This fall Polk County IT re-sent over 5000 surveys to rural property owners outside the city limits of Dallas, West Salem, Monmouth, and Independence. This survey is a follow-up to the 2019 rural broadband survey. Property owners were asked to complete the updated survey and mail it in or go to the county website and complete the on-line survey. The survey was completed to accomplish two goals:

1. Identify if rural internet services have improved over the past two years.
2. Identify areas where the County, in partnership with local Internet Service Providers (ISP's), should focus future rural broadband projects.

The number of survey respondents was good. Over 28% of the property owners responded as compared to 32% in 2019.

HAS RURAL INTERENET SERVICE IMPROVED

Relative to 2019 the respondents reported that speeds and reliability have improved but respondents are paying more for this improvement. Even so, speeds and service remain far below national standards and state averages and continue to disagree with state and national service provider maps. As in 2019 the internet continues to be very important for households. The following summarizes the survey results and compares them to the original survey follow the reported results, improvements are colored green, deteriorations in red, and no changes in blue.

1. **Internet speeds remain far below national standard and the state average.**

   - Over 30% of respondents have speeds less than 5Mbps (up from 26% in 2019)
   - Almost 69% have service that is well below the federal definition of broadband service (down from 90% in 2019)

2. **Cost of service remains high and more respondents are paying more for service.**

   - Over 28% of the respondents pay over $100/mo for services (up from 20% in 2019)
   - Over 82% of the respondents pay over $50/mo for services (up from 75% in 2019)

3. **The level of service or reliability is not great but has improved**

   - Almost 28% of the respondents rate their services as being bad or less than reliable (down from 40% in 2019)
   - 47% rate their service as better then OK (up from 30% in 2019)

4. **More respondents have service they are happy with but still the percentage that want better is very high**

   - Almost 79% want better services (down from 87% in 2019)
   - 63% felt there was nothing better (New Question)
   - 19% cost of better service was a barrier (New Question)
   - 17% felt installation costs were a barrier (New Question)
   - 44% of respondents felt their service did not meet their needs during the pandemic last year

5. **Respondents continue to use the internet for much more than entertainment.**

- 80% of the respondents use the internet for personal business (about the same as 81% in 2019)
- 43% of the respondents use the internet for education (up from 40% in 2019)
- 40% of the respondents use the internet for employment (new question)
- 65% of the respondents use the internet for health services (new question)

6. **Changing Services**

- 15% of respondents selected a new provider in the last year or two.

7. **The number of internet providers available in rural Polk County continues to expand**

The survey respondents identified 28 ISP's now providing services in Polk County as compared to 17 identified in the 2019 survey results. Most of the new ISP's provide services based on 4g/5g cellular service and were identified by only 1-2 respondents. They are not included in the list. The only provider that had a large expansion in services was Alyrica.

Major Providers
- 36% - CenturyLink (36% in 2019)
- 15% - Alyrica (up from 6% in 2019)
- 9% - OnLineNW (10% in 2019)
- 7%- Viasat (6% in 2019)
- 6% - Comcast (5% in 2019)
- 5% - Charter(4% in 2019)
- 5% - HughsNet (down from 7% in 2019)
- 4% - Verizon (down from 7% in 2019)

Small Providers (1-2% or Less)
- AT&T
- Adaptive
- Dish
- Minet
- TMobile
- Viser
- Wave

New Rural Fiber Providers
- Peak Fiber - SW County
- Zipley Fiber - North Central County
- Minet – NW/SE Monmouth/Independence

Question Response Rate

Not every survey question was answered by each respondent. The following lists the percentages that each question was responded to.

1. Speeds and Service - 97%
2. Cost of Service - 95%
3. Reliability or Level of Service - 95%
4. Happy with Service - 95% (88% responded to the questions regarding COVID)
5. Internet Use - 99%
6. Changing Service - 94%
7. Service Provider - 96%

FOCUS FOR FUTURE PROJECTS

1. Rural Areas with Poor Service

A survey respondent's map was created by Geocoding the property situs address for each survey response as illustrated in Figure 1.
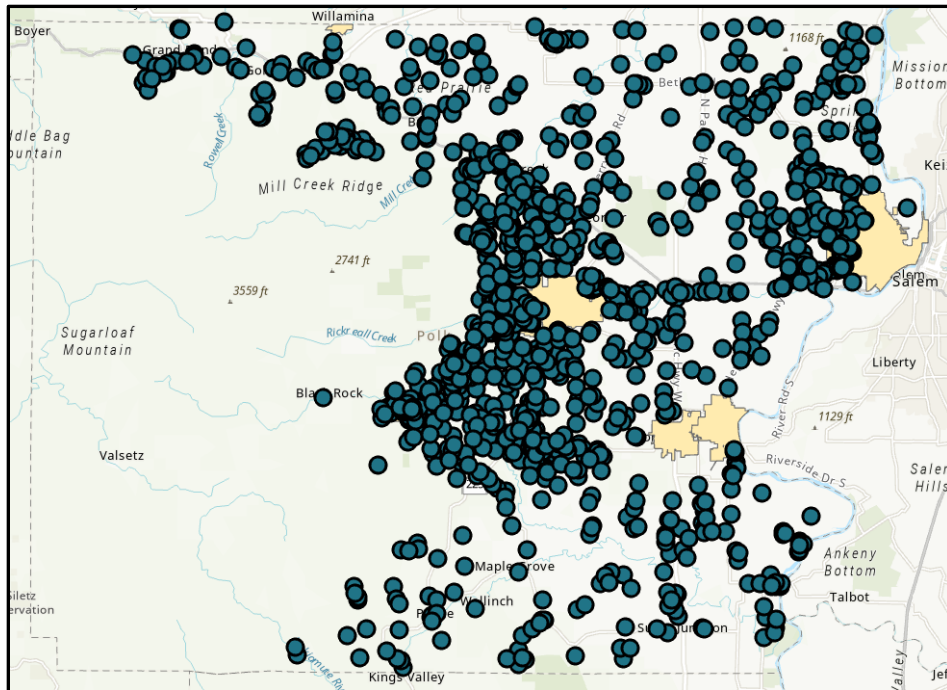

Figure 1: Location of survey respondents

Concentrations of respondents with "No Service" represent areas where the County in partnership with ISP's could focus resources as illustrated in Figure 2.
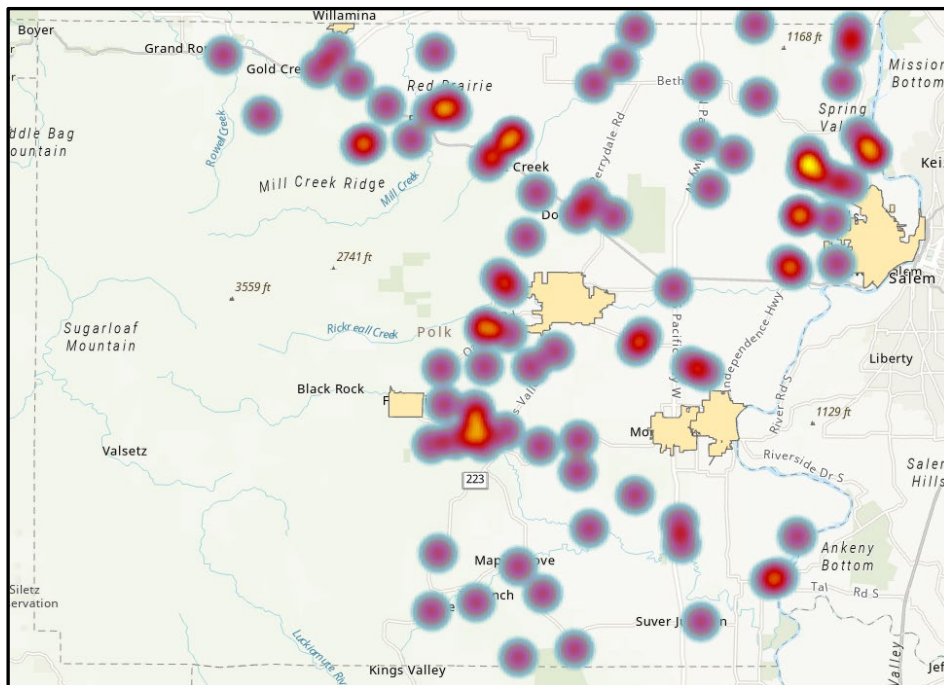

Figure 2: Concentrations of respondents with "No Service"

Concentrations of respondents with services less than 5Mbps also represent areas where the County in partnership with ISP's could focus resources as illustrated in Figure 3.
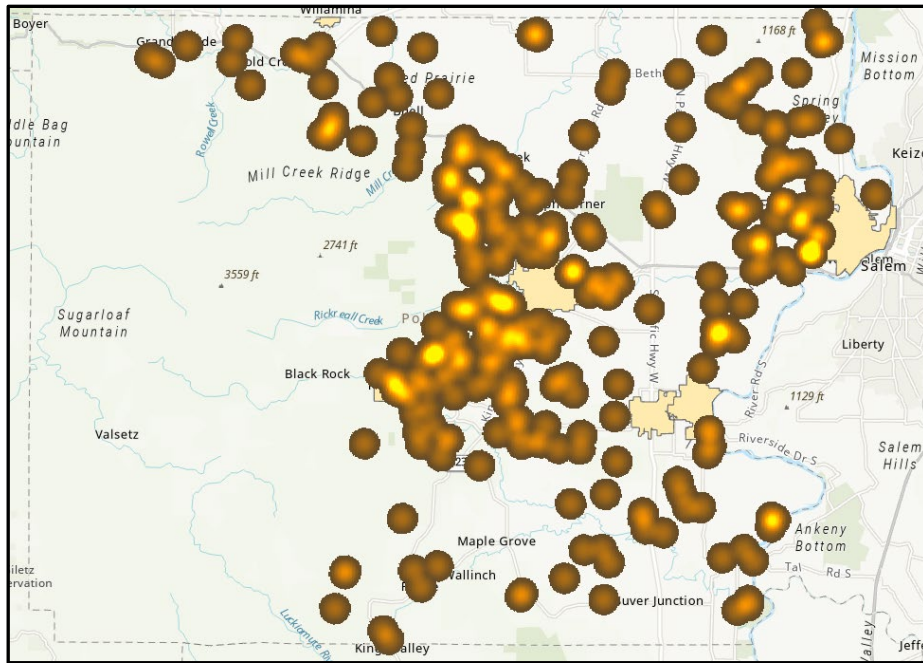

Figure 3: Concentrations of respondents with services < 5Mbps

Concentrations of respondents with services greater than 20Mbps may represent areas that could be assigned a lower project priority.
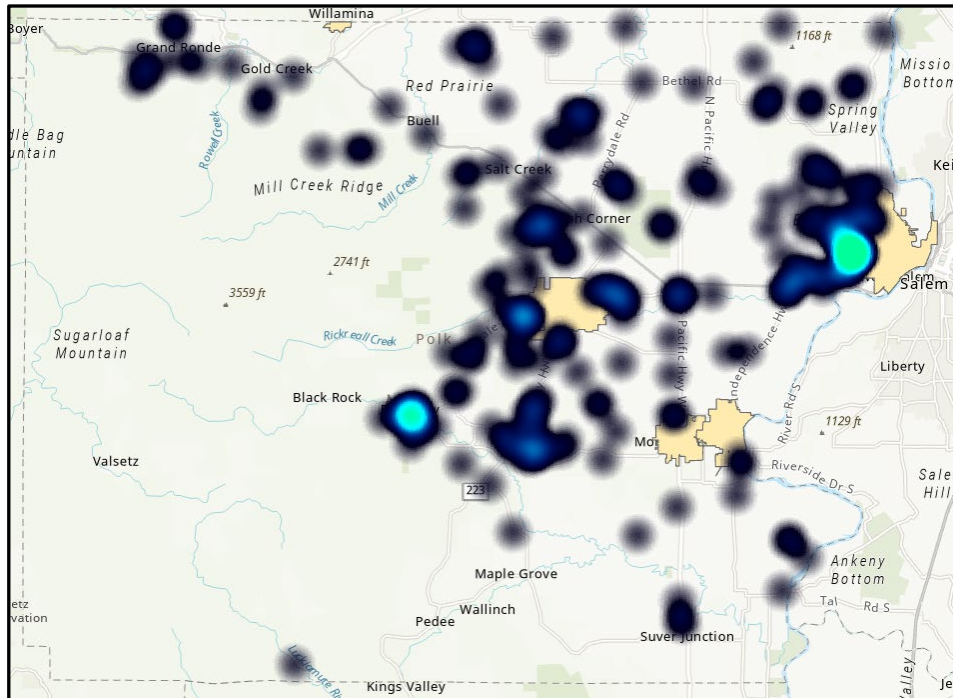

Figure 4: Concentrations of respondents with services > 20Mbps

In an effort to better clarify concentrations of poor service, a cluster analysis was completed by creating a one half, and one mile buffer around all respondents that had service less than 5Mbps or None and answered the barrier question as "Not happy with their service" that were within at least a half mile of three other like respondents in light blue as illustrated in Figure 5.
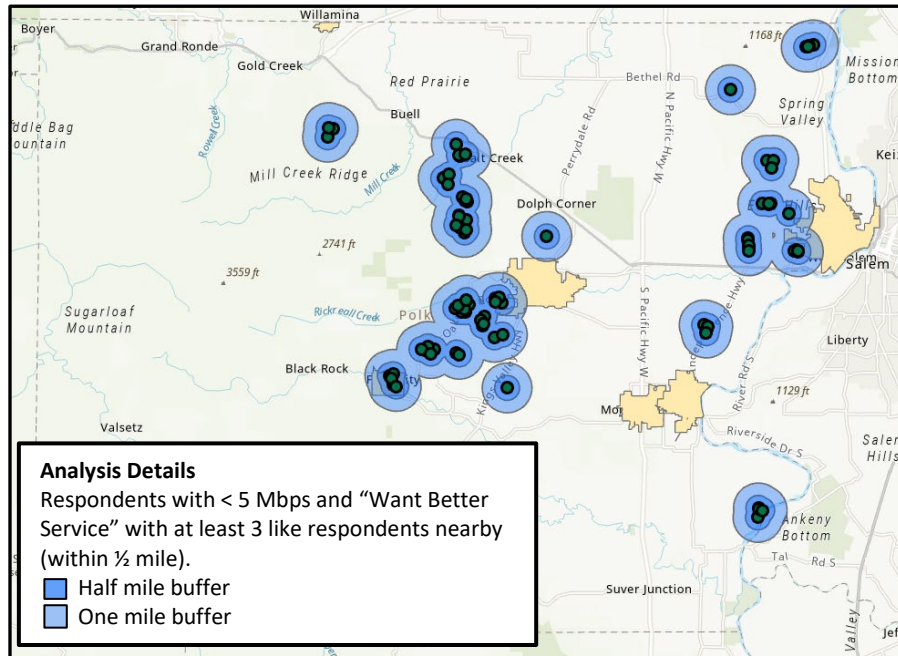

Figure 5: Cluster Analysis

Potential high priority areas were identified by creating three ellipsoids around the three larger concentrations. Smaller distributed concentrations could represent areas of secondary priority. The priority areas contain more than 55% of the respondents with less than 5Mbps service that want better service as identified in Figure 6. Falls City and a small area on the edge of West Salem were excluded from the priority areas as both have multiple service providers that provide services over 25Mbps.
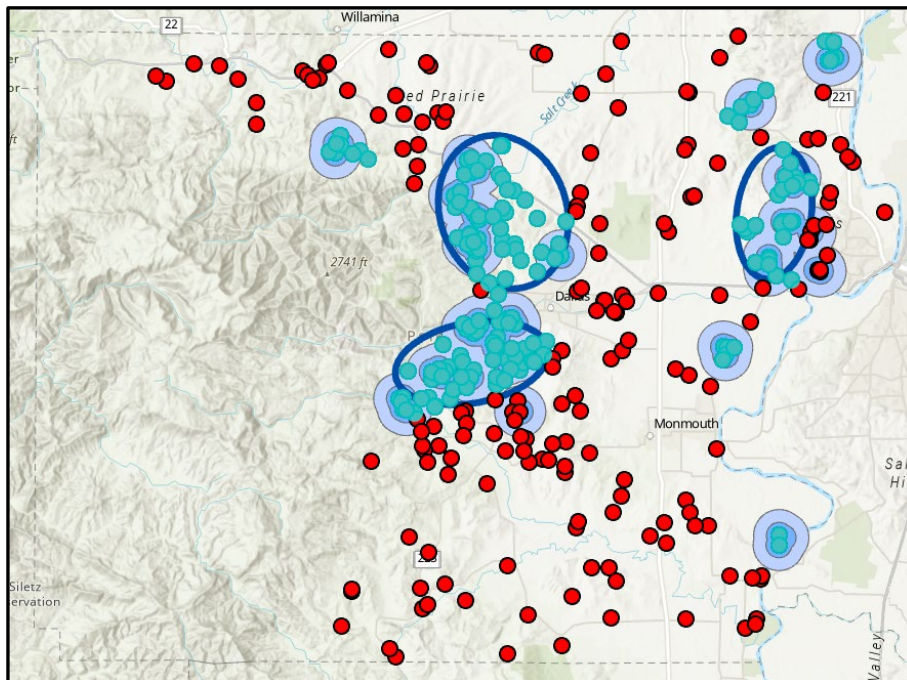

Figure 6: Primary and secondary priority areas with Respondents < 5Mbps and "Not happy with their service"

Priority areas were further analyzed as illustrated in Figure 7 and Table 1. In addition to containing clusters of <5Mbps residents, the "North Of Dallas" and "South Of Dallas" priority areas both have 90% or greater of the respondents had internet speeds that do not meet the federal standard of 25 Mbps. While the "West of Salem" area has a slightly lower percentage, the topography in this area represents a unique challenge to ISP's. All secondary areas have over 80% of the respondents with speeds that do not meet the federal standard of 25 Mbps. The cluster near wells landing was removed as it only contained three responses with <5Mbps and had two responses >20Mbps.
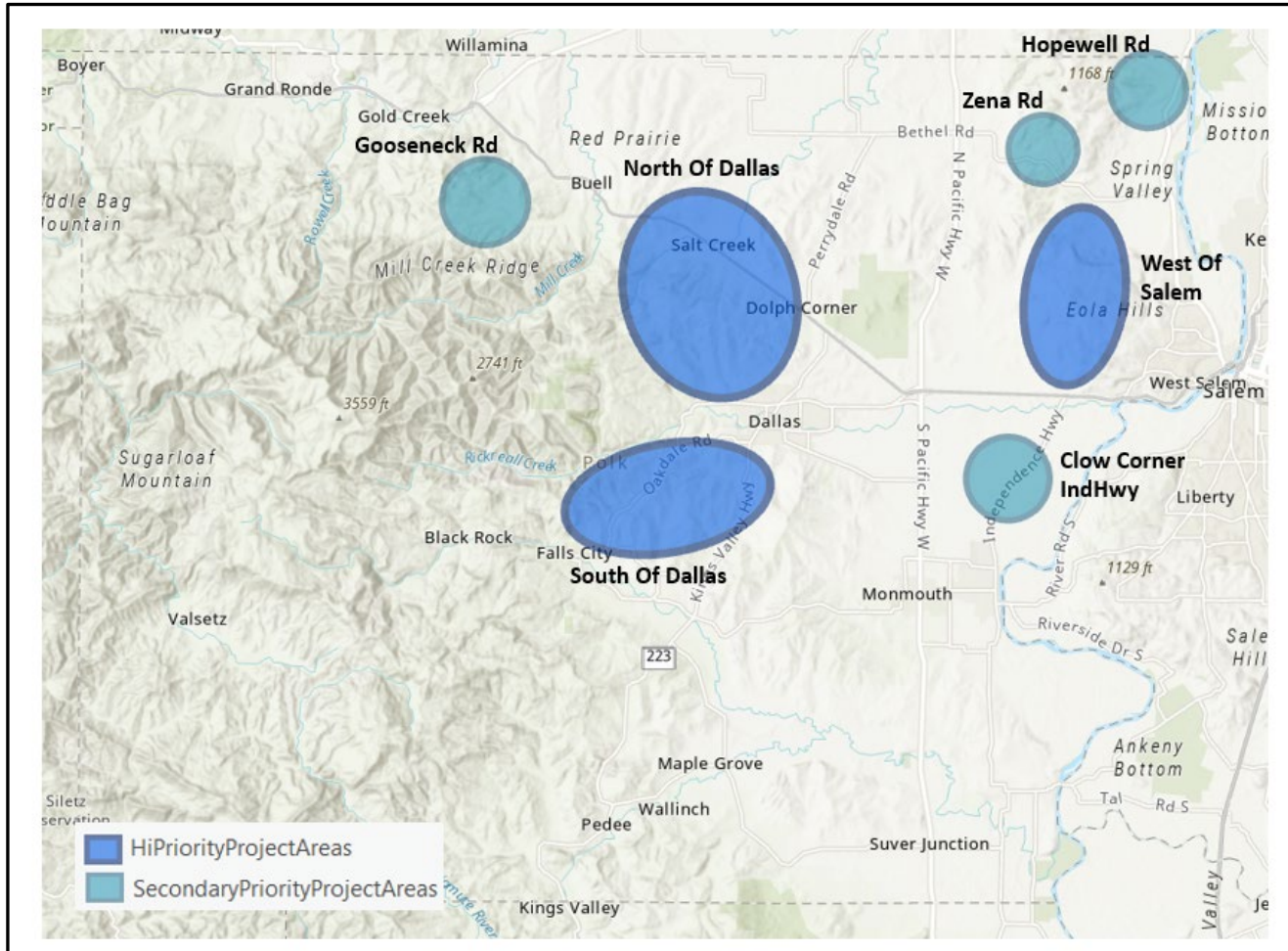

Figure 7: Primary and secondary priority areas.

Project Area	Priority	Total Impacted	% < 25Mbps (Fed Requirement)	% <5Mbps	% 5- 20Mbps	%>20Mbps*
North Of Dallas	High	139	90%	40%	50%	10%
South Of Dallas	High	83	90%	62%	28%	9%
West of Salem	High	87	87%	30%	57%	13%
Hopewell Rd	Secondary	12	100%	50%	50%	0
Zena Rd	Secondary	19	84%	37%	47%	16%
Gooseneck Rd	Secondary	17	82%	45%	35%	18%
Clow Corner/ Ind. Hwy	Secondary	12	83%	58%	25%	17%

*-Geosynchronous satellite providers were not included in this analysis. %'s rounded from nearest 1/10.

Table 1: Impacted survey respondents in each priority area.

LACK OF ACCURATE INFORMATION

Unfortunately, finding a suitable internet provider and getting accurate information about services provided for a specific addrss is not simple for rural Polk County citizens. Developing accurate maps has become a focus for providers, the State or Oregon, and the Federal government. Unfortunately, updated and accurate maps are not available at this time. Consequently, over 60% or the survey respondents stated that the barrier to getting better service is "There Is Nothing Better". While that may be the case most of the time, it may also be true that the resident does know that better services are available as illustrated in Figure 8.
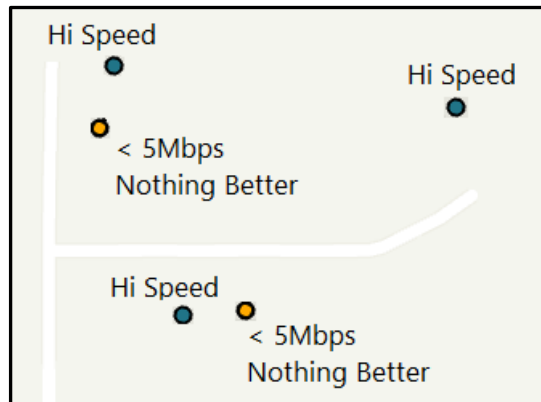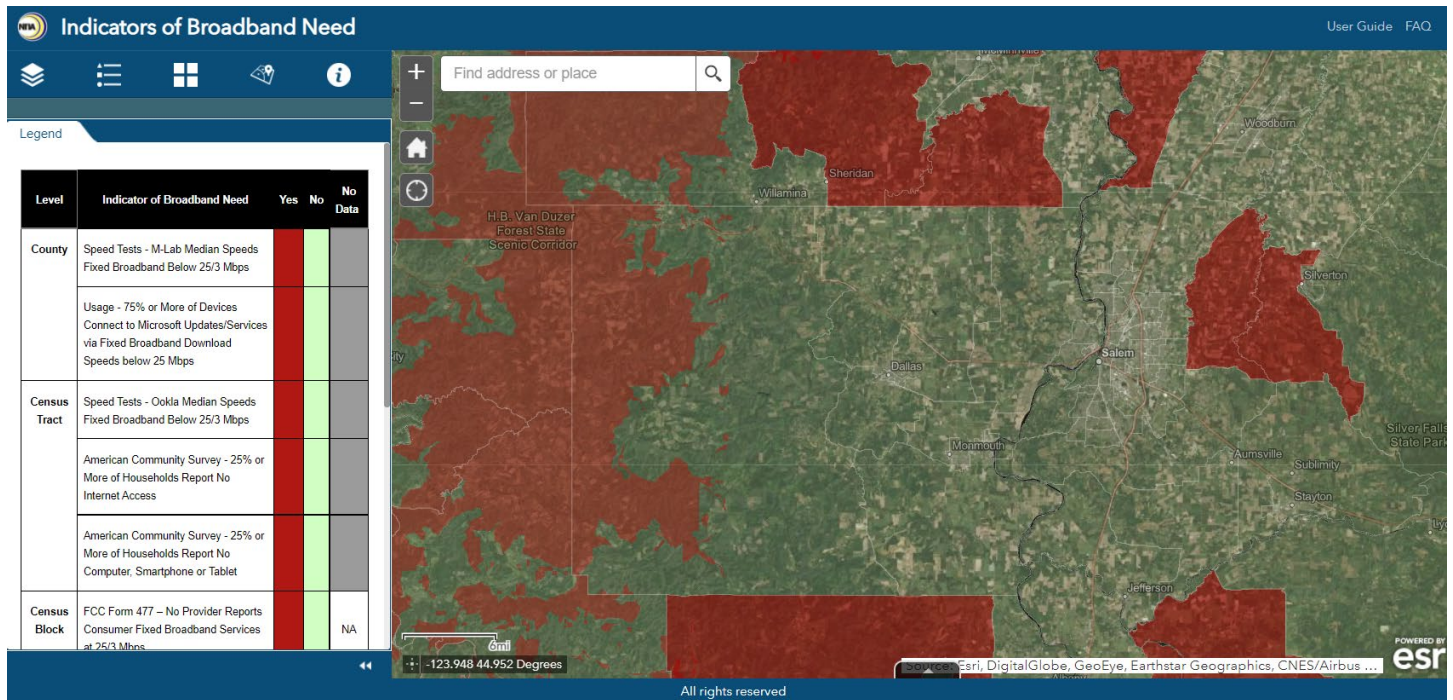

Figure 8: Example of residents next door to a neighbor with fiber who stated: "There Is Nothing Better"

Based on the lack of information the County could focus resources on building a simple web page dashboard that for any given address in the county could be used to identify what internet services are available, based on survey responses.
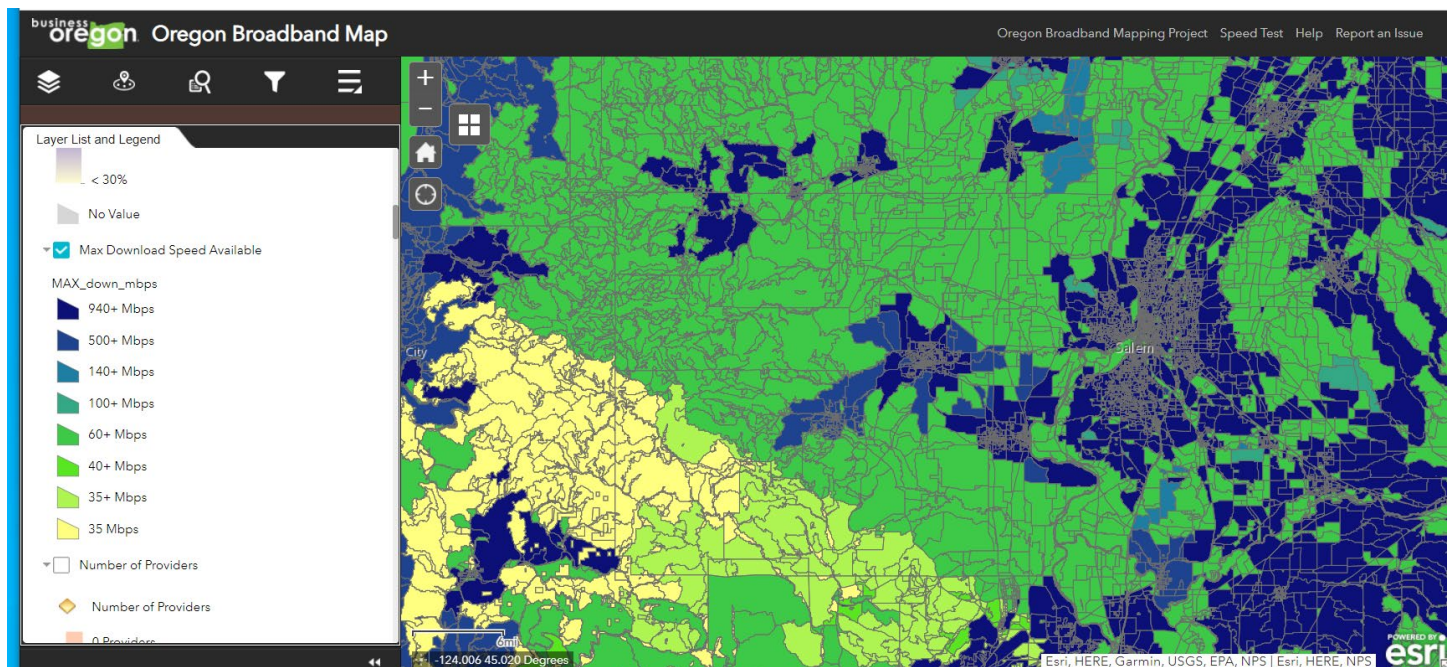
Appendix: Other Maps

NITIA Indicators of Broadband Need Map: The areas in dark red represent low speed areas summarized from ookla speed tests aggregated to census tract. Unfortunately, the census tracts for rural Polk County generally overlap with the cities where internet speeds are high which explains why rural areas in the County inaccurately depict fast service.

Link: https://broadbandusa.maps.arcgis.com/apps/webappviewer/index.html?id=ba2dcd585f5e43cba41b7c1ebf2a43d0

Oregon Broadband Map from Business Oregon: Source of information from Form 477 Data by FCC aggregated to census block. Based on the source information, the map inaccurately depicts speeds from 100Mbps (green) to near 1Gbps (blue) for much of the County.

Link: https://geo.maps.arcgis.com/apps/webappviewer/index.html?id=002a3eee6efb48a1868b4494168d730a