



## /// CAPITAL IMPROVEMENT PLAN PROJECT SUMMARY

VAN BUREN TOWNSHIP DOWNTOWN DEVELOPMENT AUTHORITY

JANUARY 28, 2020



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## TECHNICAL MEMORANDUM

**TO:** Ms. Susan Ireland, Executive Director  
Downtown Development Authority  
Charter Township of Van Buren

**FROM:** David M. Nummer, PE, Wade Trim  
Carmelle G. Tremblay, PE, Wade Trim

**DATE:** January 28, 2020

**RE:** Van Buren Township Downtown Development Authority  
Capital Improvement Summary

**FILE:** VBN 2280-01T

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## CAPITAL IMPROVEMENT PLAN SUMMARY

The Van Buren Township Downtown Development Authority (DDA) has initiated a process to develop a Capital Improvement Plan (CIP) to guide investments in the District for the next ten years. As a part of this process, DDA staff, Township staff, and the representative DDA Subcommittee identified and evaluated potential projects that will support and enhance the existing and planned development within the District. Sixteen potential projects that focus on accessibility, safety, traffic flow, aesthetics and beautification, placemaking and identity, and asset management have been identified. Some of these projects are very practical in nature (pavement repair) and others are more imaginative.

The results of these meetings have been summarized within this memorandum. In addition, the improvements are graphically represented in an overall DDA map provided in Appendix A. Planning level cost estimates associated with each of the potential projects have also been provided to aid the DDA in determining budget and feasibility. Due to the conceptual nature of the projects, a 10%-20% contingency has been added to the costs; varying per size, complexity, and definition of each improvement. In addition, 10% has been added for design, 12% for construction administration, and 6% for general administration and legal. Detailed cost estimate breakdowns are provided in Appendix B.

With input from DDA staff and the Subcommittee, each of the CIP projects has been prioritized based on necessity, desirability, and feasibility. The final project list is presented below in order of priority from high to low, with a few special cases in between. The summaries in this memorandum provide a general description of each project, the advantages and motivation behind them, and the potential obstacles associated with their pursuit.

## 1.0 TRAFFIC STUDIES

### PRIORITY: HIGH

The DDA strives to facilitate safe and efficient traffic operations throughout the main Belleville Road corridor. Traffic operational and safety studies performed within the DDA District will help to clarify and prioritize the need for many of the capital improvement items listed in this document, as well as aid in implementing the most effective solutions. This project consists of the following studies:

- *Belleville Road Corridor Operational and Safety Study [Precursor to Project #2; Project #14] **(Conceptual Cost Estimate: \$40,000)***. An analysis and recommendation of ideal road width, number of lanes, speed limit, signal timing, etc. of the Belleville Road corridor from Yost Road to Tyler Road. In particular, the following cross sections will be evaluated:
  - Yost Road to Ecorse Road – Converting the cross section from a four-lane to three-lane roadway (road diet).
  - Ecorse Road to Tyler Road – Converting the cross section from a two-lane to three-lane roadway
- *Truck Route Study [Precursor to Project #2; Project #14] **(Conceptual Cost Estimate: \$3,000)***. An analysis of the existing truck traffic conditions will be reviewed along Belleville Road, particularly from the Costco Distribution Center and south on Belleville Road through the commercial district to I-94. A recommendation will be developed on the most effective way to encourage trucks to travel north on Belleville Road to avoid the business district.
- *Pedestrian Traffic Study [Precursor to Project #4; Project #5; Project #6; and Project #10] **(Conceptual Cost Estimate: \$5,000)***. An analysis and recommendation of the overall sidewalk connectivity within the district and the need for crosswalks along Belleville Road.
- *Proposed Ring Road Traffic Study [Precursor to Project #17] **(Conceptual Cost Estimate: \$40,000)***. An analysis of the potential traffic diversion and intersection improvements that may result from the construction of a ring road between I-94 North Service Drive and Belleville Road. The goal of the traffic study is to identify traffic and safety deficiencies and show how the new roadway will accommodate rerouted traffic from Belleville Road, any new development generated traffic, as well as existing and background traffic for the future 20-year horizon.
- *Quirk/Belleville Road Signal Warrant Study [Precursor to Project #15] **(Conceptual Cost Estimate: \$3,000)***. A traffic signal warrant study will be conducted to determine whether a traffic signal is justified at the unsignalized intersection of Belleville Road and Quirk Road. Peak hour traffic will be generated for a potential event center and the impacts of the potential future development on the intersection will be considered in the evaluation.

Example scopes of work that may be performed for the costs listed above are outlined in Appendix D.

## 2.0 BELLEVILLE ROAD IMPROVEMENTS FROM TYLER TO ECORSE

### PRIORITY: HIGH

Belleville Road between Tyler Road and Ecorse Road is an area that provides opportunity for further development in the DDA District. There are multiple improvements that can be implemented along this corridor that will encourage growth. These improvements must be evaluated for cost-benefit, feasibility, and opportunity to be facilitated in conjunction with each other. The goal is to provide direction for a combination of projects that will be most effective and impactful to the downtown area. The improvements being considered for this road segment are outlined below.

- *Center Left-Turn Lane* (**Conceptual Cost Estimate: \$5.1M**). Overall corridor planning is necessary to verify traffic needs are accommodated throughout this segment of the DDA (Belleville Road between Tyler and Ecorse). Currently, Belleville Road is five lanes wide south of Tyler Road, two lanes wide between Tyler and Ecorse, and four lanes wide north of Ecorse Road.

Existing and projected traffic volumes between Tyler and Ecorse warrant a lane configuration with a center left-turn lane. A five-lane section, as exists south of Tyler, is thought to promote truck traffic as a cut-through to I-94. Increasing truck traffic on Belleville Road is contrary to the DDA goals of a walkable, cohesive downtown business community. Therefore, a three-lane section is deemed to be more appropriate for this section of Belleville Road.

A center left-turn lane will provide easier accessibility to businesses and encourage further development along the corridor. This project would expand the overall road width to approximately 36 feet; the existing right-of-way (ROW) varies from 66 feet to 120 feet wide. A three-lane road requires a minimum ROW of 86 feet that the DDA or Wayne County would need to obtain. The DDA has been actively seeking to purchase the necessary ROW along this section of Belleville Road. Although there has been some success, there are currently 15 remaining parcels along this corridor that have been unwilling to sell ROW property.

- *Sidewalk Extension* (**Conceptual Cost Estimate: \$500,000**). Continuing the Belleville Road sidewalk north of Tyler Road will provide a safer pedestrian access into the downtown area, promoting walkability and providing a connection between the corridor and the north end of the community. This project should be coordinated with the center left-turn lane project to verify it is located in the correct location within the ROW. As mentioned above, the acquisition of ROW will be necessary to place a three-lane road with sidewalk along this corridor.
- *Tyler-Belleville Intersection Improvements* (**Conceptual Cost Estimate: \$100,000**). The Tyler-Belleville intersection currently faces traffic and alignment issues, causing circulation problems in and out of the downtown area. In particular, the misaligned intersection poses sight issues for northbound traffic desiring to turn left onto Tyler Road. The inability to see oncoming southbound traffic contributes to unsafe turning movements in this direction.

This project would consist of evaluating the intersection geometry and the potential for widening the road along a limited length to help alleviate potential accidents and traffic congestion. If this project comes to fruition prior to the center left-turn lane noted above, the overall cost for the center left-turn lane can be reduced, as the project will not need account for this segment.

- *Provide Street Lights* (**Conceptual Cost Estimate: \$1.5M**). The lack of streetlights along this section of Belleville Road can be a deterrent to walkability and does not provide the same lively downtown feel as the area south of Tyler Road. To attract residents, visitors, and businesses to this segment of the DDA, this project involves the installation of approximately 50 new streetlights spaced at 200 feet on both sides of Belleville Road, consistent with Township branding and with the rest of the DDA area.

The cost estimate for this project has been determined using a balance between a conservatively calculated estimate shown in Appendix B, and a budget level estimate provided by DTE to perform the work (approximately \$700,000).

- *Bury Power Lines* (**Conceptual Cost Estimate: \$20.0M+**). This project consists of burying the power and communication lines along Belleville Road, from Ecorse Road to the North I-94 Service Road. Burying the power and communication lines along this corridor will lower maintenance costs, leave the system less susceptible to weather and outages and, ultimately, improve the quality and aesthetics of Belleville Road as a downtown area.

The cost estimate for this project is based on a 2009 estimate for performing similar work on Belleville Road between the I-94 North Service Drive and Tyler Road (\$20M). Accounting for inflation, burying power lines along this segment will likely be upwards of \$20M. DTE has been contacted to provide a budget level estimate for this work, with no response up to this point. Should the DDA decide to continue to pursue this improvement, further investigation and contact with DTE can be implemented.

The above projects will require coordination with property owners, electrical and communication utility companies, approval and permit from Wayne County, and compliance with all applicable standards.

### **3.0 CONCRETE JOINT REPAIRS – BELLEVILLE ROAD BETWEEN I-94 AND BELLEVILLE LAKE BRIDGE**

**PRIORITY: HIGH**

**Conceptual Cost Estimate: \$1.4M**

The 2,000-foot segment of five-lane concrete road (Belleville Road) from just north of Venetian Avenue to just west of Lake Villa Drive currently has severe joint spalling on at least 40% of the transverse pavement joints.

These spalls have been repeatedly patched with bituminous to slow further deterioration and allow for a safer and smoother ride. This patching, however, is a temporary fix and will not preserve the structural integrity of the pavement.

Full-depth concrete joint repairs and some concrete curb replacement will increase the structural life of the pavement, provide a better ride into and out of the downtown area, and be highly impactful on the corridor as a whole. Joint repairs will require coordination, approval, and permit from Wayne County, and compliance with the County concrete pavement repair standards. The cost estimate for this project assumes approximately 40% pavement replacement over 3,120 of 62-foot wide road.

## **4.0 TYLER ROAD SIDEWALK (EAST OF BELLEVILLE)**

**PRIORITY: HIGH**

**Conceptual Cost Estimate: \$800,000**

Promoting a walkable downtown area requires a safe and accessible pedestrian route from other areas in the community. Tyler Road, from Belleville Road to Haggerty Road, is primarily residential; however, there is currently no convenient and safe pedestrian access from this area to Belleville Road. Multiple sidewalk gaps along both the north and south sides of Tyler Road discourage walkability and present safety issues for those who do choose to walk.

This project involves installing new sidewalk to fill in existing gaps along this corridor which will give residents an opportunity to enjoy their neighborhood and the downtown area on foot.

This project must be designed to comply with Americans with Disabilities Act (ADA) requirements; drainage considerations around the existing ditch line; and coordination, approval, and permit from Wayne County. The ROW in this area varies, but appears to be wide enough to accommodate a sidewalk and; therefore, there is no anticipated need for ROW purchase.

## **5.0 I-94 SOUTH SERVICE DRIVE SIDEWALK (PEDESTRIAN BRIDGE – BELLEVILLE ROAD)**

**PRIORITY: HIGH**

**Conceptual Cost Estimate: \$150,000**

The I-94 pedestrian bridge is a vital walkable connector between the lakefront area and the remainder of the downtown area and the Township as a whole. Existing sidewalk gaps between this bridge and Belleville Road along the South I-94 Service Drive inhibit safe and easy pedestrian circulation to the bridge on the south side of the freeway.

This project involves installing new sidewalk to fill in existing gaps along the South Service Drive which will provide a complete walkable connection between the north and south sides of the freeway, and complete the loop for any pedestrians walking between Belleville Road and Quirk Road.

This project must be designed to comply with ADA requirements; drainage considerations; and coordination, approval, and permit from Wayne County. The ROW in this area varies, but appears to be wide enough to accommodate a sidewalk and; therefore, there is no anticipated need for ROW purchase.

## **6.0 PERIODIC SIDEWALK MAINTENANCE THROUGHOUT DISTRICT**

### **PRIORITY: HIGH**

**Conceptual Annual Budget: \$250,000**

While necessary adjacent sidewalk repairs will be included in the sidewalk CIPs listed above, a regular district sidewalk maintenance program will help guarantee the continued safety and walkability to, from, and throughout the downtown area. Continuously maintaining the sidewalk will mitigate trip hazards and improve the overall image of the downtown area.

This program will include the evaluation, identification, and spot repair of sidewalk problem areas throughout the district every three years. The program must comply with ADA requirements and will involve approval and permit from Wayne County. The conceptual annual budget provided above assumes the replacement of approximately ten percent of the total DDA sidewalk annually.

## **7.0 MID-BLOCK PEDESTRIAN CROSSWALK ALONG BELLEVILLE ROAD**

### **PRIORITY: MEDIUM**

**Conceptual Cost Estimate: \$200,000**

Currently, there are only four signaled pedestrian crossing opportunities along this mile-long corridor, one in each of the following areas:

- Tyler Road
- Menards/Aldi/AutoZone Entrance
- Westlake Circle/Wal-Mart
- North Service Road

In some cases, this may require a pedestrian to walk 700+ feet to get to the nearest safe crossing. With multiple businesses on both sides of Belleville Road, it is important to provide pedestrians with safe and easy access from anywhere along the corridor.

This project consists of introducing one additional mid-block signalized pedestrian crosswalk between the North Service Road and Westlake Circle. This will promote a walkable street without affecting the existing actuated signals in the area, or inhibiting traffic circulation through the corridor.

This project will require evaluation of pedestrian traffic and coordination with Wayne County to determine the need for and type of crossing. The County requires a HAWK signal for pedestrian crossings, which is a pushbutton pedestrian-activated signal that turns the through traffic light red.

## 8.0 WAY-FINDING SIGNS USING DDA BRANDING

### PRIORITY: MEDIUM

Conceptual Cost Estimate: \$150,000

With all the benefits the downtown area has to offer, encouraging visitors to explore the community is not a challenge. However, wayfinding signs throughout the DDA can significantly improve community branding and provide direction to residents and visitors.

Wayfinding signage can help visitors easily find points of interest and encourage exploration of the downtown area. Consistent signage gives the community a cohesive quality and has the potential to keep residents informed. Wayfinding can also help with traffic congestion that may be a result of lack of direction for both residents and newcomers.

Input from residents, businesses, Township staff, and DDA staff will help to evaluate the most effective use of wayfinding signs. Continuity and cost-benefit will be an essential part of determining the best placement and appearance of the signs throughout the community. A permit from Wayne County will also be required to place signs within the public ROW.

The planning level cost estimate provided for this project was established using a conceptual plan as shown in Appendix C, which includes a total of 18 signs, including vehicular direction signs at major intersections in the DDA (Tyler/Belleville, Ecorse/Belleville, I-94 Service Drive/Belleville, and Quirk/Tyler), and gateway signs at the I-94 West exit ramp to Belleville Road and at the Belleville/Ecorse intersection. The estimate will need to be reevaluated based on the final number and placement of signs.

## 9.0 PEDESTRIAN PATH ON I-94 NORTH SERVICE DRIVE FROM BELLEVILLE ROAD TO MORTON TAYLOR ROAD

### PRIORITY: MEDIUM

Conceptual Cost Estimate: \$250,000

Promoting a walkable downtown area requires a safe and accessible pedestrian route from other areas in the community. The North I-94 Service Road, between Morton Taylor Road and Haggerty Road, is heavily residential; however, there is currently no convenient and safe pedestrian access from this area to Belleville Road. Multiple sidewalk gaps between Belleville Road and Morton Taylor Road discourage walkability and present safety issues for those who do choose to walk.

This project involves installing new sidewalk to fill in existing gaps along this corridor, which will give residents an opportunity to enjoy their neighborhood and the downtown area on foot.

This project must be designed to comply with ADA requirements; drainage considerations around the existing ditch line; and coordination, approval, and permit from Wayne County.

The ROW in this area varies, but appears to be wide enough to accommodate a sidewalk and; therefore, there is no anticipated need for ROW purchase. If the ring road (improvement #11) is built, the priority of this path would increase to provide adequate pedestrian circulation in that area.

## **10.0 UPDATE BELLEVILLE ROAD STREETScape**

### **PRIORITY: MEDIUM**

**Conceptual Cost Estimate: \$200,000**

While the Belleville Road corridor is an attractive, walkable, and welcoming area; there are always ways to increase its desirability to visitors and residents. This project involves an asset inventory of streetscape features such as benches, trash cans, light poles, trees, plantings, signage, bicycle racks, etc. This inventory will aid in determining what is lacking or unsuitable and help the DDA to determine the best way to improve the area. Once an improvement plan is determined, this project may involve installing minor items such as covered seating and additional bicycle racks; as well as larger items such as stamped concrete crosswalks, new lighting, or more trees.

This will require coordination with property owners who front Belleville Road and approval and permit from Wayne County. This project should be coordinated with the branding and wayfinding project (Project #7), should that project come to fruition.

The conceptual estimate includes the cost to perform an asset inventory and condition study, 5 new benches, 10 new trash receptacles, 5 new bicycle racks, 20 new trees with tree grates, 8 new planter boxes, the design and installation of 40 new banners, and 2 new stamped concrete crosswalks. The estimate will need to be revised with information from the asset inventory and as the project becomes more specific.

## **11.0 CONTINUED BRAND AWARENESS AND MARKETING CAMPAIGN**

### **PRIORITY: MEDIUM**

Continuing to develop and reinforce the Township brand is an important aspect to improving the downtown area. This campaign is directed toward encouraging the right type of development in the area and ensuring the DDA reinforces a positive image of the Township to attract investors, residents, and visitors.

Historically, the DDA has spent approximately \$50,000/year on this campaign. Since this is a continued program rather than a specific capital improvement, we recommend an annual budget be set and reevaluated every year based on the DDA revenue.

## **12.0 GRANT PROGRAM TO ENCOURAGE DEVELOPMENT, REDEVELOPMENT, AND REINVESTMENT**

### **PRIORITY: MEDIUM**

The DDA area is the home to many properties that are ideally located for development; however, some of these properties face their own unique challenges to development. Examples of these properties include the 440-acre property, the Town Center property (Tyler/Belleville NW corner) and infill development areas. Some barriers to development include wetlands, drainage problems, lack of public utilities, and limited accessibility.

This program would allow for the use of DDA funds to provide grants to help mitigate these development limitations, ultimately making the available properties more attractive to investors. Criteria based on property size, development type, and other considerations would be established as a part of this program. Each property has unique limitations that will need to be evaluated in the process of awarding and implementing grant projects.

This program will vary each year and; therefore, we recommend the DDA determine a budget to spend on the program based on annual revenue. Each year the DDA can evaluate and determine the number of development projects to award funding, up to a limit of \$75,000 per development.

## **13.0 PLACEMAKING PROJECTS**

### **PRIORITY: LOW**

Placemaking is a people-centered approach to planning, designing, and managing of public spaces. Put simply, it involves looking at, listening to, and asking questions of the people who live, work, and play in a particular space, to discover their needs and goals.

Placemaking capitalizes on the distinctive assets of a community to connect people and places on a human scale. It is designed to make communities more attractive to both businesses and workers who are not just looking for a building or a house – they are looking for a community.

As opportunities for placemaking projects are identified, we recommend that individual budgets be established based on priority and DDA annual revenue.

## **14.0 TRAFFIC SIGNAL AT BELLEVILLE ROAD AND VAN BORN ROAD INTERSECTION**

### **PRIORITY: LOW (HIGH IS MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES WARRANTS)**

**Conceptual Cost Estimate: \$300,000**

The intersection of Belleville Road and Van Born Road is currently signalized with a flashing yellow light for Belleville Road through-traffic and a flashing red light and stop sign for vehicles turning left or right from Van Born Road. As the area has developed, specifically with the Costco Depot Terminal to the north, an increase in traffic has inhibited circulation at this intersection. The high volume of truck and passenger vehicle traffic on Belleville Road causes long wait times for vehicles trying to turn onto

Belleville Road from Van Born Road. Providing a full traffic signal at this intersection will provide a safer and more efficient way for vehicles to access Belleville Road.

This project will require coordination, approval, and permit from Wayne County and an evaluation of traffic volume, frequency, and signal timing in all directions. New signal installations are required to meet warrants based on traffic volumes and/or crash data. At this time, it does not appear that the Belleville and Van Born intersection meets the Michigan Manual on Uniform Traffic Control Devices (MMUTCD) minimum requirements and; therefore, may not qualify for a new traffic signal. More in-depth analysis would be necessary to confirm if a signal at this location is warranted.

## **15.0 TRAFFIC SIGNAL AT BELLEVILLE ROAD AND QUIRK ROAD**

**PRIORITY: LOW (HIGH IS MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES WARRANTS)**

**Conceptual Cost Estimate: \$300,000**

The intersection of Belleville Road and Quirk Road is not currently signalized. Vehicles may turn left on Belleville Road to head to Van Buren Township's downtown area or right to the bridge from the existing stop sign at the Quirk Road intersection.

Installing a traffic signal at this intersection will provide a safer and more efficient way for vehicles to turn into and out of the downtown area using the Belleville and Quirk Road intersection. The signal will provide opportunity for future development of the Township-owned lakefront parcel directly across from the intersection.

This project will require coordination, approval, and permit from Wayne County and an evaluation of traffic volume, frequency, and signal timing in all directions. New signal installations are required to meet warrants based on traffic volumes and/or crash data. At this time, it does not appear that the Belleville and Quirk intersection meets the MMUTCD minimum requirements and; therefore, may not qualify for a new traffic signal.

Intersection traffic may increase to meet minimum requirements if the Township develops the lakefront property across from this intersection, at which time the DDA should reevaluate the signal warrants to determine if a new traffic signal is needed.

## **16.0 RING ROAD BETWEEN I-94 NORTH SERVICE ROAD AND BELLEVILLE ROAD (BEHIND WESTLAKE APARTMENTS)**

**"PRIORITY OF OPPORTUNITY"**

**Conceptual Cost Estimate: \$5.9M**

This project involves the construction of a ring road beginning on the drive north of Aldi on Belleville Road, and looping southeast until it meets the North I-94 Service Road. This ring road will allow for rear

access to many properties and improve circulation to and from Belleville Road, providing a secondary access for residents and visitors arriving from the southeast.

While this road would allow for access to additional downtown property, the parcels it would connect are difficult to develop due to wetlands, large grade changes, and consistent drainage issues. If a developer expresses interest in developing these parcels, this ring road can be a great opportunity to extend the downtown area.

If determined to be a worthy opportunity, constructing the ring road will require significant coordination, approval, and permit from Wayne County if it is constructed as a public road. Another option would be for the DDA and/or Township to assume jurisdiction of this road as a “private” road. The ring road will require extensive coordination with existing property owners; ROW acquisition; and extensive pavement, grading, and drainage design.

The conceptual estimate provided is based on a 36-foot wide road with enclosed drainage and no major earth changes requiring extensive cut and fill. The estimate is the full cost of the project; however, there may be potential for cost-sharing with future developers and existing property owners that could reduce the overall cost to the DDA.

## **17.0 REGIONAL DETENTION POND**

### **PRIORITY: LOW**

Commercial development along Belleville Road is subject to compliance with Wayne County Storm Water Ordinance standards. Compliance with these standards requires property owners to construct large at-grade ponds (examples are Wal-Mart, Menards and Applebee’s) or build expensive underground detention systems (example: AutoZone). Ponds and underground detention add significant cost to developments and encumber valuable land that could otherwise be developed and generate property taxes to support the District. In contrast to the typical method of stormwater control, a proactive approach can be taken through the development of a regional stormwater control basin that will serve multiple development sites. A regional detention pond would eliminate the need for developers to build individual detention ponds on their sites which will speed up the development process and preserve valuable commercial property. A regional system that accommodates existing as well as undeveloped properties could make property currently used for ponding available for redevelopment.

The DDA had investigated the concept of a regional detention pond that would have served all the properties along Belleville Road from the I-94 North Service Road to Tyler Road. This project required significant coordination with the Wayne County Drain Commissioner, Wayne County Roads Department, the Southeast Michigan Land Conservancy and several private landowners. Ultimately the project was not acceptable to the Wayne County Drain Commissioner’s office and was put on hold.

Opportunities for regional detention ponds exist throughout the DDA District including the originally proposed location, the 440-Acre parcel and the Town Center property. Before this concept can move forward the Wayne County Drain Commissioner's office needs to be engaged and supportive of the proposal.

Costs for regional detention ponds will vary greatly depending on the size, service area, available property and improvements necessary to convey storm water to the basin. Should the DDA decide to move forward with regional detention, conceptual cost estimates can be established for specific sites which will help evaluate each location for feasibility.

## **18.0 BURY POWER LINES ON BELLEVILLE ROAD (BELLEVILLE LAKE BRIDGE TO TYLER ROAD)**

**PRIORITY: HIGHLY DESIRABLE, BUT NOT COST-BENEFIT WORTHY**

Conceptual Cost Estimate: \$20.0M

Belleville Road is serviced by overhead electrical lines that run within the greenbelt along the entire corridor; communication and fiber optic lines also share the power poles. These can often be an eyesore in an area that should represent walkability, business development, and Township branding.

This project consists of burying the power and communication lines along Belleville Road, from the Belleville Lake Bridge to Tyler Road. Burying the power and communication lines along this corridor will lower maintenance costs, leave the system less susceptible to weather and outages and, ultimately, improve the quality and aesthetics of Belleville Road as a downtown area.

This project will require significant coordination with the private electrical and communication companies and coordination, approval, and permit from Wayne County. Burying the lines along the entire corridor will require careful consideration on how to minimize disturbance to existing features and traffic during construction.

The cost estimate for this project is based on a 2009 estimate for performing similar work on Belleville Road between the I-94 North Service Drive and Tyler Road (\$20M). Accounting for inflation and a longer length, burying power lines along this segment will likely be upwards of \$20M. DTE has been contacted to provide a budget level estimate for this work, with no response up to this point. Should the DDA decide to continue to pursue this improvement, further investigation and contact with DTE can be implemented.

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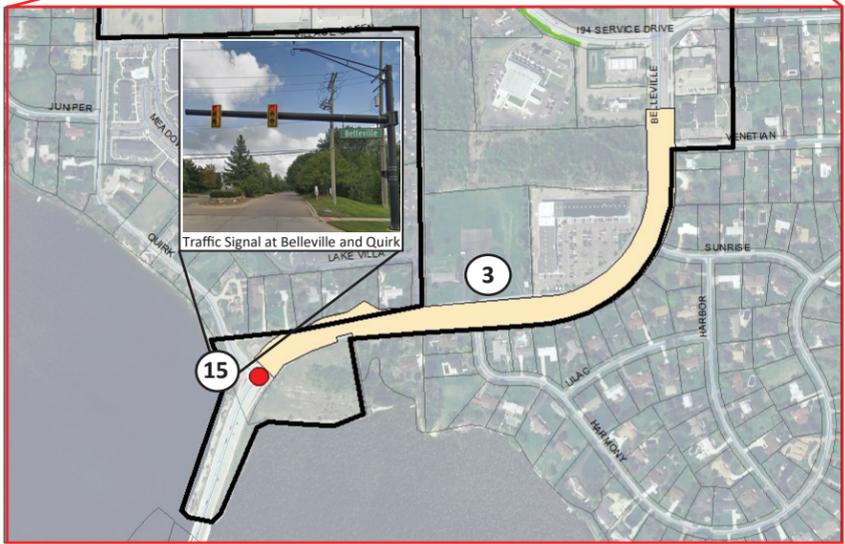
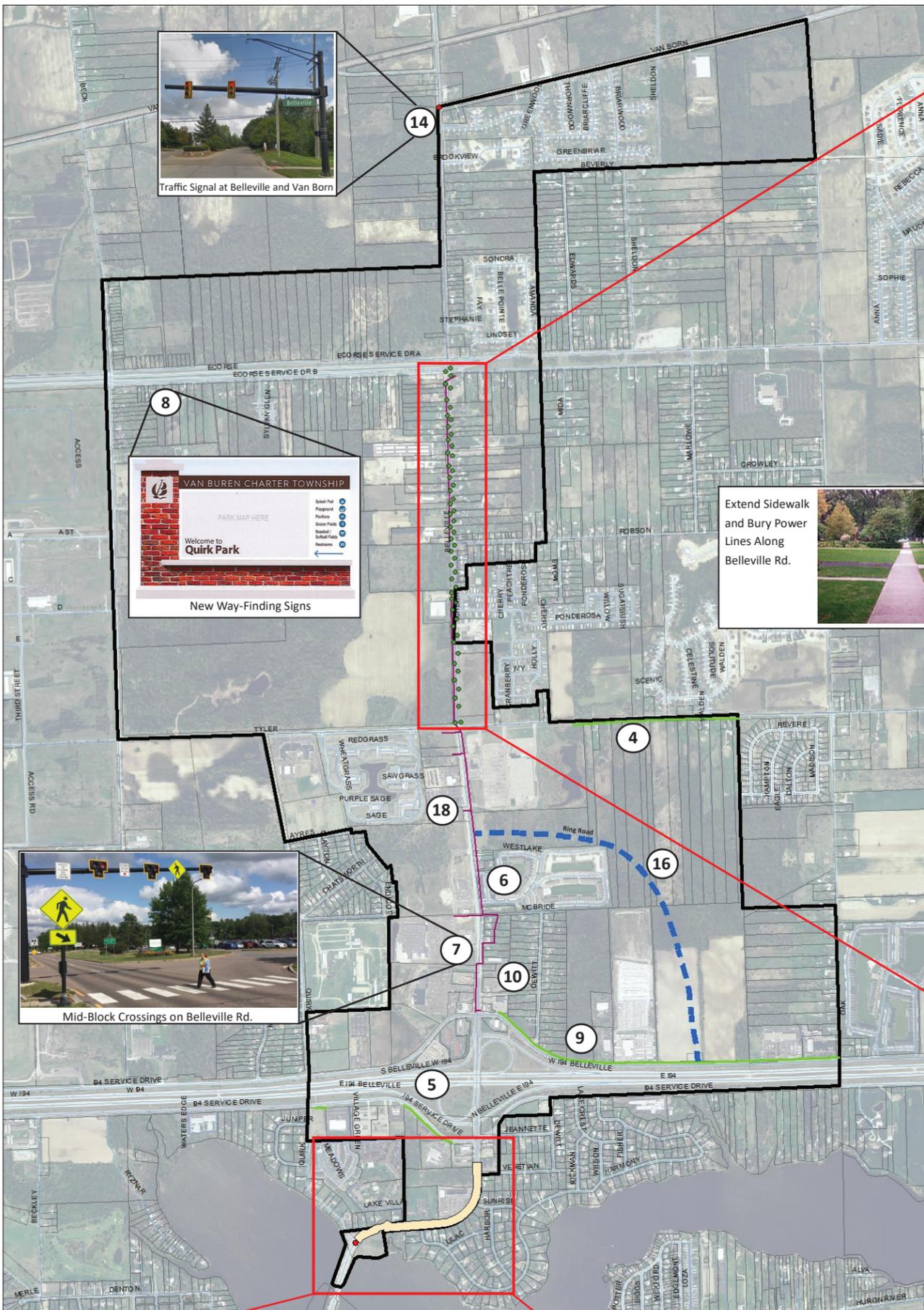
VBN 2280-01T

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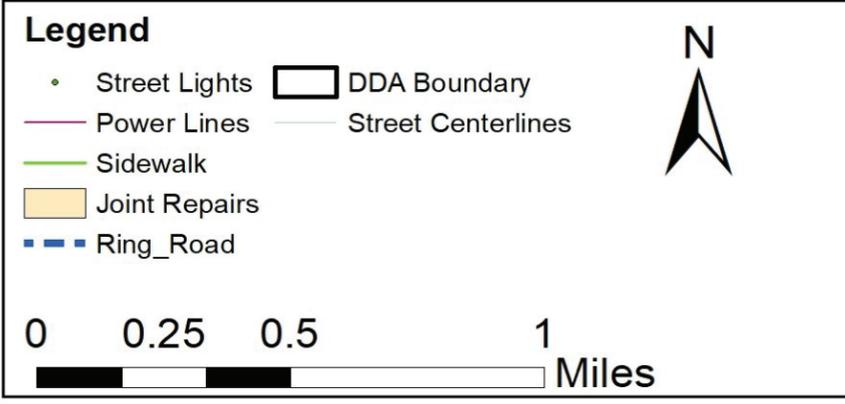
Attachments

## **APPENDIX A. OVERALL DDA MAP**

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- 1 Traffic Studies
- 2 Belleville Rd. Improvements
- 3 Concrete Joint Repairs on Belleville Rd.
- 4 Tyler Road Sidewalk
- 5 I-94 South Service Dr. Sidewalk
- 6 Periodic Sidewalk Maintenance
- 7 New Mid-Block Crossings on Belleville Rd.
- 8 New Way-finding Signs
- 9 Pedestrian Path on I-94 North Service Dr.
- 10 Update Belleville Rd. Streetscape
- 11 Continue Brand Awareness and Marketing
- 12 Grant Program to Encourage Development and Reinvestment
- 13 Place Making Projects
- 14 Traffic Signal at Belleville and Van Born Intersection
- 15 Traffic Signal at Belleville and Quirk
- 16 Ring Road Connecting N. Service Dr. and Belleville Rd.
- 17 Regional Detention Pond
- 18 Bury Power Lines on Belleville Rd.



**Van Buren Township  
DDA Improvements**




June 2019    25251 Northline Rd  
Taylor, MI 48180  
734.947.9700

## **APPENDIX B. DETAILED COST ESTIMATE BREAKDOWNS**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: Belleville Road Improvements - Tyler to Ecorse  
 Sidewalk Extension  
 8,425 feet

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	4" Conc Sidewalk (7000' X 5')	35,000	Sft	\$5.00	\$175,000
2	6" Conc Sidewalk (620' x 5')	3,100	Sft	\$6.00	\$18,600
3	8" Conc Sidewalk (400' x 5')	2,000	Sft	\$7.50	\$15,000
4	Sidewalk Ramps, ADA 4" (8 @ 50sft ea)	400	Sft	\$7.00	\$2,800
5	Subbase 4" (7150' x 7' )	620	Cyd	\$25.00	\$15,500
6	Earth Excavation (7150' x 7' x 8")	1,250	Cyd	\$30.00	\$37,500
7	Restoration (7150' x 6')	4,800	Syd	\$7.50	\$36,000
8	Miscellaneous Clearing and Grubbing	1	LS	\$10,000.00	\$10,000
9	Miscellaneous Drainage Improvements	1	LS	\$5,000.00	\$5,000
10	Traffic Maintenance and Control	1	LS	\$20,000.00	\$20,000
	Contingency (15%)				\$50,310
	<b>Total Preliminary Cost</b>				<b>\$385,710</b>

**Design (10%)** \$38,571  
**Const Engineering (12%)** \$46,285  
**Adminstration and Legal (6%)** \$23,143

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**Total Estimated Cost** **\$493,709**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: 

Belleville Road Improvements - Tyler to Ecorse	
Intersection Improvements	

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	Based upon estimate 1.1	275	Ft	\$270.00	\$74,250
	\$270± per lane foot				
	construction of equivalent 275 lane feet				
	Contingency (10%)				\$7,425
	<b>Total Preliminary Cost</b>				<b>\$81,675</b>

<b>Design (10%)</b>	\$8,168
<b>Const Engineering (12%)</b>	\$9,801
<b>Adminstration and Legal (6%)</b>	\$4,901

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<b>Total Estimated Cost</b>	<b>\$104,544</b>
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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: 

Belleville Road Improvements - Tyler to Ecorse
Street Lights

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	Based Upon Ralph Powell QuestCDN bid =\$155.00 per foot / per each side of road	10,460	Ft	\$155.00	\$1,621,300
2	DTE Electrical Service	1	Ls	\$ 7,500.00	\$7,500
	Contingency (10%)				\$162,130
	<b>Total Preliminary Cost</b>				<b>\$1,790,930</b>

Design (10%) -  
 Const Engineering (12%) -  
 Adminstration and Legal (6%) \$107,456

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**Total Estimated Cost** **\$1,898,386**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: Concrete Joint Repairs - Belleville Rd  
 194 to Belleville Lake Bridge

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	Based upon Hunter Creek Proj PLT 2007-017	21,495	Syd	\$35.00	\$752,325
	Assumptions				
	- 3120 lft x 62 ft w				
	- 40% Pav't repl				
	- 9" reinf conc pav't vs. 7" plain (+ \$10.00 / Syd of conc)				
	- Saw and seal joints and cracks				
2	Traffic Maintenance and Control	1	LS	\$115,000.00	\$115,000
	Contingency (20%)				\$173,465
	<b>Total Preliminary Cost</b>				<b>\$1,040,790</b>

Design (10%) \$104,079  
 Const Engineering (12%) \$124,895  
 Administration and Legal (6%) \$62,447

<b>Total Estimated Cost</b>	<b>\$1,332,211</b>
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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: Tyler Road Sidewalk - East of Belleville Rd  
 Haggerty to Belleville Road

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	4" Conc Sidewalk (11,721' X 5')	58,605	Sft	\$5.00	\$293,025
2	6" Conc Sidewalk (880' x 5')	4,400	Sft	\$6.00	\$26,400
3	8" Conc Sidewalk (35' x 5')	175	Sft	\$7.50	\$1,313
4	Sidewalk Ramps, ADA 4" (19 @ 50sft ea)	950	Sft	\$7.00	\$6,650
5	Subbase 4" (12,635' x 7' )	1,100	Cyd	\$25.00	\$27,500
6	Earth Excavation (12,635' x 7' x 8")	2,200	Cyd	\$30.00	\$66,000
7	Restoration (12,635' x 6')	8,425	Syd	\$7.50	\$63,188
8	Miscellaneous Clearing and Grubbing	1	LS	\$ 7,500.00	\$7,500
9	Miscellaneous Drainage Improvements	1	LS	\$ 7,500.00	\$7,500
10	Traffic Maintenance and Control	1	LS	\$ 25,000.00	\$25,000
	Contingency (20%)				\$104,815
	<b>Total Preliminary Cost</b>				<b>\$628,890</b>

**Design (10%)** \$62,889  
**Const Engineering (12%)** \$75,467  
**Adminstation and Legal (6%)** \$37,733

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**Total Estimated Cost** **\$804,979**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: I-94 S. Service Drive Sidewalk \_\_\_\_\_  
 Pedestrian Bridge to Belleville Rd \_\_\_\_\_

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	4" Conc Sidewalk (780' X 5')	3,900	Sft	\$5.00	\$19,500
4	Curb Cuts for Sidewalk Ramps	5	Each	\$550.00	\$2,750
5	Subbase 4" (780' x 7' )	70	Cyd	\$25.00	\$1,750
6	Earth Excavation (500' x 7' x 8")	90	Cyd	\$30.00	\$2,700
7	Embankment (280' x 7' x 2')	145	Cyd	\$25.00	\$3,625
8	Restoration (780' x 6')	520	Syd	\$12.50	\$6,500
9	Miscellaneous Clearing and Grubbing	1	LS	\$3,500.00	\$3,500
10	Storm Sewer	285	Lft	\$70.00	\$19,950
11	Catch Basins	3	Each	\$3,750.00	\$11,250
12	Traffic Maintenance and Control	1	LS	\$15,000.00	\$15,000
	Contingency (20%)				\$17,305
	<b>Total Preliminary Cost</b>				<b>\$103,830</b>

**Design (10%)** \$10,383  
**Const Engineering (12%)** \$12,460  
**Adminstination and Legal (6%)** \$6,230

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**Total Estimated Cost** **\$132,902**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: Periodic Sidewalk Maintenance  
 \_\_\_\_\_  
 \_\_\_\_\_

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	Conceptual Annual Budget	1	LS	\$200,000.00	\$200,000
	Assumptions				
	- Estimated cost to rem & repl 12.50 / Sft				
	- This amount of money would remove and replace approx 3200 flags of deteriorated sidewalk				
	- Approx 10% of the total sidewalk				
	<b>Total Preliminary Cost</b>				<b>\$200,000</b>

**Design (10%)** \$20,000  
**Const Engineering (12%)** \$24,000  
**Adminstration and Legal (6%)** \$12,000

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**Total Estimated Cost** **\$256,000**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: 

Mid-Block Pedestrian Crosswalk
Hawk Signal

 \_\_\_\_\_  
 \_\_\_\_\_

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	Based On CAN 3292-01T	1	LS	\$120,000.00	\$120,000
	Contingency (20%)				\$24,000
	<b>Total Preliminary Cost</b>				<b>\$144,000</b>

Design (10%)	\$14,400
Const Engineering (12%)	\$17,280
Adminstration and Legal (6%)	\$8,640

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**Total Estimated Cost** **\$184,320**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: Way-Finding Signs \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	Gateway Sign	1	Ea	\$15,000.00	\$15,000
2	Vehicular Directional Sign	16	Ea	\$5,000.00	\$80,000
	Contingency (20%)				\$19,000
	<b>Total Preliminary Cost</b>				<b>\$114,000</b>

Design (10%) \$11,400  
 Const Engineering (12%) \$13,680  
 Administration and Legal (6%) \$6,840

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**Total Estimated Cost \$145,920**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: Pedestrian Path I-94 N. Service Drive  
 Belleville Road to Morton Taylor

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	4" Conc Sidewalk (3800' X 5')	19,000	Sft	\$5.00	\$95,000
2	6" Conc Sidewalk (35' x 5')	175	Sft	\$6.00	\$1,050
3	8" Conc Sidewalk (400' x 5')	0	Sft	\$7.50	\$0
4	Sidewalk Ramps, ADA 4" (4 @ 50sft ea)	200	Sft	\$7.00	\$1,400
5	Subbase 4" (3800' x 7' )	330	Cyd	\$25.00	\$8,250
6	Grading, Excavating, Filling and Compacting	1	LS	\$3,000.00	\$3,000
7	Restoration (3800' x 10')	4,225	Syd	\$7.50	\$31,688
8	Miscellaneous Clearing and Grubbing	1	LS	\$1,100.00	\$1,100
9	Miscellaneous Drainage Improvements	1	LS	\$4,500.00	\$4,500
10	Traffic Maintenance and Control	1	LS	\$10,000.00	\$10,000
	Contingency (20%)				\$31,198
	<b>Total Preliminary Cost</b>				<b>\$187,185</b>

**Design (10%)** \$18,719  
**Const Engineering (12%)** \$22,462  
**Adminstination and Legal (6%)** \$11,231

<b>Total Estimated Cost</b>	<b>\$239,597</b>
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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: Update Bellville Road Streetscape  
 \_\_\_\_\_  
 \_\_\_\_\_

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	Asset Inventory/Condition Study	1	LS	\$20,000.00	\$20,000
2	Bench w/conc pad	8	Ea	\$1,260.00	\$10,080
3	Trash or recycling receptacle w/conc pad	15	Ea	\$1,045.00	\$15,675
4	Bicycle rack w/conc pad	8	Ea	\$1,455.00	\$11,640
5	Street tree	25	Ea	\$500.00	\$12,500
6	Tree grate	25	Ea	\$700.00	\$17,500
7	Planter box	12	Ea	\$1,000.00	\$12,000
8	Banner	50	Ea	\$230.00	\$11,500
9	Stamped concrete crosswalk	650	Sft	\$10.00	\$6,500
10	Design Banner	1	LS	\$1,600.00	\$1,600
	Contingency (20%)				\$23,799
	<b>Total Preliminary Cost</b>				<b>\$142,794</b>

Design (10%) \$14,279  
 Const Engineering (12%) \$17,135  
 Adminstration and Legal (6%) \$8,568

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**Total Estimated Cost \$182,776**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: Traffic Signal at Belleville Road & Van Born Rd \_\_\_\_\_

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	Based On SLS 2001-01T	1	LS	\$170,500.00	\$170,500
	Contingency (20%)				\$34,100
	<b>Total Preliminary Cost</b>				<b>\$204,600</b>

Design (10%) \$20,460  
 Const Engineering (12%) \$24,552  
 Adminstration and Legal (6%) \$12,276

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**Total Estimated Cost** **\$261,888**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_  
 WORK: Traffic Signal at Belleville Road & Quirk Rd  
 \_\_\_\_\_  
 \_\_\_\_\_

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	Based On SLS 2001-01T	1	LS	\$170,500.00	\$170,500
	Contingency (20%)				\$34,100
	<b>Total Preliminary Cost</b>				<b>\$204,600</b>

Design (10%) \$20,460  
 Const Engineering (12%) \$24,552  
 Adminstration and Legal (6%) \$12,276

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**Total Estimated Cost** **\$261,888**

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**ENGINEER'S OPINION OF CONSTRUCTION COST**

PROJECT: \_\_\_\_\_ DATE: \_\_\_\_\_

LOCATION: \_\_\_\_\_ PROJECT NO. \_\_\_\_\_

BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL BY: \_\_\_\_\_

WORK: Ring Road Belleville Road East and South to  
I-94 N. Service Drive

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	Clearing and Grubbing (hvy) (4300' x 66')	1	Ac	\$10,000.00	\$7,500
2	Earth Excavation (49'W x 24"D(ave) x 5900'L)	21,415	Cyd	\$27.00	\$578,200
3	Embankment (Estimated)	2,100	Cyd	\$6.50	\$13,650
4	Subgrade Undercut and 21AA Backfill (est 10% @12" D)	1,070	Cyd	\$60.00	\$64,200
5	Edge Drain	11,800	Lft	\$11.00	\$129,800
6	9-inch Aggregate Base Course (49' W x 5900' L)	15,258	Ton	\$45.00	\$686,613
7	10-inch Concrete Pavement	25,567	Syd	\$55.00	\$1,406,167
8	Conc Drive Approaches (incl agg base cse)	65	Syd	\$65.00	\$4,225
9	Aggregate Drive Approach	65	Syd	\$13.00	\$845
10	12 inch Storm Sewer, C76, CI-IV, Trench B	2,300	Lft	\$45.00	\$103,500
11	15 inch Storm Sewer, C76, CI-IV, Trench B	1,200	Lft	\$ 55.00	\$66,000
12	18 inch Storm Sewer, C76, CI-IV, Trench B	1,200	Lft	\$60.00	\$72,000
13	21 inch Storm Sewer, C76, CI-IV, Trench B	1,200	Lft	\$65.00	\$78,000
14	24 inch Storm Sewer, C76, CI-IV, Trench B	1,100	Lft	\$72.50	\$79,750
15	24 Inch Storm Sewer, C76, CI-IV, Bored Under Freeway	100	Lft	\$850.00	\$85,000
16	Catch Basins (every 300 feet)	42	Each	\$2,850.00	\$119,700
17	Manhole, 4 foot diameter	13	Each	\$2,800.00	\$36,400
18	Manhole, 5 foot diameter	9	Each	\$3,425.00	\$30,825
19	Headwall for 24 inch Outlet	1	Each	\$1,100.00	\$1,100
20	Restoration (40' W x 5900' L)	26,222	Syd	\$8.00	\$209,778
21	Traffic Maintenance and Control	1	LS	\$5,000.00	\$5,000
22	SESC	1	LS	\$10,000.00	\$10,000
23	Pavement Markings	1	LS	\$7,500.00	\$7,500
	Contingency (20%)				\$759,150
	<b>Total Preliminary Cost</b>				<b>\$4,554,902</b>

Design (10%) \$455,490  
Const Engineering (12%) \$546,588  
Adminstration and Legal (6%) \$273,294

**Total Estimated Cost \$5,830,275**

# APPENDIX C. AREA MAP



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## APPENDIX D. EXAMPLE SCOPES OF WORK FOR PROJECT 1.0 TRAFFIC STUDIES

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### Belleville Road Corridor Operational and Safety Study

Synchro will be used to evaluate and determine the impact on delay as reducing lanes puts all traffic in a single lane which could increase waiting time at the side streets in the area of the proposed road diet. Based on the results of the analysis, the preferred alternative for transitioning the roadway to the existing five-lane sections on either side of the study area will be determined. Mitigation for lane movements that fall below the Level of Service D will be proposed. A crash analysis will be conducted using reported crashes on Belleville Road, including a HSM analysis for prediction of crashes.

### Proposed Ring Road Traffic Study

1. Collect background information and conduct kickoff meeting with Van Buren Township and Wayne County to identify goals, requirements, and the deadline for completing the study. The study area intersections will include the Belleville Road intersections with Westlake Circle, I-94 Service Drives and Ramps, and the new intersection of the ring road with the I-94 Service Drive.
2. Collect transportation-related data needed for conducting the study. The information consisted of updating the Synchro models previously developed. Collect traffic data at study intersections and collect crash data.
3. Obtain, review, and utilize the results of the SEMCOG Travel Demand Model for existing conditions, as well as future 20-year design conditions.
4. Conduct traffic capacity and operational analyses for Existing and Proposed Conditions. The task consists of modifying the existing current condition Synchro models for the AM and PM peak hours to include the study area and specific elements for this traffic study. After calibration and validation, the models will be used to determine existing capacity Level of Service and control delay estimates, as well as quantify traffic performance measures (travel time, delay, fuel consumed, vehicle emissions, etc.) for existing, as well as future conditions, with and without road improvements.
5. Conduct crash analyses. The crash data for the study intersections and road segments will be summarized and overrepresented crash patterns will be identified for existing conditions. The Highway Safety Manual procedures will be utilized to predict future crashes for the 20-year design conditions.
6. Prepare recommendations and final report.

### Quirk/Belleville Road Signal Warrant Study

#### Data Collection

This analysis will require weekday 7:00 a.m. to 9:00 a.m. and 2:00 p.m. to 6:00 p.m. peak period manual turning movement counts at the following intersections for use in the corridor study:

- o Belleville Road and Michigan Avenue (US-12)
- o Belleville Road and Costco Warehouse Drive/Yost Road

- Belleville Road and Van Born Road
- Belleville Road and Ecorse Road
- Belleville Road and Tyler Road
- Belleville Road and the I-94 Service Drives and Ramps
- Belleville Road – A 24-hour machine count will be collected near Quirk Road

Other data including crash data, road width, and intersection geometry, as well as existing signal timing plans will be obtained.



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