



Broadband Services for Conway Township

○ Background

- Conway Township Board approached numerous providers to bring service into the Township without much success (2008-2015).
- Conway Township Board commissioned Charles Madden to produce a Fiber Optic Network Feasibility Report (July 2016).
 - Analysis of the current services indicates there is insufficient delivery of broadband services within the township either through a fixed broadband infrastructure (cable-coax or fiber-optic), or through a wireless medium, creating “spotted” solutions at best.
 - According to industry standards, Conway Township is significantly below average for broadband Internet (which is defined by the FCC as 25Mbps).
- The current Internet Committee was formed in January, 2017.
- Conway Township Board hired Gracon Services, Inc., (GSI) to explore faster Internet service (April 2017).
 - GSI starts working with Conway Township Internet Committee.
 - An Internet Services Survey was conducted citing overall user dissatisfaction with current ISP vendor offerings and overall Internet services available (July 2017).
 - The Board retains GSI to provide a preliminary cost estimate to construct a broadband fiber network within the Township.





Broadband Services for Conway Township

◦ Background

- In October 2017, the Conway Township Board retains GSI to create an RFP for solicitation for purchase of Engineering Services to design a fiber optic broadband network. GSI was also retained to explore other funding sources for the potential project.
- The bid was awarded to Challenger Technologies, LLC and Wideband Group, LLC (February 2018).
- GSI, the Township Clerk, Challenger Technologies, LLC and the Wideband Group, LLC. Worked together to produce a Fiber-to-the-Home (FTTH) Feasibility Study (April 2018).
 - Base criteria for the report:
 - Capable of supporting up to 1Gbps
 - Expandable for new links, connections and services.
 - Fiber to the home for all residents.
 - Provide estimated costs for the building of the broadband fiber network.
 - Provide ongoing costs and business model for operation.



Broadband Services for Conway Township





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Plant Data Build Estimates

◦ Aerial-Based Network

- Aerial 96.3 Miles
- Underground 4.5 Miles
- Drops 28.3 Miles
- Drops – Underground 7.1 Miles
- Total Network 136.1 Miles

Underground-Based Network

- Aerial 28.9 Miles
- Underground 71.8 Miles
- Drops –aerial 28.3 Miles
- Drops – underground 7.1 Miles
- Total Network 136.1 Miles

- Utility Poles (avg. span length of 250') 612 Poles
- Homes Passed 1183 Homes
- Fiber Optic Cable 191 Miles



Broadband Services for Conway Township

- **FTTH Feasibility Study Report**

- **Two construction approaches were evaluated, aerial (overhead) and underground.**
 - It was determined that any operational benefits of an underground-based network do not out-weigh the lower capital costs of installing a predominately aerial network.
 - The aerial-based distribution network costs is estimated to be \$3,543,861.78.
 - The building of the “service drops” to each home is estimated to be \$428,397.08.
 - The total finance cost with a 5% contingency is \$4,150, 911.30.
 - The estimated costs of the active electronic equipment is \$561,600.00.
 - Added to the finance cost, total estimate is \$4,712,511.*

**There are areas where the Township will have to negotiate with other townships and DTE to secure easements for any fiber plant that enters other jurisdictions or crosses private property outside the right-of-way. There will be a one-time cost to bond the network with Livingston County.*



Broadband Services for Conway Township

- **FTTH Feasibility Study Report**
- **Network Technology**

There are two technologies that are mainly utilized to deliver fiber-optic broadband services: Passive Optic Networks (PON) and Active Ethernet. PON technology has been in use for a longer period of time, is more widely deployed, and has proven reliability. PON technology continues to advance with the latest iteration being NG-PON2, which is compatible with existing PON networks. This study was modelled on a G/EPON system. We are recommending the G/EPON technology based upon the following reasons:

- The technology is proven and continues to advance, and currently can provide the required Gigabit services to the end users.
- It easily supports IPTV, video broadcasts and IP phone-capable technology.
- It is passive in nature; no active components or need for power requirements mid-stream on the network.
- It has lower technical and maintenance costs in the field, fewer points of failure, less up-keep.
- It has greater inter-operability with future technology and possible future asset value.





Broadband Services for Conway Township

o **FTTH Feasibility Study Report**

Business Model

There are several approaches to operating a municipal broadband network. Successful community-led networks similar to Conway Township are structured on a Public-Private Partnership (PPP). The key factors considered are the numbers of homes passed, location of the network, and size of the “plant” or “build”. Conway Township is a rural community, with a relatively low concentration of homes and is not readily accessible to current market backhaul. To successfully operate the network, we believe the basic network functions should be out-sourced. By doing so, little burden and overhead will be placed on the Township.

This study assumes the Township will select and enter into a long-term agreement with an Internet Service Provider (ISP). The ISP would be responsible to connect backhaul fiber at the network “meet” point and provide the network electronics and customer (end-user) premise equipment to deliver the service. An access fee will be paid by the ISP to the Township for the use of the network. The Township will retain the ownership of the fiber plant.

Network Strategy

Service Drops, connecting the homes to the backbone network can be accomplished in a number of ways. The Township may elect to include placing drop cables at existing homes as a part of the capital costs or choose to have the home owner pay the actual costs for the connecting, or pay a fixed rate based on the overall projected costs. We recommend the building to each home be a part of the capital project.



Broadband Services for Conway Township

- **FTTH Feasibility Study Report**

- **Income**

The ISP will pay to the Township an access fee for each customer. The ISP access fee is likely to support a monthly subscriber rate at, or below, the average subscriber price in the US of approximately \$80.00 per month*. Actual pricing criteria and other quality of service items will be addressed within the agreement between the Township and the ISP.

Proforma Data & Assumptions are based upon industry standards and are further detailed in the full FTTH Feasibility Study. We are projecting that there will be “excess revenues” based upon these industry estimates and suggested access fee. Any excess revenues can be used to retire Bond indebtedness, off set operational expenses or used for activities involving the broadband fiber plant at the discretion of the Township Board. There are specific legal requirements and guidelines regarding the Bond issuance, debt payment schedules, and more compliance issues that Bond counsel will advise the Township Board on.

- **Next Steps and Considerations**

Rural fiber markets generally see speeds ranging from 50Mbps and higher. Midwest Energy Internet, with fiber service in rural southwest Michigan, offers tiered packages, including:

- \$59.95/month for 50Mbps** (These do not reflect what the pricing will be at Conway)
- \$79.95/month for 100Mbps**
- \$119.00/month for 1Gbps**

*<http://www.telecompetitor.com/report-u-s-median-broadband-price-is-80-monthly/>

**<https://www.teammidwest.com/internet/residential-internet/>





Broadband Services for Conway Township

- **FTTH Feasibility Study Report**
- **Next Steps and Considerations for the Broadband Fiber Network**

As illustrated previously, fiber networks are capable of very high-speed data, upwards to a 1 Gigabit, however speed and quality of service depend upon the size of the “pipe” feeding the market and the network architecture of the ISP. Therefore, a key next step is finding a strong ISP partner. ISP solicitation should begin soon after funding sources are secured. Any related construction expenditures should be initiated after an agreement has been executed. The residents of Conway Township can expect Internet services ranging from 100Mbps up to 700Mbps or greater, this is dependent upon the ISP’s bandwidth and offerings.

Many consider high-speed broadband, and particularly fiber networks to be the “fourth” utility. Recent studies indicate homes with access to a high-speed fiber increase in value by 3.1% and this increase should be considered when assessing the investment in the Township network.

There are additional homes outside of the Township, but close to the network that could be added to the network and which should be a part of the planning that goes into any Township- ISP agreement.

The Conway Township broadband network should be “open for business” with the routes available for purposes such as, cellular backhauls or express routes for other carriers. Each of these opportunities could generate additional excess income revenues for the Township. The Township should give serious consideration to the formation of an advisory group (Authority) regarding the use, access and administration of the network.



Broadband Services for Conway Township

- **Additional Project Costs and Considerations**

- **There are additional costs that have to be addressed for the network:**

 - Permitting with Livingston County and the State of Michigan

 - Construction of the Technology Room inside of Conway Township Hall.

 - Installation of additional electrical, HVAC and generator connectivity.

 - There will be additional professional services for the project:

 - Legal - bond preparation, millage preparation, statute reviews & agreement preparations.

 - Technical & Project Management

 - RFP for the construction of the broadband fiber plant.

 - RFI for the solicitation of ISPs to provide Internet services on the network.

 - Project Management to oversee the construction of the network.

 - Project Management to coordinate activities with outside services and agencies.

 - Preparation, review and submission of the USDA Grant and Loan applications.



Broadband Services for Conway Township

- **Additional Project Costs and Considerations (cont.)**
- **Total Project Costs for the network:**

Network Construction & Installation	\$4,711,911.30
Professional Services	
Accounting	\$ 10,000.00
Legal Millage, Bonding, etc.	\$ 550,000.00
Technical Project Management	\$ 250,000.00
Additional Technology for the Public use	\$ 50,000.00
Additional Fees, Permits, etc.	\$ 50,000.00
Miscellaneous	<u>\$ 45,500.00</u>
Project Total	\$5,667,741.30

***We will use the figure of \$5.7 million as a not to exceed figure. A number of factors could reduce this amount.**



Broadband Services for Conway Township

2018 Estimated Property Tax Debt Service Calculation @20 Years

2018 Estimated Property Tax Debt Service Calculations @ 20 Years*					
2018 Taxable Value	Project Cost	Year 1 Debt Service	Average Millage @ 20 years	Approximate Taxable Value	Annual Millage Estimate
\$117,557,194	\$5,700,000	\$416,097	3.5528	\$75,000.00	\$266.46
				\$60,000.00	\$213.17
				\$50,000.00	\$177.64
				\$40,000.00	\$142.11
				\$30,000.00	\$106.58

*The figures changed from the presentation given on 4-10-18. The "base" focal point was changed from "parcel" to approximate taxable value to improve the clarity to the stakeholders and make it easier to calculate the annual estimated expense. The second change is due to the fact that 2018 Taxable Values of properties became available for Conway Township from Livingston County. The third reason for modification was that we enlisted Robert W. Baird & Company a member of our team of professionals to run the amortization and come up with the Average Millage percentage over 20 years. The figures are based upon the Year 1 of Debt Service and will vary from year-to-year. These are estimates and should be treated and accepted as such.





Broadband Services for Conway Township

Additional Financial Information

Annual Projected Operating Expense*		Annual Income*	
◦ Aerial Plant Maintenance	\$ 9,627	ISP Access Fees	\$159,705
◦ Aerial Drop Maintenance	\$ 2,832	Install Fees	<u>\$ 66,544</u>
◦ Network Plant Materials	\$ 1,497	Other (Backhauls)	\$
◦ 811 – Locates (Miss Dig)	\$ 5,770	USDA	\$
◦ Head-End Utilities	\$ 3,600	Miscellaneous	\$
◦ Insurance	\$ 5,000		
◦ Aerial Fees & Miscellaneous Chgs.	\$ 46,800		
◦ Installation	<u>\$ 53,235</u>		
◦ Total	\$128,361		\$226,249

Projected Net Income \$97,888

*From Income Statement Year 1 based upon projected and estimated expenses.





Broadband Services for Conway Township

- **Additional Funding Resources**

USDA Rural Utilities Service, Community Connect Grant Program

Grants are awarding ranging from \$100,000 to the maximum of \$3,000,000. These are highly competitive grant awards. Last year there were 48 applications for \$30,000,000. This year, they estimated that the number of applications are going to double. The grant awardee has to match the grant award with 15% funds. Awards are targeted to be announced at the end of September, 2018 with delays likely.

USDA Rural Utilities Service, Rural Broadband Access Loans and Load Guarantees Program

The Loan program has just received funding from the federal government. The loan program is more competitive than the Community Connect Grant Program. Loans for this year that will be not be less than \$100,000 but will not exceed \$25,000,000. Applications are reviewed every 90 days.



Broadband Services for Conway Township

○ Project Timeline

- April 18, 2018 – USDA Community Connect Grant Application due.
- May 1, 2018 – Notice to the Livingston County for Conway Township Millage Vote.
- May 15, 2018 – Millage vote terminology turned into the County.
- August 2018 – Millage election vote for Conway Township Broadband Fiber Network.
- Prepare RFI for Internet Service Provider solicitation.
- Prepare RFP for the building of the network.
- September – October 2018, - USDA RUS Loan application submitted.
- September 2018 – Bond Counsel prepares necessary documents for bond sale.
- September 2018 – January 2019, USDA awards or denies Conway Township Grant application.
- September 2018 – Project begins
 - Make-ready engineering with DTE submissions and review 6-8 months
- April 2019 – Make ready complete 2 months



Broadband Services for Conway Township

- **Project Timeline**

- June 2019 – March 2020 Construction 6-10 months

- Areas lit up as they are built

- A lot can happen to speed the project up.



Broadband Services for Conway Township

- **Conway Township Internet Committee**

Cathy Anderson - Resident, Account Manager Specialist, Quicken Loans

Todd Anderson - Resident, Internet Committee Liaison to the Board, Board Member

Cindy Marceau Dickerson – Resident, Former Board Member,
Chair of the Committee

George Pushies - Resident, Planning Committee Member



Broadband Services for Conway Township

- **Conway Township Consulting Team**

- Jeff Aronoff** - Attorney and Counselor at Law, Miller Canfield (Bond Attorney)
- Mike Watza** - Principal Attorney at Kitch Attorneys & Counselors (Governmental Litigation Practice)
- Ken Palka** - CPA with Pfeffer, Hanniford & Palka CPA's
- Warren Creamer** - Managing Director – Public Finance with Robert W. Baird & Co.
- Ray Signs** - Principal of WideBand Group, LLC.
- Carl Wesolek** - Chief Executive Officer of Challenger Technologies, LLC
- Mike Grady** - Chairman of Gracon Services, Inc.