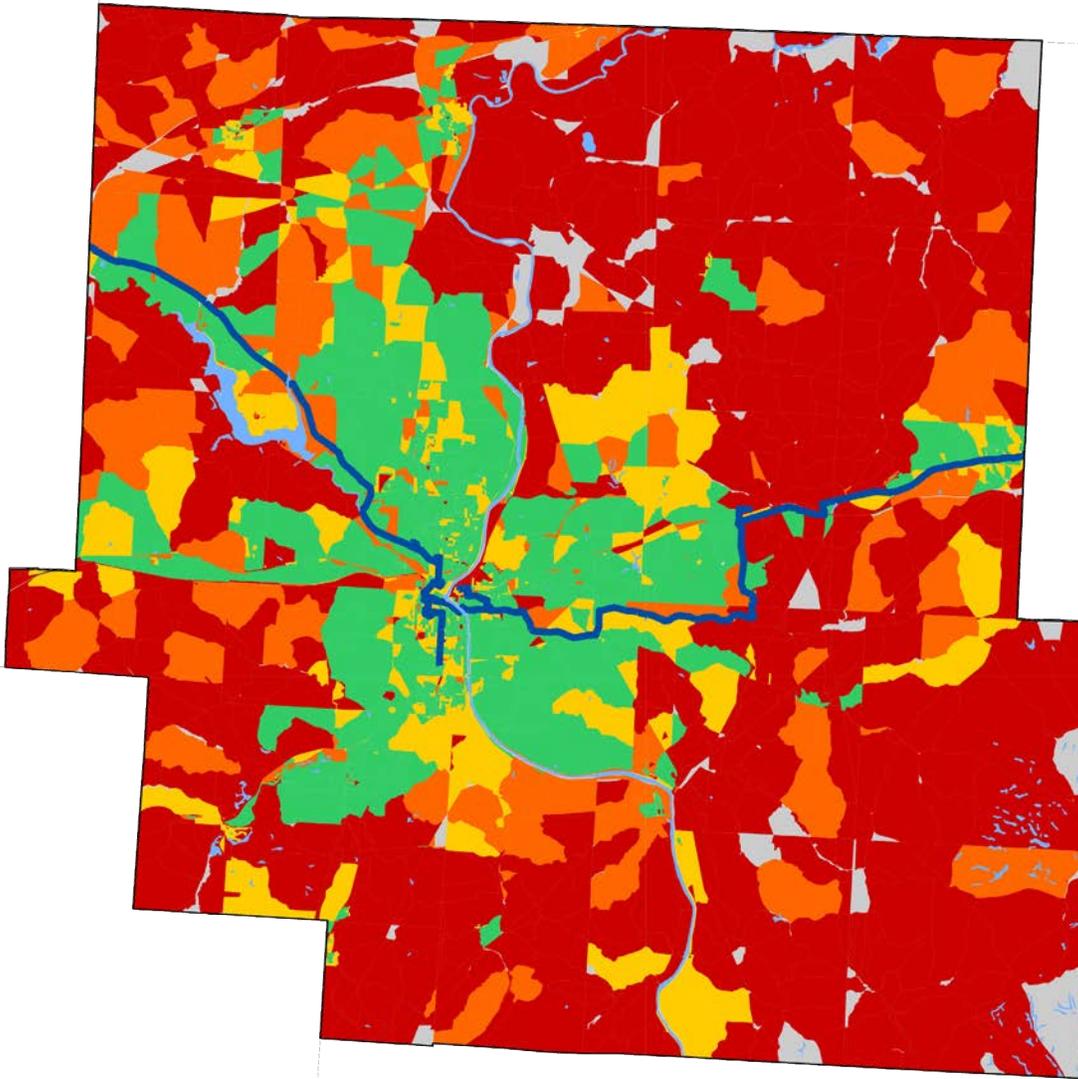
**Gap per household**

*Cost estimates assume \$41,000 per mile for utility pole make-ready, \$40,000 per mile for high strand-count, aerial fiber.*

*\*See "Estimating Costs and Distances" (page 9) to learn more about these calculations.*

# MUSKINGUM COUNTY

## broadband profile



**24%**

**of households**

▶ **10,139**  
households

**DO NOT HAVE  
ACCESS TO  
MINIMUM 25/3 Mbps**

**6,422**

**= 15% of  
households  
below 10/1 Mbps**

<10/1 Mbps

>=10/1 <25/3 Mbps

>=25/3 <50/10 Mbps

>= 50/10 Mbps

no data /  
unpopulated

Existing Open Middle-Mile

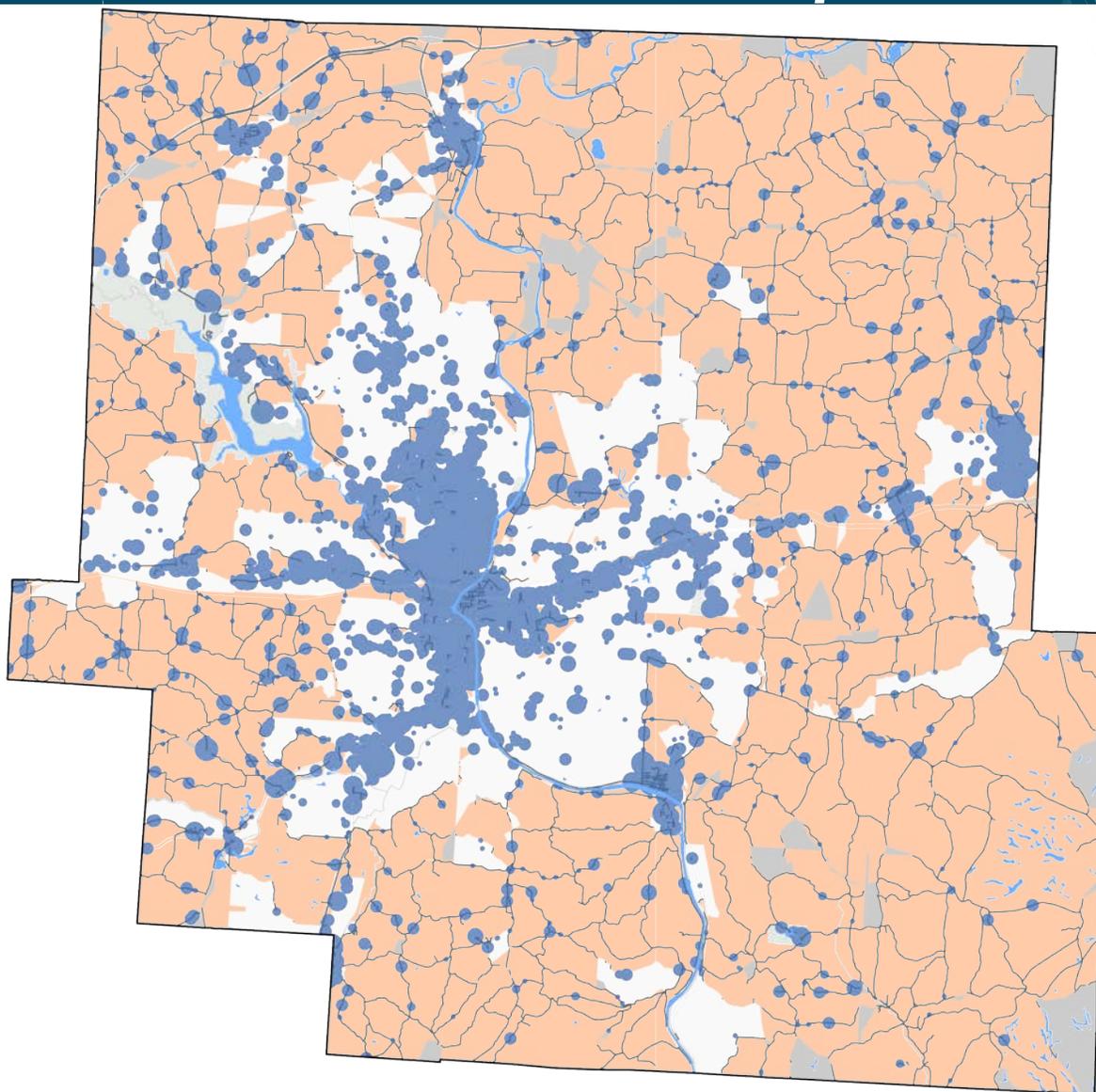
**74%** of the  
populated area

▶ **477 miles<sup>2</sup>** do not have access to 25/3 Mbps

\*Coverage ratings reflect multiple sources, including Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021. See "About the Mapping" (page 7) for detailed methodology

# BUSINESS OPPORTUNITY AREAS

below 25/3 Mbps



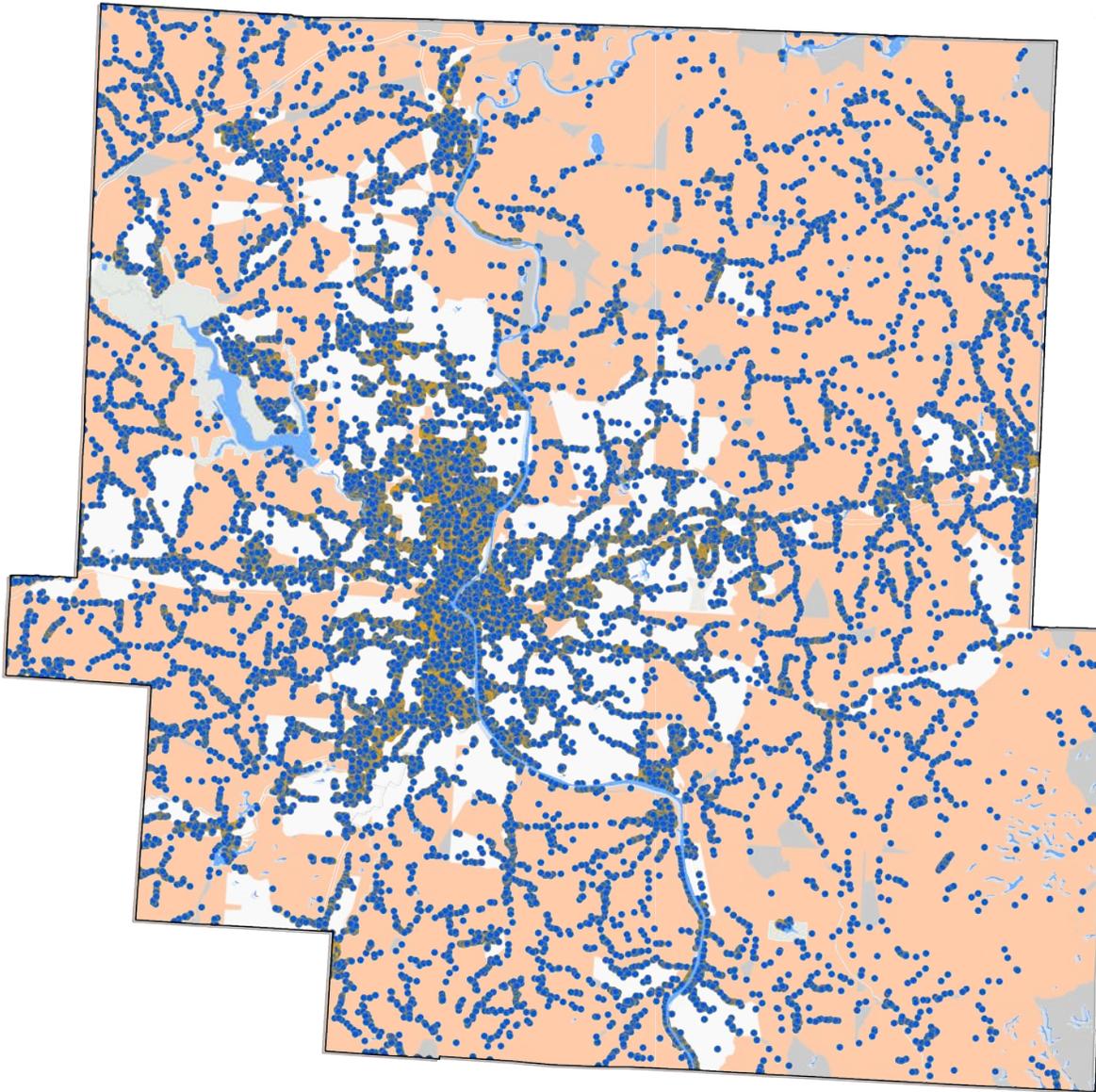
● business location   ● Areas below 25/3 Mbps   ○ Areas above 25/3 Mbps   ● Unpopulated area /no data   ~ Unserved Roads

Business demand for broadband varies based on company size and economic sector. The greater the demand, the bigger the dot. The presence of a high-demand business or multiple businesses of any size will make that area significantly more attractive to a broadband provider.

*\*See "Business Broadband Opportunity Index" (page 8) for a detailed explanation of how dot size was determined*

# RESIDENTIAL OPPORTUNITY AREAS

below 25/3 Mbps

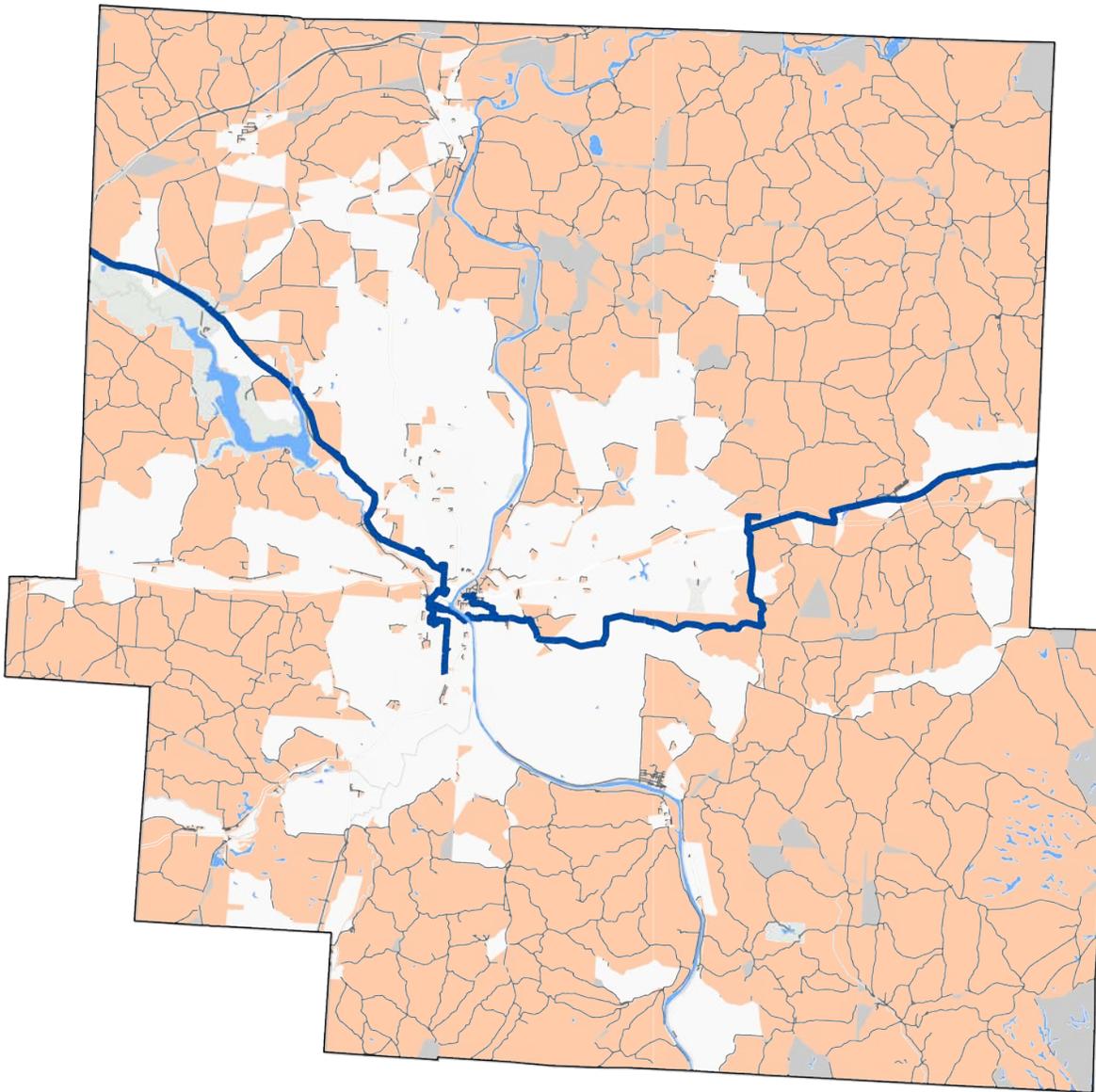


● Household   ● Areas below 25/3 Mbps   ○ Areas above 25/3 Mbps   ● Unpopulated area /no data

**42,134** households ▶ **10,139** are below 25/3

# MUSKINGUM COUNTY

unerved roads



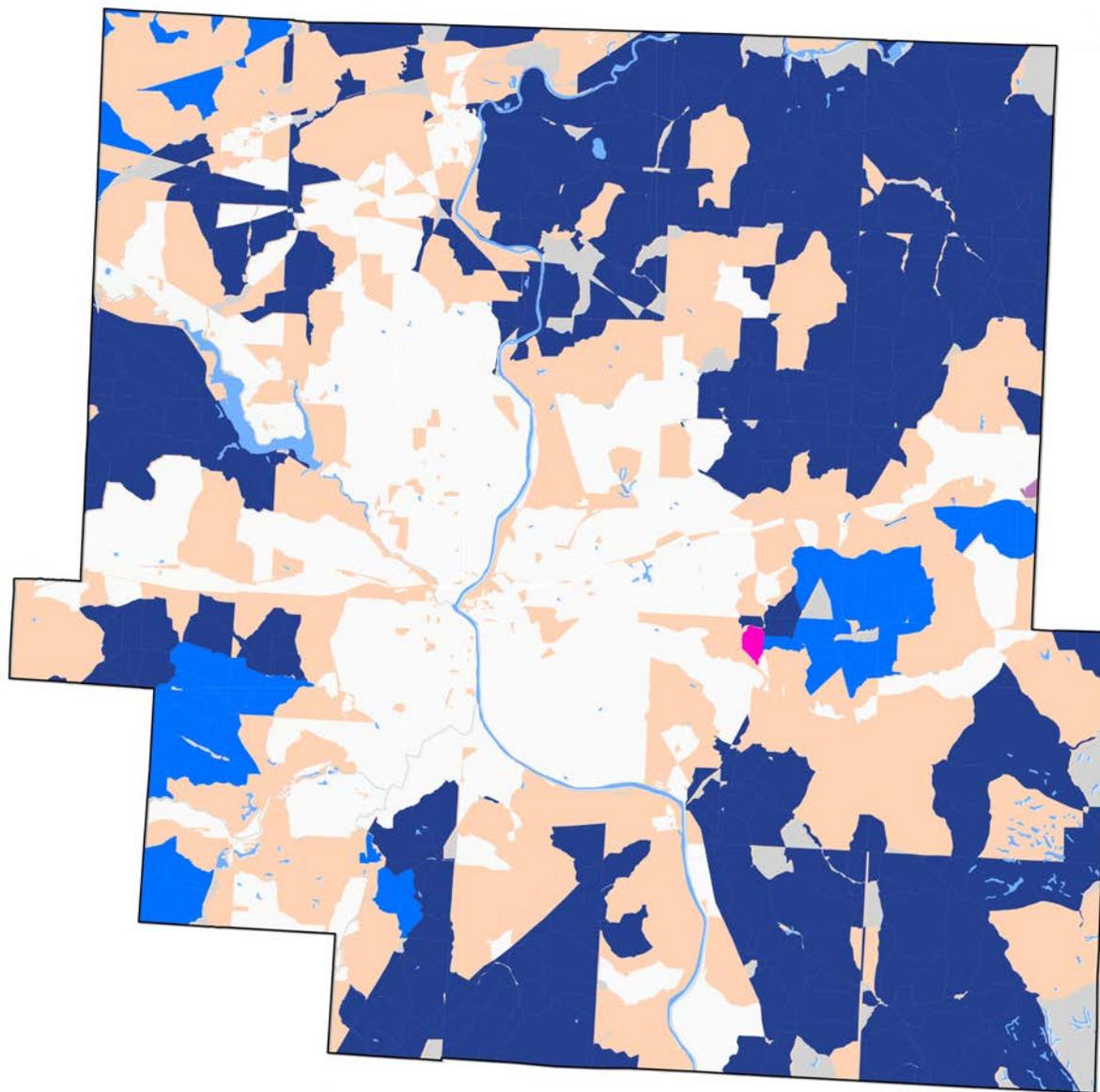
● Areas below 25/3 Mbps   ○ Areas above 25/3 Mbps   ● Unpopulated area /no data   ~ Unserved Roads   ~ Existing Open Middle-Mile

**910 miles**  
of unserved roads

**= the amount of fiber needed to install fiber-to-the-home in areas below 25/3 Mbps**

# TENTATIVE AWARDS

## Rural Digital Opportunity Fund (RDOF)



● Unfunded Areas below 25/3 Mbps    ● Charter Communications    ● LTD Broadband

The FCC's Rural Digital Opportunity Fund (RDOF) subsidizes internet providers to deploy broadband in unserved rural locations. In 2020, the FCC awarded a total of \$170 million to 11 internet providers in the state of Ohio. The majority of this funding remains tied up in financial due diligence, so many other funding programs consider such awards tentative.

# MUSKINGUM COUNTY

cost to close the gap

**A FIBER NETWORK  
for the next 40 years**

## BUDGET

**\$81** MILLION  
Total County Cost

## OUTCOME

**10,139** Unserved households passed  
**11.1** Households per fiber mile

**\$17.4** MILLION →  
Projected internet provider investment

**\$1,720**  
Investment per household

## FUNDING GAP

**\$63.6** MILLION

**910** MILES OF FIBER

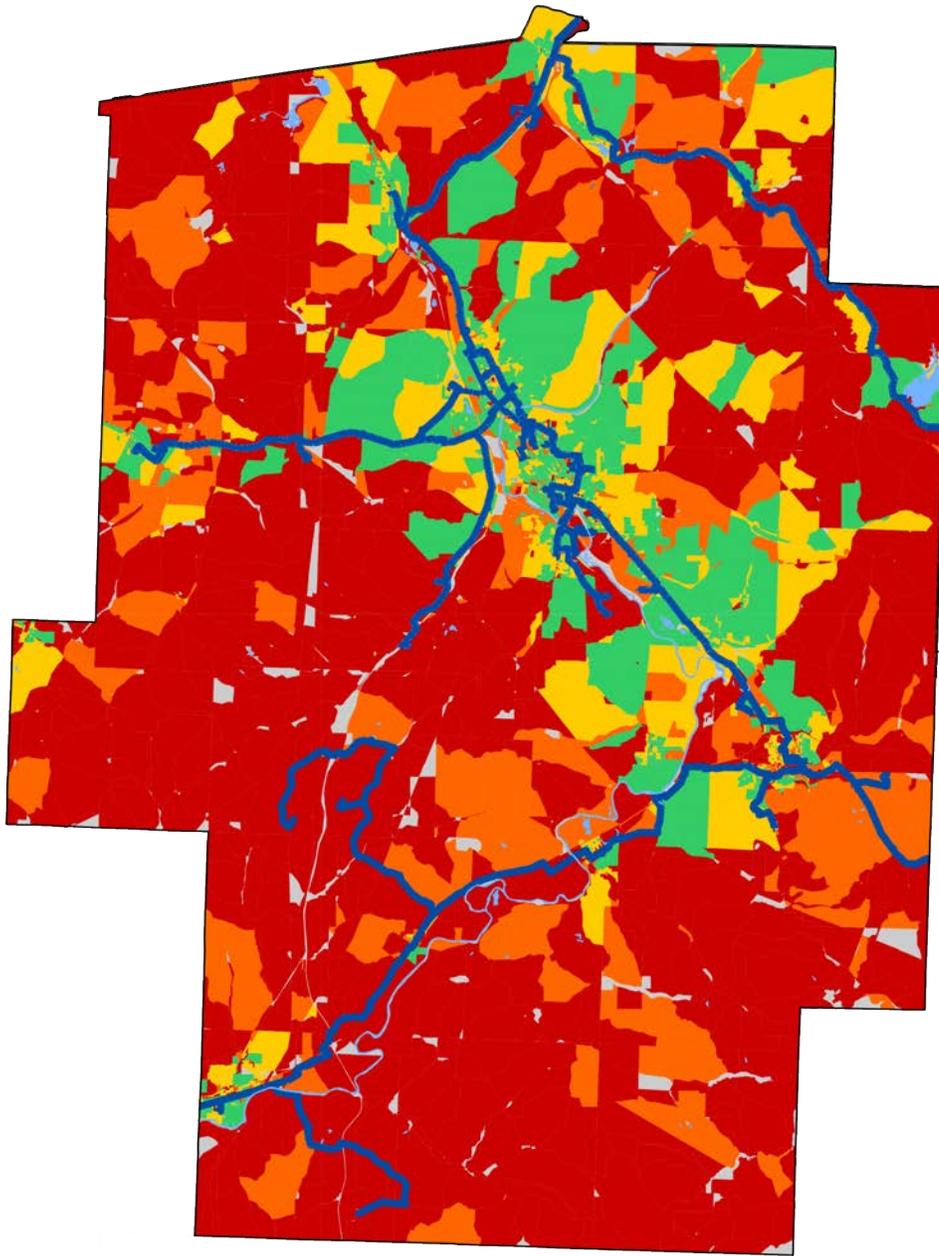
**= \$6,273**  
Gap per household

Cost estimates assume \$41,000 per mile for utility pole make-ready, \$40,000 per mile for high strand-count, aerial fiber.

\*See "Estimating Costs and Distances" (page 9) to learn more about these calculations.

# TUSCARAWAS COUNTY

broadband profile



# 30%

of households

▶ **12,990**  
households

DO NOT HAVE  
ACCESS TO  
MINIMUM 25/3 Mbps

**7,981**

= 19% of  
households  
below 10/1 Mbps

<10/1 Mbps

>=10/1 <25/3 Mbps

>=25/3 <50/10 Mbps

>= 50/10 Mbps

no data / unpopulated

Existing Open Middle-Mile

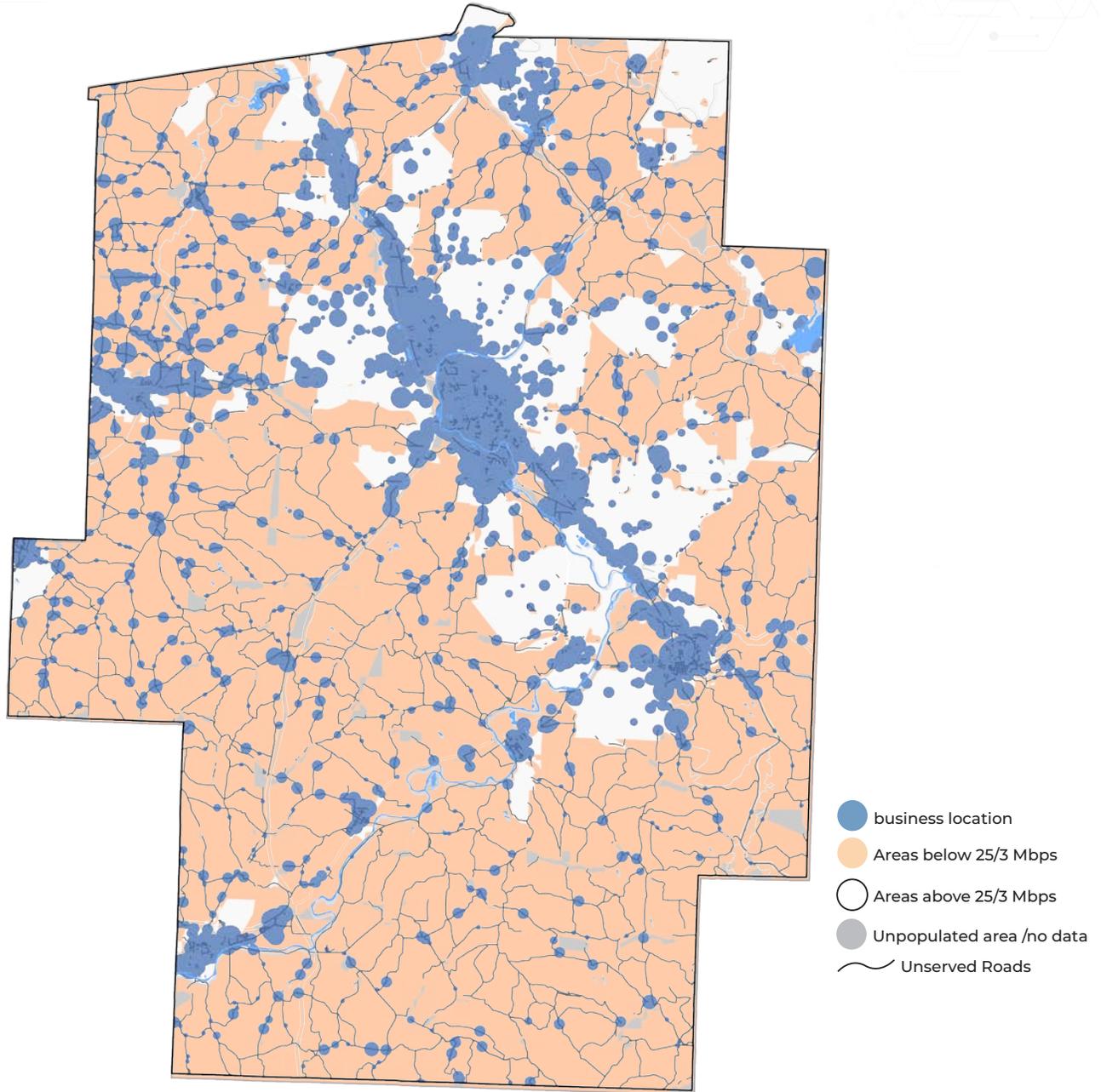
**79%** of the  
populated area

▶ **439 miles<sup>2</sup>** do not have access to 25/3 Mbps

\*Coverage ratings reflect multiple sources, including Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021. See "About the Mapping" (page 7) for detailed methodology

# BUSINESS OPPORTUNITY AREAS

below 25/3 Mbps

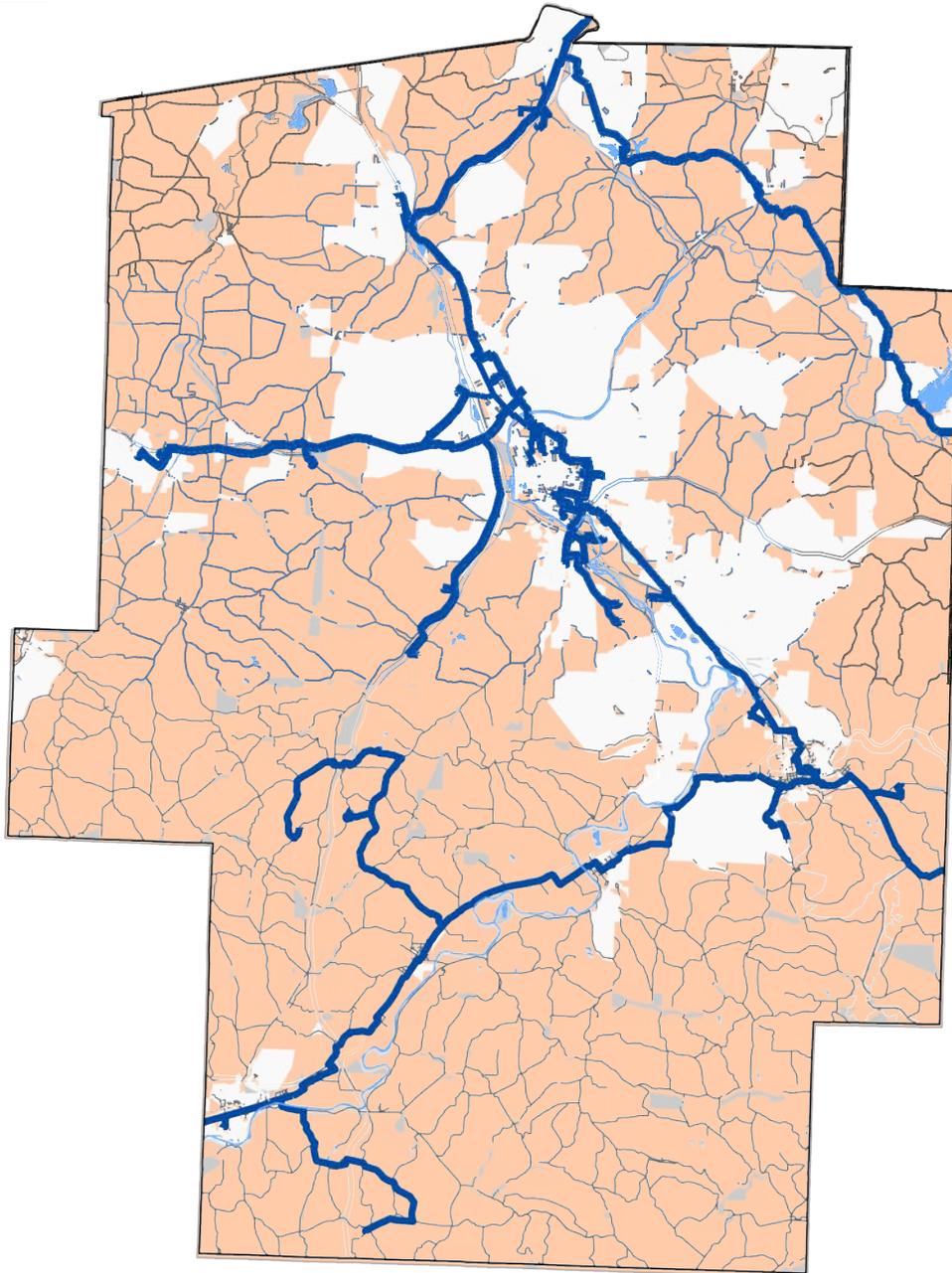


Business demand for broadband varies based on company size and economic sector. The greater the demand, the bigger the dot. The presence of a high-demand business or multiple businesses of any size will make that area significantly more attractive to a broadband provider.

*\*See "Business Broadband Opportunity Index" (page 8) for a detailed explanation of how dot size was determined*

# TUSCARAWAS COUNTY

..... unserved roads



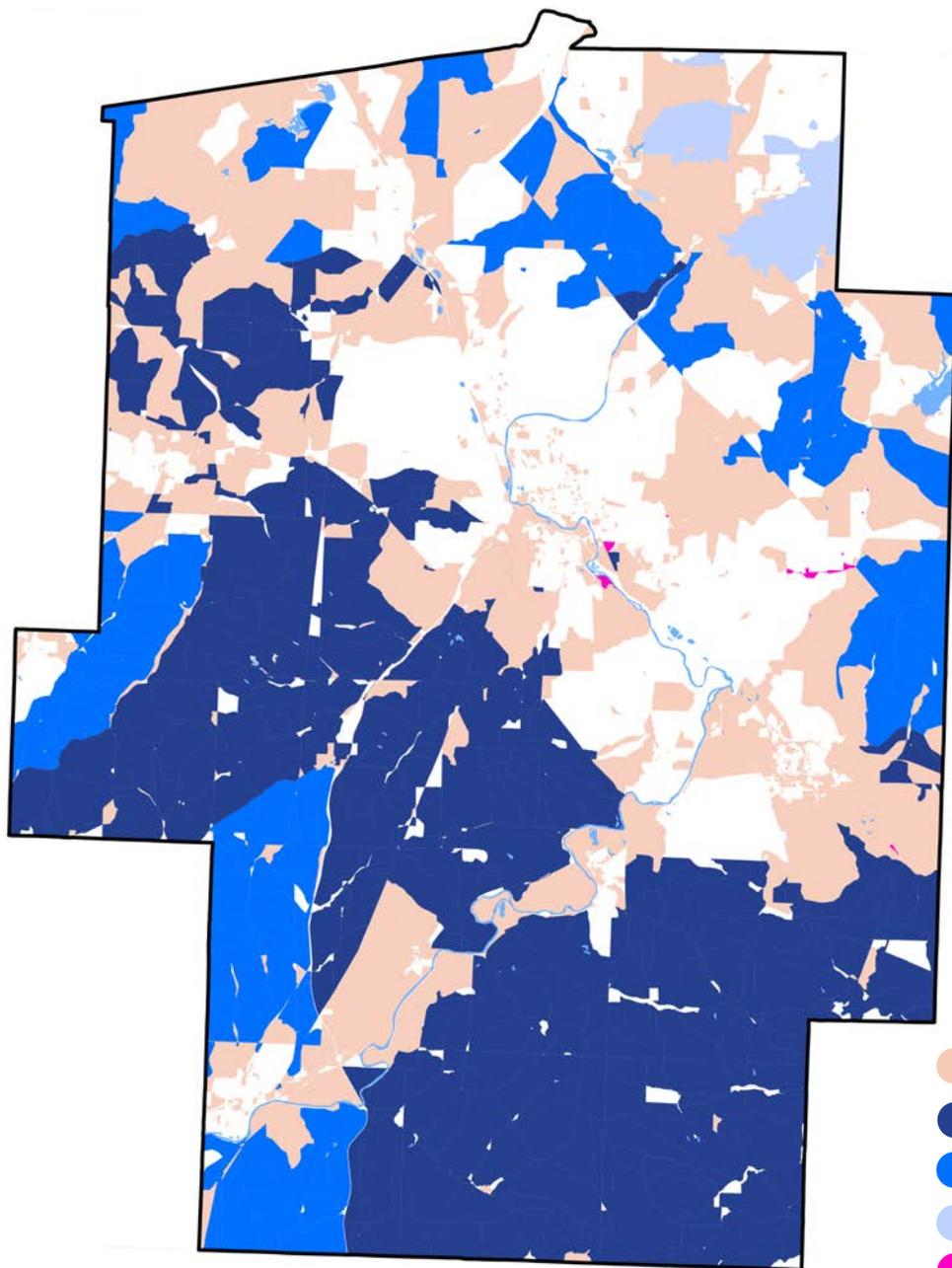
- Areas below 25/3 Mbps
- Areas above 25/3 Mbps
- Unpopulated area /no data
- Unserved Roads
- Existing Open Middle-Mile

**932 miles**  
of unserved roads

**=** the amount of fiber needed  
to install fiber-to-the-home  
in areas below 25/3 Mbps

# TENTATIVE AWARDS

## Rural Digital Opportunity Fund (RDOF)



The FCC's Rural Digital Opportunity Fund (RDOF) subsidizes internet providers to deploy broadband in unserved rural locations. In 2020, the FCC awarded a total of \$170 million to 11 internet providers in the state of Ohio. The majority of this funding remains tied up in financial due diligence, so many other funding programs consider such awards tentative.

# TUSCARAWAS COUNTY

cost to close the gap

**A FIBER NETWORK  
for the next 40 years**

## BUDGET

**\$84.8** MILLION  
*Total County Cost*

## OUTCOME

**12,990** *Unserved households passed*  
**13.9** *Households per fiber mile*

**\$22.3** MILLION **➔**  
*Projected internet provider investment*

**\$1,720**  
*Investment per household*

## **FUNDING GAP**

**\$62.5** MILLION

**932** MILES OF FIBER

**= \$4,812**  
*Gap per household*

*Cost estimates assume \$41,000 per mile for utility pole make-ready, \$40,000 per mile for high strand-count, aerial fiber.*

*\*See "Estimating Costs and Distances" (page 9) to learn more about these calculations.*

# APPENDIX 2

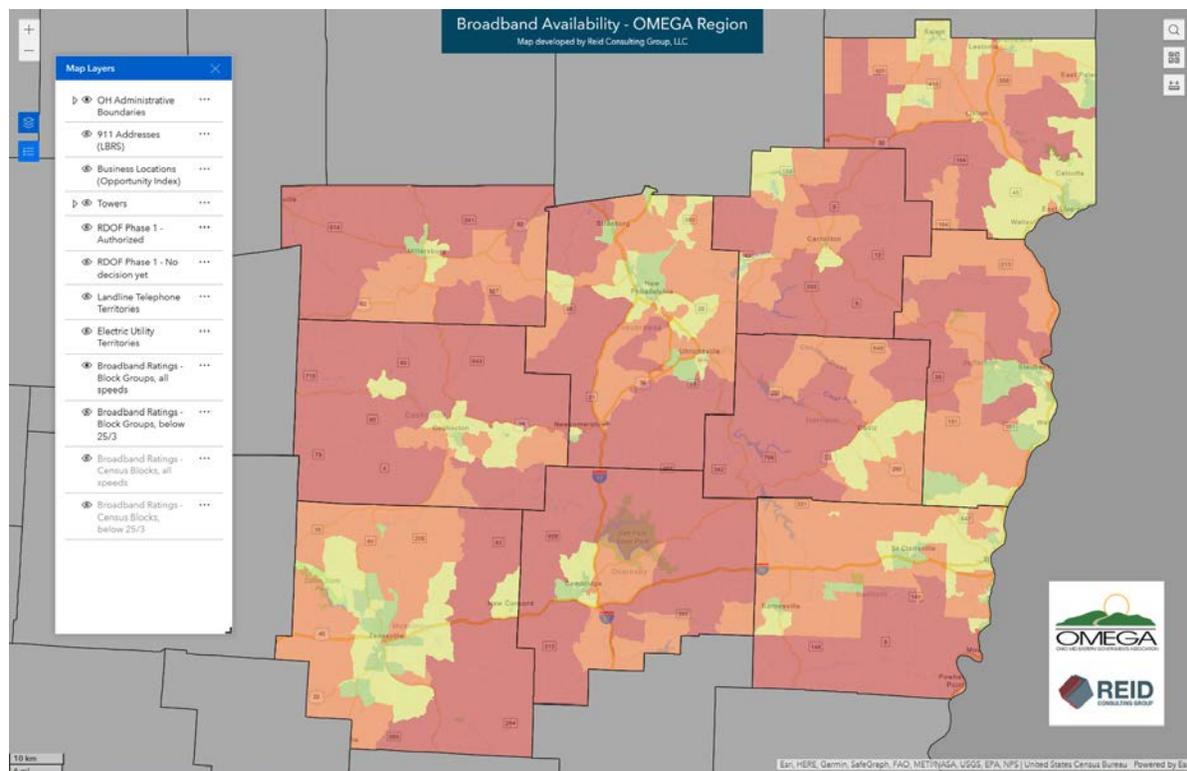
## How to Use the Interactive Map

### HOW TO USE THE WEB MAP

The web map developed by Reid Consulting Group can be a useful way to visualize potential project areas. The web map allows you to:

- zoom in and out
- turn layers on/off
- adjust individual layers' opacity
- change the base map (street view, topo view, satellite view, etc.)

When you first open the map, it will be zoomed out to the entire OMEGA region with block group speed ratings visible and the layer palette open. Login credentials are required to use the interactive map. These credentials will be provided to OMEGA members on request.



#### For Login Credentials:

Kennedy Blakely  
Communications Manager

[kblakely@omegadistrict.org](mailto:kblakely@omegadistrict.org)

740.439.4471 ext. 205

Click or Scan  
with your smartphone  
to login to the  
interactive web map



Layers are grouped.  
The triangle icon (▼) will expand  
or collapse the group.  
The eyeball icon will make a layer  
visible (👁) or hidden (👁)

Residential addresses based on the  
Location Based Response System  
(LBRS) used by 911 dispatchers.

Business addresses from Dun &  
Bradstreet. The bigger the dot, the  
bigger the predicted broadband  
need for that business.

Authorized – Areas that the FCC has  
funded for fiber to the home

No decision yet – FCC funding is still  
pending. Some of these areas may  
not receive funding.

consolidated view of speed ratings  
for visual clarity when looking at the  
region as a whole

**Map Layers**

- ▼ 👁 OH Administrative Boundaries ...
- 👁 Counties ...
- 👁 Townships ...
- 👁 US States ...
- 👁 911 Addresses (LBRS) \*
- 👁 Business Locations (Opportunity Index) ...
- ▼ 👁 Towers ...
- 👁 Cellular Towers
- 👁 MARCS Towers
- 👁 RDOF Phase 1 - Authorized ...
- 👁 RDOF Phase 1 - No decision yet ...
- 👁 Landline Telephone Territories ...
- 👁 Electric Utility Territories ...
- 👁 Broadband Ratings - Block Groups, all speeds ...
- 👁 Broadband Ratings - Block Groups, below 25/3 ...
- 👁 Broadband Ratings - Census Blocks, all speeds \*
- 👁 Broadband Ratings - Census Blocks, below 25/3 ...

The three dot (...) icon will adjust  
opacity, so you can see landmarks,  
locations, or information on layers  
below your working layer

Cell tower locations based on FCC,  
FAA, and independent research.

State-owned communications  
towers for first-responder use

Telephone company and electric  
utility service areas, as defined by  
the Public Utilities Commission of  
Ohio (PUCO)

*\*These layers may not  
display completely when  
zoomed out*

Detailed view that is best for project  
planning. If the layer does not load  
completely, try zooming in closer.

**Legend**

Addresses: Homes, Businesses

Business Locations (Opportunity Index)

Dot\_Size

- > 9 - 10
- > 8 - 9
- > 7 - 8
- > 6 - 7
- > 5 - 6
- > 4 - 5
- > 3 - 4
- 3 - 3

RDOF Phase 1 - All OMEGA Winners

Winner Name

- Charter
- LTD Broadband
- Windstream
- Mercury Wireless
- Connect Everyone

Broadband Speed Ratings

Block Group Ratings - All speeds

grp\_mean\_unified\_rating

- Above 100/20 Mbps
- 50/10 to 100/20 Mbps
- 25/3 to 50/10 Mbps
- 10/1 to 25/2 Mbps
- Below 10/1 Mbps

*The legend palette  
adjusts on the fly  
to explain color  
coding of visible  
map layers. As you  
make different  
map layers visible  
the legend will  
expand.*

# APPENDIX 3

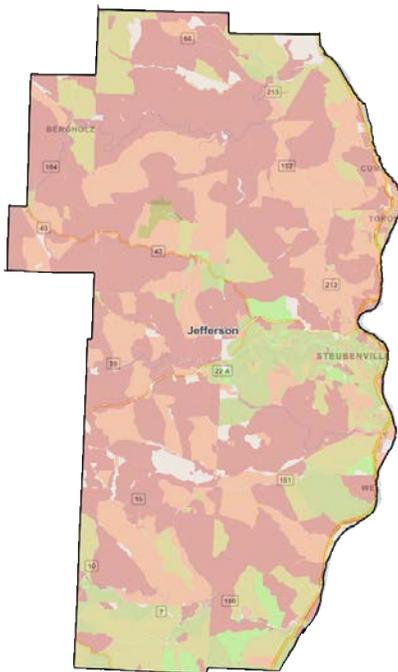
## Jefferson County Project Example

This is a sample walk-through of the process to identify two possible project areas in Jefferson County. *These are for illustration purposes and do not represent the only possible project areas in Jefferson county nor does this example represent any project priority areas defined by the county.*

### 1 IDENTIFY UNSERVED AREAS

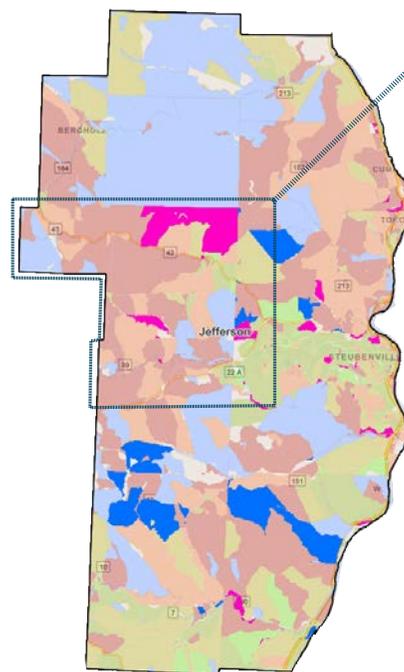
**Figure 1**

This map shows Jefferson County's census block speed ratings color coded (red and orange are unserved). The speed rating layer was set to 50% transparency to allow the underlying street map to show through. At this level of zoom, it is clear that there are large portions of the county which are unserved.

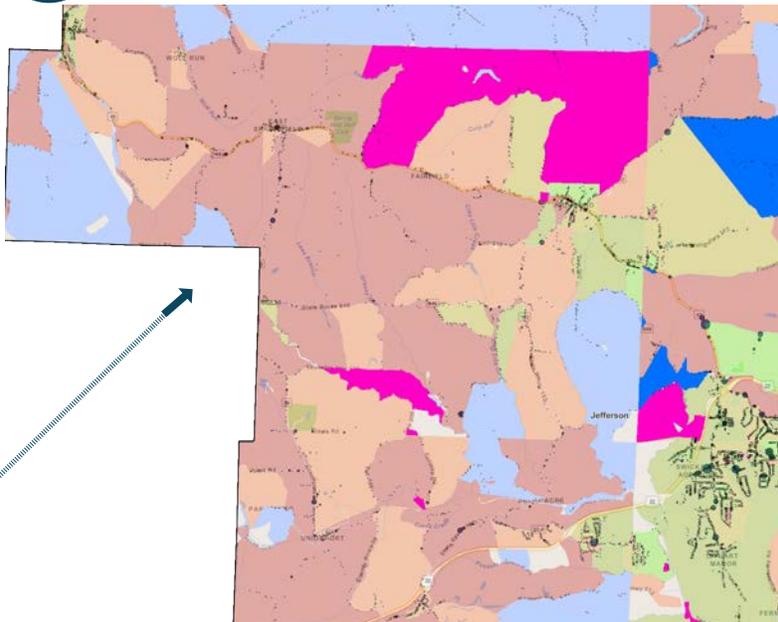


**Figure 2**

This map adds tentative RDOF funding awards on top of the census block speed ratings. Bright blue (■) is Mercury Wireless, pale blue (■) is Connect Everyone, and pink (■) is LTD Broadband. Although Reid Consulting Group believes that these providers may end up defaulting on their awards, for the sake of this exercise, those areas will be considered already funded.



## 2 ZOOM IN TO VIEW POPULATION & BUSINESS AREAS



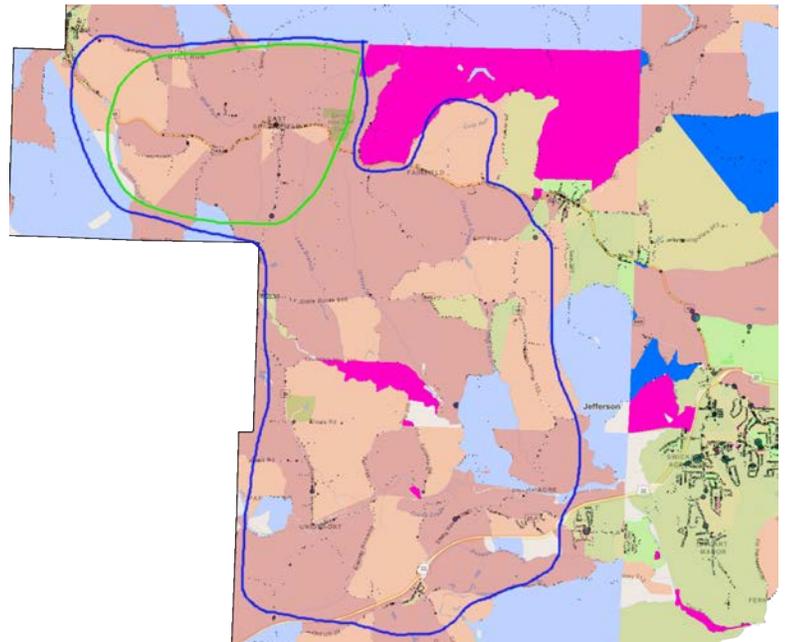
**Figure 3**

This map shows a closer look at the central eastern portion of Jefferson County. You will note that this territory includes many households (small dots) as well as businesses (larger dots/circles with green centers – the bigger the circle, the larger the expected broadband demand for that business.)

## 3 DRAW PROJECT OUTLINE

**Figure 4**

This map shows two potential project areas in western Jefferson county, one focused on East Springfield and the other encompassing most of the unserved, unfunded territory in this portion of the county. The larger project footprint could be expanded even further if applying to a program like ORBEG that is willing to fund RDOF-eligible areas.



## NEXT STEPS

Work with local and county officials to refine these outlines from a rough sketch to a realistic project area based on actual address points. Use the knowledge of the officials from the affected communities and the conditions 'on the ground' in those areas to help determine potential funding.

*This example looks at only one part of Jefferson County. Based on the overall speed rating map, many other project areas could be drawn in other parts of the county.*

# APPENDIX 4

## Broadband Mapping and Methodology

### ABOUT THE MAPPING

Regional and county profiles were created under contract by Reid Consulting Group, LLC. for Ohio Mid-Eastern Government Association (OMEGA). These maps, collectively with county maps created for Buckeye Hills Regional Commission (BHRC) and Ohio Valley Regional Development Commission (OVRDC), are being provided to Connecting Appalachia. Connecting Appalachia is a consortium of local governments, regional economic development councils, and industry professionals working to increase economic opportunity for Appalachia by expanding access to quality, affordable broadband.

Broadband coverage maps are based on a rating system developed by Reid Consulting Group, LLC. Data sources include Ookla Speedtest Intelligence® data licensed by InnovateOhio for the months of February 2020 through August 2021, carrier filings of available speeds with the FCC (Form 477), carrier reports of actual broadband deployments to USAC (HUBB), RDOF Phase 1 eligibility, and population density.

Unserved and underserved ratings are color coded at the census block group level:

<b>&lt;10/1 Mbps</b>	Red: Less than 10/1 Mbps
<b>&gt;=10/1 &lt;25/3 Mbps</b>	Orange: At least 10/1 Mbps and less than 25/3 Mbps
<b>&gt;=25/3 &lt;50/10 Mbps</b>	Yellow: At least 25/3 Mbps and less than 100/20 Mbps
<b>&gt;= 50/10 Mbps</b>	Green: Above 100/20 Mbps defined as served
<b>no data / unpopulated</b>	Gray: Areas with no data/ speedtests submitted- unpopulated

We conducted analysis of the raw Ookla® data for the months of February 2020 through August 2021, applying the following filters:

#### Filter

Include desktop, iOS, and Android app results\*

Exclude results with GPS precision of greater than 200 meters\*\*

Include only results from fixed broadband providers

*\*iOS and Android results were included only if the device was connected to wi-fi during the speed test.*

*\*\* To protect consumer privacy, Ookla® limits location precision to +/-100 meters. As a result, a single location may include multiple households and many individual tests.*

Using the Ookla® results we rated each location based on the average of up/down speeds for all tests at that location. We then graded census blocks based on the median up/down speed of all locations within each block. Block-by-block ratings were further refined based on RDOF eligibility, past HUBB deployments, and Form 477 data. For blocks with no Ookla test results, extrapolated ratings were assigned where possible via comparative analysis of population density, Form 477 coverage, HUBB data, and RDOF Phase 1 awards. Areas that could not be assigned an extrapolated rating are shown in gray on the map.

# BUSINESS BROADBAND OPPORTUNITY INDEX

Business demand for broadband varies based on company size and economic sector. The more employees at any given business location, the greater the demand will be for that location. Certain types of businesses also tend to consume more bandwidth regardless of size. For example, a medical clinic with 50 employees will need significantly more capacity than a construction contractor of similar size.

When planning for broadband expansion, it is important to consider the effect businesses have on overall need. The presence of a high-demand business or multiple businesses of any size in a particular area may make that area significantly more attractive to a broadband provider than the surrounding population density would predict.

The Business Broadband Opportunity Index helps planners visualize this economic impact by mapping the location of every business (as identified by Dun & Bradstreet) with a dot size proportional to that business' expected broadband demand. The larger the dot, the greater the demand. Calculations are as follows:

$$\text{OPPORTUNITY INDEX} = \text{BUSINESS SIZE} * \text{INDEX MULTIPLIER}$$

## Business Size

Number of employees as reported in Dun & Bradstreet. If count is blank, assume 1 employee.

## Index Multiplier

A number from 1-5 based on industry sector.

## On the Map

The greater the demand, the bigger the dot. To aid with visualization, comparative rankings from 1 to 10 are also assigned.

Category	Multiplier
Healthcare	5
Education & Libraries	5
Telecom and IT	5
Banking and Finance	5
Professional Services	4
Publishers	4
Real Estate	3
Hospitality	3
Non-Profit	3
Wholesalers	2
Dealers and Retail	2
Transportation	2
Childcare	2
Sports, Music & Arts	2
Religious and Fraternal	2
Manufacturing	2
Printing	2
Restaurants & Food	2
Farming	1
Hunting, Fishing	1
Energy	1
Raw Materials	1
Contractors	1
Textiles	1
Unclassified	1

# APPENDIX 5

## Budget Assumptions

### BUDGET

#### TOTAL COUNTY COST

*Projected internet provider investment*

The budget is based on a fiber-to-the-home network with enough capacity to meet demand for the next 40 years. Expected investments and grant amounts will vary based on the area to be served, the population density, and the presence or absence of other services.

Total county cost is the sum of make-ready (\$41,000) and cost-to-pass (\$40,000) multiplied by the number of unserved state, county, township, and unincorporated road miles.

$$\text{Unserved Miles} * (\text{Make-Ready} + \text{Cost-to-Pass}) + (\text{Number of households} * \text{Network electronics})$$

The total an internet provider can spend to install fiber and still make a profit, estimated between \$1000 and \$2500 per household. As population density goes down, costs go up while expected investment remains the same.

$$\text{Unserved households} * \text{Investment per household}$$

#### FUNDING GAP

The funding gap is the difference between the total cost of the project and the available or anticipated private investment. For an internet service offering to be sustainable, grant or other public funding must be used to close this gap.

$$\text{Investment} - \text{Total County Cost} = \text{Funding Gap}$$

**= Gap per household**

The gap per household is calculated by dividing the funding gap by the total number of unserved households.

$$\frac{\text{Funding Gap}}{\text{Unserved Households}} = \text{Gap per household}$$

## OUTCOME

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The sum of E-911/LBRS addresses that fall within unserved census blocks. Census households were used instead of LBRS in Carroll, Clermont, Harrison, Highland, and Tuscarawas counties.



***Unserved households passed***

Total number of unserved households divided by the number of unserved state, county, township, and unincorporated road miles.



***Households per fiber mile***

The amount an internet provider can spend to install fiber and still make a profit, estimated between \$1000 and \$2500 per household. As population density goes down, cost goes up while expected investment remains the same.



***Investment per household***

## THE RESULT

Fiber distance is based on the number of unserved state, county, township, and unincorporated road miles within the county.



**MILES OF FIBER**

# APPENDIX 6

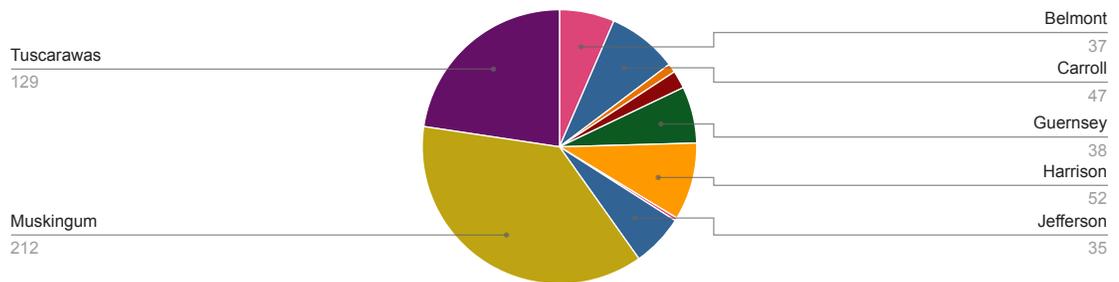
## Broadband Survey Results

Reid Consulting Group, in coordination with the development districts across Appalachia Ohio, launched a rural broadband survey to supplement additional data identifying the extent of the broadband need in rural Ohio, identify barriers, and priority areas.

3,036 individuals responded to the residential survey as of the date on this report.

570 responses were from individuals living within the OMEGA district.

### County

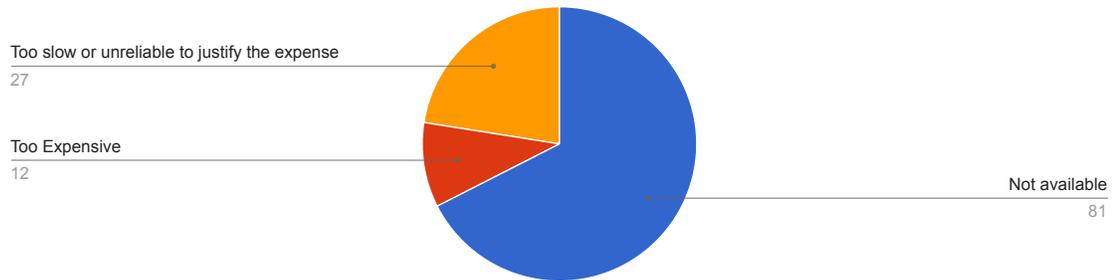


570 responses in 570 results

# 21%

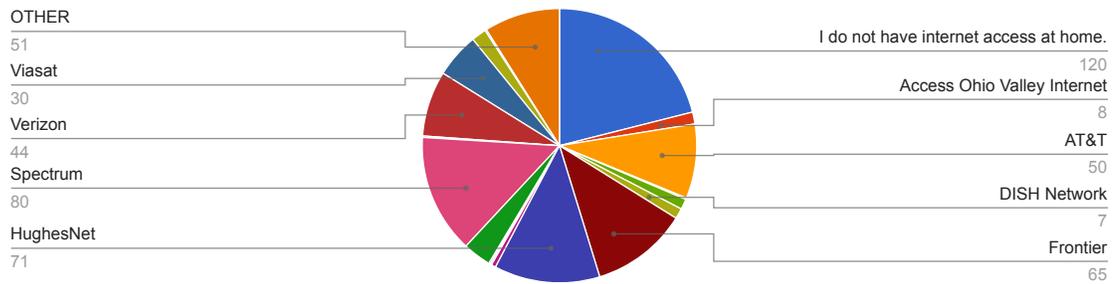
*of Respondents do not have internet access at home*

Please select the reason you do not have internet access at home.



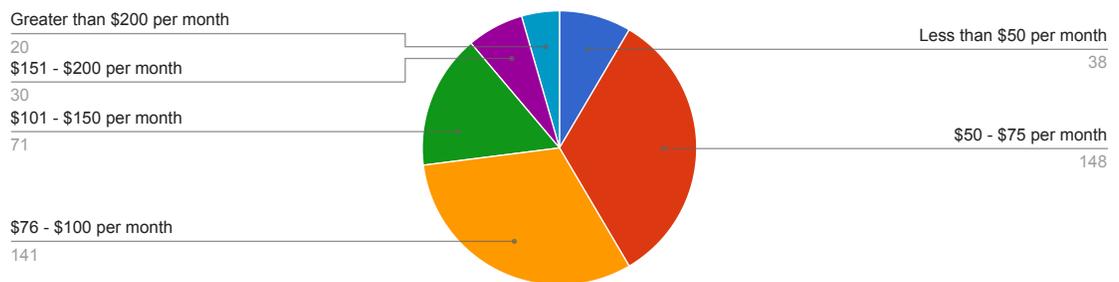
120 responses in 120 results

Which company do you use for home internet?



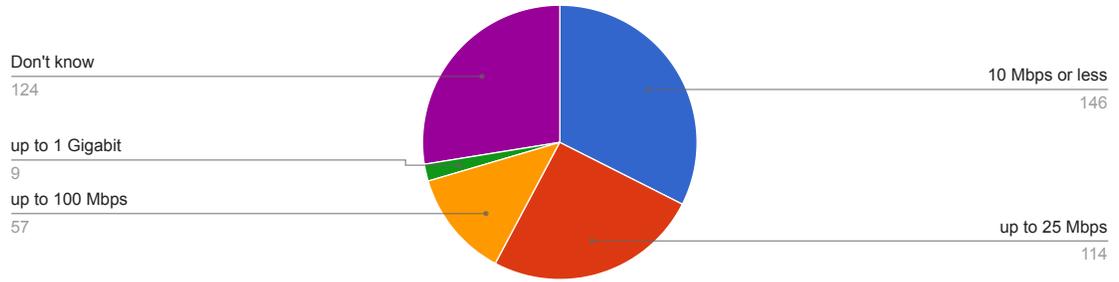
570 responses in 570 results

How much do you pay for home internet?



448 responses in 450 results

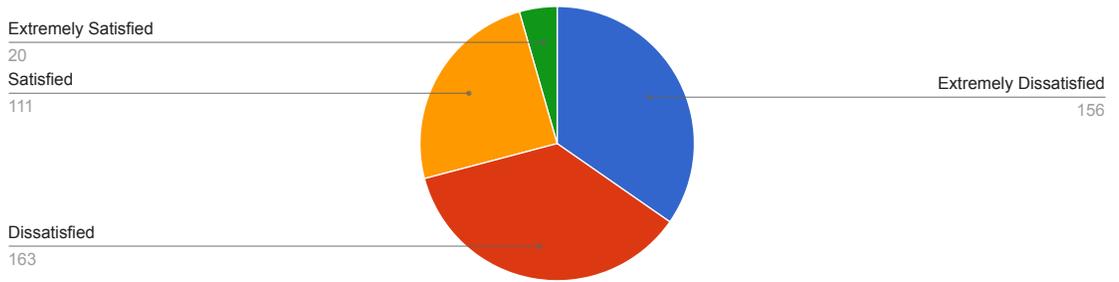
**What speed is your home internet package?**



450 responses in 450 results

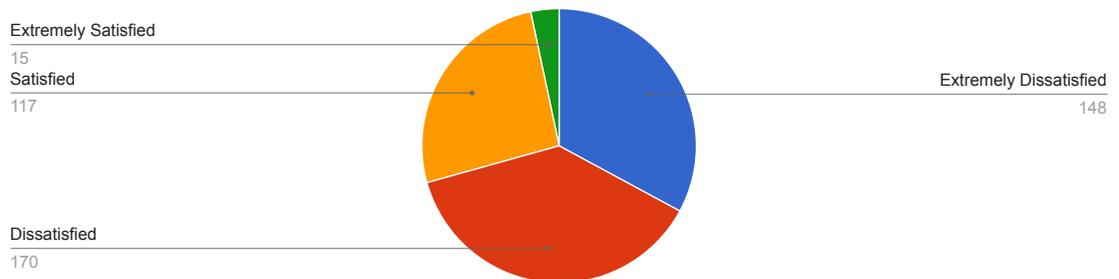
**How would you rate your home internet?**

**Speed**



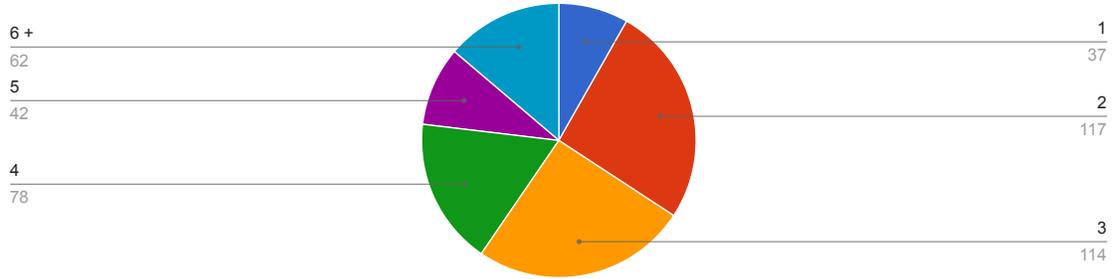
450 responses in 450 results

**Reliability**



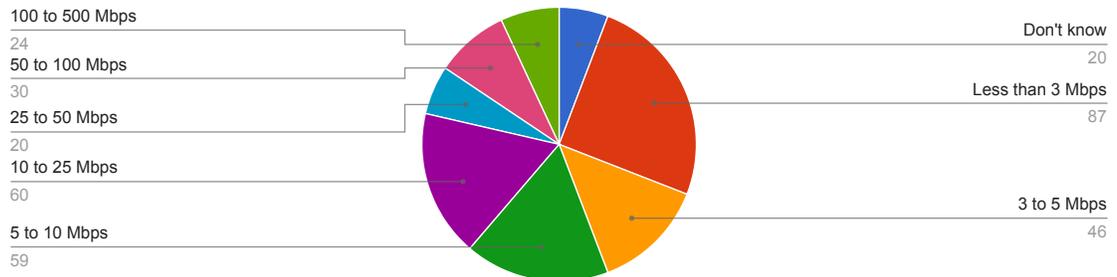
450 responses in 450 results

**How many devices are typically in use at one time?**



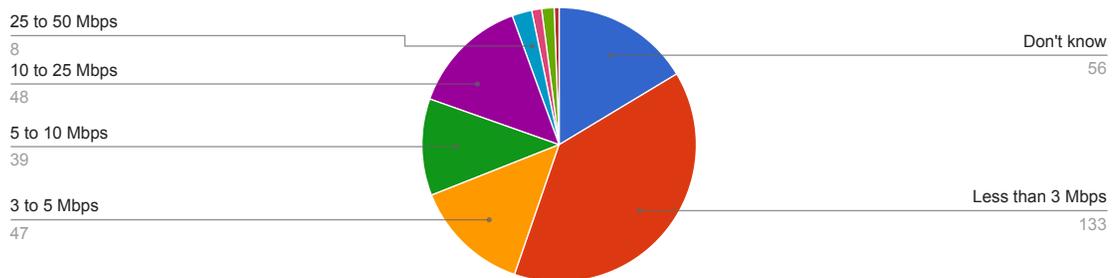
450 responses in 450 results

**What is your download speed?**



346 responses in 353 results

**What is your upload speed?**



342 responses in 353 results