

# A Michigan FTTH Network Rebuild Sets Stage for Greater Bandwidth, Smart-City Applications

Wyandotte, Michigan's municipal utility provider is rebuilding its hybrid fiber coax network with fiber to the home to retain and attract new residents and businesses with 10 Gbps broadband, IP video and smart IoT services.

By Sean Buckley / *Broadband Communities*

**W**Wyandotte, Michigan, located 11 miles south of Detroit along the Detroit River, is notable for being the only community in the metro Detroit area to offer a full spectrum of community-owned municipal utility services. Since the turn of the century, Wyandotte Municipal Services (WMS) has provided electric power through a municipal power plant and distribution system, operated a municipally owned water filtration plant and distribution system, and provided cable-based internet services. But the city of 25,000 is not resting on its broadband laurels.

When WMS started considering ways to future-proof its network, it looked at three options: conducting node splits in the cable network, driving fiber deeper, and pursuing a remote physical solution. The community ultimately concluded that a fiber-to-the-home (FTTH) network was the best option because it would prevent network congestion and provide a platform to support future smart-city and smart-home applications.

Before WMS settled on a fiber path, it conducted an analysis that defined and quantified the costs and benefits of upgrading the existing hybrid fiber coaxial (HFC) network versus building an FTTH network. An early evaluation of the architecture, technologies, business

resources and future service goals revealed that the FTTH build was the best option.

CommScope is helping the agency rebuild its coax network with fiber to deliver service to the city's residents. The city plans to complete the new system and begin serving its citizens within the next two years.

CommScope serves as the overall integrator for the Wyandotte project, playing the roles of adviser, consultant, engineer and construction manager. It is conducting a deep analysis and considering issues such as headend relocation, fiber overlay requirements, an FCC repack, IP delivery requirements and budget and municipal funding. Meanwhile, Graybar and Power & Tel are in charge of order fulfillment. The two companies are members of CommScope's PartnerPRO Network and provide material for the FTTH build.

By providing both the fiber technology and expertise, CommScope will enable nearly 13,000 homes and more than 700 commercial buildings to access a new network with up to 10 Gbps of internet, IP video and smart-home services.

The project requires full conversion to FTTH, management of multiple contractors, network component integration, and relocation and expansion of Wyandotte's headend.



Wyandotte, Michigan, determined that upgrading to a fiber-to-the-home network would prevent network congestion and provide a platform to support future smart-city and smart-home applications.

CommScope Professional Services will provide both inside and outside plant construction management and headend relocation. Ongoing consulting services include HFC and FTTH architecture analysis, network evolution and FTTH design services. The vendor also will provide off-air antennas and satellite signal surveys. In addition to offering its complete FTTH portfolio, CommScope will provide new fiber innovation to get more bandwidth out of the existing network infrastructure.

Other cities and towns served by large utilities see crippling outages from time to time. In contrast, Wyandotte is quick to tout the reliability of its utility platforms.

“There’s a lot of pride in Wyandotte with its municipal utility,” says Paul LaManes, the general manager of Wyandotte, who is overseeing the city’s conversion to FTTH. “We have bragging rights given our limited electric outages compared with investor-owned utility neighbors less than a mile or two away.”

He adds, “The ability to have your own cable internet and other utility services is extremely unique here.”

### A NEW BROADBAND JOURNEY

The fiber network Wyandotte is planning is a complete rebuild of its existing system. Though the plans to rebuild Wyandotte Cable with fiber is new, it is not the first network transition WMS has been through during its more than 30-year history.

Wyandotte’s broadband journey can be traced back to the early 1980s, when Wyandotte Cable – part of WMS – installed cable infrastructure throughout the city and began offering basic cable television services. Since 1983, Wyandotte Cable has expanded what was once a basic cable television system into a full broadband telecom system that provides voice and data.

“Wyandotte Cable evolved like any of the other players in this business to provide broadband and VoIP phone services, so we offer the triple bundle like any of our competitors,” LaManes says.

Like other communities that have built their own networks, Wyandotte has been able to leverage the coax and fiber network for the electricity network.

“The coax network has a wide range of uses,” LaManes says. “We got a lot of utility out of the system for outage management, advanced meter infrastructure, and supervisory control and data acquisition.”

Over time, the provider has been expanding the depth of its fiber network. Between 2014 and 2020, Wyandotte Cable built out additional fiber cables and converted digital and high-definition signal formats. It now offers a wide selection of cable television services, from digital and high-definition programming to advanced, internet-connected, whole-home video services powered by TiVo technology with access to everything on all mobile devices.

Today, Wyandotte Cable serves about 5,100 cable television subscribers, 6,000 high-speed internet subscribers and 900 digital phone subscribers with annual revenues of approximately \$10 million.

The fiber network will provide various benefits that impact the way Wyandotte Cable serves customers. For one, it will immediately give it another advantage over its main competitor, AT&T, which provides a triple-play bundle.

“The thrust of our project with CommScope is that we’ll be able to provide speeds and reliability that none of our competitors in Wyandotte can currently offer,” LaManes says. “It allows us to increase revenue with a higher-margin product than we have with our video services.”

### FOCUS ON IP-BASED VIDEO

Wyandotte Cable rebuilt or made major upgrades to its network about every 20 years, which is what led it to work with CommScope. Wyandotte issued 15-year revenue bonds to complete the FTTH build. It is also moving its headend from the current location to a new building.

Today, the provider offers voice, video and data over DOCSIS and quadrature amplitude modulation (QAM)-based facilities. As a result of the upgrade to FTTH, it will be able to offer the advantage of a lower-cost network.

“It also allows us to have decreased maintenance costs because of the lack of active equipment,” LaManes says. “It’s a long-term investment.”



As Wyandotte transitions its last-mile network to fiber, it is also migrating from QAM to an IP-based video system.

Another part of its network transition is migrating from QAM to an IP-based video system.

Tom McLaughlin, senior vice president of service providers for CommScope, says that the IP video transition is not a jarring process. CommScope's professional services division can evaluate the best approach to IP video evolution and integrate multivendor video solutions.

"What has to happen is you build a network, which is pretty straightforward – you design a network, and you construct it," McLaughlin says. "As far as the back office on the video side, you have to make a change in the video headend to allow the video to be delivered via IP as opposed to QAM."

Wyandotte Cable's move to IP-based video is becoming commonplace.

"The majority of video providers in the industry are transitioning to this or have transitioned to this, so the equipment and technology is straightforward," McLaughlin says. "However, there's a little change that has to happen in the headend to allow for video via IP as opposed to QAM-based video."

## MAINTAINING NETWORK REDUNDANCY, RELIABILITY

"The timing for the coax-to-fiber transition was perfect," LeManes says.

"We had the need to move our headend." Currently, the cable headend is in an old office in downtown Wyandotte. The old offices in the downtown Wyandotte building were converted into luxury condominiums.

The new WMS headend location is right next to its electric operations building. It will eventually create a campus for its electric and cable divisions.

LaManes says one key issue with the current headend is that it lacks the same level of reliability as the electric and water facilities.

"The voice, video and data business have no redundancy like the electric department or the water department," he says. "If I can't buy power over the grid, I can run the power plant, and if I can't filter water, I can always buy it from Detroit. However, if something were to happen to our headend, we would be out of the business immediately."

Several components of the project were bid out, and CommScope is helping WMS develop the bids because they must be offered publicly. The utility is small and needed assistance in evaluating other contractors for building the network. CommScope helped Wyandotte "not only put together the bid packs but also evaluate the bids and come up with ideas that

are advantageous to us financially," says LeManes. "We needed that partnership; we could not do it on our own."

Now in the process of awarding the bids, the city started construction on the building in February. "It is going to be a process of a year or two to complete," LaManes says. "Once we complete it, we'll be positioned to compete at the highest levels against any competitor and be positioned for the next 20 to 30 years."

## ATTRACTING BUSINESSES, HOMEOWNERS

Giving residential customers higher speeds over FTTH is a key priority, and the new fiber network will also be a key attraction for new and existing businesses located in the city.

Henry Ford Hospital has a large facility in Wyandotte. The city's strategic plan includes building out a medical campus near the thoroughfare in downtown Wyandotte that runs parallel to the Detroit River.

Several parties will use the WMS fiber network to attract development and redevelopment in the city.

"A lot of larger buildings are being built on what would be brownfield land that housed doctors' offices that are part of the hospital," LaManes says. "This project is critical and part of the economic development plan for the city."

Along the same lines, the fiber network will benefit the surge in telecommuting that has taken place during the COVID-19 pandemic and will play a role in attracting new residents. Already, Wyandotte Cable is targeting a few condominium developments for the new FTTH project.

"Several retail, multilevel condominium developments are sprouting up in Wyandotte," LaManes says. "CommScope is helping us determine how we're going to allow this project to be taken into that development." ❖

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