



2022



# I-275 METRO TRAIL ASSESSMENT AND RECOMMENDATIONS

PREPARED FOR:



PREPARED BY:



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# 1.0 EXECUTIVE SUMMARY

The I-275 Metro Trail Assessment and Recommendations study (MDOT #2021-0622) was completed by the MDOT Metro Region in 2022. The purpose of the study was to:

- Assess the 24.8 miles of I-275 Metro Trail through Wayne County (8 Mile Road to S. Huron Road)
- Develop recommendations that will improve trail conditions and safety, and increase use

North of 8 Mile Road, the I-275 Metro Trail is being rebuilt through a separate project in coordination with a Great Lakes Water Authority project. Figure ES-1 shows the full extent of the I-275 Metro Trail that is actively in use.

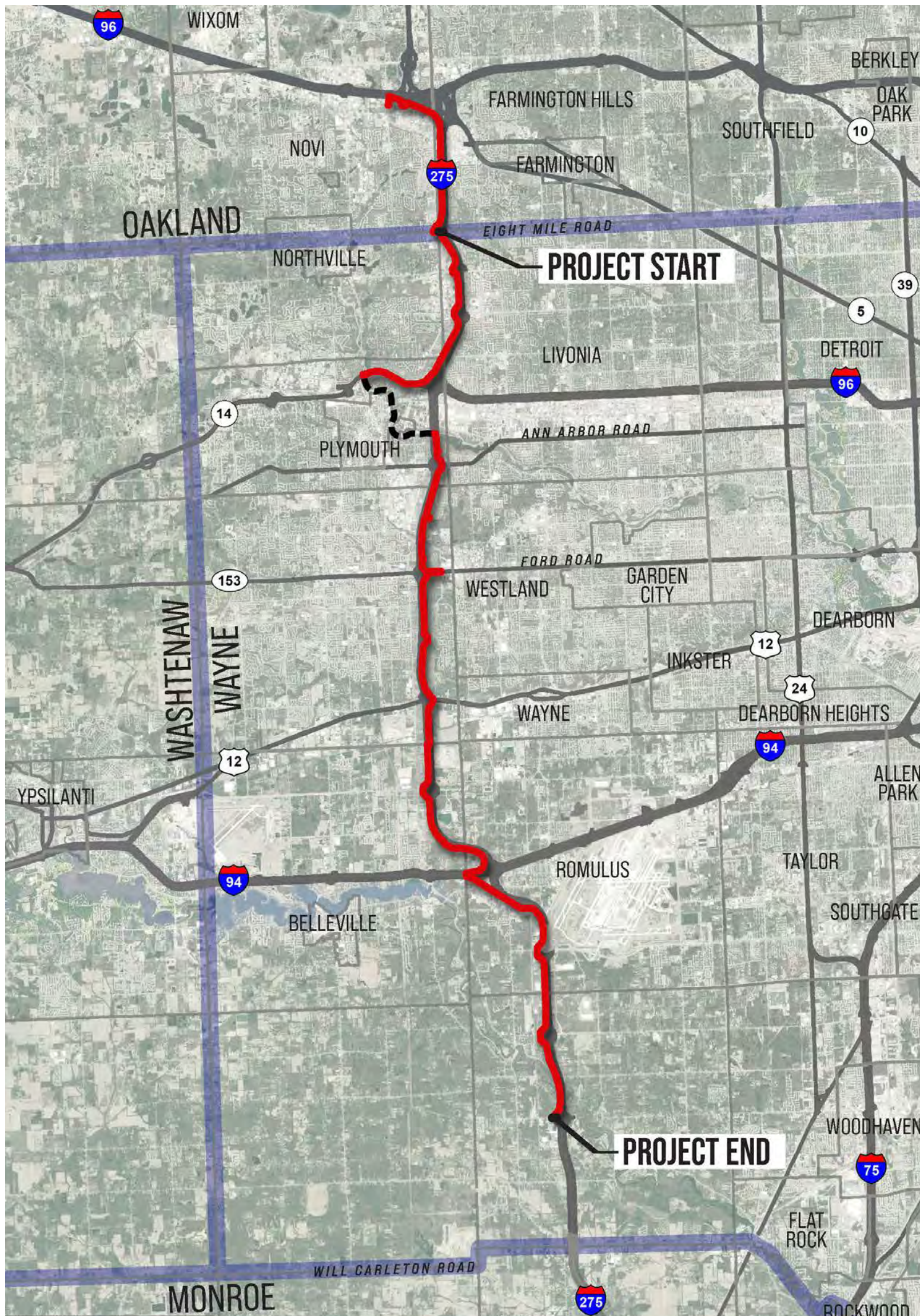


Figure ES-1: I-275 Metro Trail Full Extent

## Field Assessment Methodology + Key Results

To develop recommendations, a thorough assessment of the existing trail condition was completed in 2021 and detailed in Section 3 of this report. The consultant team walked, drove, and biked the 24.8 miles of trail with hand-held tablets to capture information related to pavement condition, structure locations, road crossings, signs, drainage, connections, fence types, and general user experience (Figure ES-2). The data collected is available as an ArcGIS online map and database. In addition, under a separate contract, detailed structural assessments of all pedestrian bridges were completed in 2021 with results incorporated into this report. Key findings of the assessment include:

- 8 Mile to M-14 is in the worst condition (much of the trail south of Hines was rebuilt between 2010-2015)
- Segments of trail that were rebuilt between 2010-2015 will need crack seal/seal coat in coming years
- Pre-fabricated bridges are generally in good shape
- Site distance issues exist at narrow bridge underpasses
- The segments of trail along M-14 and between Michigan Avenue and Van Born Road are the least pleasant for the trail user due to proximity of highway, noise, narrowness, condition, and/or isolation
- A handful of formal connections and numerous informal connections to the I-275 Metro Trail exist
- Highway spillways directly drain onto the trail and cause flooding/debris issues
- Vegetation management is generally good, although a handful of areas are succumbing to phragmites
- At road crossings, pedestrian signals are generally operating well, warning signs and pavement markings are missing or worn, lighting is lacking at midblock crossings, and there is a lot of sign clutter
- Trail users cross Ford Road directly and don't travel to Lotz Road to cross as directed

## Outreach and Engagement

While the I-275 Metro Trail is owned by MDOT, a number of key stakeholders and partnerships will be essential in implementing the improvements recommended in this study. Several virtual meetings were held throughout the study development to ensure awareness of the work, coordinate with key stakeholders, and to gather feedback (Figure ES-3). In addition to coordinating with various MDOT staff, meetings were held in 2021 and 2022 with groups such as the Michigan Trails and Greenways Alliance, Friends of the I-275 Metro Trail, Wayne County Parks, Wayne County Road Commission, Huron-Clinton Metroparks, and the local municipalities that border the trail. Early meetings focused on presenting results of the Field Assessment and gathering stakeholder input about their priorities and projects that may impact the trail. Later meetings focused on presenting draft recommendations and gathering feedback on priorities.



Figure ES-2: I-275 Metro Trail Fieldwork in Fall 2021

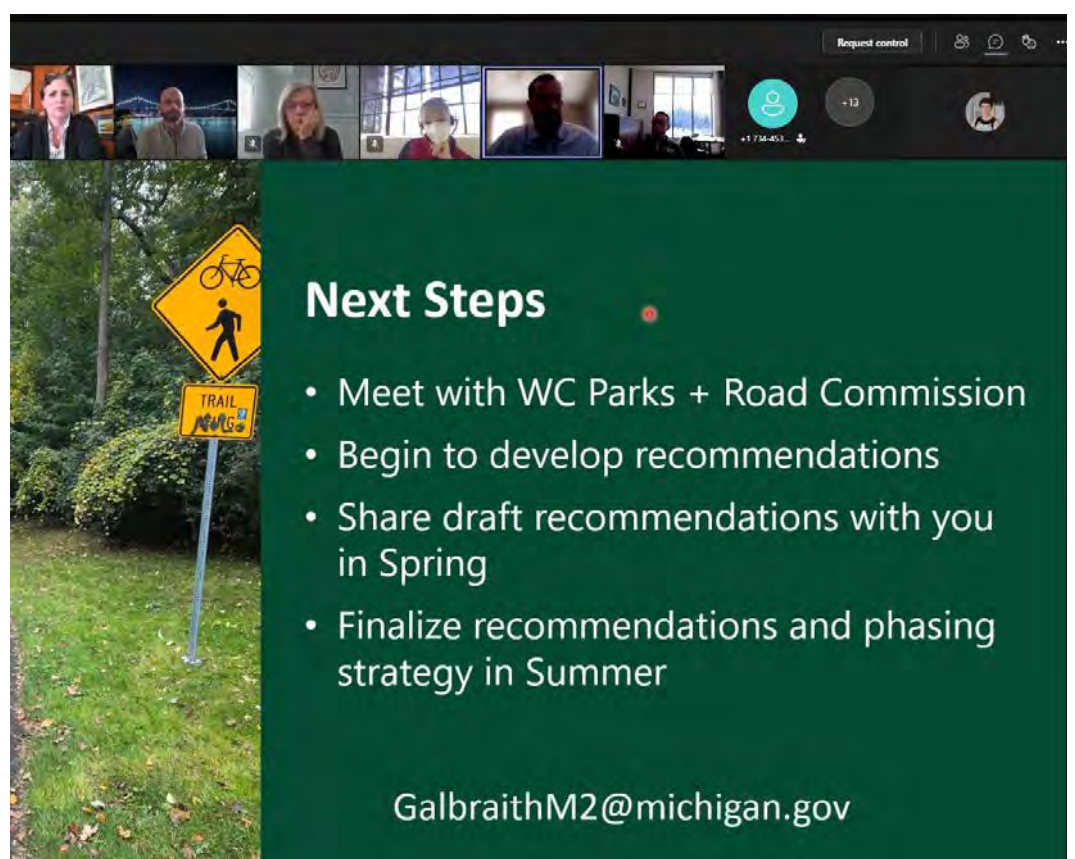


Figure ES-3: Screenshot from Virtual Stakeholder Meeting Held January 2022

## Recommendations + Top Priorities

Recommendations for the I-275 Metro Trail are detailed in Sections 4 and 5 of this report. A number of recommendations are general in nature and apply to the entire trail, such as a standard cross-section, modifications to signage, potential trailhead locations, and overall maintenance. In addition, detailed, site-specific recommendations are presented from north to south, segment by segment. Six top priorities are identified to elevate the condition, experience, and number of users of the I-275 Metro Trail. Further information including estimated pricing on these priorities can be found in Section 6.



### *Trail Branding Guidelines*

Overall trail branding guidelines for the entire I-275 Metro Trail should be developed prior to reconstruction of additional sections of trail. Goals are to improve aesthetics and user experience, assist with wayfinding, and increase trail awareness. Elements could include graphics on walls, on bridge structures, along fencing, on pavement, new signage, etc. This effort may be a good candidate for a SEMCOG and/or Ralph C. Wilson, Jr. Foundation grant and would include coordination with a variety of stakeholders including the Federal Highway Administration (FHWA).

### *Reconstruction of Trail from 8 Mile Road to Haggerty Road*

Approximately 4.25 miles of trail from 8 Mile Road to Haggerty Road is in the worst overall condition in Wayne County and should be reconstructed, including road crossings. Trail north of Haggerty Road will be rebuilt in 2023 and trail from Haggerty Road to Hines Drive will be rebuilt in 2024.

### *Coordinated Trailhead Planning + Design*

The study identifies 15 potential locations for formal trailheads and access (there is currently only one formal trailhead in Farmington Hills). The potential locations vary in condition and property ownership/jurisdiction. Increasing access and awareness of the I-275 Metro Trail is a key factor in increasing trail usage. This priority is envisioned to advance and coordinate the planning/design of a handful of trailheads. This effort may be a good candidate for grant funding including coordination amongst a number of stakeholders and efficiencies in bundling agreements, design standards, FHWA approvals, permitting, etc.

### *Road Crossing Improvements*

Over \$3.4M in improvements to road crossings have been identified along this section of the I-275 Metro Trail. Prioritizing these improvements will increase safety and encourage more trail use. Recommendations vary (as does the jurisdiction of the roads) but include elements such as HAWK signals, rapid flashing beacons, updated pavement markings and signage, curb ramps, lighting, and refuge islands.

### *Address Water on Trail Locations*

It is assumed that drainage issues in locations north of Haggerty Road will be addressed during a full reconstruct of that segment of trail. There are six additional locations where water stands on the trail or routinely brings debris to the trail that are a priority to address. These locations should be evaluated further to determine the level of engineering effort needed and/or if solutions could be bundled into existing design and maintenance efforts.

### *Dedicated Maintenance Fund*

A dedicated maintenance fund for the I-275 Metro Trail is needed to ensure maintenance of the trail, bridges, and road crossings can keep pace with the following needs:

- Day-to-day maintenance of mowing, trimming, clearing debris, etc.
- Seasonal bridge structure maintenance
- Future seal coating, crack sealing, an

### *Total Project Estimated Costs*

As identified on the table in page 4, the total project costs for the improvements identified within this report is approximately \$12.1 Million. This table outlines each segment of the trail and separates out the trail improvement costs, bridge improvement costs, intersection improvement costs, and the total segment costs. Further detailed information related to the detailed costs of these improvements within each trail segment can be found in Section 5.0 I-275 Metro Trail Recommendations.

# TOTAL PROJECT ESTIMATED COSTS

SEGMENT	TRAIL IMPROVEMENT COSTS	BRIDGE IMPROVEMENT COSTS**	INTERSECTION IMPROVEMENT COSTS	TOTAL SEGMENT COSTS
8 MILE - 7 MILE	\$908,000.00	\$-	\$247,714.20	\$1,155,714.20
7 MILE - 6 MILE	\$1,022,000.00	\$-	\$537,269.63	\$1,559,269.63
6 MILE - 5 MILE	\$734,000.00	\$-	\$-	\$734,000.00
5 MILE - HAGGERTY	\$449,000.00	\$-	\$-	\$449,000.00
HAGGERTY - M14*	\$-	\$-	\$-	\$-
HINES DR - ANN ARBOR RD	\$183,000.00	\$-	\$409,053.38	\$592,053.38
ANN ARBOR RD - KOPPERNICK RD	\$274,000.00	\$-	\$38,343.88	\$312,343.88
KOPPERNICK RD - FORD RD	\$210,182.00	\$9,450.00	\$55,512.00	\$275,144.00
FORD RD - CHERRY HILL RD	\$133,154.30	\$9,450.00	\$-	\$142,604.30
CHERRY HILL RD - PALMER RD	\$139,473.30	\$13,500.00	\$-	\$152,973.30
PALMER RD - US-12	\$383,606.00	\$27,000.00	\$-	\$410,606.00
US-12 - VAN BORN RD	\$332,233.00	\$-	\$77,739.08	\$409,972.08
VAN BORN RD - ECORSE RD	\$421,196.00	\$9,450.00	\$201,153.38	\$631,799.38
ECORSE RD - TYLER RD	\$255,866.00	\$4,050.00	\$-	\$259,916.00
TYLER RD - NORTHLINE RD	\$661,086.30	\$16,200.00	\$-	\$677,286.30
NORTHLINE RD - S HURON RIVER DR	\$528,397.00	\$5,400.00	\$538,186.28	\$1,071,983.28
S HURON RIVER DR - EUREKA RD	\$502,452.00	\$4,050.00	\$155,835.23	\$662,337.23
EUREKA RD - PENNSYLVANIA RD	\$248,603.00	\$8,100.00	\$239,224.05	\$495,927.05
PENNSYLVANIA RD - SIBLEY RD	\$261,348.00	\$8,100.00	\$-	\$269,448.00
SIBLEY RD - HURON RIVER DR	\$238,790.00	\$-	\$49,015.80	\$287,805.80
HURON RIVER DR - S HURON RD	\$328,759.25	\$278,100.00	\$19,227.04	\$626,086.29
NON-SEGMENTED INTERSECTIONS - OAKLAND COUNTY***	\$-	\$-	\$82,624.05	\$82,624.05
NON-SEGMENTED INTERSECTIONS - EDWARD N HINES DRIVE****	\$-	\$-	\$797,585.40	\$797,585.40
<b>TOTAL COST</b>	<b>\$8,215,146.15</b>	<b>\$392,850.00</b>	<b>\$3,448,483.40</b>	<b>\$12,056,479.55</b>

\* Haggerty to M14 costs are to be completed as part of a separate project, see Appendix 1 - Tetra Tech I-275 Metro Trail Review (2/17/2022, JN 208481, CS 82102, 82122, 82293) - Project Cost Estimate \$614,400.00 to \$800,400.00

\*\*Includes 35% Contingency and Design Fee

\*\*\* Includes 11 Mile Road and Meadowbrook Road (WB crosswalk) at \$43,900.65 and 9 Mile Road at \$38,723.40. Detailed information about these two intersections can be found in the I-275 Metro Trail Preliminary Engineering/Scoping: Evaluation of Intersection Crossings from I-96 in Novi to the Wayne-Monroe County Line, located in the Appendix of this report.

\*\*\*\* Includes Northville Road and Edward N. Hines Drive at \$281,712.60, Wilcox Road at \$235,723.50, and Haggerty Road and Edward N. Hines Drive at \$280,149.30. Detailed information about these two intersections can be found in the I-275 Metro Trail Preliminary Engineering/Scoping: Evaluation of Intersection Crossings from I-96 in Novi to the Wayne-Monroe County Line, located in the Appendix of this report.

# 2.0 INTRODUCTION

## 2.1 PROJECT BACKGROUND

The I-275 Metro Trail was originally constructed in response to the 1970s energy crisis across stretches of Wayne, Oakland, and Monroe Counties in southeast Michigan. Owned by the Michigan Department of Transportation (MDOT), the trail has seen considerable investment over the past 10+ years including reconstruction of much of the trail and associated bridges south of Hines Drive. Additionally, a few projects in this area are underway or planned for upcoming years. The trail segment from 8 Mile Road (M-102) to I-96 will be replaced within the next year as part of a project partnering with the Great Lakes Water Authority (GLWA); the segment from Michigan Avenue (US-12) to Van Born Road will be improved in 2023; and the segment from Haggerty Road to Hines Drive is scheduled for improvement in upcoming years.

Currently, MDOT is continuing to develop a strategy to bring the I-275 Metro Trail up to AASHTO standards and make improvements to increase usership, safety and connectivity. The I-275 Metro Trail is located within an Interstate Limited Access Right-of-Way (LAROW) and is subject to review and approval of MDOT as well as the FHWA. Further guidance can be found in the 2021 MDOT Guidelines for Requesting Alternate Use of Limited Access Right-of-Way: Nonmotorized Facilities document.

The focus of this MDOT study is to assess the 24.8 miles of I-275 Metro Trail within Wayne County, and develop recommendations that will, in the coming years, improve asset conditions and safety, and increase use. This section of the I-275 Metro Trail travels through heavily populated areas of western Wayne County including Livonia, Plymouth Township, Canton Township, Van Buren Township, Romulus, and Huron Township. While the I-275 Metro Trail is of regional significance, the immediate target population is the 294,629 residents that live in the communities immediately adjacent to these recommended improvements.

## 2.2 PROJECT EXTENT

This project follows the I-275 Metro Trail across most of its reach through Wayne County. The project extent, shown in Figure 1, stretches from 8 Mile Road at the north end to S. Huron Road at the south end, inclusively following non-motorized trail.

The project includes assessment and recommendations related to trail pavement condition, structures, signs, water, connections, fencing, safety, accessibility, and road crossings.

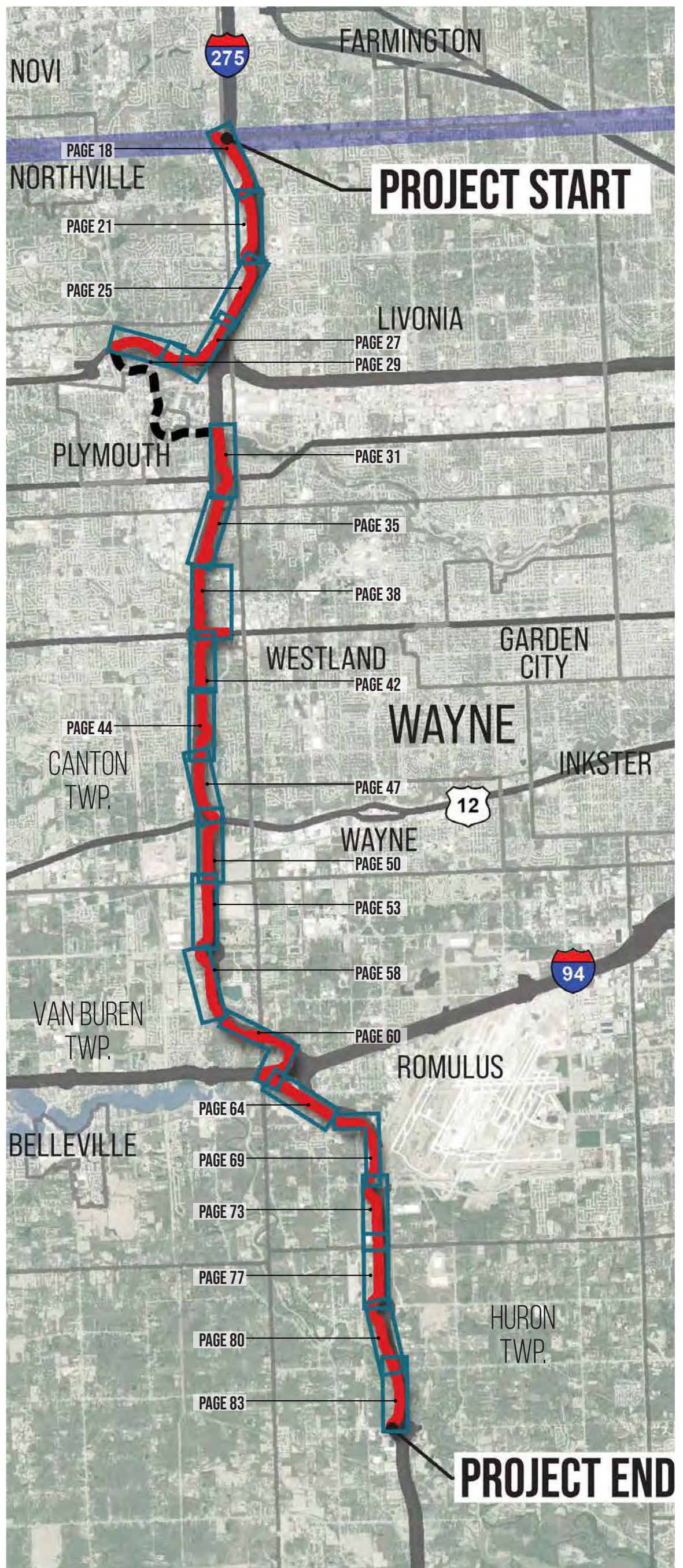


Figure 1: Project Extent



Figure 2: Field Survey, Fall 2021

## 2.3 OBJECTIVES & METHODOLOGY

The objectives of this project are to improve pedestrian and bicyclist safety along the I-275 Metro Trail across the project extent and increase usership. To accomplish this, the project began with a comprehensive stage of existing conditions assessment, then proceeded to an analysis and integration phase to determine recommendations that would contribute to achieving these recommendations. The proposed recommendations fall into a wide variety of categories including trail surface, drainage, structural, regulatory and non-regulatory signage, and road crossings, as well as general recommendations.

To gather the detailed information needed to assess the I-275 Metro Trail, a field survey was performed in late summer-early fall 2021. A pilot of this study began in July 2021 with the bulk of field reviews completed in October and November 2021. The consultant team walked, drove, and bicycled 24.8 miles of trail to assess the conditions of the existing pavement, structures, crossings, signs, drainage, connections, experience, and fence types. This data was recorded on hand-held tablets and input directly into an ArcGIS online database. Results of this assessment are detailed in Section 3 of this report. The assessment was then analyzed and integrated into proposed recommendations as described in Sections 4 and 5 of this report.

During the study, a number of meetings were held in 2021 and 2022 with a variety of stakeholders to raise awareness of the work and gather feedback. Meetings were held with the Michigan Trails and Greenways Alliance, Friends of the I-275 Metro Trail Group, and the MDOT Lansing Nonmotorized Coordinator. In addition, virtual meetings were held with staff from Wayne County Parks and the Wayne County Road Commission to discuss connections to Hines Park as well as potential improvements to a number of road crossings that are under Wayne County's jurisdiction. The team also invited representatives from Huron-Clinton Metroparks and the municipalities that border the I-275 Metro Trail to virtual meetings where information about the trail was presented and feedback gathered to ensure coordination and connectivity.

Field work results and feedback from stakeholders were used by MDOT and the consultant team to develop and refine the recommendations within this report.

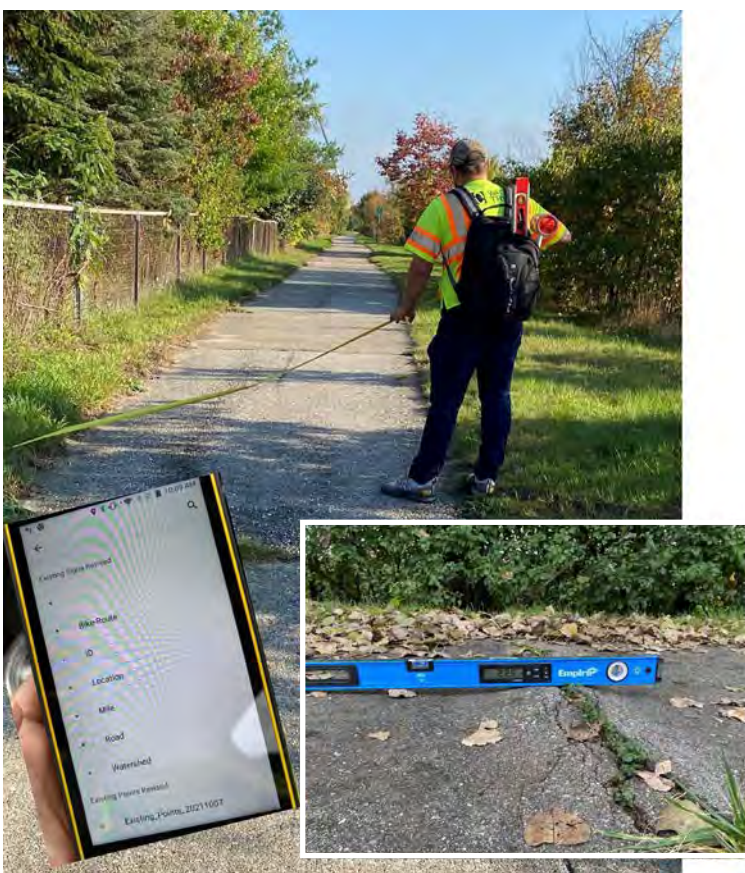


Figure 3: Field Survey Supplies and Process

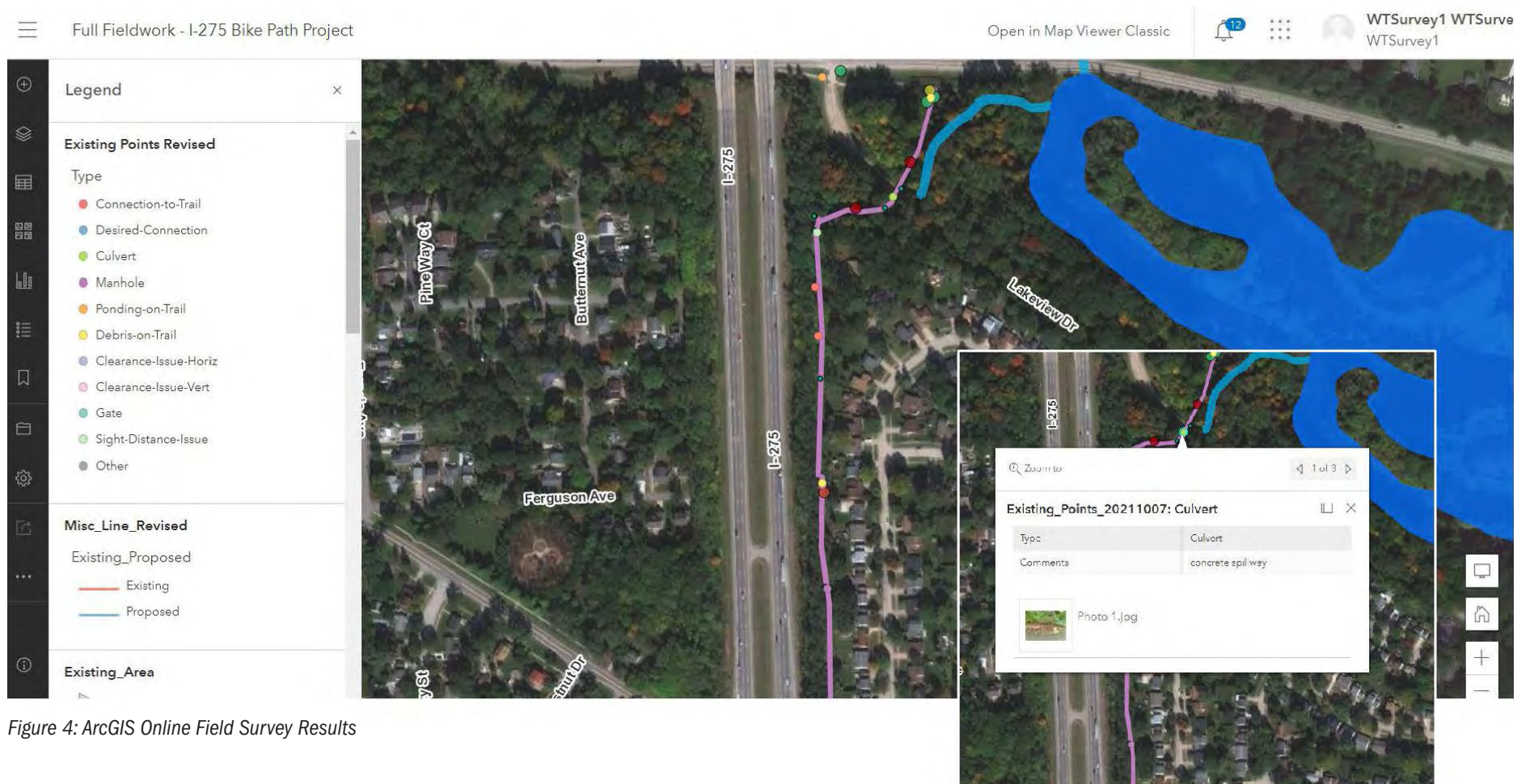


Figure 4: ArcGIS Online Field Survey Results

# 3.0 FIELD ASSESSMENT AND RESULTS

The 24.8 miles of I-275 Metro Trail in Wayne County was assessed in Fall 2021. A GIS database of conditions, issues, sign locations, photos, etc. was developed and is available for MDOT use. Much of the trail south of Hines Park was rebuilt between 2010-2015 and is in much better condition than the trail north of Hines Drive. Observation and data collection was done for a number of trail elements including pavement condition, location of structures, crossings, signs, drainage issues, existing formal and informal connections, and fence types. Key findings from the field assessment are described on the following pages while specific details can be found in the GIS database.

## Pavement Condition

The I-275 Metro Trail is primarily asphalt with some short sections of concrete trail, boardwalk and bridges. The condition of the trail was assessed and rated using four categories: excellent (9.63 miles), good (9.54 miles), fair (5.32 miles), and poor (0.3 miles). Figure 5 illustrates typical examples of the trail for each condition category. The section of trail north of Hines Drive is in the worst overall condition. Overall pavement condition results are shown in Figure 6 on the following page.



### Excellent Condition

- Similar to PASER Rating 7+
- Typical surface wear
- Minor debonding of fine aggregate
- Cracks are tight or have seal treatment (<1/2")
- Minor edge cracking (<10%)



### Good Condition

- Similar to PASER Rating 5-6
- Minor raveling of fine and coarse aggregate
- Longitudinal and transverse cracking <1/2"
- Edge alligator cracking (<25%)



### Fair Condition

- Similar to PASER Rating 3-4
- Major raveling of fine and coarse aggregate
- Longitudinal and transverse cracking >1/2" and open, potentially full depth
- Edge alligator cracking over 50% of length
- Minor heaving or uneven pavement



### Poor Condition

- Similar to PASER Rating 1-2
- Major raveling of fine and coarse aggregate
- Cracks over 1" and can see separated pavement
- Edge alligator cracking over 50% of length
- Major heaving or uneven pavement
- Unmaintained trail



Figure 5: Pavement Assessment Categories

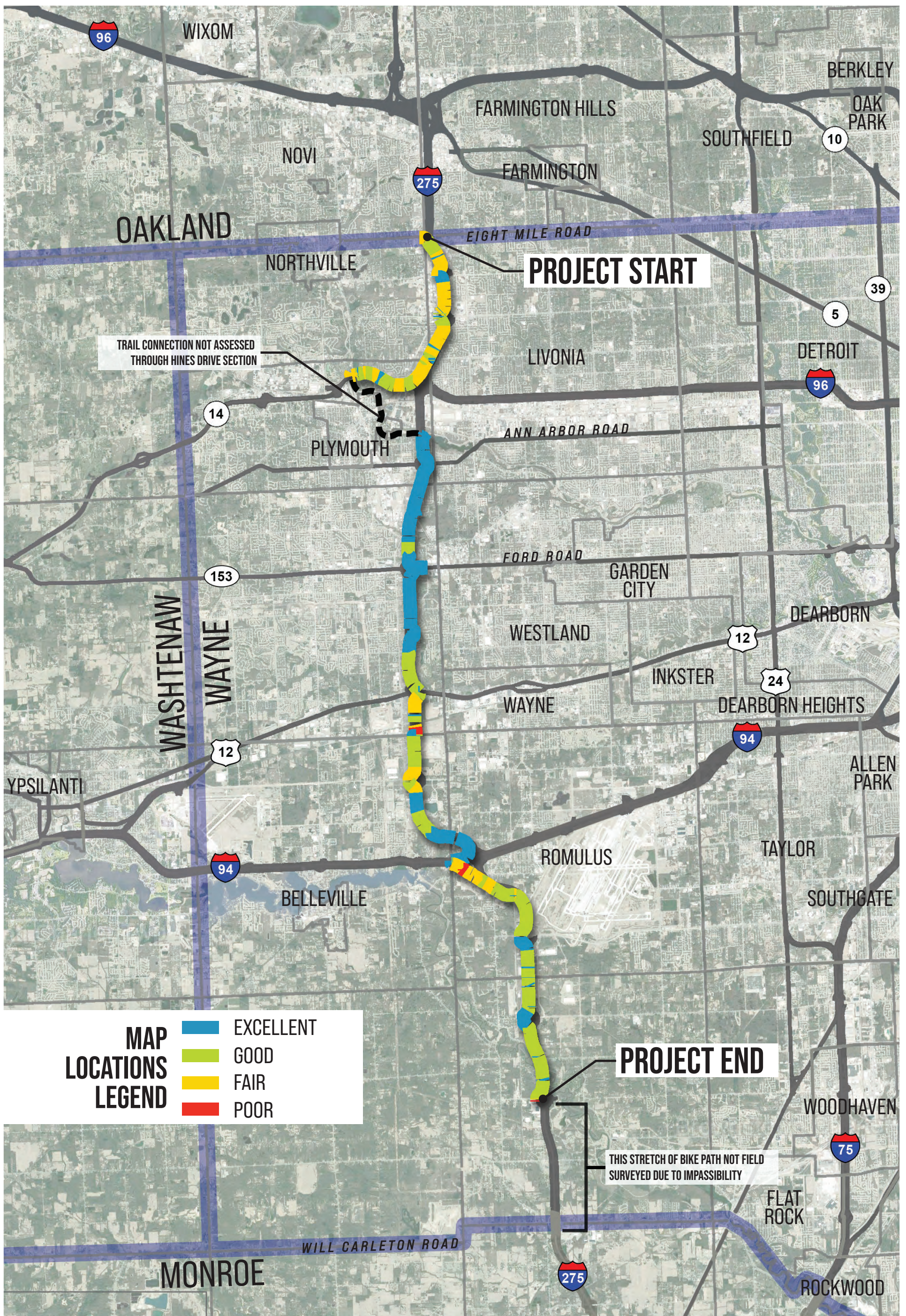
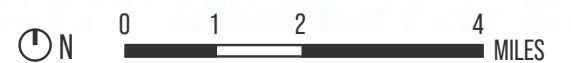


Figure 6: Pavement Condition Results



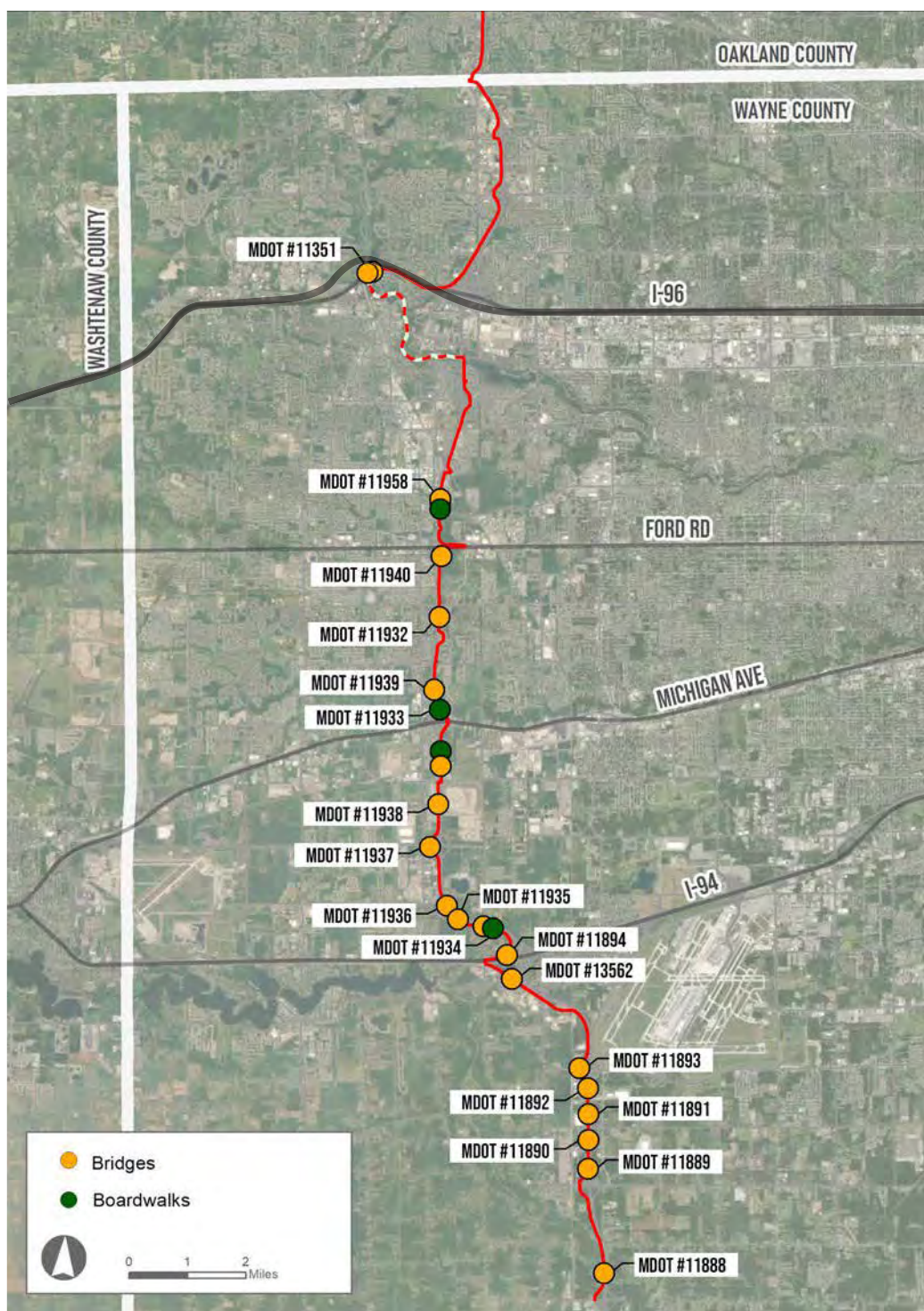


Figure 7: Boardwalk and Bridge Locations

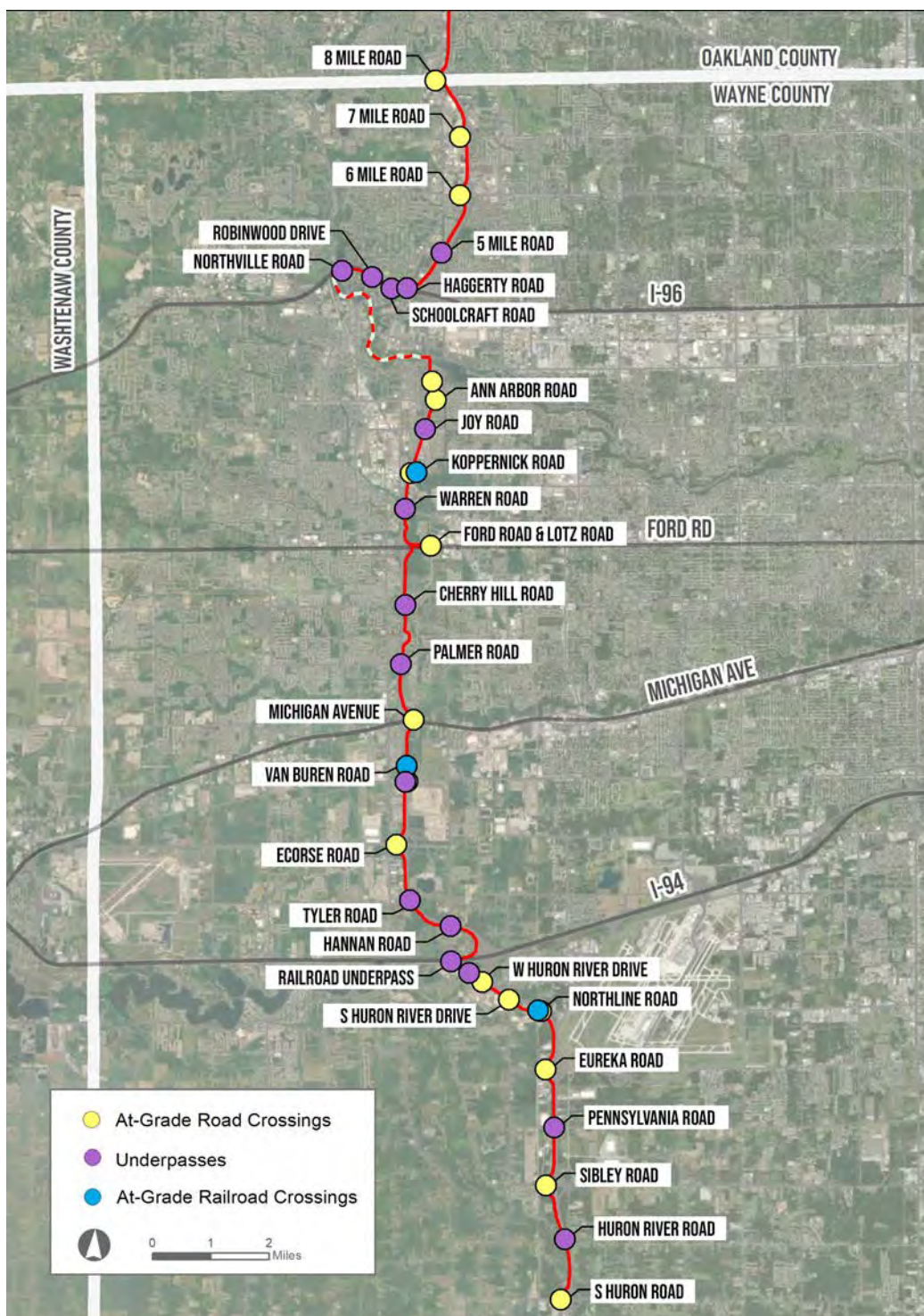


Figure 8: Road and Railroad Crossing Locations

## Structures

The locations of a variety of structures were documented during the field assessment including 84 culverts, 19 bridges, and 4 sections (969 feet) of boardwalk as shown in Figure 7. A detailed structural assessment of the bridges (minus Structure 11351 over the Middle Rouge River near Hines Drive) was completed under a separate project (#MDOT JN 210511 SCOP) in 2021. Findings and recommendations from that project have been incorporated into the overall assessment and recommendations in this report.

The 16 pre-fabricated bridges south of Hines Drive that were installed over the past 10-12 years are in good shape and the composite decking has held up well. Routine Capital Scheduled Maintenance (CSM) is recommended for the majority of the pre-fabricated bridges. This typically includes powerwashing, vegetation control, water repellent treatment of concrete substructures, and replacement of wood handrail with composite deck board.

The 3 cantilevered bridges over the Middle Rouge River near Hines Drive (Structure MDOT #11351), over the Lower Rouge River (N02 of 82292 MDOT #11933), and over the Huron River (N03 of 82291 MDOT #11888) in the south end need the most attention to repair and/or to resolve continual maintenance issues.

The boardwalks are in fairly good condition with some gouging of decking and vegetation growing through/close to railings. The boardwalk that spans the Lower Rouge in Canton Township needs the most attention. Water levels overtop the decking and debris piles on the upstream side have damaged sections of railing.

The 84 culverts range from 12-inch to 10-foot, 9-inch in size. The end sections are typically in good condition, however 50% to 75% of culverts have sediment built up. The ditches and culverts south of I-94 had large amounts of standing water, possibly indicating larger hydraulic issues.

## Crossings

Trail crossing locations include 2 railroad at grade, 18 under a road, and 16 across a road at grade as shown in Figure 8.

The 2 railroad crossings are in good overall condition but signage and pavement markings should be addressed. During field work, it appeared that the pedestrian crossing signals at the Northline Road railroad crossing weren't functioning.

The 13 underpasses south of Hines Drive were reconstructed over the past 10-12 years and widened to 10 to 12 feet wide. The 5 underpasses north of Hines Drive are narrow (6 to 8 feet wide) and widening would be ideal. However, the Robinwood, Schoolcraft, and Haggerty Roads underpasses are likely not able to be widened due to the type/design of bridge structure and abutments. Sight distance issues were also noted at the narrow underpasses.

A detailed assessment and recommendations for each at-grade road crossing was completed by a Traffic Engineer in a separate report that is included in Section 7 of this report. The key findings for each road crossing are highlighted in Section 5 of this report. Pedestrian signals generally operate well, trail user crashes are low, recent counts indicate fairly low trail usage, sidewalk ramps should be updated, warning signs are missing/worn, there is significant sign clutter at the crossings, signal warrants should be

reviewed for mid-block crossings, and there is a lack of lighting at mid-block crossings. It should be noted that a Ralph C. Wilson, Jr. Trails Maintenance Fund grant was submitted in Spring 2022 to seek funding assistance to address a number of the at-grade road crossings.

### Signs (Non-Regulatory and Non-Warning)

The location of all non-regulatory and non-warning signs along the I-275 Metro Trail was inventoried via GPS/GIS in Fall 2021. The four major categories of non-regulatory signs include mileage signs (94), location maps (25), trail identification signs (24), and road name signs (23). Examples of these types of signs are shown in Figure 9. Findings include:

- With a few exceptions, the signs are in good condition
- Two different styles are used for mileage signs (one south of Hines and another north of Hines)
- Road crossings have a lot of signs (regulatory, non-regulatory, trail signs, and traffic) leading to clutter and confusion
- There is opportunity to reduce the number of signs and orient them to the proper audience (pedestrian vs. vehicle)

### Water On Trail

The Fall 2021 field assessment was completed primarily on days with little to no precipitation, however, the field team noted 9 locations where water on the trail indicates some type of drainage issue as shown in Figure 10. Many times there was also dirt/debris at these locations causing a ‘narrowing’ of usable trail. At several locations (i.e. the College Parkway Connector between 6 and 7 Mile Roads, and near the St. Joe’s Dome/Soccer Field), algae growth on the trail indicates frequent standing water. Water/drainage issues can lead to hazardous conditions with decreased friction on the trail, particularly for bicyclists moving at fast speeds. The three areas with the most significant water/drainage issues are:

- Just north of 6 Mile Road
- South of Michigan Avenue
- At the Van Born Road crossing

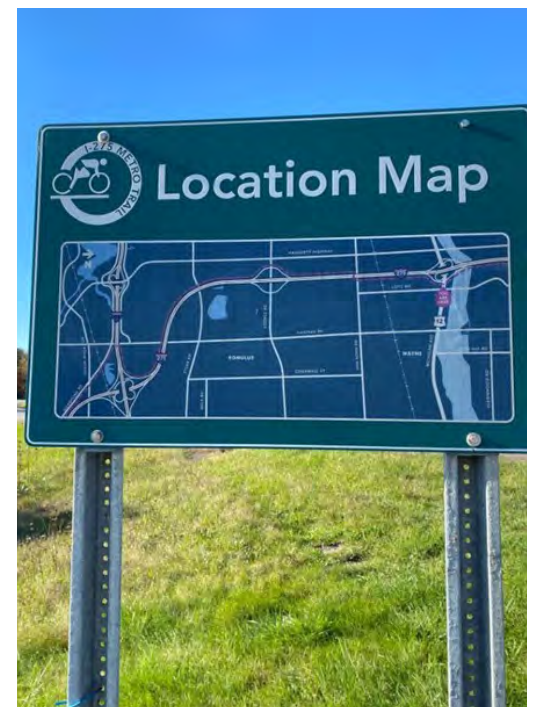


Figure 9: Sample of Existing Signs within Study Area

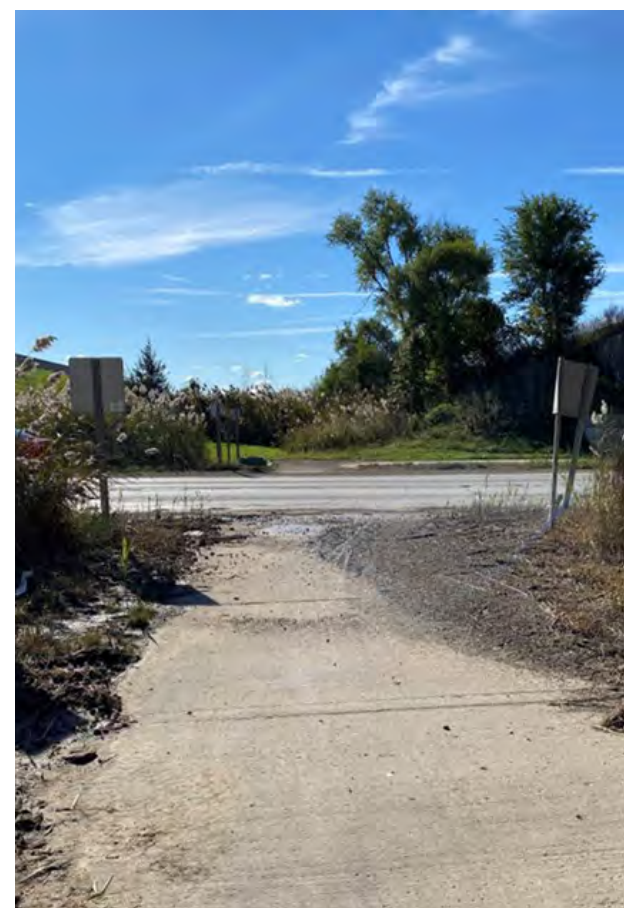


Figure 10: Instances of Water-on-Trail Encountered during Assessment

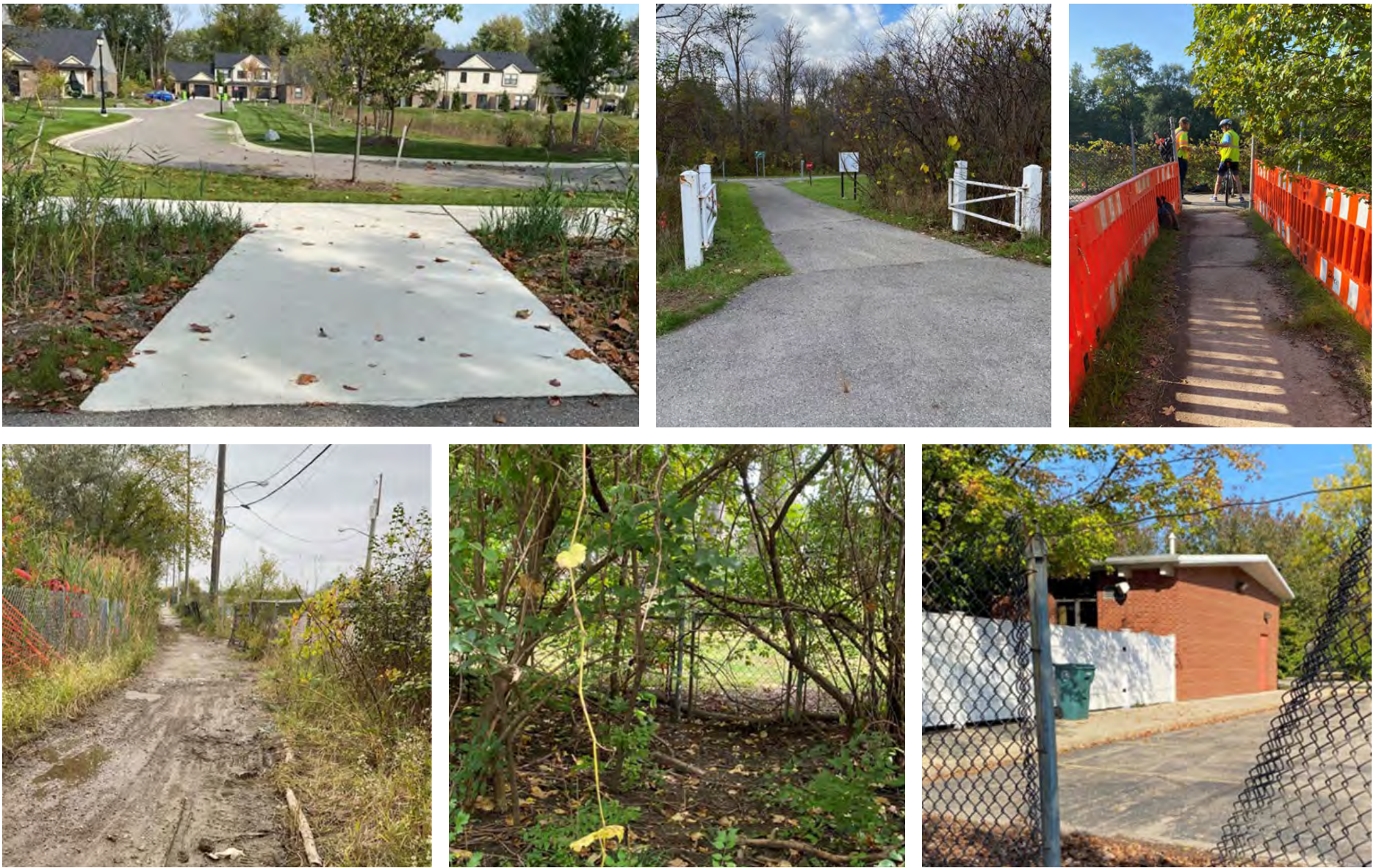


Figure 11: Existing Formal and Informal Connections along I-275 Metro Trail

### Connections

In addition to major road crossings, where sidewalks often (but not always) intersect with the I-275 Metro Trail, formal and informal connections were noted along the length of the trail as shown in Figure 11. Formal connections are either concrete or asphalt in a variety of widths and conditions. The connection at the Oasis Golf Center, just north of 5 Mile Road, is in the worst condition and needs major renovation to become usable. Informal connections included locations where a gate was installed, a grass trail was mowed, or a fence panel was cut and pulled back. While not permitted, these informal connections illustrate a desire to access and use the trail network.



Figure 12: Existing Fence Conditions

### Fencing + Walls

The location of fencing and walls alongside the I-275 Metro Trail were noted in the GIS/GPS files including type of fencing and start and stop points. The fencing is in a variety of conditions and numerous combinations as shown in Figure 12. The most common fencing is standard chainlink or mesh wire along the right-of-way, between the trail and private property. Some areas have fencing on both sides of the trail creating a 'cattle chute' condition which can be uncomfortable for trail users. Other locations have sound walls, retaining walls built with a variety of materials, and taller wood plank fences likely installed by adjacent homeowners.

# 4.0 GENERAL RECOMMENDATIONS

## 4.1 INTRODUCTION

This report provides guidelines and recommendations to consult for future projects to improve the I-275 Metro Trail. General recommendations intended to apply throughout the project extent are presented in this section. Detailed recommendations that seek to remedy site-level challenges for specific sections along the trail are presented in Section 5.

## 4.2 TYPICAL PROPOSED CROSS-SECTION

The 'typical' cross-section for the I-275 Metro Trail, shown in Figure 13, should be utilized when reconstructing segments of the trail. Shared use trails can provide a low-stress travel area for pedestrians and bicyclists separate from motorized traffic. The design accommodates two-way travel with special consideration for locations where the trail intersects or crosses roads. Design and construction should also consider maintenance and emergency vehicles that will be accessing the trail.

The typical cross-section is a 10-foot-wide asphalt trail (3.5 inches thick laid in two lifts) with an 8-inch 21AA aggregate base that extends at least 6 inches wider than the trail. A cross slope (2% max) must be provided for proper drainage as well as a 2-foot shoulder (6 inches of granular material) on both sides of the trail to establish a clear zone. An herbicide under the HMA is suggested to assist with vegetation management. Trees should not be planted closer than 3 feet from the shoulder edge (5 feet from the trail surface edge) to minimize root damage to the trail. An 8-foot vertical clearance should be maintained over the trail surface. Installation of a ROW fence is required to separate the non-motorized facility from the highway road surface. Per the recommended non-motorized trail section, the trail should have 2 feet of gravel along each side if possible. This feature will help alleviate minor drainage issues and provide additional visual clearance along the trail.

*This document has been informed by existing guidance and standards from sources listed below and others. In moving forward on improvements for the I-275 Metro Trail, it will be important to follow the latest design standards. This report is not meant to replace or supersede any of these:*

- MDOT Standard Specifications for Construction
- MDOT Context Sensitive Solutions requirements
- Michigan Manual on Uniform Traffic Control Devices (MMUTCD)
- American Association of State Highway Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities
- AASHTO Roadside Design Guide
- MDOT Road Design Manual
- Americans with Disabilities Act
- US Access Board and/or PROWAG
- MDOT Guidelines for Requesting Alternate Use of Limited Access Right-of-Way: Nonmotorized Facilities 4/13/21

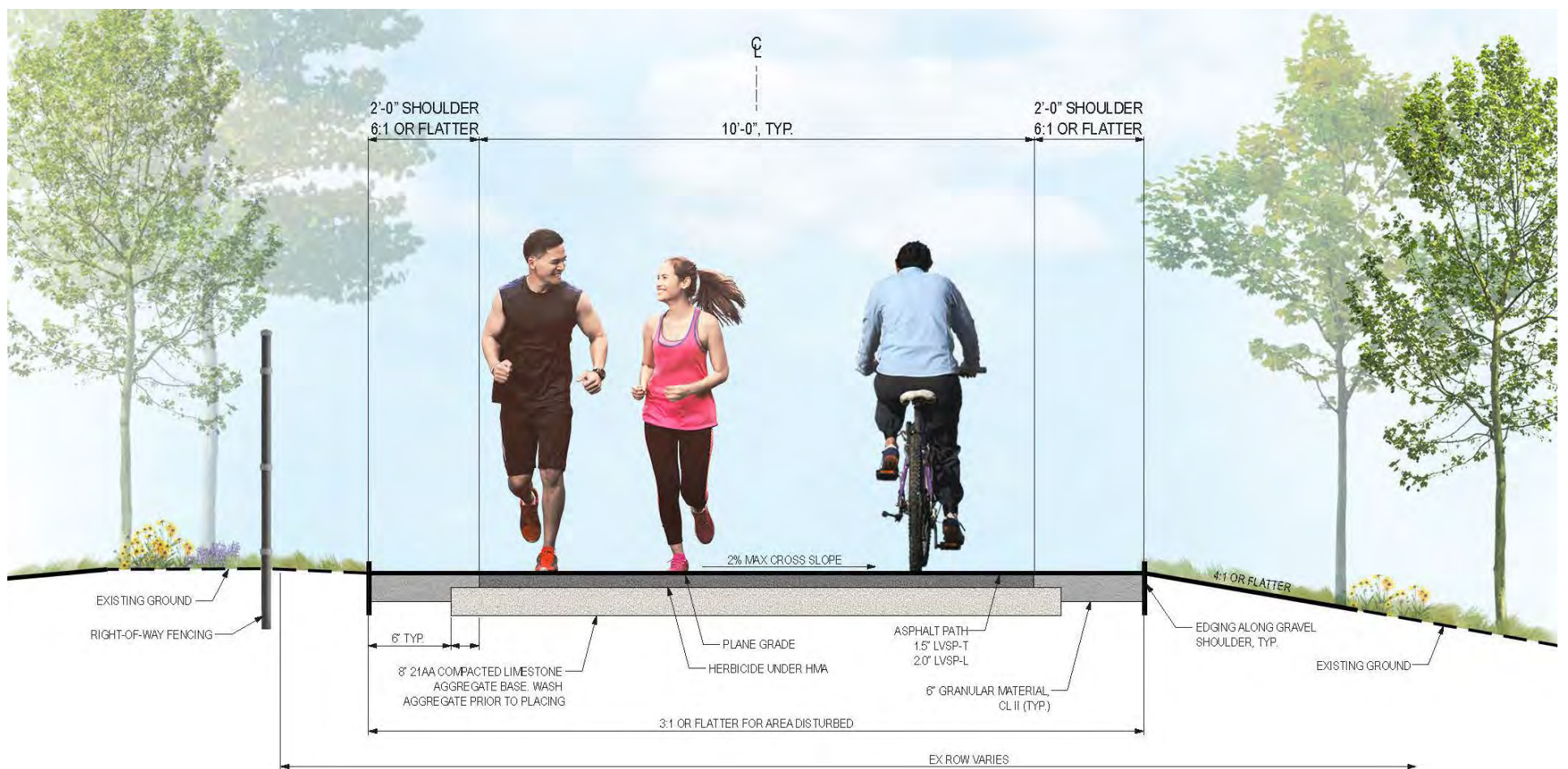


Figure 13: Proposed Trail Standards Cross-Section

## 4.3 NON-REGULATORY SIGNAGE AND BRANDING

Over the past 10-12 years, when trail repairs and reconstruction took place south of Hines Park, a signage package (in addition to regulatory signs) was developed and installed that included trail identification signs, road crossing signs, location maps, and mileage markers. For the most part, these branding and wayfinding signs are clustered at road intersections. The mileage markers are at every quarter mile. Recommendations for non-regulatory signage and branding include making minor modifications to the existing sign family or developing a signage and wayfinding design manual with recommendations for significantly elevating the trail's brand and aesthetic.

## MINOR MODIFICATIONS TO EXISTING SIGN FAMILY

If the existing I-275 Metro Trail non-regulatory signs are to remain, or be added to reconstructed/rehabilitated sections of the trail, the following minor modifications should be considered to improve functionality:

- Replace and renumber mile marker signs
- Reduce sign clutter at road intersections
- Consider orientation and placement of signs intended for trail users
- Consider orientation and placement of signs intended for vehicles

Mile marker signs at every quarter mile continue to be recommended to enhance the trail experience and assist in determining location in case of an accident or emergency. Currently, mileage numbering begins at “0” at Michigan Avenue and increases consecutively heading in both north and south directions. This is confusing to users. It is recommended to begin numbering at the south end of the trail with numbers increasing consecutively going north since no known projects to extend the trail further south are planned. To the north, the I-275 Metro Trail connects into the M-5 Trail.

At road intersections, care should be taken to consider sign consolidation, sign placement and sign orientation in relation to other existing road signs, regulatory signs, light poles, utility boxes, electrical poles, etc. Many existing road crossings have an extensive number of signs. Figures 14 through 16 illustrate a few of these considerations utilizing the existing sign package.

### Signage and Wayfinding Design Manual - Enhanced Branding Opportunity

Prior to reconstruction/rehabilitation of the I-275 Metro Trail, there is an opportunity to plan for enhanced branding of the trail network to increase awareness, assist with wayfinding, and improve aesthetics and user experience along the I-275 corridor. To move this idea forward, it is recommended that a grant be pursued (perhaps from SEMCOG or The Ralph Wilson Foundation/CFSEM) to obtain funding for development of a signage and wayfinding design manual for the I-275 Metro Trail (for both Oakland and Wayne Counties). This design manual is envisioned to go beyond installation of traditional signage to consider elements such as branding and art for fencing, bridge overpasses, sound walls, concrete abutments, painted surface markings, etc. Considerations could be made for interpretive signs, trail maps, point of contact for maintenance issues, donor recognition, brand awareness, colors, materials, etc.

Figures 14 through 16 illustrate examples to inspire possibilities for elevating the I-275 Metro Trail brand, aesthetic, awareness, and use. Development of a Signage and Wayfinding Design Manual would include an engagement process and coordination with a number of stakeholders.



Figure 14: Trail Branding Concept for Underpass Mural



Figure 15: Trail Branding Concept for Overpass Mural



Figure 16: Trail Branding Concept for Totem-Style Trail Signage

## 4.4 CONNECTIONS

### Potential Trailheads

The I-275 Hills Trailhead is the only formal trailhead currently along the I-275 Metro Trail. It opened in 2021 and is located in Farmington Hills (Oakland County), south of Nine Mile Road. The trailhead was created in conjunction with the City, MDOT, FHWA, and the WoodSpring Suites Hotel developer. It includes a concrete connection to the I-275 Metro Trail, designated parking spaces, signage, a gateway designed by a local artist, bike racks, drinking fountain, kiosk, bench, trash receptacle, and bike fix-it-station. The collaborating partners worked for several years to obtain MDOT/FHWA approval due to the unique nature of permitting a trailhead within FHWA right-of-way. The process used by Farmington Hills to obtain approvals and permits should be referenced when moving forward with additional trailheads along the I-275 Metro Trail. Additional details can be found in the MDOT Guidelines for Requesting Alternate Use of Limited Right of Way: Nonmotorized Facilities that was finalized in April 2021.

Fifteen locations along the I-275 Metro Trail in Wayne County have been identified as potential spots to create formal trailheads, as shown on Figure 17. The establishment of formal trailheads would encourage use and allow trail users to know where parking is allowed to access the trail. The majority of proposed trailhead locations would be created in partnership with private property owners to either create new parking areas or designate 5 to 10 existing parking spaces at each location for I-275 Metro Trail use. As shown in Figure 18, a variety of amenities could be provided at the trailheads to increase the enjoyment of the I-275 Metro Trail as well as provide design cues to passers by and trail users that they are along the I-275 Metro Trail. The majority of the potential trailheads would be located outside of MDOT/FHWA right-of-way and the responsibility of the local municipality and/or private property owner. Potential trailhead amenities, listed in Figure 19 on the following page, have been organized into two groups: desired amenities that should be integrated at every trailhead and optional amenities. Fixed amenities (benches, bike racks, fix-it stations, etc.) may be permitted within MDOT right-of-way if removable or surface-mounted.

To establish trailheads along the I-275 Metro Trail, it is recommended that a grant be pursued (perhaps from SEMCOG or The Ralph C. Wilson, Jr. Foundation/CFSEM) to obtain planning and coordination dollars. Due to the permitting process and the reproducibility of the agreements, amenities, and design standards, it would be most efficient to plan for and coordinate multiple trailheads with a single effort. Grant tasks to move the potential trailheads forward could include coordination with local communities, approaching private property owners, site visits, conceptual trailhead layout and cost estimates, coordination with permitting agencies including MDOT, FHWA, County Parks, and County Road Commission as applicable, specifying amenities, etc.

### Minor Formal Connections

In addition to formal trailhead access, and access at road crossings via connecting sidewalks, a number of locations along the Wayne County section of the I-275 Metro Trail have existing connections that should be maintained/rebuilt during renovation/reconstruction. New connections should also be considered to increase use and connectivity. Twelve locations have been identified to keep an existing connection or consider adding an additional connection. These are in addition to connections at road crossings where sidewalks intersect with the I-275 Metro Trail.

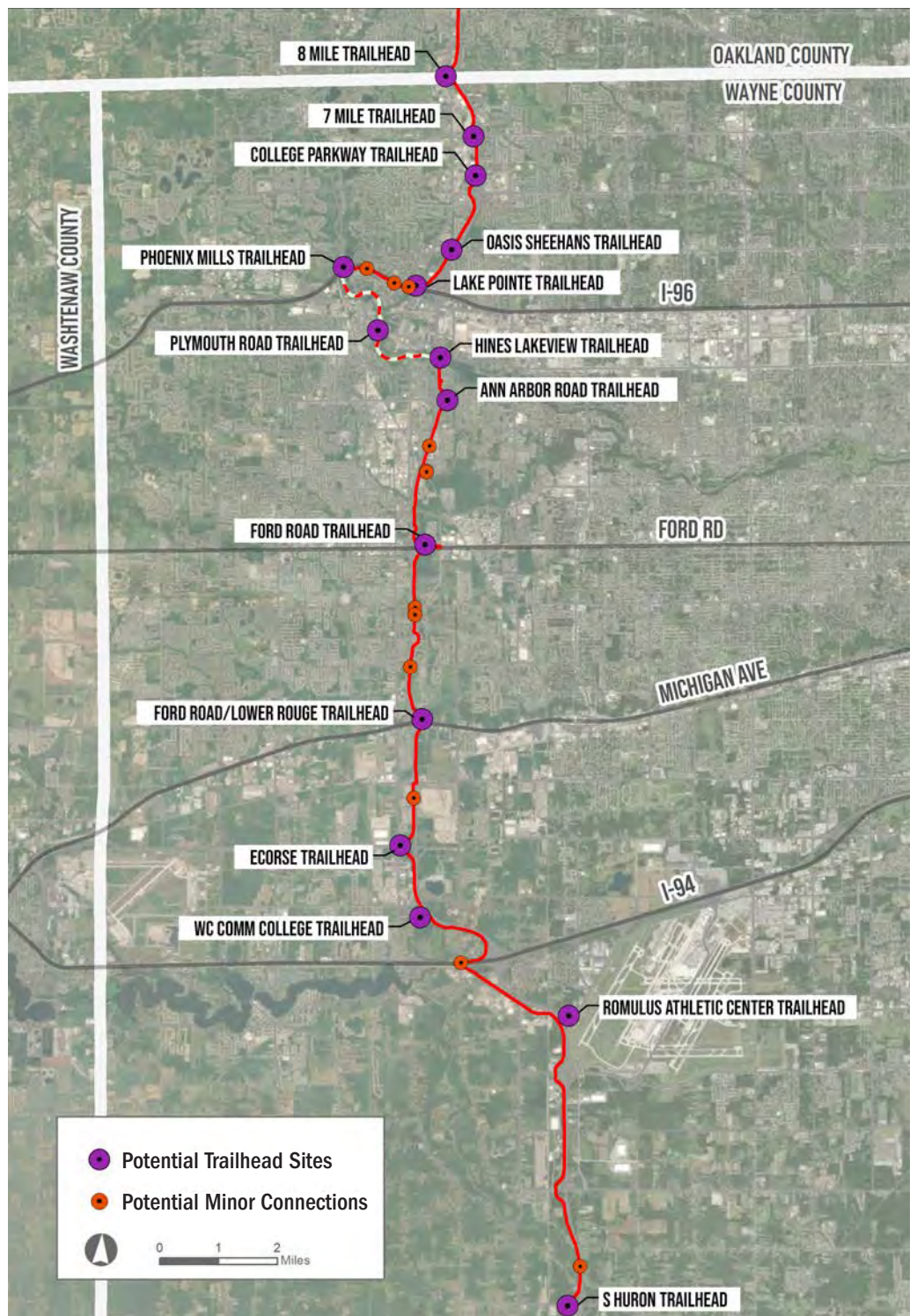


Figure 17: Potential Trailheads and Minor Connections

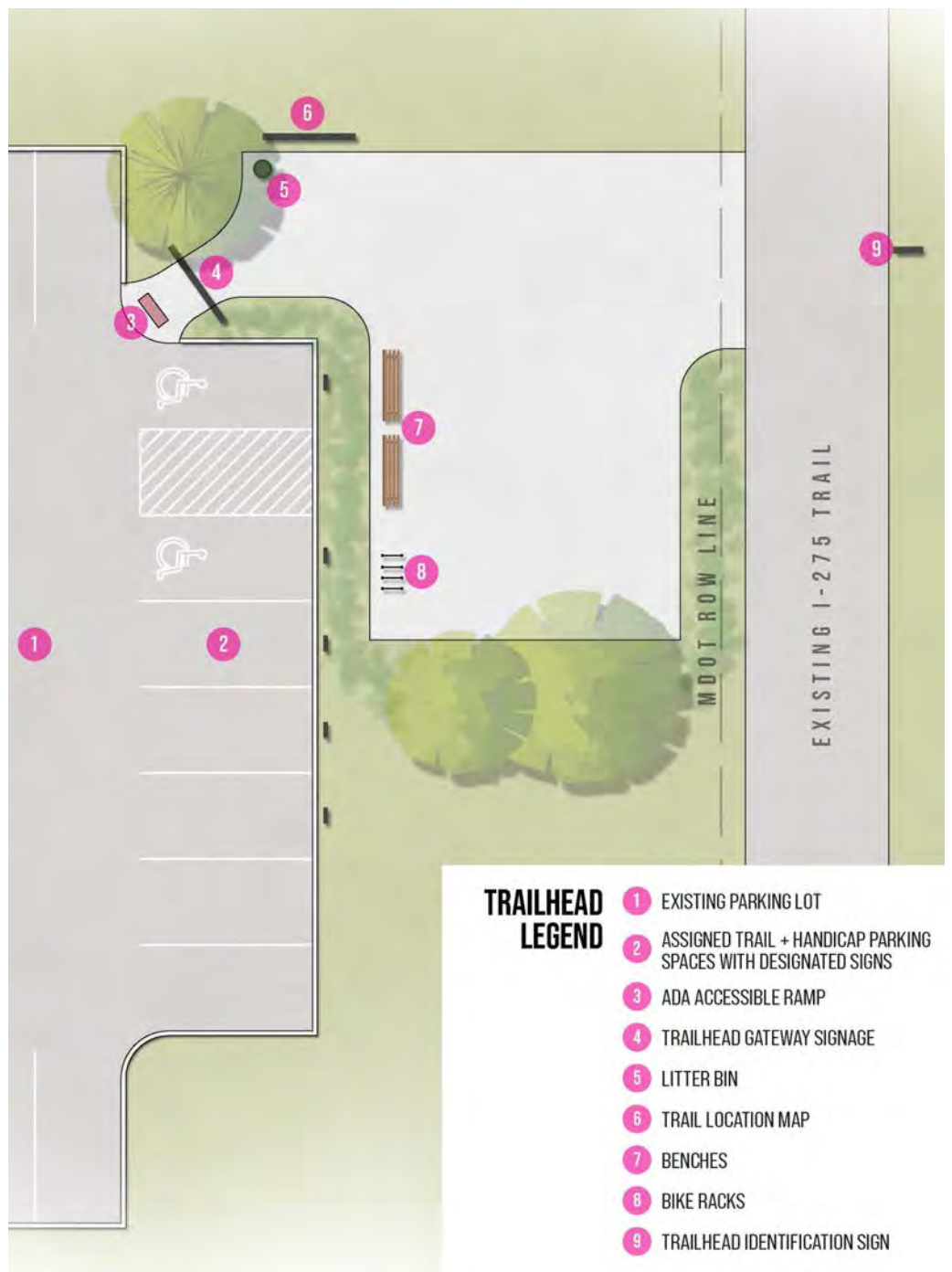


Figure 18: Conceptual Proposed Trailhead Items

TRAILHEAD AMENITY	DESIRED AMENITY	OPTIONAL AMENITY
Connector trail between parking on I-275 Metro Trail	X	
Location Map/Sign	X	
Signage designation spaces for use by I-275 Metro Trail users	X	
ADA ramps between parking and trail connector	X	
Single Loop Bike Rack(s)	X	
Bench(es)	X	
Trash Receptacle	X	
Kiosk		X
Solar Charging Station		X
Restroom		X
Drinking Fountain/Water Filling Station		X
Gateway Structure		X
Public Art		X
Landscaping		X

Figure 19: Desired and Optional Amenities for Potential Trailheads

These connections should be paved and between 6'-10' wide depending on conditions. The connection should also ensure proper ADA criteria including adequate slope and drainage. Locations for proposed minor connections are detailed throughout Section 5 of this report.

## 4.5 TRAFFIC & INTERSECTIONS

As part of the set of recommendations for the I-275 Metro Trail, an evaluation was conducted for safety and operational improvements to the trail in locations where trail users interact with vehicle drivers at at-grade intersections (Figure 20). Field reviews and analysis were also conducted for future consideration and documentation at the remaining crossings located in Oakland County and Hines Park. The following recommendations fall into standard categories across all 19 intersections within the project extent:

- Upgrade ramps and sidewalks to meet current ADA standards
- Upgrade pedestrian signals with countdown indication where existing signs are outdated style
- Install pushbuttons
- Upgrade/install pavement markings as-needed to meet current standards
- Relocate stop bars
- Improve lighting
- Add refuge islands/staggered crosswalks where recommended
- Install HAWK (high-intensity activated crosswalk beacon) at several mid-block locations
- Modernize signals



Figure 20: Intersection Field Survey

Detailed recommendations on each intersection within the study area can be found within Sections 5 and 7 of this report.

## 4.6 MAINTENANCE

Maintenance of the I-275 Metro Trail surface and surrounding area is necessary to attract new trail users and continue to provide acceptable facilities for returning users along with maintaining a safe and usable trail for pedestrians. Maintaining a strict schedule will extend the life cycle of the pavement and reduce costs to repair the trail. Maintenance of the trail will increase during the end of the spring when the snow is melting and the trail is beginning to see heavy use heading into the warmer months. Trail users should also be encouraged to report various issues encountered along the trail for inclusion during future maintenance activities. Presently, regional maintenance funds and grant funding are used for trail maintenance. Establishing a permanent funding source designated for non-motorized assets to perform these maintenance activities should be considered to ensure that trail maintenance keeps pace with the needs.

### Pavement

Clearing and sweeping debris that has accumulated along the trail occurs a handful of times a year with additional clearing after larger storm events. While a maintenance crew is out clearing debris, they could perform visual inspections of the surface of the bike trail and identify any locations with potholes, cracks, and heaving pavement. This can lead to a list of locations of cracks to have sealant applied, any pavement joint and crack (Detail 7) repairs, and grinding of pavement that is starting to heave to provide a smooth surface for pedestrians and bicyclists. If sections of pavement are starting to have map cracking or other more serious pavement issues, consider patching larger areas or paving an overlay in these locations.

### *Ditches, Vegetation and Drainage*

Mowing of the ditches and open areas along the bike trail should be maintained along according to the normal MDOT schedule. Vegetation or other obstructions that encroach within 2 feet of the edge of the bike trail and are lower than 10 feet above the trail need to be cleared or removed. Edging installed along the outside edge of proposed gravel shoulder, as recommended in the proposed trail section in Figure 13, will help control grass encroachment onto the trail horizontally. Special attention should be directed to curves and bends in the bike trail to maintain stopping sight distance for bicyclists, and in areas where invasive species such as phragmites are prevalent. Drainage features should be inspected yearly and after any major storm event and repaired/replaced as needed. Common repairs will include replacing various soil erosion and sediment control measures such as riprap, check dams, and clearing off the top of grates along with sewer or culvert cleanouts when sediment build up begins to create hydraulic issues. Any recurring drainage issues should be noted and remedial design fixes should be discussed to reduce the required maintenance in these areas.

### *Intersections, Signing and Pavement Markings*

Pavement markings along the trail, approaching the intersection and within the roadway should be re-stripped as needed once they start to fade or peel off and create safety issues for pedestrians and cyclists that utilize the crossings. All lighting along the bike trail should be inspected and maintained with an emphasis on any repairs to lighting near intersections. Any pedestrian signal that is damaged or not working properly should be immediately repaired. Signs should be inspected along the trail, with an increased emphasis on the intersection signing. Any signs that have lost their reflective coating should be reapplied or a new sign installed.

### *Bridges and Boardwalks*

The majority of bridges and boardwalks assessed within the project area were determined to be in good condition, needing Capital Scheduled Maintenance (CSM) as part of standard ongoing care. Capital Scheduled Maintenance includes measures such as:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankment
- Treat concrete substructures with penetrating water repellent
- Replace wood handrail with composite deck board to avoid splinters
- Patch substructure concrete as directed by engineer
- Replace deck boards as-needed

Details of recommended repairs are noted throughout Section 5 of this report.

# 5.0 I-275 METRO TRAIL RECOMMENDATIONS

<b>8 MILE RD - 7 MILE RD</b> .....	<b>18</b>
<b>7 MILE RD - 6 MILE RD</b> .....	<b>21</b>
<b>6 MILE RD - 5 MILE RD</b> .....	<b>25</b>
<b>5 MILE RD - HAGGERTY RD</b> .....	<b>27</b>
<b>HAGGERTY RD - M-14</b> .....	<b>29</b>
<b>HINES DR - ANN ARBOR RD</b> .....	<b>31</b>
<b>ANN ARBOR RD - KOPPERNICK RD</b> .....	<b>35</b>
<b>KOPPERNICK RD - FORD RD</b> .....	<b>38</b>
<b>FORD RD - CHERRY HILL RD</b> .....	<b>42</b>
<b>CHERRY HILL RD - PALMER RD</b> .....	<b>44</b>
<b>PALMER RD - US-12</b> .....	<b>47</b>
<b>US-12 - VAN BORN RD</b> .....	<b>50</b>
<b>VAN BORN RD - ECORSE RD</b> .....	<b>53</b>
<b>ECORSE RD - TYLER RD</b> .....	<b>58</b>
<b>TYLER RD - NORTHLINE RD</b> .....	<b>60</b>
<b>NORTHLINE RD - S HURON RIVER DR</b> .....	<b>64</b>
<b>S HURON RIVER DR - EUREKA RD</b> .....	<b>69</b>
<b>EUREKA RD - PENNSYLVANIA RD</b> .....	<b>73</b>
<b>PENNSYLVANIA RD - SIBLEY RD</b> .....	<b>77</b>
<b>SIBLEY RD - HURON RIVER DR</b> .....	<b>80</b>
<b>HURON RIVER DR - S HURON RD</b> .....	<b>83</b>

# 8 MILE RD - 7 MILE RD

This section of trail is in fair and good condition, but concern about pavement becoming fair-poor in the near future led to recommending full length reconstruction. A combination of reconstruction and rehabilitation could also be considered. A vertical slope correction within the first couple hundred feet south of 8 Mile Road can be corrected over 500 feet of trail. Additionally, 90% of required ROW fencing must be replaced (some new chain link fence has been installed recently).

## TRAIL IMPROVEMENTS

- **HMA REMOVAL AND FULL RECONSTRUCTION:** The trail is in good-fair condition but deteriorating. The full length of trail (6,185 feet) within this section is recommended for full reconstruction at the recommended 10-foot width with a 2-foot shoulder.
- **SLOPE/VERTICAL CORRECTION:** Longitudinal and cross slopes measured over the desired maximum (8.55% and 4.85%, respectively) for the 100-foot segment of trail immediately south of 8 Mile Road. Slope correction to fix this issued is estimated to require 500 feet of regrading.
- **ROW FENCING:** Most ROW fencing is in fair-poor condition. Fencing in good condition is the old-wire mesh style, however this style does not meet current standards. This estimate assumes that 90% of ROW fencing needs to be replaced.
- **SIGNAGE REPLACEMENT:** In total, six signs were observed in this section. All are recommended for upgrade due to mixed condition and outdated designs.
- **SUBGRADE UNDERCUTTING:** It is estimated that 10% of the reconstructed trail (620 feet) will require undercutting to properly rebuild the pavement when it is replaced.
- **DRAINAGE IMPROVEMENTS:** One existing culvert requires cleanout and one location needs a culvert added to alleviate drainage issues. Additionally, 4,000 feet of ditch cleanout is needed east of the trail in this section.









## INTERSECTION IMPROVEMENTS: 8 MILE RD

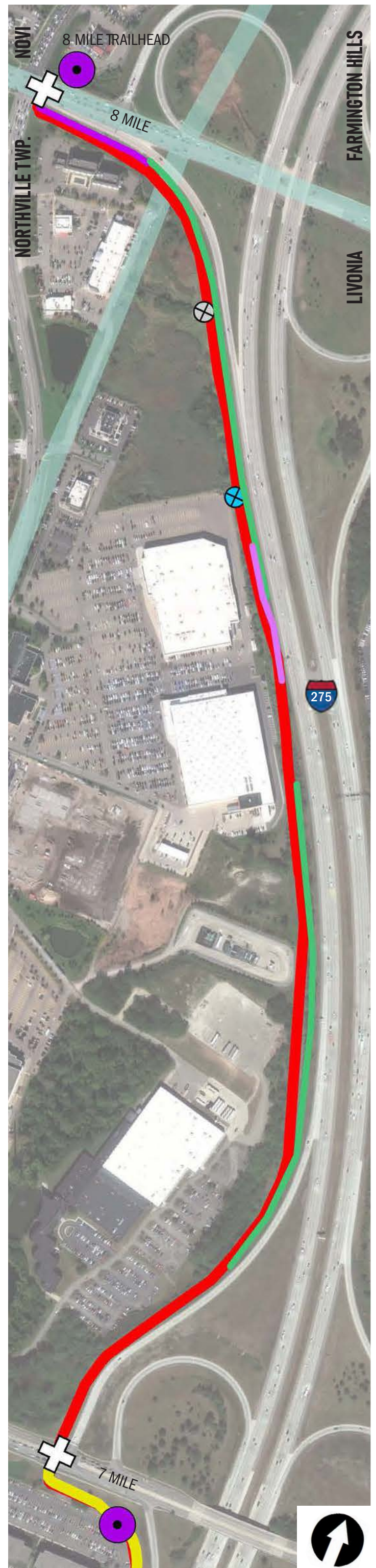
- Upgrade ramps to meet current ADA standards
- Upgrade pedestrian signals with countdown indication
- Remove Stop signs at trail
- Restripe pavement markings on roadway and trail to meet current standards
- Install pedestrian lighting on both sides of the 8 Mile Road crossing

## BRIDGE IMPROVEMENTS

- There are no bridges or boardwalks in this segment

## RECOMMENDATIONS LEGEND:

-  CULVERT CLEANOUT
-  PROPOSED CULVERT
-  FULL PATH RECONSTRUCT WITH 2' GRAVEL SHOULDER
-  VERTICAL CORRECTION REQUIRED
-  DITCH CLEANOUT
-  SOUND BREAK
-  POTENTIAL TRAILHEAD LOCATION
-  INTERSECTION IMPROVEMENTS



# CONNECTIONS

## 8 MILE RD TRAILHEAD (potential)

- Northeast quadrant of the intersection of 8 Mile and Haggerty Roads
- Former Big Boy site, under redevelopment as of 2022
- Collaborate with private land owner to utilize existing parking lot along I-275 Metro Trail
- Designate 5 to 10 spaces, short connection to trail, signage, kiosk, bench, trash, etc

# TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	PAY ITEM	DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST	COMMENT
5010005	HMA Surface Removal		Syd	\$7.00	6185	\$43,295	
2050010	Embankment, CIP		Cyd	\$12.00	2576	\$30,912	
2050016	Excavation, Earth		Cyd	\$13.00	2053	\$26,689	
3020020	Aggregate Base, 8-inch		Syd	\$11.00	7560	\$83,160	
3070128	Shld, CI II, 6 inch		Syd	\$10.00	2749	\$27,490	
8060040	Shared Use Trail, HMA		Ton	\$119.00	1390	\$165,410	
2087051	—	Erosion control	LSUM	\$6,000.00	1	\$6,000	
8080011	Fence, Chain Link, 48 inch		Ft	\$30.00	4639	\$139,170	
8100404	Sign, Type IIIA		Sft	\$17.00	42	\$714	
8100371	Post, Steel, 3 lb		Ft	\$7.00	84	\$588	
2050006	Ditch Cleanout		Sta	\$600.00	40	\$24,000	
2050040	Subgrade Undercutting, Type I		Cyd	\$15.00	230	\$3,450	
8080120	Fence, Moving		Ft	\$10.00	560	\$5,600	
8167011	—	Turf establishment	Syd	\$10.00	4124	\$41,240	
2090001	Project Cleanup		LSUM	\$1,392.00	1	\$1,392	0.25% of total - staking & mobil
8240001	Contractor Staking		LSUM	\$11,986.00	1	\$11,986	2% of total - mobil
1100001	Mobilization Max		LSUM	\$61,128.00	1	\$61,128	10% of total - contingency/ design
<b>Design Fee + Contingency (35%)</b>						<b>\$235,342.00</b>	
<b>Total</b>						<b>\$908,000.00</b>	<b>Rounded to nearest thousand</b>

# 8 MILE RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
	Signal Modernization	1	Ea	\$150,000	\$150,000	***
8100403	Sign, Type III, Rem	3	Ea	\$20.00	\$60.00	
2040055	Sidewalk, Rem	30	Syd	\$12.00	\$360.00	
8032002	Curb Ramp, Conc, 6 inch	270	Sft	\$10.00	\$2,700.00	
8030030	Curb Ramp Opening, Conc	20	Ft	\$30.00	\$600.00	
8030010	Detectable Warning Surface	14	Ft	\$45.00	\$630.00	
2040020	Curb and Gutter, Rem	20	Ft	\$10.00	\$200.00	
3010002	Subbase, CIP	4	Cyd	\$20.00	\$80.00	
8100404	Sign, Type IIIA	18	Sft	\$17.00	\$306.00	Bike route signs & replace existing route signs
8100371	Post, Steel, 3 lb	28	Ft	\$7.00	\$196.00	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	No Motor Vehicles x2
8110343	Rem Spec Mrkg	308	Sft	\$3.00	\$924.00	Rem all 4 crosswalks
8110041	Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk	2050	Ft	\$6.00	\$12,300.00	615 length, 10' markings at 3' on center
8200339	TS, Pedestrian, Two Way Bracket Arm Mtd (LED) Countdown	4	Ea	\$1,800.00	\$7,200.00	
8200180	TS, Pedestrian, Bracket Arm Mtd, Rem	4	Ea	\$200.00	\$800.00	
8190270	Light Std Arm, 17 foot	2	Ea	\$2,000.00	\$4,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$64,222.20</b>	
<b>Total for 8 Mile Road Crossing</b>					<b>\$247,714.20</b>	

\*\*\* Based on comments from Wayne County, additional costs for full traffic signal modernization was included at all county-owned intersections with diagonal spans where the plan proposes pedestrian countdown indications and pushbuttons, as the existing equipment cannot be modified to accommodate these improvements. As design survey is not available and the scope of work only includes conceptual estimates, an estimate of \$150,000 was applied to 10 locations with existing diagonal spans.

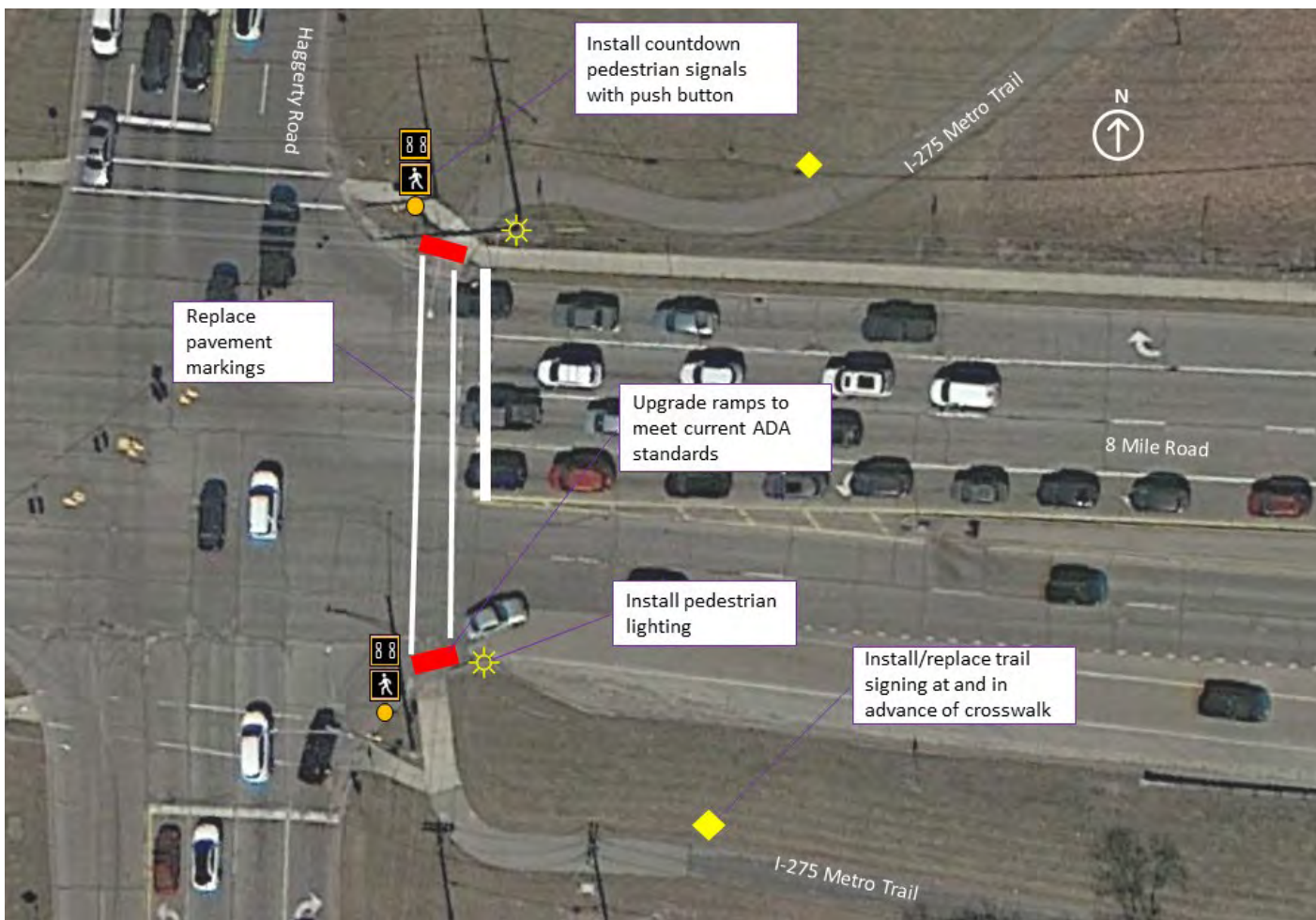


Figure 21: Proposed 8 Mile Road Intersection Improvements

# 7 MILE RD - 6 MILE RD

This section of trail is in mostly fair condition with segments of excellent and good condition, and at a width of 9 feet. The excellent segments are recommended for routine crack sealing and fog seal application. Other segments are recommended to be fully reconstructed due to concerns about pavement deteriorating quickly to a poor to fair condition. Raising the vertical grade of a 550-foot segment of trail just north of 6 Mile Road is recommended to correct drainage issues. Additionally, 90% of required ROW fencing must be replaced (small sections of new fence have been installed).









## TRAIL IMPROVEMENTS

- **CRACK TREATMENT AND FOG SEAL:** A portion of the trail within this section is in excellent condition. Approximately 1,101 feet is recommended for sealing any cracks that develop and applying a fog seal.
- **HMA REMOVAL AND FULL RECONSTRUCTION:** The trail within this section is in good-fair condition but deteriorating. Approximately 4,623 feet of trail is recommended for full reconstruction at the recommended 10-foot width.
- **VERTICAL GRADE RAISE:** Significant ponding issues were observed on over 300 feet of trail just north of 6 Mile Road. A solution to mitigate the ponding is to raise the vertical grade at the ponding location by 2 feet along with the full 10-foot width reconstruction while adding multiple culverts underneath the bike trail to promote positive drainage.
- **ROW FENCING:** Most ROW fencing is in fair-poor condition. Fencing in good condition is the old-wire mesh style, however this style does not meet current standards. This estimate assumes that 90% of ROW fencing needs replacement.
- **SIGNAGE REPLACEMENT:** In total, 12 signs were observed in this section. All are recommended for upgrade due to mixed condition and outdated designs.
- **SUBGRADE UNDERCUTTING:** It is estimated that 10% of the reconstructed trail (407 feet) will require undercutting to properly rebuild the pavement when it is replaced.
- **DRAINAGE IMPROVEMENTS:** Five locations need a drainage structure and sewer to alleviate drainage issues with some areas requiring ditch reconstruction. Additionally, 1,800 feet of ditch cleanout is needed east of the trail. Erosion control measures will be required in this area and have been included in the cost estimate at \$5,000/mile.

## INTERSECTION IMPROVEMENTS: 7 MILE RD

- Upgrade ramps to meet current ADA standards
- Upgrade pedestrian signal heads with countdown indications
- Install pushbuttons at pedestrian signals
- Reconstruct median for staggered crosswalk
- Replace/install pavement markings/signing as necessary (remove Stop sign and relocate wayfinding signs away from roadway)
- Install pedestrian lighting on south side of 7 Mile Road crossing

## RECOMMENDATIONS LEGEND:

-  CULVERT CLEANOUT
-  PROPOSED CULVERT
-  FULL PATH RECONSTRUCT WITH 2' GRAVEL SHOULDER
-  FULL PATH RECONSTRUCT, ADD 2' GRAVEL SHOULDER WITH VERTICAL RAISE
-  DITCH CLEANOUT
-  SOUND BREAK
-  POTENTIAL TRAILHEAD LOCATION
-  INTERSECTION IMPROVEMENTS



## INTERSECTION IMPROVEMENTS: 6 MILE RD

- Upgrade ramps to meet current ADA standards
- Upgrade pedestrian signal heads with countdown indications
- Install pushbuttons at pedestrian signals
- Reconstruct median for staggered crosswalk
- Replace/install pavement markings/signing as necessary (remove Stop sign and relocate wayfinding signs away from roadway)

## BRIDGE IMPROVEMENTS

- There are no bridges or boardwalks in this section.

## CONNECTION OPPORTUNITIES

### 7 MILE RD TRAILHEAD (potential)

- Southeast side of the intersection of 7 Mile Road and the I-275 SB off ramp
- Collaborate with private business park to utilize existing parking alongside I-275 Metro Trail
- Designate 5 to 10 spaces, short connection from parking to trail, signage, kiosk, bench, trash, etc.

### COLLEGE PARKWAY TRAILHEAD (potential)

- Existing connection between US Ecology and Masco private office building
- Collaborate with private business to utilize existing parking alongside existing connection into I-275 Metro Trail
- Designate 5 to 10 spaces, short connection from parking lot to trail, signage, kiosk, bench, trash, etc.

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	PAY ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST	COMMENT
8100404	Sign, Type IIIA	Sft	\$17.00	47	\$799.00	
8100371	Post, Steel, 3 lb	Ft	\$7.00	112	\$784.00	
8100403	Sign, Type III, Rem	Ea	\$12.00	17	\$204.00	
4030200	Dr Structure, 24 inch dia	Ea	\$1,650.00	4	\$6,600.00	
4030210	Dr Structure, 48 inch dia	Ea	\$2,500.00	1	\$2,500.00	
4030040	Dr Structure Cover, Type G	Ea	\$649.00	5	\$3,245.00	
8130010	Riprap, Plain	Syd	\$65.00	55	\$3,575.00	
4020033	Sewer, CI A, 12 inch, Tr Det B	Ft	\$75.00	175	\$13,125.00	
4010012	Culv End Sect, 12 inch	Ea	\$600.00	10	\$6,000.00	
2050016	Excavation, Earth	Cyd	\$13.00	50.00	\$650.00	
8167011	Turf Establishment	Syd	\$10.00	5192.00	\$51,920.00	
4010539	Culv, CI E, 12 inch	Ft	\$66.00	63	\$4,158.00	
4030390	Dr Structure, Temp Lowering	Ea	\$427.00	1	\$427.00	
4037001	Sanitary Sewer, Adj, Add Depth	Ft	\$100.00	2	\$200.00	
8080011	Fence, Chain Link, 48 inch	Ft	\$30.00	4580	\$137,400.00	
5010005	HMA Surface, Rem	Syd	\$7.00	4623	\$32,361.00	
2050010	Embankment, CIP	Cyd	\$12.00	1258	\$15,097.00	
2050016	Excavation, Earth	Cyd	\$13.00	1555	\$20,219.00	
3020020	Aggregate Base, 8 inch	Syd	\$11.00	5650	\$62,154.00	
3070128	Shld, CI II, 6 inch	Syd	\$10.00	2544	\$25,440.00	
8060040	Shared use Trail, HMA	Ton	\$119.00	1038	\$123,552.00	
5050015	Seal, Fog	Syd	\$1.00	1101	\$1,101.00	
7060220	Sealing Localized Cracks	LSUM	\$500.00	1	\$500.00	
2050040	Subgrade Undercutting, Type I	Cyd	\$501.00	151	\$75,577.00	
2050006	Ditch Cleanout	Sta	\$600.00	18	\$10,800.00	
2087051	Erosion Control	LSUM	\$6,000.00	1	\$6,000.00	
8037051	Sidewalk Connection LSUM	LSUM	\$68,140.74	1	\$68,141.00	
2090001	Project Cleanup	LSUM	\$1,682.00	1	\$1,682.00	0.25% of total - staking & mobil
8240001	Contractor Staking	LSUM	\$13,485.00	1	\$13,485.00	2% of total - mobil
1100001	Mobilization, Max	LSUM	\$68,770.00	1	\$68,770.00	10% of total - contingency/design
<b>Contingency + Design Fee (35%)</b>					<b>\$264,746.00</b>	
<b>Total</b>					<b>\$1,022,000.00</b>	<b>Rounded to nearest thousand</b>

# 7 MILE RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
	Signal Modernization	1	Ea	\$150,000.00	\$150,000.00	***
8100403	Sign, Type III, Rem	3	Ea	\$20.00	\$60.00	
2040050	Pavt, Rem	124	Syd	\$15.00	\$1,860.00	
2040055	Sidewalk, Rem	66	Syd	\$12.00	\$792.00	
8032002	Curb Ramp, Conc, 6 inch	1865	Sft	\$10.00	\$18,650.00	
8030030	Curb Ramp Opening, Conc	56	Ft	\$30.00	\$1,680.00	
8030010	Detectable Warning Surface	40	Ft	\$45.00	\$1,800.00	
2040020	Curb and Gutter, Rem	56	Ft	\$10.00	\$560.00	
3010002	Subbase, CIP	23	Cyd	\$20.00	\$460.00	
8100404	Sign, Type IIIA	10	Sft	\$17.00	\$170.00	Replace bike route signs
8100371	Post, Steel, 3 lb	42	Ft	\$7.00	\$294.00	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	No motor vehicles
8110343	Rem Spec Mrkg	140	Sft	\$3.00	\$420.00	Crosswalks, stop bar
8110024	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	128	Ft	\$3.00	\$384.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	38	Ft	\$12.00	\$456.00	
8110153	Pavt Mrkg, Sprayable Thermopl, 4 inch, White	43	Ft	\$2.00	\$86.00	Longit lines (30+12.5)
8120210	Pavt Mrkg, Longit, 6 inch or Less Width, Rem	43	Ft	\$1.00	\$43.00	Longit lines
8200345	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	4	Ea	\$1,600.00	\$6,400.00	
8200181	TS, Pedestrian, Pedestal Mtd, Rem	2	Ea	\$200.00	\$400.00	
8200100	Pedestal, Alum	4	Ea	\$900.00	\$3,600.00	
8200105	Pedestal, Fdn	4	Ea	\$950.00	\$3,800.00	
8200106	Pedestal Fdn, Rem	1	Ea	\$250.00	\$250.00	
8200110	Pedestal, Rem	1	Ea	\$100.00	\$100.00	
8200121	Pushbutton and Sign	4	Ea	\$600.00	\$2,400.00	
8190270	Light Std Arm, 17 foot	1	Ea	\$2,000.00	\$2,000.00	
8190330	Luminaire	1	Ea	\$1,000.00	\$1,000.00	
8190279	Light Std Fdn	1	Ea	\$1,800.00	\$1,800.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	1	Ea	\$2,200.00	\$2,200.00	
8182309	Hh, Polymer Conc	2	Ea	\$1,000.00	\$2,000.00	
8187001	Cable	300	Ft	\$15.00	\$4,500.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$72,905.35</b>	
<b>Total</b>					<b>\$281,206.35</b>	

\*\*\* Based on comments from Wayne County, additional costs for full traffic signal modernization was included at all county-owned intersections with diagonal spans where the plan proposes pedestrian countdown indications and pushbuttons, as the existing equipment cannot be modified to accommodate these improvements. As design survey is not available and the scope of work only includes conceptual estimates, an estimate of \$150,000 was applied to 10 locations with existing diagonal spans.

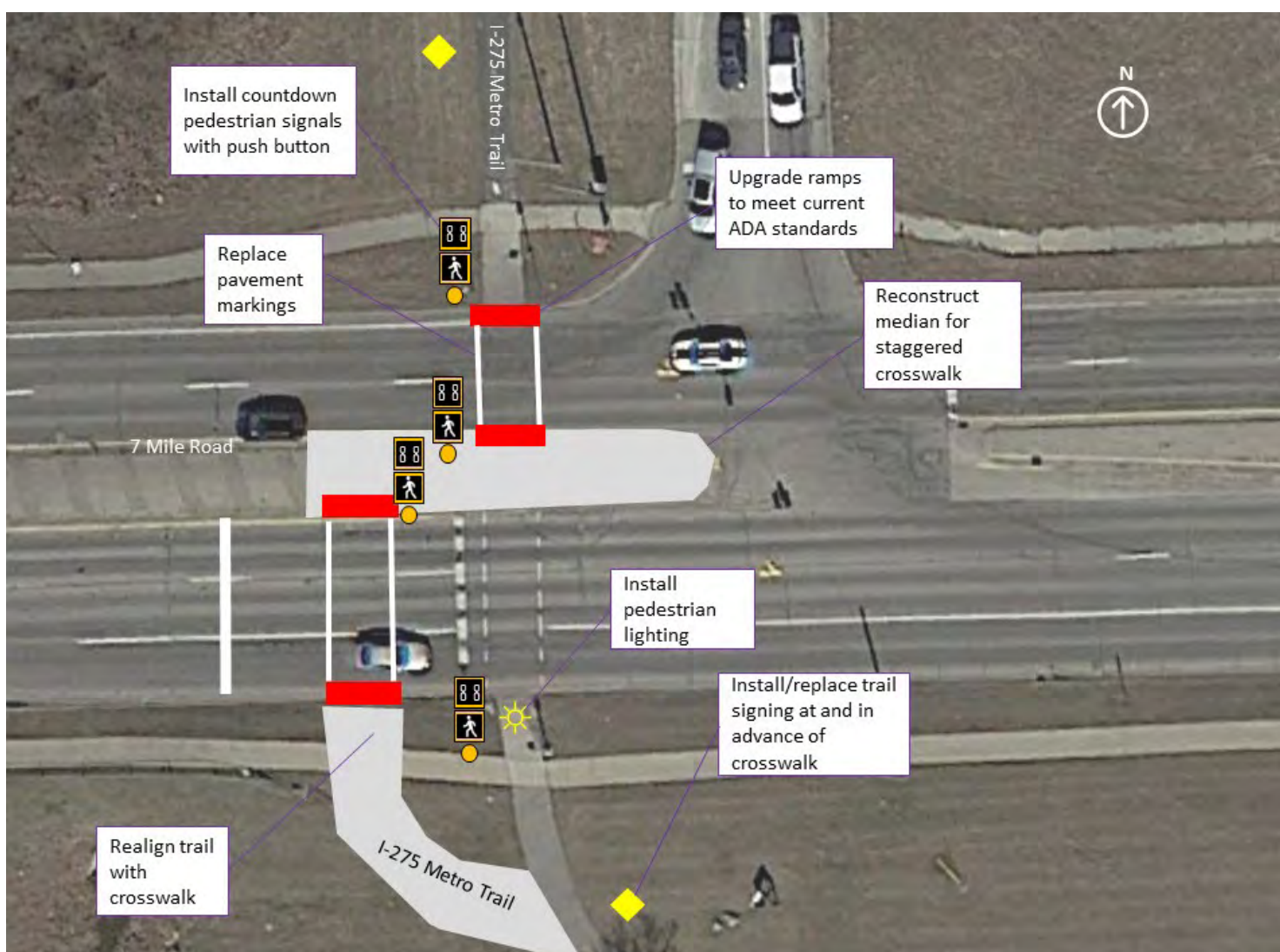


Figure 22: Proposed 7 Mile Road Intersection Improvements

## 6 MILE RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
	Signal Modernization	1	Ea	\$150,000.00	\$150,000.00	***
8100403	Sign, Type III, Rem	3	Ea	\$20.00	\$60.00	
2040055	Sidewalk, Rem	53	Syd	\$12.00	\$636.00	
2040050	Pavt, Rem	11	Syd	\$15.00	\$165.00	
8032002	Curb Ramp, Conc, 6 inch	620	Sft	\$10.00	\$6,200.00	
8030030	Curb Ramp Opening, Conc	56	Ft	\$30.00	\$1,680.00	
8030010	Detectable Warning Surface	40	Ft	\$45.00	\$1,800.00	
2040020	Curb and Gutter, Rem	56	Ft	\$10.00	\$560.00	
3010002	Subbase, CIP	5	Cyd	\$20.00	\$100.00	
8100404	Sign, Type IIIA	32.5	Sft	\$17.00	\$552.50	Stop signs, bike route signs, ex guide signs
8100371	Post, Steel, 3 lb	84	Ft	\$7.00	\$588.00	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	No motor vehicles x2
8110343	Rem Spec Mrkg	133	Sft	\$3.00	\$399.00	
8110024	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	122	Ft	\$3.00	\$366.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	72	Ft	\$12.00	\$864.00	
8110153	Pavt Mrkg, Sprayable Thermopl, 4 inch, White	30	Ft	\$2.00	\$60.00	
8120210	Pavt Mrkg, Longit, 6 inch or Less Width, Rem	10	Ft	\$1.00	\$10.00	
8182050	Conduit, DB, 1, 3 inch	75	Ft	\$20.00	\$1,500.00	
8182035	Conduit, Directional Bore, 1, 3 inch	145	Ft	\$40.00	\$5,800.00	
8182309	Hh, Polymer Conc	2	Ea	\$1,000.00	\$2,000.00	
8200100	Pedestal, Alum	4	Ea	\$900.00	\$3,600.00	
8200105	Pedestal, Fdn	4	Ea	\$950.00	\$3,800.00	
8200345	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	4	Ea	\$1,600.00	\$6,400.00	
8200121	Pushbutton and Sign	4	Ea	\$600.00	\$2,400.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$66,386.78</b>	
<b>Total</b>					<b>\$256,063.28</b>	

\*\*\* Based on comments from Wayne County, additional costs for full traffic signal modernization was included at all county-owned intersections with diagonal spans where the plan proposes pedestrian countdown indications and pushbuttons, as the existing equipment cannot be modified to accommodate these improvements. As design survey is not available and the scope of work only includes conceptual estimates, an estimate of \$150,000 was applied to

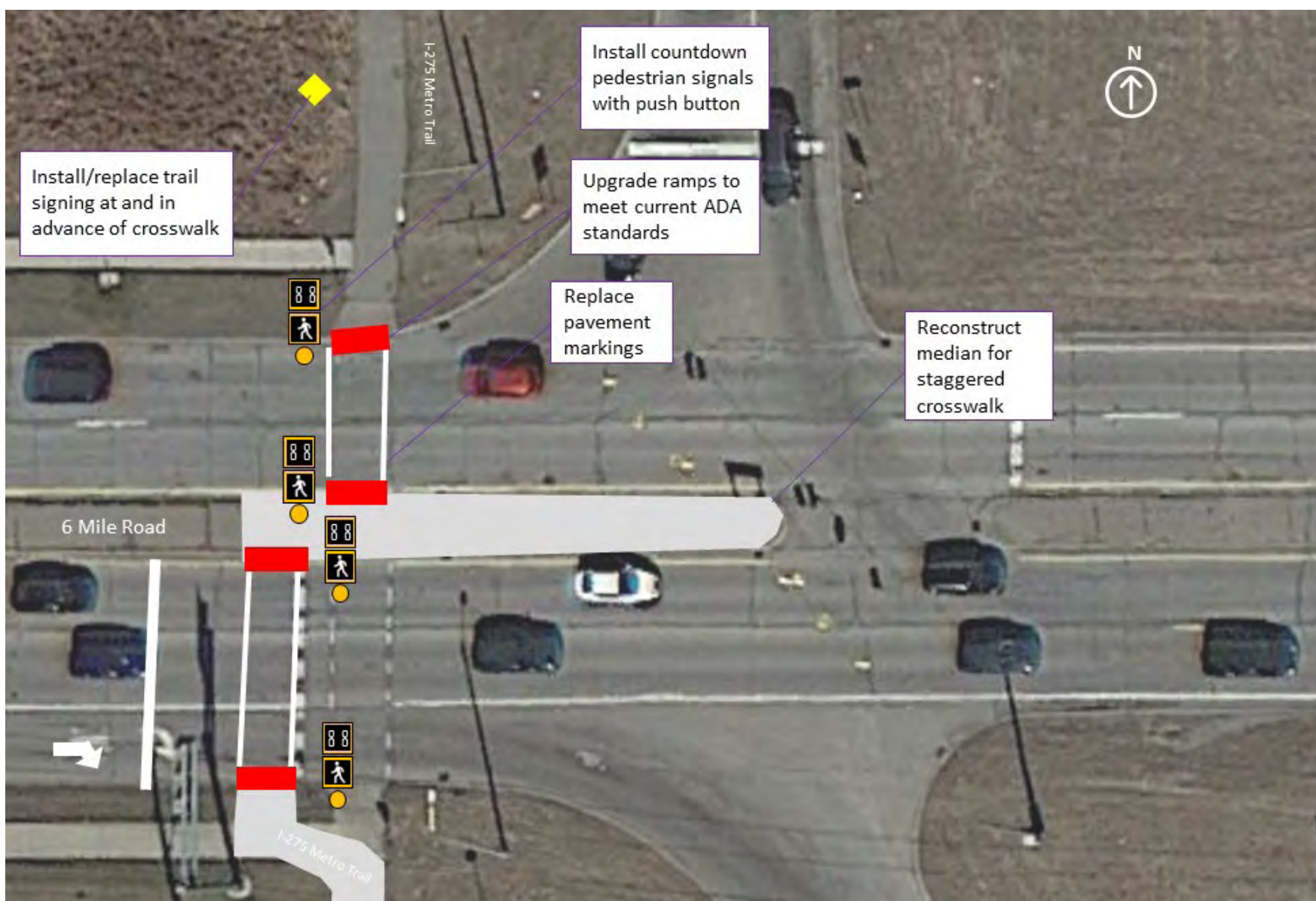


Figure 23: Proposed 6 Mile Road Intersection Improvements

# 6 MILE RD - 5 MILE RD

This section of trail is in a combination of excellent, good, and fair conditions at widths between 8 and 9 feet. The excellent segments are recommended for routine crack sealing and fog seal application. Good segments will receive a 1.5-inch HMA non-structural overlay, and fair segments will be reconstructed, including a 150-foot segment of vertical grade correction. Additionally, all required ROW fencing must be replaced due to poor condition.

## TRAIL IMPROVEMENTS

- **CRACK TREATMENT AND FOG SEAL:** A portion of the trail within this section is in excellent condition. Approximately 493 feet of trail is recommended for sealing any cracks that develop and applying a fog seal.
- **NON-STRUCTURAL OVERLAY:** A portion of the trail within this section is in good condition. Approximately 17% of trail (1,009 feet) is recommended to receive a 1.5-inch HMA non-structural overlay. These segments include an assumption (one crack every 200 feet) for crack repair at cracks that will cause pavement instability in the future.
- **HMA REMOVAL AND FULL RECONSTRUCTION:** Trail within this section is in good-fair condition but deteriorating. Approximately 3,655 feet of trail is recommended for full reconstruction at the recommended 10-foot width.
- **VERTICAL GRADE CORRECTION:** Longitudinal and cross slopes were measured over the desired maximum (6.7%) for the 100-foot segment of trail immediately south of 8 Mile Road. Slope correction to fix this issue is estimated to require 150 feet of regrading.
- **SIGNAGE REPLACEMENT:** In total, 21 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **SUBGRADE UNDERCUTTING:** It is estimated that 10% of the reconstructed trail (365 feet) will require undercutting to properly rebuild the pavement when it is replaced.
- **DRAINAGE IMPROVEMENTS:** Two locations need a culvert to alleviate drainage issues with some areas requiring ditch reconstruction. At the connection near Oasis Golf Center, the spillway should be removed and two culverts added. Erosion control measures will be required in this area and have been included in the cost estimate at \$5,000/mile.

## INTERSECTION IMPROVEMENTS

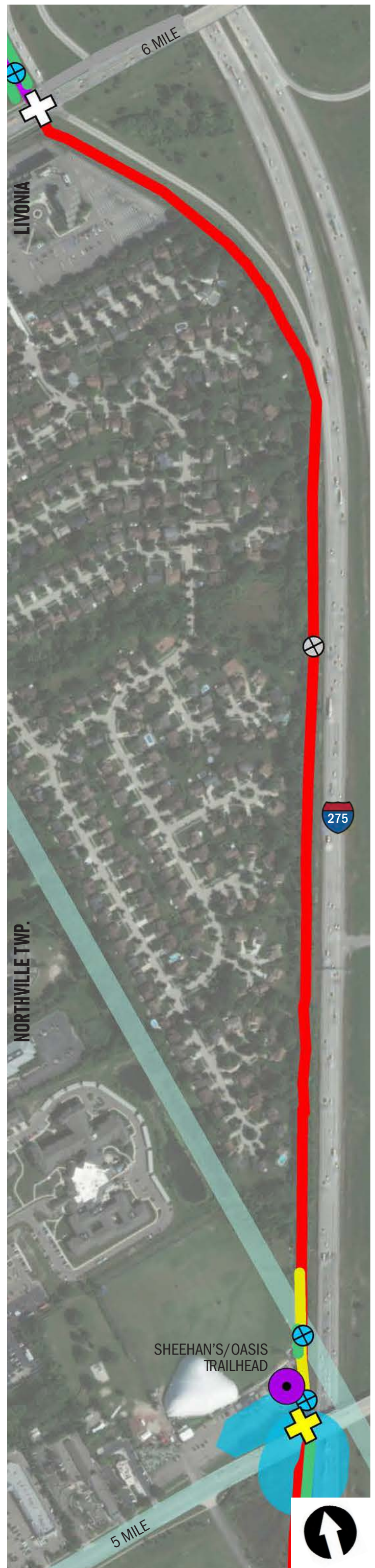
- There are no intersections in this section

## BRIDGE IMPROVEMENTS

- There are no bridges or boardwalks in this section

## RECOMMENDATIONS LEGEND:

- FULL PATH RECONSTRUCT WITH 2' GRAVEL SHOULDER
- VEGETATION CLEARING NEEDED
- DITCH CLEANOUT
- NON-STRUCTURAL OVERLAY AND 2' GRAVEL SHOULDER
- POTENTIAL TRAILHEAD LOCATION
- ⊕ INTERSECTION IMPROVEMENTS
- ⊕ UNDERPASS IMPROVEMENTS



# CONNECTION OPPORTUNITIES

## SHEEHAN'S/OASIS TRAILHEAD (potential) - NORTHVILLE TOWNSHIP

- Existing connection at NW corner of 5 Mile Road/I-275 freeway mainline is in poor condition
- Collaborate with private business to utilize/renovate parking along existing connection into I-275 Metro Trail
- Reconstruct I-275 Metro Trail connection
- Designate 5 to 10 spaces, signage, kiosk, bench, trash, etc.

# TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	PAY ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST	COMMENTS
8100404	Sign, Type IIIA	Sft	\$17.00	54	\$918.00	
8100405	Sign, Type IIIB	Sft	\$17.00	4	\$68.00	
8100371	Post, Steel, 3 lb	Ft	\$7.00	84	\$588.00	
8100403	Sign, Type III, Rem	Ea	\$12.00	21	\$252.00	
8080011	Fence, Chain Link, 48 inch	Ft	\$30.00	5987	\$179,610.00	
5010005	HMA Surface, Rem	Syd	\$7.00	3404.00	\$23,828.00	
2050016	Excavation, Earth	Cyd	\$13.00	1175.00	\$15,275.00	
2050010	Embankment, CIP	Cyd	\$12.00	457.00	\$5,484.00	
3020020	Aggregate Base, 8 inch	Syd	\$11.00	4661.00	\$51,271.00	
3070128	Shld, CI II, 6 inch	Syd	\$10.00	2590.00	\$25,900.00	
8060040	Shared use Trail, HMA	Ton	\$119.00	984.00	\$117,096.00	
8167011	Turf Establishment, Performance	Syd	\$10.00	3386.00	\$33,860.00	
5050015	Seal, Fog	Syd	\$1.00	493.00	\$493.00	
7060220	Sealing Localized Cracks	LSUM	\$300.00	1	\$300.00	
5010020	Pavt Joint and Crack Repr, Det 7	Ft	\$10.00	24	\$240.00	
8100405	Sign, Type IIIB	Sft	\$17.00	4	\$68.00	
5010025	Hand Patching	Ton	\$200.00	1.2	\$240.00	
4030005	Dr Structure Cover, Adj, Case 1	Ea	\$600.00	1	\$600.00	
8130010	Riprap, Plain	Syd	\$65.00	60	\$3,900.00	
4010539	Culv, CI E, 12 inch	Ft	\$66.00	70	\$4,620.00	
4010012	Culv End Sect, 12 inch	Ea	\$600.00	6	\$3,600.00	
2040050	Pavt, Rem	Syd	\$9.00	53	\$477.00	
2050040	Subgrade Undercutting, Type I	Cyd	\$15.00	108	\$1,625	
2087051	Erosion Control	LSUM	\$6,000.00	1	\$6,000.00	
7067010	Retaining Wall	Sft	\$35.00	184	\$6,440.00	
2090001	Project Cleanup	LSUM	\$1,207.00	1	\$1,207.00	0.25% of total - staking/mobil
8240001	Contractor Staking	LSUM	\$9,680.00	1	\$9,860.00	2% of total - mobil
1100001	Mobilization, Max	LSUM	\$49,364.00	1	\$49,364.00	10% of total - contingency/design
<b>Contingency + Design Fee (35%)</b>					<b>\$190,052.00</b>	
<b>Total</b>					<b>\$734,000.00</b>	<b>Round to nearest thousand</b>

# 5 MILE RD – HAGGERTY RD

## TRAIL IMPROVEMENTS

This section of trail is in a combination of good, fair, and poor conditions at widths between 8 and 9 feet. The entire section is recommended for reconstruction since the good pavement is limited to small segments and there is concern about the pavement deteriorating to fair/poor condition. Additionally, all required ROW fencing must be replaced due to poor condition. Tetra Tech's I-275 Metro Trail Review (2/17/2022, JN 208481, CS 82102, 82122, 82293) includes various design options in a report submitted to MDOT, included in Appendix 1 of this report. Their recommendation for a full reconstruct with various horizontal and vertical grade correction is included as the recommendation for a portion of this section.

- **HMA REMOVAL AND FULL RECONSTRUCTION:** The trail within this section is in good to fair and poor condition but deteriorating. Within this reconstruct, various localized low points attached to spillways are recommended to be removed. Approximately 2,645 feet of trail is recommended for full reconstruction at the recommended 10-foot width. The remaining 2,150 feet is covered in the Tetra Tech report.
- **FENCING:** All ROW fencing is in fair-poor condition. This estimate assumes that all ROW fencing needs to be replaced. Additional fencing in poor condition just south of the 5 Mile Overpass should also be replaced.
- **SIGNAGE REPLACEMENT:** In total, 13 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **SUBGRADE UNDERCUTTING:** It is estimated that 10% of the reconstructed trail (265 feet) will require undercutting to properly rebuild the pavement when it is replaced.
- **DRAINAGE IMPROVEMENTS:** Three locations with spillways that channel flow across the bike trail are creating a safety hazard. Elevated drainage structures and storm sewer (as seen along ditches at various locations within this section) are recommended. Additionally, 1,300 feet of ditch cleanout is needed east of the trail. Erosion control measures will be required in this area and have been included in the cost estimate at \$5,000/mile.

## INTERSECTION IMPROVEMENTS

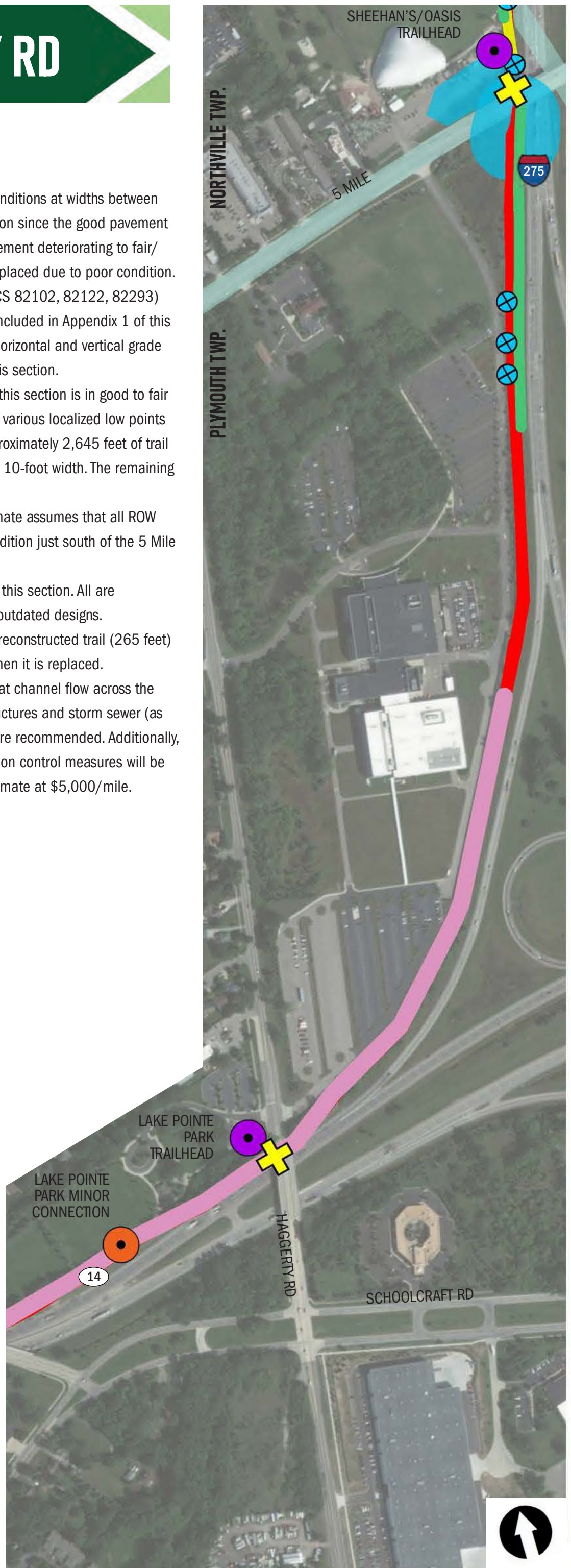
- There are no intersections located in this section

## BRIDGE IMPROVEMENTS

- There are no bridges or boardwalks in this section

## RECOMMENDATIONS LEGEND:

-  CULVERT CLEANOUT
-  PROPOSED CULVERT
-  FULL PATH RECONSTRUCT WITH 2' GRAVEL SHOULDER
-  DITCH CLEANOUT
-  RECOMMENDATIONS PER EXISTING PROJECT PLAN
-  VEGETATION CLEARING NEEDED
-  POTENTIAL TRAILHEAD LOCATION
-  POTENTIAL MINOR CONNECTION
-  UNDERPASS IMPROVEMENTS



# CONNECTION OPPORTUNITIES

## LAKE POINTE PARK TRAILHEAD (potential): PLYMOUTH TOWNSHIP

- Public park at Haggerty Road north of the I-275 freeway
- Collaborate to utilize existing parking (3 to 5 spaces) that may not need signage if parking is heavily utilized already
- Short connection between Lake Pointe Park Trail and I-275 Metro Trail needed to provide access

## LAKE POINTE PARK MINOR CONNECTION: PLYMOUTH TOWNSHIP

- Lake Pointe Park is a Plymouth Township public park with soccer fields, pavilion, trails, playground, and parking. It is suggested as a potential formal trailhead, but regardless if that comes to fruition, it is recommended that the I-275 Metro Trail and Lake Pointe Park Trail be connected. They currently run in close proximity and parallel with each other but do not connect.

# TRAIL IMPROVEMENTS ESTIMATED COSTS

TRAIL IMPROVEMENTS THAT ARE PART OF EXISTING PLANNED PROJECTS IN THIS AREA ARE NOT INCLUDED IN THIS ESTIMATE

CODE	PAY ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST	COMMENTS
8100404	Sign, Type IIIA	Sft	\$17.00	30	\$510.00	
8100371	Post, Steel, 3 lb	Ft	\$7.00	56	\$392.00	
8100403	Sign, Type III, Rem	Ea	\$12.00	13	\$156.00	
8080011	Fence, Chain Link, 48 inch	Ft	\$30.00	2813	\$84,390.00	
5010005	HMA Surface, Rem	Syd	\$7.00	2645.00	\$18,515.00	
2050016	Excavation, Earth	Cyd	\$13.00	764.11	\$9,934.00	
2050010	Embankment, CIP	Cyd	\$12.00	253.72	\$3,045.00	
3020020	Aggregate Base, 8 inch	Syd	\$11.00	3232.78	\$35,561.00	
3070128	Shld, CI II, 6 inch	Syd	\$10.00	1175.56	\$11,756.00	
8060040	Shared use Trail, HMA	Ton	\$119.00	594.02	\$70,689.00	
2050040	Subgrade Undercutting, Type I	Cyd	\$15.00	88.00	\$1,320.00	
8167011	Turf Establishment, Performance	Syd	\$10.00	1763.33	\$17,634.00	
8100405	Sign, Type IIIB	Sft	\$17.00	4	\$68.00	
4030200	Dr Structure, 24 inch dia	Ea	\$1,650.00	3	\$4,950.00	
8130010	Riprap, Plain	Syd	\$65.00	15	\$975.00	
4010539	Culv, CI E, 12 inch	Ft	\$66.00	90	\$5,940.00	
4010012	Culv End Sect, 12 inch	Ea	\$600.00	3	\$1,800.00	
2040050	Pavt, Rem	Syd	\$9.00	2645	\$23,805.00	
2010001	Clearing	Acre	\$8,823.00	0.1	\$883.00	
2087051	Erosion Control	LSUM	\$3,000.00	1	\$3,000.00	
2090001	Project Cleanup	LSUM	\$739.00	1	\$739.00	0.25% of total - staking & mobil
8240001	Contractor Staking	LSUM	\$5,922.00	1	\$5,922.00	2% of total - mobil
1100001	Mobilization, Max	LSUM	\$30,199.00	1	\$30,199.00	10% of total - contingency/design
<b>Contingency + Design Fee (35%)</b>					<b>\$116,265.00</b>	
<b>Total</b>					<b>\$449,000.00</b>	<b>Round to nearest thousand</b>

# HAGGERTY RD - M-14

## TRAIL IMPROVEMENTS

- While a field assessment was performed in this area, the proposed recommendations for trail improvements mirror recommendations made in the existing project plans for trail reconstruction.
- Detailed recommendations for this segment can be found in Appendix 1: I-275 Metro Trail Review (2/17/2022, JN 208481, CS 82102, 82122, 82293)

## INTERSECTION IMPROVEMENTS

- There are no intersections located in this section

## BRIDGE IMPROVEMENTS

- There are no bridges or boardwalks in this section

## CONNECTION OPPORTUNITIES

### PHOENIX MILLS TRAILHEAD (potential): WAYNE COUNTY PARKS

- Wayne County Parks property at Hines Drive/Northville Road
- Collaborate with Wayne County Parks and private property to set aside parking spaces, signage, kiosk, bench, trash, etc.
- Collaborate with Wayne County Roads/Parks to get mid-block crossing to safely access Hines Trail and I-275 Metro Trail






### SCHOOLCRAFT MINOR CONNECTION: PLYMOUTH TOWNSHIP

- A narrow 3- to 4-foot-wide concrete sidewalk connects the I-275 Metro Trail to Schoolcraft Road just north of M-14. This connection should remain but be widened and improved to include a mid-block crossing of Schoolcraft and extend the sidewalk to connect to the existing sidewalk along the north side of Schoolcraft Road.

### FRIENDSHIP CENTER MINOR CONNECTION: PLYMOUTH TOWNSHIP

- The Plymouth Township Friendship Center is located alongside the I-275 Metro Trail on Schoolcraft Road. A fence panel has been pulled back illustrating desired access at this location. It is suggested to formalize this connection with a break in the fence and a short paved connector between the parking lot and trail.

## RECOMMENDATIONS LEGEND:

-  RECOMMENDATIONS PER TETRA TECH PROJECT PLAN
-  POTENTIAL TRAILHEAD LOCATION
-  POTENTIAL MINOR CONNECTION
-  UNDERPASS IMPROVEMENTS
-  BRIDGE IMPROVEMENTS



## TRAIL IMPROVEMENTS ESTIMATED COSTS

TRAIL IMPROVEMENTS FOR THIS SECTION ARE INCLUDED IN AN EXISTING PLANNED PROJECT. SEE APPENDIX 1 FOR DETAILS.

## STR #11351 82182102000P010-EDWARD HINES DR BIKEWAY STRUCTURE IMPROVEMENT RECOMMENDATIONS

Structure 11351 was assessed by MDOT in 2021. Overall this structure is in fair condition. A detailed assessment is available in Appendix 2 of this report. An overview of this bridge is summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION
STR 11351 MDOT 821821-2000P010	1976	Steel Truss (3 Steel / 82 Pl Girder Comp)	124 ft length 9.8 ft overall width 1 span	Fair

# HINES DR - ANN ARBOR RD

The trail within this section is in excellent condition with varying widths of 10 to 11 feet. Crack sealing and a fog seal application with the addition of gravel shoulders is recommended for this section.

## TRAIL IMPROVEMENTS

- **CRACK TREATMENT AND FOG SEAL:** A portion of the trail within this section is in excellent condition. Approximately 4,313 feet of trail is recommended for sealing any cracks and applying a fog seal. In approximately 10 locations where crack treatment was applied and failed, Pavement Joint and Crack Repair (Detail 7) is recommended.
- **SIGNAGE REPLACEMENT:** In total, 8 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs. The addition of two curve warning signs is also recommended.
- **FENCING:** ROW fencing is in good condition. This estimate assumes 10% of ROW fencing needs to be fixed/replaced. Intermittent additional fencing within MDOT's ROW is in poor condition and should be replaced.

## INTERSECTION IMPROVEMENTS: ANN ARBOR TRAIL

- Install HAWK signal
- Upgrade ramps to meet current ADA standards
- Restripe/install pavement markings to meet current standards
- Replace/install signing as necessary (relocate wayfinding signs away from roadway)
- Install pedestrian lighting




## INTERSECTION IMPROVEMENTS: ANN ARBOR RD

- Upgrade ramps to meet current ADA standards
- Upgrade pedestrian signal heads with countdown indications
- Install pushbuttons at pedestrian signals
- Restripe/install pavement markings on trail and roadway as necessary to meet current standards
- Install pedestrian lighting

## BRIDGE IMPROVEMENTS

- There are no bridges or boardwalks in this section

## RECOMMENDATIONS LEGEND:

-  SEALCOAT PATH AND ADD 2' GRAVEL TO BOTH SIDES
-  POTENTIAL TRAILHEAD LOCATION
-  INTERSECTION IMPROVEMENTS



## CONNECTION OPPORTUNITIES

### HINES LAKEVIEW TRAILHEAD (existing): WAYNE COUNTY PARKS

- Existing gravel parking lot at Lakeview Drive/Hines Drive at intersection of Hines Trail and I-275 Metro Trail
- Collaborate with Wayne County Parks and Wayne County Roads to make improvements to trailhead to address drainage issues and sign as a formal trailhead, including I-275 Metro Trail signage and maps, benches, trash, etc.
- Construct connection from trail to Hines Drive for on-road cyclists to safely transition from road to trail

### ANN ARBOR ROAD TRAILHEAD (potential): PLYMOUTH TOWNSHIP

- SE corner of Ann Arbor Road/I-275 FWY at Shell Gas Station and Tubbys Sandwich Shop
- Collaborate with private property owner to expand parking lot to provide 5 to 6 parking spaces, signage, kiosk, bench, trash, etc.
- Construct short connection to I-275 Metro Trail

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	PAY ITEM	DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST	COMMENTS
8100404	Sign, Type IIIA		Sft	\$17.00	82	\$1,394.00	
8100405	Sign, Type IIIB		Sft	\$17.00	8	\$136.00	
8100371	Post, Steel, 3 lb		Ft	\$7.00	154	\$1,078.00	
8100403	Sign, Type III, Rem		Ea	\$12.00	9	\$108.00	
8080011	Fence, Chain Link, 48 inch		Ft	\$30.00	432	\$12,960.00	
2050016	Excavation, Earth		Cyd	\$13.00	400.00	\$5,200.00	
2050010	Embankment, CIP		Cyd	\$12.00	80.00	\$960.00	
3070128	Shld, Cl II, 6 inch		Syd	\$10.00	1917.00	\$19,170.00	
8167011	_	Turf Establishment, Performance	Syd	\$10.00	959.00	\$9,590.00	
2010001	Clearing		Acre	\$8,823.00	0.1	\$883.00	
2087051	_	Erosion Control	LSUM	\$49,000.00	1	\$49,000.00	
	_	Misc. Improvements	LSUM	\$20,000.00	1	\$20,000.00	
2090001	Project Cleanup		LSUM	\$252.00	1	\$252.00	0.25% of total - staking & mobil
8240001	Contractor Staking		LSUM	\$2,415.00	1	\$2,415.00	2% of total - mobil
1100001	Mobilization, Max		LSUM	\$12,315.00	1	\$12,315.00	10% of total - contingency/design
<b>Contingency + Design Fee (35%)</b>						<b>\$47,412.00</b>	
<b>Total</b>						<b>\$183,000.00</b>	<b>Rounded to nearest thousand</b>

# ANN ARBOR TRAIL INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
2040055	Sidewalk, Rem	9	Syd	\$12.00	\$108.00	
8032002	Curb Ramp, Conc, 6 inch	80	Sft	\$10.00	\$800.00	
8030030	Curb Ramp Opening, Conc	24	Ft	\$30.00	\$720.00	
8030010	Detectable Warning Surface	20	Ft	\$45.00	\$900.00	
3010002	Subbase, CIP	1	Cyd	\$20.00	\$20.00	
8100403	Sign, Type III, Rem	6	Ea	\$20.00	\$120.00	
8100404	Sign, Type IIIA	32.5	Sft	\$17.00	\$552.50	
8100371	Post, Steel, 3 lb	112	Ft	\$7.00	\$784.00	
8100405	Sign, Type IIIB	25	Sft	\$17.00	\$425.00	No Motor Vehicles, W11-1, AHEAD
8110343	Rem Spec Mrkg	326	Sft	\$3.00	\$978.00	
8110041	Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk	90	Ft	\$6.00	\$540.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	2	Ea	\$175.00	\$350.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	2	Ea	\$175.00	\$350.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	10	Ft	\$12.00	\$120.00	
8207050	_ HAWK Signal	1	LSUM	\$80,000.00	\$80,000.00	
8190270	Light Std Arm, 17 foot	2	Ea	\$2,000.00	\$4,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
8190279	Light Std Fdn	2	Ea	\$1,800.00	\$3,600.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	2	Ea	\$2,200.00	\$4,400.00	
8182309	Hh, Polymer Conc	2	Ea	\$1,000.00	\$2,000.00	
8187001	Cable	200	Ft	\$15.00	\$3,000.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
<b>Total for Ann Arbor Trail Crossing</b>					<b>\$106,767.50</b>	
<b>Design Fee + Contingency (35%)</b>					<b>\$37,368.63</b>	
<b>Total</b>					<b>\$144,136.13</b>	

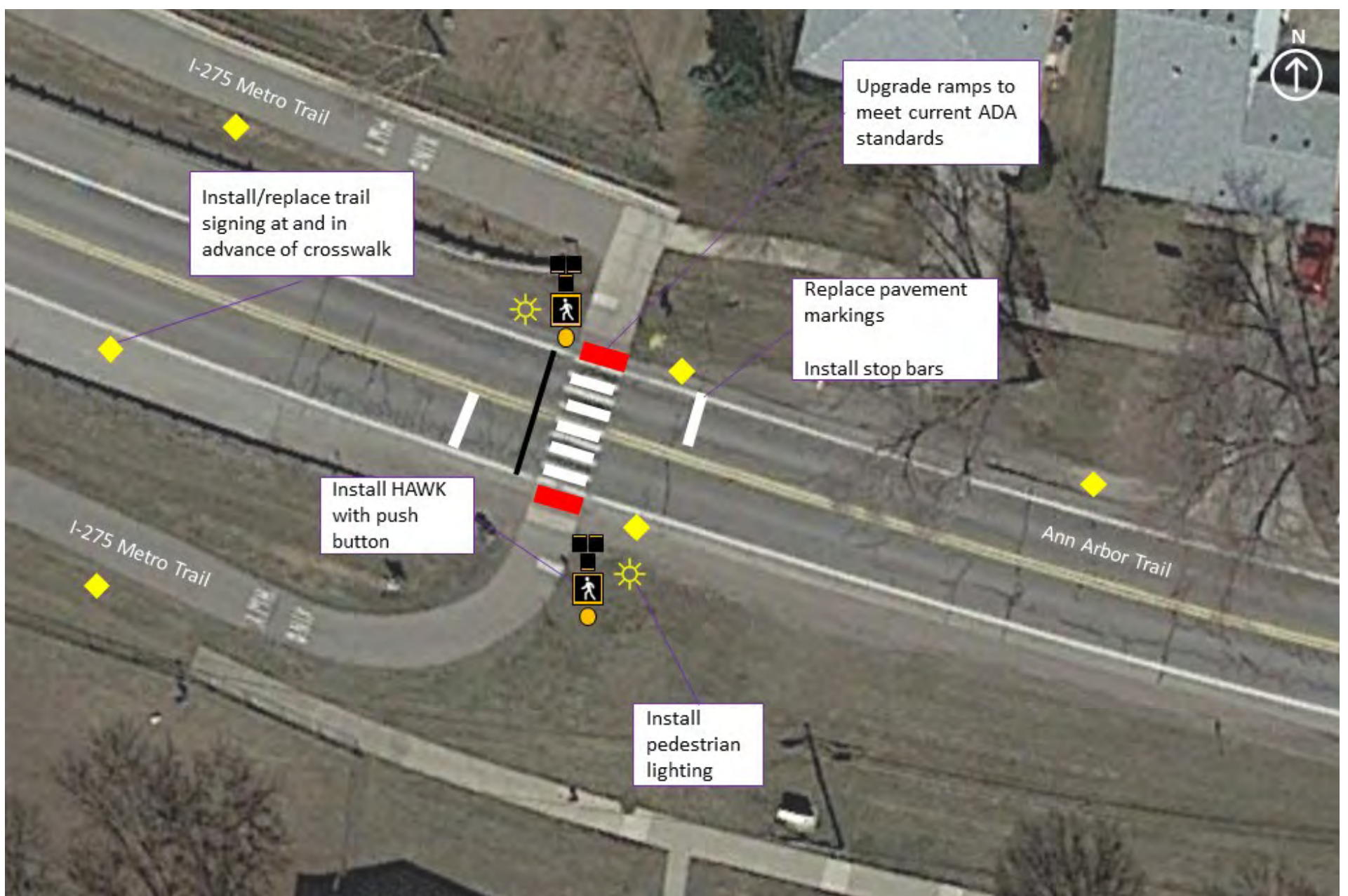


Figure 24: Proposed Ann Arbor Trail Intersection Improvements

# ANN ARBOR RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
	Signal Modernization	1	Ea	\$150,000.00	\$150,000.00	***
2040055	Sidewalk, Rem	42	Syd	\$12.00	\$504.00	
8032002	Curb Ramp, Conc, 6 inch	380	Sft	\$10.00	\$3,800.00	
8030030	Curb Ramp Opening, Conc	28	Ft	\$30.00	\$840.00	
8030010	Detectable Warning Surface	20	Ft	\$45.00	\$900.00	
2040020	Curb and Gutter, Rem	28	Ft	\$10.00	\$280.00	
3010002	Subbase, CIP	5	Cyd	\$20.00	\$100.00	
8100403	Sign, Type III, Rem	8	Ea	\$20.00	\$160.00	
8100404	Sign, Type IIIA	66	Sft	\$17.00	\$1,122.00	
8100371	Post, Steel, 3 lb	168	Ft	\$7.00	\$1,176.00	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	
8110343	Rem Spec Mrkg	324	Sft	\$3.00	\$972.00	Wayfinding signs, Bike Trail signs
8110024	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	175	Ft	\$3.00	\$525.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	2	Ea	\$175.00	\$350.00	No motor vehicles
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	2	Ea	\$175.00	\$350.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	10	Ft	\$12.00	\$120.00	
8200339	TS, Pedestrian, Two Way Bracket Arm Mtd (LED) Countdown	4	Ea	\$1,800.00	\$7,200.00	
8200180	TS, Pedestrian, Bracket Arm Mtd, Rem	4	Ea	\$200.00	\$800.00	
8200121	Pushbutton and Sign	4	Ea	\$600.00	\$2,400.00	
8190270	Light Std Arm, 17 foot	2	Ea	\$2,000.00	\$4,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
8190279	Light Std Fdn	2	Ea	\$1,800.00	\$3,600.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	2	Ea	\$2,200.00	\$4,400.00	
8182309	Hh, Polymer Conc	2	Ea	\$1,000.00	\$2,000.00	
8187001	Cable	500	Ft	\$15.00	\$7,500.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$68,682.25</b>	
<b>Total for Ann Arbor Road Crossing</b>					<b>\$264,917.25</b>	

\*\*\* Based on comments from Wayne County, additional costs for full traffic signal modernization was included at all county-owned intersections with diagonal spans where the plan proposes pedestrian countdown indications and pushbuttons, as the existing equipment cannot be modified to accommodate these improvements. As design survey is not available and the scope of work only includes conceptual estimates, an estimate of \$150,000 was applied to 10 locations with existing diagonal spans.

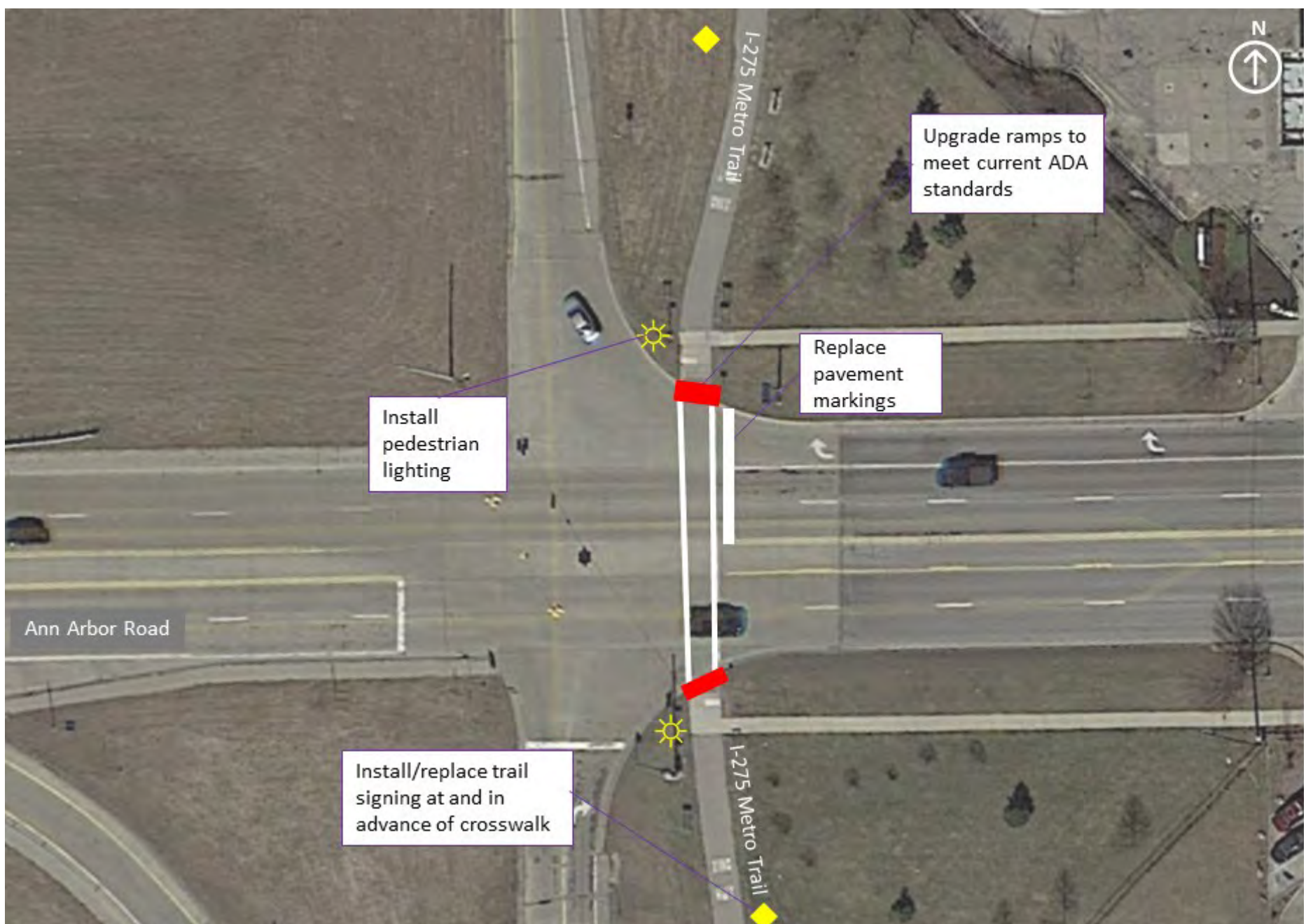


Figure 25: Proposed Ann Arbor Road Intersection Improvements

# ANN ARBOR RD - KOPPERNICK RD

The trail within this section is in excellent condition with varying widths of 10 to 11 feet. Crack sealing and a fog seal application with the addition of gravel shoulders is recommended for this section.

## TRAIL IMPROVEMENTS

- **CRACK TREATMENT AND FOG SEAL:** A portion of the trail within this section is in excellent condition. Approximately 7,509 feet of trail is recommended for sealing cracks and applying a fog seal.
- **SIGNAGE REPLACEMENT:** In total, 9 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **FENCING:** ROW fencing is in good condition. This estimate assumes 10% of ROW fencing needs to be fixed/replaced.
- **SOUND WALL:** A panel of the existing sound-break wall is broken and a potential hazard to trail users. This estimate includes repair of this wall.
- **DRAINAGE IMPROVEMENTS:** Various locations with culverts have sediment buildup. Various culverts are either being replaced or reconstructed as part of the I-275 project that is currently in construction (JN 111073A, CS 82291, 82292, 82293). One remaining culvert will need to be cleaned out and riprap placed at each end section. Erosion control measures will be required in this area and have been included in the cost estimate at \$5,000/mile.

## INTERSECTION IMPROVEMENTS: KOPPERNICK RD

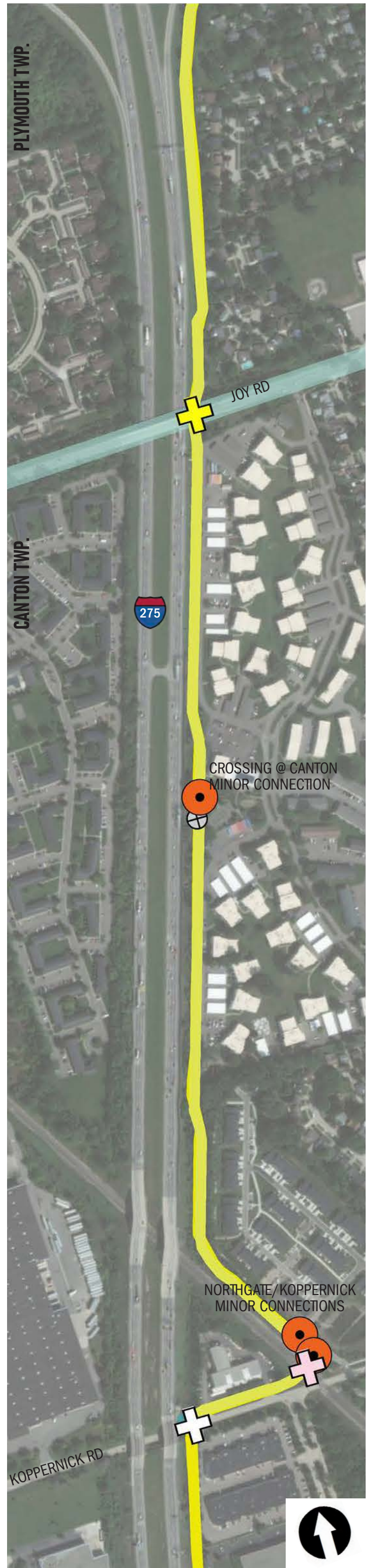
- Upgrade sidewalk ramps to meet current ADA standards
- Restripe pavement markings on trail and roadway to meet current standards (use high emphasis crosswalk markings)
- Clear brush to improve sight lines
- Relocate/install signs as necessary
- Install pedestrian lighting on the north side of the Koppernick Road crossing

## BRIDGE IMPROVEMENTS

- There are no bridges or boardwalks in this section

### RECOMMENDATIONS LEGEND:

-  CULVERT CLEANOUT
-  CRACK SEAL WITH 2' GRAVEL SHOULDER
-  POTENTIAL TRAILHEAD LOCATION
-  POTENTIAL MINOR CONNECTION
-  INTERSECTION IMPROVEMENTS
-  UNDERPASS IMPROVEMENTS
-  RAILROAD CROSSING



# CONNECTION OPPORTUNITIES

## CROSSING @ CANTON MINOR CONNECTION: CANTON TOWNSHIP

- Crossings at Canton is a large, newly renovated apartment complex south of Joy Road and adjacent to the I-275 Metro Trail. The complex includes a shared pool/clubhouse, tennis courts, etc. immediately adjacent to the trail. Coordination with this private property owner to construct a paved connection to/from the I-275 Metro Trail near these shared amenities is proposed.

## NORTHGATE/KOPPERNICK RD MINOR CONNECTIONS (2 CONNECTIONS): CANTON TOWNSHIP

- A concrete walk connection between the Northgate of Canton residential development and the I-275 Metro Trail should remain. A second connection, just south of the existing one, is suggested for a smooth transition between the trail and sidewalk along Koppernick Road. A desire line/goat trail observed at this location indicates high use.

# TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	PAY ITEM	DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST	COMMENTS
8100404	Sign, Type IIIA		Sft	\$17.00	64	\$1,088.00	
8100371	Post, Steel, 3 lb		Ft	\$7.00	112	\$784.00	
8100403	Sign, Type III, Rem		Ea	\$12.00	26	\$312.00	
8080011	Fence, Chain Link, 48 inch		Ft	\$30.00	751	\$22,530.00	
2050016	Excavation, Earth		Cyd	\$13.00	696.00	\$9,048.00	
2050010	Embankment, CIP		Cyd	\$12.00	140.00	\$1,680.00	
3070128	Shld, CI II, 6 inch		Syd	\$10.00	3338.00	\$33,380.00	
8167011	_	Turf Establishment, Performance	Syd	\$10.00	1669.00	\$16,690.00	
2010001	Clearing		Acre	\$8,823.00	0.1	\$883.00	
4017001	_	Culv Cleanout	Ft	\$15.00	30.0	\$450.00	
8130010	Riprap, Plain		Syd	\$65.00	15.0	\$975.00	
2087051	_	Erosion Control	LSUM	\$82,000.00	1	\$82,000.00	
	_	Noise Wall Replacement	LSUM	\$10,000.00	1	\$10,000.00	
2090001	Project Cleanup		LSUM	\$425.00	1	\$425.00	0.25% of total - staking & mobil
8240001	Contractor Staking		LSUM	\$3,605.00	1	\$3,605.00	2% of total - mobil
1100001	Mobilization, Max		LSUM	\$18,385.00	1	\$148,385.00	10% of total - contingency/design
<b>Contingency + Design Fee (35%)</b>						<b>\$70,783.00</b>	
<b>Total</b>						<b>\$274,000.00</b>	<b>Rounded to nearest thousand</b>

# KOPPERNICK RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
2040055	Sidewalk, Rem	18	Syd	\$12.00	\$216.00	
8032002	Curb Ramp, Conc, 6 inch	165	Sft	\$10.00	\$1,650.00	
8030030	Curb Ramp Opening, Conc	26	Ft	\$30.00	\$780.00	
8030010	Detectable Warning Surface	20	Ft	\$45.00	\$900.00	
2040020	Curb and Gutter, Rem	26	Ft	\$10.00	\$260.00	
3010002	Subbase, CIP	3	Cyd	\$20.00	\$60.00	
8100403	Sign, Type III, Rem	12	Ea	\$20.00	\$240.00	
8100404	Sign, Type IIIA	44.5	Sft	\$17.00	\$756.50	Stop signs, wayfinding, bike trail
8100371	Post, Steel, 3 lb	196	Ft	\$7.00	\$1,372.00	
8100405	Sign, Type IIIB	12	Sft	\$17.00	\$204.00	No Motor Vehicles, W2-1
8110343	Rem Spec Mrkg	340	Sft	\$3.00	\$1,020.00	
8110041	Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk	100	Ft	\$6.00	\$600.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	2	Ea	\$175.00	\$350.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	2	Ea	\$175.00	\$350.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	12	Ft	\$12.00	\$144.00	
2010001	Clearing	0.1	Ac	\$10,000.00	\$1,000.00	
8190270	Light Std Arm, 17 foot	2	Ea	\$2,000.00	\$4,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
8190279	Light Std Fdn	2	Ea	\$1,800.00	\$3,600.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	2	Ea	\$2,200.00	\$4,400.00	
8182309	Hh, Polymer Conc	2	Ea	\$1,000.00	\$2,000.00	
8187001	Cable	100	Ft	\$15.00	\$1,500.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dir	\$1.00	\$1,000.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$9,940.88</b>	
<b>Total for Koppernick Rd. Crossing</b>					<b>\$38,343.38</b>	

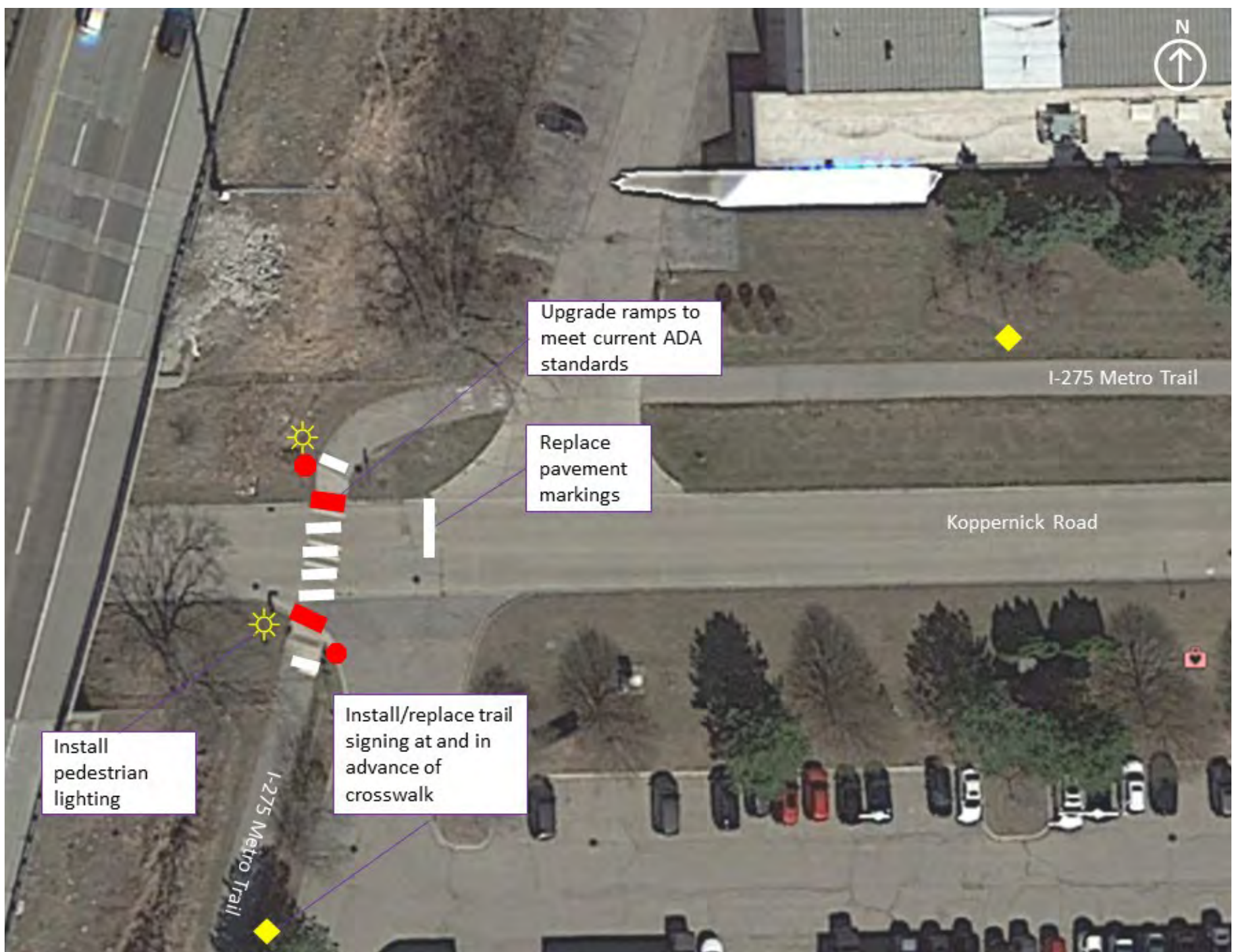


Figure 26: Proposed Koppernick Road Intersection Improvements

CANTON TWP.









# KOPPERNICK RD - FORD RD

This section of trail is in good or excellent condition. HMA overlay and pavement repairs can be used to extend the pavement life of the good condition pavement, and a fog seal can be applied to help maintain the excellent pavement condition for a longer period of time. In addition, 100 feet of ditch regrading and replacement of the culvert end section is recommended to fix the existing, buried culvert at GNS North America.

## TRAIL IMPROVEMENTS

- **FOG SEAL:** Approximately 4,990 feet of pavement in this section is in excellent condition. Applying a fog seal on top of the trail can delay deterioration and maintain its condition for a longer time.
- **HMA OVERLAY:** About 1,490 feet of trail at the north end of this section is in good condition. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented to prevent further deterioration.
- **FENCING:** A separate I-275 project is upgrading a portion of the right-of-way fencing in this section. This estimate assumes that 25% of fencing not assessed/replaced with the project will be replaced when this segment is selected for improvement.
- **SIGNAGE REPLACEMENT:** In total, 22 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **DRAINAGE IMPROVEMENTS:** The buried culvert at GNS North America should be fixed with 100 feet of ditch regrading, culvert cleanout, replacement of the end section, and the addition of riprap.
- **BOARDWALK IMPROVEMENTS:** Improvements to the boardwalk will include removal and replacement of any timber deck boards or any portion of the timber guardrail that require repair, replace any missing or deficient bolts or timber fasteners, power wash superstructure and substructure including deck and guardrail, and place a timber sealant along entire length of boardwalk. The boardwalk approaches should be hand patched to correct any horizontal or vertical gaps and provide a smooth transition from pavement to boardwalk. Each boardwalk was inspected visually along the superstructure, no substructure analysis is included within these improvements.

### RECOMMENDATIONS LEGEND:

-  SEALCOAT AND ADD 2' GRAVEL SHOULDER
-  NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
-  NO PROPOSED IMPROVEMENTS TO PATH, ADD SIGNAGE CLARIFYING ROUTE TO LOTZ RD. AS SHORT-TERM IMPROVEMENT UNTIL FORD ROAD CROSSING IMPROVEMENTS ARE COMPLETED
-  POTENTIAL TRAILHEAD LOCATION
-  INTERSECTION IMPROVEMENTS
-  UNDERPASS IMPROVEMENTS
-  BOARDWALK IMPROVEMENTS
-  BRIDGE IMPROVEMENTS



## INTERSECTION IMPROVEMENTS: FORD RD

### SHORT-TERM RECOMMENDATIONS:

- There is no signage to direct trail users to go east to Lotz Road for the trail crossing at the signal. Signs need to be added for use until this intersection is renovated/improved.

### LONG-TERM RECOMMENDATIONS:

- Relocate the I-275 Metro Trail crossing to the more direct and convenient route that most users currently take at the intersection of Ford Road and the northbound I-275 off ramp.
- Install a staggered crosswalk at the sidewalk connectors near the signalized northbound I-275 exit ramp. Reconstruct the median and sidewalk alignments with the existing trail. Verify the cone of vision distance for westbound traffic and the traffic signal before adjusting the stop bar location.
- Install sidewalk ramps and detectable warning surfaces that comply with current standards.
- Install pedestrian signals with countdown heads and pushbuttons on all sides of the crossing and median.
- Install pavement markings on roadway and trail with current standards, including relocation of the stop bar on westbound Ford Road at the signalized northbound I-275 exit ramp.
- Upgrade signing to include Crossing Road sign (W2-1).
- Install lighting on the north side of the Ford Road crossing.
- Consider adding a pushbutton-activated No Turn on Red disappearing legend case sign for the NB I-275 exit ramp.

## BRIDGE IMPROVEMENTS

- #11958 N01 82293-Tonquish Creek Bridge

## CONNECTION OPPORTUNITIES

### FORD ROAD TRAILHEAD (potential): CANTON TOWNSHIP

- NE corner of Ford Road/I-275 freeway off ramp at and/or near The Tile Shop/BJs shopping plaza
- Collaborate with private property owner(s) to designate existing or construct additional 5 to 10 parking spaces, signage, kiosk, bench, trash, etc.

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	PAY ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$14,200.00	\$14,200.00	
2050010	Embankment, CIP	42	Cyd	\$12.00	\$504.00	
2050016	Excavation, Earth	563	Cyd	\$13.00	\$7,319.00	
3070128	Shld, Cl II, 6 inch	2880	Syd	\$10.00	\$28,800.00	
4017001	Culv Cleanout	25	Ft	\$15.00	\$375.00	
4010012	Culv End Sect, 12 inch	1	Ea	\$600.00	\$600.00	
5010020	Pavt Joint and Crack Repr, Det 7	82	Ft	\$10.00	\$820.00	
5010025	Hand Patching	4	Ton	\$200.00	\$800.00	
5050015	Seal, Fog	6100	Syd	\$1.00	\$6,100.00	
7060220	Sealing Localized Cracks	1	LSUM	\$2,900.00	\$2,900.00	
7127051	Boardwalk Improvements	1	LSUM	\$12,200.00	\$12,200.00	
8060040	Shared use Trail, HMA	158	Ton	\$119.00	\$18,802.00	
8080011	Fence, Chain Link, 48 inch	1125	Ft	\$30.00	\$33,750.00	
8100371	Post, Steel, 3 lb	154	Ft	\$7.00	\$1,078.00	
8100403	Sign, Type III, Rem	22	Ea	\$12.00	\$264.00	
8100404	Sign, Type IIIA	50	Sft	\$17.00	\$850.00	
8100405	Sign, Type IIIB	24	Sft	\$17.00	\$408.00	
8130010	Riprap, Plain	10	Syd	\$65.00	\$650.00	
8167011	Turf Establishment, Performance	1607	Syd	\$10.00	\$16,070.00	
	Erosion Control	1	LSUM	\$6,000.00	\$6,000.00	
2090001	Project Cleanup	1	LSUM	\$400.00	\$400.00	
8240001	Contractor Staking	1	LSUM	\$2,800.00	\$2,800.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$54,492.00</b>	
<b>Total</b>					<b>\$210,182.00</b>	

## FORD RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
2040055	Sidewalk, Rem	32	Syd	\$12.00	\$384.00	
8032002	Curb Ramp, Conc, 6 inch	878	Sft	\$10.00	\$8,780.00	
8030030	Curb Ramp Opening, Conc	62	Ft	\$30.00	\$1,860.00	
8030010	Detectable Warning Surface	50	Ft	\$45.00	\$2,250.00	
2040020	Curb and Gutter, Rem	10	Ft	\$10.00	\$100.00	
3010002	Subbase, CIP	11	Cyd	\$20.00	\$220.00	
2040050	Pavt, Rem	62	Syd	\$15.00	\$930.00	
8100403	Sign, Type III, Rem	7	Ea	\$20.00	\$140.00	
8100404	Sign, Type IIIA	28	Sft	\$17.00	\$476.00	
8100371	Post, Steel, 3 lb	178	Ft	\$7.00	\$1,246.00	
8100405	Sign, Type IIIB	20.5	Sft	\$17.00	\$348.50	
8110343	Rem Spec Mrkg	67.5	Sft	\$3.00	\$202.50	
8110024	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	176	Ft	\$3.00	\$528.00	
8110041	Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk	67.5	Ft	\$6.00	\$405.00	
8120210	Pavt Mrkg, Longit, 6 inch or Less Width, Rem	50	Ft	\$1.00	\$50.00	
8190270	Light Std Arm, 17 foot	1	Ea	\$2,000.00	\$2,000.00	
8190330	Luminaire	1	Ea	\$1,000.00	\$1,000.00	
8182309	Hh, Polymer Conc	1	Ea	\$1,000.00	\$1,000.00	
8187001	Cable	200	Ft	\$15.00	\$3,000.00	
8200345	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	4	Ea	\$1,600.00	\$6,400.00	
8200121	Pushbutton and Sign	4	Ea	\$600.00	\$2,400.00	
8200100	Pedestal, Alum	4	Ea	\$900.00	\$3,600.00	
8200105	Pedestal, Fdn	4	Ea	\$950.00	\$3,800.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$14,392.00</b>	
<b>Total</b>					<b>\$55,512.00</b>	

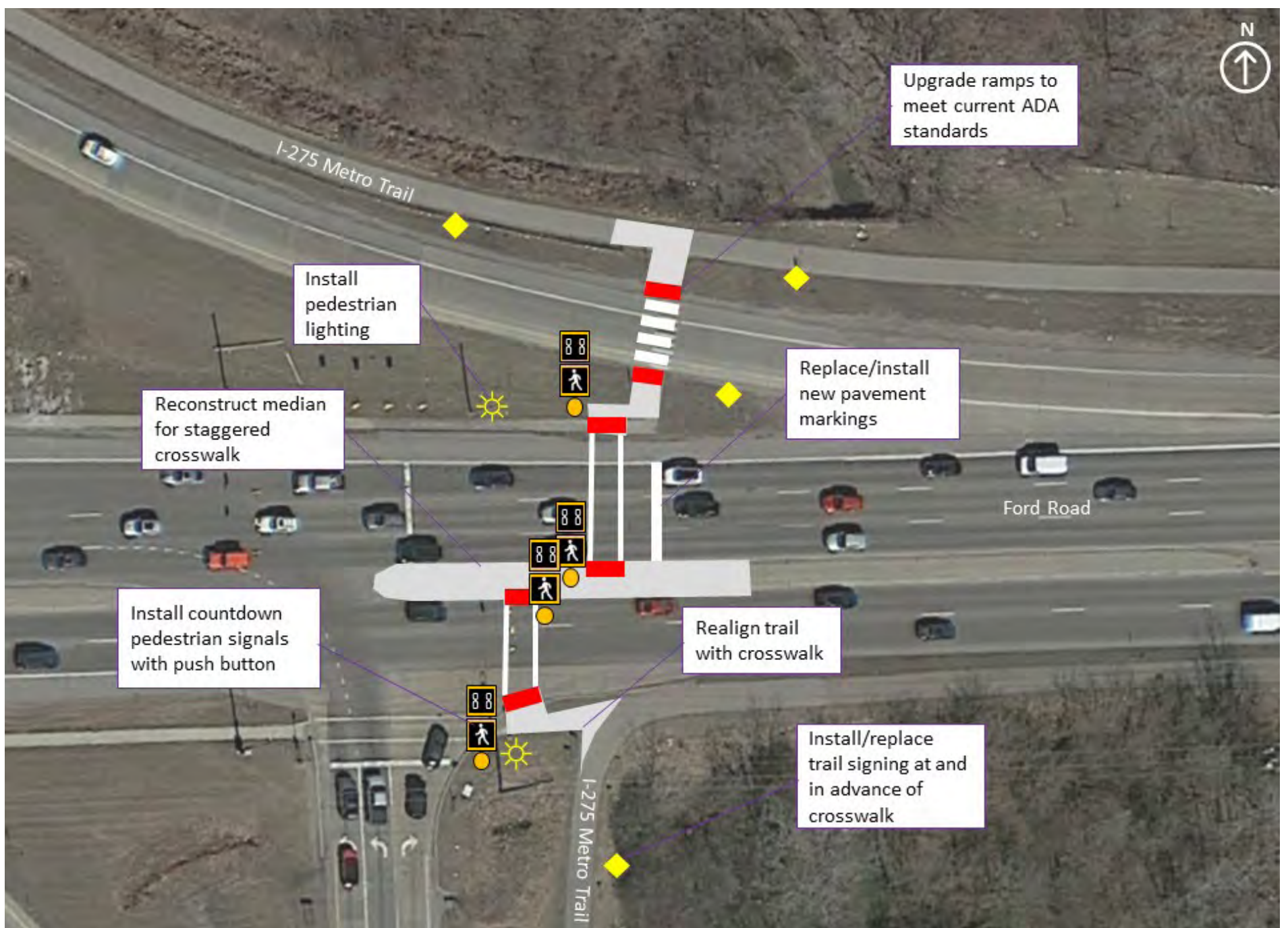


Figure 27: Proposed Ford Road Intersection Improvements

## #11958 N01 82293-TONQUISH CREEK BRIDGE IMPROVEMENT COSTS

Structure N01 of 82293 (#11958) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over Tonquish Drain in Canton Township. It is located 0.2 miles north of Warren Road. The bridge has an overall length of 65.5 feet, a clear width of 14.0 feet, and an overall width of 15.8 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams, channels and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two precast reinforced concrete abutments with 135-degree precast wingwalls on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$7,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent
- Replace wood handrail with composite deck board to avoid splinters
- Patch substructure concrete as directed by engineer (<1 cubic feet)

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N01 of 82293 MDOT #11958	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 15.8 ft overall width 65.5 ft length	Good	Capital Scheduled Maintenance (CSM)	\$7,000.00

# FORD RD – CHERRY HILL RD

This section of trail is in excellent condition. A fog seal can be applied to help maintain the pavement condition for a longer period of time. 175 feet of trail south of the NB I-275 off-ramp is recommended to be reconstructed and realigned with larger radii. Some clearing and tree removal should be completed just north of Cherry Hill Road to improve sight distance.

## TRAIL IMPROVEMENTS

- **FOG SEAL:** The pavement in this segment is in excellent condition. Applying a fog seal on top of the trail can delay deterioration and maintain its condition for a longer time.
- **RADIUS/HORIZONTAL CORRECTION:** 175 feet of trail is recommended for removal and reconstruction to increase the radii of the curves to 60 feet. This upgrade is optional as the existing curves meet the 27-foot minimum radius for slower speeds of 12 mph, but not the 60-foot radius for speeds of 18 mph that bikers would want to travel.
- **SIGHT DISTANCE CORRECTION:** Trees and brush currently block sight distance at the curve that is recommended for reconstruction. Some clearing and tree removal west of the trail just north of Cherry Hill Road would increase sight distance for trail users.
- **FENCING:** A separate I-275 project is upgrading the right-of-way fencing in this segment. This estimate assumes that 25% of fencing between the trail and the freeway will be replaced when this segment is selected for improvement.
- **SIGNAGE REPLACEMENT:** In total, 25 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **DRAINAGE IMPROVEMENTS:** No major drainage issues exist within this section, but two existing culverts should be cleaned out and riprap placed at each end section.




## INTERSECTION IMPROVEMENTS

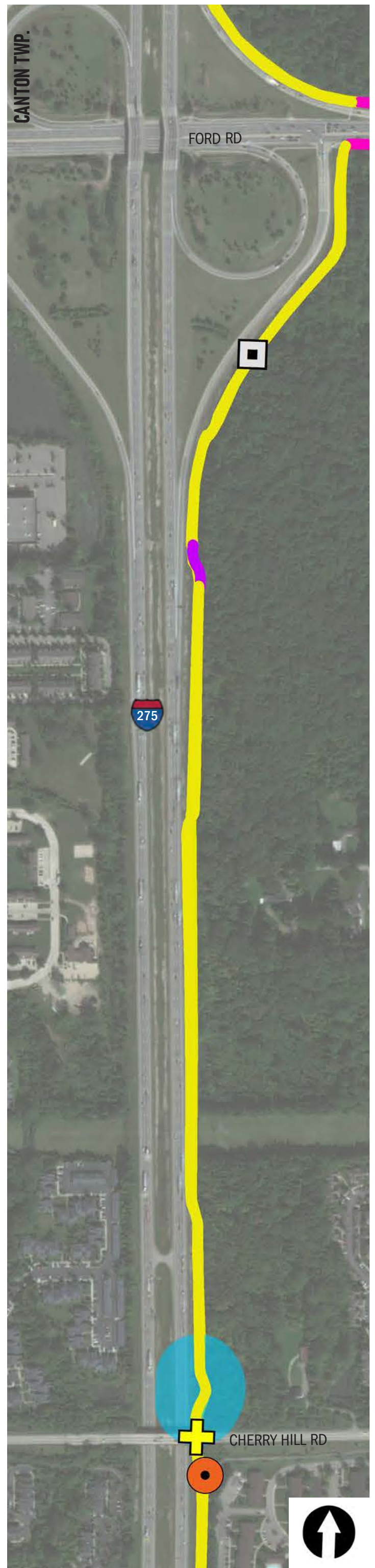
- There are no intersections in this section

## BRIDGE IMPROVEMENTS

- #11940 N09 82292-Smith Drain Bridge

## RECOMMENDATIONS LEGEND:

-  SEALCOAT AND ADD 2' GRAVEL SHOULDER
-  HORIZONTAL ALIGNMENT ADJUSTMENT
-  POTENTIAL MINOR CONNECTION
-  VEGETATION CLEARING
-  EXISTING UNDERPASS
-  BRIDGE IMPROVEMENTS



## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	PAY ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$9,000.00	\$9,000.00	
2010001	Clearing	0.1	Acre	\$8,823.00	\$882.30	
2050040	Subgrade Undercutting, Type I	6	Cyd	\$15.00	\$90.00	
2020004	Tree, Rem, 6 inch to 18 inch	2	Ea	\$450.00	\$900.00	
2050010	Embankment, CIP	70	Cyd	\$12.00	\$840.00	
2050016	Excavation, Earth	467	Cyd	\$13.00	\$6,071.00	
3020020	Aggregate Base, 8 inch	213	Syd	\$11.00	\$2,343.00	
3070128	Shld, Cl II, 6 inch	2406	Syd	\$10.00	\$24,060.00	
4017001	Culv Cleanout	50	Ft	\$15.00	\$750.00	
5010005	HMA Surface, Rem	194	Syd	\$7.00	\$1,358.00	
5050015	Seal, Fog	5821	Syd	\$1.00	\$5,821.00	
7060220	Sealing Localized Cracks	1	LSUM	\$2,800.00	\$2,800.00	
8060040	Shared use Trail, HMA	39	Ton	\$119.00	\$4,641.00	
8080011	Fence, Chain Link, 48 inch	500	Ft	\$30.00	\$15,000.00	
8100371	Post, Steel, 3 lb	182	Ft	\$7.00	\$1,274.00	
8100403	Sign, Type III, Rem	25	Ea	\$12.00	\$300.00	
8100404	Sign, Type IIIA	40	Sft	\$17.00	\$680.00	
8100405	Sign, Type IIIB	36	Sft	\$17.00	\$612.00	
8130010	Riprap, Plain	20	Syd	\$65.00	\$1,300.00	
8167011	Turf Establishment, Performance	1281	Syd	\$10.00	\$12,810.00	
	Erosion Control	1	LSUM	\$5,000.00	\$5,000.00	
2090001	Project Cleanup	1	LSUM	\$300.00	\$300.00	
8240001	Contractor Staking	1	LSUM	\$1,800.00	\$1,800.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$34,522.00</b>	
<b>Total</b>					<b>\$133,154.30</b>	

## #11940 N09 82292-SMITH DRAIN BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N09 of 82292 (#11940) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over the Smith Drain in Canton Township. It is located 0.2 miles south of M-153 (Ford Road). The bridge has an overall length of 52.5 feet, a clear width of 14.0 feet, and an overall width of 15.8 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams, channels and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two precast reinforced concrete abutments with 135-degree precast wingwalls on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$7,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent
- Replace wood handrail with composite deck board to avoid splinters
- Patch substructure concrete as directed by engineer (<1 cubic feet)

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N09 of 82292 MDOT #11940	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 15.8 ft overall width 52.5 ft length	Good	Capital Scheduled Maintenance (CSM)	\$7,000.00

# CHERRY HILL RD - PALMER RD

This section of trail is in excellent condition. A fog seal can be applied to help maintain the pavement condition for a longer period of time. 275 feet of trail, approximately 500 feet north of Palmer Road, is recommended to be reconstructed and realigned with larger radii. Some clearing and ditch regrading should be included. The concrete connection to the rest area should be removed, but the existing amenities at this location should be maintained. 200 feet of ditching should be regraded at the I-275 on-ramp from the rest area to fix ponding on the trail.








## TRAIL IMPROVEMENTS

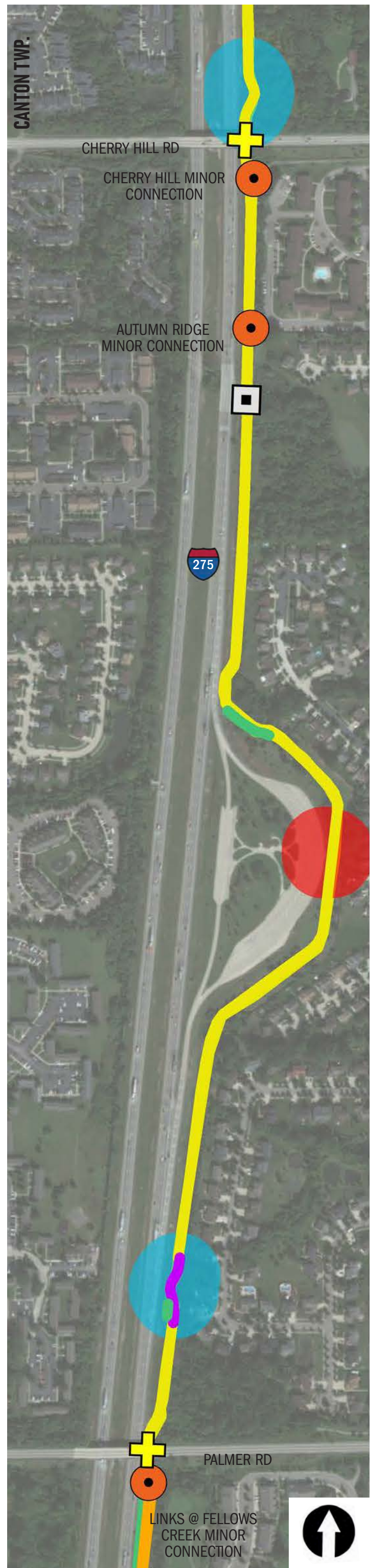
- **FOG SEAL:** The pavement in this section is in excellent condition. Applying a fog seal on top of the trail can delay deterioration and maintain its condition for a longer time.
- **RADIUS/HORIZONTAL CORRECTION:** 275 feet of trail is recommended for removal and reconstruction to increase the radii of the curves to 60 feet. This upgrade is optional as the existing curves meet the 27-foot minimum radius for slower speeds of 12 mph, but not the 60-foot radius for speeds of 18 mph that bikers would want to travel.
- **SIGHT DISTANCE CORRECTION:** Trees and brush currently block sight distance at the curve that is recommended for reconstruction. Some clearing east of the trail would increase sight distance for trail users.
- **FENCING:** A separate I-275 project is upgrading the right-of-way fencing in this segment. This estimate assumes that 25% of fencing between the trail and freeway will be replaced when this segment is selected for improvement.
- **SIGNAGE REPLACEMENT:** In total, 26 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs. The signage indicating the rest area is closed to the public should be maintained.
- **DRAINAGE IMPROVEMENTS:** 50 feet of ditch would need to be regraded at the segment of trail recommended for realignment. An additional 200 feet of ditch should be reconstructed at the I-275 on-ramp to address ponding on the trail. Six existing culverts should be cleaned out and riprap placed at each end section. Ditch cleanout for this segment has been included in a separate I-275 construction project. Ditch cleanout quantities have been included in case they become overgrown again, but this item may be deemed unnecessary at the time of construction.

## INTERSECTION IMPROVEMENTS

- There are no intersections in this section

### RECOMMENDATIONS LEGEND:

-  NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
-  PROPOSED DITCH RECONSTRUCT REQUIRED
-  HORIZONTAL ALIGNMENT ADJUSTMENT REQUIRED
-  VEGETATION REMOVAL
-  REMOVE EXISTING CONNECTION TO REST STOP
-  POTENTIAL MINOR CONNECTION
-  BRIDGE IMPROVEMENTS



## BRIDGE IMPROVEMENTS

#11932 N01 82292-Fellows Creek Bridge

## CONNECTION OPPORTUNITIES

### CHERRY HILL RD MINOR CONNECTION: CANTON TOWNSHIP

- A paved trail connection to the I-275 Metro Trail along the south side of Cherry Hill Road is recommended to remain.

### AUTUMN RIDGE MINOR CONNECTIONS (2 CONNECTIONS): CANTON TOWNSHIP

- Coordination with the private owner of the Autumn Ridge Apartments is proposed to construct a paved connection to/from the I-275 Metro Trail. An observed desire line indicates use.

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	PAY ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$9,400.00	\$9,400.00	
2010001	Clearing	0.1	Acre	\$8,823.00	\$882.30	
2040055	Sidewalk, Rem		Syd	\$15.00	\$-	
2020004	Tree, Rem, 6 inch to 18 inch	4	Ea	\$450.00	\$1,800.00	
2050006	Ditch Cleanout		Sta	\$600.00	\$-	
2050010	Embankment, CIP	114	Cyd	\$12.00	\$1,368.00	
2050016	Excavation, Earth	648	Cyd	\$13.00	\$8,424.00	
3010002	Subbase, CIP		Cyd	\$30.00	\$-	
3020020	Aggregate Base, 8 inch	337	Syd	\$11.00	\$3,707.00	
3070128	Shld, CI II, 6 inch	2486	Syd	\$10.00	\$24,860.00	
4017001	Culv Cleanout	150	Ft	\$15.00	\$2,250.00	
5010005	HMA Surface, Rem	360	Syd	\$7.00	\$2,520.00	
5050015	Seal, Fog	5910	Syd	\$1.00	\$5,910.00	
7060220	Sealing Localized Cracks	1	LSUM	\$2,800.00	\$2,800.00	
8030044	Sidewalk, Conc, 4 inch		Sft	\$7.00	\$-	
8060040	Shared use Trail, HMA	62	Ton	\$119.00	\$7,378.00	
8080011	Fence, Chain Link, 48 inch	30	Ft	\$30.00	\$900.00	
8100371	Post, Steel, 3 lb	196	Ft	\$7.00	\$1,372.00	
8100403	Sign, Type III, Rem	26	Ea	\$12.00	\$312.00	
8100404	Sign, Type IIIA	40	Sft	\$17.00	\$680.00	
8100405	Sign, Type IIIB	40	Sft	\$17.00	\$680.00	
8130010	Riprap, Plain	60	Syd	\$65.00	\$3,900.00	
8167011	Turf Establishment, Performance	1697	Syd	\$10.00	\$16,970.00	
	Erosion Control	1	LSUM	\$5,000.00	\$5,000.00	
2090001	Project Cleanup	1	LSUM	\$300.00	\$300.00	
8240001	Contractor Staking	1	LSUM	\$1,900.00	\$1,900.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$36,160.00</b>	
<b>Total</b>					<b>\$139,473.30</b>	

## #11932 N01 82292-FELLOWS CREEK BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N01 of 82292 (#11932) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over Fellows Creek in Canton Township. It is located 0.8 miles west of the City of Westland, approximately 0.2 miles south of Cherry Hill Road. The bridge has an overall length of 117.2 feet, a clear width of 14.0 feet, and an overall width of 15.8 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams, channels and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two precast reinforced concrete abutments with 135-degree precast wingwalls all on pile foundations.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$10,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent
- Replace wood handrail with composite deck board to avoid splinters

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N01 of 82292 MDOT #11932	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 15.8 ft overall width 117.2 ft length	Good	Capital Scheduled Maintenance (CSM)	\$10,000.00

# PALMER RD - MICHIGAN AVE (US-12)

This section of trail is in good condition. HMA overlay and pavement repairs can be used to extend the life of the good condition pavement. It is recommended to add amenities to the connection with the Lower Rouge Trail to improve the experience for trail users. The top of a culvert is exposed at the heavily used desire connection at the north end of this section. Embankment should be placed over this culvert to rebury it.

## TRAIL IMPROVEMENTS

- **HMA OVERLAY:** About 580 feet of the trail at the north end of this segment is in good condition. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented to prevent further deterioration.
- **SIGNAGE REPLACEMENT:** In total, 21 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs. Signs at the connection with the Lower Rouge Trail are included in the lump sum estimate for upgrading this connection.
- **FENCING:** A separate I-275 project is upgrading the right-of-way fencing in this segment. This estimate assumes that 25% of fencing between the trail and freeway will be replaced when this segment is selected for improvement.
- **DRAINAGE IMPROVEMENTS:** The existing two culverts are recommended for cleanout and riprap should be placed at the outlet end section. Ditch cleanout is currently marked to be completed with a separate I-275 construction project. Ditch cleanout quantities have been included in case they become overgrown again, but this item may be deemed unnecessary at the time of construction.
- **BOARDWALK REPLACEMENT:** The boardwalk that is attached at the North end of the bridge over the Lower Rouge River (#11933-N02 82292) has been hit by debris from the river that has crashed into the boardwalk. This caused some buckling along the edge of the bridge deck and along portion of the guardrail. We are recommending that the entire 108 LF of boardwalk be replaced to raise it above the floodway. Any boardwalk work at this location needs to be coordinated with any bridge improvements. This was a visual inspection of the superstructure and no structural analysis is included with this replacement.

## INTERSECTION IMPROVEMENTS

- There are no intersections in this section

### RECOMMENDATIONS LEGEND:

- █ SEALCOAT AND ADD 2' GRAVEL SHOULDER
- █ NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
- █ PROPOSED DITCH CLEANOUT REQUIRED
- POTENTIAL TRAILHEAD LOCATION
- POTENTIAL MINOR CONNECTION
- + INTERSECTION IMPROVEMENTS-SEE NEXT SECTION
- BRIDGE IMPROVEMENTS



## BRIDGE IMPROVEMENTS

- #11939-N08 82292-Wiles Drain Bridge
- #11933-N02 82292-Lower Rouge River Bridge

## CONNECTION OPPORTUNITIES

### LINKS @ FELLOWS CREEK MINOR CONNECTION: CANTON TOWNSHIP

- A paved connection just south of Palmer Road is proposed in/near the location of an existing mowed trail on the north side of the Links @ Fellow Creek residential development.

### LOWER ROUGE TRAILHEAD (potential): CANTON TOWNSHIP

- Northeast corner of Michigan Avenue/I-275 Freeway at Econo Lodge.
- Collaborate with private property owner(s) to designate existing parking spaces for trail users or construct additional 5 to 10 parking spaces, signage, kiosk, bench, trash, etc.
- Construct short connector trail from trailhead to I-275 Metro Trail.

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$25,900.00	\$25,900.00	
2050006	Ditch Cleanout	39	Sta	\$600.00	\$23,400.00	
2050010	Embankment, CIP	2	Cyd	\$12.00	\$24.00	
2050016	Excavation, Earth	371	Cyd	\$13.00	\$4,823.00	
3070128	Shld, CI II, 6 inch	2228	Syd	\$10.00	\$22,280.00	
4017001	Culv Cleanout	50	Ft	\$15.00	\$750.00	
5010020	Pavt Joint and Crack Repr, Det 7	251	Ft	\$10.00	\$2,510.00	
5010025	Hand Patching	13	Ton	\$200.00	\$2,600.00	
7127051	Boardwalk Replacement	1	LSUM	\$108,000.00	\$108,000.00	
8060040	Shared use Trail, HMA	483	Ton	\$119.00	\$57,477.00	
8080011	Fence, Chain Link, 48 inch	35	Ft	\$30.00	\$1,050.00	
8100371	Post, Steel, 3 lb	112	Ft	\$7.00	\$784.00	
8100403	Sign, Type III, Rem	21	Ea	\$12.00	\$252.00	
8100404	Sign, Type IIIA	40	Sft	\$17.00	\$680.00	
8100405	Sign, Type IIIB	16	Sft	\$17.00	\$272.00	
8130010	Riprap, Plain	20	Syd	\$65.00	\$1,300.00	
8157051	_ Connection Amenities	1	LSUM	\$10,000.00	\$10,000.00	
8167011	Turf Establishment, Performance	1125	Syd	\$10.00	\$11,250.00	
	Erosion Control	1	LSUM	\$5,000.00	\$5,000.00	
2090001	Project Cleanup	1	LSUM	\$700.00	\$700.00	
8240001	Contractor Staking	1	LSUM	\$5,100.00	\$5,100.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$99,454.00</b>	
<b>Total</b>					<b>\$383,606.00</b>	

## #11939-N08 82292-WILES DRAIN BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N08 of 82292 (#11939) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over Wiles Drain in Canton Township. It is located 0.5 miles north of US-12 (Michigan Ave). The bridge has an overall length of 52.5 feet, a clear width of 14.0 feet, and an overall width of 15.8 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams, channels and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two precast reinforced concrete abutments with 135-degree precast wingwalls on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$7,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat of concrete substructures with penetrating water repellent
- Replace wood handrail with composite deck board to avoid splinters
- Patch substructure concrete as directed by engineer (<1 cft)

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N08 of 82292 MDOT #11939	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 15.8 ft overall width 52.5 ft length	Good	Capital Scheduled Maintenance (CSM)	\$7,000.00

## #11933-N02 82292-LOWER ROUGE RIVER BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N02 of 82292 (#11933) is a single-span, prestressed concrete adjacent box beam bridge built in 2010 carrying the I-275 Metro Trail over the Lower Rouge River in Canton Township. It is located 2.5 miles west of the City of Wayne and 0.2 miles north of US-12 (Michigan Ave). The bridge has an overall length of 68.1 feet, a clear width of 15.3 feet and an overall width of 15.3 feet. This structure consists of 5-21-inch x 36-inch adjacent box beams with a 4-inch concrete deck reinforced with welded wire (W6xW6). The existing substructure consists of reinforced concrete abutments with pipe pile foundations and the widen substructure consists of reinforced concrete abutments with H-pile foundations.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$13,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Apply penetrating healer/sealer on bridge deck surface area
- Replace top board handrail with conventional treated deck boards to avoid splinters
- Patch substructure concrete as directed by engineer (<1 cft)

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N02 of 82292 MDOT #11933	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 15.8 ft overall width 68.1 ft length	Good	Capital Scheduled Maintenance (CSM)	\$13,000.00

# MICHIGAN AVE (US-12) - VAN BORN ROAD

The section of trail stretching between the boardwalk and Van Born Road is planned to be reconstructed with a separate I-275 project and has been excluded from this estimate. North of the boardwalk, the trail is in good or fair condition. HMA overlay and pavement repairs can be used to extend the life of the good condition pavement, while the pavement in fair condition is recommended for reconstruction.

## TRAIL IMPROVEMENTS

- **HMA OVERLAY:** About 580 feet of the trail at the north end of this section is in good condition. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented to prevent further deterioration.
- **HMA REMOVAL AND FULL RECONSTRUCTION:** Around 2,100 feet of trail is in fair condition. It is recommended that this length be completely reconstructed, rather than rehabilitating the pavement. The portion of trail south of the boardwalk is in fair or poor condition but is slated to be reconstructed during the I-275 reconstruction with Job #111073.
- **SIGNAGE REPLACEMENT:** In total, 16 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs, including the signs within the region being reconstructed with JN111073.
- **SUBGRADE UNDERCUTTING:** It is estimated that 10% of the area of reconstruction will require subgrade undercutting to properly rebuild the pavement when it is replaced.
- **DRAINAGE IMPROVEMENTS:** Storm sewer cleanout is recommended for two storm sewers and riprap should be placed at the outlet end section. The ponding and spillways depositing debris on the trail south of the boardwalk are set to be resolved with JN111073.
- **BOARDWALK IMPROVEMENTS:** Improvements to the boardwalk will include removal and replacement of any timber deck boards or any portion of the timber guardrail that require repair, replace any missing or deficient bolts or timber fasteners, power wash superstructure and substructure including deck and guardrail, and place a timber sealant along entire length of boardwalk. The boardwalk approaches should be hand patched to correct any horizontal or vertical gaps and provide a smooth transition from pavement to boardwalk. Each boardwalk was inspected visually along the superstructure, no substructure analysis is included within these improvements.

### RECOMMENDATIONS LEGEND:

- █ FULL RECONSTRUCTION REQUIRED
- █ NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
- █ PLANNED RECONSTRUCTION 2022-2024
- █ RAILROAD OVERPASS
- POTENTIAL TRAILHEAD
- POTENTIAL MINOR CONNECTION
- + INTERSECTION IMPROVEMENTS
- + EXISTING UNDERPASS
- BRIDGE
- BOARDWALK IMPROVEMENTS



## INTERSECTION IMPROVEMENTS: MICHIGAN AVE (US-12)

- Upgrade/install signing as necessary
- Install pedestrian lighting on both sides of Michigan Avenue and within the median
- New signals are being installed on westbound Michigan Avenue as part of the the I-275 reconstruction project and upgrades are being installed for the existing eastbound Michigan Avenue signals that include:
  - Upgraded sidewalk ramps that meet current ADA standards
  - Pedestrian signals with countdown heads and pushbuttons
  - Median reconstruction
  - Upgraded pavement markings on roadway and trail

## BRIDGE IMPROVEMENTS

- One bridge within this section is being improved as part of the segment planned for reconstruction in 2023-2024. In this segment, the trail is connected to the adjacent portion of the I-275 freeway structure. No bridges or boardwalks assessed as part of this project are in this section.

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$22,400.00	\$22,400.00	
2050010	Embankment, CIP	234	Cyd	\$12.00	\$2,808.00	
2050016	Excavation, Earth	992	Cyd	\$13.00	\$12,896.00	
2050040	Subgrade Undercutting, Type I	78	Cyd	\$15.00	\$1,170.00	
3020020	Aggregate Base, 8 inch	2573	Syd	\$11.00	\$28,303.00	
3070128	Shld, CI II, 6 inch	1194	Syd	\$10.00	\$11,940.00	
4027001	_ Storm Sewer Cleanout	50	Ft	\$80.00	\$4,000.00	
5010005	HMA Surface, Rem	2339	Syd	\$7.00	\$16,373.00	
5010020	Pavt Joint and Crack Repr, Det 7	29	Ft	\$10.00	\$290.00	
5010025	Hand Patching	1	Ton	\$200.00	\$200.00	
7127051	Boardwalk Improvements	1	LSUM	\$57,200.00	\$57,200.00	
8060040	Shared use Trail, HMA	529	Ton	\$119.00	\$62,951.00	
8100371	Post, Steel, 3 lb	70	Ft	\$7.00	\$490.00	
8100403	Sign, Type III, Rem	16	Ea	\$12.00	\$192.00	
8100404	Sign, Type IIIA	40	Sft	\$17.00	\$680.00	
8100405	Sign, Type IIIB	5	Sft	\$17.00	\$85.00	
8130010	Riprap, Plain	20	Syd	\$65.00	\$1,300.00	
8167011	Turf Establishment, Performance	1532	Syd	\$10.00	\$15,320.00	
	Erosion Control	1	LSUM	\$2,500.00	\$2,500.00	
2090001	Project Cleanup	1	LSUM	\$600.00	\$600.00	
8240001	Contractor Staking	1	LSUM	\$4,400.00	\$4,400.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$86,135.00</b>	
<b>Total</b>					<b>\$332,233.00</b>	

## US-12 INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
2040055	Sidewalk, Rem	70	Syd	\$12.00	\$840.00	
8032002	Curb Ramp, Conc, 6 inch	628	Sft	\$10.00	\$6,280.00	
8030030	Curb Ramp Opening, Conc	48	Ft	\$30.00	\$1,440.00	
8030010	Detectable Warning Surface	40	Ft	\$45.00	\$1,800.00	
2040020	Curb and Gutter, Rem	48	Ft	\$10.00	\$480.00	
3010002	Subbase, CIP	9	Cyd	\$20.00	\$180.00	
8100403	Sign, Type III, Rem	8	Ea	\$20.00	\$160.00	
8100404	Sign, Type IIIA	78.5	Sft	\$17.00	\$1,334.50	stop signs, guide signs, bike trail signs
8100371	Post, Steel, 3 lb	218	Ft	\$7.00	\$1,526.00	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	No Motor Vehicles
8110343	Rem Spec Mrkg	336	Sft	\$3.00	\$1,008.00	
8110024	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	200	Ft	\$3.00	\$600.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	2	Ea	\$175.00	\$350.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	2	Ea	\$175.00	\$350.00	
8200181	TS, Pedestrian, Pedestal Mtd, Rem	2	Ea	\$200.00	\$400.00	
8200345	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	2	Ea	\$1,600.00	\$3,200.00	
8190270	Light Std Arm, 17 foot	4	Ea	\$2,000.00	\$8,000.00	
8190330	Luminaire	4	Ea	\$1,000.00	\$4,000.00	
8190279	Light Std Fdn	4	Ea	\$1,800.00	\$7,200.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	4	Ea	\$2,200.00	\$8,800.00	
8182309	Hh, Polymer Conc	4	Ea	\$1,000.00	\$4,000.00	
8187001	Cable	300	Ft	\$15.00	\$4,500.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
Design Fee + Contingency (35%)					\$20,154.58	
Total for Michigan Ave Crossing					\$77,739.08	



Figure 28: Proposed Michigan Avenue (US-12) Intersection Improvements








# VAN BORN RD - ECORSE RD

The trail in this section is predominantly in good or fair condition. HMA overlay and pavement repairs can be used to extend the life of the good condition pavement, while sections in fair condition are recommended for reconstruction and raising to fix ponding issues. The ditch between the trail and Van Born Road should be regraded to promote drainage and keep debris from flooding onto the trail. 250 square feet of sidewalk at the east side of Van Born Road that connects to the trail should be reconstructed, and a ditch with a culvert should be constructed on the south side of this connection.

## TRAIL IMPROVEMENTS

- **HMA OVERLAY:** About 3,850 feet of the trail within this section is in good condition. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented to prevent further deterioration.
- **HMA REMOVAL AND FULL RECONSTRUCTION:** Around 1,900 feet of trail is in fair condition. It is recommended that this length be completely reconstructed, rather than rehabilitating the pavement. Additionally, observed ponding on the trail likely contributed to the damaged pavement. This should be fixed by raising the profile of the trail when it is reconstructed.
- **SIDEWALK REMOVAL AND RECONSTRUCTION:** 250 square feet of sidewalk connecting to the bike trail at Van Born Road is in very poor condition. This sidewalk should be reconstructed along with drainage improvements to make that direction of travel more accessible.
- **SIGNAGE REPLACEMENT:** In total, 21 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **SUBGRADE UNDERCUTTING:** It is estimated that 10% of the area of reconstruction will require subgrade undercutting to properly rebuild the pavement when it is replaced.
- **DRAINAGE IMPROVEMENTS:** Three existing culverts should be cleaned out and riprap placed at each end section. 280 feet of ditch should be regraded between the sidewalk and Van Born Road, and 80 feet of ditch should be constructed with a culvert under the sidewalk running east of the bike trail at Van Born Road. Ditch cleanout and fence replacement were previously completed by a separate I-275 construction project. Ditch cleanout quantities have been included in case they become overgrown again, but this item may be deemed unnecessary at the time of construction.

### RECOMMENDATIONS LEGEND:

- █ FULL RECONSTRUCTION REQUIRED
- █ NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
- █ DITCH NEEDED
-  PROPOSED CULVERT
-  CULVERT CLEANOUT
-  POTENTIAL TRAILHEAD
-  POTENTIAL MINOR CONNECTION
-  INTERSECTION IMPROVEMENTS
-  UNDERPASS
-  BRIDGE IMPROVEMENTS



## INTERSECTION IMPROVEMENTS: VAN BORN RD

- Install a HAWK signal after verifying sight distance from overpass is adequate
- Upgrade sidewalk ramps to meet current ADA standards
- Address drainage issues
- Upgrade/install signing as necessary
- Install pedestrian lighting on both sides of the Van Born Road crossing
- Clear brush

## INTERSECTION IMPROVEMENTS: ECORSE RD

- Upgrade pavement markings on trail and roadway to meet current standards
- Upgrade/install signing as necessary
- Install pedestrian lighting on both sides of the Ecorse Road crossing
- New signals have recently been installed on Ecorse Road as part of the I-275 reconstruction project. These upgrades include:
  - Upgraded sidewalk ramps that meet current ADA standards
  - Upgraded pedestrian signals with countdown head indications

## BRIDGE IMPROVEMENTS

- #11938-N07 82292-Bell Drain Bridge
- #11937-N06 82292-Mcclaughrey Drain Bridge

## CONNECTION OPPORTUNITIES

### ECORSE TRAILHEAD (potential): VAN BUREN TOWNSHIP

- NE corner of Haggerty Road/Ecorse Road at BP Gas/Burger King
- Collaborate with private property owner to designate 5 to 10 parking spaces, signage, kiosk, bench, trash, etc.

### INDUSTRIAL AREA MINOR CONNECTION: VAN BUREN TOWNSHIP

- A paved connection is proposed alongside an industrial property in/near the location of an existing mowed trail portion where the fence has been peeled back.
- Collaborate with private property owner(s) to retain and formalize the connection by constructing additional sidewalk.

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$28,400.00	\$28,400.00	
2030001	Culv, Rem, Less than 24 inch	1	Ea	\$600.00	\$600.00	
2040055	Sidewalk, Rem	28	Syd	\$15.00	\$420.00	
2050040	Subgrade Undercutting, Type I	77	Cyd	\$15.00	\$1,155.00	
2050006	Ditch Cleanout	58	Sta	\$600.00	\$34,800.00	
2050010	Embankment, CIP	326	Cyd	\$12.00	\$3,912.00	
2050016	Excavation, Earth	1281	Cyd	\$13.00	\$16,653.00	
3010002	Subbase, CIP	4	Cyd	\$30.00	\$120.00	
3020020	Aggregate Base, 8 inch	2528	Syd	\$11.00	\$27,808.00	
3070128	Shld, Cl II, 6 inch	2636	Syd	\$10.00	\$26,360.00	
4010012	Culv End Sect, 12 inch	2	Ea	\$600.00	\$1,200.00	
4010539	Culv, Cl E, 12 inch	15	Ft	\$66.00	\$990.00	
4017001	Culv Cleanout	75	Ft	\$15.00	\$1,125.00	
5010005	HMA Surface, Rem	2317	Syd	\$7.00	\$16,219.00	
5010020	Pavt Joint and Crack Repr, Det 7	211	Ft	\$10.00	\$2,110.00	
5010025	Hand Patching	11	Ton	\$200.00	\$2,200.00	
8030044	Sidewalk, Conc, 4 inch	250	Sft	\$7.00	\$1,750.00	
8060040	Shared use Trail, HMA	875	Ton	\$119.00	\$104,125.00	
8100371	Post, Steel, 3 lb	142	Ft	\$7.00	\$994.00	
8100403	Sign, Type III, Rem	21	Ea	\$12.00	\$252.00	
8100404	Sign, Type IIIA	56	Sft	\$17.00	\$952.00	
8100405	Sign, Type IIIB	16	Sft	\$17.00	\$272.00	
8130010	Riprap, Plain	40	Syd	\$65.00	\$2,600.00	
8167011	Turf Establishment, Performance	2518	Syd	\$10.00	\$25,180.00	
	Erosion Control	1	LSUM	\$5,500.00	\$5,500.00	
2090001	Project Cleanup	1	LSUM	\$700.00	\$700.00	
8240001	Contractor Staking	1	LSUM	\$5,600.00	\$5,600.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$109,199.00</b>	
<b>Total</b>					<b>\$421,196.00</b>	

# VAN BORN RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
2040055	Sidewalk, Rem	44	Syd	\$12.00	\$528.00	
8032002	Curb Ramp, Conc, 6 inch	400	Sft	\$10.00	\$4,000.00	
8030030	Curb Ramp Opening, Conc	20	Ft	\$30.00	\$600.00	
8030010	Detectable Warning Surface	16	Ft	\$45.00	\$720.00	
3010002	Subbase, CIP	5	Cyd	\$20.00	\$100.00	
2010001	Clearing	0.1	Ac	\$10,000.00	\$1,000.00	
8100403	Sign, Type III, Rem	8	Ea	\$20.00	\$160.00	
8100404	Sign, Type IIIA	32.5	Sft	\$17.00	\$552.50	
8100371	Post, Steel, 3 lb	216	Ft	\$7.00	\$1,512.00	
8100405	Sign, Type IIIB	20	Sft	\$17.00	\$340.00	
8110041	Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk	80	Ft	\$6.00	\$480.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	24	Ft	\$12.00	\$288.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	1	Ea	\$175.00	\$175.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	1	Ea	\$175.00	\$175.00	
2050016	Excavation, Earth	12	Cyd	\$15.00	\$180.00	Fixing culverts for drainage
4010576	Culv, Cl E, Conc, 24 inch	100	Ft	\$100.00	\$10,000.00	
4010051	Culv End Sect, Conc, 24 inch	2	Ea	\$900.00	\$1,800.00	
2030002	Culv, Rem, 24 inch to 48 inch	1	Ea	\$1,000.00	\$1,000.00	
8190270	Light Std Arm, 17 foot	2	Ea	\$2,000.00	\$4,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
8190279	Light Std Fdn	2	Ea	\$1,800.00	\$3,600.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	2	Ea	\$2,200.00	\$4,400.00	
8182309	Hh, Polymer Conc	2	Ea	\$1,000.00	\$2,000.00	
8187001	Cable	100	Ft	\$15.00	\$1,500.00	
8207050	_ HAWK Signal	1	LSUM	\$80,000.00	\$80,000.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
<b>Total for Van Born Road Crossing</b>					<b>\$122,110.50</b>	
<b>Design Fee + Contingency (35%)</b>					<b>\$42,738.68</b>	
<b>Total</b>					<b>\$164,849.18</b>	

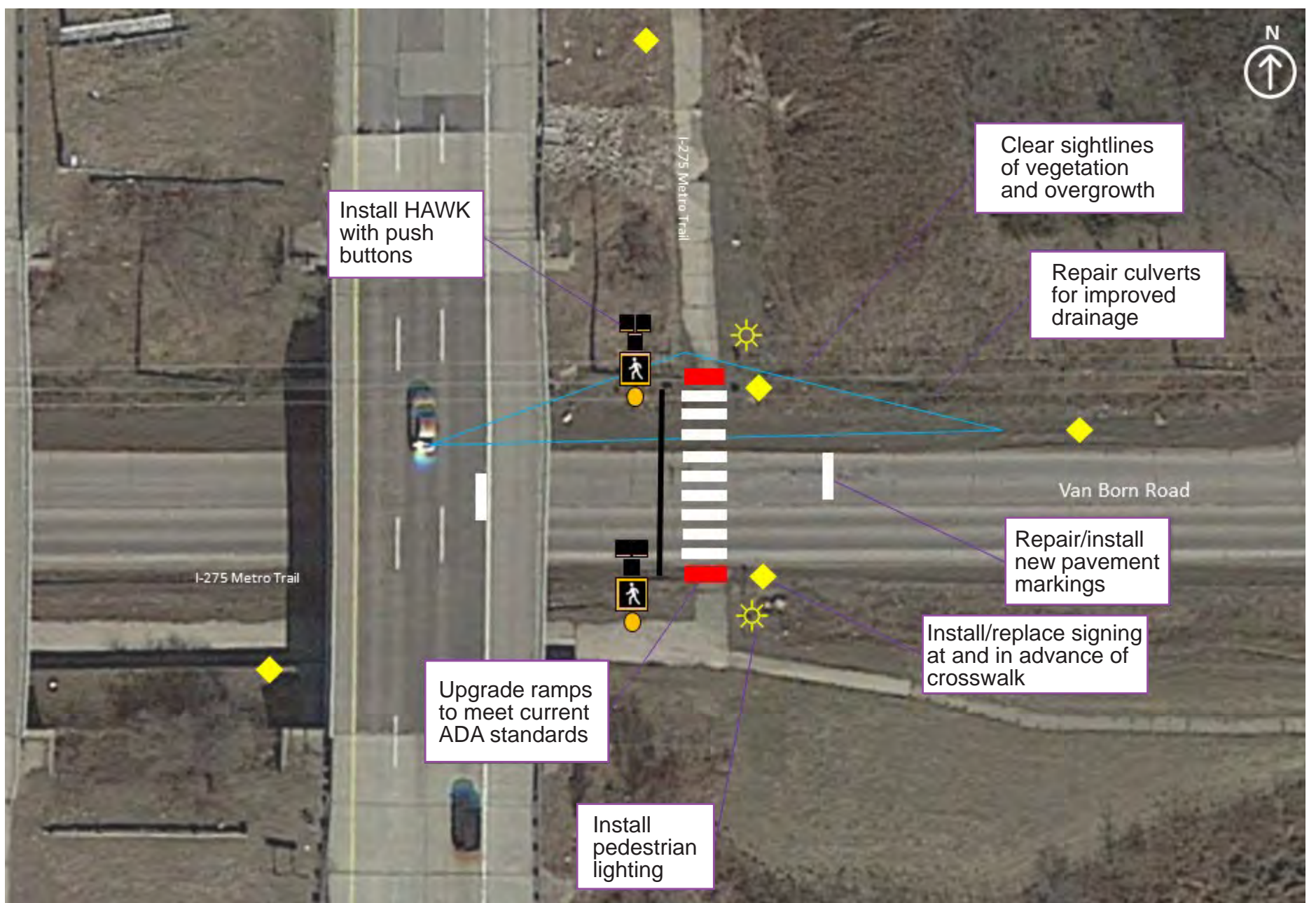


Figure 29: Proposed Van Born Road Intersection Improvements

# ECORSE RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
2040055	Sidewalk, Rem	2	Syd	\$12.00	\$24.00	
8032002	Curb Ramp, Conc, 6 inch	170	Sft	\$10.00	\$1,700.00	
8030030	Curb Ramp Opening, Conc	24	Ft	\$30.00	\$720.00	
8030010	Detectable Warning Surface	20	Ft	\$45.00	\$900.00	
2040020	Curb and Gutter, Rem	24	Ft	\$10.00	\$240.00	
3010002	Subbase, CIP	3	Cyd	\$20.00	\$60.00	
8100403	Sign, Type III, Rem	8	Ea	\$20.00	\$160.00	
8100404	Sign, Type IIIA	31	Sft	\$17.00	\$527.00	
8100371	Post, Steel, 3 lb	144	Ft	\$7.00	\$1,008.00	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	
8110343	Rem Spec Mrkg	315	Sft	\$3.00	\$945.00	
8110024	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	150	Ft	\$3.00	\$450.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	6	Ft	\$12.00	\$72.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	2	Ea	\$175.00	\$350.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	2	Ea	\$175.00	\$350.00	
8190270	Light Std Arm, 17 foot	2	Ea	\$2,000.00	\$4,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
8190279	Light Std Fdn	2	Ea	\$1,800.00	\$3,600.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	2	Ea	\$2,200.00	\$4,400.00	
8182309	Hh, Polymer Conc	2	Ea	\$1,000.00	\$2,000.00	
8187001	Cable	150	Ft	\$15.00	\$2,250.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$9,412.20</b>	
<b>Total for Ecorse Road Crossing</b>					<b>\$36,304.20</b>	

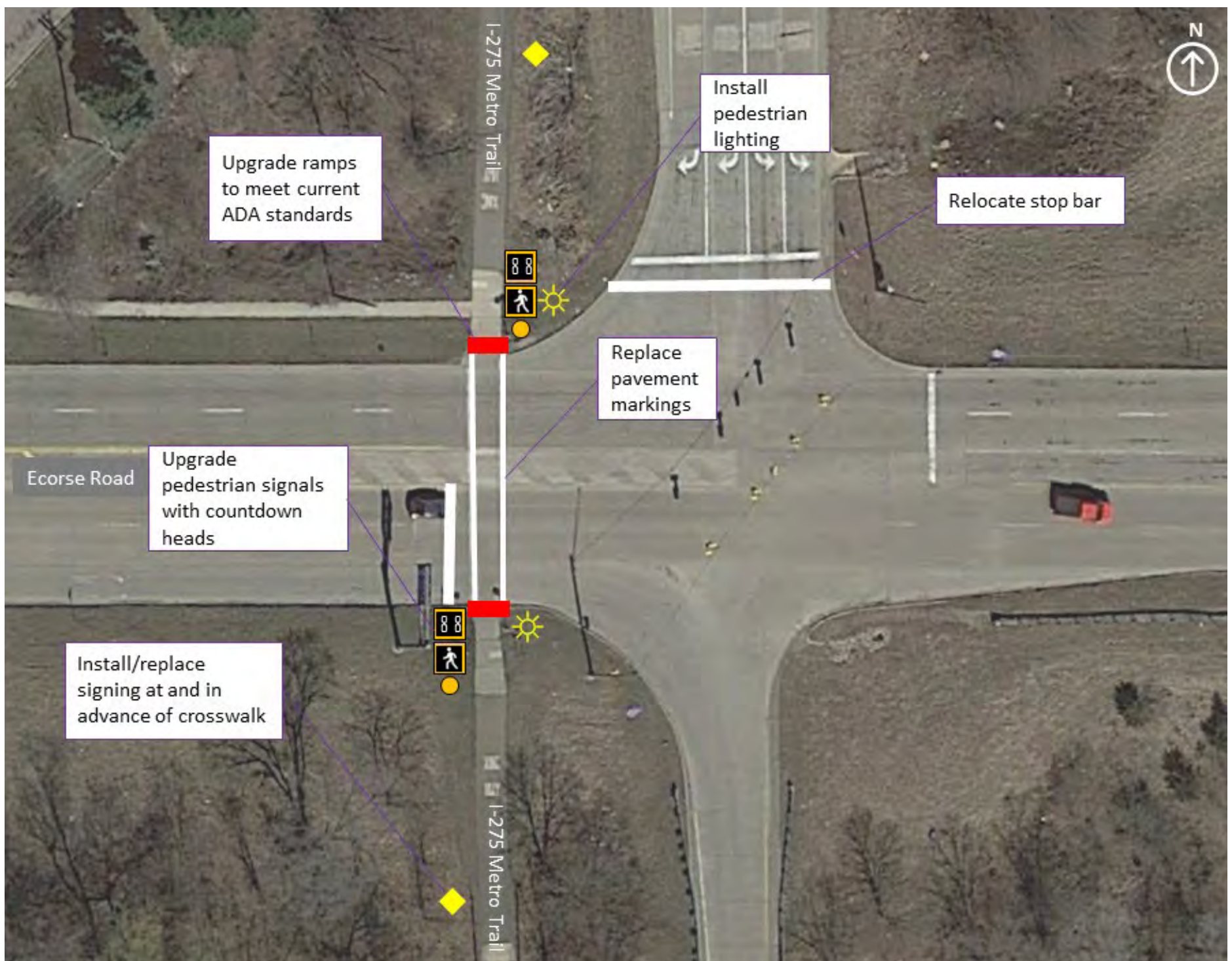


Figure 30: Proposed Ecorse Road Intersection Improvements

## #11938-N07 82292-BELL DRAIN BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N07 of 82292 (#11938) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over Bell Drain in Van Buren Charter Township. It is located approximately 0.5 miles north of Ecorse Road. The bridge has an overall length of 40.0 feet, a clear width of 14.0 feet, and an overall width of 14.6 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$3,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N07 of 82292 MDOT #11938	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.6 ft overall width 40.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$3,000.00

## #11937-N06 82292-MCCLAUGHREY DRAIN BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N06 of 82292 (#11937) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over McClaughrey Drain in Van Buren Charter Township. It is located approximately 0.1 mile south of Ecorse Road. The bridge has an overall length of 60.0 feet, a clear width of 14.0 feet, and an overall width of 14.6 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$4,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N06 of 82292 MDOT #11937	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.6 ft overall width 60.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$4,000.00

# ECORSE RD - TYLER RD

The trail in this section ranges in condition from fair to excellent, so recommendations include some reconstruction and some rehabilitation. HMA overlay and pavement repairs can be used to extend the life of the good condition pavement, and a fog seal can be applied to help maintain excellent pavement. Sections in fair condition are recommended for reconstruction. As the bike trail lies slightly inside the clearzone of southbound I-275 at Tyler Road, guardrail should be added between the trail and freeway. Connecting to the existing sidewalk 1,100 feet west of the trail at Tyler Road could increase trail usage, but this recommendation has been excluded from the estimate as it would likely not be an MDOT project.

## TRAIL IMPROVEMENTS

- **FOG SEAL:** Approximately 2,450 feet of trail is in excellent condition in this section. Applying a fog seal on top of the trail can delay deterioration and keep the maintain its condition for a longer time.
- **HMA OVERLAY:** About 1,950 feet of trail within this section is in good condition. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented to prevent further deterioration.
- **HMA REMOVAL AND FULL RECONSTRUCTION:** Around 850 feet of trail is in fair condition. It is recommended that this length be completely reconstructed, rather than rehabilitating the pavement.
- **GUARDRAIL ADDITION:** The trail falls slightly within the clearzone of southbound I-275 at Tyler Road. For the safety of trail users, guardrail should be added between the trail and freeway in this area.
- **SIGNAGE REPLACEMENT:** In total, 19 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **SUBGRADE UNDERCUTTING:** It is estimated that 10% of the area of reconstruction will require subgrade undercutting to properly rebuild the pavement when it is replaced.
- **DRAINAGE IMPROVEMENTS:** One existing culvert should be cleaned out and riprap placed at each end section. Ditch cleanout and fence replacement were previously completed with a separate I-275 construction project. Ditch cleanout quantities have been included in case they become overgrown again, but this item may be deemed unnecessary at the time of construction.

## INTERSECTION IMPROVEMENTS

- There are no intersections located within this section

## BRIDGE IMPROVEMENTS

- #11936-N05 82292-Drainage Ditch Bridge

### RECOMMENDATIONS LEGEND:

- FULL RECONSTRUCTION REQUIRED
- NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
- SEALCOAT, ADD 2' GRAVEL SHOULDER
- DITCH CLEANOUT
- ⊗ CULVERT CLEANOUT
- POTENTIAL TRAILHEAD
- ⊕ UNDERPASS IMPROVEMENTS
- BRIDGE IMPROVEMENTS



# CONNECTION OPPORTUNITIES

## WAYNE COUNTY COMMUNITY COLLEGE TRAILHEAD (potential): VAN BUREN TOWNSHIP

- South of Tyler Road, Wayne County Community College has expressed interest in providing a formal connection to the I-275 Metro Trail
- Collaborate to determine ideal location on campus to designate 5 to 10 parking spaces, signage, kiosk, bench, trash, etc.
- Construct connector trail segment from trailhead to I-275 Metro Trail

# TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$17,300.00	\$17,300.00	
2050040	Subgrade Undercutting, Type I	36	Cyd	\$15.00	\$540.00	
2050006	Ditch Cleanout	47	Sta	\$600.00	\$28,200.00	
2050010	Embankment, CIP	94	Cyd	\$12.00	\$1,128.00	
2050016	Excavation, Earth	740	Cyd	\$13.00	\$9,620.00	
5010020	Pavt Joint and Crack Repr, Det 7	103	Ft	\$10.00	\$1,030.00	
5010025	Hand Patching	5	Ton	\$200.00	\$1,000.00	
3020020	Aggregate Base, 8 inch	1178	Syd	\$11.00	\$12,958.00	
3070128	Shld, Cl II, 6 inch	2347	Syd	\$10.00	\$23,470.00	
4017001	Culv Cleanout	25	Ft	\$15.00	\$375.00	
5010005	HMA Surface, Rem	1080	Syd	\$7.00	\$7,560.00	
5050015	Seal, Fog	2996	Syd	\$1.00	\$2,996.00	
7060220	Sealing Localized Cracks	1	LSUM	\$1,500.00	\$1,500.00	
8060040	Shared use Trail, HMA	416	Ton	\$119.00	\$49,504.00	
8070004	Guardrail, Type MGS-8	75	Ft	\$29.00	\$2,175.00	
8070044	Guardrail Approach Terminal, Type 2M	1	Ea	\$3,000.00	\$3,000.00	
8070052	Guardrail Departing Terminal, Type MGS	1	Ea	\$900.00	\$900.00	
8070080	Guardrail Reflector	4	Ea	\$6.00	\$24.00	
8100371	Post, Steel, 3 lb	56	Ft	\$7.00	\$392.00	
8100403	Sign, Type III, Rem	19	Ea	\$12.00	\$228.00	
8100404	Sign, Type IIIA	40	Sft	\$17.00	\$680.00	
8130010	Riprap, Plain	10	Syd	\$65.00	\$650.00	
8167011	Turf Establishment, Performance	1540	Syd	\$10.00	\$15,400.00	
	Erosion Control	1	LSUM	\$5,000.00	\$5,000.00	
2090001	Project Cleanup	1	LSUM	\$500.00	\$500.00	
8240001	Contractor Staking	1	LSUM	\$3,300.00	\$3,300.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$66,336.00</b>	
<b>Total</b>					<b>\$225,866.00</b>	

# #11936-N05 82292-DRAINAGE DITCH BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N05 of 82292 (#11936) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over Drainage Ditch in Van Buren Charter Township. It is located approximately 0.2 miles south of Tyler Road. The bridge has an overall length of 40.0 feet, a clear width of 14.0 feet, and an overall width of 14.6 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$3,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N05 of 82292 MDOT #11936	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.6 ft overall width 40.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$3,000.00


# TYLER RD - NORTHLINE RD

The trail in this section ranges in quality from poor to excellent, so recommendations include some reconstruction and some rehabilitation. Some clearing should be done near Hannan Road to improve sight distance and the fence should be moved back. Hannan Road should also have some joint resealing on the bridge to prevent water from running onto the trail. At the railroad bridge in the south, 400 feet of type E curb should be added to prevent water from carrying debris onto the trail. The ground behind the new curb should be graded to drain to a new structure that ties into the existing storm system. Guardrail should be added to the segment where the trail enters the clearzone of the I-94 on-ramp. The ground behind the new curb should be graded to drain to a new structure that ties into the existing storm system. Guardrail should be added to the segment where the trail enters the clearzone of the I-94 on-ramp.

## TRAIL IMPROVEMENTS

- **FOG SEAL:** Approximately 8,280 feet of trail is in excellent condition in this section. Applying a fog seal on top of the trail can delay deterioration and maintain its condition for a longer time.
- **HMA OVERLAY:** About 2,060 feet of trail within this portion is in good condition. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented to prevent further deterioration.
- **HMA REMOVAL AND FULL RECONSTRUCTION:** Around 1,830 feet of trail is in fair or poor condition. It is recommended that this length be completely reconstructed, rather than rehabilitating the pavement. 400 feet of type E curb should be added to the north side of the railroad bridge to prevent water from washing debris onto the trail.

## RECOMMENDATIONS LEGEND:

- █ FULL RECONSTRUCTION REQUIRED
- █ SEALCOAT AND ADD 2' GRAVEL SHOULDER
- █ NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
-  CULVERT CLEANOUT
-  POTENTIAL MINOR CONNECTION
-  VEGETATION CLEARING NEEDED
-  EXISTING UNDERPASS
-  BRIDGE IMPROVEMENTS
-  BOARDWALK IMPROVEMENTS EXTENTS (350 LF)



- ROW FENCING: Partial fence replacement for this section was included in a previous I-275 construction project. The only fence replacement recommended is the fence adjacent to sections of trail being reconstructed.
- JOINT SEALING: A lane joint has come unsealed on the Hannan Road bridge at the south end of this segment, and water runs down the side of the bridge and carries debris onto the trail. This can be addressed by resealing the joint.
- GUARDRAIL ADDITION: The trail is within the clearzone of the WB I-94 on-ramp. For the safety of trail users, guardrail should be added between the trail and freeway in this area.
- SIGHT DISTANCE IMPROVEMENT: At Hannan Road in the south part of this segment, sight distance is blocked by a fence and brush. Some clearing should be completed in this area and the fence should be moved back.
- SIGNAGE REPLACEMENT: In total, 45 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs. “No Shoulder” signs can be removed when shoulders are added.
- SUBGRADE UNDERCUTTING: It is estimated that 10% of the area of reconstruction will require subgrade undercutting to properly rebuild the pavement when it is replaced.
- DRAINAGE IMPROVEMENTS: At the north side of the railroad bridge, the ground behind the proposed type E curb should be graded to drain towards a new drainage structure with a type G cover. This structure should connect to the existing catch basin on Northline Road. Three existing culverts should be cleaned out and riprap placed at each end section.
- BOARDWALK IMPROVEMENTS: Improvements to the boardwalk will include removal and replacement of any timber deck boards or any portion of the timber guardrail that require repair, replace any missing or deficient bolts or timber fasteners, power wash superstructure and substructure including deck and guardrail, and place a timber sealant along entire length of boardwalk. The boardwalk approaches should be hand patched to correct any horizontal or vertical gaps and provide a smooth transition from pavement to boardwalk. Each boardwalk was inspected visually along the superstructure, no substructure analysis is included within these improvements.

## INTERSECTION IMPROVEMENTS

- There are no intersections within this section

## BRIDGE IMPROVEMENTS

- #11935-N04 82292-Drainage Ditch Bridge
- #11934-N03 82292-Drainage Ditch Bridge
- #11894-N10 82291-Drainage Ditch Bridge

## CONNECTION OPPORTUNITIES

### HANNAN ROAD MINOR CONNECTION: ROMULUS

- A desire line/goat trail was observed where the I-275 Metro Trail parallels Hannan Road, on the north side of I-94. It is assumed that on-road cyclists and walkers to/from Hannan Road are using this area to access the trail. A formal connection is proposed to improve this connection for trail users.

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$44,600.00	\$44,600.00	
2010001	Clearing	0.1	Acre	\$8,823.00	\$882.30	
2050010	Embankment, CIP	204	Cyd	\$12.00	\$2,448.00	
2050016	Excavation, Earth	1641	Cyd	\$13.00	\$21,333.00	
2050040	Subgrade Undercutting, Type I	71	Cyd	\$15.00	\$1,065.00	
3020020	Aggregate Base, 8 inch	2333	Syd	\$11.00	\$25,663.00	
3070128	Shld, CI II, 6 inch	5388	Syd	\$10.00	\$53,880.00	
4020600	Sewer, CI E, 12 inch, Tr Det B	15	Ft	\$75.00	\$1,125.00	
4017001	Culv Cleanout	75	Ft	\$15.00	\$1,125.00	
4030200	Dr Structure, 24 inch dia	1	Ea	\$1,650.00	\$1,650.00	
4030040	Dr Structure Cover, Type G	1	Ea	\$649.00	\$649.00	
4030312	Dr Structure, Tap, 12 inch	1	Ea	\$500.00	\$500.00	
5010005	HMA Surface, Rem	2139	Syd	\$7.00	\$14,973.00	
5010020	Pavt Joint and Crack Repr, Det 7	103	Ft	\$10.00	\$1,030.00	
5010025	Hand Patching	5	Ton	\$200.00	\$1,000.00	
5050015	Seal, Fog	10120	Syd	\$1.00	\$10,120.00	
6030100	Resealing Trans Joints with Hot-Poured Rubber	12	Ft	\$25.00	\$300.00	
7060220	Sealing Localized Cracks	1	LSUM	\$5,000.00	\$5,000.00	
7127051	Boardwalk Improvements	1	LSUM	\$70,000.00	\$70,000	
8020002	Curb, Conc, Det E2	400	Ft	\$30.00	\$12,000.00	
8060040	Shared use Trail, HMA	635	Ton	\$119.00	\$75,565.00	
8070004	Guardrail, Type MGS-8	450	Ft	\$29.00	\$13,050.00	
8070044	Guardrail Approach Terminal, Type 2M	1	Ea	\$3,000.00	\$3,000.00	
8070052	Guardrail Departing Terminal, Type MGS	1	Ea	\$900.00	\$900.00	
8070080	Guardrail Reflector	19	Ea	\$6.00	\$114.00	
8080011	Fence, Chain Link, 48 inch	2125	Ft	\$30.00	\$63,750.00	
8080120	Fence, Moving	75	Ft	\$10.00	\$750.00	
8100371	Post, Steel, 3 lb	322	Ft	\$7.00	\$2,254.00	
8100403	Sign, Type III, Rem	45	Ea	\$12.00	\$540.00	
8100404	Sign, Type IIIA	90	Sft	\$17.00	\$1,530.00	
8100405	Sign, Type IIIB	21	Sft	\$17.00	\$357.00	
8130010	Riprap, Plain	30	Syd	\$65.00	\$1,950.00	
8167011	Turf Establishment, Performance	3519	Syd	\$10.00	\$35,190.00	
	Erosion Control	1	LSUM	\$11,500.00	\$11,500.00	
2090001	Project Cleanup	1	LSUM	\$800.00	\$800.00	
8240001	Contractor Staking	1	LSUM	\$6,400.00	\$6,400.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$171,393.00</b>	
<b>Total</b>					<b>\$661,086.30</b>	

## #11935-N04 82292-DRAINAGE DITCH BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N04 of 82292 (#11935) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over Drainage Ditch in Van Buren Charter Township. It is located approximately 0.5 miles south of Tyler Road. The bridge has an overall length of 40.0 feet, a clear width of 14.0 feet, and an overall width of 14.6 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capitol Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$4,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent
- Replace 48-inch Chain Link Fence (15 feet) in SW quadrant

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N04 of 82292 MDOT #11935	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.6 ft overall width 40.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$4,000.00

## #11934-N03 82292-DRAINAGE DITCH BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N03 of 82292 (#11934) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over Drainage Ditch in Van Buren Charter Township. It is located adjacent to the west side of Hannan Road at I-275. The bridge has an overall length of 60.0 feet, a clear width of 14.0 feet, and an overall width of 14.6 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$4,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N03 of 82292 MDOT #11934	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.6 ft overall width 60.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$4,000.00

## #11894-N10 82291-DRAINAGE DITCH BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N10 of 82291 (#11894) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over Drainage Ditch in the City of Romulus. It is located adjacent to the I-275 SB ramp to I-94 WB ramp within the I-275 and I-94 interchange. The bridge has an overall length of 60.0 feet, a clear width of 14.0 feet, and an overall width of 14.6 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$4,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N10 of 82291 MDOT #11894	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.6 ft overall width 60.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$4,000.00

# NORTHLINE RD - S HURON RIVER DR

This section of trail is in fair condition and should be reconstructed instead of rehabilitated. Two existing culverts are flooded; these culverts and the ditches leading to them should be reconstructed to allow for proper drainage. A 320-foot segment of trail leading up to the railroad bridge has a lot of debris from water flowing across the trail from the embankment on the north side to the road on the south side. In this segment, type E curb can be added to the north side of the trail, and the ground behind it can be graded to drain to a new catch basin. Alternatively, a more aesthetic, but higher cost, option would be to build a retaining wall.





## TRAIL IMPROVEMENTS

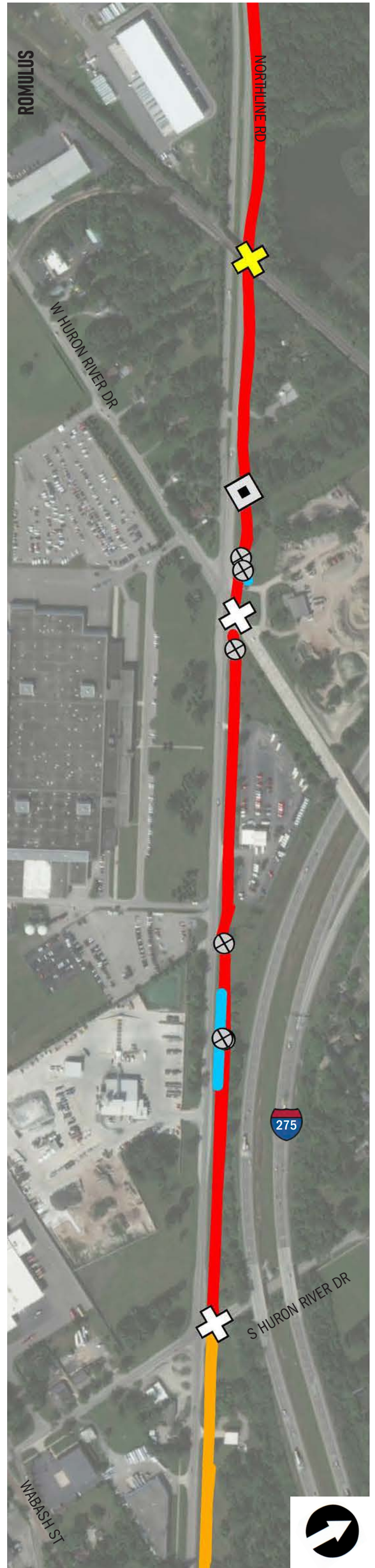
- **HMA REMOVAL AND FULL RECONSTRUCTION:** The trail within this section is in fair condition. It is recommended that this section be completely reconstructed rather than rehabilitating the pavement. 320 feet of type E curb should be added to the south side of the railroad bridge to prevent water from washing debris onto the trail.
- **ROW FENCING:** ROW fencing is inconsistent in both quality and design. This estimate assumes that 25% of fencing needs to be replaced when the portion of trail is selected for improvement, and all of the fencing along reconstruction portions will be replaced with the trail reconstruction.
- **SIGNAGE REPLACEMENT:** In total, 14 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **SUBGRADE UNDERCUTTING:** It is estimated that 10% of the area of reconstruction will require subgrade undercutting to properly rebuild the pavement when it is replaced.
- **DRAINAGE IMPROVEMENTS:** Two culverts at ditches that do not drain are recommended for reconstruction along with a total of 450 feet of ditch. The other existing culvert within this area can be cleaned out and riprap placed at each end section. At the railroad bridge, the ground behind the proposed type E curb should be graded to drain towards the bridge, and a new drainage structure with a type G cover should be installed. This structure would connect to the existing catch basin on Northline Road.

## INTERSECTION IMPROVEMENTS: W HURON RIVER DR

- Upgrade sidewalk ramps to meet current ADA standards
- Install pedestrian signals with countdown head indications on both sides of the W. Huron River Drive crossing
- Install pushbuttons at pedestrian signals
- Upgrade/install signing as necessary (crossing SE of the pedestrian island should remain Stop-controlled)
- Upgrade pavement markings on trail and roadway as necessary to meet current standards
- Install pedestrian lighting

### RECOMMENDATIONS LEGEND:

- █ FULL RECONSTRUCTION REQUIRED
- █ NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
- █ DITCH CONSTRUCT
-  CULVERT CLEANOUT
-  INTERSECTION IMPROVEMENTS-SEE NEXT SECTION
-  EXISTING UNDERPASS
-  BRIDGE IMPROVEMENTS



## INTERSECTION IMPROVEMENTS: S HURON RIVER DR

- Upgrade sidewalk ramps to meet current ADA standards
- Install pedestrian signals with countdown head indications
- Install pushbuttons at pedestrian signals
- Upgrade/install signing as necessary
- Upgrade pavement markings on trail and roadway as necessary to meet current standards
- Install pedestrian lighting on both sides of the crossing

## BRIDGE IMPROVEMENTS

- #13562-N11 82291-Mcbride Drain Bridge

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$35,600.00	\$35,600.00	
2030001	Culv, Rem, Less than 24 inch	2	Ea	\$600.00	\$1,200.00	
2050040	Subgrade Undercutting, Type I	145	Cyd	\$15.00	\$2,175.00	
2050010	Embankment, CIP	517	Cyd	\$12.00	\$6,204.00	
2050016	Excavation, Earth	2167	Cyd	\$13.00	\$28,171.00	
3020020	Aggregate Base, 8 inch	4800	Syd	\$11.00	\$52,800.00	
3070128	Shld, CI II, 6 inch	1697	Syd	\$10.00	\$16,970.00	
4010012	Culv End Sect, 12 inch	4	Ea	\$600.00	\$2,400.00	
4010539	Culv, CI E, 12 inch	75	Ft	\$66.00	\$4,950.00	
4017001	Culv Cleanout	25	Ft	\$15.00	\$375.00	
4030312	Dr Structure, Tap, 12 inch	1	Ea	\$500.00	\$500.00	
4030200	Dr Structure, 24 inch dia	1	Ea	\$1,650.00	\$1,650.00	
4030035	Dr Structure Cover, Type E	1	Ea	\$450.00	\$450.00	
5010005	HMA Surface, Rem	4364	Syd	\$7.00	\$30,548.00	
8020002	Curb, Conc, Det E2	320	Ft	\$30.00	\$9,600.00	
8060040	Shared use Trail, HMA	882	Ton	\$119.00	\$104,958.00	
8080011	Fence, Chain Link, 48 inch	1500	Ft	\$30.00	\$45,000.00	
8100371	Post, Steel, 3 lb	70	Ft	\$7.00	\$490.00	
8100403	Sign, Type III, Rem	14	Ea	\$12.00	\$168.00	
8100404	Sign, Type IIIA	30	Sft	\$17.00	\$510.00	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	
8130010	Riprap, Plain	30	Syd	\$65.00	\$1,950.00	
8167011	Turf Establishment, Performance	3295	Syd	\$10.00	\$32,950.00	
	Erosion Control	1	LSUM	\$3,750.00	\$3,750.00	
2090001	Project Cleanup	1	LSUM	\$900.00	\$900.00	
8240001	Contractor Staking	1	LSUM	\$7,000.00	\$7,000.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$136,992.00</b>	
<b>Total</b>					<b>\$528,397.00</b>	

# W HURON RIVER DR INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
	Signal Modernization	1	Ea	\$150,000	\$150,000	***
2040055	Sidewalk, Rem	48	Syd	\$12.00	\$576.00	
8032002	Curb Ramp, Conc, 6 inch	435	Sft	\$10.00	\$4,350.00	
8030030	Curb Ramp Opening, Conc	66	Ft	\$30.00	\$1,980.00	
8030010	Detectable Warning Surface	45	Ft	\$45.00	\$2,025.00	
2040020	Curb and Gutter, Rem	66	Ft	\$10.00	\$660.00	
3010002	Subbase, CIP	7	Cyd	\$20.00	\$140.00	
8100403	Sign, Type III, Rem	9	Ea	\$20.00	\$180.00	
8100404	Sign, Type IIIA	36.5	Sft	\$17.00	\$620.50	
8100371	Post, Steel, 3 lb	204	Ft	\$7.00	\$1,428.00	
8100405	Sign, Type IIIB	17	Sft	\$17.00	\$289.00	
8110343	Rem Spec Mrkg	352	Sft	\$3.00	\$1,056.00	
8110024	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	212	Ft	\$3.00	\$636.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	22	Ft	\$12.00	\$264.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	2	Ea	\$175.00	\$350.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	2	Ea	\$175.00	\$350.00	
8200345	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	2	Ea	\$1,600.00	\$3,200.00	
8200121	Pushbutton and Sign	2	Ea	\$600.00	\$1,200.00	
8200100	Pedestal, Alum	2	Ea	\$900.00	\$1,800.00	
8200105	Pedestal, Fdn	2	Ea	\$950.00	\$1,900.00	
8182050	Conduit, DB, 1, 3 inch	20	Ft	\$20.00	\$400.00	
8182035	Conduit, Directional Bore, 1, 3 inch	100	Ft	\$40.00	\$4,000.00	
8182309	Hh, Polymer Conc	3	Ea	\$1,000.00	\$3,000.00	
8190270	Light Std Arm, 17 foot	4	Ea	\$2,000.00	\$8,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
8190279	Light Std Fdn	2	Ea	\$1,800.00	\$3,600.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	2	Ea	\$2,200.00	\$4,400.00	
8187001	Cable	200	Ft	\$15.00	\$3,000.00	
8190295	Light Std Shaft, 30 foot or less, Double Arm	1		\$3,000.00	\$3,000.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$71,891.58</b>	
<b>Total for W. Huron River Drive Crossing</b>					<b>\$277,296.08</b>	

\*\*\* Based on comments from Wayne County, additional costs for full traffic signal modernization was included at all county-owned intersections with diagonal spans where the plan proposes pedestrian countdown indications and pushbuttons, as the existing equipment cannot be modified to accommodate these improvements. As design survey is not available and the scope of work only includes conceptual estimates, an estimate of \$150,000 was applied to 10 locations with existing diagonal spans.



Figure 31: Proposed W. Huron River Drive Intersection Improvements

## S HURON RIVER DR INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
	Signal Modernization	1	Ea	\$150,000	\$150,000	***
2040055	Sidewalk, Rem	16	Syd	\$12.00	\$192.00	
8032002	Curb Ramp, Conc, 6 inch	141	Sft	\$10.00	\$1,410.00	
8030030	Curb Ramp Opening, Conc	29	Ft	\$30.00	\$870.00	
8030010	Detectable Warning Surface	25	Ft	\$45.00	\$1,125.00	
2040020	Curb and Gutter, Rem	29	Ft	\$10.00	\$290.00	
3010002	Subbase, CIP	2	Cyd	\$20.00	\$40.00	
8100403	Sign, Type III, Rem	10	Ea	\$20.00	\$200.00	
8100404	Sign, Type IIIA	64	Sft	\$17.00	\$1,088.00	
8100371	Post, Steel, 3 lb	236	Ft	\$7.00	\$1,652.00	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	
8110343	Rem Spec Mrkg	375	Sft	\$3.00	\$1,125.00	
8110024	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	166	Ft	\$3.00	\$498.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	23	Ft	\$12.00	\$276.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	2	Ea	\$175.00	\$350.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	2	Ea	\$175.00	\$350.00	
8200345	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	2	Ea	\$1,600.00	\$3,200.00	
8200121	Pushbutton and Sign	2	Ea	\$600.00	\$1,200.00	
8200100	Pedestal, Alum	2	Ea	\$900.00	\$1,800.00	
8200105	Pedestal, Fdn	2	Ea	\$950.00	\$1,900.00	
8182035	Conduit, Directional Bore, 1, 3 inch	220	Ft	\$40.00	\$8,800.00	
8182309	Hh, Polymer Conc	2	Ea	\$1,000.00	\$2,000.00	
8190270	Light Std Arm, 17 foot	2	Ea	\$2,000.00	\$4,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
8190279	Light Std Fdn	1	Ea	\$1,800.00	\$1,800.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	1	Ea	\$2,200.00	\$2,200.00	
8187001	Cable	250	Ft	\$15.00	\$3,750.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$67,638.20</b>	
<b>Total for S. Huron River Drive Crossing</b>					<b>\$260,890.20</b>	

\*\*\* Based on comments from Wayne County, additional costs for full traffic signal modernization was included at all county-owned intersections with diagonal spans where the plan proposes pedestrian countdown indications and pushbuttons, as the existing equipment cannot be modified to accommodate these improvements. As design survey is not available and the scope of work only includes conceptual estimates, an estimate of \$150,000 was applied to 10 locations with existing diagonal spans.

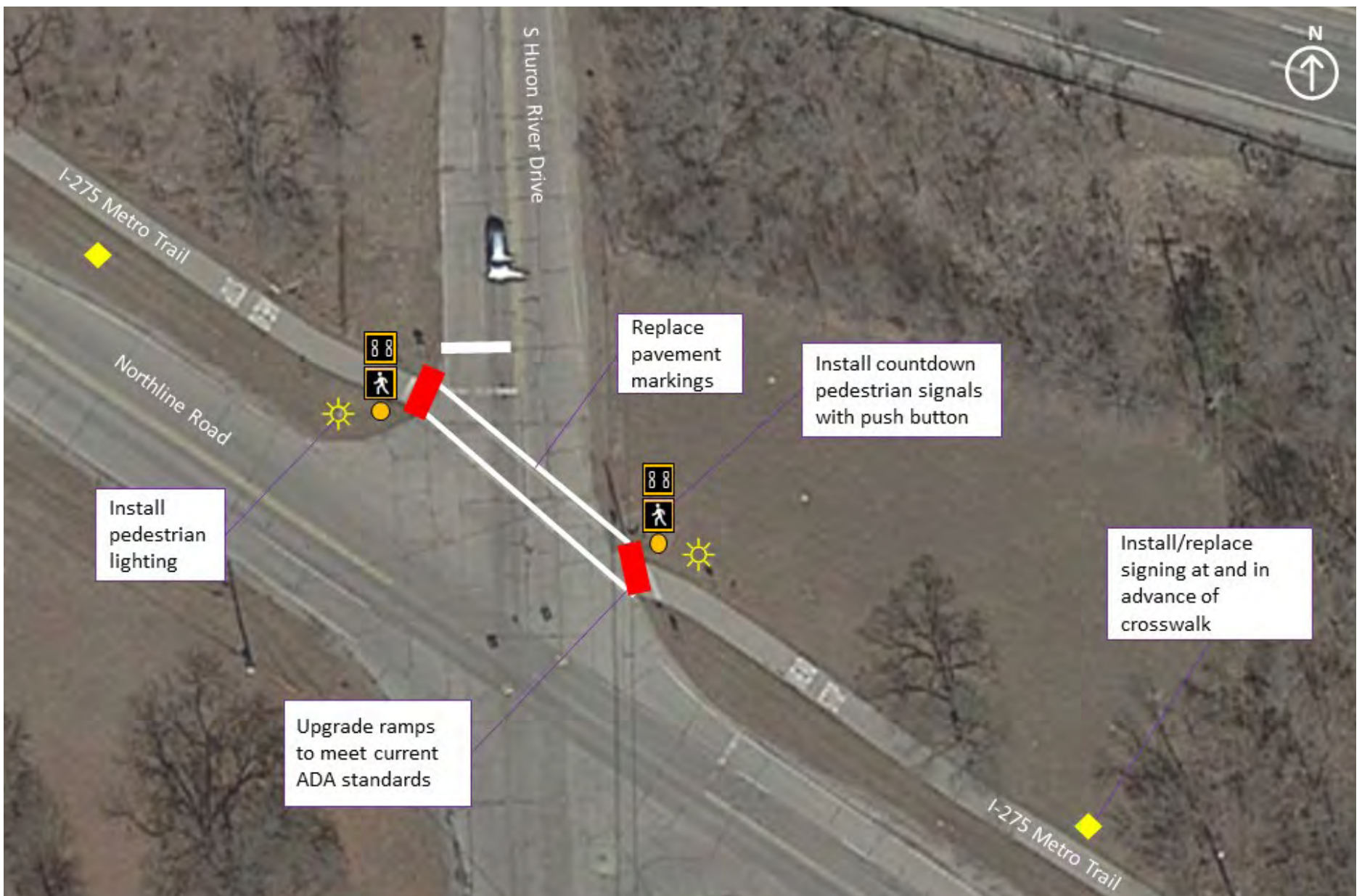


Figure 32: Proposed S. Huron River Drive Intersection Improvements

## #13562-N11 82291-MCBRIDE DRAIN BRIDGE IMPROVEMENTS ESTIMATE

Structure N11 of 82291 (#13562) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over McBride Drain in the City of Romulus. It is located 400 feet northwest of Huron River Drive. The bridge has an overall length of 58.0 feet, a clear width of 14.6 feet, and an overall width of 15.6 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams, channels and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

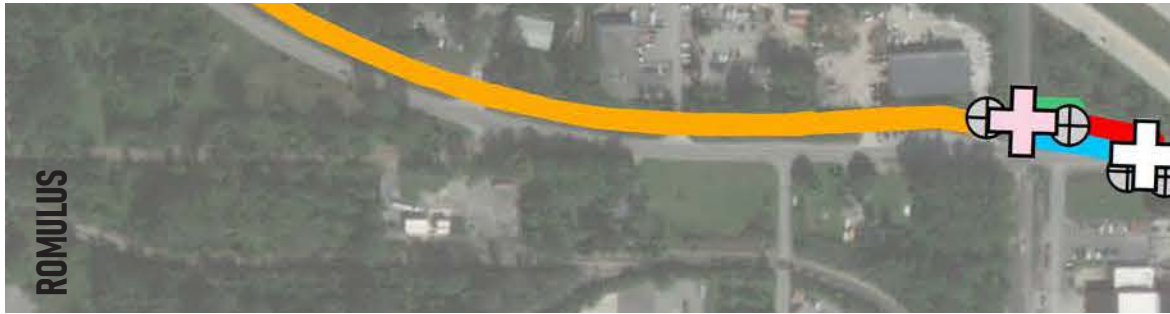
Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$4,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N11 of 82291 MDOT #13562	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 15.6 ft overall width 58.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$4,000.00

# S HURON RIVER DR - EUREKA RD








## TRAIL IMPROVEMENTS

This section of trail is in good condition with a short segment of fair condition pavement near Northline Road. HMA overlay can be used to extend the life of the good condition pavement, while the fair condition pavement should be reconstructed. The fair condition pavement at Northline Road has a lot of debris from the adjacent aggregate washing onto it. This should be corrected with a new ditch and catch basin. Near the south end of this segment, 300 feet of trail, 300 feet of ditching, and the existing culvert should be reconstructed where water and debris collect on the road and the existing culvert is not at the low point of the ditch. Overgrowth in the ditches can be corrected with ditch cleanout which may improve drainage along the trail.

- **HMA OVERLAY:** The approximately 8,170 feet of the trail not being reconstructed within this section is in good condition and can be rehabilitated. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented to prevent further deterioration.
- **HMA REMOVAL AND FULL RECONSTRUCTION:** Two areas are recommended for reconstruction in this section. 250 feet of fair pavement at Northline Road should be reconstructed rather than rehabilitated, and 300 feet near Eureka Road should be reconstructed to correct the ponding issue. The reconstruction portion near Eureka Road should implement a raised profile and fixed cross slope to allow water to drain off the road
- **AGGREGATE WASHOUT CORRECTION:** Some aggregate at the intersection with Eureka Road has washed out away from the trail, creating a steep drop-off. In this area, the existing fence should be moved away from the trail, and embankment should be used to build the ground back up.
- **ROW FENCING:** Site assessment found right-of-way fencing to be inconsistent in both quality and design. This estimate assumes that 25% of fencing needs to be replaced when the portion of trail is selected for improvement, and all fencing along reconstruction portions will be replaced with the trail reconstruction.

## RECOMMENDATIONS LEGEND:

- █ FULL RECONSTRUCTION REQUIRED
- █ NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
- █ DITCH CLEANOUT
- █ DITCH CONSTRUCT
-  CULVERT CLEANOUT
-  POTENTIAL TRAILHEAD
-  INTERSECTION IMPROVEMENTS-SEE NEXT SECTION
-  RAILROAD CROSSING
-  BRIDGE IMPROVEMENTS

- **SIGNAGE REPLACEMENT:** In total, 36 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs. Signage for the stop/intersection should be added in advance of Northline Road to warn northbound travelers of the stop after the curve.
- **SUBGRADE UNDERCUTTING:** It is estimated that 10% of the area of reconstruction will require subgrade undercutting to properly rebuild the pavement when it is replaced.
- **DRAINAGE IMPROVEMENTS:** At the reconstruction portion at Northline Road, a 4-foot V ditch should be constructed along with a new catch basin with a Type G cover and sewer to route water underneath the trail to the existing ditch on the north side. At the reconstruction segment near Eureka Road, 300 feet of ditching should also be reconstructed, and the existing culvert should be removed and reconstructed at the proper low point of the ditch. The other 12 existing culverts should be cleaned out, and 6,400 feet of ditch cleanout is recommended in this section to improve drainage.

## INTERSECTION IMPROVEMENTS: NORTHLINE RD

- Install HAWK signal
- Upgrade ramps to meet current ADA standards (including railroad crossing)
- Replace/install pavement markings/signing as necessary (including railroad crossing)
- Install pedestrian lighting on both sides of the Northline Road crossing

## BRIDGE IMPROVEMENTS

- #11893-N09 82291-County Drain Bridge

## CONNECTION OPPORTUNITIES

### ROMULUS ATHLETIC CENTER TRAILHEAD (potential): ROMULUS

- Romulus Athletic Center is at corner of Northline Road/Wayne Road
- Collaborate to designate 5 to 10 parking spaces, signage, kiosk, bench, trash, etc.
- Construct trail connection from Athletic Center west ~0.3 miles to connect into I-275 Metro Trail

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$33,900.00	\$33,900.00	
2030001	Culv, Rem, Less than 24 inch	1	Ea	\$600.00	\$600.00	
2050006	Ditch Cleanout	64	Sta	\$600.00	\$38,400.00	
2050010	Embankment, CIP	238	Cyd	\$12.00	\$2,856.00	
2050016	Excavation, Earth	1028	Cyd	\$13.00	\$13,364.00	
2050040	Subgrade Undercutting, Type I	20	Cyd	\$15.00	\$300.00	
3020020	Aggregate Base, 8 inch	672	Syd	\$11.00	\$7,392.00	
3070128	Shld, CI II, 6 inch	3907	Syd	\$10.00	\$39,070.00	
4010012	Culv End Sect, 12 inch	3	Ea	\$600.00	\$1,800.00	
4010539	Culv, CI E, 12 inch	30	Ft	\$66.00	\$1,980.00	
4017001	Culv Cleanout	300	Ft	\$15.00	\$4,500.00	
4020600	Sewer, CI E, 12 inch, Tr Det B	25	Ft	\$75.00	\$1,875.00	
4030200	Dr Structure, 24 inch dia	1	Ea	\$1,650.00	\$1,650.00	
4030040	Dr Structure Cover, Type G	1	Ea	\$649.00	\$649.00	
5010005	HMA Surface, Rem	611	Syd	\$7.00	\$4,277.00	
5010020	Pavt Joint and Crack Repr, Det 7	408	Ft	\$10.00	\$4,080.00	
5010025	Hand Patching	20	Ton	\$200.00	\$4,000.00	
8060040	Shared use Trail, HMA	909	Ton	\$119.00	\$108,171.00	
8080011	Fence, Chain Link, 48 inch	1638	Ft	\$30.00	\$49,140.00	
8100371	Post, Steel, 3 lb	224	Ft	\$7.00	\$1,568.00	
8100403	Sign, Type III, Rem	36	Ea	\$12.00	\$432.00	
8100404	Sign, Type IIIA	70	Sft	\$17.00	\$1,190.00	
8100405	Sign, Type IIIB	36	Sft	\$17.00	\$612.00	
8130010	Riprap, Plain	120	Syd	\$65.00	\$7,800.00	
8167011	Turf Establishment, Performance	2643	Syd	\$10.00	\$26,430.00	
8080120	Fence, Moving	55	Ft	\$10.00	\$550.00	
	Erosion Control	1	LSUM	\$8,000.00	\$8,000.00	
2090001	Project Cleanup	1	LSUM	\$900.00	\$900.00	
8240001	Contractor Staking	1	LSUM	\$6,700.00	\$6,700.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$130,266.00</b>	
<b>Total</b>					<b>\$502,452.00</b>	

## #11893-N09 82291-COUNTY DRAIN BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N09 of 82291 (#11893) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over County Drain in the City of Romulus. It is located 200 feet north of Eureka Road at the I-275 SB exit ramp for Eureka Road. The bridge has an overall length of 45.0 feet, a clear width of 14.0 feet, and an overall width of 14.9 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams, channels and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$3,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N09 of 82293 MDOT #11893	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.9 ft overall width 45.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$3,000.00

# NORTHLINE DR INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
	Signal Modernization	1	Ea	\$150,000	\$150,000	***
2040055	Sidewalk, Rem	56	Syd	\$12.00	\$672.00	
8032002	Curb Ramp, Conc, 6 inch	510	Sft	\$10.00	\$5,100.00	
8030030	Curb Ramp Opening, Conc	24	Ft	\$30.00	\$720.00	
8030010	Detectable Warning Surface	20	Ft	\$45.00	\$900.00	
3010002	Subbase, CIP	6	Cyd	\$20.00	\$120.00	
8100403	Sign, Type III, Rem	12	Ea	\$20.00	\$240.00	
8100404	Sign, Type IIIA	60	Sft	\$17.00	\$1,020.00	
8100371	Post, Steel, 3 lb	264	Ft	\$7.00	\$1,848.00	
8100405	Sign, Type IIIB	20.5	Sft	\$17.00	\$348.50	No motor veh, RR
8110343	Rem Spec Mrkg	298	Sft	\$3.00	\$894.00	
8110041	Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk	80	Ft	\$6.00	\$480.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	68	Ft	\$12.00	\$816.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	2	Ea	\$175.00	\$350.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	2	Ea	\$175.00	\$350.00	
8120210	Pavt Mrkg, Longit, 6 inch or Less Width, Rem	75	Ft	\$1.00	\$75.00	
8190270	Light Std Arm, 17 foot	2	Ea	\$2,000.00	\$4,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
8190279	Light Std Fdn	2	Ea	\$1,800.00	\$3,600.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	2	Ea	\$2,200.00	\$4,400.00	
8182309	Hh, Polymer Conc	2	Ea	\$1,000.00	\$2,000.00	
8187001	Cable	300	Ft	\$15.00	\$4,500.00	
8207050	_ HAWK Signal	1	LSUM	\$80,000.00	\$80,000.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
<b>Total for Northline Rd Crossing</b>					<b>\$115,433.50</b>	
<b>Design Fee + Contingency (35%)</b>					<b>\$40,401.73</b>	
<b>Total</b>					<b>\$155,835.23</b>	

\*\*\* Based on comments from Wayne County, additional costs for full traffic signal modernization was included at all county-owned intersections with diagonal spans where the plan proposes pedestrian countdown indications and pushbuttons, as the existing equipment cannot be modified to accommodate these improvements. As design survey is not available and the scope of work only includes conceptual estimates, an estimate of \$150,000 was applied to 10 locations with existing diagonal spans.



Figure 33: Proposed Northline Road Intersection Improvements

# EUREKA RD - PENNSYLVANIA RD

## TRAIL IMPROVEMENTS

This section of trail is in good or excellent condition. HMA overlay and pavement repairs can be used to extend the life of the good condition pavement, and a fog seal can be applied to maintain the excellent pavement. Overgrowth in the ditches can be corrected with ditch cleanout, which may improve drainage along the trail. Guardrail should be added between the bike trail and southbound I-275 where they pass underneath Pennsylvania Road, as the trail is within the freeway's clearzone and is unsafe.

- **FOG SEAL:** Approximately 1,765 feet of trail is in excellent condition in this section. Applying a fog seal on top of the trail can delay deterioration and maintain its condition over time.
- **HMA OVERLAY:** About 4,200 feet of the trail within this section is in good condition. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented to prevent further deterioration.
- **ROW FENCING:** ROW fencing is inconsistent in both quality and design. This estimate assumes that 25% of fencing needs to be replaced when the portion of trail is selected for improvement, and all fencing along reconstruction portions will be replaced with the trail reconstruction.
- **SIGNAGE REPLACEMENT:** In total, 19 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **GUARDRAIL ADDITION:** The trail is within the clearzone of southbound I-275 when they pass underneath Pennsylvania Road. For the safety of trail users, guardrail should be added between the trail and freeway in this area.
- **DRAINAGE IMPROVEMENTS:** One of the existing culverts is submerged in water. This culvert should be reconstructed along with 150 feet of ditch and the 20-foot segment of trail it runs underneath. The other three existing culverts should be cleaned out. Additionally, large portions of the ditches in this section are overgrown with vegetation. 3,700 feet of ditch cleanout is recommended to improve drainage.

## INTERSECTION IMPROVEMENTS: EUREKA RD

- Upgrade ramps to meet current ADA standards
- Upgrade pedestrian signal heads with countdown indications
- Install pushbuttons at pedestrian signals
- Remove Stop signs at trail, relocate wayfinding signs away from roadway
- Replace/install pavement markings/signing as necessary
- Install pedestrian lighting

## BRIDGE IMPROVEMENTS

- #11892-N07 82291-County Drain Bridge
- #11891-N06 82291-County Drain Bridge

## RECOMMENDATIONS LEGEND:

- FULL RECONSTRUCTION REQUIRED
- NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
- DITCH CLEANOUT
- ⊗ CULVERT CLEANOUT
- ⊕ PROPOSED CULVERT
- ⊕ INTERSECTION IMPROVEMENTS
- ⊕ EXISTING UNDERPASS
- BRIDGE IMPROVEMENTS



## CONNECTION OPPORTUNITIES

· There are no proposed connections in this section

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$16,800.00	\$16,800.00	
2050006	Ditch Cleanout	34	Sta	\$600.00	\$20,400.00	
2050016	Excavation, Earth	397	Cyd	\$13.00	\$5,161.00	
3070128	Shld, Cl II, 6 inch	2382	Syd	\$10.00	\$23,820.00	
4017001	Culv Cleanout	125	Ft	\$15.00	\$1,875.00	
5010020	Pavt Joint and Crack Repr, Det 7	159	Ft	\$10.00	\$1,590.00	
5010025	Hand Patching	8	Ton	\$200.00	\$1,600.00	
5050015	Seal, Fog	1961	Syd	\$1.00	\$1,961.00	
7060220	Sealing Localized Cracks	1	LSUM	\$950.00	\$950.00	
8060040	Shared use Trail, HMA	306	Ton	\$119.00	\$36,414.00	
8070004	Guardrail, Type MGS-8	125	Ft	\$29.00	\$3,625.00	
8070044	Guardrail Approach Terminal, Type 2M	1	Ea	\$3,000.00	\$3,000.00	
8070052	Guardrail Departing Terminal, Type MGS	1	Ea	\$900.00	\$900.00	
8070080	Guardrail Reflector	6	Ea	\$6.00	\$36.00	
8080011	Fence, Chain Link, 48 inch	1340	Ft	\$30.00	\$40,200.00	
8100371	Post, Steel, 3 lb	98	Ft	\$7.00	\$686.00	
8100403	Sign, Type III, Rem	19	Ea	\$12.00	\$228.00	
8100404	Sign, Type IIIA	40	Sft	\$17.00	\$680.00	
8100405	Sign, Type IIIB	12	Sft	\$17.00	\$204.00	
8130010	Riprap, Plain	50	Syd	\$65.00	\$3,250.00	
8167011	Turf Establishment, Performance	1197	Syd	\$10.00	\$11,970.00	
	Erosion Control	1	LSUM	\$5,000.00	\$5,000.00	
2090001	Project Cleanup	1	LSUM	\$500.00	\$500.00	
8240001	Contractor Staking	1	LSUM	\$3,300.00	\$3,300.00	
<b>Design Fee + Contingency (35%)</b>		<b>1</b>	<b>LSUM</b>	<b>\$64,453.00</b>	<b>\$64,453.00</b>	
<b>Total</b>					<b>\$248,603.00</b>	

# EUREKA RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
	Signal Modernization	1	Ea	\$150,000.00	\$150,000.00	***
2040055	Sidewalk, Rem	29	Syd	\$12.00	\$348.00	
8032002	Curb Ramp, Conc, 6 inch	260	Sft	\$10.00	\$2,600.00	
8030030	Curb Ramp Opening, Conc	36	Ft	\$30.00	\$1,080.00	
8030010	Detectable Warning Surface	30	Ft	\$45.00	\$1,350.00	
2040020	Curb and Gutter, Rem	36	Ft	\$10.00	\$360.00	
3010002	Subbase, CIP	4	Cyd	\$20.00	\$80.00	
8100403	Sign, Type III, Rem	11	Ea	\$20.00	\$220.00	
8100404	Sign, Type IIIA	56	Sft	\$17.00	\$952.00	
8100371	Post, Steel, 3 lb	250	Ft	\$7.00	\$1,750.00	
8100405	Sign, Type IIIB	12	Sft	\$17.00	\$204.00	
8110343	Rem Spec Mrkg	400	Sft	\$3.00	\$1,200.00	
8110024	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	260	Ft	\$3.00	\$780.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	12	Ft	\$12.00	\$144.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	2	Ea	\$175.00	\$350.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	2	Ea	\$175.00	\$350.00	
8110154	Pavt Mrkg, Sprayable Thermopl, 4 inch, Yellow	200	Ft	\$5.00	\$1,000.00	
8120210	Pavt Mrkg, Longit, 6 inch or Less Width, Rem	185	Ft	\$1.00	\$185.00	
8200345	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	1	Ea	\$1,600.00	\$1,600.00	
8200181	TS, Pedestrian, Pedestal Mtd, Rem	1	Ea	\$200.00	\$200.00	
8200336	TS, Pedestrian, One Way Bracket Arm Mtd (LED) Countdown	2	Ea	\$1,600.00	\$3,200.00	
8200180	TS, Pedestrian, Bracket Arm Mtd, Rem	1	Ea	\$200.00	\$200.00	
8200121	Pushbutton and Sign	2	Ea	\$600.00	\$1,200.00	
8200100	Pedestal, Alum	1	Ea	\$900.00	\$900.00	
8200105	Pedestal, Fdn	1	Ea	\$950.00	\$950.00	
8190270	Light Std Arm, 17 foot	2	Ea	\$2,000.00	\$4,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$62,021.05</b>	
<b>Total for Eureka Rd. Crossing</b>					<b>\$239,224.05</b>	

\*\*\* Based on comments from Wayne County, additional costs for full traffic signal modernization was included at all county-owned intersections with diagonal spans where the plan proposes pedestrian countdown indications and pushbuttons, as the existing equipment cannot be modified to accommodate these improvements. As design survey is not available and the scope of work only includes conceptual estimates, an estimate of \$150,000 was applied to 10 locations with existing diagonal spans.

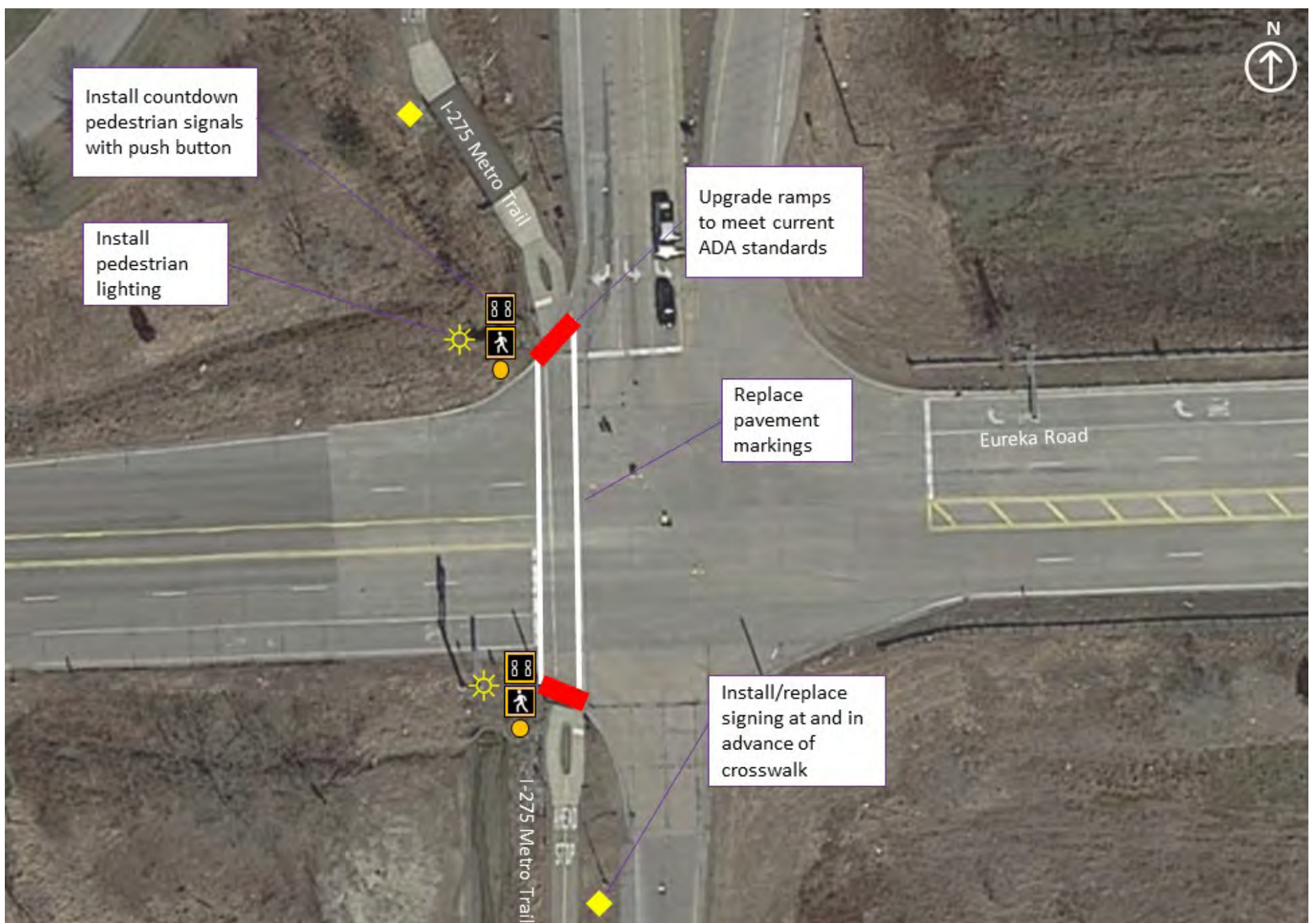


Figure 34: Proposed Eureka Road Intersection Improvements

## #11892-N07 82291-COUNTY DRAIN BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N09 of 82291 (#11893) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over County Drain in the City of Romulus. It is located 200 feet north of Eureka Road at the I-275 SB exit ramp for Eureka Road. The bridge has an overall length of 45.0 feet, a clear width of 14.0 feet, and an overall width of 14.9 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams, channels and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$3,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N09 of 82293 MDOT #11893	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.9 ft overall width 45.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$3,000.00

## #11891-N06 82291-COUNTY DRAIN BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N06 of 82291 (#11891) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over County Drain in the City of Romulus. It is located 0.2 miles north of Pennsylvania Road. The bridge has an overall length of 45.0 feet, a clear width of 14.0 feet, and an overall width of 14.6 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams, channels and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$3,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N06 of 82291 MDOT #11891	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.6 ft overall width 45.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$3,000.00

# PENNSYLVANIA RD - SIBLEY RD

## TRAIL IMPROVEMENTS

This section of trail is in good or excellent condition. HMA overlay and pavement repairs can be used to extend the life of the good condition pavement, and a fog seal can be applied to maintain the excellent pavement. Overgrowth in the ditches can be corrected with ditch cleanout, which may improve drainage along the trail. Additionally, a submerged culvert and 150 feet of ditch around it should be reconstructed to flow properly.

- **FOG SEAL:** Approximately 1,220 feet of trail in this section is in excellent condition. Applying a fog seal on top of the trail can delay deterioration and maintain its condition for a longer time.
- **HMA OVERLAY:** About 3,790 feet of the trail within this section is in good condition. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented to prevent further deterioration.
- **ROW FENCING:** Right-of-way fencing is inconsistent in both quality and design. This estimate assumes that 25% of fencing needs to be replaced when the section of trail is selected for improvement, and all fencing along reconstruction portions will be replaced with the trail reconstruction.
- **SIGNAGE REPLACEMENT:** In total, 22 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **DRAINAGE IMPROVEMENTS:** One of the existing culverts is submerged in water. This culvert should be reconstructed along with 150 feet of ditch and the 20-foot segment of trail it runs underneath. The other three existing culverts should be cleaned out. Additionally, large portions of the ditches in this section are overgrown with vegetation. 3,700 feet of ditch cleanout is recommended to improve drainage.

## INTERSECTION IMPROVEMENTS

- There are no proposed intersection improvements in this section









## BRIDGE IMPROVEMENTS

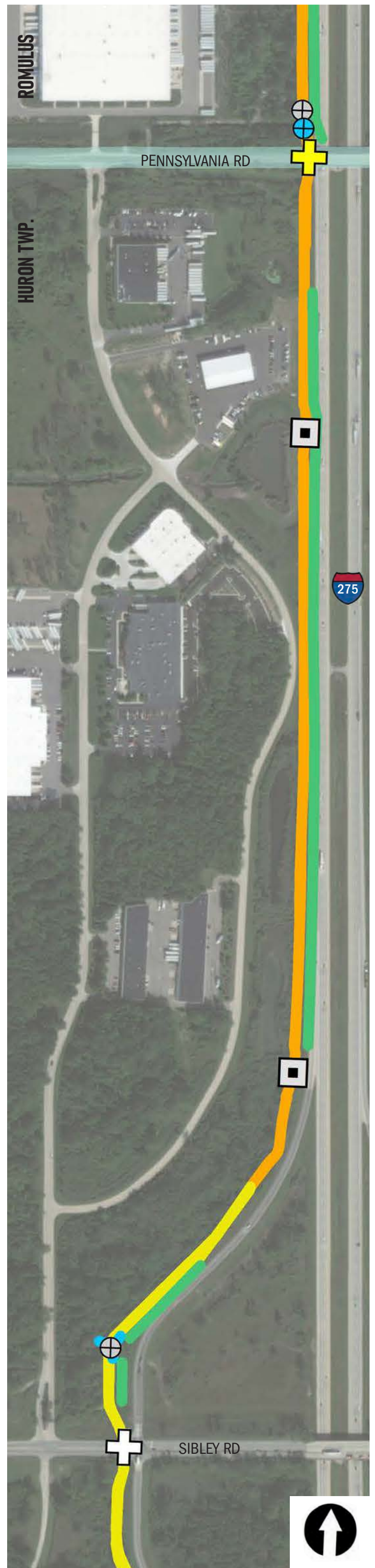
- #11890-N05 82291-County Drain Bridge
- #11889-N04 82291-County Drain Bridge

## CONNECTION OPPORTUNITIES

- There are no proposed connections in this section

## RECOMMENDATIONS LEGEND:

-  SEALCOAT AND ADD 2' GRAVEL SHOULDER
-  NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
-  DITCH CLEANOUT
-  DITCH CONSTRUCT
-  CULVERT CLEANOUT
-  INTERSECTION IMPROVEMENTS
-  UNDERPASS
-  BRIDGE IMPROVEMENTS



## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$17,600.00	\$17,600.00	
2030001	Culv, Rem, Less than 24 inch	1	Ea	\$600.00	\$600.00	
2050006	Ditch Cleanout	37	Sta	\$600.00	\$22,200.00	
2050010	Embankment, CIP	80	Cyd	\$12.00	\$960.00	
2050016	Excavation, Earth	485	Cyd	\$13.00	\$6,305.00	
3020020	Aggregate Base, 8 inch	24	Syd	\$11.00	\$264.00	
3070128	Shld, CI II, 6 inch	2400	Syd	\$10.00	\$24,000.00	
4010012	Culv End Sect, 12 inch	2	Ea	\$600.00	\$1,200.00	
4010539	Culv, CI E, 12 inch	25	Ft	\$66.00	\$1,650.00	
4017001	Culv Cleanout	75	Ft	\$15.00	\$1,125.00	
5010005	HMA Surface, Rem	22	Syd	\$7.00	\$154.00	
5010020	Pavt Joint and Crack Repr, Det 7	189	Ft	\$10.00	\$1,890.00	
5010025	Hand Patching	9	Ton	\$200.00	\$1,800.00	
5050015	Seal, Fog	1329	Syd	\$1.00	\$1,329.00	
7060220	Sealing Localized Cracks	1	LSUM	\$650.00	\$650.00	
8060040	Shared use Trail, HMA	368	Ton	\$119.00	\$43,792.00	
8080011	Fence, Chain Link, 48 inch	1325	Ft	\$30.00	\$39,750.00	
8100371	Post, Steel, 3 lb	140	Ft	\$7.00	\$980.00	
8100403	Sign, Type III, Rem	22	Ea	\$12.00	\$264.00	
8100404	Sign, Type IIIA	40	Sft	\$17.00	\$680.00	
8100405	Sign, Type IIIB	24	Sft	\$17.00	\$408.00	
8130010	Riprap, Plain	40	Syd	\$65.00	\$2,600.00	
8167011	Turf Establishment, Performance	1439	Syd	\$10.00	\$14,390.00	
	Erosion Control	1	LSUM	\$5,000.00	\$5,000.00	
2090001	Project Cleanup	1	LSUM	\$500.00	\$500.00	
8240001	Contractor Staking	1	LSUM	\$3,500.00	\$3,500.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$67,757.00</b>	
<b>Total</b>					<b>\$261,348.00</b>	

## #11890-N05 82291-COUNTY DRAIN BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N05 of 82291 (#11890) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over County Drain in Huron Charter Township. It is located 0.4 miles south of Willow Road/Pennsylvania Road. The bridge has an overall length of 45.0 feet, a clear width of 14.0 feet, and an overall width of 14.6 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams, channels and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$3,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N05 of 82291 MDOT #11890	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.6 ft overall width 45.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$3,000.00

## #11889-N04 82291-COUNTY DRAIN BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N04 of 82291 (#11889) is a single-span, steel truss bridge built in 2010 carrying the I-275 Metro Trail over County Drain in Huron Charter Township. It is located 0.3 miles north of Sibley Road, just west of the I-275 exit ramp. The bridge has an overall length of 40.0 feet, a clear width of 14.0 feet, and an overall width of 14.6 feet. This prefabricated A-588 (weathering) steel truss is comprised of rolled beams, channels and angles connected to the through truss. The deck is comprised of composite deck boards connected with screws. The substructure consists of two reinforced concrete abutments on spread footings.

Overall, the bridge is in good condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform Capital Scheduled Maintenance (CSM) to the structure per the guidelines of MDOT's Bridge Capital Scheduled Maintenance Manual. At a cost of \$3,000, this recommendation includes:

- Power wash deck, superstructure and substructure (especially around bearings and bearing seats)
- Clear and provide vegetation control around the bridge and embankments
- Treat concrete substructures with penetrating water repellent

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N04 of 82291 MDOT #11889	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	14. ft clear deck width 14.6 ft overall width 40.0 ft length	Good	Capital Scheduled Maintenance (CSM)	\$3,000.00

# SIBLEY RD - HURON RIVER DR

## TRAIL IMPROVEMENTS

This section of trail is mostly in good or excellent condition. HMA overlay and pavement repairs can be used to rehabilitate and extend the life of the good condition pavement, and a fog seal can be applied to maintain the excellent pavement. Overgrowth in the ditches can be corrected with ditch cleanout, which may improve drainage along the trail. If additional safety improvements are desired, guardrail can be added between the trail and southbound I-275 where they pass under Huron River Drive. However, as the trail lies just beyond the clear zone of the freeway, guardrail is not required.

- **FOG SEAL:** Approximately 1,130 feet of trail in this section is in excellent condition. Applying a fog seal on top of the trail can delay deterioration and maintain its condition for a longer time.
- **HMA OVERLAY:** Most of the trail within this section is in generally good condition. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented along the 4,025 feet of good condition trail to prevent further deterioration.
- **ROW FENCING:** Right-of-way fencing is inconsistent in both quality and design. This estimate assumes that 25% of fencing needs to be replaced when this section of trail is selected for improvement, and all of the fencing along reconstruction portions will be replaced with the trail reconstruction.
- **SIGNAGE REPLACEMENT:** In total, 18 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **DRAINAGE IMPROVEMENTS:** It is recommended to clean out the three existing culverts. Additionally, large portions of the ditches in this segment are overgrown with vegetation. 3,100 feet of ditch cleanout is recommended to improve drainage.

## INTERSECTION IMPROVEMENTS: SIBLEY RD

- Upgrade sidewalk ramps to meet current ADA standards
- Upgrade pedestrian signal heads with countdown indications
- Repair/replace pushbuttons at pedestrian signals
- Replace/install pavement markings/signing as necessary
- Install pedestrian lighting







## BRIDGE IMPROVEMENTS

- There are no proposed bridges or boardwalks in this section

## CONNECTION OPPORTUNITIES

- There are no proposed connections in this section

## RECOMMENDATIONS LEGEND:

-  SEALCOAT AND ADD 2' GRAVEL SHOULDER
-  NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
-  DITCH CLEANOUT
-  CULVERT CLEANOUT
-  INTERSECTION IMPROVEMENTS
-  EXISTING UNDERPASS



## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$16,100.00	\$16,100.00	
2050006	Ditch Cleanout	31	Sta	\$600.00	\$18,600.00	
2050016	Excavation, Earth	382	Cyd	\$13.00	\$4,966.00	
3070128	Shld, CI II, 6 inch	2292	Syd	\$10.00	\$22,920.00	
4017001	Culv Cleanout	75	Ft	\$15.00	\$1,125.00	
5010020	Pavt Joint and Crack Repr, Det 7	201	Ft	\$10.00	\$2,010.00	
5010025	Hand Patching	10	Ton	\$200.00	\$2,000.00	
5050015	Seal, Fog	1257	Syd	\$1.00	\$1,257.00	
7060220	Sealing Localized Cracks	1	LSUM	\$600.00	\$600.00	
8060040	Shared use Trail, HMA	387	Ton	\$119.00	\$46,053.00	
8080011	Fence, Chain Link, 48 inch	1252	Ft	\$30.00	\$37,560.00	
8100371	Post, Steel, 3 lb	84	Ft	\$7.00	\$588.00	
8100403	Sign, Type III, Rem	18	Ea	\$12.00	\$216.00	
8100404	Sign, Type IIIA	40	Sft	\$17.00	\$680.00	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	
8130010	Riprap, Plain	30	Syd	\$65.00	\$1,950.00	
8167011	Turf Establishment, Performance	1152	Syd	\$10.00	\$11,520.00	
	Erosion Control	1	LSUM	\$5,000.00	\$5,000.00	
2090001	Project Cleanup	1	LSUM	\$400.00	\$400.00	
8240001	Contractor Staking	1	LSUM	\$3,200.00	\$3,200.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$61,909.00</b>	
<b>Total</b>					<b>\$238,790.00</b>	

## SIBLEY RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
2040055	Sidewalk, Rem	27	Syd	\$12.00	\$324.00	
8032002	Curb Ramp, Conc, 6 inch	240	Sft	\$10.00	\$2,400.00	
8030030	Curb Ramp Opening, Conc	30	Ft	\$30.00	\$900.00	
8030010	Detectable Warning Surface	24	Ft	\$45.00	\$1,080.00	
2040020	Curb and Gutter, Rem	30	Ft	\$10.00	\$300.00	
3010002	Subbase, CIP	4	Cyd	\$20.00	\$80.00	
8100403	Sign, Type III, Rem	10	Ea	\$20.00	\$200.00	
8100404	Sign, Type IIIA	56	Sft	\$17.00	\$952.00	
8100371	Post, Steel, 3 lb	236	Ft	\$7.00	\$1,652.00	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	
8110343	Rem Spec Mrkg	407	Sft	\$3.00	\$1,221.00	
8110024	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	123	Ft	\$3.00	\$369.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	12	Ft	\$12.00	\$144.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	2	Ea	\$175.00	\$350.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	2	Ea	\$175.00	\$350.00	
8110154	Pavt Mrkg, Sprayable Thermopl, 4 inch, Yellow	150	Ft	\$5.00	\$750.00	
8200345	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	2	Ea	\$1,600.00	\$3,200.00	
8200181	TS, Pedestrian, Pedestal Mtd, Rem	2	Ea	\$200.00	\$400.00	
8190270	Light Std Arm, 17 foot	2	Ea	\$2,000.00	\$4,000.00	
8190330	Luminaire	2	Ea	\$1,000.00	\$2,000.00	
8190279	Light Std Fdn	2	Ea	\$1,800.00	\$3,600.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	2	Ea	\$2,200.00	\$4,400.00	
8182309	Hh, Polymer Conc	2	Ea	\$1,000.00	\$2,000.00	
8187001	Cable	300	Ft	\$15.00	\$4,500.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$12,707.80</b>	
<b>Total for Sibley Rd. Crossing</b>					<b>\$49,015.80</b>	

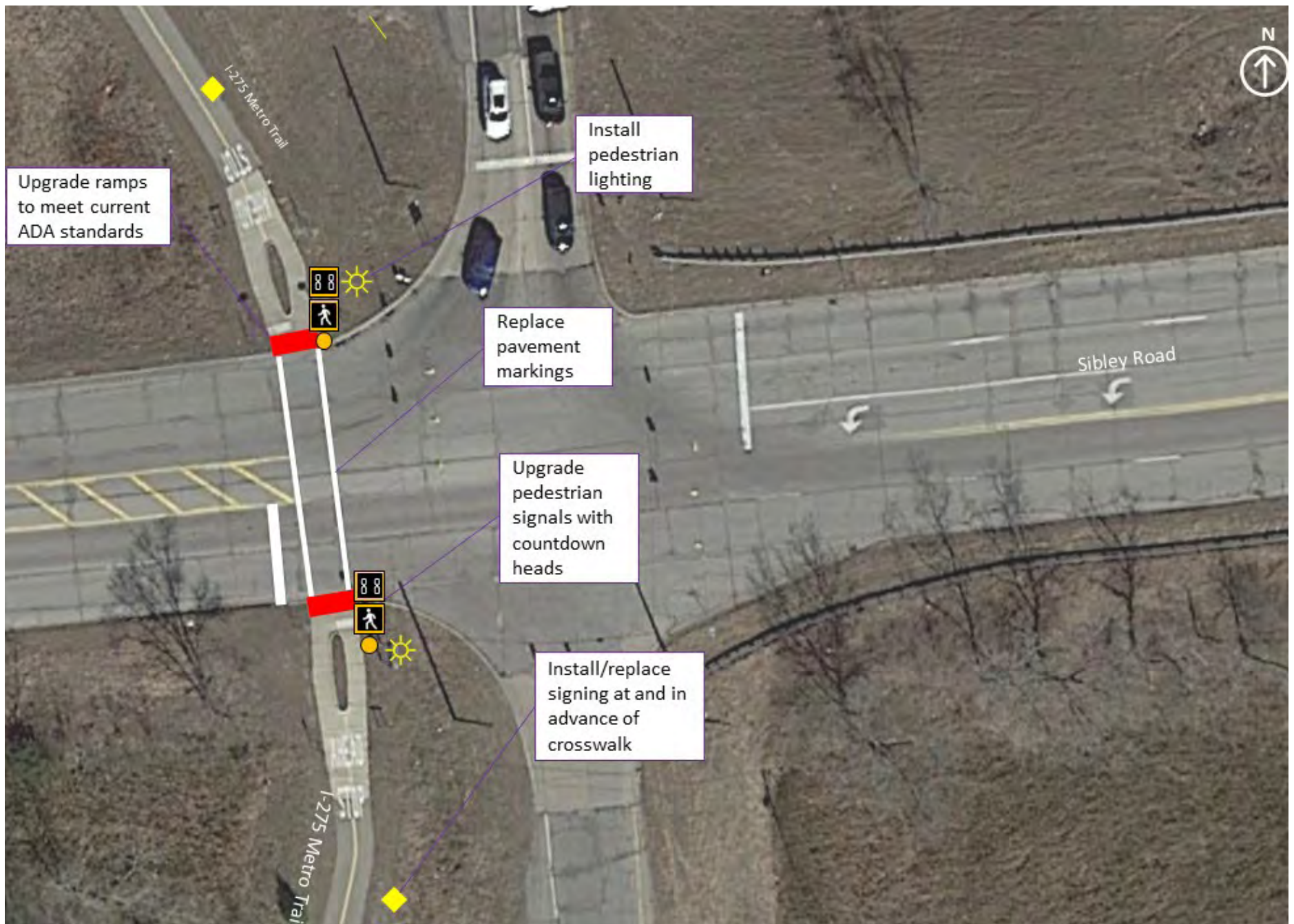


Figure 35: Proposed Sibley Road Intersection Improvements

# HURON RIVER DR - S HURON RD

## TRAIL IMPROVEMENTS

This section of trail is mostly in good condition, with the exception of a short segment at the southern end that is in fair condition. HMA overlay and pavement repairs can be used to rehabilitate and extend the life of the good condition pavement, while the fair condition pavement should be replaced. Existing ponding from grading issues and a spillway outletting water and sediment onto the trail could cause the pavement to deteriorate faster. Intermittent repairs and an HMA overlay are suggested to maintain the condition of the trail, and repairing the drainage issues may slow the rate of deterioration of this section.

- **HMA OVERLAY:** The trail within this section is in generally good condition. A 1.5-inch HMA overlay, with Detail 7 repairs as needed, can be implemented along the approximately 4,940 feet of good condition trail to prevent further deterioration.
- **HMA REMOVAL AND FULL RECONSTRUCTION:** The 50-foot segment ending at South Huron Road is in fair condition with debonding and raveling and is recommended for replacement. An additional 350-foot segment, starting approximately 400 feet north of the bridge over the Huron River, is recommended for replacement to correct ponding. This area should implement a raised profile and 2% cross slope to allow water to drain off the trail.
- **SPILLWAY OUTLET CORRECTION:** A spillway that outlets runoff from southbound I-275 onto the trail leaves debris on the trail. This can be corrected by installing a catch basin with a Type G cover at the base of the spillway and routing the water underneath the trail in a storm sewer and end section.
- **ROW FENCING:** Right-of-way fencing is inconsistent in both quality and design. This estimate assumes that 25% of fencing needs to be replaced when this section of trail is selected for improvement, and all fencing along reconstruction portions will be replaced with the trail reconstruction.
- **SIGNAGE REPLACEMENT:** In total, 27 signs were observed in this section. All are recommended for replacement due to mixed condition and outdated designs.
- **SUBGRADE UNDERCUTTING:** It is estimated that 10% of the area of reconstruction will require subgrade undercutting to properly rebuild the pavement when it is replaced.
- **DRAINAGE IMPROVEMENTS:** Due to the drainage issues in this section, it is recommended to clean out the five existing culverts. Additionally, 3,500 feet of ditch cleanout is needed east of the trail in this section.

## RECOMMENDATIONS LEGEND:

- FULL RECONSTRUCTION REQUIRED
- SEALCOAT AND ADD 2' GRAVEL SHOULDER
- NON-STRUCTURAL OVERLAY AND ADD 2' GRAVEL SHOULDER
- DITCH CLEANOUT
- ⊗ CULVERT CLEANOUT
- ⊕ PROPOSED CULVERT
- POTENTIAL TRAILHEAD LOCATION
- POTENTIAL MINOR CONNECTION LOCATION
- + INTERSECTION IMPROVEMENTS
- + EXISTING UNDERPASS



## INTERSECTION IMPROVEMENTS: S HURON RD

- Upgrade sidewalk ramps on both sides of the S. Huron Road crossing to meet current ADA standards
- Upgrade pavement markings on trail and roadway as necessary to meet current standards
- Upgrade/install signing as necessary
- Install pedestrian lighting on the north side of the S. Huron Road crossing
- Consider extending improvements to south side of S. Huron Road to provide safe access to gas station

## BRIDGE IMPROVEMENTS

- #11888-N03 82291-Huron River and Metro Parkway Bridge

## CONNECTION OPPORTUNITIES

### LOWER HURON METROPARK MINOR CONNECTION: HURON TOWNSHIP

- A paved trail connection exists south of Huron River Drive between the I-275 Metro Trail and the Lower Huron Metroparks Trail system - two major regional trail systems in southeast Michigan. This connection is proposed to remain.

### S HURON RD TRAILHEAD (potential): HURON TOWNSHIP

- SW corner of S. Huron Road and I-275 freeway at Sunoco/Burger King - southern most point of existing I-275 Metro Trail
- Collaborate with private property owner to designate 5 to 6 existing parking spaces or construct additional spaces, signage, kiosk, bench, trash, etc.
- Construct trail connector from trailhead east to I-275 Metro Trail, improve S. Huron Road crossing

## TRAIL IMPROVEMENTS ESTIMATED COSTS

CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENT
1100001	Mobilization, Max	1	LSUM	\$22,200.00	\$22,200.00	
2050006	Ditch Cleanout	35	Sta	\$600.00	\$21,000.00	
2050010	Embankment, CIP	44	Cyd	\$12.00	\$528.00	
2050016	Excavation, Earth	558	Cyd	\$13.00	\$7,254.00	
2050040	Subgrade Undercutting, Type I	16	Cyd	\$15.00	\$240.00	
3020020	Aggregate Base, 8 inch	528	Syd	\$11.00	\$5,808.00	
3070128	Shld, CI II, 6 inch	2373	Syd	\$10.00	\$23,730.00	
4010012	Culv End Sect, 12 inch	1	Ea	\$600.00	\$600.00	
4020600	Sewer, CI E, 12 inch, Tr Det B	30	Ft	\$75.00	\$2,250.00	
4017001	Culv Cleanout	125	Ft	\$15.00	\$1,875.00	
4030200	Dr Structure, 24 inch dia	1	Ea	\$1,650.00	\$1,650.00	
4030040	Dr Structure Cover, Type G	1	Ea	\$550.00	\$550.00	
5010005	HMA Surface, Rem	494	Syd	\$7.00	\$3,458.00	
5010020	Pavt Joint and Crack Repr, Det 7	261	Ft	\$10.00	\$2,610.00	
5010025	Hand Patching	13	Ton	\$200.00	\$2,600.00	
8060040	Shared use Trail, HMA	602	Ton	\$119.00	\$71,638.00	
8080011	Fence, Chain Link, 48 inch	1468	Ft	\$30.00	\$44,040.00	
8100371	Post, Steel, 3 lb	232	Ft	\$7.00	\$1,624.00	
8100403	Sign, Type III, Rem	27	Ea	\$12.00	\$324.00	
8100404	Sign, Type IIIA	148.25	Sft	\$17.00	\$2,520.25	
8100405	Sign, Type IIIB	8	Sft	\$17.00	\$136.00	
8130010	Riprap, Plain	50	Syd	\$65.00	\$3,250.00	
8167011	Turf Establishment, Performance	1364	Syd	\$10.00	\$13,640.00	
	Erosion Control	1	LSUM	\$5,000.00	\$5,000.00	
2090001	Project Cleanup	1	LSUM	\$600.00	\$600.00	
8240001	Contractor Staking	1	LSUM	\$4,400.00	\$4,400.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$85,234.00</b>	
<b>Total</b>					<b>\$328,759.25</b>	

## S HURON RD INTERSECTION IMPROVEMENTS ESTIMATED COSTS

PAY ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	COST	TOTAL	COMMENT
2040055	Sidewalk, Rem	6	Syd	\$12.00	\$72.00	
8032002	Curb Ramp, Conc, 6 inch	55	Sft	\$10.00	\$550.00	
8030030	Curb Ramp Opening, Conc	12	Ft	\$30.00	\$360.00	
8030010	Detectable Warning Surface	10	Ft	\$45.00	\$450.00	
2040020	Curb and Gutter, Rem	12	Ft	\$10.00	\$120.00	
3010002	Subbase, CIP	1	Cyd	\$20.00	\$20.00	
8110343	Rem Spec Mrkg	123	Sft	\$3.00	\$369.00	
8110075	Pavt Mrkg, Ovly Cold Plastic, Stop	1	Ea	\$175.00	\$175.00	
8112058	Pavt Mrkg, Preformed Thermopl, Ahead	1	Ea	\$175.00	\$175.00	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	6	Ft	\$12.00	\$72.00	
8100403	Sign, Type III, Rem	5	Ea	\$20.00	\$100.00	
8100404	Sign, Type IIIA	29.25	Sft	\$17.00	\$497.25	
8100371	Post, Steel, 3 lb	102	Ft	\$7.00	\$714.00	
8100405	Sign, Type IIIB	4	Sft	\$17.00	\$68.00	
8190270	Light Std Arm, 17 foot	1	Ea	\$2,000.00	\$2,000.00	
8190330	Luminaire	1	Ea	\$1,000.00	\$1,000.00	
8190279	Light Std Fdn	1	Ea	\$1,800.00	\$1,800.00	
8190290	Light Std Shaft, 30 foot or less, Single Arm	1	Ea	\$2,200.00	\$2,200.00	
8182309	Hh, Polymer Conc	1	Ea	\$1,000.00	\$1,000.00	
8187001	Cable	100	Ft	\$15.00	\$1,500.00	
8200116	Power Co. (Est. Cost to Contractor)	1000	Dlr	\$1.00	\$1,000.00	
<b>Design Fee + Contingency (35%)</b>					<b>\$4,984.79</b>	
<b>Total for S. Huron Rd. Crossing</b>					<b>\$19,227.04</b>	

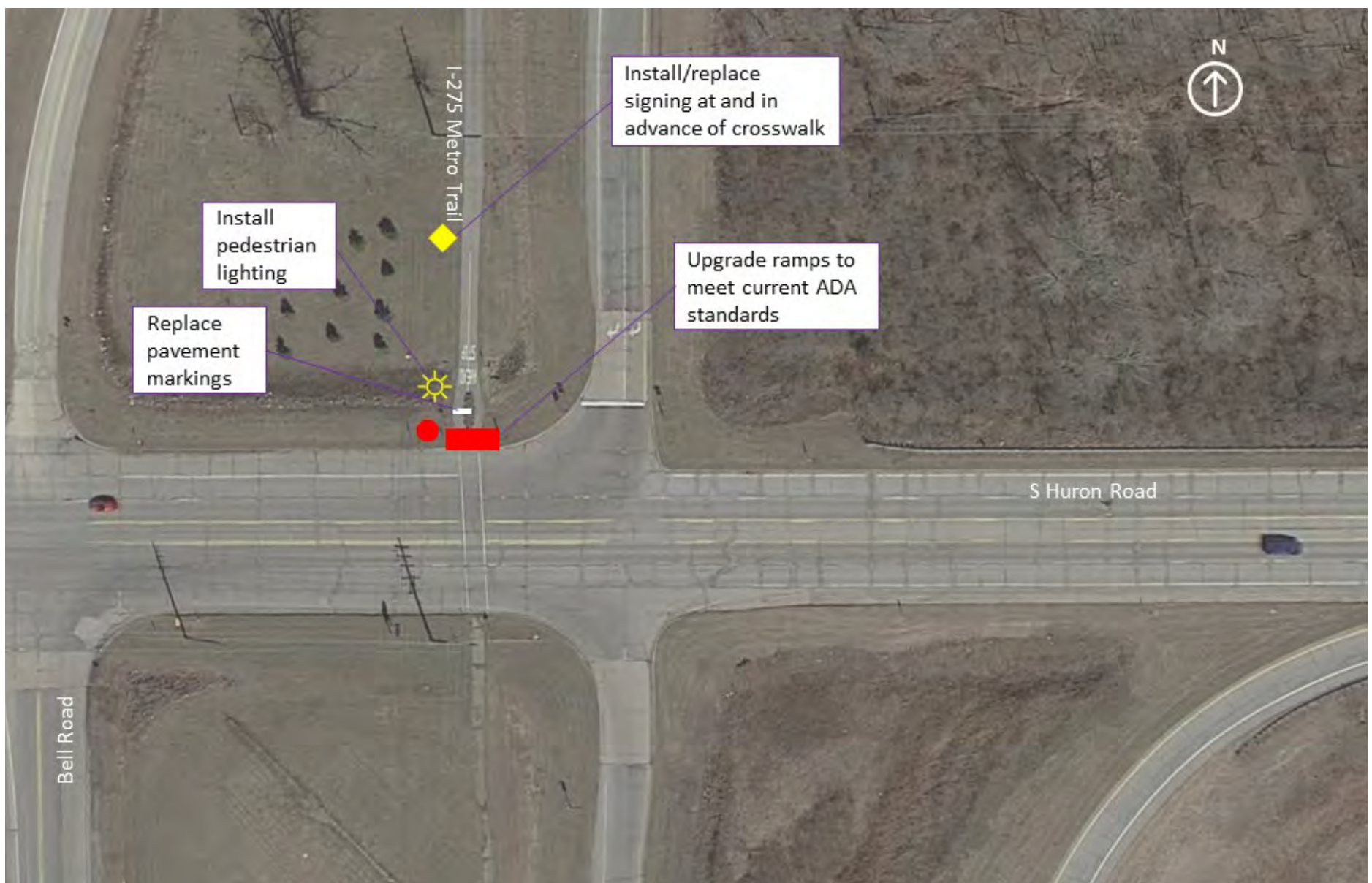


Figure 36: Proposed S. Huron Road Intersection Improvements

# #11888-N03 82291-HURON RIVER & METRO PARKWAY

## BRIDGE IMPROVEMENT RECOMMENDATIONS

Structure N01 of 82291 (#11888) is a four-span, multi steel beam composite with the deck structure built in 1976 carrying the I-275 Metro Trail over Huron River and Metro Parkway in Huron Charter Township. It is located 0.4 miles north of Huron Road. The bridge has an overall length of 329.1 feet, a clear width of 7.9 feet, and an overall width of 8.9 feet. This four-span structure consists of 2-W30 rolled beams with a 6-inch reinforced concrete deck. The existing substructure consists of reinforced concrete abutments and piers with assumed spread footings.

Overall, the bridge is in good to fair condition. Based on the observed conditions of the deck, superstructure, substructure, and approaches, it is recommended to perform a combination of Capital Scheduled Maintenance (CSM) and Capital Preventive Maintenance (CPM) to the structure per the guidelines of MDOT's CSM and Scoping Manual. At a cost of \$206,000, this recommendation includes:

- Repair concrete brush block
- Replace chain link fence (west side of bridge)
- Replace expansion joints (3 locations)
- Reseal longitudinal joint (between bike trail bridge and B01 of 92291)
- Patch full depth (existing deck is 6 inches, thus all patching is anticipated to be full depth)
- Apply epoxy overlay
- Replace pin and hanger (6 locations)
- Repair structural steel (beam-end repairs at 4 locations)
- Paint zones (5 feet at beam-ends, 12 locations)
- Replace top board handrail at approaches with treated deck boards or composite to avoid splinters (130 feet)
- Patch substructure concrete as directed by engineer
- Place riprap on SW quadrant near Pier 1S and Pier 3S Upstream Column

MDOT's Bridge Cost Estimate Worksheet was used to develop the total estimated cost in 2021 dollars. The recommendations and all associated costs are summarized in the following table:

STRUCTURE ID	YEAR ERECTED	SUPERSTRUCTURE TYPE	DIMENSIONS	OVERALL STRUCTURE CONDITION	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N03 of 82291 MDOT #11888	2010	Steel Truss (3 Steel / 10 Truss- Thru & Pony)	7.9 ft clear deck width 8.9 ft overall width 329.1 ft length	Good-Fair	Capital Scheduled Maintenance (CSM) & Capital Preventive Maintenance (CPM)	\$206,000.00

# 6.0 PRIORITIZED PROJECTS & FUNDING

## 6.1 INTRODUCTION

The recommended improvements detailed within this document will be most efficient and impactful if bundled together and implemented as strategic projects. Complimentary recommendations have been combined into suggested projects that can be implemented for the greatest impact to the trail. Available funding information is included with these bundled recommendations to provide suggestions for funding options available for different project types. The projects described range from more holistic, “planning-level” efforts that will serve the entire trail, to detailed projects that focus on improvements to particular trail sections and components in need of the most care. Specific scope items included in the the various projects may overlap.

## 6.2 PRIORITIZED PROJECTS

### 6.2.1 Study and Recommend Metro Trail Branding and Design Guidelines

Prior to reconstruction and rehabilitation of trail sections, a holistic effort to establish branding standards and guidelines for the trail would increase awareness of the trail and assist with wayfinding for current and potential users. Development of these guidelines may include recommendations for cohesive wayfinding signage standards, wall murals, decorative fencing, and other components to improve aesthetics and trail user experience.

Estimated to require \$75,000 to \$100,000 of investment, this effort may qualify for grant funding through SEMCOG or the Ralph Wilson Jr. Foundation and will require coordination between the Oakland County and Wayne County trail sections.

### 6.2.2 Design and Reconstruct I-275 Metro Trail 8 Mile Road - Haggerty Road

The trail section from 8 Mile Road to Haggerty Road was assessed to be in the poorest condition overall. Replacement of this section of trail, consistent with current standards and best practices, will significantly improve the quality of user experience for the overall trail and design and reconstruction of this section of trail should be prioritized. This recommendation includes all trail improvements listed within Section 5 for these segments but does not include other improvements recommended for the intersections, bridges, or boardwalks within this section. A total cost of \$3.1 million is estimated for recommended trail improvements for this section as shown in the table below. Detailed estimates can be found in Section 5 of this report and may be tailored as necessary.

TRAIL SECTION	ESTIMATED COSTS
8 Mile Road - 7 Mile Road	\$908,000
7 Mile Road - 6 Mile Road	\$1,022,000
6 Mile Road - 5 Mile Road	\$734,000
5 Mile Road - Haggerty Road	\$449,000
<b>Total</b>	<b>\$3,113,000</b>

### 6.2.3 Trailhead Planning and Design

Throughout the project area, 15 locations were identified for potential trailheads for the I-275 Metro Trail. One completed formal trailhead in Farmington Hills will be used as a model for planning and design for future trailheads. This priority project will identify key municipalities and private property owners in the locations identified as desirable for trailhead construction and pursue partnerships with them.

An effort to bundle the agreements, design standards, FHWA approvals, and permitting required to progress the construction of potential trailheads along the I-275 Metro Trail will result in efficiencies over the long-term as these projects are implemented. This effort is estimated to require \$50,000 to \$75,000 of investment.

### 6.2.4 Routine Maintenance on Trail and Bridges South of Hines Drive

South of Hines Drive, the I-275 Metro Trail and related assets are generally in fairly good condition. To maintain them and extend the life cycle of the system, a regular maintenance calendar should be implemented by MDOT. This effort could also be undertaken as a partnership between MDOT and local municipalities and the Friends of the I-275 Metro Trail group. Annual maintenance of this section of trail, approximately 20 miles, is recommended to include tasks as described in Section 4.6. This includes regular maintenance of pavement and pavement markings, ditches and drainage, vegetation, intersections, and signage, as well as bridges and boardwalks.

Maintenance of the I-275 Metro Trail surface and surrounding area is necessary to attract new trail users and continue to provide acceptable facilities for returning users along with maintaining a safe and usable trail for pedestrians. Maintaining a strict schedule will extend the life cycle of the pavement and reduce costs to repair the trail. Maintenance of the trail will increase during the end of the spring when the snow is melting and the trail is beginning to see heavy use heading into warmer months. Trail users should be encouraged to report various issues they encounter along the trail for inclusion during future maintenance activities. Presently, regional maintenance funds and grant funding are used for trail maintenance. Establishing a permanent funding source designated for non-motorized assets to perform these maintenance activities should be considered to ensure that trail maintenance keeps pace with needs. A total cost of \$70,000 to \$80,000 is estimated to perform this routine scheduled maintenance per year on the entire I-275 Metro Trail within both Wayne County and Oakland County. This total cost amounts to approximately \$2,500 per mile. In addition, Capital Scheduled Maintenance is required for the bridge structures, estimated at \$392,850 as shown in the following table.

STRUCTURE ID	NAME	RECOMMENDED OPTION	ESTIMATED COST (2021 DOLLARS)
N01 of 82292 // MDOT #11932	I-275 Metro Trail over Fellows Creek	Capital Scheduled Maintenance (CSM)	\$10,000
N01 of 82293 // MDOT #11958	I-275 Metro Trail over Tonquish Drain	Capital Scheduled Maintenance (CSM)	\$7,000
N02 of 82292 // MDOT #11933	I-275 Metro Trail over Rouge River	Capital Scheduled Maintenance (CSM)	\$13,000
N03 of 82291 // MDOT #11888	I-275 Metro Trail over Huron River & Metro Parkway	Capital Scheduled Maintenance (CSM)	\$206,000
N03 of 82292 // MDOT #11934	I-275 Metro Trail over Drainage Ditch	Capital Scheduled Maintenance (CSM)	\$4,000
N04 of 82291 // MDOT #11889	I-275 Metro Trail over County Drain	Capital Scheduled Maintenance (CSM)	\$3,000
N04 of 82292 // MDOT #11935	I-275 Metro Trail over Drainage Ditch	Capital Scheduled Maintenance (CSM)	\$4,000
N05 of 82291 // MDOT #11890	I-275 Metro Trail over County Drain	Capital Scheduled Maintenance (CSM)	\$3,000
N05 of 82292 // MDOT #11936	I-275 Metro Trail over Drainage Ditch	Capital Scheduled Maintenance (CSM)	\$3,000
N06 of 82291 // MDOT #11891	I-275 Metro Trail over County Drain	Capital Scheduled Maintenance (CSM)	\$3,000
N06 of 82292 // MDOT #11937	I-275 Metro Trail over McClaughrey Drain	Capital Scheduled Maintenance (CSM)	\$4,000
N07 of 82291 // MDOT #11892	I-275 Metro Trail over County Drain	Capital Scheduled Maintenance (CSM)	\$3,000
N07 of 82292 // MDOT #11938	I-275 Metro Trail over Bell Drain	Capital Scheduled Maintenance (CSM)	\$3,000
N08 of 82292 // MDOT #11939	I-275 Metro Trail over Wiles Drain	Capital Scheduled Maintenance (CSM)	\$7,000
N09 of 82291 // MDOT #11893	I-275 Metro Trail over County Drain	Capital Scheduled Maintenance (CSM)	\$3,000
N09 of 82292 // MDOT #11940	I-275 Metro Trail over Smith Drain	Capital Scheduled Maintenance (CSM)	\$7,000
N10 of 82291 // MDOT #11894	I-275 Metro Trail over Drainage Ditch	Capital Scheduled Maintenance (CSM)	\$4,000
N11 of 82291 // MDOT #13562	I-275 Metro Trail over McBride Drain	Capital Scheduled Maintenance (CSM)	\$4,000
<b>Design Fee &amp; Contingency (35%)</b>			<b>\$105,350</b>
<b>Total</b>			<b>\$406,350</b>

### 6.25 Road Crossing Improvements

A detailed analysis of needed intersection improvements was conducted as part of the scoping study for the I-275 Metro Trail between the I-275/I-96 interchange in Novi and the Wayne County/Monroe County line. A detailed report from this study is available in Section 7 of this document. Making improvements to a subset of intersections found within this project area, from 8 Mile Road at the north and S. Huron Road towards the south, is recommended as a priority to improve these sections of the I-275 Metro Trail.

Treatments were determined based on the need of individual crossings while keeping design standards and recommended countermeasures in mind. Some recommendations are high level (replacing pavement markings or upgrading signing) and would require further development prior to implementation. Scoping-level development of treatments considered the following aspects:

- Trail width
- Surface
- Design speed
- Alignment
- Grade
- Structures
- Separation between paths and roadways
- Intersections
- Marked crosswalks and stop bars
- Signing
- Mid-block crossing control evaluation
- Curb ramps
- Pedestrian refuge and crossing islands
- Lighting and illumination

A total cost of \$3,448,483.40 is estimated for improving all trail crossings in the scope of the project area as shown in the table on the following page. This includes crossings that are outside MDOT's jurisdiction. Detailed estimates can be found in previous sections of this report and may be tailored to as necessary.

INTERSECTION LOCATION	ESTIMATED COSTS
11 Mile Road and Meadowbrook Road (WB crosswalk)	\$43,900.65
I-275 Metro Trail @ 9 Mile Road	\$38,723.40
I-275 Metro Trail @ 8 Mile Road	\$229,365.00
I-275 Metro Trail @ 7 Mile Road	\$260,376.25
I-275 Metro Trail @ 6 Mile Road	\$237,095.63
I-275 Metro Trail @ Northville Road & Edward N. Hines Drive	\$281,712.60
I-275 Metro Trail @ Wilcox Road	\$235,723.50
I-275 Metro Trail @ Haggerty Road & Edward N. Hines Drive	\$280,149.30
I-275 Metro Trail @ Ann Arbor Trail	\$133,459.38
I-275 Metro Trail @ Ann Arbor Road	\$245,293.75
I-275 Metro Trail @ Koppernick Road	\$35,503.13
I-275 Metro Trail @ Ford Road	\$51,400.00
I-275 Metro Trail @ Michigan Avenue	\$71,980.63
I-275 Metro Trail @ Van Born Road	\$152,638.13
I-275 Metro Trail @ Ecorse Road	\$33,615.00
I-275 Metro Trail @ W. Huron River Drive	\$256,755.63
I-275 Metro Trail @ S. Huron River Drive	\$241,565.00
I-275 Metro Trail @ Northline Road	\$144,291.88
I-275 Metro Trail @ Eureka Road	\$221,503.75
I-275 Metro Trail @ Sibley Road	\$45,385.00
I-275 Metro Trail @ S. Huron Road	\$17,802.81
<b>Total</b>	<b>\$3,448,483.40</b>

### 6.26 Address Water-on-Trail at Six Locations South of Hines Drive

It is assumed that drainage issues in locations north of Haggerty Road will be addressed during a full reconstruct of that segment of trail. There are six additional locations where water stands on the trail or routinely brings debris to the trail that are a priority to address. These locations should be evaluated further to determine the level of engineering effort needed and/or if solutions could be bundled into existing design and maintenance efforts. This effort is estimated to require \$161,688 of effort.

LOCATION	RECOMMENDATION	COST
North of 6 Mile	Raise vertical grade by 2', place 3 culverts underneath path to facilitate drainage, contingent on floodplain	\$82,000.00
South of US-12	Remove spillways that drain to bike path along I-275 and replace with storm sewer system to outlet to the East of the bike path (being completed as part of I-275 Project JN111073).	\$-
Van Born Crossing	Clear vegetation along path, cleanout ditch & culvert East of Van Born at bike path crossing	\$10,300.00
Oasis Golf	Remove spillway, add two culverts NW and SW of bike path and connection to allow water to pass	\$17,000.00
Livonia Medical Center	Place two catch basins and small swale between structures, place riprap at structures	\$10,000.00
South of Lower Huron Metropark Minor Connection	Ponding caused by low point and cross sectional slope issues along with excess vegetation growth next to the path, correct cross sectional slope and remove vegetation growth, place catch basin and storm sewer at end of spillway	\$42,388.00

\* Ponding potentially could be corrected with pavement reconstruction and gravel shoulders, will require additional engineering to confirm during design.

## **6.3 FUNDING**

### 6.31 General Approach

The I-275 Metro Trail presents a challenge from a funding perspective. Many sources of funding are available to support projects along the trail, but many will require MDOT to partner with local communities and community groups. Crossing seven communities, collaboration with each municipality and Wayne County will be critical to access available funding. Engaging the Friends of the I-275 Metro Trail and other community/not-for-profit organizations will be key to fulfilling community engagement priorities of funders and achieving optimum access to philanthropic funds.

It is important to view the improvements within this plan as a long-term roadmap. Most funding opportunities identified in this analysis are offered annually, which multiplies the amount of potential funding available for implementation. An important element for future success will be identifying a dedicated and consistent champion with the capacity to execute this plan, whether that be MDOT, the Friends of the I-275 Metro Trail, or another entity.

### 6.32 Key Opportunities

Key findings from an analysis of available funding sources are detailed below. The "I-275 Trail Funding Recommendations" document was created as part of this project to provide a comprehensive list of funding sources suitable for assets like the I-275 Metro Trail. It is included in Section 7 of this report.

- *American Rescue Plan Act Funding*

Despite the serious and tragic challenges caused by the COVID-19 pandemic, the past years have created a stronger appreciation for outdoor recreation and natural resources. The American Rescue Plan Act provided funding to every state, county, and subordinate municipality in the nation. Investing in public spaces and outdoor recreation has become a very popular use for these funds for many recipients. Prime opportunities for accessing this funding include the MDNR Spark Grant program, Wayne County's allocation of \$339 million, and funding received by each community along the I-275 Metro Trail.

As the obligation date of December 31, 2024 approaches, Wayne County and local municipalities are making plans to spend their ARPA funding, and in some cases, they may have already. Outreach to these communities about the improvement needs along the I-275 Metro Trail should be expedited for funding consideration.

- *Infrastructure Investment and Jobs Act*

The Federal infrastructure bill will provide a very strong boost to transportation funding in Michigan. Budget increases will provide additional funding across formula and discretionary programs at the state level. Reviewing available funding internally available to MDOT for projects along I-275 will be key to identifying matching fund commitments required to obtain funding sources listed in this analysis.

- *Planning and Design Grants*

Southeast Michigan is fortunate to have many community funds dedicated to assisting project sponsors plan and design non-motorized and greenway projects. The Ralph Wilson Jr. Design and Access Fund, SEMCOG Transportation Planning Grant, and the Michigan Trails Fund are examples of sources that can fund the planning and design required ahead of project construction. The key to accessing these funds will be partnering with the eligible municipalities along the I-275 Metro Trail on collaborative grant applications.

- *Municipal and Stakeholder Support*

Although coordinating across seven municipalities may be a logistical challenge, it does provide a stronger base of support, both in general and financially. Enlisting the support of each municipality, including component units like the Plymouth Township and Canton Township DDAs, can help demonstrate multi-jurisdictional support to funding organizations and open the door to sources of matching funds. Reviewing community recreation and capital improvement plans for projects that align with those listed in this study is also advised.

### 6.33 Private Partnership

Beyond municipalities, partnerships with private and institutional entities, like Bosch or Schoolcraft College, can increase demonstrated support and access to funding. Opportunities to engage employers and institutional stakeholders along the I-275 Metro Trail for access improvements between their facilities and the trail will demonstrate stronger impact to funders as well as increase overall usage and enjoyment of the trail.

A key stakeholder is the Friends of the I-275 Metro Trail group. Grassroots, volunteer-driven organizations are important contributors to promotion and stewardship of non-motorized trails, but are also essential to drive funding. It does not appear that the Friends group is organized as a 501c3 not-for-profit organization. Achieving this designation would be helpful in applying for financial support from charitable foundations that restrict giving to 501c3 organizations. Such an organization could also be a home for an endowment for future trail maintenance.

Other key stakeholders may include social or business advocacy organizations such as Rotary International or chambers of commerce. Engaging these organizations can help secure additional support to adopt the stewardship and improvement of the I-275 Metro Trail.

### 6.34 Long-Term Sustainability

Although ample funding is currently available due to increased federal spending on transportation infrastructure, American Rescue Plan act funding for recreation at the state level, and strong support from the philanthropic sector in Southeast Michigan for trails, identifying sources of revenue or endowed funding for future maintenance of the I-275 is strongly recommended.