

**KANDIYOHI COUNTY AND CITY OF WILLMAR ECONOMIC DEVELOPMENT COMMISSION (EDC)
BROADBAND AND ADVANCED TECHNOLOGY COMMITTEE MEETING
MINUTES**

January 6, 2019

Kandiyohi County Health & Human Services Building, Willmar

Present: Mark Boeschen, Donna Boonstra, Dean Bouta, Roger Imdieke, Michelle Marotzke, Brian Mort, Les Nelson, Rollie Nissen, Glenn Otteson, Gregg Price, Ramsey Schaffnit and Donn Winckler

Excused: Bruce DeBlieck and David Sisser

Guests: Jared Britten, Senior Engineer, Compass Consultants, Inc. and Mark Birkholz, Director of Customer Operations and Southern Markets, Arvig

Staff: Connie Schmoll, Business Development Manager

Chairperson Mark Boeschen called the meeting to order at approximately 12:04 p.m.

AGENDA—There were no changes to the agenda.

MINUTES—

IT WAS MOVED BY Rollie Nissen, SECONDED BY Donna Boonstra, to approve the Minutes of the December 2, 2019 meeting as emailed. MOTION CARRIED.

Marketing Study, Engineering Analysis and Cost Analysis. Jared Britten, Senior Engineer, Compass Consultants, Inc. and Mark Birkholz, Director of Customer Operations and Southern Markets, Arvig were welcomed. Britten presented the Market Survey (see attached) and stated overall it was positive for respondents wanting high-speed broadband service and being willing to pay approximately \$60/month. Out of 1139 surveys sent, 356 responded, which Britten felt was a good response rate.

Britten reviewed the Broadband Engineering Analysis (see attached), which addresses scope and structures showing base maps for each township (map key: green shading is served areas, pink is underserved and blue unserved). The Analysis also includes high-level fiber-to-the-home (FTTH) designs for each township with maps showing the proposed PON locations. The proposed project cost for approximately 116 miles of construction across the three townships is \$3.98 million for 438 subscribers (\$9,094.50 per subscriber).

Comments/questions by committee members included:

- The potential cost has gone up.
- With the state grant the cost of the project could be cut in half.
- What would Arvig use to calculate costs?

- Birkholz stated there would be many options available, however, Arvig is not interested in doing a hybrid/mixed technology build. Birkholz indicated for Chisago County, it was a 30/30/40 partnership. Arvig would more likely participate in 15% of Kandiyohi County's project. Birkholz recommended applying for 37% of the cost from the state Border-to-Border Broadband Development Grant Program.
- Would townships need to convince those who are served to help pay the costs for those who are not?
- Fiber is the gold standard and is highly desired.
 - Birkholz predicted fiber will be the gold standard for 30-50 years.
- Would the cost per drop be less if the entire county was done?
 - Birkholz and Britten stated it would depend upon density of population and would not drive the costs down much.

Connie Schmoll stated the next step will be to present the Market Survey and Engineering Analysis to the Kandiyohi County Board and Townships.

UNFINISHED BUSINESS—There was no unfinished business.

NEW BUSINESS

Election of 2020 chair and vice chair.

IT WAS MOVED, SECONDED AND CARRIED to re-elect Mark Boeschen as Chair and Dave Sisser as Vice Chair of the Kandiyohi County and City of Willmar Economic Development Commission Broadband and Advanced Technology Committee.

REPORTS

Digital Inclusion Task Force. Donn Winckler reported he contacted the Senior LinkAge Line and is still awaiting a response.

Minnesota Rural Broadband Coalition. Chair Boeschen reported the Border-to-Border Broadband Development Grant Program received 80 applications requesting \$70 million in funding. During the 2019 legislative session, Governor Walz signed into law a total of \$40 million in one-time funds for the program. It was noted that other states are investing more than Minnesota for broadband. The Coalition is looking to the Governor's Task Force on Broadband to address policy. The Coalition is planning its annual Broadband Day on the Hill.

Membership. Winckler noted with his retirement, he will be resigning from this committee. Winckler invited the committee to his retirement party January 30, 2020 from 2:30-5:30 p.m. at the Willmar Community Center. Brian Mort also submitted his resignation from this committee as his schedule does not allow him to attend the meetings, but he indicated his interest in keeping informed of committee activities.

IT WAS MOVED, SECONDED AND CARRIED to accept, with regrets, the resignations of Brian Mort and Donn Winckler from membership on the Kandiyohi County and City of Willmar Economic Development Commission Broadband and Advanced Technology Committee.

ADJOURNMENT—There being no further business, the meeting was adjourned.

NEXT MEETING—The next committee meeting is **12 noon, Monday, February 3, 2020**, at the Kandiyohi County Health & Human Services Building, Willmar.

Broadband Market Survey

For the Townships of

Dovre, Mamre, and Saint Johns

Performed by:
Compass Consultants, Inc.



Supported by:

Dovre Township

Mamre Township

Saint Johns Township

Kandiyohi County

Kandiyohi County and City of Willmar
Economic Development Commission



Market Survey

Project Description

The Kandiyohi County & City of Willmar Economic Development Commission (EDC) hired Compass Consultants to conduct a market survey of Dovre, Mamre, and Saint Johns townships focusing on broadband availability. The primary objective of the survey is to identify current broadband availability and satisfaction. This report examines the potential need for additional broadband infrastructure and market demand.

Methodology

Compass Consultants in conjunction with the EDC Broadband Committee developed a thirteen question mailer. The addresses were obtained from GIS records of “Addresses” provided by the Kandiyohi County Surveyor’s office cross-referenced with customer data from the local power cooperative. The mailers were sent to 1139 addresses on November 21, 2019. The opportunity was also provided for residents to complete the survey online by typing in the provided URL or scanning a QR code. In total 356 completed surveys were returned to Compass.

The data presented in the tables throughout the report is shown for four geographical areas: “TOTAL” – all three townships in their entirety, “DOVRE TOWNSHIP” – respondents within Dovre township, “MAMRE TOWNSHIP” – respondents within Mamre township, “SAINT JOHNS TOWNSHIP” – respondents within Saint Johns township. Each table goes on to present the data for four categories: “TOTAL” – all structures within the township, “UNSERVED” – structure is within a census block with service levels below 25/3, “UNDERSERVED” – structure is within a census block with service levels above 25/3 but less than 100/20, and “SERVED” – structure is within a census block with service levels of at least 100/20.

The completed surveys came in from the following areas:

- Total
 - 85 Unserved
 - 47 Underserved
 - 224 Served
- Dovre Township
 - 20 Unserved
 - 23 Underserved
 - 209 Served
- Mamre Township
 - 39 Unserved
 - 20 Underserved
- Saint Johns Township
 - 26 Unserved
 - 4 Underserved
 - 15 Served

Residential Market Survey Results

1. What type(s) of telephone services do you currently have?

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Landline	51	63%	23	50%	92	43%	166	48%
Cellular	72	89%	43	93%	202	94%	317	92%
VOIP	2	2%	1	2%	6	3%	9	3%
None	0	0%	0	0%	1	0%	1	0%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Landline	13	72%	7	30%	87	43%	107	44%
Cellular	12	67%	21	91%	189	94%	222	92%
VOIP	0	0%	1	4%	6	3%	7	3%
None	0	0%	0	0%	1	0%	1	0%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Landline	27	71%	14	74%	0	N/A	41	72%
Cellular	37	97%	18	95%	0	N/A	55	96%
VOIP	0	0%	0	0%	0	N/A	0	0%
None	0	0%	0	0%	0	N/A	0	0%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Landline	11	44%	2	50%	5	33%	18	41%
Cellular	23	92%	4	100%	13	87%	40	91%
VOIP	2	8%	0	0%	0	0%	2	5%
None	0	0%	0	0%	0	0%	0	0%

The majority of respondents (92%) indicated that they have cellular telephone service while less than half (48%) subscribe to a landline phone service.

2. Who are your internet, telephone, and television service providers?

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
CenturyLink	11	14%	11	24%	47	22%	69	20%
TDS Telecom	31	38%	21	46%	10	5%	62	18%
LTD Broadband	6	7%	1	2%	5	2%	12	3%
Charter Communications	0	0%	0	0%	132	61%	132	38%
MVTV	29	36%	12	26%	13	6%	54	16%
HughesNet	3	4%	3	7%	3	1%	9	3%
ViaSat	1	1%	0	0%	0	0%	1	0%
Skycasters	0	0%	0	0%	0	0%	0	0%
AT&T	13	16%	7	15%	28	13%	48	14%
Verizon	38	47%	29	63%	108	50%	175	51%
Sprint	1	1%	2	4%	7	3%	10	3%
T-Mobile	0	0%	3	7%	3	1%	6	2%
DirecTV	10	12%	10	22%	20	9%	40	12%
Dish Network	28	35%	13	28%	21	10%	62	18%
Other	12	15%	2	4%	20	9%	34	10%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
CenturyLink	10	56%	8	35%	47	23%	65	27%
TDS Telecom	1	6%	9	39%	5	2%	15	6%
LTD Broadband	2	11%	1	4%	5	2%	8	3%
Charter Communications	0	0%	0	0%	121	60%	121	50%
MVTV	3	17%	2	9%	12	6%	17	7%
HughesNet	0	0%	1	4%	3	1%	4	2%
ViaSat	0	0%	0	0%	0	0%	0	0%
Skycasters	0	0%	0	0%	0	0%	0	0%
AT&T	5	28%	5	22%	26	13%	36	15%
Verizon	4	22%	15	65%	103	51%	122	50%
Sprint	0	0%	1	4%	6	3%	7	3%
T-Mobile	0	0%	2	9%	3	1%	5	2%
DirecTV	3	17%	6	26%	20	10%	29	12%
Dish Network	5	28%	9	39%	20	10%	34	14%
Other	0	0%	0	0%	19	9%	19	8%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
CenturyLink	0	0%	1	5%	0	N/A	1	2%
TDS Telecom	24	63%	12	63%	0	N/A	36	63%
LTD Broadband	3	8%	0	0%	0	N/A	3	5%
Charter Communications	0	0%	0	0%	0	N/A	0	0%
MVTV	11	29%	8	42%	0	N/A	19	33%
HughesNet	1	3%	1	5%	0	N/A	2	4%
ViaSat	1	3%	0	0%	0	N/A	1	2%
Skycasters	0	0%	0	0%	0	N/A	0	0%
AT&T	4	11%	1	5%	0	N/A	5	9%
Verizon	22	58%	12	63%	0	N/A	34	60%
Sprint	0	0%	0	0%	0	N/A	0	0%
T-Mobile	0	0%	1	5%	0	N/A	1	2%
DirecTV	5	13%	2	11%	0	N/A	7	12%
Dish Network	14	37%	4	21%	0	N/A	18	32%
Other	8	21%	2	11%	0	N/A	10	18%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
CenturyLink	1	4%	2	50%	0	0%	3	7%
TDS Telecom	6	24%	0	0%	5	33%	11	25%
LTD Broadband	1	4%	0	0%	0	0%	1	2%
Charter Communications	0	0%	0	0%	11	73%	11	25%
MVTV	15	60%	2	50%	1	7%	18	41%
HughesNet	2	8%	1	25%	0	0%	3	7%
ViaSat	0	0%	0	0%	0	0%	0	0%
Skycasters	0	0%	0	0%	0	0%	0	0%
AT&T	4	16%	1	25%	2	13%	7	16%
Verizon	12	48%	2	50%	5	33%	19	43%
Sprint	1	4%	1	25%	1	7%	3	7%
T-Mobile	0	0%	0	0%	0	0%	0	0%
DirecTV	2	8%	2	50%	0	0%	4	9%
Dish Network	9	36%	0	0%	1	7%	10	23%
Other	4	16%	0	0%	1	7%	5	11%

The most prevalent wireline companies listed by respondents from all three townships are CenturyLink, Charter Communications, and TDS Telecom. Charter Communications was only listed by respondents within served census blocks of Dovre and Saint Johns townships. MVTV is a player in the wireless residential service arena. However, wireless connections are not as reliable as a wireline service. The quality of service connection is presented in further detail in response to question 6.

3. Please select which television content providers you currently use.

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Satellite	45	56%	25	54%	51	24%	121	35%
Cable TV Provider	0	0%	3	7%	94	44%	97	28%
Internet (Netflix, Sling, Hulu)	33	41%	23	50%	90	42%	146	43%
Antenna	26	32%	12	26%	40	19%	78	23%
None	1	1%	0	0%	3	1%	4	1%
Other	6	7%	2	4%	10	5%	18	5%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Satellite	12	67%	12	52%	50	25%	74	31%
Cable TV Provider	0	0%	2	9%	86	43%	88	36%
Internet (Netflix, Sling, Hulu)	5	28%	10	43%	86	43%	101	42%
Antenna	2	11%	7	30%	36	18%	45	19%
None	0	0%	0	0%	3	1%	3	1%
Other	2	11%	1	4%	9	4%	12	5%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Satellite	20	53%	10	53%	0	N/A	30	53%
Cable TV Provider	0	0%	0	0%	0	N/A	0	0%
Internet (Netflix, Sling, Hulu)	14	37%	10	53%	0	N/A	24	42%
Antenna	16	42%	4	21%	0	N/A	20	35%
None	1	3%	0	0%	0	N/A	1	2%
Other	3	8%	1	5%	0	N/A	4	7%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Satellite	13	52%	3	75%	1	7%	17	39%
Cable TV Provider	0	0%	1	25%	8	53%	9	20%
Internet (Netflix, Sling, Hulu)	14	56%	3	75%	4	27%	21	48%
Antenna	8	32%	1	25%	4	27%	13	30%
None	0	0%	0	0%	0	0%	0	0%
Other	1	4%	0	0%	1	7%	2	5%

When considering all three townships in their entirety, the most popular forms of video service are Internet Streaming Services followed by Satellite services and Cable TV. However, when served areas are removed Cable TV is not a major player. Satellite, Streaming Services, and Antenna service dominate the unserved and underserved areas.

4. What is the speed of your current internet or broadband service?

Respondents were asked to run a speed test and report their download and upload speeds. Actual speeds reported do not necessarily reflect the currently available speeds. 242 respondents reported their current download and upload speeds. The speeds are reported both as the averages reported and as defined by FCC and State of Minnesota goals. Those goals are:

- 25 megabits per second download and 3 megabits per second upload minimum
- 100 megabits per second download and 20 megabits per second upload minimum

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Average Download Speed	9.33		14.09		49.06		34.48	
Average Upload Speed	3.30		4.01		7.97		6.28	
Less than 25/3	56	97%	32	91%	69	46%	157	65%
25/3 to 100/20	2	3%	3	9%	77	52%	82	34%
100/20 or greater	0	0%	0	0%	3	2%	3	1%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Average Download Speed	8.81		17.00		49.20		42.78	
Average Upload Speed	2.87		2.58		7.98		7.03	
Less than 25/3	12	92%	16	89%	66	47%	94	55%
25/3 to 100/20	1	8%	2	11%	73	52%	76	44%
100/20 or greater	0	0%	0	0%	2	1%	2	1%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Average Download Speed	7.87		8.59		N/A		8.11	
Average Upload Speed	3.03		5.50		N/A		3.85	
Less than 25/3	28	100%	13	93%	0	N/A	41	98%
25/3 to 100/20	0	0%	1	7%	0	N/A	1	2%
100/20 or greater	0	0%	0	0%	0	N/A	0	0%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Average Download Speed	12.13		22.28		46.54		23.05	
Average Upload Speed	4.06		5.70		7.80		5.31	
Less than 25/3	16	94%	3	100%	3	38%	22	79%
25/3 to 100/20	1	6%	0	0%	4	50%	5	18%
100/20 or greater	0	0%	0	0%	1	13%	1	4%

Only two respondents reported minimum speeds greater than 25/3 in an unserved area, and no respondent in an underserved area reported a speed greater than 100/20. Greater speeds may be available to these areas but the data appears to indicate that the service levels indicated by census block maps are accurate. Furthermore, the average download and upload speeds for unserved and underserved areas in all three townships is below the 25/3 minimum broadband threshold.

5. *How satisfied are you with your current internet service speed?*

- Scale of 1 to 10 with 1 being “Not Satisfied” and 10 being “Very Satisfied”.

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	16	20%	6	13%	14	6%	36	10%
2	3	4%	2	4%	8	4%	13	4%
3	8	10%	5	11%	17	8%	30	9%
4	5	6%	3	7%	14	6%	22	6%
5	11	14%	3	7%	23	11%	37	11%
6	11	14%	5	11%	23	11%	39	11%
7	6	7%	5	11%	22	10%	33	10%
8	3	4%	5	11%	37	17%	45	13%
9	7	9%	3	7%	25	12%	35	10%
10	2	2%	6	13%	24	11%	32	9%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	7	39%	3	13%	13	6%	23	10%
2	0	0%	0	0%	7	3%	7	3%
3	1	6%	4	17%	17	8%	22	9%
4	0	0%	2	9%	13	6%	15	6%
5	2	11%	1	4%	19	9%	22	9%
6	4	22%	2	9%	21	10%	27	11%
7	1	6%	3	13%	21	10%	25	10%
8	1	6%	1	4%	33	16%	35	14%
9	0	0%	1	4%	24	12%	25	10%
10	0	0%	4	17%	24	12%	28	12%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	7	18%	2	11%	0	N/A	9	16%
2	0	0%	2	11%	0	N/A	2	4%
3	4	11%	1	5%	0	N/A	5	9%
4	5	13%	1	5%	0	N/A	6	11%
5	4	11%	2	11%	0	N/A	6	11%
6	5	13%	2	11%	0	N/A	7	12%
7	3	8%	2	11%	0	N/A	5	9%
8	1	3%	4	21%	0	N/A	5	9%
9	4	11%	0	0%	0	N/A	4	7%
10	1	3%	2	11%	0	N/A	3	5%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	2	8%	1	25%	1	7%	4	9%
2	3	12%	0	0%	1	7%	4	9%
3	3	12%	0	0%	0	0%	3	7%
4	0	0%	0	0%	1	7%	1	2%
5	5	20%	0	0%	4	27%	9	20%
6	2	8%	1	25%	2	13%	5	11%
7	2	8%	0	0%	1	7%	3	7%
8	1	4%	0	0%	4	27%	5	11%
9	3	12%	2	50%	1	7%	6	14%
10	1	4%	0	0%	0	0%	1	2%

The overall average for all respondents was 5.8. If all respondents from a served area are removed that number drops to 5.0. This suggests that overall the residents of the townships are at best indifferent about their current internet speeds.

6. *How satisfied are you with the quality of your current internet service connection?*

- Scale of 1 to 10 with 1 being “Not Satisfied” and 10 being “Very Satisfied”.

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	10	12%	4	9%	10	5%	24	7%
2	4	5%	2	4%	9	4%	15	4%
3	4	5%	3	7%	12	6%	19	6%
4	7	9%	1	2%	13	6%	21	6%
5	13	16%	6	13%	24	11%	43	13%
6	9	11%	4	9%	20	9%	33	10%
7	10	12%	7	15%	30	14%	47	14%
8	7	9%	8	17%	33	15%	48	14%
9	7	9%	2	4%	31	14%	40	12%
10	1	1%	6	13%	27	13%	34	10%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	5	28%	1	4%	9	4%	15	6%
2	1	6%	1	4%	8	4%	10	4%
3	0	0%	1	4%	11	5%	12	5%
4	0	0%	1	4%	11	5%	12	5%
5	3	17%	4	17%	22	11%	29	12%
6	3	17%	2	9%	17	8%	22	9%
7	2	11%	4	17%	30	15%	36	15%
8	1	6%	2	9%	29	14%	32	13%
9	0	0%	1	4%	30	15%	31	13%
10	0	0%	4	17%	27	13%	31	13%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	4	11%	2	11%	0	N/A	6	11%
2	0	0%	1	5%	0	N/A	1	2%
3	2	5%	2	11%	0	N/A	4	7%
4	7	18%	0	0%	0	N/A	7	12%
5	4	11%	2	11%	0	N/A	6	11%
6	6	16%	1	5%	0	N/A	7	12%
7	3	8%	3	16%	0	N/A	6	11%
8	4	11%	5	26%	0	N/A	9	16%
9	5	13%	0	0%	0	N/A	5	9%
10	0	0%	2	11%	0	N/A	2	4%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	1	4%	1	25%	1	7%	3	7%
2	3	12%	0	0%	1	7%	4	9%
3	2	8%	0	0%	1	7%	3	7%
4	0	0%	0	0%	2	13%	2	5%
5	6	24%	0	0%	2	13%	8	18%
6	0	0%	1	25%	3	20%	4	9%
7	5	20%	0	0%	0	0%	5	11%
8	2	8%	1	25%	4	27%	7	16%
9	2	8%	1	25%	1	7%	4	9%
10	1	4%	0	0%	0	0%	1	2%

The overall average for all respondents was 6.2. If all respondents from a served area are removed that number drops to 5.6. This suggests that overall the residents of the township are slightly positive about their current internet connection. The level of satisfaction with wireless service provided by MVTv was surprisingly higher than the average at 6.3. MVTv's listed residential offerings, however, are only available up to 25Mbps.

7. *How satisfied are you with your internet provider's customer service?*

- Scale of 1 to 10 with 1 being "Not Satisfied" and 10 being "Very Satisfied".

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	9	11%	3	7%	14	6%	26	8%
2	4	5%	1	2%	11	5%	16	5%
3	4	5%	2	4%	12	6%	18	5%
4	3	4%	1	2%	14	6%	18	5%
5	4	5%	6	13%	28	13%	38	11%
6	7	9%	5	11%	24	11%	36	10%
7	8	10%	6	13%	22	10%	36	10%
8	19	23%	8	17%	30	14%	57	17%
9	10	12%	3	7%	30	14%	43	13%
10	4	5%	7	15%	21	10%	32	9%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	5	28%	2	9%	12	6%	19	8%
2	2	11%	1	4%	11	5%	14	6%
3	1	6%	0	0%	9	4%	10	4%
4	0	0%	1	4%	14	7%	15	6%
5	1	6%	3	13%	27	13%	31	13%
6	2	11%	4	17%	20	10%	26	11%
7	0	0%	4	17%	21	10%	25	10%
8	2	11%	2	9%	27	13%	31	13%
9	2	11%	0	0%	29	14%	31	13%
10	0	0%	4	17%	21	10%	25	10%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	3	8%	1	5%	0	N/A	4	7%
2	1	3%	0	0%	0	N/A	1	2%
3	3	8%	2	11%	0	N/A	5	9%
4	2	5%	0	0%	0	N/A	2	4%
5	2	5%	3	16%	0	N/A	5	9%
6	3	8%	1	5%	0	N/A	4	7%
7	3	8%	2	11%	0	N/A	5	9%
8	10	26%	5	26%	0	N/A	15	26%
9	5	13%	2	11%	0	N/A	7	12%
10	3	8%	2	11%	0	N/A	5	9%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	1	4%	0	0%	2	13%	3	7%
2	1	4%	0	0%	0	0%	1	2%
3	0	0%	0	0%	3	20%	3	7%
4	1	4%	0	0%	0	0%	1	2%
5	1	4%	0	0%	1	7%	2	5%
6	2	8%	0	0%	4	27%	6	14%
7	5	20%	0	0%	1	7%	6	14%
8	7	28%	1	25%	3	20%	11	25%
9	3	12%	1	25%	1	7%	5	11%
10	1	4%	1	25%	0	0%	2	5%

The overall average for all respondents was 6.2. If all respondents from a served area are removed that number increases to 6.3.

8. How many devices in your home are connected to the internet? (Computers, phones, tablets, cameras, TV's, Thermostats, Alexa)

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
None	0	0%	0	0%	0	0%	0	0%
1-2	15	19%	3	7%	15	7%	33	10%
3-5	19	23%	14	30%	77	36%	110	32%
5-9	27	33%	19	41%	78	36%	124	36%
10+	12	15%	8	17%	34	16%	54	16%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
None	0	0%	0	0%	0	0%	0	0%
1-2	3	17%	0	0%	15	7%	18	7%
3-5	5	28%	9	39%	69	34%	83	34%
5-9	4	22%	7	30%	71	35%	82	34%
10+	2	11%	6	26%	34	17%	42	17%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
None	0	0%	0	0%	0	N/A	0	0%
1-2	9	24%	2	11%	0	N/A	11	19%
3-5	10	26%	5	26%	0	N/A	15	26%
5-9	9	24%	9	47%	0	N/A	18	32%
10+	7	18%	2	11%	0	N/A	9	16%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
None	0	0%	0	0%	0	0%	0	0%
1-2	3	12%	1	25%	0	0%	4	9%
3-5	4	16%	0	0%	8	53%	12	27%
5-9	14	56%	3	75%	7	47%	24	55%
10+	3	12%	0	0%	0	0%	3	7%

The total number of connected devices within a home continues to increase. The data is consistent across all three townships and regardless of service level; most homes have between 3 and 9 connected devices.

9. If High Speed Broadband would be offered in your area, how likely would you be to subscribe to the service?

- Scale of 1 to 10 with 1 being “Not Likely” and 10 being “Very Likely”.

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	5	6%	2	4%	19	9%	26	8%
2	2	2%	2	4%	13	6%	17	5%
3	4	5%	2	4%	6	3%	12	3%
4	1	1%	2	4%	4	2%	7	2%
5	5	6%	3	7%	20	9%	28	8%
6	2	2%	0	0%	14	6%	16	5%
7	3	4%	3	7%	19	9%	25	7%
8	11	14%	6	13%	17	8%	34	10%
9	11	14%	4	9%	36	17%	51	15%
10	33	41%	19	41%	52	24%	104	30%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	1	6%	0	0%	17	8%	18	7%
2	0	0%	1	4%	13	6%	14	6%
3	1	6%	1	4%	4	2%	6	2%
4	1	6%	2	9%	4	2%	7	3%
5	0	0%	1	4%	20	10%	21	9%
6	0	0%	0	0%	14	7%	14	6%
7	0	0%	1	4%	18	9%	19	8%
8	3	17%	2	9%	13	6%	18	7%
9	2	11%	3	13%	33	16%	38	16%
10	8	44%	12	52%	50	25%	70	29%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	4	11%	2	11%	0	N/A	6	11%
2	2	5%	1	5%	0	N/A	3	5%
3	1	3%	1	5%	0	N/A	2	4%
4	0	0%	0	0%	0	N/A	0	0%
5	2	5%	2	11%	0	N/A	4	7%
6	1	3%	0	0%	0	N/A	1	2%
7	2	5%	1	5%	0	N/A	3	5%
8	3	8%	3	16%	0	N/A	6	11%
9	7	18%	1	5%	0	N/A	8	14%
10	16	42%	6	32%	0	N/A	22	39%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
1	0	0%	0	0%	2	13%	2	5%
2	0	0%	0	0%	0	0%	0	0%
3	2	8%	0	0%	2	13%	4	9%
4	0	0%	0	0%	0	0%	0	0%
5	3	12%	0	0%	0	0%	3	7%
6	1	4%	0	0%	0	0%	1	2%
7	1	4%	1	25%	1	7%	3	7%
8	5	20%	1	25%	4	27%	10	23%
9	2	8%	0	0%	3	20%	5	11%
10	9	36%	1	25%	2	13%	12	27%

The overall average for all respondents was 7.2. If all respondents from a served area are removed that number increase to 7.8. This number suggests that 67-75% of residents within the unserved and underserved areas would be open to switching from their current internet provider.

10. What would you be willing to pay per month for a reliable high-speed broadband connection?

This question was posed so that respondents would provide a realistic dollar amount that they would be willing to pay. If a response included a range, the median value was input (i.e. 50-60 was input as \$55).

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
0-50	32	52%	15	44%	78	51%	125	50%
50-75	19	31%	10	29%	49	32%	78	31%
75-100	3	5%	6	18%	12	8%	21	8%
100+	8	13%	2	6%	12	8%	22	9%
Average	\$63.21		\$59.01		\$56.33		\$58.43	

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
0-50	6	46%	9	50%	74	52%	89	51%
50-75	4	31%	4	22%	45	31%	53	30%
75-100	0	0%	4	22%	11	8%	15	9%
100+	3	23%	1	6%	12	8%	16	9%
Average	\$77.50		\$58.33		\$56.31		\$58.12	

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
0-50	15	52%	5	36%	0	N/A	20	47%
50-75	8	28%	6	43%	0	N/A	14	33%
75-100	1	3%	1	7%	0	N/A	2	5%
100+	5	17%	1	7%	0	N/A	6	14%
Average	\$62.03		\$59.23		N/A		\$61.17	

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
0-50	11	55%	1	50%	4	44%	16	52%
50-75	7	35%	0	0%	4	44%	11	35%
75-100	2	10%	1	50%	1	11%	4	13%
100+	0	0%	0	0%	0	0%	0	0%
Average	\$55.63		\$63.75		\$56.67		\$56.45	

The average value that respondents were willing to pay was \$58.43. Removing all responses from served areas gives an average of \$61.75.

11. What activity is most important to your broadband experience?

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Streaming TV and Movies	39	48%	28	61%	124	57%	191	56%
Telehealth/Med	0	0%	0	0%	1	0%	1	0%
Telecommute (Work at Home)	7	9%	2	4%	12	6%	21	6%
Video Calling (Facetime, Skype)	2	2%	2	4%	11	5%	15	4%
Schoolwork	1	1%	0	0%	1	0%	2	1%
Running a business from home	7	9%	5	11%	10	5%	22	6%
Gaming	3	4%	0	0%	2	1%	5	1%
Social Media	3	4%	2	4%	9	4%	14	4%
General Internet Surfing	9	11%	4	9%	33	15%	46	13%
Security System	0	0%	0	0%	0	0%	0	0%
Other	1	1%	0	0%	0	0%	1	0%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Streaming TV and Movies	8	44%	16	70%	111	55%	135	56%
Telehealth/Med	0	0%	0	0%	1	0%	1	0%
Telecommute (Work at Home)	2	11%	1	4%	12	6%	15	6%
Video Calling (Facetime, Skype)	0	0%	0	0%	10	5%	10	4%
Schoolwork	0	0%	0	0%	1	0%	1	0%
Running a business from home	1	6%	1	4%	9	4%	11	5%
Gaming	0	0%	0	0%	2	1%	2	1%
Social Media	1	6%	2	9%	9	4%	12	5%
General Internet Surfing	3	17%	3	13%	33	16%	39	16%
Security System	0	0%	0	0%	0	0%	0	0%
Other	0	0%	0	0%	0	0%	0	0%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Streaming TV and Movies	19	50%	9	47%	0	N/A	28	49%
Telehealth/Med	0	0%	0	0%	0	N/A	0	0%
Telecommute (Work at Home)	2	5%	1	5%	0	N/A	3	5%
Video Calling (Facetime, Skype)	1	3%	2	11%	0	N/A	3	5%
Schoolwork	1	3%	0	0%	0	N/A	1	2%
Running a business from home	3	8%	4	21%	0	N/A	7	12%
Gaming	3	8%	0	0%	0	N/A	3	5%
Social Media	2	5%	0	0%	0	N/A	2	4%
General Internet Surfing	3	8%	1	5%	0	N/A	4	7%
Security System	0	0%	0	0%	0	N/A	0	0%
Other	0	0%	0	0%	0	N/A	0	0%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Streaming TV and Movies	12	48%	3	75%	13	87%	28	64%
Telehealth/Med	0	0%	0	0%	0	0%	0	0%
Telecommute (Work at Home)	3	12%	0	0%	0	0%	3	7%
Video Calling (Facetime, Skype)	1	4%	0	0%	1	7%	2	5%
Schoolwork	0	0%	0	0%	0	0%	0	0%
Running a business from home	3	12%	0	0%	1	7%	4	9%
Gaming	0	0%	0	0%	0	0%	0	0%
Social Media	0	0%	0	0%	0	0%	0	0%
General Internet Surfing	3	12%	0	0%	0	0%	3	7%
Security System	0	0%	0	0%	0	0%	0	0%
Other	1	4%	0	0%	0	0%	1	2%

The majority of all respondents listed “Streaming TV and Movies” as the item most important to their broadband experience. This correlates with the percentage of respondents who get their video from internet streaming services. General internet surfing was the next most frequent response. After this, the telecommuting and running a business from home were popular choices. Both require a reliable high-speed connection and having it available could spur population and economic growth.

12. If you had broadband, would your employer allow you to work from home?

TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Yes, everyday	9	11%	7	15%	20	9%	36	10%
Yes, occasionally	11	14%	16	35%	58	27%	85	25%
No	32	40%	10	22%	54	25%	96	28%
Not Employed	4	5%	0	0%	8	4%	12	3%
Retired	13	16%	9	20%	66	31%	88	26%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Yes, everyday	3	17%	2	9%	20	10%	25	10%
Yes, occasionally	3	17%	10	43%	54	27%	67	28%
No	6	33%	5	22%	50	25%	61	25%
Not Employed	0	0%	0	0%	8	4%	8	3%
Retired	3	17%	5	22%	60	30%	68	28%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Yes, everyday	2	5%	4	21%	0	N/A	6	11%
Yes, occasionally	4	11%	6	32%	0	N/A	10	18%
No	15	39%	5	26%	0	N/A	20	35%
Not Employed	2	5%	0	0%	0	N/A	2	4%
Retired	8	21%	2	11%	0	N/A	10	18%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Yes, everyday	4	16%	1	25%	0	0%	5	11%
Yes, occasionally	4	16%	0	0%	4	27%	8	18%
No	11	44%	0	0%	4	27%	15	34%
Not Employed	2	8%	0	0%	0	0%	2	5%
Retired	2	8%	2	50%	6	40%	10	23%

Telecommuting was the third most popular choice from question 11; *What activity is most important to your broadband experience?*. Thirty-five percent of respondents stated that their employer would allow them to work from home at least occasionally.

13. Please tell us how many people in your household fall into each age group.

This information was summarized by counting the number of households that reported having at least one person in an age group. For example, if a respondent said that there were 2 children under 18 in the home, this was only counted once.

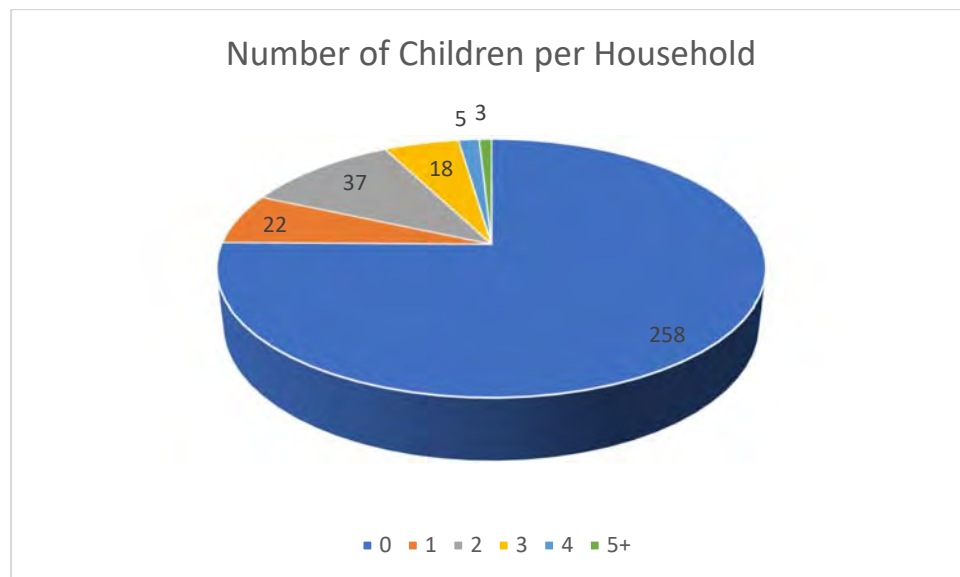
TOTAL								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Under 18	24	30%	12	26%	50	23%	86	25%
18-24	13	16%	8	17%	26	12%	47	14%
25-34	8	10%	6	13%	20	9%	34	10%
35-44	19	23%	10	22%	36	17%	65	19%
45-54	21	26%	15	33%	44	20%	80	23%
55-64	30	37%	15	33%	0	0%	45	13%
65+	27	33%	13	28%	0	0%	40	12%

DOVRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Under 18	5	28%	6	26%	49	24%	60	25%
18-24	2	11%	5	22%	23	11%	30	12%
25-34	3	17%	4	17%	20	10%	27	11%
35-44	2	11%	6	26%	36	18%	44	18%
45-54	5	28%	7	30%	41	20%	53	22%
55-64	4	22%	9	39%	0	0%	13	5%
65+	5	28%	4	17%	0	0%	9	4%

MAMRE TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Under 18	10	26%	6	32%	0	N/A	16	28%
18-24	4	11%	3	16%	0	N/A	7	12%
25-34	4	11%	2	11%	0	N/A	6	11%
35-44	9	24%	4	21%	0	N/A	13	23%
45-54	6	16%	7	37%	0	N/A	13	23%
55-64	18	47%	5	26%	0	N/A	23	40%
65+	14	37%	8	42%	0	N/A	22	39%

SAINT JOHNS TOWNSHIP								
	UNSERVED		UNDERSERVED		SERVED		TOTAL	
Under 18	9	36%	0	0%	1	7%	10	23%
18-24	7	28%	0	0%	3	20%	10	23%
25-34	1	4%	0	0%	0	0%	1	2%
35-44	8	32%	0	0%	0	0%	8	18%
45-54	10	40%	1	25%	3	20%	14	32%
55-64	8	32%	1	25%	0	0%	9	20%
65+	8	32%	1	25%	0	0%	9	20%

One quarter of all respondents reported having at least one child under 18 in the home. The number of children in respondent households is summarized in the following chart.



Broadband Engineering Analysis

For the Townships of

Dovre, Mamre, and Saint Johns

Performed by:
Compass Consultants, Inc.



Supported by:

Dovre Township

Mamre Township

Saint Johns Township

Kandiyohi County

Kandiyohi County and City of Willmar
Economic Development Commission



Scope

The Kandiyohi County and City of Willmar Economic Development Commission contracted with Compass Consultants, Inc. to perform an engineering analysis for the design and costs associated with construction of a fiber to the home broadband network in partnership with Arvig Enterprises. The analysis was limited to the townships of Dovre, Mamre, and Saint Johns.

It is the state of Minnesota's goal that "(1) no later than 2022, all Minnesota businesses and homes have access to high-speed broadband that provides minimum download speeds of at least 25 megabits per second and minimum upload speeds of at least three megabits per second; and (2) no later than 2026, all Minnesota businesses and homes have access to at least one provider of broadband with download speeds of at least 100 megabits per second and upload speeds of at least 20 megabits per second.". It is with these goals in mind that the analysis was performed. The included designs are representative of three distinct categories: unserved, underserved, and served.

- Unserved – areas where households or businesses lack access to the FCC defined minimum broadband speeds of 25 megabits per second download and 3 megabits per second upload.
- Underserved – areas where households or businesses have access at or above the previously stated FCC definition but lack access to broadband at speeds of 100 megabits per second download and 20 megabits per second upload.
- Served - areas where households or businesses have access to broadband at speeds of 100 megabits per second download and 20 megabits per second upload.

Structures

Base maps were created using Google Earth. GIS address information was obtained from the county surveyor's office and service level information was obtained through the FCC's census block level provider information. Structures defined as residential and business were imported from the county provided shapefiles and overlaid with the FCC census blocks to produce the maps 1 through 3 below. Served areas and the structures within those census blocks were colored green. Unserved areas and the structures within those census blocks were colored pink. Unserved census blocks are not shaded and the structures within the unserved areas were colored blue.

At this point an initial fiber layout was completed and field staff were deployed to confirm structures. Compass field staff noted several addresses that were abandoned or had been demolished as well as newly constructed structures. This field data was incorporated into the base maps, and total structure counts for each township were tabulated. The structure counts are listed in tables 1 through 4.

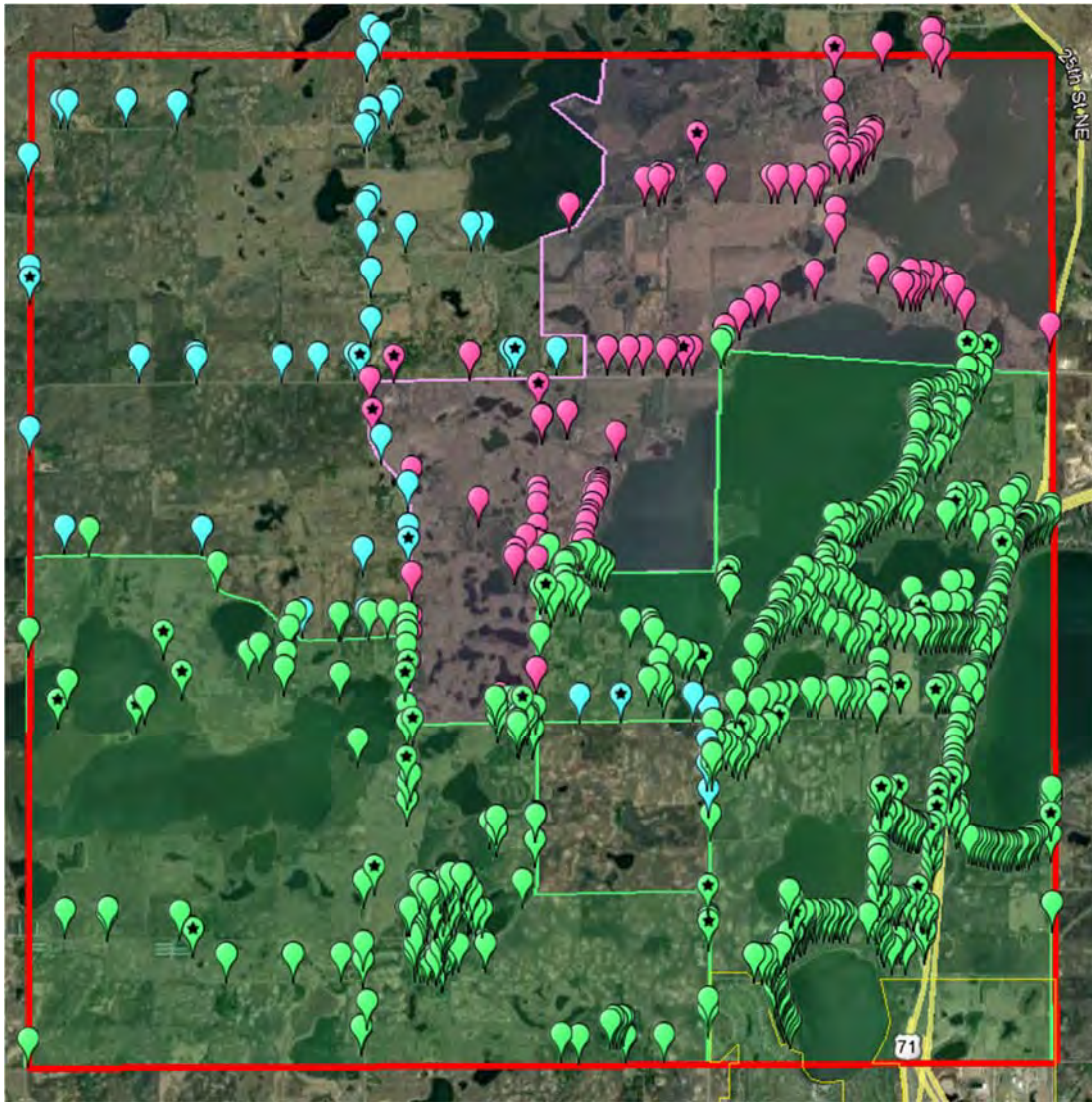


Figure 1: Dovre Township Base Map

Dovre Structures				
	Unserved	Underserved	Served	Total
<i>Residential</i>	41	97	740	878
<i>Business</i>	5	3	42	50
Total	46	100	782	928

Table 1: Dovre Township Structures

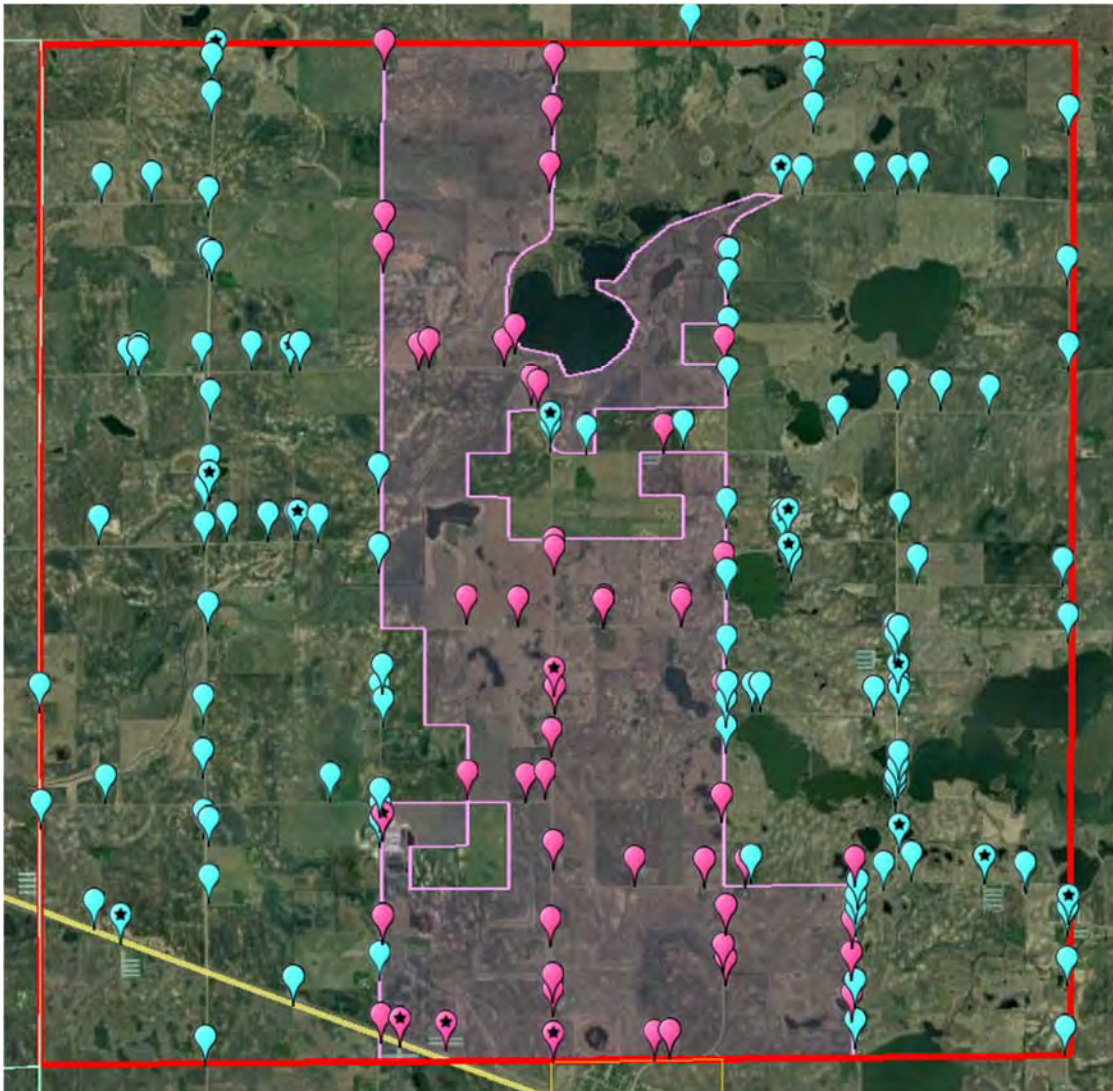


Figure 2: Mamre Township Base Map

Mamre Structures				
	Unserved	Underserved	Served	Total
<i>Residential</i>	97	44	0	141
<i>Business</i>	10	4	0	14
Total	107	48	0	155

Table 2: Mamre Township Structures

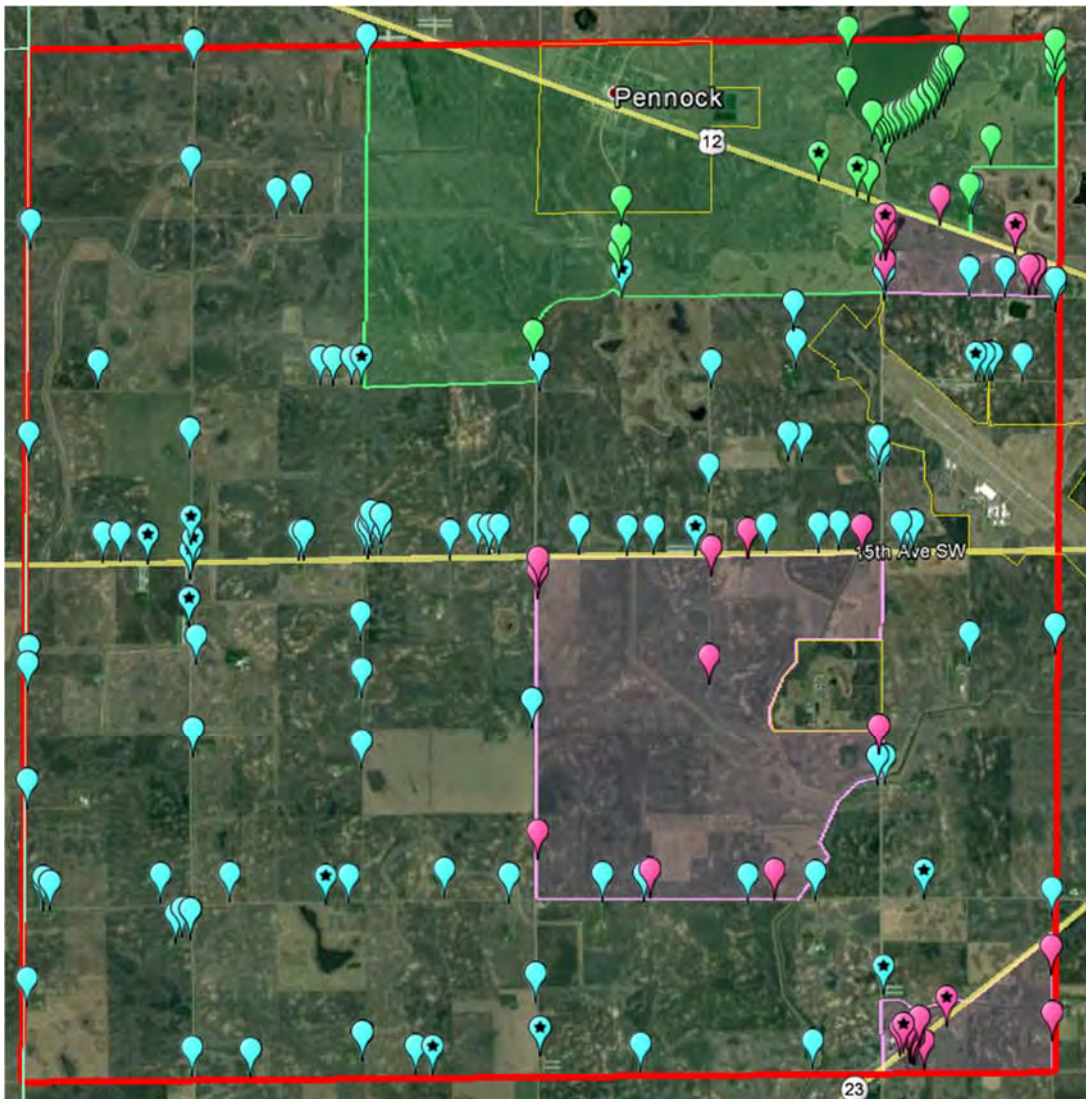


Figure 3: Saint Johns Township Base Map

Saint Johns Structures				
	Unserved	Underserved	Served	Total
<i>Residential</i>	94	27	42	163
<i>Business</i>	11	5	2	18
Total	105	32	44	181

Table 3: Saint Johns Township Structures

Design

Compass completed a high level FTTH design for the unserved and underserved areas of Dovre, Mamre, and Saint Johns townships. This design is sufficient for estimating project costs. However, a more detailed design will be required if the project moves ahead.

The design is for a GPON architecture using Calix access equipment deployed to two PON cabinet locations. The locations selected were: PON A – Pennock, and PON B – Dovre township hall. PON A would be capable of serving both Mamre and Saint Johns townships. PON A would leverage existing Arvig fiber to connect back to Arvig's location in the city of Willmar. PON B would serve Dovre and small area of Mamre township. PON B would connect to an existing Arvig access point on the north side of Willmar near Swan Lake. PONs A and B also connect to each other to create a ring architecture. This protects against service interruptions in the instance of a cut fiber. The designed fiber routes for the unserved and underserved areas are presented in figures 4 through 6.

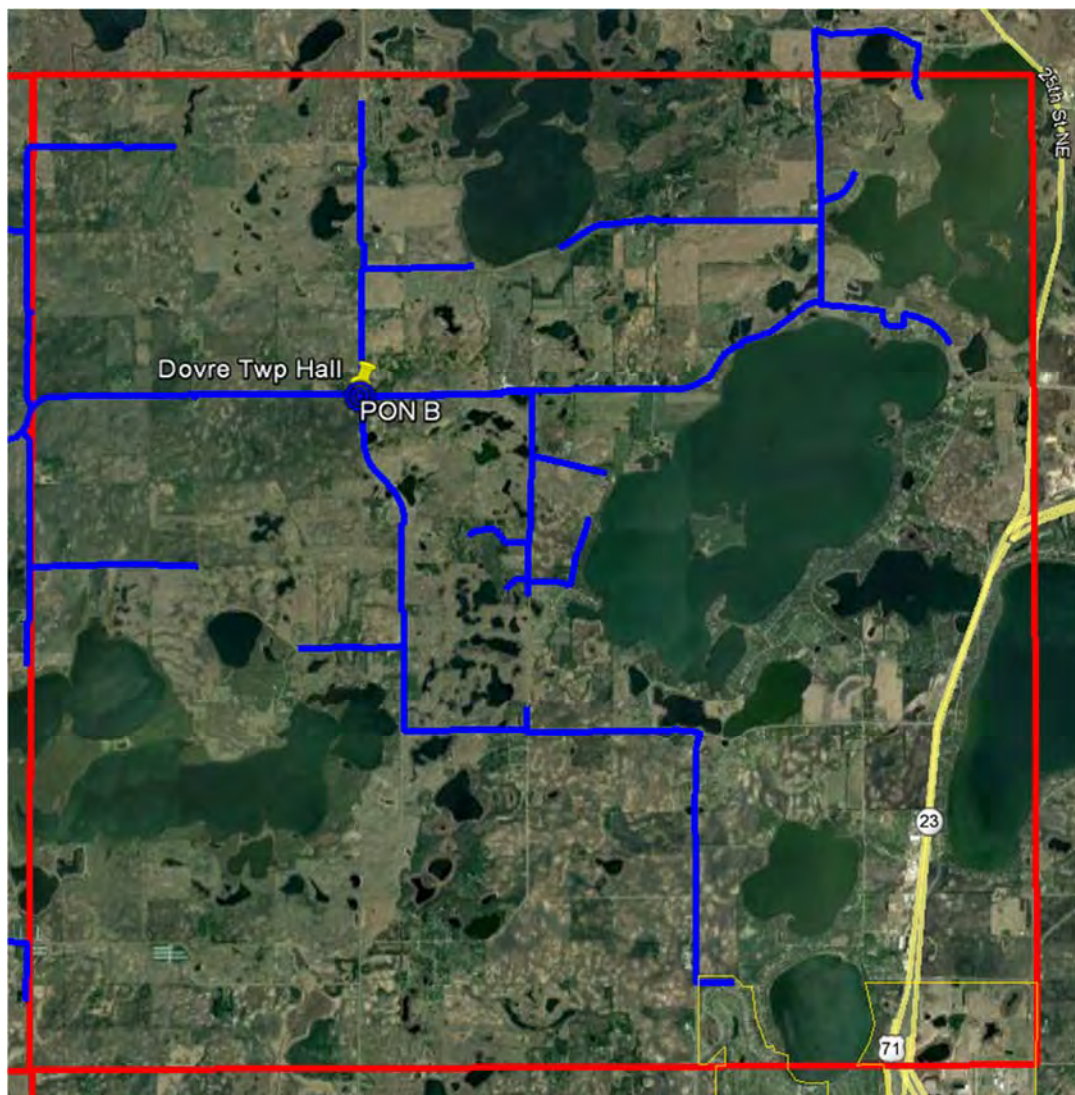


Figure 4: Dovre Township Fiber Design

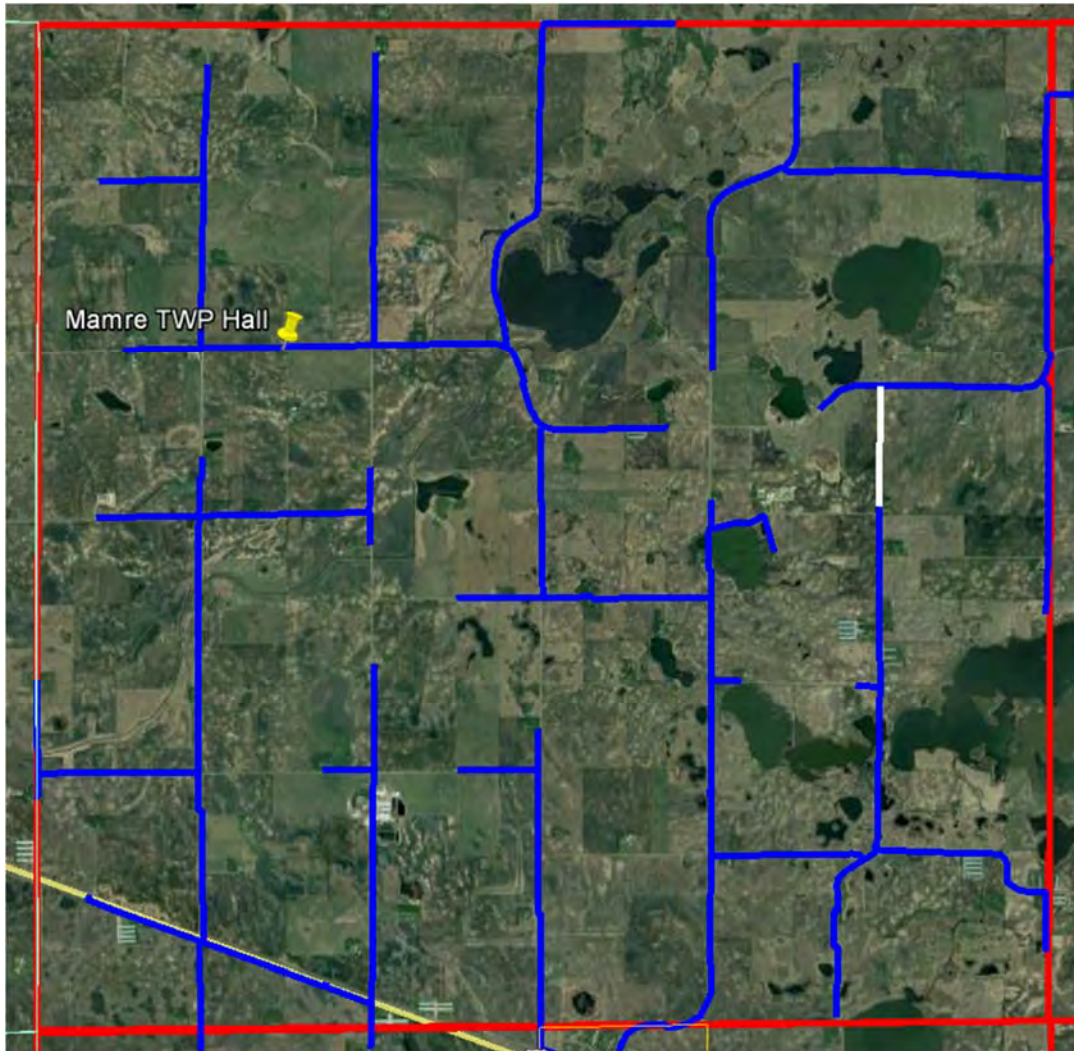


Figure 5: Mamre Township Fiber Design

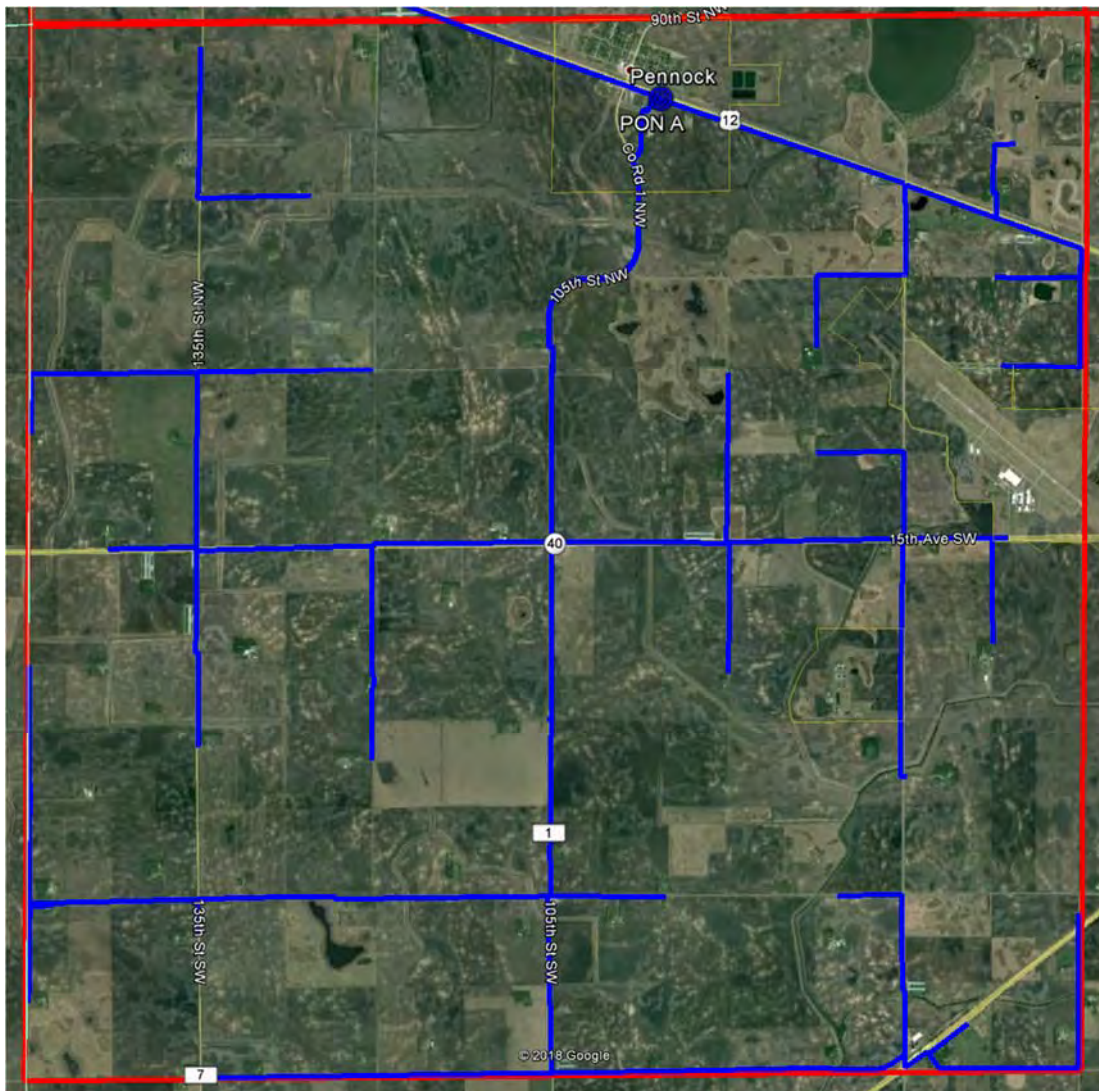


Figure 6: Saint Johns Township Fiber Design

Project Costs

Project costs were determined from the completed high level FTTH design. Cable sizes were determined based on field verified structure counts and lengths were measured in Google Earth. All cable was tabulated as direct bury other than road crossings, railroad crossings, driveways, pipelines that are to be bored. Compass staff reviewed field conditions and noted any areas of concern to be avoided or where boring would be best practice. Labor and materials cost are based on historic numbers from previous Arvig fiber projects with inflation applied. Total project costs are \$3,983,391.07 as detailed in table 4.

Dovre, Mamre, St John's Townships Cost Study		
115.77 miles		438 Subscribers
ITEM DESCRIPTION		COST
Network and Access Equipment		
PON A		\$ 57,405.00
PON B		\$ 40,770.00
Subtotal		\$ 98,175.00
Outside Plant		
Dovre		\$ 800,515.22
Mamre		\$ 1,230,684.08
St John's		\$ 1,119,427.65
Subtotal		\$ 3,150,626.95
Buildings and Land		
PON A		\$ 2,500.00
PON B		\$ -
Subtotal		\$ 2,500.00
Customer Premise		
ONTs		\$ 149,298.00
Inside Wiring		\$ 178,800.00
Subtotal		\$ 328,098.00
Professional Services		
Engineering		\$ 378,991.12
Environmental		\$ 25,000.00
Subtotal		\$ 403,991.12
TOTAL		\$ 3,983,391.07

Table 4: Project Costs