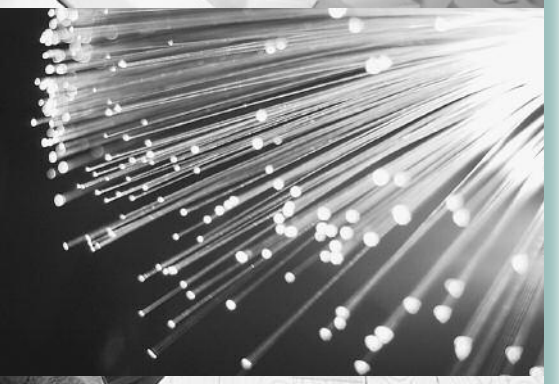

COVER STORY

Leave No Township Behind

Access to Broadband is Critical to Your Township's Future

By Robin Reed,
MTA Member Information Specialist

Geographic location and local revenues force Michigan township leaders to make difficult decisions about what public service projects they deliver. Townships can build water and sewer infrastructure by contracting with engineers; townships can provide emergency services by owning, contracting or through agreements with other local governments. All of these are critical services that are often demanded by local residents, businesses and community leaders.

But what about high-speed Internet access? Where does that newer–and increasingly important–service fit into your oath of office?

Although Michigan remains the number one state in the nation for its aggressive broadband policy, according to technet.org, many township governments in rural areas have been left behind in today's digital revolution. As local government leaders, all township officials must become advocates on behalf of their communities and intervene to ensure the residents and businesses in their area have access to this important technology.

An Essential Element for Townships

The digital information age has made high-speed Internet access an essential element to advance public education and local government operations, not only in Michigan but across the nation and throughout the world. Access to affordable, high-quality broadband service has become imperative to the future of local government services, their economic development climates, local farming operations and community hospitals, as well as for schools and their long distance learning requirements. Today's "digital" community translates into a more responsive government with improved health care, greater educational opportunities, better jobs, more competitive business development, and residents who are more active in their community–including their township government.

Yet, there is a growing divide between the digital "haves" and "have-nots," and it is keeping many rural communities, schools and businesses in the digital dark. These local governments have taken notice, and are searching for ways to bring broadband into their communities and to ensure equal, affordable access to the Internet for everyone.

Most Michigan citizens have Internet access through modem-based, dial-up service over telephone lines. Unfortunately, the speed of these connections is insufficient to meet current technology needs. Slow telephone dial-up connections cannot transfer data efficiently, and much of the latest Internet technologies will not run properly without broadband access. Web pages will "time out" because higher amounts of bandwidth–the amount of data that can be trans-

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ferred over a connection—are needed for many advanced pages and files on some Web sites. Having broadband access allows downloading and uploading larger files, and exploring the Web at faster speeds.

Currently, a trend in the telecommunication industry is a faster, more reliable alternative to dial-up over phone lines. This high-speed connection—called broadband—delivers digital voice, video and high-speed data exchanges, is always on, and is offered through a cable that does not interrupt regular phone and fax lines.

To bring broadband into rural areas, industry experts predicted several years ago that, over time, privately built infrastructure and competitive markets would "wire" the entire nation with lines for broadband Internet access. So far, that has not happened.

According to *Last Mile*, a national magazine published on broadband design and deployment, "within the next 10 to 15 years, it is estimated that more than 33 million rural homes will be connected to broadband at a cost of $50 billion."

But the question remains: Who is going to get the job done?

The issue is no different nationally than it is in Michigan. There is a great digital divide between urban/suburban users and those living in rural areas. The telecommunication industry refers to those rural customers as "last mile" customers. The telecom market is being blamed for creating the digital divide because private companies cannot or will not invest their resources for Internet infrastructure in rural areas or even in some of Michigan's economically challenged metropolitan areas. The return on investment is not as profitable as in more densely populated communities and within higher economically viable areas. Internet service providers (ISPs) have a much larger return on investment by installing broadband fiber down a two-mile road in a suburban area serving four subdivisions and 200 residents than they would investing the same infrastructure on a two-mile road in a rural township that only serves four households. While it may not seem fair, it certainly is understandable why telecom companies do not invest in rural America.

A Federal Communications Commission (FCC) central policy objective is to facilitate access to broadband services for all Americans, and Michigan Governor Jennifer Granholm has stated her own goal to provide all Michigan citizens with "affordable, broadband access by 2007." To meet these goals, local governments cannot depend on a competitive industry to implement this huge broadband infrastructure undertaking. While both the FCC and the State of Michigan, through its Rural Broadband Initiative, offer assistance to bring broadband into rural areas, local governments are facing increasing pressure to stimulate broadband deployment throughout their own communities. Although the FCC reports that 90 percent of all zip codes in the U.S. have access to broadband, that number is not representative of what is actually happening in rural America, especially in Michigan.

Different Types of Broadband Delivery

The majority of American broadband users receive Internet access through high-speed data connections via cable service and through digital subscriber lines (DSL). While broadband fiber lines are the basic backbone utility for offering cable and DSL connectivity in most urban and suburban areas, wireless technology seems to be the most promising tool to reach last mile customers in rural areas.

Wireless fidelity (WiFi) has already proven effective in many large cities, and also within small, rural communities. Similar to cellular phone technology, WiFi operates using radio frequencies to transfer wireless data between access points or "hops." The wireless connectivity allows users to access the Internet or other wireless devices, such as cellular phones and personal digital assistants, without physically connecting cables together. Using wireless capabilities requires computer-based equipment to be within the geographically "radio wired" area to connect to the service. These Internet access points are frequently referred to as "hotspots," and are typically found in coffee shops, bookstores and other high-traffic places, such as airports.

WiFi options are changing as fast as computer technologies themselves, and the radius of wireless transmissions varies with the type of hardware and technology used. Today's typical wireless access points reach roughly 300 to 600 feet in radius, and the hardware is affordable—usually less than $50 to build a small wireless network. Many people have deployed wireless networks in their homes to make accessing the Internet or other in-home computer networks avail-

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able from any area of the house, even from outside on the back patio.

Similarly, local governments are placing wireless access points throughout government offices, on top of buildings, on streetlights, and co-locating points on already-developed cellular towers. With enough access points throughout a community, wireless Internet can blanket an entire area providing nearly seamless broadband access. Wireless technology can connect to many other wireless devices: data networks, government computers, and other township departments and buildings located throughout the area.

While these examples are basic in the grand scheme of wireless broadband, other variations of wireless technology are available that can span miles, such as WiMax (wireless interoperability for microwave access). WiFi and WiMax technologies work together, and are often used in community-wide wireless solutions providing up to a 30-mile range of broadband access. However, as the range of access increases so, too, does the price of purchasing the wireless technology. The amount of bandwidth also begins to decrease as it gets transferred further from the main access point. To that end, communities start "daisy-chaining," or "hopping" the access points together to reach the outer limits of a community.

Another broadband solution that has received a lot of attention is **broadband over power lines** (BPL), which is based on bundling radio frequencies with alternating current (AC) frequencies and sending them through the same electrical power lines. Users plug computers into normal electrical outlets and are online instantly. Surfing the Internet becomes as easy as plugging in a toaster.

Seems logical and so simple, right? As with most technology, it's not quite the simple solution townships are looking for. To prepare for BPL, most utility companies would have to make huge capital investments that would make the technology too costly for today's average user. Other concerns have surfaced around BPL, such as radio wave interference with HAM, short wave, air traffic and other governmental communications.

As these issues get smoothed out, several BPL pilot projects are underway in Michigan. A private company has invested and obtained grants for BPL, and projects are currently being tested in two medium-sized communities in the suburban Lansing area. While it's too early to tell if BPL will be the answer to the last mile users here in Michigan, industry experts predict that BPL might be the answer for developing countries in the future.

Satellite technology *should* be the answer to meet the needs of all broadband users across the globe. However, set-up and equipment fees are expensive, and current bandwidth for uploading and downloading data from satellite systems does not keep pace with basic broadband fiber connections. However, satellite technology has been the answer for at least one rural Michigan township.

Bois Blanc Township (Mackinaw Co.), an island community near Mackinac Island, has struggled for years, not only with getting Internet technology on the island but also obtaining local phone service that didn't charge long distance access rates. The township and local school on the island pooled their resources and purchased access to satellite communications.

According to Treasurer **Cheryl Gahn**, the technology set-up fees were expensive and the monthly access fees are much higher than normal broadband costs, but sharing the costs with the

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How is MTA Involved?

Because of the importance of delivering affordable broadband to all Michigan residents, and to enhance township government services and efficiencies, MTA has partnered with several state agencies and other Michigan-based organizations to help stimulate rural broadband initiatives, including:

- meeting with staff from the Michigan Rural Broadband Authority;
- involvement with the governor's Centers for Regional Excellence project;
- attending state government technology leadership focus groups sponsored by the Michigan Department of Information Technology's Office of Local Government Partnerships; and
- actively participating in the Michigan Association for Governmental Computer Users to help foster township technology partnerships and education.

MTA staff recently developed a plan to help provide resources and educate township leaders on how to actively pursue broadband opportunities in their areas. A complete list of technology-related resources is available at www.michigantownships.org, including a list of all the Internet service providers in Michigan, links to white papers, technology plans, and access to grant and loan information.

At the 2006 Annual Educational Conference, being held January 24-27 in Grand Rapids, MTA staff and state technology experts will lead a broadband panel session, "Bringing Broadband Internet Service to Your Township," on Wednesday, January 25, from 3:15 to 4:30 p.m. This timely session covers opportunities and obstacles for township seeking broadband service, and more.

This spring, several statewide forums will be held to assist local governments in working on developing broadband partnerships. MTA plans to help townships pull together private and public partners by bringing local leaders and vendors together to share ideas and forge new partnerships. For more information, visit www.michigantownships.org, and click on "MTA Technology Deployment Project." ■

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school has helped alleviate some of the financial crunch for both entities.

Fiber optics is another up-and-coming technology hitting cutting-edge ISPs around the world–and users who can afford the latest and greatest technology are buying in. Fiber optics uses light waves to send large amounts of data (up to 40 gigabytes per second)–and it does this at the speed of light. There are many advantages to installing fiber optics, but the technology is still fairly new and the price is high.

Before Hurricane Katrina ripped through New Orleans, the city was undergoing a major water and sewer infrastructure upgrade that included installing fiber optic ducts along with the new sewer lines. New Orleans' intentions were cutting-edge and, by leasing out the fiber to city telecom companies once the project was finished, nearly the entire cost of the investment would have been covered. This dual-purpose rehabilitation project not only would have paid for itself, it would have brought the city's residents and businesses a very tangible benefit. Keep an eye on the fiber optic revolution. In 10 years, it may be more affordable–and the hottest trend in the technology world.

Choosing which type of broadband equipment to deploy in your community will take some research, and the answer depends on a wide range of factors. There are many active county, city, village and township governments in Michigan that have formed countywide or regional initiatives to successfully bring broadband Internet access into their communities. Public and private partnerships are key to developing local broadband plans. By combining private resources, local government and community-based assets, and available grants and loans, communities can provide fast and affordable broadband access to their areas.

Why Townships Need Broadband Access

Growing numbers of communities across the nation have been deploying Internet services in a new way. Larger local governments often classify Internet access as a basic service, like police and fire, and as vital a part of local government utilities as gas and electric. Town-

U.P. Townships Find Ways to Bring in Broadband

Numerous Michigan communities have worked together to undertake the challenge of acquiring broadband access in their areas. Several of these community-driven initiatives are located in the Upper Peninsula, and got underway with the assistance of Andrew Bek, executive director of Upper Great Lakes Educational Technologies, Inc., a nonprofit consortium with a mission of making the U.P. "a totally connected community."

Burt Township (Alger Co.) and the neighboring Village of Grand Marais are celebrating their one-year anniversary with broadband access. After finding themselves frustrated with access only to a dial-up connection, township officials began working with other community leaders, including local school and library personnel, to request that the local telecommunication company provide the community with access to broadband.

According to **Lee Durrwachter**, Burt Township supervisor, the local telecom company said it could not provide the service requested. After being turned down, Durrwachter said, the township and other community entities decided to undertake the project themselves.

That determined attitude convinced the local telecom company that this small tourist area was serious, and the company realized that it could lose revenue if it didn't build the infrastructure. Broadband access now covers about a five-mile radius around the small Lake Superior bayside community. Broadband, which has been extremely important to the entire community, has helped many small area industries remain competitive by allowing them to market products and services over the Internet.

"We depend on tourist dollars in this community," said Durrwachter. "By bringing broadband into the area, we are providing Internet access for thousands of tourists who pass through the area, are watching local businesses make a better living and helping the local schools with long-distance learning needs. It was imperative for us to have access to the Internet to help our economy survive."

Each summer, according to Durrwachter, more than 10,000 campsites are reserved in the township, with four to six campers on each site. Many of those tourists pay a fee for Internet access at the local library to check e-mail and download recreation materials. To better fill tourists' desire to have Internet access, the township is looking into providing a fee-based wireless service in the campground for vacationers who travel with their laptops.

The township also plans to publish real-time video on the township Web site, using a video camera that pans the Lake Superior bay 24 hours a day.

"We are really only on the cusp of what broadband Internet can be used for," added Durrwachter. "Townships need to put the pressure on their local telecom companies, because the Internet is just a start for community survival today."

Other U.P. broadband projects include **Grant Township** (Keweenaw Co.), which was involved in a public/private partnership with their local Internet service provider and a private landowner. That partnership resulted in broadband being offered to the township, Eagle River, Eagle Harbor and Copper Harbor.

Nahma Township (Delta Co.) provided its water tower for an access point for a wireless network between the township and City of Gladstone. The project was a joint venture between the township, Big Bay de Noc Tourism Board and a local start-up wireless provider.

Bates, **Hematite** and **Crystal Falls Townships** (Iron Co.) all cooperated with an Iron River Internet service provider to "daisy-chain" three wireless access points together using the township halls and water towers. The network, which went live this summer, is already changing the way surrounding townships interact with county and state government.

Is your township undertaking a broadband project? Let MTA know! E-mail robin@michigantownships.org with project details. ■

ship governments need broadband access for local utility operations and normal day-to-day government transactions. In addition, broadband is needed to provide the best opportunities available for local business expansion, educational growth, and for the community's economic health and future success.

Increasingly, local government business will be transacted over the Internet. State and federal governments are putting more pressure on local governments to conduct business online for most official duties. For example, the state now requires that the Qualified Voter File (QVF) be filed and submitted though the Internet. While smaller communities rely on their county's technology systems for submitting QVF data, all Michigan local governments are required to electronically send the data to the State Elections Bureau. From local government audits, F-65 reports and building permits to critical incident reports, eventually all information will be submitted in an electronic file to state government agencies.

The state recognizes the need for future seamless, electronic transactions between state and local governments. State information technology representatives meet regularly with local government leaders to discuss the progress and analyze potential impacts of future state technology requirements before they are mandated to local units. In the near future, all state grant application submissions will have to be filed electronically, as paper applications will no longer be accepted. The time and cost-savings not only benefit local governments, but will also be realized though more efficient state oversight.

Emergency Services Need Fast, Electronic Communications

While broadband may not appear to be a basic service needed to protect your township's public health, safety and welfare, it can have a huge impact on how fast townships can respond to emergency situations. Increasingly, wireless access to large databases of critical information is essential to firefighters on the scene of an emergency situation. Real-time, wireless access in the field to building plans, emergency exits and contents of chemical containers can help firefighters at disaster scenes make faster decisions that, in the end, can help save lives.

Police officers in the field also benefit from enhanced access to online databases, and many high-end technologies and software products have been developed that interface with county 9-1-1 and other nationally accessed databases. Combine those technologies with geographical information systems (GIS), and local governments are able to provide first responders with instant, real-time information to help secure public safety.

Technology is also revolutionizing how business is conducted *outside* the township hall, including property assessments and building inspections. Hand-held wireless computers are replacing clipboards and reams of printouts. Government inspectors are submitting wireless data from the field as fast as it's being generated. From water and sewer operators to paperless township board meetings, wireless technology is changing the way information is transmitted back to the township hall.

Business and Community Development Needs

If any segment of your community could yell the loudest for access to broadband, it would likely come from local businesses and manufacturing industries. Nearly all businesses today need broadband access to remain competitive. Without access, township economic development plans will never be met. Businesses require fast, reliable broadband services for a multitude of reasons: in- and out-of-state videoconferencing, telecommuting, accessing large virtual private networks (VPN), or transferring large data files.

Companies can operate seamless business operations in offices located throughout the country–and even within global markets–if they have access to broadband. As all townships have discovered, local business means tax dollars needed for survival in today's drying-up revenue sharing system. Many communities, like **Delta Charter Township** (Eaton Co.), use their township Web site to advertise vacant industrial properties. Among the amenities included with the property descriptions is the availability to high-speed fiber lines for broadband Internet access. Communities like Delta Charter Township use broadband to remain competitive, and to attract and retain business development.

Hospitals and doctors' offices need broadband access to exchange critical patient information and insurance records, and for sending large files, such as x-rays. Schools and universities use broadband for many sophisticated, long-distance learning needs. Teachers are taking classrooms to different parts of the world where students can interact online with other classes and participate in technology projects in real-time.

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Ann Arbor-based Merit Network, Inc., one of the largest non-profit organizations involved in Internet technology development in Michigan, helped build the latest educational fascination, the "Internet 2" (I2). Similar to the Internet, I2 was built to create an additional information superhighway for use in the educational and medical fields for technology-based data transfers, and for research and development organizations. Universities that participate in the I2 project have an open highway to freely transfer huge amounts of data to other universities and research groups, bypassing the regular Internet routes.

With traffic so high on the current Internet infrastructure, I2 paved the way for hospitals and universities to conduct business at a much faster rate of speed and on their own highway. To demonstrate the efficiency of I2 technology, Merit built an access point to Internet 2 inside the state Capitol and demonstrated to Michigan legislators a video transmission from three different parts of the world–all done in real-time. Classrooms from around the world were able to access the demonstration, and Michigan's legislative leaders were taken from country to country as affiliate universities from around the world videotaped K-12 classrooms that were participating. The legislative session at the Capitol left quite an impression with Michigan's legislative leaders, helping to educate them on the importance of the advancements in broadband capabilities.

Public and Private Partnerships Deploy Broadband

In recent years, Philadelphia has brought national attention to local government deployment of broadband. There, a controversial citywide wireless project was built and operated by the city. Because of legal considerations, a battle between public and private delivery of broadband services began. The biggest question was whether the city has the authority to own, operate and offer its residents and businesses broadband service, and if, by doing so, it was blocking local competitive markets. Since then, state and federal governments have been closely watching local government involvement while deploying community broadband projects.

At the federal level, Congress is considering several bills to resolve the issue and at this point, legislators are uncertain which way these telecom bills will go. Some states have actively passed legislation to limit the involvement of local governments becoming ISPs. In Michigan, a rewritten Telecommunications Act was adopted in November. The revised act does not prohibit local governments from serving as ISPs, but only allows them to do so after issuing a request for proposal (RFP) from private ISPs. If less than three qualified providers respond, the local government can then become the service provider.

For many rural areas in Michigan, getting three qualified ISPs to bid on a community-wide broadband project is likely just a dream at this point. Many smaller Michigan-based ISPs have been either bought out by larger telecom businesses or have failed to stay in business because of increasing broadband competition. The cost of financing infrastructure to provide last mile broadband access has also hurt smaller ISPs, which simply cannot afford to provide that kind of investment into broadband infrastructure.

Townships Can Get Involved in Applying for Broadband Grants

In December, the Michigan Rural Broadband Authority released a request for proposals (RFP) offering $17 million in low-interest loans to telecommunication vendors to expand broadband communications in underserved areas in the state. The RFP strongly recommends that local companies work with local governments before submitting their proposals. For more information on the RFP, and how you can get your township involved, turn to the "*Hello, MTA ... ?*" column on page 4 or visit www.broadbandauthority.org. ■

Michigan townships have already felt the impact from the lack of available broadband in their communities. Some townships have been forced to take action and deploy their own broadband service to fill a need. In **Clam Union Township** (Missaukee Co.), such a project took shape after a lack of Internet access pushed a large, local dairy farm to consider moving operations out of the township. After local ISPs were asked to assist the township but could not provide the service because of economic reasons, the township stepped in and built the infrastructure to provide the service. After the project was completed, the township sold the equipment and allowed the local ISP to take over service.

Under pressure to deliver services, civic-minded leaders are starting to get more involved, especially when it comes to local economics. Two well-known countywide Michigan initiatives are the Wireless Oakland project and the Wireless Washtenaw broadband initiative. Both wireless broadband projects will eventually blanket each respective county in its entirety with access to wireless broadband. In Oakland County alone, this coverage includes 720 square miles of wireless service and access for 60-plus local units of governments.

Both counties are taking the lead and partnering with private businesses to build out the broadband network, and are leveraging governmental assets, such as water and cell towers, streetlights and buildings. Neither county will own any of the capital investments. Both projects have coordinated with multiple partners including local governments, chambers of commerce and other

technology supporters, both private and public.

The Wireless Oakland project has identified several outcomes from the plan, including providing low-cost personal computers and training to low-income families. The plan also calls for developing a detailed wireless technology "tool kit" to assist other local governments that want to complete a similar project.

Another notable broadband project is being built in Kentucky. Called Connect Kentucky, the state government is leveraging assets, and bringing together huge amounts of public and private resources to provide every household in the state with broadband Internet access. The project is expected to be completed in 2007. Once complete, Connect Kentucky will be the first of its kind in the country where an entire state will have blanketed access to broadband, for every resident and down every country road.

Where to Begin?

Understanding the basic elements of local government technology and the importance of bringing broadband access into your township is essential to starting the long process of pulling together public and private partnerships for broadband deployment planning. Township rights-of-way, local ordinances, policies, contracts, agreements and other available government assets will also play a large role in your broadband development plans. In some cases, townships may be able to use METRO Act payments for building local government infrastructure in rights-of-way.

Know where your resources are, and what local ordinances or contracts might hinder your township's broadband plans. It is important to communicate with neighboring townships, cities and villages, and investigate if community support exists for technology expansions. You may wish to provide a copy of this article to your county representatives, and solicit their leadership and support. Most county governments already have access to broadband. Ask them to help your township and other local governments in the area to have that same, equal broadband access for all local governments and their citizens. The future of your regional community depends on it. ■

For a list of community-based organizations that may be interested in helping your township broadband deployment plans, visit www.michigantownships.org and click on "MTA Technology Deployment Project." For more information, call Robin Reed, MTA member information specialist, at (517) 321-6467 or e-mail robin@michigantownships.org.