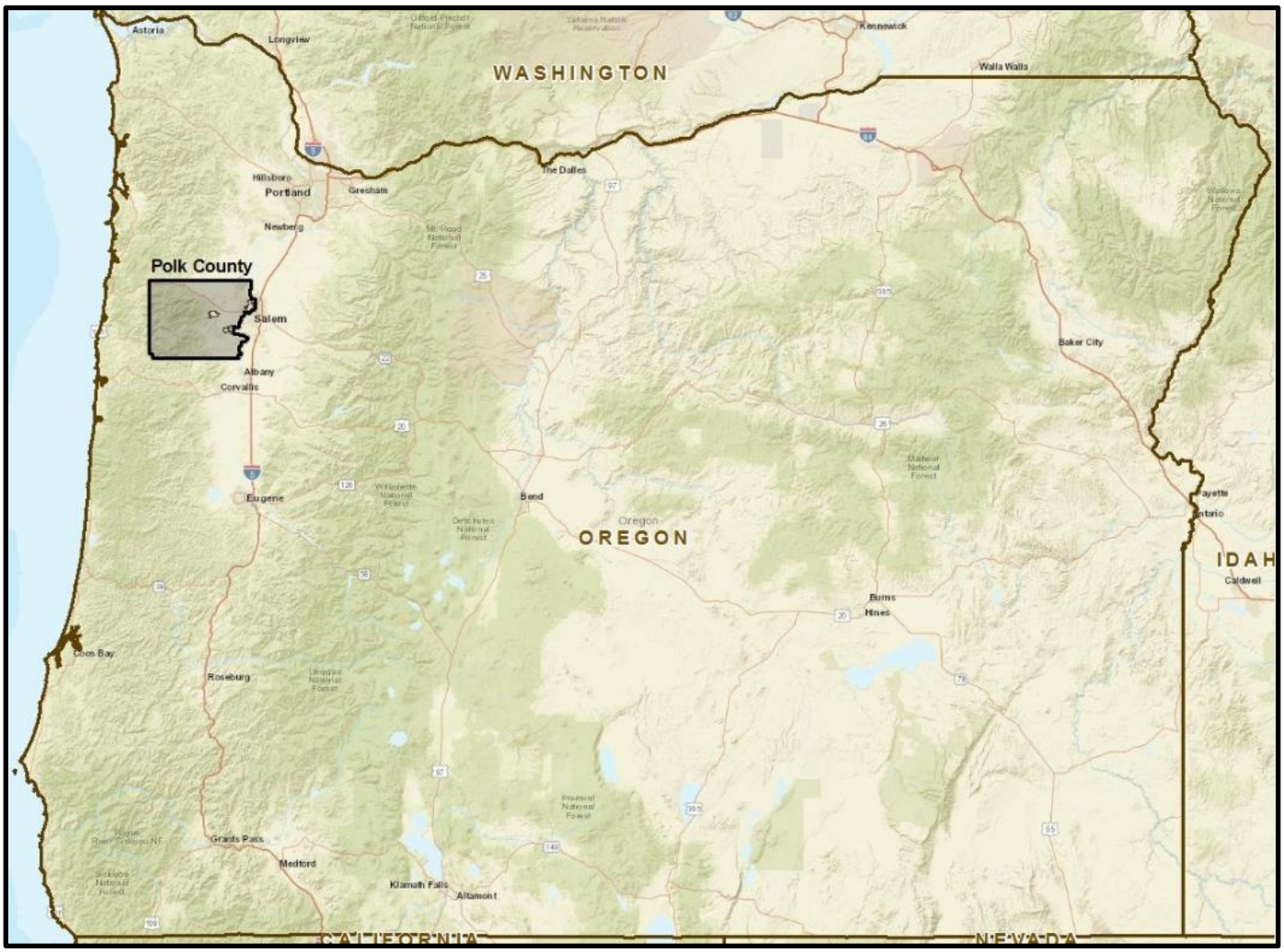
Polk County
Rural Broadband Study
Survey Results



Produced by Polk County IT Department
11/30/2019

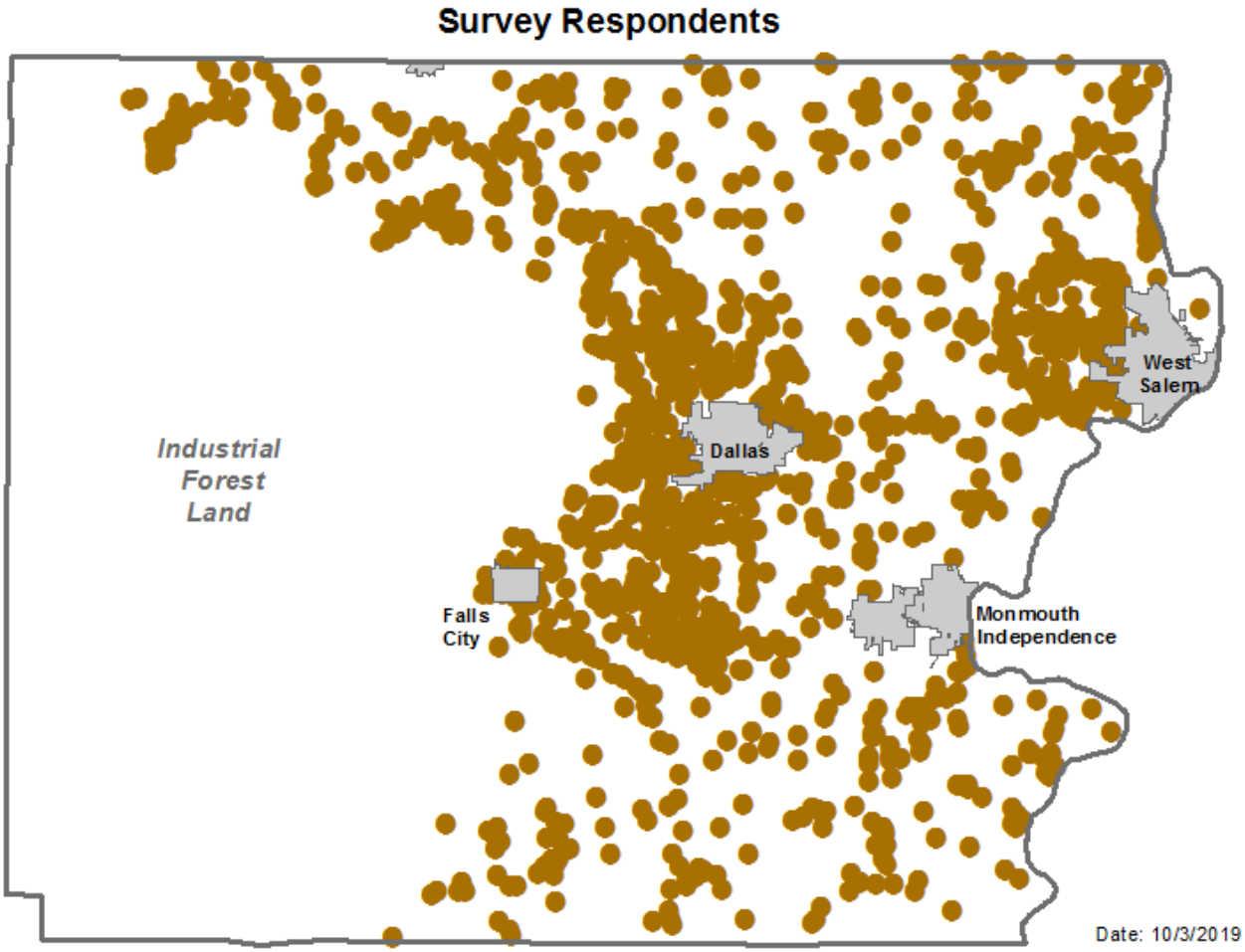
Rural Broadband Survey Summary

The Polk County Board of Commissioners has been approached repeatedly over the past few years by individuals stating that internet services provided to rural citizens in Polk County is poor and cannot be used to access needed services such as education, business, and safety. Unfortunately, the State of Oregon and Federal Government have reported that rural citizens generally have access to great internet services that meet the national broadband standard. To address this issue, the Commissioners requested Polk County Information Services conduct a study to answer basic questions about internet services being provided to rural citizens.

1. *Who are the internet service providers?*
2. *What level of service is being provided?*
3. *What are citizens using the internet for?*
4. *What is the general cost of service?*
5. *How do citizens rate their service?*
6. *Would they like better service?*

In the summer of 2019, Polk County IT sent out over 5000 surveys to rural property owners outside the city limits of Dallas, West Salem, Monmouth, and Independence. Property owners were asked to complete the confidential survey and mail it in or go to the county website and complete the on-line survey. The number of survey respondents was overwhelming. Approximately 32% of the property owners responded as illustrated in the following map.

The information provided in this report is collated from a variety of voluntary survey responses, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only.



SURVEY RESPONSES

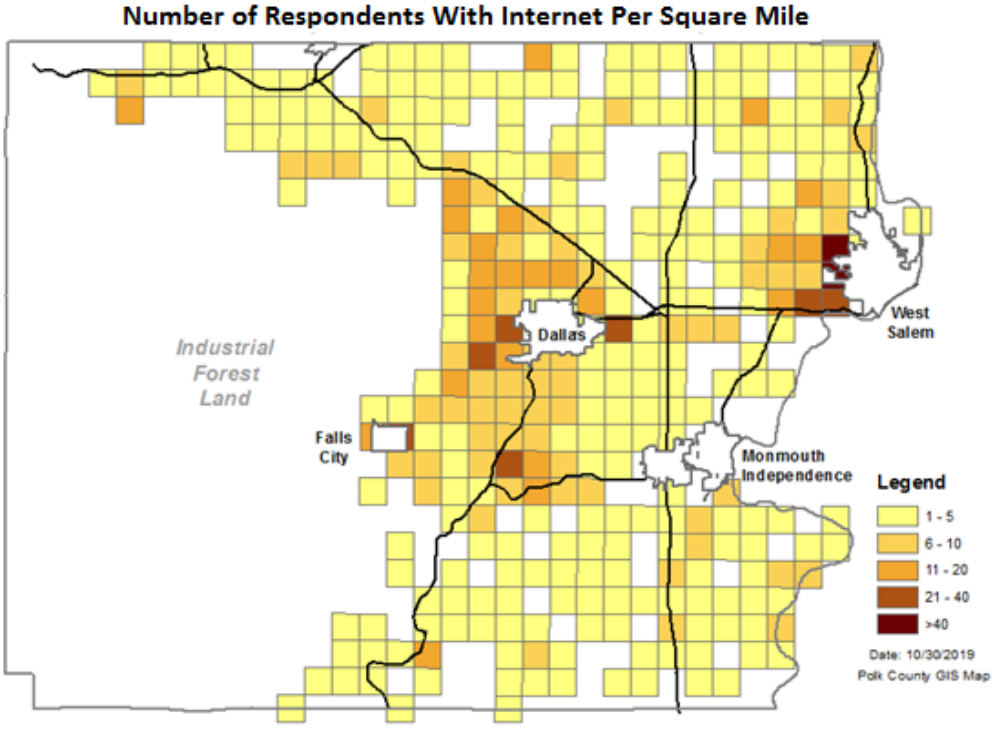
1) Who are the internet providers in Rural Polk County?

There are a large number (17) of internet providers in Rural Polk County as summarized below.

Primary Service Type *	Provider	Percent **
Mobile Wireless	AT&T	2.4
	Verizon	6.7
DSL	CenturyLink	36.0
Cable	Comcast/Xfinity	5.4
	Spectrum/Charter	4.1
	Wave	.9
Fixed Wireless	Adaptive Broadband	1.2
	Alyrica	6.2
	OnlineNW	10.5
	Viser	1.4
Satellite	Dish	2.1
	HughesNet	7.4
	Viasat	6.3
--	Other***	3.0
--	None	3.4
--	Unknown	3.2

* - Most providers deliver services with a variety of types. This is an estimate of the primary service type as provided in Polk County.
**-Rounded to nearest 1/10th%
***-Additional providers with less than 0.75% response

Approximately 97% of respondents answered this question. Respondents are widely distributed throughout the rural areas of the county, illustrated by the following map.



Provider Summary

- There are 17 internet service providers in Polk County, who service 94% of respondents that identified a vendor.
- Survey respondents are trying to get connected and use a wide variety of providers to do so.

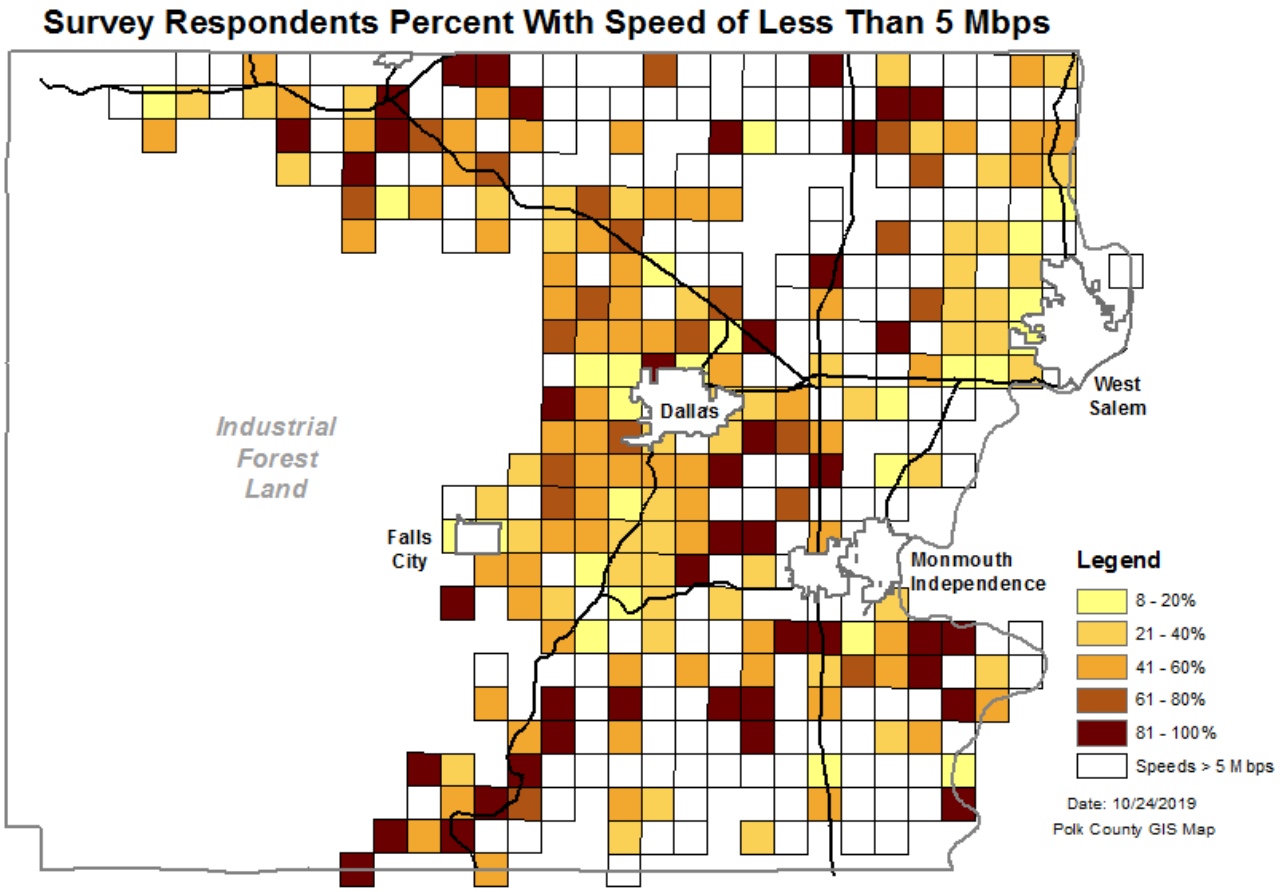
2) What level of service is being provided?

The survey respondents that had service were asked to estimate their level of service, and select a standard speed category or number of devices category and approximate use as summarized below (to the nearest 1%).

Simple	1 Device < 2Mbps – (Email/Facebook)	14%
Basic	1-2 Devices 2-4 Mbps – (Simple + simple video)	22%
Standard	2-3 Devices 5-10 Mbps – (Basic + videos)	35%
Enhanced	3-4 Devices 10-20 Mbps – (Standard + Hi Def Video)	19%
Broadband	5+ Devices > 20Mbps – (Enhanced + Gaming)	11%

Approximately 90% of the respondents answered this question. The remainder either did not have service (3.4%) or did not feel they could answer this question.

Respondents with simple or basic service (speeds less than 5Mbps) are widely distributed throughout the rural areas of the county, illustrated by the following map.

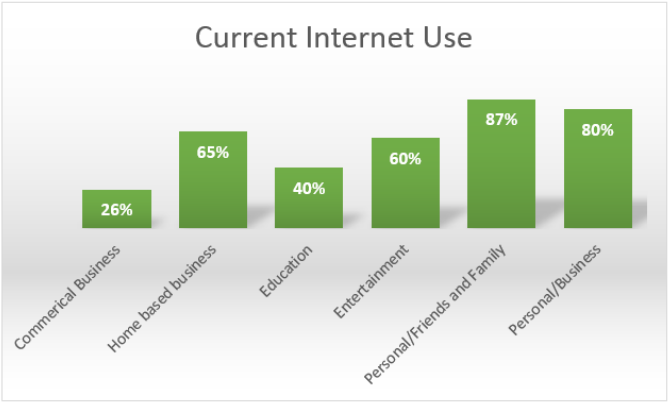


Level of service summary

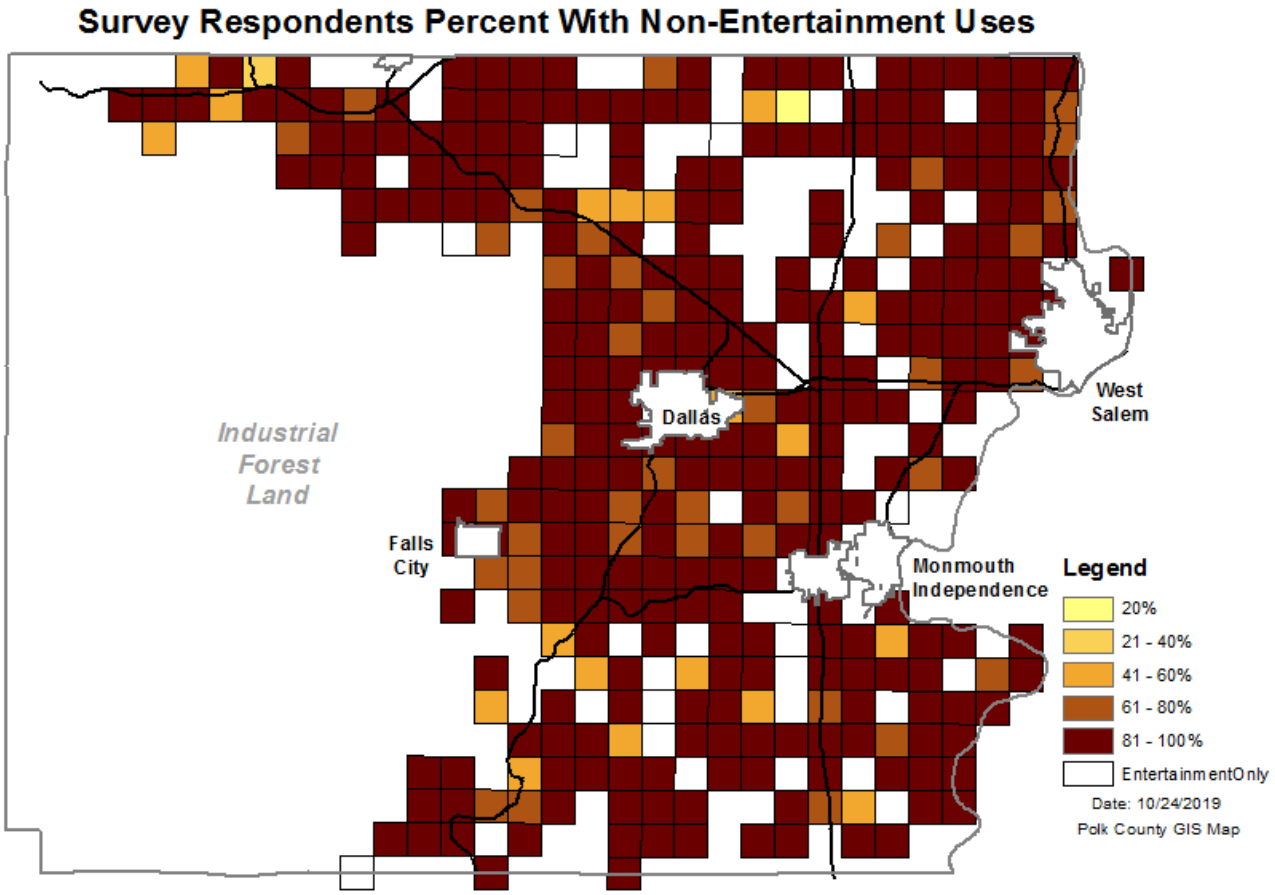
- Over 25% of respondents have services below "standard" internet access (speeds less then 5Mbps).
- Almost 90% have service that is well below the federal definition of broadband service
- According to reports from broadbandnow.com (1), the average speed of internet in Oregon is 42.8 Mbps and 90% of Oregonians have access to 100 Mbps or faster service

3) What is the internet used for?

The survey asked respondents to identify the different ways they used the internet by selecting from the following provided categories. The table summarizes to the nearest 1%.



Approximately 100% of the respondents answered this question. 88% of respondents use the internet for non-entertainment purposes and are widely distributed throughout the rural areas of the county as illustrated by the following map.

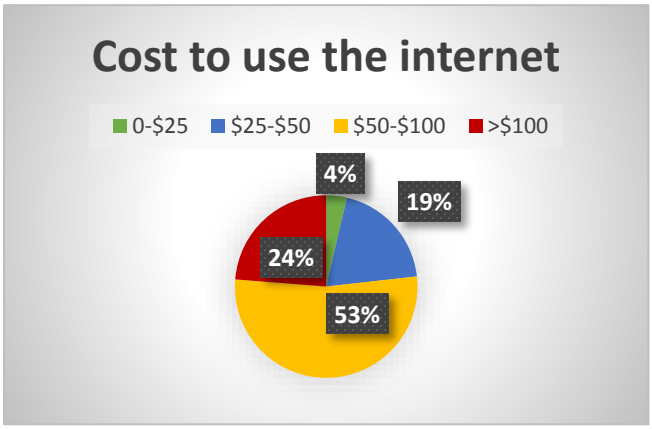


<u>Internet Use Summary</u>

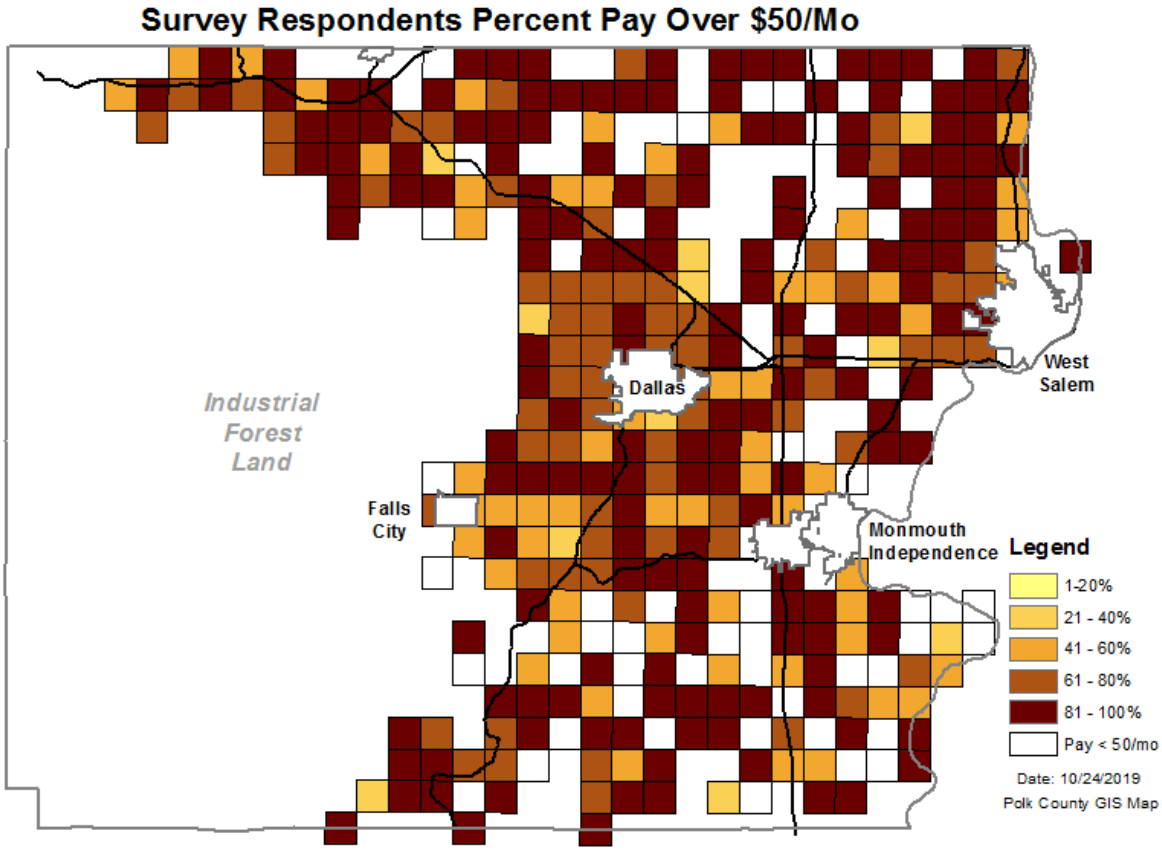
- 80% of the respondents use the internet for personal business.
- 40% of the respondents use the internet for education.
- A significant number of respondents use the internet for commercial or home based business.

4) What is the cost of internet service?

The survey asked respondents to identify their cost of service into one of four categories as the following table summarizes to the nearest 1%.



Approximately 96% of the respondents answered this question. The remainder either did not have service (3.4%) or did not feel they could answer this question. Respondents that pay a higher cost for internet service are widely distributed throughout the rural areas of the county, illustrated by the following map.

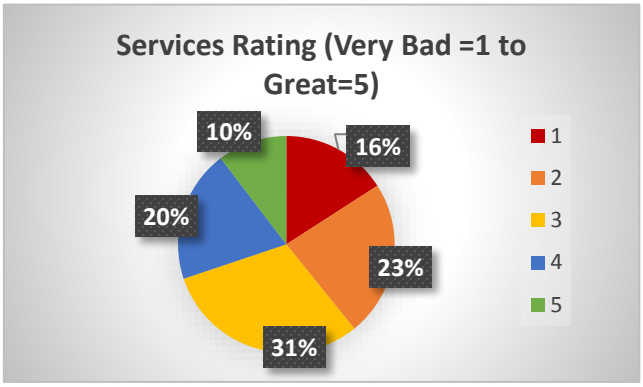


<u>Internet Use Summary</u>

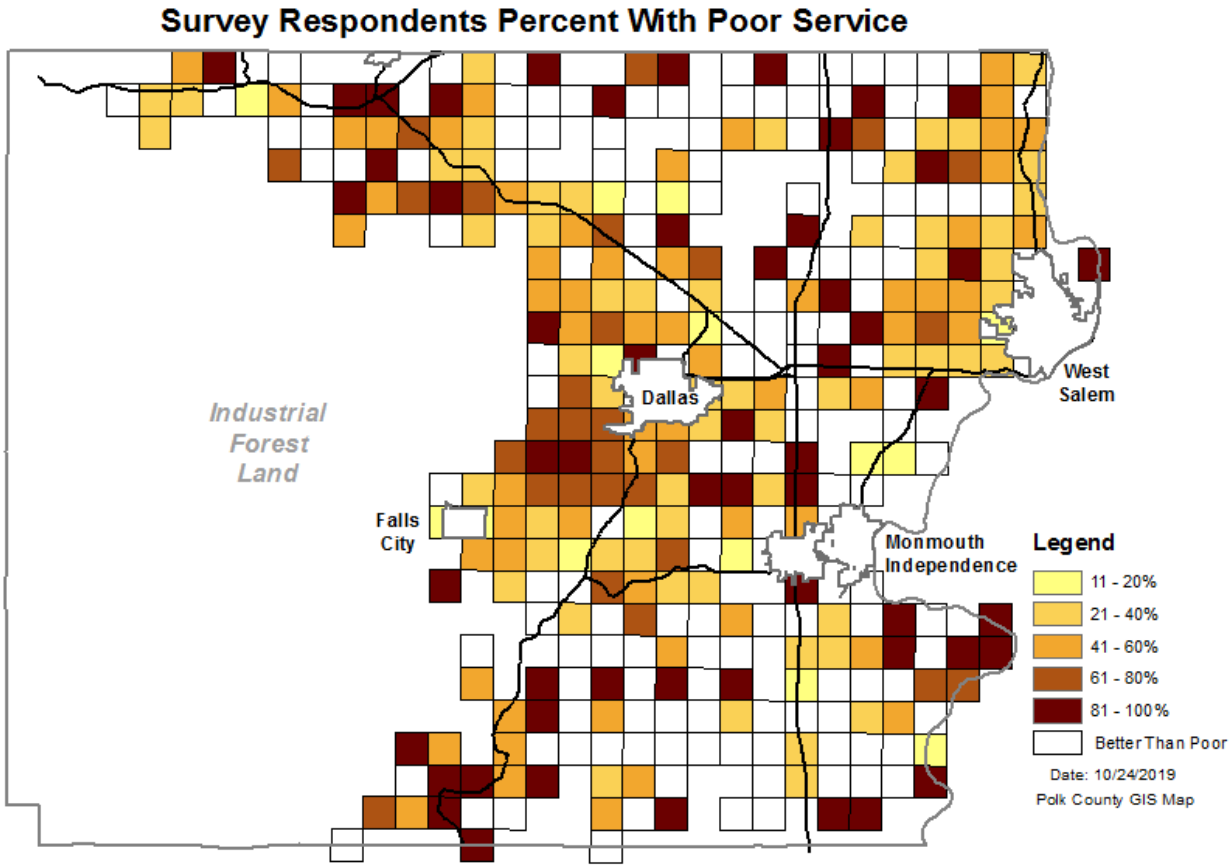
- Over 20% of the respondents pay over $100/mo for services.
- Over 75% of the respondents pay over $50/mo for services.
- The average cost for 60+ Mbps with unlimited access in the US is $60/mo. (2).

5) How do you rate your services

The survey asked respondents to rate their service from 1 (very bad) to 5 (great). The following table summarizes to the nearest 1%.



Approximately 95% of the respondents answered this question. The remainder either did not have service (3.4%) or did not feel they could answer this question. 39% of the respondents rated the services received from the providers as poor (Very Bad=1 and Bad=2).

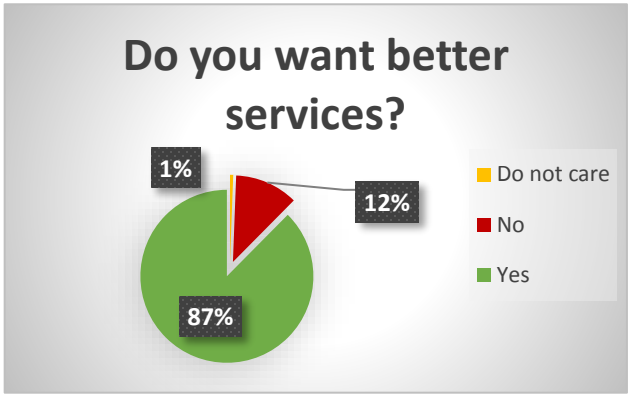


<u>Service Rating Summary</u>

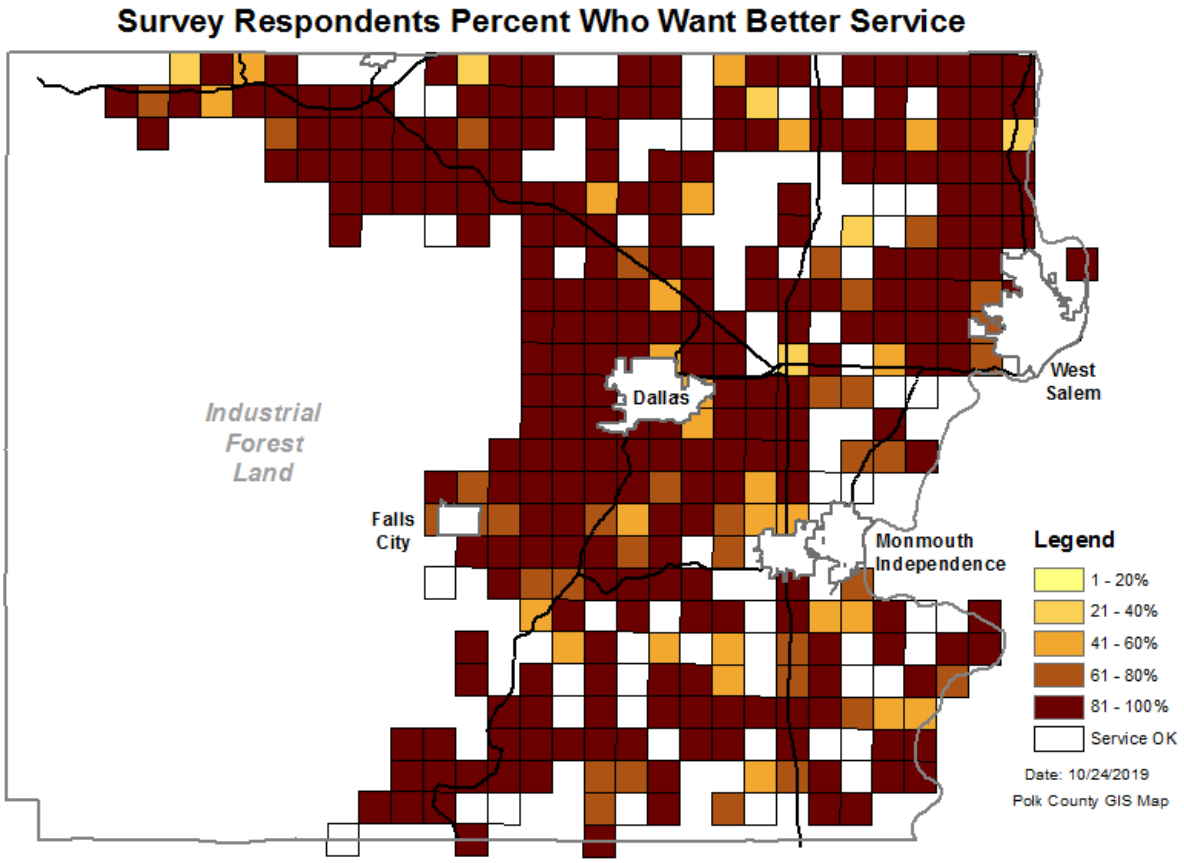
- Almost 40% of the respondents rate their services as being bad.
- Only 30% rate their service as better then OK.
- According to a recent national pole (3) the average ISP received a customer satisfaction rating of 62 out of 100.

6) Who wants better service

The survey asked who wants better services, the following graph summarizes to the nearest 1%.



Approximately 90% of the respondents answered this question. The remainder did not feel they could answer this question. Respondents that want better service are widely distributed throughout the rural areas of the county, illustrated by the following map.



<u>Internet Use Summary</u>

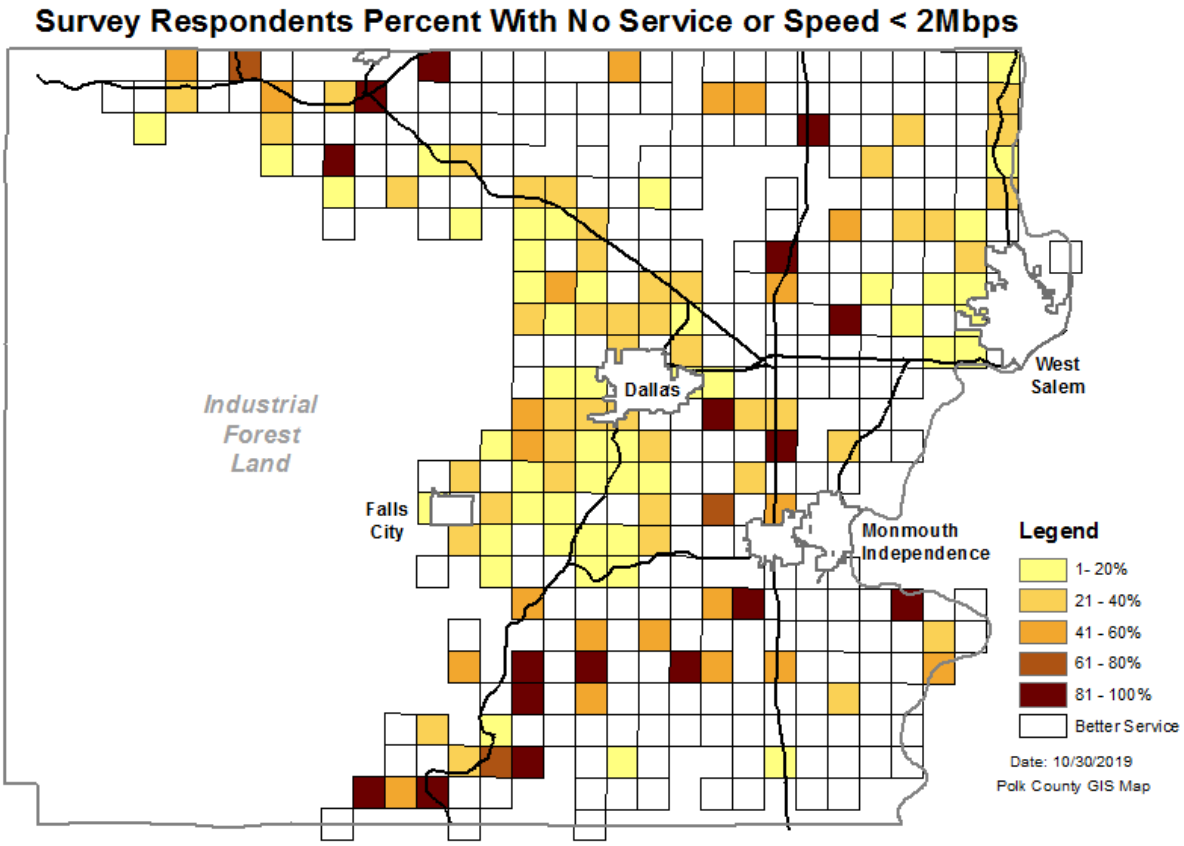
- Almost 87% of respondents want better services.
- For those using the internet for more than just entertainment, such as business, 90% want better service.

7) Underserved

A significant percentage of the respondent are underserved by the internet providers, as indicated by the following table. These respondents have very slow or no service, or are paying more for what they are getting compared to state and national averages. The federal guideline for broadband speed is 25 Mbps download and the average cost for 60+ Mbps with unlimited access in the US is $60/mo (2).

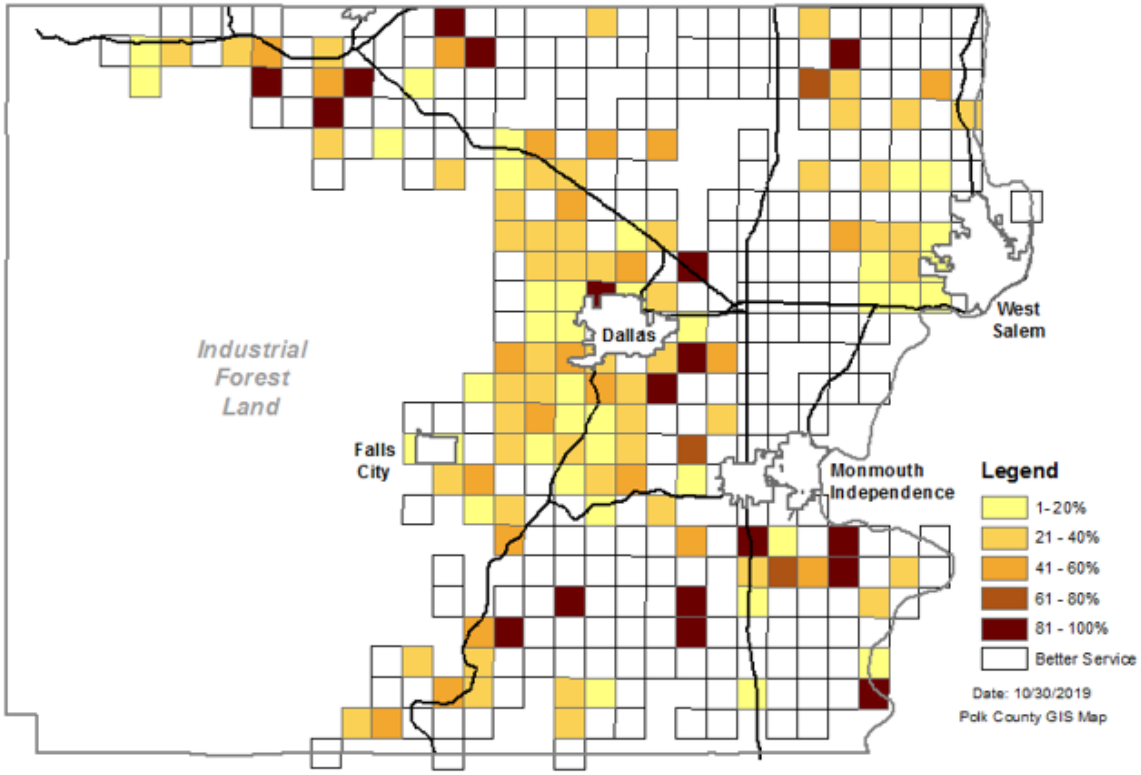
No Service / Speed < 2 Mbps	< 5Mbps and Cost > $50/month *	< 10Mbps and Cost > $100/month *
14%	22%	12%

The following map illustrates that one in ten respondents have little or no service and are widely scattered throughout the county.

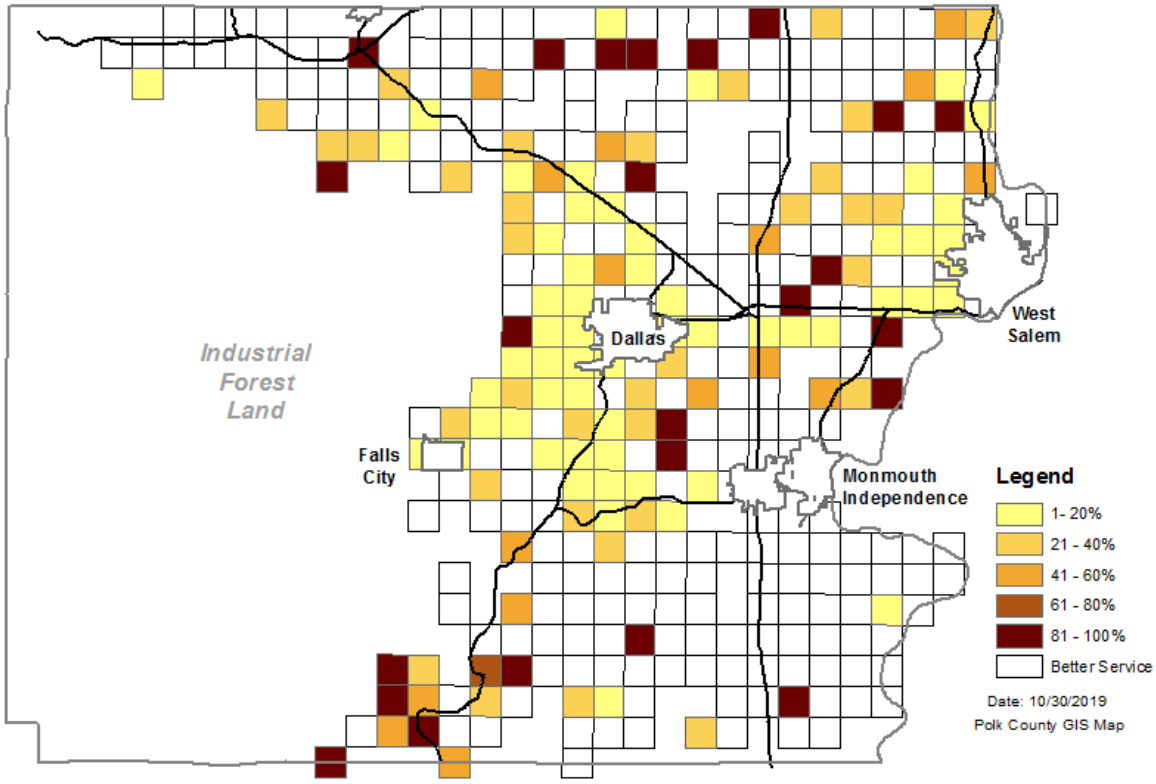


A significant number of respondents are paying more for less. One in five respondents pay close to the national average for service but receive services with speeds that are four times less than the national broadband recommendation and ten times less than the national average. In addition, a significant number of respondents are overpaying for services. One in 10 respondents pay much more than the national average for service but receive services with speeds that are more than twice as slow as the national broadband recommendation and five times less than the national average. The following two maps illustrate that these underserved respondents are widely distributed throughout the county.

Survey Respondents Percent With Speed < 5Mbps And Cost Over $50/mo



Survey Respondents Percent With Speed < 10Mbps And Cost Over $100/mo



<u>Underserved Summary</u>

- 1 in 10 respondents have no or very slow (< 2Mbps) service.
- 1 in 5 pay about the same as the national average but receive services that are 10 times slower.
- 1 in 10 pay almost twice the national average but receive services that are 5 times slower.

COMMENTS

Approximately 7% of the survey respondents felt strongly enough about the survey to add a comment. Comments fell into four categories.

1. **NO 5G** (< 1%) – Significantly against supporting 5G. A sample comment was, "NO 5G!!! This tech. has NOT been adequately safety tested".

2. **NO Services** (<1%) – Felt strongly about not having internet service to comment. A sample comment was, "Not available for internet service by ANY provider in our area".

3. **NO Government** (<1%) – Felt strongly that Polk County should not become an internet provider. A sample comment was "I do not want Polk County getting into the Net, like the $$$ Wreck MINET is!!"

4. **Better Cheaper Service** (6%) – Felt strongly that they need cheaper or better service. Two sample comments were: "Latency is a problem with satellite internet, which makes streaming impossible." and "Should be cheaper! Especially for slow, intermittent."

Less the 1% of the survey respondents felt strongly enough to call, email or visit the Polk County IT Office. All of these respondents fell into the request Better Cheaper Service category.

THE SURVEY METHODOLOGY

The survey was developed using the following resources.

- Similar surveys conducted by other local governments
- Reports available from the National Telecommunications and Information Administration (NTIA)
- Reports available from the Federal Communications Commission (FCC)
- Surveys conducted by the PEW Research Center

The survey was tested and modified twice prior to being released to the public to ensure that answers accurately addressed the questions being asked. To ensure neutrality counting, a 3rd party vendor was used to manage the mailing and compile responses.

As an important note, the survey did NOT ask respondents to complete a computer based speed test. It was felt that conducting speed tests and accounting for speed test variability exceeded the scope of this study. A significant number of speed tests were conducted using mobile devices as part of the county wireless service evaluation. This is part of another study the County is in the process of completing

ESRI's ArcMap software and On-Line GIS Services were used to support that mapping process. Standard County geographic information system (GIS) layers were used to support analysis and mapping efforts including City Limits, Roads, and the County Boundary.

Respondent locations were geographically located using the taxlots number associated with the survey (the source of survey addresses) by generating taxlot centroids for each respondent. Respondents that answered the survey on-line did not identify their taxlot and the entered address was used for their place of residence. The addresses were geographically located using on-line geolocation tools and then were combined with the respondents that completed the mail-in form. This methodology worked well but may not always accurately locate the residence. Mapping residence locations to the improvements is currently not available in Polk County and is beyond the scope of this study. The aggregation process to square mile minimized this potential error.

A square mile grid was selected as the aggregation structure for analyzing respondent information. Square mile is a typical density measure that is easy to understand and is commonly used by the census bureau for many density statistics (3). The data was not aggregated to census block. Identifying relationships between respondent results and socio-economic information was outside the scope of this study and may be done at some future time.

Each survey response was analyzed separately and the number of unanswered surveys for that response was noted for each map. Several methodologies exist for addressing missed survey answers and could include considerable interpolation of information (5).

Percent response per square mile statistics were calculated as follows:

1) Total Respondents = Count respondents per square mile
2) Category Total = Count respondents that met a specific category (ie. pay $50 to $100 or more than $100 / month for service) per square mile.
3) Percent = (Category Total / Total Respondents) * 100

Creating the generalized service territory maps were created for each provider by finding the number of nearby (within one mile) respondents that used that provider's services for each square mile grid cell in the county.

REFERENCES

1) Speeds - https://broadbandnow.com/Oregon

2) Cost of Service
https://www.highspeedinternet.com/resources/how-much-should-i-be-paying-for-high-speed-internet-resource
https://www.allconnect.com/blog/cost-of-high-speed-internet
https://www.atlasandboots.com/remote-jobs/countries-with-the-cheapest-internet-world
http://cost-finder.com/what-is-the-average-cost-of-internet-around-the-world

3) Customer Satisfaction - ACSI Telecommunications Report 2018-2019 - May 21, 2019
https://www.theacsi.org/news-and-resources/customer-satisfaction-reports/reports-2019/acsi-telecommunications-report-2018-2019

4) US Census Bureau population density reports search results – October 2019. https://www.census.gov/search-results.html?stateGeo=none&q=population+density&searchtype=web

5) PROS AND CONS OF INCLUDING PARTIAL RESPONSES TO SURVEYS – ResearchScape Blog, Monday, May 21, 2018, http://www.researchscape.com/blog/partial-responses

APPENDIX: Provider Summary

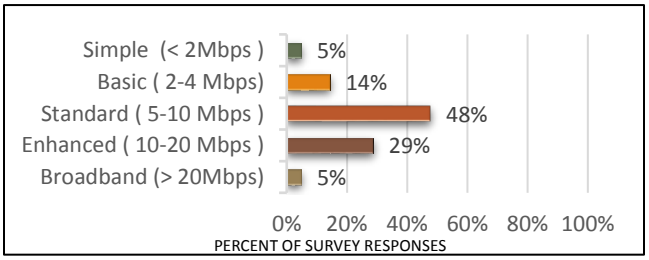
This appendix contains summary information for each of the major providers identified and contains the service statistics and approximate service territory for each. The service territory were calculated using the square mile grids previously used. For each grid the number of respondents that use that provider and are within one mile of the square were tabulated.

POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

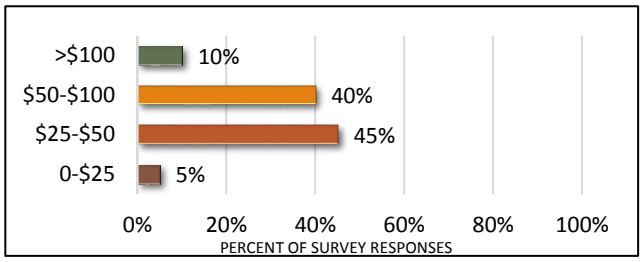
ADAPTIVE BROADBAND

TOTAL NUMBER- 20 (1% OF ALL SURVEYRESPONDENTS)

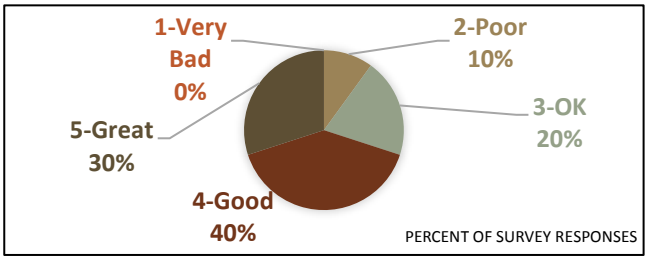
REPORTED APPROXIMATE SPEED CATEGORIES



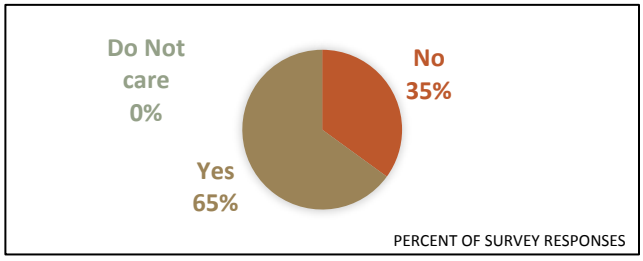
MONTHLY COSTS $



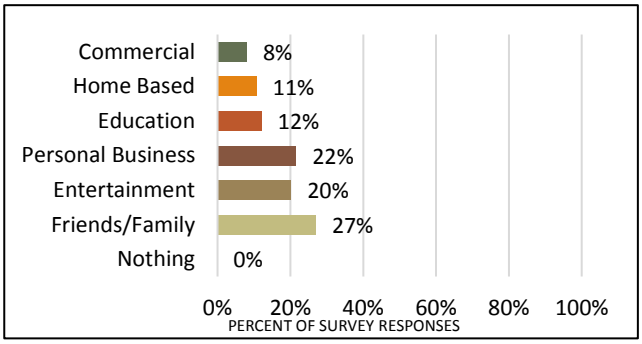
HOW DO YOU RATE SERVICE (1-Very Bad to 5-Great)



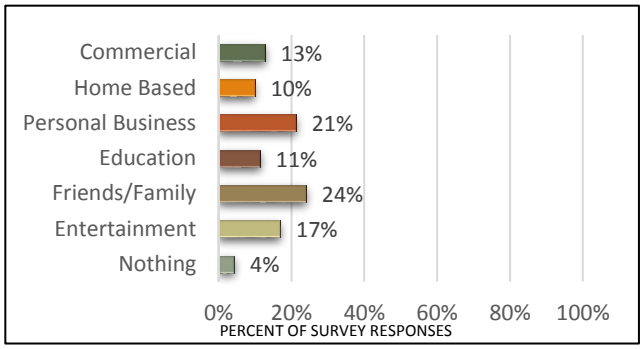
DO YOU WANT BETTER ACCESS?



CURRENT USE

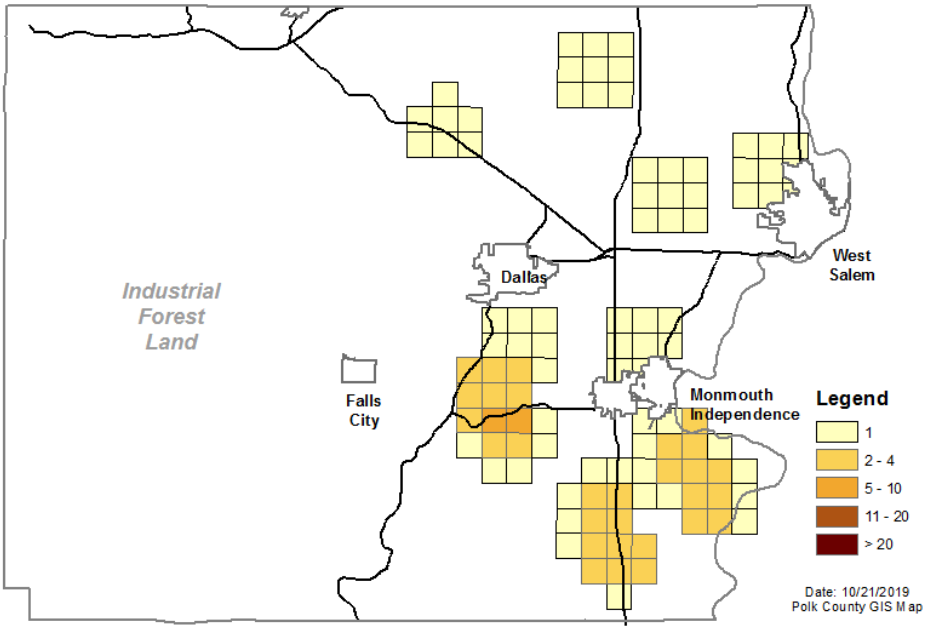


USE IF FASTER



Generalized Service Area

(Number Respondents Within One Mile)

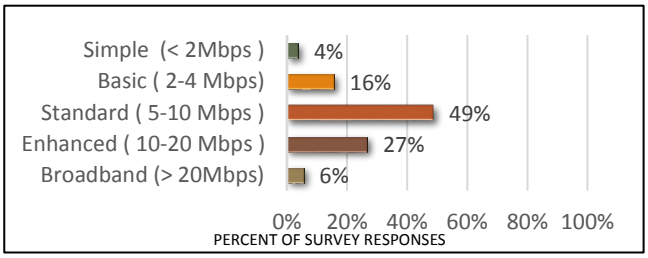


The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

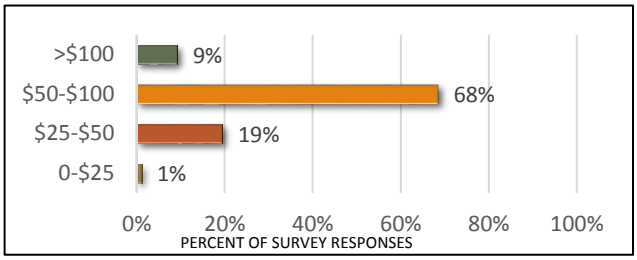
POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

ALYRICA — TOTAL NUMBER 102-(6% OF ALL SURVEY RESPONDENTS)

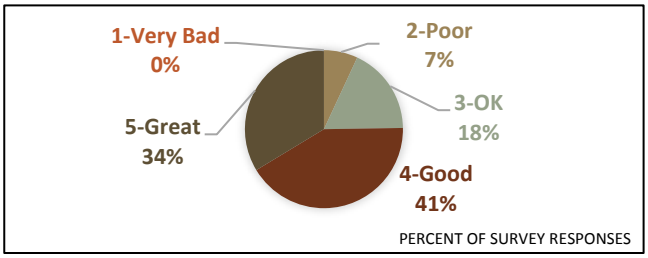
REPORTED APPROXIMATE SPEED CATEGORIES



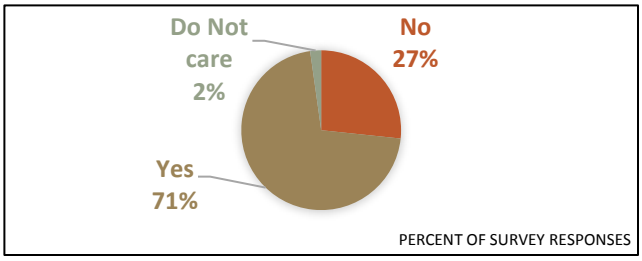
MONTHLY COSTS $



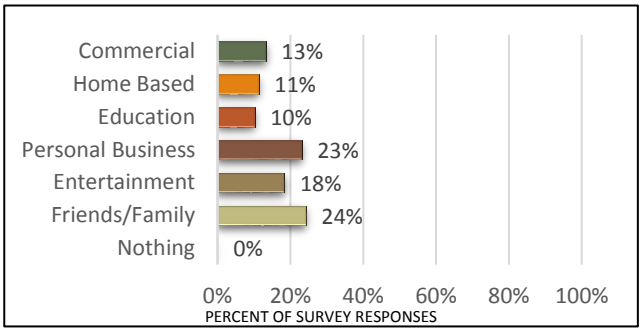
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



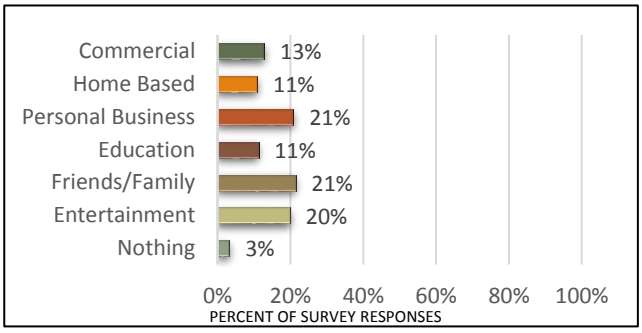
DO YOU WANT BETTER ACCESS?



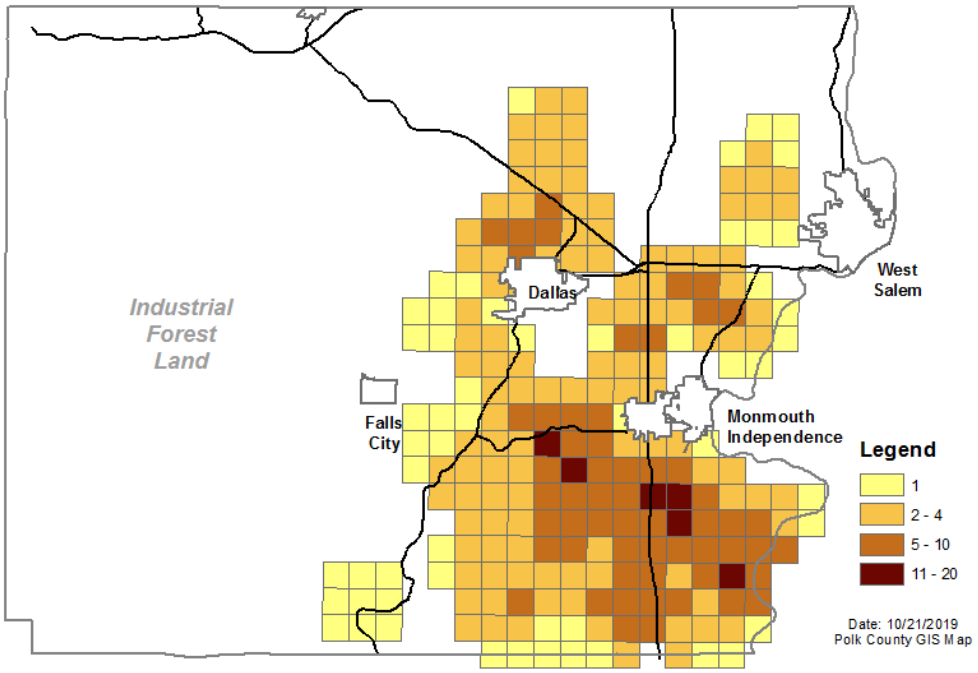
CURRENT USE



USE IF FASTER



Generalized Service Area
(Number Respondents Within One Mile)

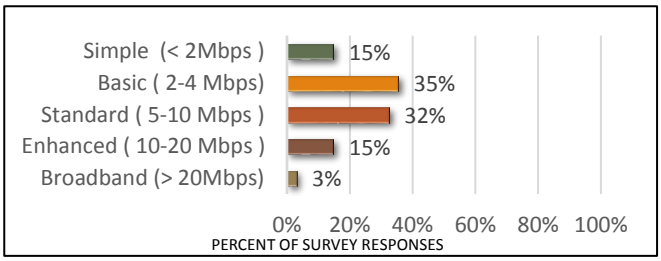


The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

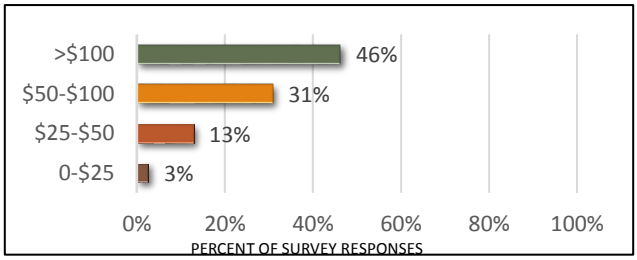
POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

AT&T MOBILITY LLC — TOTAL NUMBER 40-(2% OF ALL SURVEY RESPONDENTS)

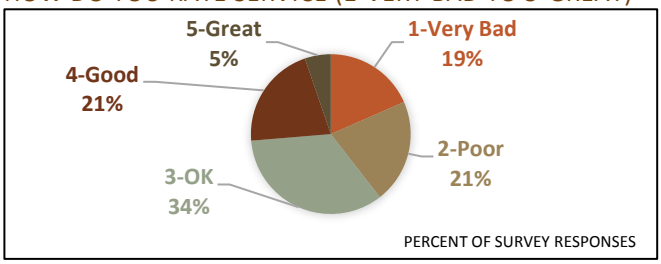
REPORTED APPROXIMATE SPEED CATEGORIES



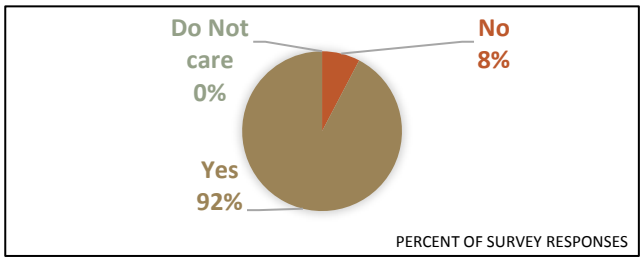
MONTHLY COSTS $



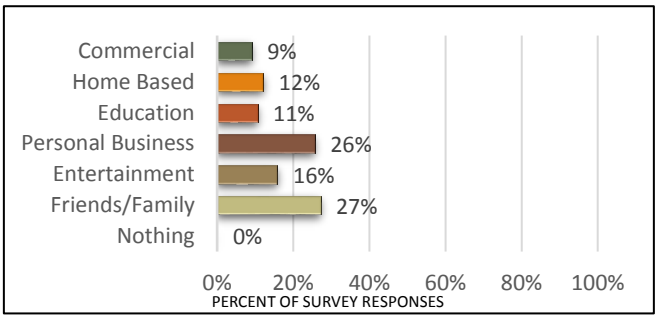
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



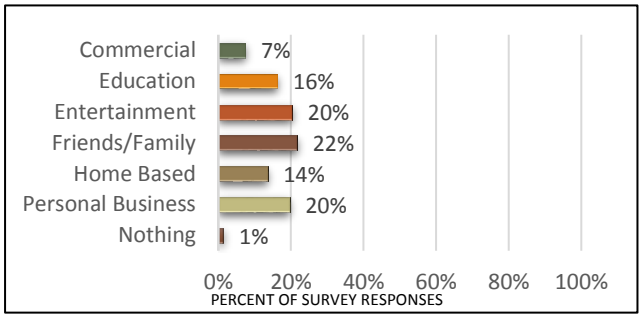
DO YOU WANT BETTER ACCESS?



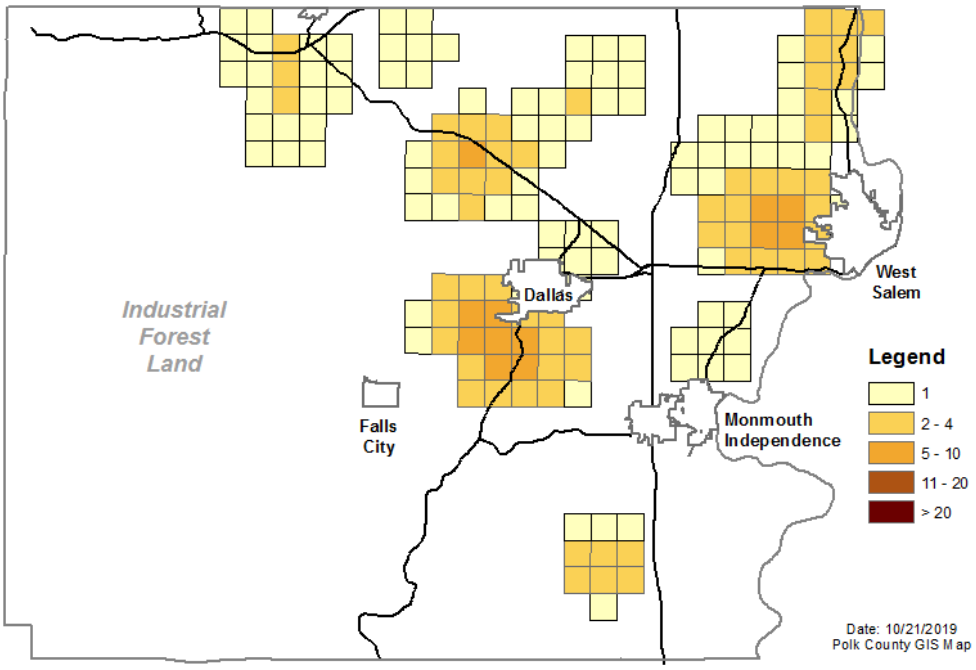
CURRENT USE



USE IF FASTER



Generalized Service Area
(Number Respondents Within One Mile)

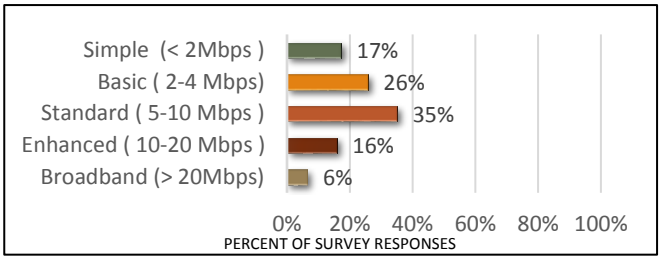


The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

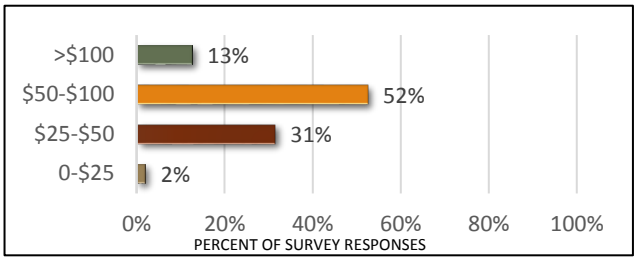
POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

CENTURYLINK — TOTAL NUMBER 590-(36% OF ALL SURVEY RESPONDENTS)

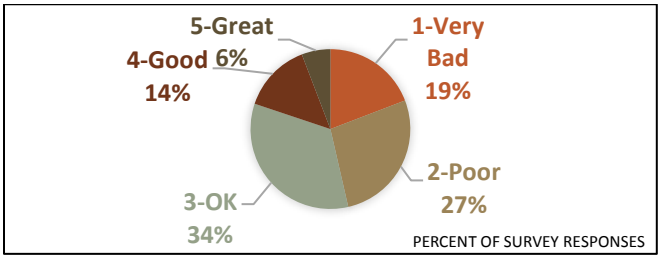
REPORTED APPROXIMATE SPEED CATEGORIES



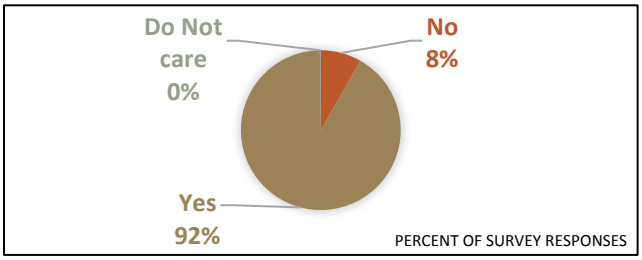
MONTHLY COSTS $



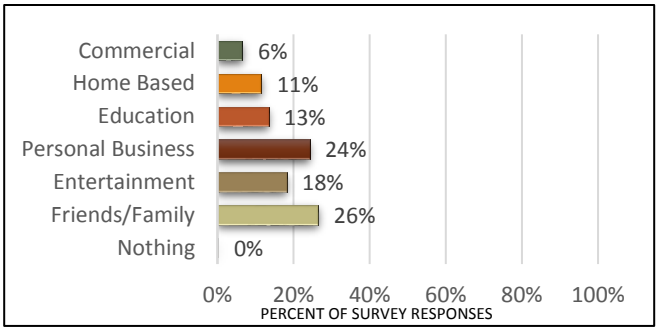
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



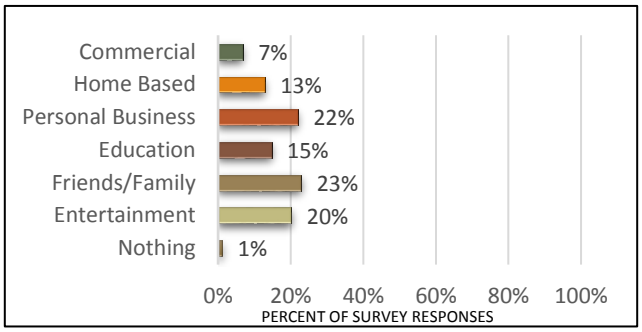
DO YOU WANT BETTER ACCESS?



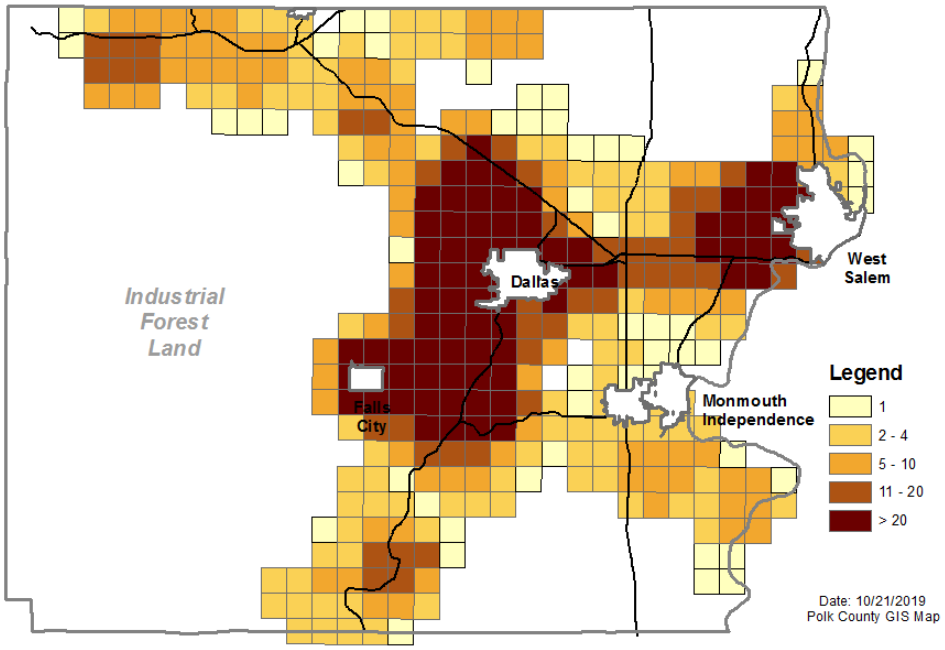
CURRENT USE



USE IF FASTER



Generalized Service Area
(Number Respondents Within One Mile)



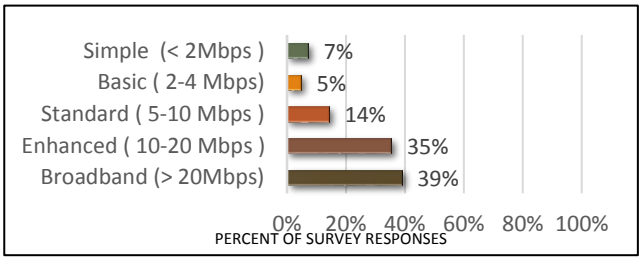
The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

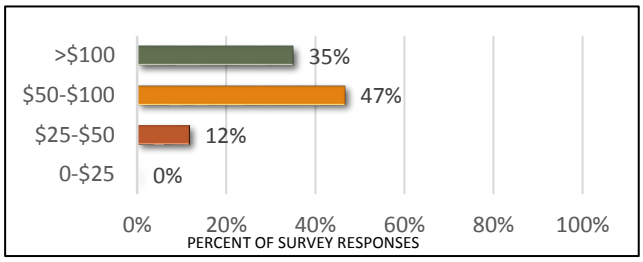
COMCAST

TOTAL NUMBER 88-(5% OF ALL SURVEY RESPONDENTS

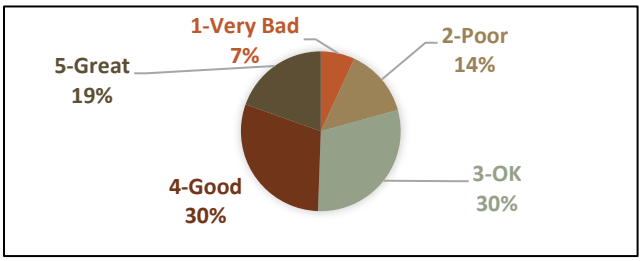
REPORTED APPROXIMATE SPEED CATEGORIES



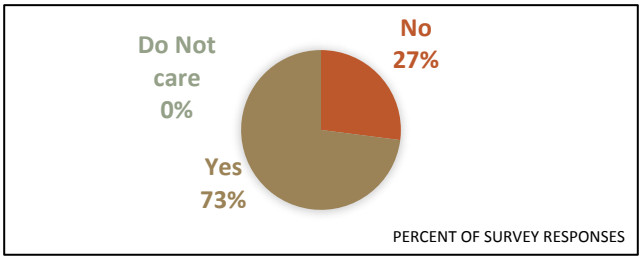
MONTHLY COSTS $



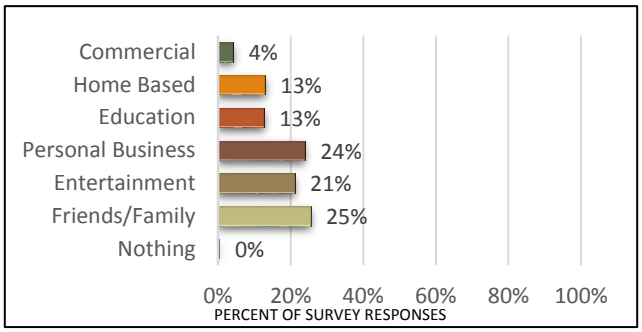
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



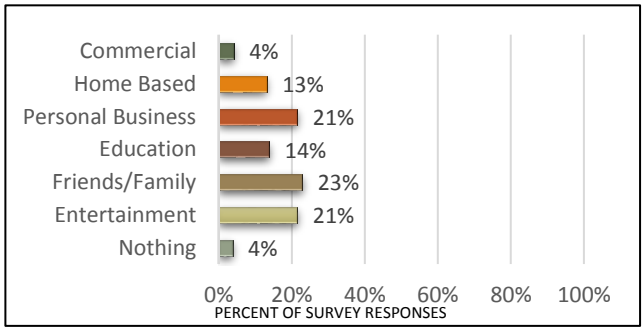
DO YOU WANT BETTER ACCESS?



CURRENT USE

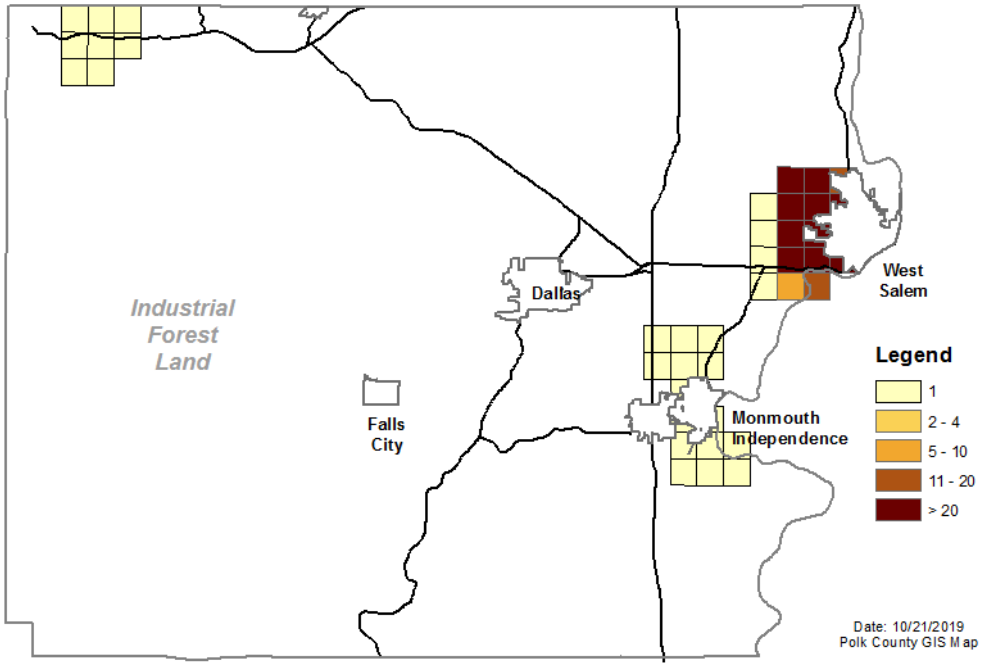


USE IF FASTER



Generalized Service Area

(Number Respondents Within One Mile)



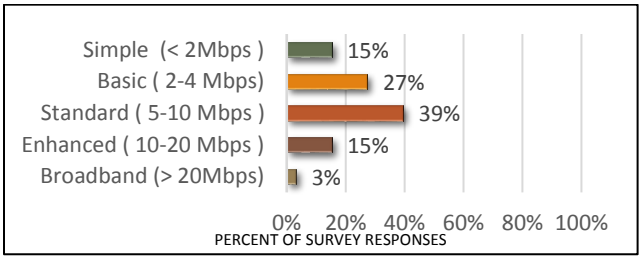
The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

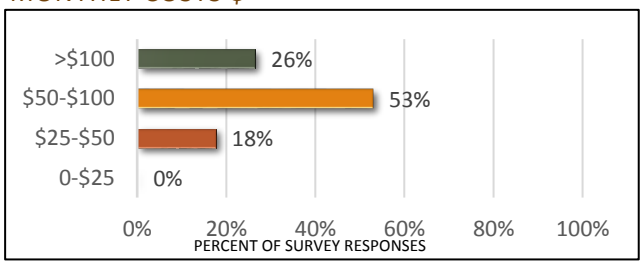
DISH

TOTAL NUMBER 34-(2% OF ALL SURVEY RESPONDENTS)

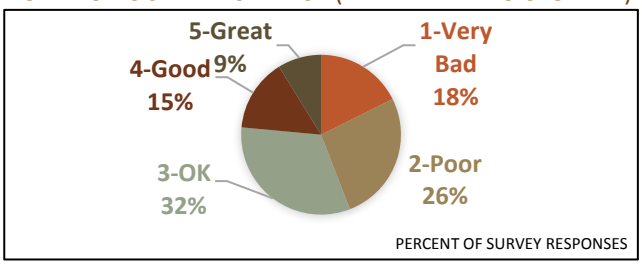
REPORTED APPROXIMATE SPEED CATEGORIES



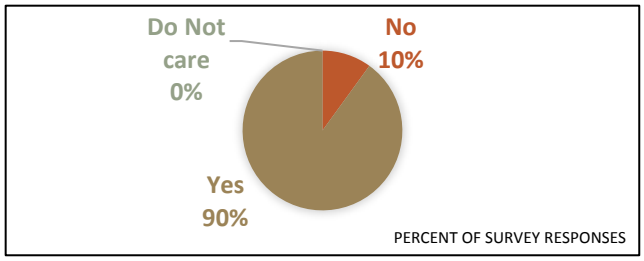
MONTHLY COSTS $



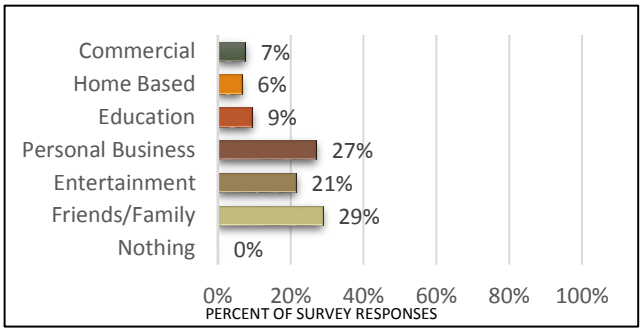
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



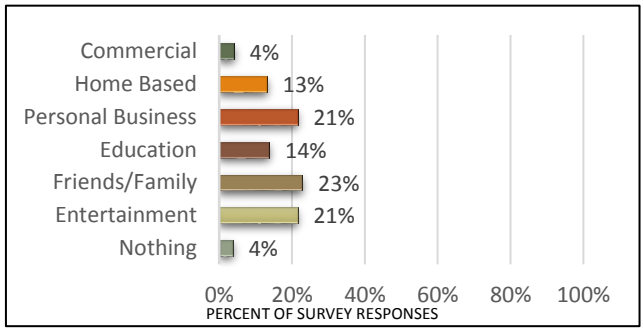
DO YOU WANT BETTER ACCESS?



CURRENT USE

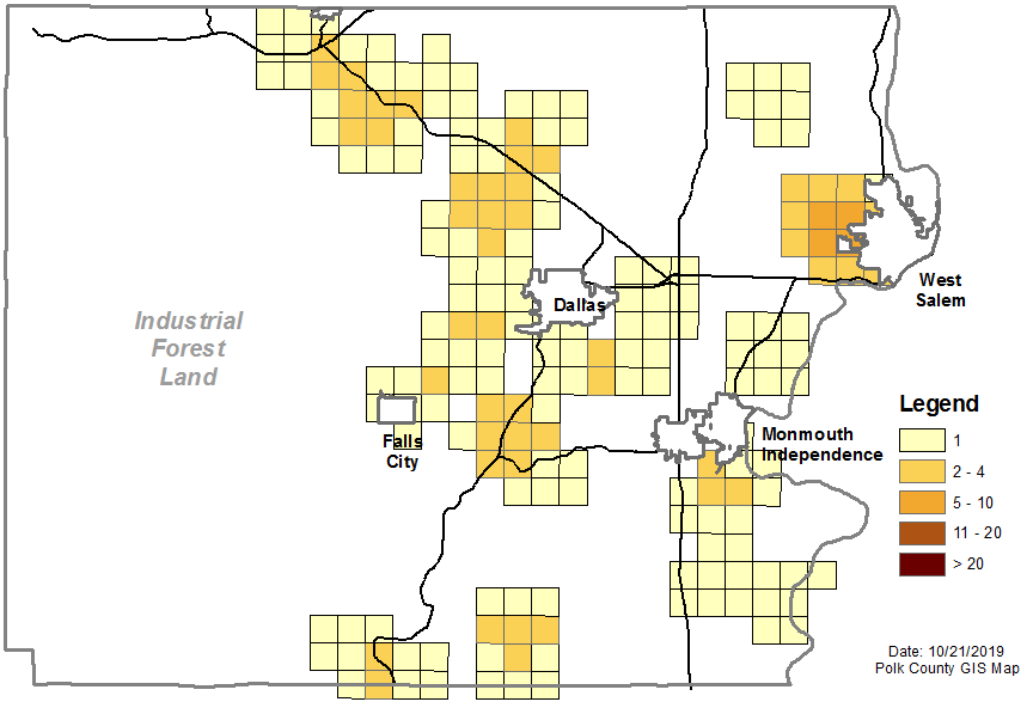


USE IF FASTER



Generalized Service Area

(Number Respondents Within One Mile)



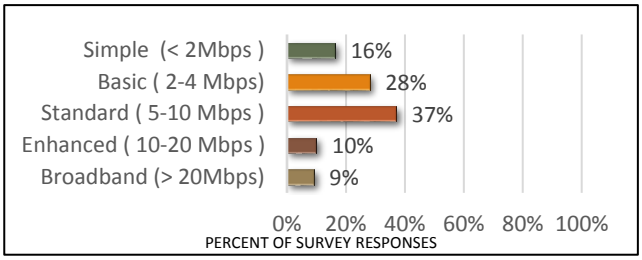
The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

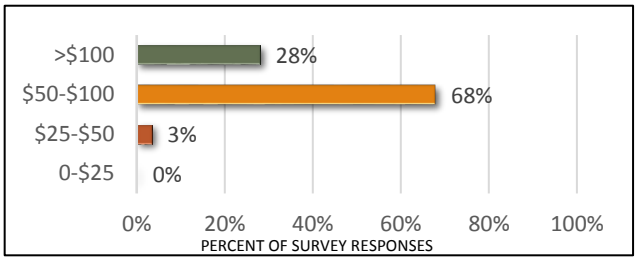
HUGHESNET

TOTAL NUMBER 121-(7% OF ALL SURVEY RESPONDENTS)

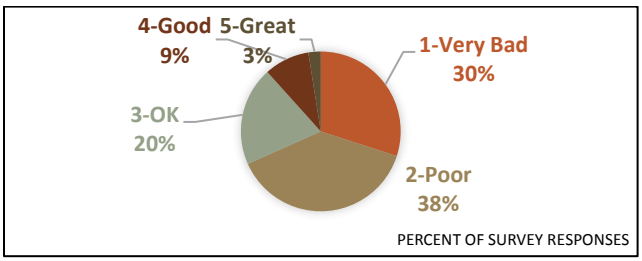
REPORTED APPROXIMATE SPEED CATEGORIES



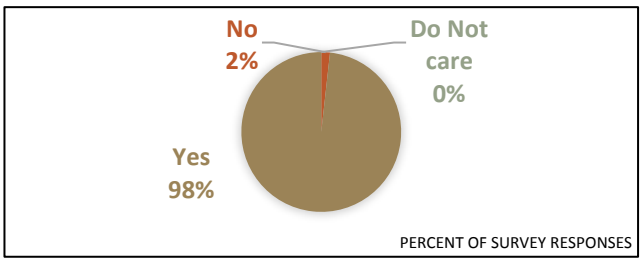
MONTHLY COSTS $



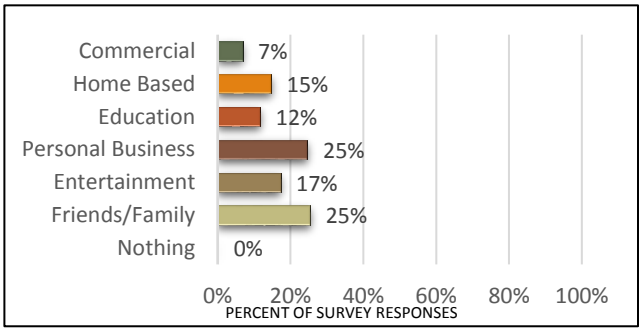
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



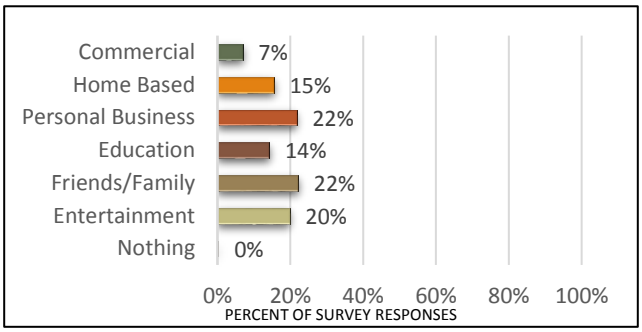
DO YOU WANT BETTER ACCESS?



CURRENT USE

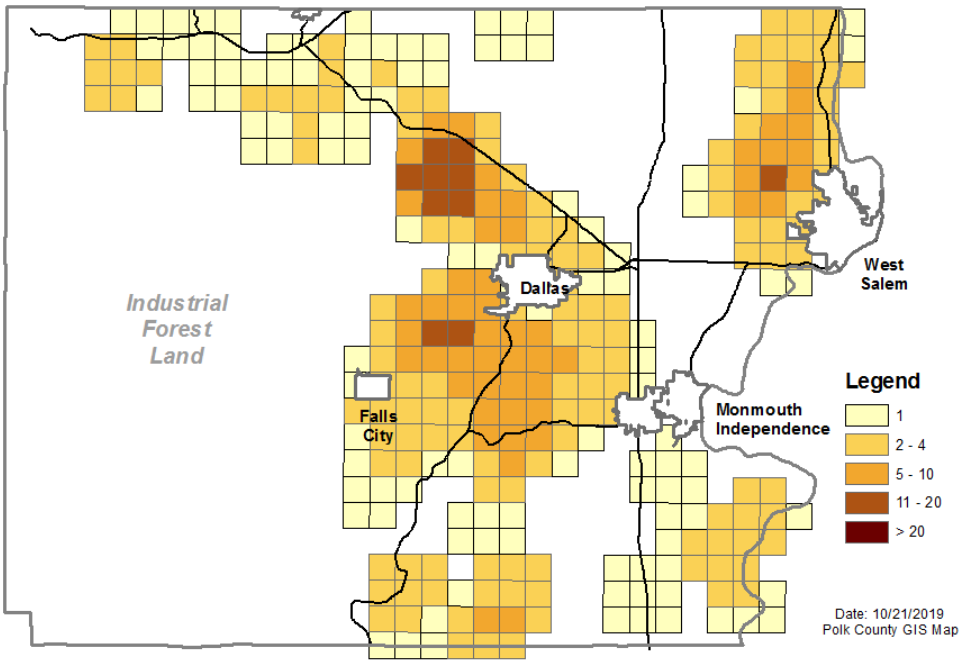


USE IF FASTER



Generalized Service Area

(Number Respondents Within One Mile)

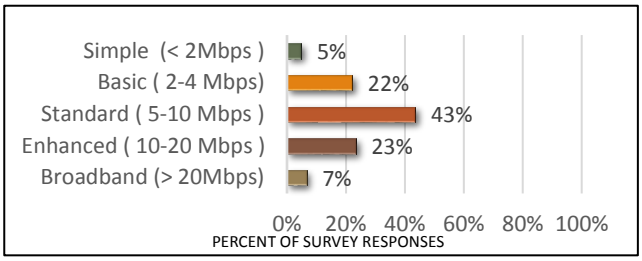


The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

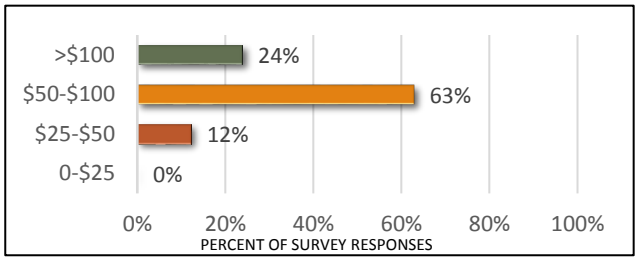
POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

ONLINENW TOTAL NUMBER 173-(11% OF ALL SURVEY RESPONDENTS)

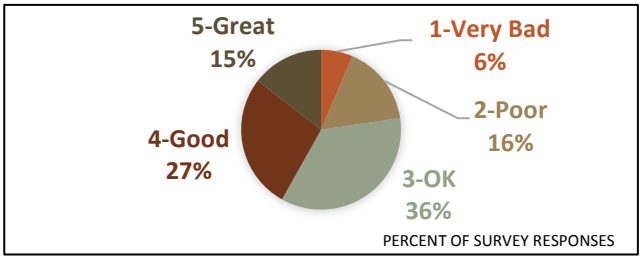
REPORTED APPROXIMATE SPEED CATEGORIES



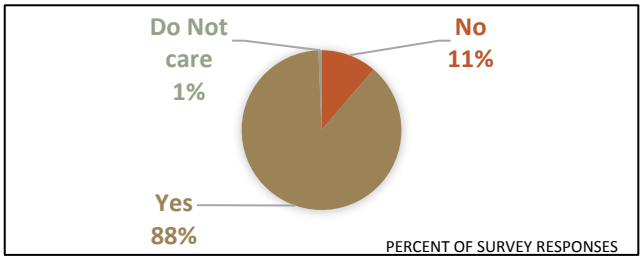
MONTHLY COSTS $



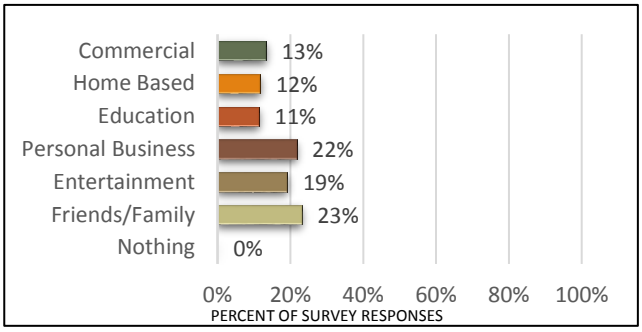
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



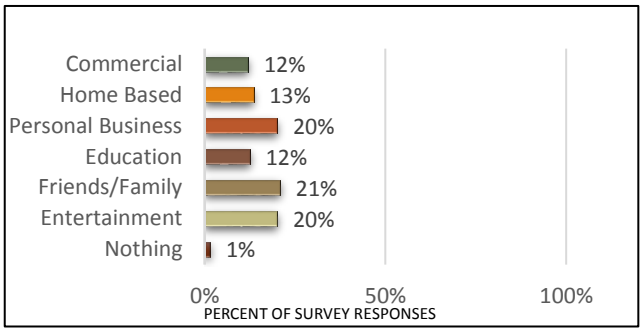
DO YOU WANT BETTER ACCESS?



CURRENT USE

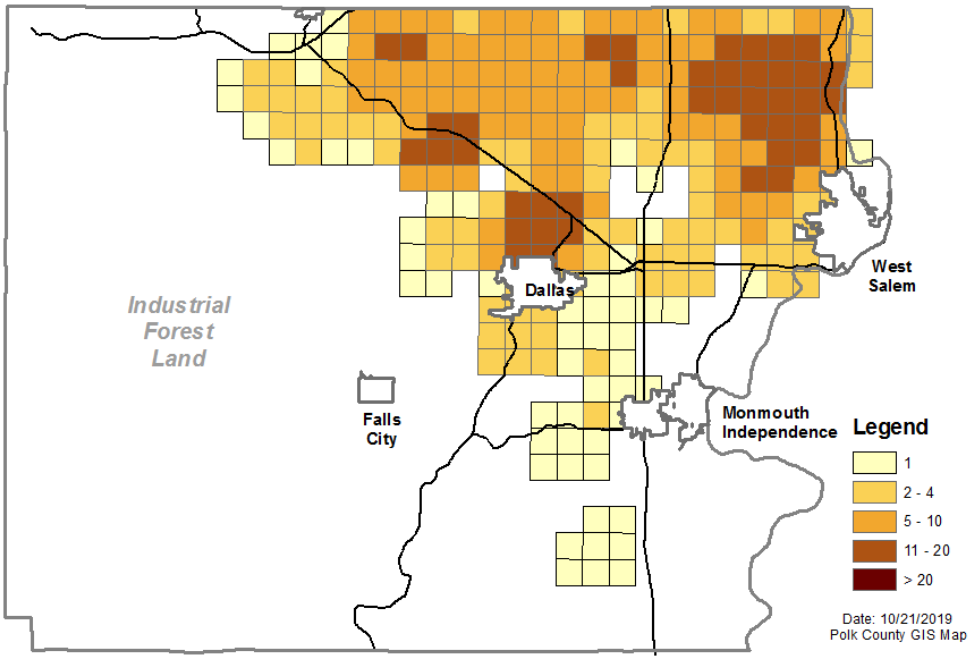


USE IF FASTER



Generalized Service Area

(Number Respondents Within One Mile)



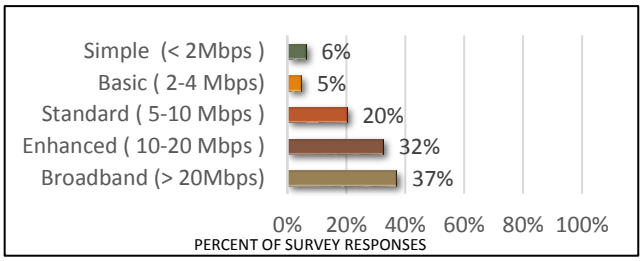
The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

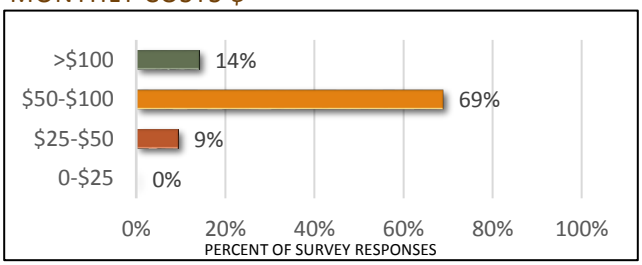
SPECTRUM/CHARTER

TOTAL NUMBER 65-(4% OF ALL SURVEY RESPONDENTS)

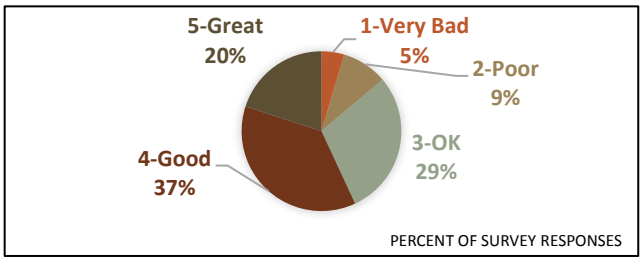
REPORTED APPROXIMATE SPEED CATEGORIES



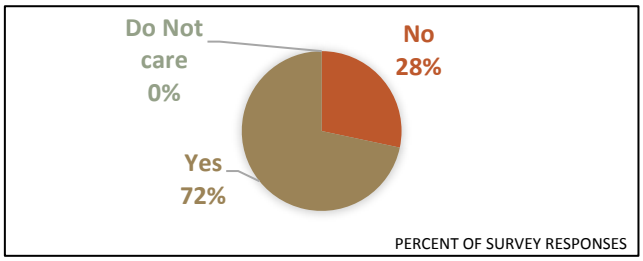
MONTHLY COSTS $



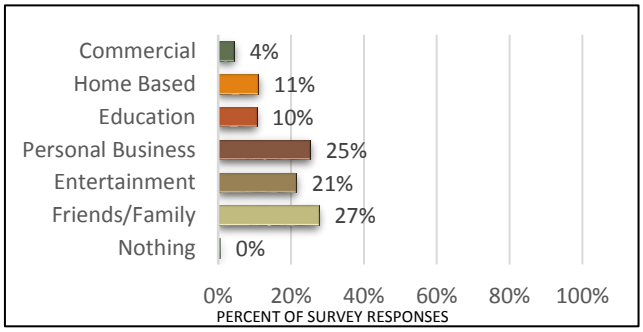
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



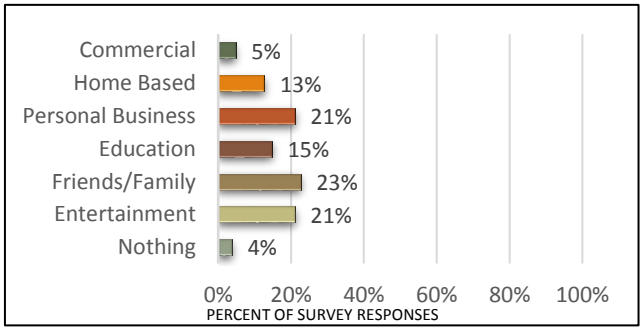
DO YOU WANT BETTER ACCESS?



CURRENT USE

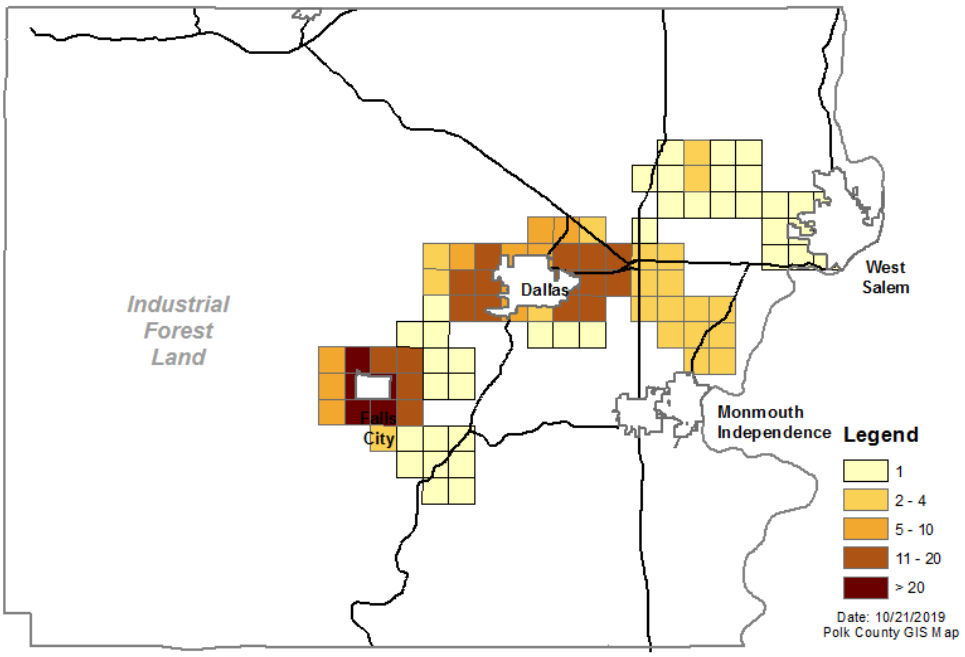


USE IF FASTER



Generalized Service Area

(Number Respondents Within One Mile)



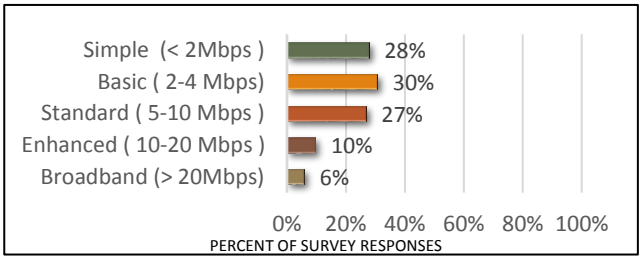
The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

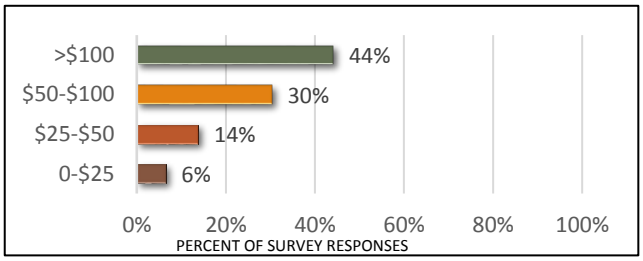
VERIZON WIRELESS

TOTAL NUMBER 110-(7% OF ALL SURVEY RESPONDENTS)

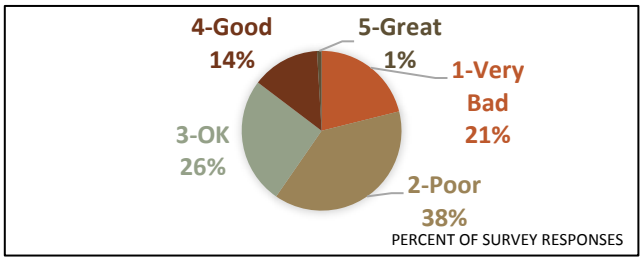
REPORTED APPROXIMATE SPEED CATEGORIES



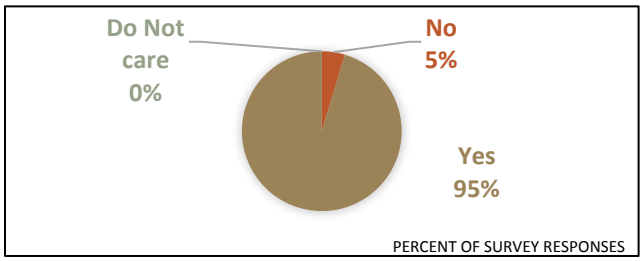
MONTHLY COSTS $



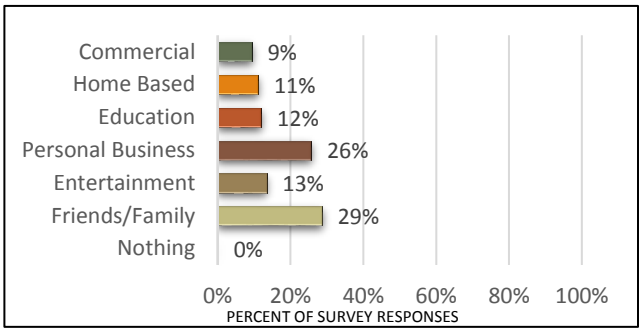
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



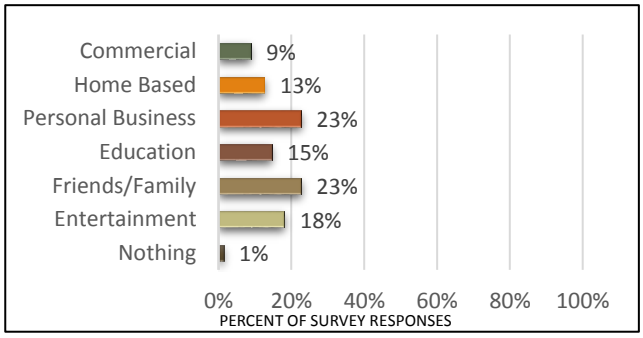
DO YOU WANT BETTER ACCESS?



CURRENT USE

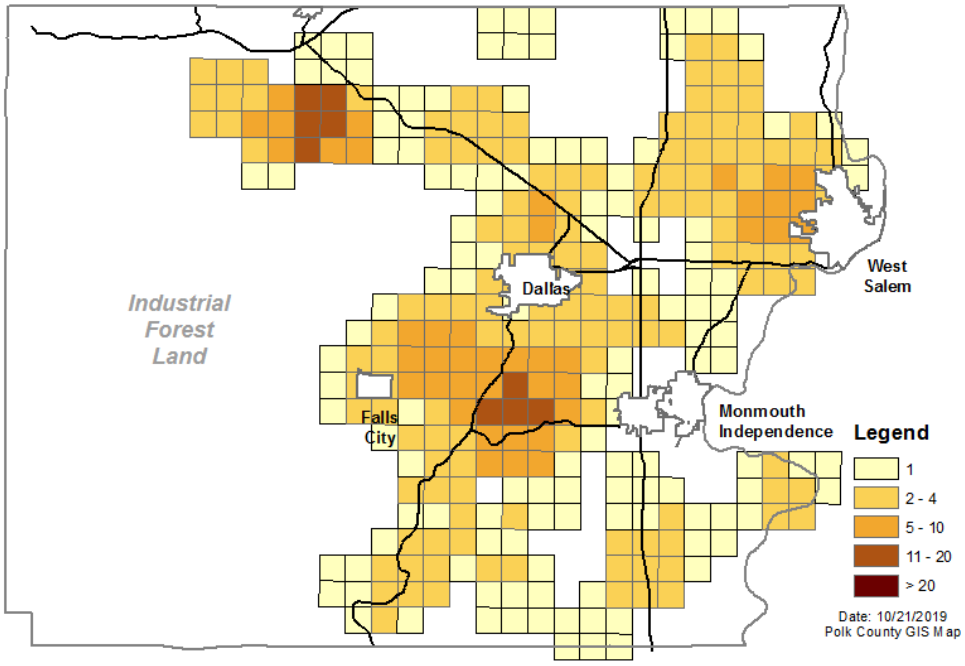


USE IF FASTER



Generalized Service Area

(Number Respondents Within One Mile)



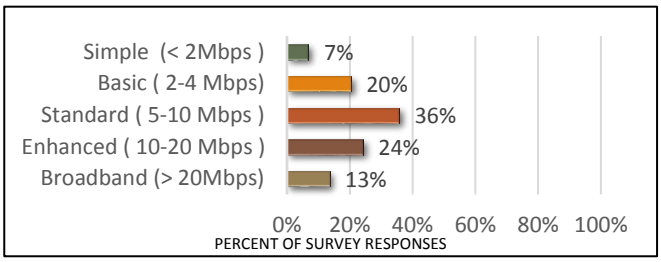
The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

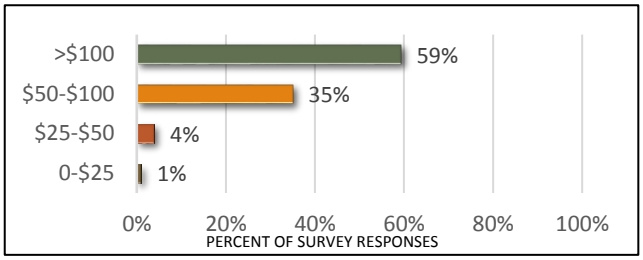
VIASAT COMMUNICATIONS, INC.

TOTAL NUMBER 103-(6% OF ALL SURVEY RESPONDENTS)

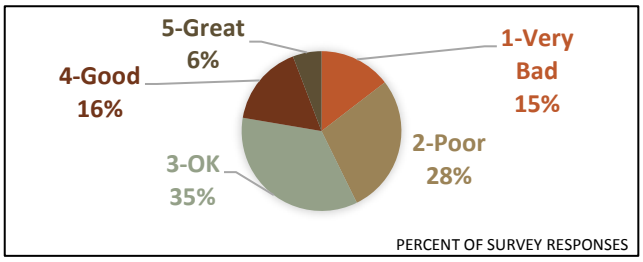
REPORTED APPROXIMATE SPEED CATEGORIES



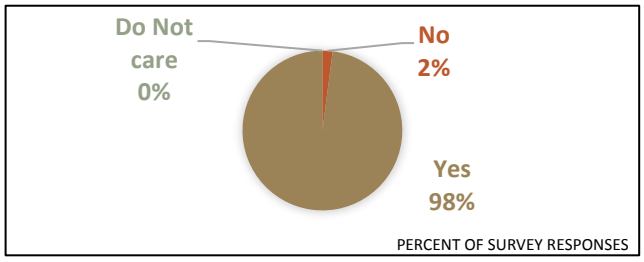
MONTHLY COSTS $



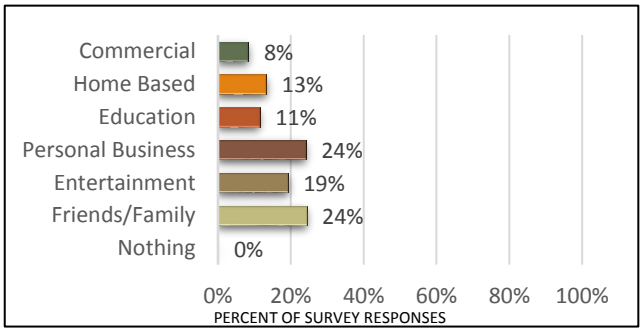
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



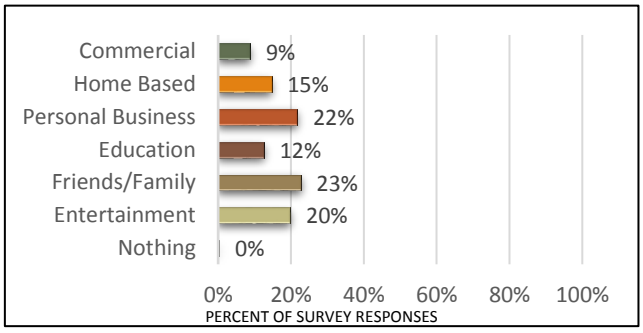
DO YOU WANT BETTER ACCESS?



CURRENT USE

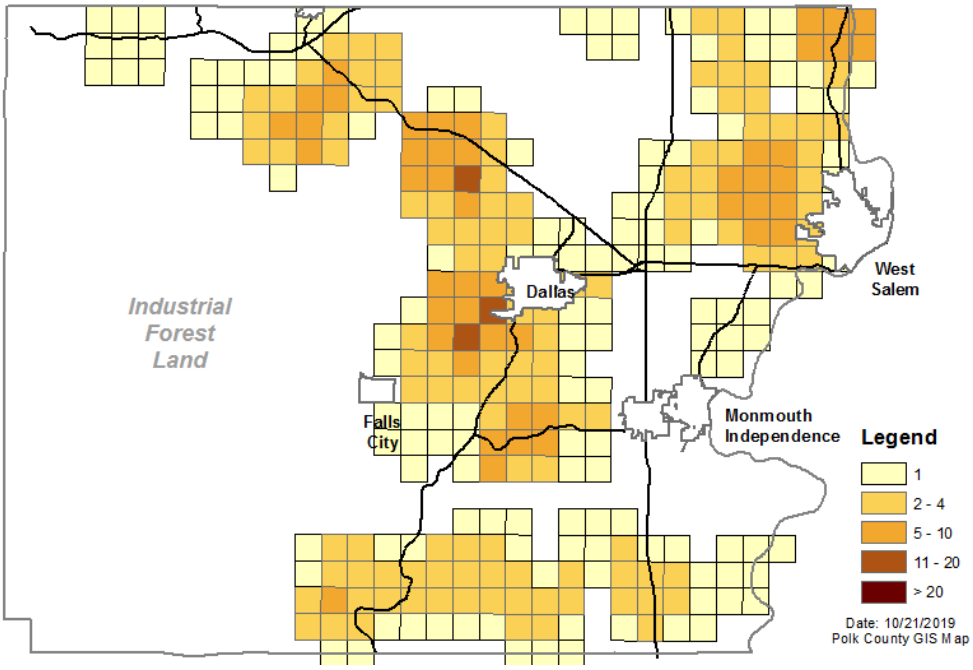


USE IF FASTER



Generalized Service Area

(Number Respondents Within One Mile)



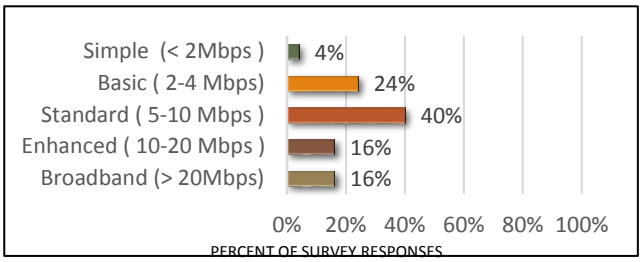
The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

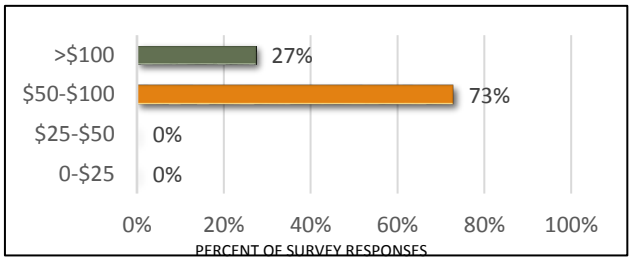
VISER

TOTAL NUMBER 23-(1% OF ALL SURVEY RESPONDENTS)

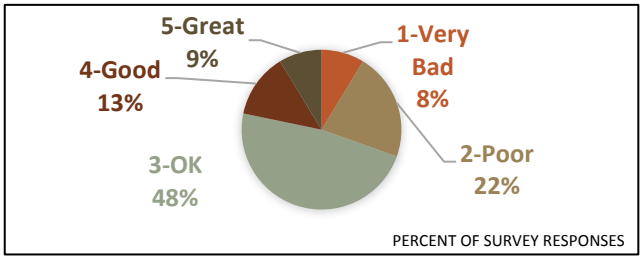
REPORTED APPROXIMATE SPEED CATEGORIES



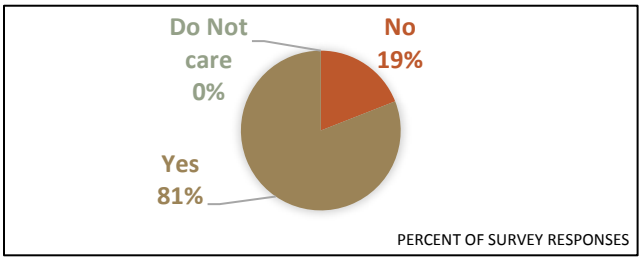
MONTHLY COSTS $



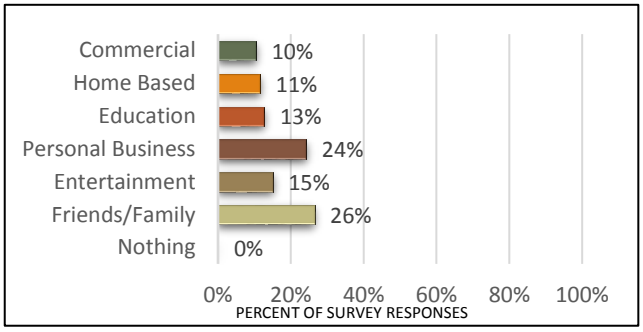
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



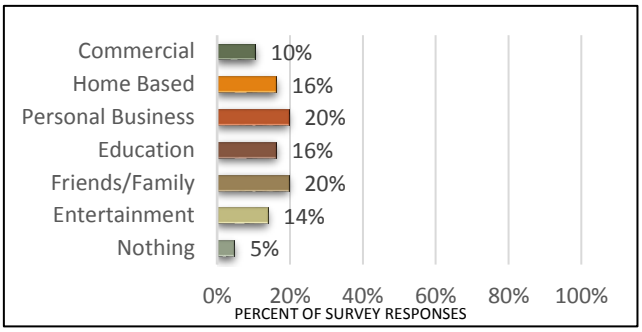
DO YOU WANT BETTER ACCESS?



CURRENT USE

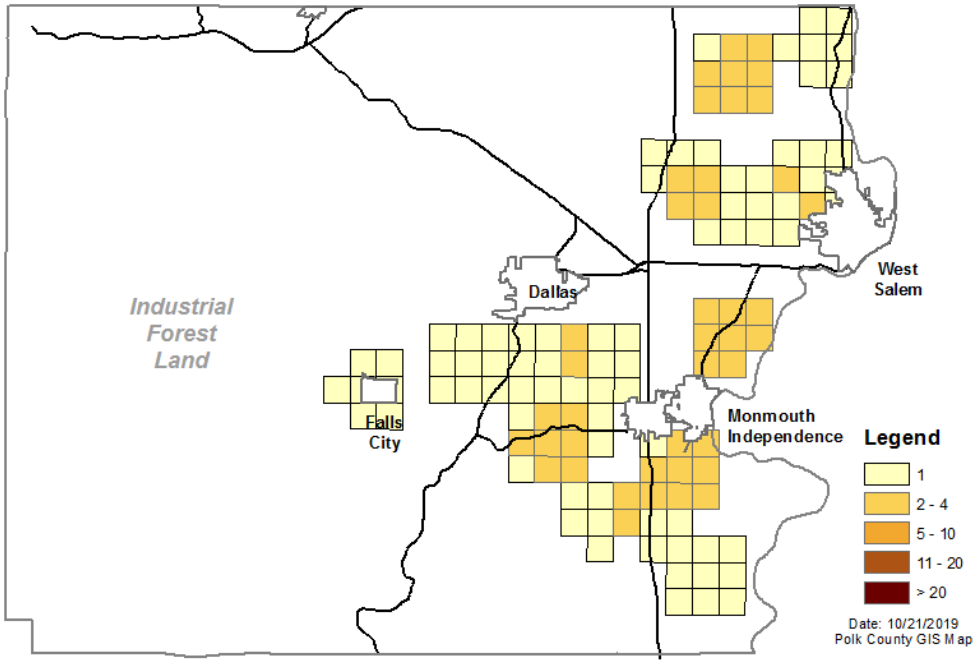


USE IF FASTER



Generalized Service Area

(Number Respondents Within One Mile)



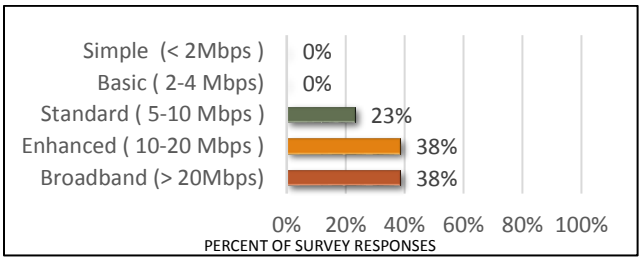
The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only

POLK COUNTY RURAL BROADBAND STUDY SURVEY RESULTS

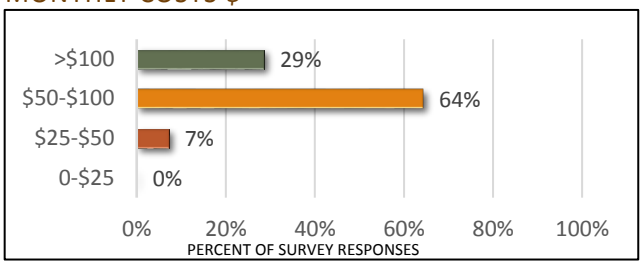
WAVE BROADBAND

TOTAL NUMBER 14-(1% OF ALL SURVEY RESPONDENTS)

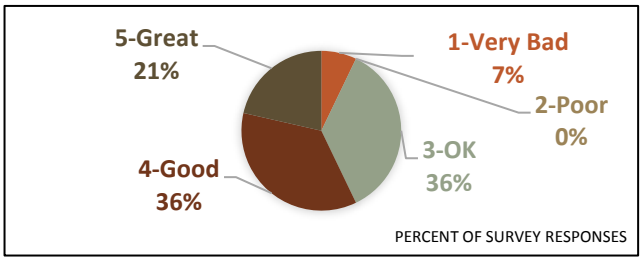
REPORTED APPROXIMATE SPEED CATEGORIES



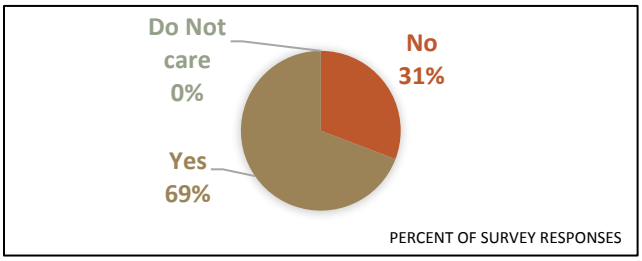
MONTHLY COSTS $



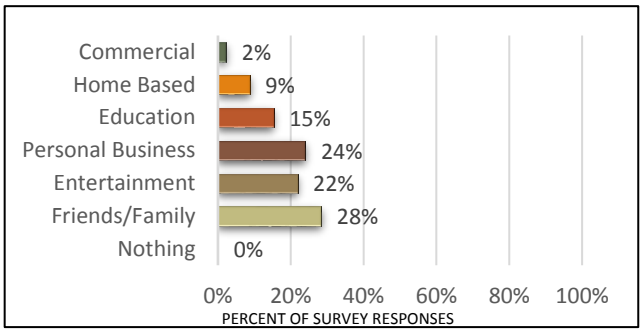
HOW DO YOU RATE SERVICE (1-VERY BAD TO 5-GREAT)



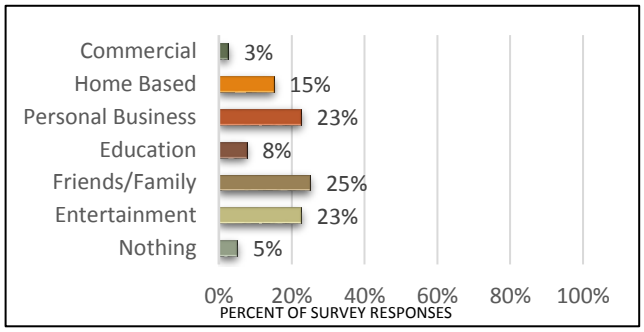
DO YOU WANT BETTER ACCESS?



CURRENT USE

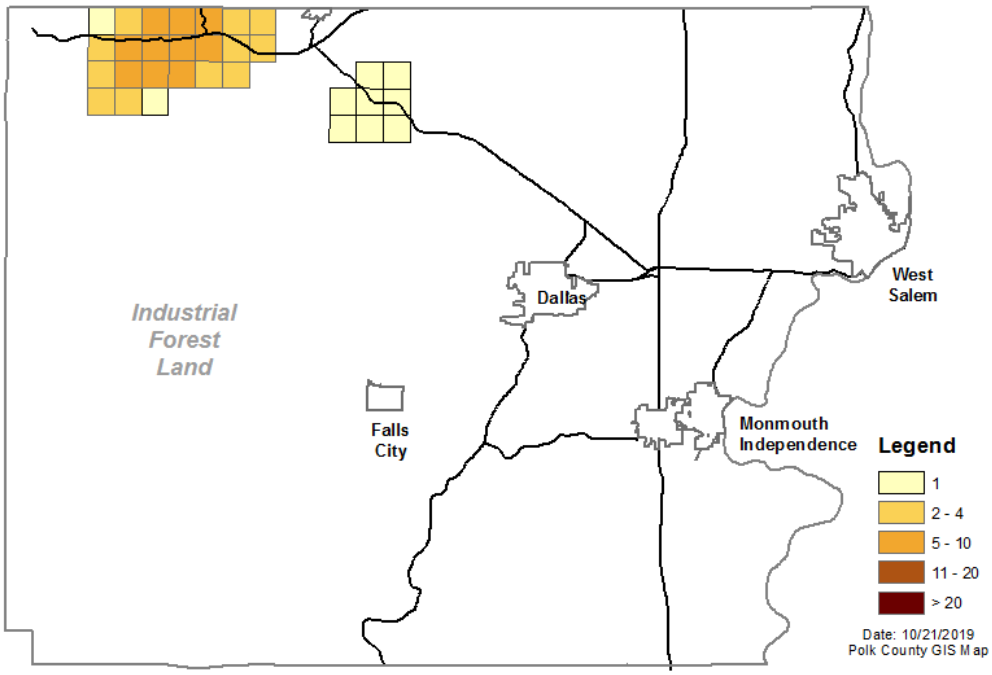


USE IF FASTER



Generalized Service Area

(Number Respondents Within One Mile)



The information provided in this report was collated from a variety of voluntary survey response, Polk County does not provide this information as an endorsement of any specific provider or methodology and is provided for informational purposes only