

4.0 ROADWAY ASSESSMENT

4.1 Existing Roadway Assessment

Traffic volumes during the 3 to 6 PM weekday period in Napoleon are an on-going problem due to the large demand that is placed on the SR 108 (Perry Street) Bridge by a combination of truck traffic; Campbell's employees leaving/entering the facilities; school busses; and the traveling public. The release times for the Napoleon School District and Campbell's shift change overlap during the first hour of this time period and create safety and congestion issues. The congestion is localized at the SR 108 Bridge northbound, SR 108 through the downtown, especially at the Scott/Clinton/Woodlawn 5-approach intersection, and SR 108 north (Scott Street) through the retail corridor of Napoleon. Traffic traveling on SR 108 into the downtown area and through the 5-approach intersection also becomes congested as trucks and buses have to make a left and right turn, which slows traffic as they negotiate tight turning radii. A transportation solution is necessary to reduce the demand on the SR 108 corridor and bridge. Congestion problems could be significantly relieved by removing a large portion of the truck traffic and relieving the influence of shift changes on the peak traffic period.

4.2 Community Costs Associated with a SR 108 (Perry Street) Bridge Closure

The *Final Planning Study Report* (refer to page III-9) conducted an assessment in 2008 of what the costs are to the community when the existing bridge is closed for either a crash or some unforeseen event. It was found the closest detour would be the US 6 Bridge to the east, which involves approximately an eight (8) mile detour. The estimated cost to the community was found to be nearly \$84,700 for a 1-day detour/closure.

4.3 Roadway Recommendations

The approved *Final Planning Study Report* (2009) made a recommendation that the two build concept alternatives to be studied in more detail include:

1. New river crossing from extending **Industrial Drive** southward across the Maumee River to connect with SR 110 on the south side of the river
2. New river crossing from extending **Enterprise Avenue (Road 12)** southward across the Maumee River to connect with SR 110 on the south side of the river

Since this recommendation in 2009, changes have occurred including key items like the new US 24 corridor has been opened which eliminated access to US 24 via Road 10; and the new PDP of ODOT now allows for a more streamlined process with faster delivery of projects to the construction phase.

Given these changes and previous documentation/analyses on this project, the Industrial Drive Corridor for a new river crossing would best solve the safety and congestion from a roadway/operational perspective versus the Enterprise Avenue (Road 12) Corridor. This is based on the following items:

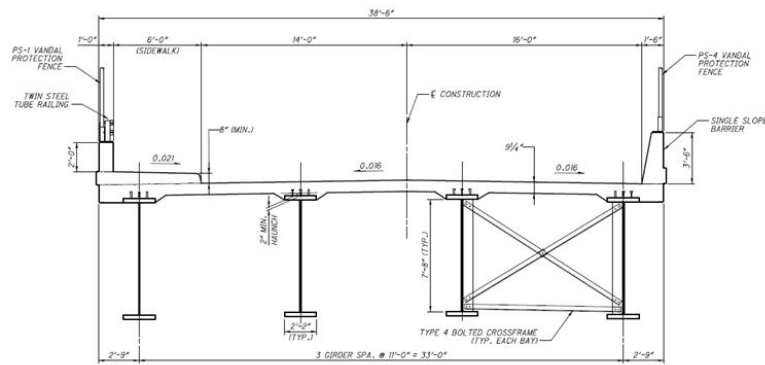
- Direct connection to the US 6/US 24 Corridor via use of the Industrial Drive interchange;
- Industrial Drive crossing would capture 56% more traffic than Enterprise Ave (Road 12) location;
- The Enterprise Avenue (Road 12) alternative would still require traffic to "back-track" on either Riverview Avenue or on Independence Drive to access US 24 at the Industrial Drive interchange;
- Traffic analysis review of roadway network conditions, capacity analyses, and crash data indicate Industrial Drive Corridor would offer improved conditions beyond those of Enterprise Avenue (Road 12) location;

- The Industrial Drive Alternative is supported by both the Henry County and City of Napoleon Comprehensive Plans as the preferred location for a new river crossing;
- The comments from the public meeting held on February 24, 2004 in which approximately 150 were in attendance indicated that 93% believed a second river crossing was needed, and of the build corridor alternatives presented, the Industrial Drive corridor received 56% support and the Enterprise Avenue (Road 12) received 33.5%;

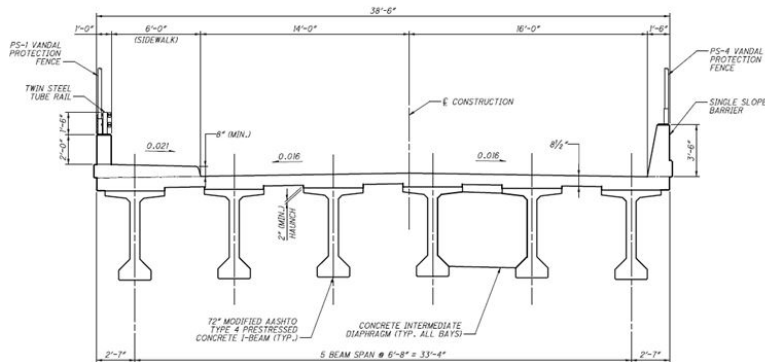
The next two sections display what a conceptual typical section would look like for the bridge, and then what the intersections could be like at both Riverview Avenue and at SR 110 with the Industrial Drive alternative.

4.4 Conceptual Typical Section

The proposed bridge and roadway will accommodate two lanes of through traffic, with adequate turn lanes, storage lengths sidewalks and signalization at both the SR 110 and Riverview Avenue (previously SR 424) intersections. The proposed bridge typical section options (steel vs. concrete) are shown below. The bridge will most likely have an approximate length of 1000 feet, and will accommodate 2 through lanes of traffic, and a 6' wide sidewalk on the west side of the bridge. If turn lanes are warranted on the north side of the river where the new river crossing intersects with Riverview Avenue, these turn lanes may require widening of the structure on the northern end of the structure depending on how long of storage length is required. On the south side of the river, any needed turn lanes at the intersection with SR 110 would not impact the bridge structure as the turn lanes would be accommodated within the vacant land area. The need for turn lanes and storage lengths will occur during the preliminary and environmental engineering phase of the project for the preferred alternative when certified traffic will be developed for the project.



Transverse Section
Steel Girder Option



Transverse Section
Prestressed Concrete Option

Figure 4.1 Conceptual Bridge Transverse Section Options

4.5 Conceptual Intersection Layout

The conceptual intersection at both the SR 110 and Riverview Avenue intersections would most likely include signalization (if applicable signal warrants met), adequate left turn and deceleration lanes, approximately 700 foot tapers, a generous truck turn radius, and open & closed drainage systems. Additional infrastructure modifications include, pavement reconstruction to accommodate increased truck traffic, raised pavement markings, applicable warning signs, curb ramps, cross walks, guardrail replacement and a connection to the Buckeye Trail which is a hiking trail being developed throughout Ohio and currently traverses along the old Miami/Erie Canal through the corridor on the north side of the river. The need for turn lanes and storage lengths will occur during the preliminary and environmental engineering phase of the project for the preferred alternative when certified traffic will be developed for the project. Signal warrants and turn lane warrants can be conducted once certified traffic is approved by ODOT. These warrant analyses will determine if traffic signals are needed as well as what turn lanes would be necessary for the two intersections on either side of the bridge where they intersect SR 110 and also Riverview Avenue. The conceptual intersection layout shown below is a graphical representation of what the intersections at these two intersections could look like if turn lanes and a traffic signal are needed.

The Industrial Drive Corridor shown below was developed so as to evaluate how much of a property impact would occur at the intersection of Industrial Drive and Riverview Avenue so as to achieve an adequate intersecting angle. To achieve the proper intersecting angle, it appears a total take would occur at the parcel located on the northeast corner of the Industrial Drive and Riverview Avenue intersection. The property owner at this location has expressed an interest to sell the property, thus if needed, the current owner is a willing seller of the property. A schematic of the Enterprise Avenue (Road 12) Corridor was not developed at this time as there was not an intersecting angle geometric issue to explore like there was at Industrial Drive.

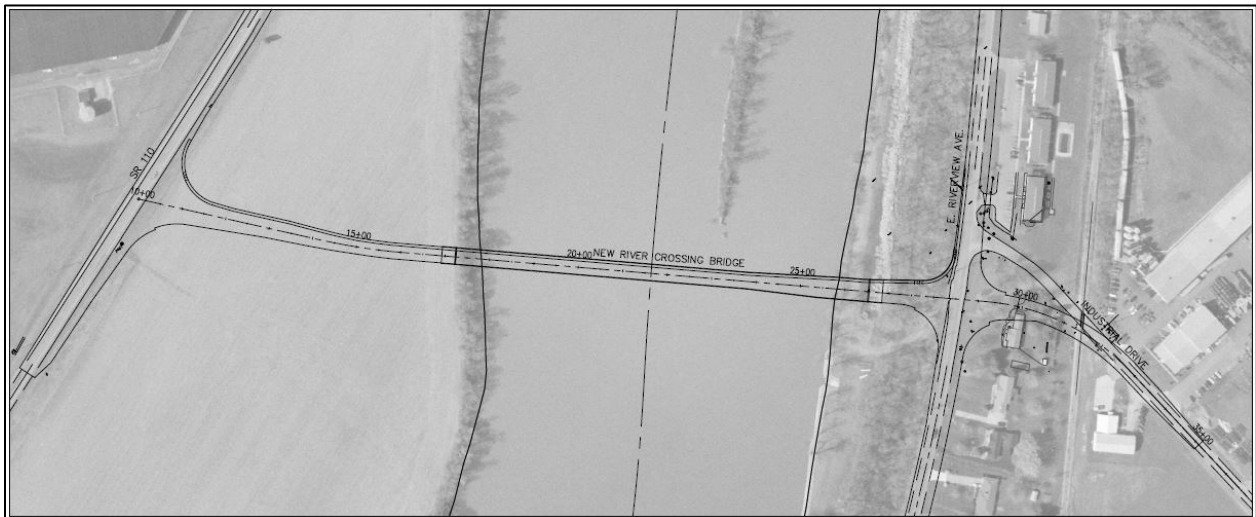


Figure 4.2 Conceptual Industrial Drive River Crossing

5.0 STRUCTURE ASSESSMENT

5.1 Existing Structures within Vicinity

The proposed project involves constructing a New Maumee River Crossing so to improve connectivity in the Napoleon vicinity, increase safety, provide a connection between existing/future industrial/manufacturing facilities; and improve access to the newly improved US 24 corridor. The City of Napoleon and areas of Henry County around Napoleon are currently serviced by two existing structures with one located within the City (Perry Street Bridge) and the other is the US 6 Bridge located approximately four miles east of the Perry Street Bridge where US 6 crosses the Maumee River in Henry County (bridge maintained by ODOT).

Perry Street (SR 108) Bridge in Downtown Napoleon, Ohio:

This structure connects the northern developed areas of Napoleon with the southern part of the City, which happens to include the area's largest employer (Campbell's Soup). The structure contains four travel lanes on the structure, and additional turn lanes on the roadway immediately off the bridge at the adjacent intersections on each side of the structure. The structure is in good condition as it was replaced in 2005. With this structure being the only access crossing the Maumee River in the City, it is critical to the City that it remain open at all times. Any event that results in a closure creates safety issues and hardships for the community and a second river crossing servicing the developed areas would be greatly beneficial for safety services, employment access, and other issues as documented in the *Final Planning Study Report*.

US 6 Bridge in Henry County, Ohio:

This structure is approximately 4 miles east of the Perry Street Bridge (mentioned above) and is maintained by ODOT. The structure has four travel lanes and US 6 is a limited access highway, so the bridge is only accessible to local traffic via interchanges located on both sides of the river adjacent to the bridge. As the closest alternative river crossing, emergency services for Napoleon must detour eight miles in order to provide vital services to the south side of the City from the Fire/EMS/Police stations that are located on the north side of the river.

5.2 Proposed Structure Improvements

The proposed structure will consist of a multiple span steel or prestressed concrete girder bridge with a composite reinforced concrete deck. The preliminary length is expected to be approximately 1000' and the superstructure depth will be approximately 8.5'. The abutments will be fixed stub abutments behind MSE abutment walls and MSE retaining walls. Thermal expansion and contraction will be accommodated with modular expansion joints. The piers will be wall type with cantilevers and all substructure units will be founded on bearing piles approximately 55' deep to bedrock.

6.0 PRELIMINARY GEOTECHNICAL ASSESSMENT

6.1 Summary of Geologic and Geotechnical Concerns

Field reconnaissance did not reveal any noticeable pavement failure or pumping, although noticeable wheel rutting at many intersections were present. Erosion is present along the banks of Maumee River especially along SR 110 adjacent to the river. Poor draining soils are prevalent within the study area. Based on record drawing information for the SR 108 Bridge over the Maumee River, the bridge is founded on bedrock at approximately 50 feet below the river bed. Pile lengths are assumed to be approximately 55' for the proposed structure. Only existing geotechnical data was reviewed at this phase of the project.

7.0 RIGHT-OF-WAY ASSESSMENT

7.1 Existing Right-of-Way Description and Assessment

A new roadway extension including a new bridge structure over the Maumee River will require acquisition of right-of-way (ROW) from property owners once the location is finalized and an alignment is set. It is likely that an 80' ROW width would be needed for the extension of Industrial Drive from Riverview Avenue (previously SR 424) southward to SR 110 on the south side of the river.

7.2 Right-of-Way Impacts

The majority of ROW needed will involve primarily farmland on the south side of the river. There would be ROW needed on the north side of the river, but it is much smaller in length and area. Also on the north side of the river the alignment would involve some City of Napoleon property associated with the old canal that passes along the north banks of the Maumee River. A newly created Buckeye Trail hiking corridor traverses the area of the old canal. Additional ROW may be necessary at both intersections if traffic signals are warranted and installed. A total take of a residential property at the northeast corner of Riverview Avenue and Industrial Drive may be necessary to achieve acceptable intersection angle geometry for the approach to a new river crossing. The current property owner of the potential total take has indicated they have a desire to sell the property since they reside at a different location and want to sell the property so they do not have to maintain two properties. Therefore, even though the Industrial Drive Corridor has a potential total take, it currently involves a property owner that has a desire to sell, and thus does not create much more in property impacts in comparison to the Enterprise Avenue (Road 12) Corridor which does not have any apparent total takes.

8.0 UTILITY ASSESSMENT

8.1 Existing Utility Description and Assessment

Existing overhead power lines with electrical poles and drainage structures are the most apparent along SR 110 & Riverview Avenue (previously SR 424). Underground gas and sanitary sewers are also anticipated.

8.2 Utility Impacts

For the purposes of this planning level effort, the following assumptions have been made regarding utility impacts:

- All utilities within the immediate proposed roadway improvement alignments will be impacted to some extent, with many requiring relocation. (This assumption has been made to ensure a conservative approach to determining total costs for each alternative).
- The determination regarding if the existing utilities are or are not within existing easements is beyond the scope of this study. Therefore, it has been assumed that the cost for all relocations will be a burden of the improvement.
- Structure mounted utilities will not be required at this time.

9.0 ENVIRONMENTAL ANALYSIS ASSESSMENT

Potential environmental issues/impacts were examined for the two build alternatives of the Industrial Drive Corridor and the Enterprise Avenue (Road 12) Corridor through a secondary source screening and limited field visits. The purpose of the environmental screening was to identify any potential environmental issues that were within or near the two build corridors. This would allow for a comparison of the two build alternatives to the No-build alternative. These environmental screenings included the following key environmental elements:

- Cultural Resources
- Parks / 4(f) Resources
- Farmland Impacts
- FEMA 100-Year Flood Plains
- Endangered / Threatened Species
- Ecological Resources
- Environmental Site Assessment (ESA) Screening

An updated Red Flag Summary Map (see *Figure 9.1*) identifies potential environmental concerns within the study area. In addition to the updated map, an Alternatives Evaluation Matrix (see *Table 11.1* or *Appendix C*) was developed with the new data and analyses to allow for a comparison of the Industrial Drive Corridor; Enterprise Avenue (Road 12) Corridor; and the No-Build Alternative. The Red Flag Summary map (see *Figure 9.1* or *Appendix D*) indicates the following potential environmental concerns need to be evaluated further in the preliminary/environmental engineering phase of the project for the preferred alternative:

Industrial Drive Corridor:

Cultural Resources – No sites identified within the corridor other than the abandoned Miami & Erie Canal on north side of the river which runs along the northern banks through the entire study area.

Parks / 4(f) Resources – The Buckeye Trail runs adjacent to the Miami & Erie Canal along north banks of the river;

Farmland Impacts – The south side of the river does have cultivated field between the river and SR 110.

FEMA 100-Year Flood Plains – There would be impacts to flood plains, however this alternative has less impacts as the elevation of the cultivated field on the south side of the river is higher than areas of the field to the east.

Endangered / Threatened Species – Potential presence of threatened mussel species and there are potential Indiana Bat habitat trees within the corridor.

Ecological Resources – The Maumee River is a State Scenic River. Wetland A is on the northern banks of the river on the western edge of the corridor, and is approximately 0.175 acres in size. Wetland B is located on the south side of the river and is approximately 0.58 acres in size.

ESA Screening – Within the corridor, there are two small potential ESA sites located between the former Miami-Erie Canal and the Maumee River (shown as Sites #6 & #8) on the Red Flag Summary Map.

Enterprise Avenue (Road 12) Corridor:

Cultural Resources – No sites identified within the corridor other than the abandoned Miami & Erie Canal on the north side of the river which runs along the northern banks through the entire study area.

Parks / 4(f) Resources – The Buckeye Trail runs adjacent to the Miami & Erie Canal along the north banks of the river. A portion of a public park is located along the north side of the river which may be a potential 4(f) site depending on park ownership and use.

Farmland Impacts – The south side of the river does have cultivated field between the river and SR 110.

FEMA 100-Year Flood Plains – There would be impacts to flood plains and this corridor has lower elevations associated with the cultivated field on the south side of the river as the flood plain becomes wider moving eastward through the corridor (see Red Flag Summary Map).

Endangered / Threatened Species – Potential presence of threatened mussel species and also there are potential Indiana Bat habitat trees within the corridor.

Ecological Resources – The Maumee River is a State Scenic River. There is a potential jurisdictional ditch running north-south in the corridor.

ESA Screening – Within the corridor, there is a large potential ESA site located in part of the vacant land on the south side of the river between the river and SR 110 (Site #11 on Red Flag Summary Map), there is also a potential ESA site (#43) located adjacent to the corridor on the northern edge along Riverview Avenue.

Once a Preferred Alternative is selected, more detailed environmental analyses will be performed on the items listed above to determine potential impacts of an alignment within the preferred alternative corridor. In addition, the environmental items listed below will be evaluated to identify potential impacts of the preferred alternative corridor:

- Wetlands / Streams
- Potential ESA (Environmental Site Assessment) Sites
- Environmental Justice Populations
- Air Quality & Noise
- Geotechnical Issues (using available data within area)
- Right-of-Way Needs

These environmental issues as well as an evaluation of how each alternative satisfies the Purpose & Need elements of the project are presented in *Table 11.1* (Alternatives Evaluation Matrix) so to easily compare the alternatives.