



**PROJECT NAME:** Corridor Fiber Optic Backbone

**PROJECT REQUESTOR:** City of Ann Arbor/City of Ypsilanti

**PROBLEM THAT'S BEING SOLVED:** The Ann Arbor/Ypsilanti SmartZone and the City of Ann Arbor are building out the downtown with a fiber optic network owned by the municipality so it can operate without restrictions. The Ann Arbor/Ypsilanti SmartZone has tech park districts comprised of parts of the downtown in both cities. This Corridor Fiber Optic Backbone project would connect downtown Ann Arbor, with downtown Ypsilanti and the American Center for Mobility. This creates public infrastructure that tech companies, the cities, and businesses can utilize along the corridor for innovative products, affordable & reliable broadband, and company location. The City of Ann Arbor's downtown is a vibrant area and the center of the city's economic activity. An emergent area of national interest and economic development involves mobility solutions. The City, UM (UMTRI), and State have already invested in infrastructure in the region to bolster research and development including the American Center for Mobility. Mobility solutions include such things as vehicle to infrastructure communication, intelligent traffic management, improved pedestrian safety, efficient parking, and the equitable access to mobility options.

Research entities and businesses are already trying to solve this fabric of needs and the Ann Arbor region is recognized as one of a few locations nationally that have some of the critical assets necessary to compete and develop solutions. With the region's existing innovative environment, it is well positioned to be a preferred test-bed for new companies to explore and innovate ideas and products that solve mobility challenges with Smart City infrastructure.

Since the research and commercialization of ideas relies on acquiring data and communicating it rapidly and reliably, a robust communication infrastructure can further add to the advantages of the SmartZone region being a preferred test-bed for innovation.

**BACKGROUND:** Cities invest in infrastructure to improve the quality of life of residents, enable/promote commerce, and deliver government services efficiently & effectively. Traditionally, city infrastructure investments are large dollar investments providing broad service delivery, such as road and water treatment/delivery systems. However, as the information age and technological improvements have swept across many industries, they're now being applied to the services and challenges of cities. Companies and cities implementing ideas in this area are called Smart Cities.

Although there isn't a universally accepted definition of a Smart City, the advancement of technology fundamentally incorporates data collection, storage, transmission, analysis, as well as the management of the electricity associated with each of these processes. Many advancements have been made in each of these areas over recent decades.

In relation to the transmission of data, the private sector continues to advance innovations and services for cities. The larger private companies install their own wired and wireless systems to control their quality of service and then sell excess capacity for profit. These business models help fund the development of private innovations. However, these systems are not integrated with the assets of cities and remain private

systems. Cities, which are accustomed to installing infrastructure that is shared publicly, serve an important role in reducing the average cost of the basic infrastructure because one investment is shared across multiple users. Private sector and public sector systems work together to address different purposes. Since Smart City technologies require reliable and cost-effective transmission of data, cities are increasingly seeking ways to invest in and support the data highways integrated with their existing assets in their communities.

The Cities of Ann Arbor and Ypsilanti are located within a region that has strong competitive advantages related to many areas of Smart City innovation. The primary area is mobility. The University of Michigan has already invested in M City (the infrastructure for early stage testing of automated vehicle testing), the State has already invested substantial funds in the American Center for Mobility (the infrastructure for higher-level testing of automated vehicles), and the City has invested in a fiber optic ring that is capable of bringing a base level of connectivity to most areas of the City. Each of these infrastructure investments have value in themselves, but when combined they contribute to a regional cluster of assets that attract and encourage companies to work here.

The region also has a sizeable talent pool of workers with software, electrical, mechanical, and automotive engineering skills. This is evidenced by the major automotive companies having a research and development presence locally. When these talents are combined with the innovation residing in the University of Michigan, this area is very competitive for companies to locate and develop new technologies.

However, if the above resources are combined with a wired, regional fiber optic system, the added infrastructure creates an ideal test-bed for innovation and development. The installation of a fiber backbone connecting an innovation corridor will leverage existing infrastructure investments and make it easier for companies to innovate and test in the region.

**DESCRIPTION OF EXISTING INFRASTRUCTURE:** The City of Ann Arbor has a fiber ring which includes lateral connections to its facilities and community partners and is in the process of building-out the downtown area. The City of Ypsilanti is much smaller and utilizes commercial fiber for connection both for businesses and city operations. Connections to the American Center for Mobility are provided by private entities.

**BRIEF DESCRIPTION OF PROPOSED PROJECT:**

This project consists of 3 phases.

Phase 1 is to design and densify the conduit and fiber in the Smart Zone (DDA District) in downtown Ann Arbor (aka - Technology Park) to ensure we have the capacity to connect all structures in the DDA District and connect to the existing City of Ann Arbor 35-mile fiber network. This project is currently underway and in the design and planning phase and is being funded through an LDFA grant.

Phase 2 will consist of designing and constructing a new conduit and fiber network to connect the city of Ann Arbor and City of Ypsilanti SmartZones, the networks described in Phase 1, and the American Center for Mobility. The project plans to utilize EDA grant funds, if approved.

Phase 3 will consist of installing and densifying the conduit and fiber in the City of Ypsilanti SmartZone District, like the Technology Park project in phase 1. Funding for this phase has not yet been identified.

Connecting all 3 networks above will provide a regional high-speed fiber corridor and bridge a needed gap between the City of Ann Arbor and the City of Ypsilanti that will serve each community for years to come.

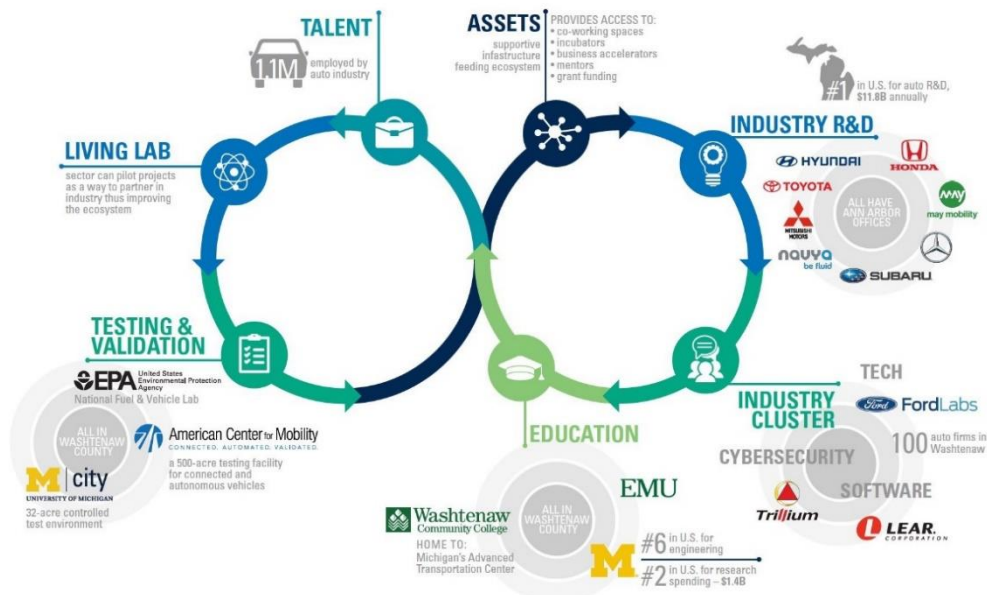
The advantages of this new network are as follows:

- It will provide access to a large unrestricted network for public, private, government, and education organizations.
- In some cases, it will be the single source for high-speed fiber access, and in other cases provide options or alternatives to promote economic development.
- It will connect the two SmartZones, support the implementation of Smart City technologies, and enable the creation and expansion of technology companies and employment.
- The networks are being designed with excess capacity and physical separation to facilitate for building flexible, resilient, and redundant networks.
- It provides a robust and dense high-speed network foundation that enables and facilitates for regional connectivity.

This project requests approval for Phase 2 to install conduit, fiber, and related tech infrastructure to connect downtown Ann Arbor, Ypsilanti, and the American Center for Mobility to enable the creation and expansion of technology companies and employment.

**NEAR-TERM & LONG-TERM USES:**

Investment in this infrastructure leverages other community assets and supports the Living Lab (or test-bed) for new innovations.



Source: Ann Arbor SPARK

Because this asset could be utilized by both the public and private sector, and it complements the infrastructure of existing telecommunication firms, it provides opportunities to achieve several SmartZone objectives.

**STRATEGIC ALIGNMENT:** Goals 2 and 3 of the LDFA's strategic plan are to have a "High-Tech Company Friendly Infrastructure" and "High-Tech Company Creation and Growth", respectively (see attachment II). The primary objectives which this project aligns with are:

1. Encourage & support Smart City initiatives – Smart City initiatives utilize technology infrastructure to interface and leverage data and applications to deliver innovative, efficient, and networked services. The abundance of tech companies in the region along with high quality infrastructure can be an incubator for innovation and implementation of Smart City services. These new services will allow and encourage tech companies and employees to innovate and implement new technologies.
2. Assist in establishment of reliable/affordable internet access – This project has multiple phases but is limited to the technology park area in the cities of Ann Arbor and Ypsilanti, as well as an attaching corridor between the two downtowns and the American Center for Mobility. This project encourages reliable and affordable broadband access by providing infrastructure multiple parties can access without installing duplicative investment.
3. Support company creation/growth/viability – Having this infrastructure in place is the foundation to facilitate connectivity between people, assets, and ideas. By having access to the infrastructure, third party companies are able to focus on product/service innovation since there's a low hurdle for testing and deployment.

**SUSTAINABILITY:** Approval of this proposal would result in infrastructure that can be utilized for many years into the future beyond the existing life of the LDFA. As a local asset, the City of Ann Arbor would be responsible for the on-going maintenance and repair of the assets beyond the life of the LDFA.

**ESTIMATED INVESTMENT:** The Ann Arbor tech park area (Phase I) has a great deal of existing (non-tech) infrastructure already in place, which makes it difficult to accurately project the costs without design and engineering work. A preliminary estimate is \$3.5 - \$5.0 million. This project (Phase II) may be eligible for an Economic Development Administration grant and is estimated to cost approximately \$3.70 million. The Ypsilanti tech park area (Phase III) does not have a cost estimate at this time.

**ESTIMATED TIMING:** Preliminary design, engineering, and project management would likely take 1 year. This would be followed by a 1-2-year estimated construction time frame.

**FUNDING:** The LDFA is the right entity to lead funding for this proposal because technology related infrastructure is expressly addressed in the Tax Increment Financing and Development Plan approved by the MEDC and City. The proposal furthers the strategic goals of the LDFA, and this infrastructure leverages other assets in the community.

The funding for this project (Phase II) is contingent on the EDA approving the federal grant. If approved and EDA funds are insufficient to pay for the full Phase II, partial funds (\$400k) could come from a combination of the FY21 Strategic Initiatives budget plus \$200k from the Tech Park Fiber project (Phase I), subject to authorization by MEDC. If Phase I funds are utilized in this manner, Phase I construction may proceed a little slower than originally planned.

**COMPLIANCE WITH LEGISLATION:** In response to the Public Act 281 of 1986, Section 15(2)(f) requirement (Planned Construction), the approved Development Plan states, “Investment may be made to facilitate the expansion of the technology infrastructure, such as high-speed telecommunications throughout the Cities’ public facilities as defined by Act 281, or expansion of the incubator facilities within the SmartZone LDFA District.”

**CONCLUSION:** This three-phase project is vital to the mission of the LDFA: to promote economic growth. By connecting the downtown areas of Ann Arbor and Ypsilanti, as well as the American Center for Mobility, it creates the backbone for a high-technology ecosystem in the Ann Arbor-Ypsilanti region. Not only will it connect the two physically separate areas of the Ann Arbor/Ypsilanti SmartZone, it provides these areas with a direct connection to the American Center for Mobility which will foster new related investment and economic development in those areas and along the corridor path. The Ann Arbor/Ypsilanti SmartZone, all political subdivisions through which the project travels, and numerous businesses have all expressed their support, and support both the project and the grant application.