FINAL
I-75 PEL REPORT
August 2024

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BACKGROUND AND EXISTING CONDITIONS

PLANNING AND ENVIRONMENTAL LINKAGES (PEL) PROCESS

This report is intended to follow and address the Federal Highway Administration's (FHWA) PEL Questionnaire, which was used as the guide/table of contents to format the PEL report. The report summarizes how the PEL process was followed to ensure planning and environmental factors are considered and can be carried forward into the subsequent National Environmental Policy Act (NEPA) process. The PEL process promotes partnerships between the MDOT team and key area stakeholders, supporting an enhanced and balanced planning and decision-making process.

PROJECT BACKGROUND

The City of Monroe was founded in 1785 and has existed as a unique blend of industry, natural resources, and one of Michigan's gateway communities, welcoming visitors from beyond its southern borders. Monroe's location at the delta of the River Raisin and Lake Erie have made it a natural crossroads for centuries, from Native American tribes, European settlers, and modern industry. The city's rich history includes a prominent role in the War of 1812, memorialized by the River Raisin National Battlefield Park. This historic resource is bolstered by adjoining assets like the River Raisin Heritage Trail and Sterling State Park.

Interstate 75 (I-75) represents the primary route connecting Monroe to Detroit to the north and Ohio to the south. It is designated as a Corridor of Highest Significance, which means it serves a large segment of travel needs, connects urban areas and key activity centers, provides value to economic health and competitiveness, and moves goods, food, and products. It is listed on both the National Highway System (NHS) and National Truck Network (NTN) due to its regional and statewide importance. Within the City of Monroe, full access interchanges from I-75 exist at Exit 13 (Front Street) and Exit 14 (Elm Avenue), which are located 0.35 miles from each other but separated by the River Raisin. Additionally, access to the City is largely supported by Exit 11 to the south (Laplaisance Road) and Exit 15 to the north (Dixie Highway), which are outside of the city's boundaries but serve as primary connections to Monroe due to being recently reconstructed and improved.

The PEL project area focused on the Elm Avenue and Front Street I-75 interchanges and included traffic and operational analysis extending to the Laplaisance Road and Dixie Highway interchanges as well as the local road network. The area adjacent to the Front Street interchange is largely industrial, with anchors like DTE Energy, the Port of Monroe, Ventower Industries, and Gerdau positioned along this short stretch of roadway and contributing significant truck traffic to and from I-75 at Front Street (Exit 13). Smaller private commercial and industrial businesses exist along Elm Avenue adjacent to Exit 14, while recreational assets like the River Raisin National Battlefield Park and River Raisin Cultural Trail are also located in this area.

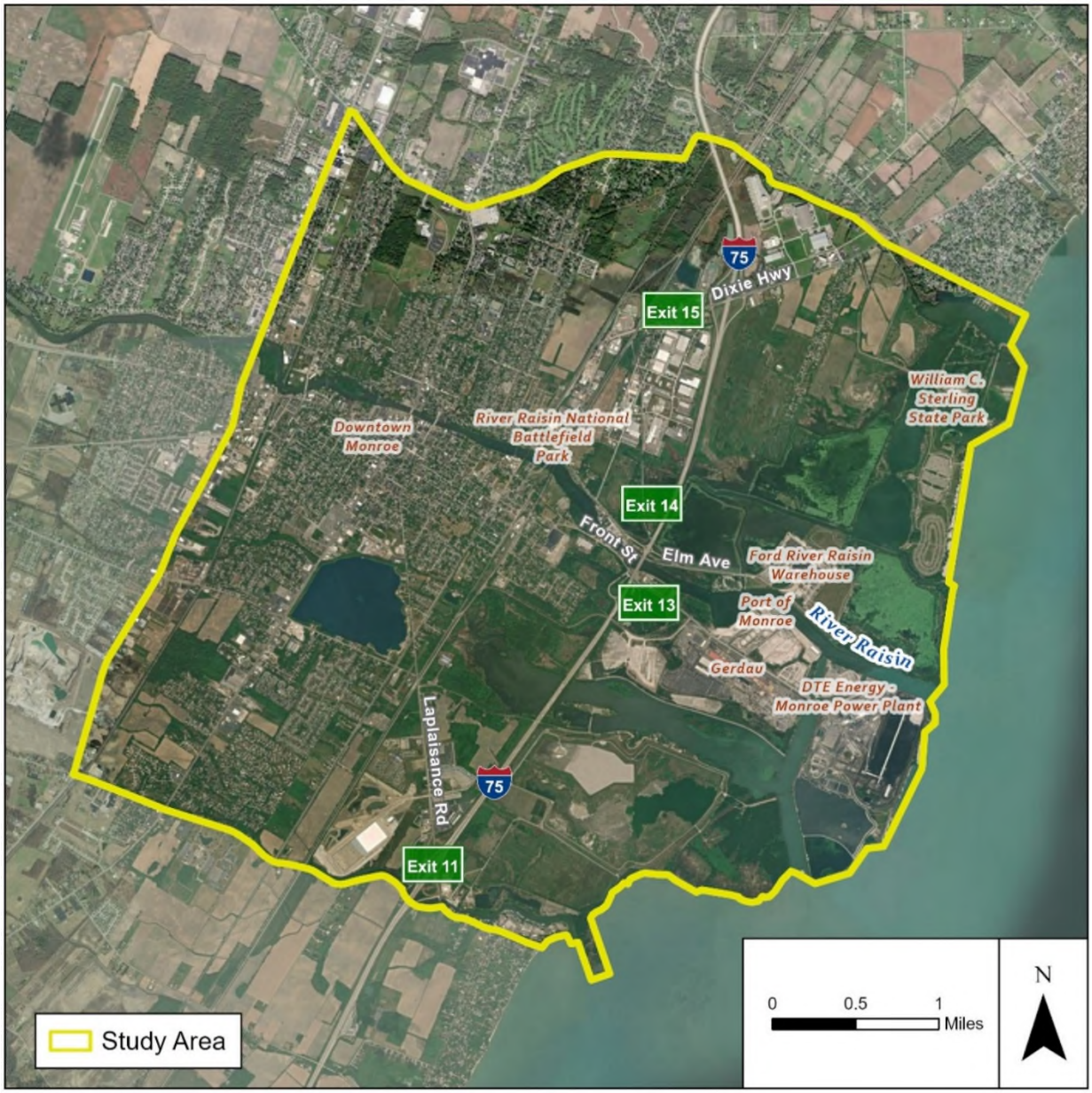
The River Raisin flows east for almost 139 miles before emptying into Lake Erie approximately two miles east of the I-75 bridge. The river is home to warm-water fish, although few migrate between the river and Lake Erie due to seven dams located in Monroe. Adjacent to the river are varying wetland complexes, most classified as palustrine emergent and palustrine scrub-shrub and dominated by non-native species. A biological site assessment of the project area observed two projected plant species. American Lotus

occupies much of the large lagoon that is located north of Elm Avenue and east of I-75, while side oats grama was observed in only one small patch in a location south of Front Street and east of I-75.

Previous projects have analyzed these interchanges for potential reconfiguration to better meet the needs of adjacent industrial properties while improving safety. The 1978 Michigan State Highway Department Engineering Report 1809 included recommendations focused on removal of the Elm Avenue and Front Street interchanges and replacement with an access road along I-75 and a new river crossing. The 2013 MDOT Interchange Feasibility Study identified four alternatives and focused primarily on geometric improvements to I-75 and the interchange ramps at Front Street and Elm Avenue. The 2019 I-75 Interchange Modification Study, completed by the city, identified additional alternatives and recommended a formal MDOT PEL process be undertaken to advance the project, which was used as the basis for this PEL project.

The I-75 PEL study area is bound by Laplaisance Road to the south, Telegraph Road (M-24) to the west, Stewart Road to the north, and Lake Erie to the east. The extent of this study area was chosen to include all environmental, structural, and social features that may be impacted by modifications made to the I-75 interchange over the River Raisin (Exits 13 and 14 on I-75). The study area is shown in Figure 1.

Figure 1. PEL Project Area



METHODOLOGY

The City of Monroe conducted the I-75 Interchange Modification Study to identify locally driven alternatives for the Front Street and Elm Avenue interchange areas, concluding with a final report in 2019. A formalized, MDOT PEL project was one of the key recommendations to emerge from the city's project, as stated:

It is also recommended the results of this project be brought to the attention of MDOT so that collaboration may begin as MDOT begins to prepare for their proposed I-75 corridor improvements. As MDOT approaches the 10-year countdown to construction, they might consider a formal PEL process, taking suggestions and input from project stakeholders into account. Much of the work has been completed in this project and will be beneficial to that effort.

The MDOT PEL project convened several of the same stakeholder groups from the city interchange modification study and further evaluated alternatives considered in the city's 2019 study. The PEL included further analysis of the alternatives, including wetland delineations, traffic analysis of the various illustrative alternatives, and more detailed engineering. The existing conditions analysis, alternatives evaluation, and traffic analysis are detailed in this report and in the appendix.

SCOPE OF PEL

The scope of work for the project followed the PEL process as outlined in the FHWA PEL Questionnaire, which resulted in the following specific scope items:

- Summarized the environmental analysis and potential impacts completed thus far for use during environmental clearance.
- Engaged and solicited input from multiple stakeholders, members of the public, resource agencies, and other partners that guided the development of all deliverables and public-facing materials.
- Developed and refined a purpose and need statement.
- Developed acceptable alternatives for use during final design.
- Documented how the acceptable alternatives address the needs within the project area, as defined in the project purpose and need.

CONNECTION TO NEPA

The PEL process is a pre-NEPA (National Environmental Policy Act) activity, with the goal to facilitate a project's ability to move into and through NEPA clearance once the PEL process is completed including the development of a project specific Purpose and Need, evaluation of a full range of alternatives, and stakeholder engagement. As such, NEPA-like terminology and analysis were used during the project to accommodate future NEPA classification and clearance along with coordination with Michigan FHWA.

DECISION-MAKING PROCESS

Admin Team

The Admin team was first convened in February 2022 and guided the PEL throughout the entire process, from project scoping and selection of the LAC to the evaluation and selection of the acceptable alternative.

The Admin Team had representatives from the Michigan Department of Transportation (MDOT), Monroe County Road Commission, the City of Monroe, and consultants WSP, AECOM, OHM, and GEI. A full list of Admin Team members can be found in Appendix H.

Local Advisory Committee

The decision makers throughout the project process consisted of the MDOT team and the Local Advisory Committee (LAC). Members of the LAC included:

- City of Monroe
- DTE Energy
- Federal Highway Administration (FHWA)
- Gerdau
- Michigan Department of Natural Resources (MDNR)
- Michigan Paving and Materials Company
- Monroe County
- Monroe County Road Commission
- National Park Service
- Port of Monroe
- River Raisin National Battlefield Park Foundation
- Southeast Michigan Council of Governments (SEMCOG)
- United States Fish and Wildlife Service (USFWS)
- Ventower Industries

The LAC convened at several critical stages of the PEL process, including (1) project kickoff, (2) purpose and need (P&N) development, (3) illustrative alternatives, (4) practical alternatives, and (5) selection of an acceptable alternative. The LAC was key in providing input at each stage and obtaining comments and concurrence prior to community engagement activities. The LAC helped shape the final P&N, provided their insights about the existing issues within the project area, provided feedback on the illustrative alternatives, and were asked to share input on practical alternatives.

FHWA

The Federal Highway Administration (FHWA) was part of the LAC and consulted at several stages of the PEL process, including project scoping at the beginning of the PEL process, P&N statement drafting, alternatives evaluation, and evaluation and selection of an acceptable alternative.

AGENCY COORDINATION

LOCAL ADVISORY COMMITTEE (LAC) MEETINGS

MDOT established the LAC at the outset of the project by building from the city's previous stakeholder group and updating accordingly. As detailed above, five (5) LAC meetings were held at key stages of the project to aid MDOT in the decision-making process.

LAC Meeting 1: February 24, 2022

At the first LAC meeting, the project team began the meeting by having the LAC members introduce themselves after providing an overview of the LAC's role in the PEL process. The project team provided an overview of the PEL study process and its core deliverables. They also went over previous studies that were helping inform the PEL process, and how alternatives from a previous study were being considered for future evaluation. Following this overview, the project team presented on existing conditions, local concerns and priorities, and constraints (such as wetlands in the study area and sites of environmental contamination). The LAC also read the draft purpose and need and learned about their role in helping develop the final purpose and need, which would take place over the next few meetings. Finally, the project team informed the LAC about the upcoming outreach and engagement process.

LAC Meeting 2: April 27, 2022

At the second LAC meeting, the committee discussed the existing conditions within the PEL study area in depth and discussed any other potential items that would need to be considered under the existing conditions, including recreational resources and planned development. The committee then read and provided feedback on the draft purpose and need. Finally, the committee discussed next steps and provided recommendations on where to hold the June LAC meeting.

LAC Meeting 3: June 8, 2022

After a discussion about existing conditions, the LAC discussed the draft purpose and need and provided helpful comments about traffic and active transportation, parks, gateway improvements, and lighting. This included offering input about how surrounding parks will be impacted by future changes within the project area; the need to coordinate with surrounding property owners if certain roadways (like Elm Avenue) were going to be removed or realigned; and specific ideas for how to improve the project area as a gateway. The project team informed the LAC that the next steps would be to finalize the purpose and need and to begin developing alternatives.

LAC Meeting 4: November 11, 2022

At the November LAC meeting, the LAC was able to review the final purpose and need that they had helped develop over the previous few meetings. After this, the project team presented the illustrative alternatives, including descriptions and diagrams of each. They offered input on the alternatives and were also informed about the ways the public could submit feedback about the alternatives. The project team informed the LAC about the evaluation process for the illustrative alternatives before discussing next steps and adjourning.

LAC Meeting 5: March 15, 2023

At the final LAC meeting, the project team presented the results of the alternatives evaluation. There were 10 criteria, with a mix or qualitative and quantitative scores. For each illustrative alternative, scores were highlighted if they ranked high among the other alternatives. When showed these results side by side, the

LAC was able to see the three alternatives that ranked the highest and could be moved forward as practical alternatives. The LAC was also informed about the results of public input on the illustrative alternatives, and how that informed practical alternatives selection. The project team then presented on the three practical alternatives: Alternative 3, Alternative 5A, and Alternative 5B. The LAC was informed that the practical alternatives would be refined based on input from both the LAC and the community before acceptable alternative(s) were presented to agencies and stakeholders.

OTHER AGENCY MEETINGS

MDOT engaged with several other stakeholders throughout the process for targeted feedback and to raise awareness about the project at key milestones.

Monroe Downtown Business Meeting: May 17, 2022
This meeting was held early in the PEL process, and business stakeholders were given an overview of the PEL and were invited to offer input on the draft purpose and need.

Monroe Council on the Environment (COTE) Meeting: July 12, 2022
The project team went over the existing conditions of the corridor and read the purpose and need statement. The COTE then discussed a variety of suggestions for environmental topics to consider as part of the project, and also asked questions related to property acquisition and whether the Army Corps would be involved. The project team used the information from this meeting to further refine its existing conditions and environmental constraints analysis.

Elm Avenue Business Meeting: August 31, 2022
Stakeholders invited to this meeting were given an overview of the PEL. The project team presented on and sought feedback on different topics including the existing conditions, the purpose and need, and useful information that could inform the development of the illustrative alternatives. The stakeholders were also informed on community engagement efforts and next steps.

MDOT Internal Coordination Meeting: September 22, 2022
The purpose of this meeting was to discuss the details of and further refine the illustrative alternatives prior to them being released for public input. The project team also went over the schedule for all phases of the project, including alternatives evaluation and the final PEL report.

Port of Monroe Meeting: September 26, 2022
The purpose of this meeting was for the project team to seek input from the Port of Monroe about the wetlands around the port, including previous wetland studies, the history of the various wetlands, and any important context about the wetlands. The attendees from the Port of Monroe were also able to provide useful information about the current and previous development plans and port activity. The meeting attendees discussed data sharing and, after the meeting, the stakeholders from the Port sent wetland delineation data to the project team that would inform the PEL wetland delineation/memo.

RESOURCE AGENCY COORDINATION

The following resource agencies were invited to participate in the I-75 Monroe PEL study due to the potential for ecological impacts (wetlands, river, threatened and endangered species).

- U.S. Fish and Wildlife Service (USFWS) – Threatened and Endangered Species
- Michigan Dept. of Environment, Great Lakes, and Energy (EGLE) - Part 301 and 303 permits

- U.S. Corps of Engineers - Section 10 permit and Section 404 permit
- U.S. Coast Guard - Section 9 permit

Resource Agency Coordination Meeting: July 20, 2023

This meeting included an overview of the PEL process and the illustrative alternatives evaluation scores before discussing the practical alternatives that emerged from the evaluation process and was attended by USFWS and EGLE.

In addition to the July 20, 2023, meeting, MDOT and EGLE met on September 27, 2023, to review wetlands south of the River Raisin, and then again on November 7, 2023, to review wetlands north of the River Raisin.

PUBLIC COORDINATION

COMMUNITY MEETINGS

Four (4) community meetings were held during the PEL process and, in alignment with LAC meetings, were held at key stages of the project to aid MDOT in the decision-making process. Presentations for each community meeting can be found in Appendix A. The format of each meeting consisted of a short presentation followed by Q&A and additional open house discussion.

Community Meeting 1: June 8, 2022

Community Meeting 1 was hosted at the Opportunity Center which is located at the Arthur Lesow Community Center in Monroe and was attended by approximately 20 members of the community. The meeting included a brief presentation that provided an overview of the PEL process, existing conditions, purpose and need (P&N), and next steps. Following the presentation, attendees gathered around table-top maps with the MDOT team to discuss challenges and opportunities that should be considered as alternatives are developed.

Attendees noted the challenges that the current interchanges present and that most travelers prefer to utilize the Dixie Highway and Laplaisance Road interchanges to access the city, which was similar to what the project team heard from the LAC. In addition to providing input about challenges, community meeting attendees also noted several suggestions for how the interchanges could be improved and considerations for the project team to deliberate during alternatives development.

Figure 2. Community Meeting 1

Community Meeting 2: November 16, 2022

Community Meeting 2 was hosted virtually on Zoom and was attended by approximately 10 members of the community. The meeting included a brief presentation that provided an overview of the PEL process to date but focused primarily on the illustrative alternatives. Following the presentation, attendees were able to ask questions during live Q&A and provide comments using the chat function.

Attendees noted the safety issues that exist at the current interchanges and that each illustrative alternative would represent an improvement to the existing condition. Many attendees voiced support for Alternative 3 and Alternative 5A/B, noting that they would limit impacts to adjacent properties and wetland areas while providing more access and safer conditions. Attendees were also curious to understand the implications of closing the Elm Avenue interchange in all the "B" alternatives and how that might impact access and circulation within the area.

Community Meeting 3: March 15, 2023

Community Meeting 3 was hosted at the River Raisin National Battlefield Park Visitor Center and was attended by approximately 40 members of the community. The meeting included a brief presentation that provided an overview of the PEL process to date but focused primarily on the process for evaluating and determining the practical alternatives. Following the presentation, attendees were able to ask questions during Q&A and provide additional input on the alternatives in an open house format.

Attendees voiced support for the practical alternatives, consistent with input received during the illustrative alternatives phase. Attendees again noted the challenges with eliminating the Elm Avenue interchange and noted that Alternative 3 would create additional access throughout the project area that would not be possible in other alternatives. Attendees were eager to see cost considerations as part of the next phase of the alternatives process.

Community Meeting 4: November 1, 2023

Community Meeting 4 was hosted at the River Raisin National Battlefield Park Visitor Center and was attended by approximately 30 members of the community. The meeting included a brief presentation that provided an overview of the PEL process to date but focused primarily on the process for evaluating and determining the acceptable alternatives. Following the presentation, attendees were able to ask questions during Q&A and provide additional input on the alternatives in an open house format.

Attendees voiced support for the acceptable alternatives, noting that each would represent a major improvement to the existing conditions. Attendees also voiced support for MDOT's decision to advance two (2) alternatives into the NEPA phase so that the elimination of the Elm Avenue interchange could be assessed further and that the collector-distributor (C/D) road alternative could remain possible if funding was identified. Attendees also wanted to understand next steps in the process and when construction could be expected.

OTHER COMMUNITY ENGAGEMENT METHODS

Surveys

Two surveys were conducted to solicit public feedback throughout the PEL process. Survey One, which received 219 responses, presented the nine illustrative alternatives alongside diagrams and descriptions. Respondents then ranked each alternative on a scale of 1-5, from "not in favor" to "in favor." Survey Two, which received 20 responses, was conducted after the alternatives were narrowed down to three practical

alternatives; respondents were asked to give their top choice a three-star rating. They were also asked about whether they want to open or close the Elm interchange. The full surveys are in Appendix B.

Public meetings were supplemented by presentation videos that were available through YouTube and MDOT's I-75 project website. MDOT published three presentation videos throughout the PEL process, linked below:

- November 2022: Meeting Video, YouTube – 3,100 views
- March 2023: Meeting Video, YouTube – 376 views
- November 2023: Meeting Video, YouTube – 197 views

PURPOSE & NEED (P&N)

The P&N statement is a critical part of a PEL project, as it creates a foundation early in the planning process that is constantly referenced in subsequent tasks. Per FHWA guidance, "the purpose and need of a project is essential in establishing a basis for the development of the range of reasonable alternatives" and "assists with the identification and eventual selection of an acceptable alternative."

DEVELOPMENT OF PURPOSE & NEED

This project emerged from the City of Monroe's past planning efforts which established goals and objectives, evaluated alternatives, and ultimately recommended a formal PEL process be undertaken by MDOT. As such, the previous project was an excellent resource for understanding the challenges, opportunities, and goals/objectives outlined through the city's effort in collaboration with key stakeholders in the area. The issues and concerns identified in the previous project included:

- Safety
- Lighting
- Weaving/merging
- Length of ramps
- Turning radii
- Industrial capacity
- Lack (inadequacy) of signage

The goals and objectives established in the previous project included:

- Safety
- Ramp geometry
- Industrial capacity
- Aesthetics
- Gateway to port and city
- Access to/between Elm Avenue and Front Street

Using the information from the previous project as a resource, it was critical that the P&N be clear and concise, lead to a more focused project scope, encourage a range of alternatives, justify the project to stakeholders and decision-makers, and ultimately serve as the foundation of the PEL and direct the establishment of evaluation criteria. A draft P&N statement was created and shared with the LAC, MDOT environmental staff, FHWA, stakeholders, and the community. Through multiple phases of engagement and review, the final P&N was established.

FINAL PURPOSE & NEED

Purpose

The purpose of the I-75 Elm Avenue and Front Street interchange project is to improve safety and operations for all users of this freeway segment and the Front Street and Elm Avenue interchanges while minimizing impacts to the natural environment and adjoining properties while enhancing positive benefits to the community, businesses, and roadway users.

Need

- The infrastructure associated with I-75 in this area (roadway and bridge) that has reached the end of its useful life.
- Geometry at both interchanges is sub-standard (weave/merge distances, ramp grades, ramp radii) and creates safety issues for motorists and truck traffic.
- There are limited active transportation facilities that provide access to the River Heritage Trail and other recreational assets in the area.
- The City of Monroe lacks a defined gateway into the downtown area for motorists traveling from I-75.

Once finalized, the purpose and need statement was used as the basis for the development of the alternatives evaluation matrix that compared the alternatives against how well they met the purpose and need.

Based on the multiple reviews, opportunities for input, and resulting refinement during the development of the purpose and need statement, the statement should be able to move directly into the NEPA process as the project-level purpose and need.

PLANNING ASSUMPTIONS AND ANALYTICAL METHODS

RANGE OF ALTERNATIVES

The range of alternatives covers a variety of options to ensure a full range of potential solutions were considered. This is a critical step in the PEL process. One assumption that changed from the 2019 I-75 Interchange Modification Study led by the City was the assumption regarding the replacement of the bridge over the River Raisin. In the 2019 study, it was not known whether the bridge would be replaced by MDOT; during the PEL study, MDOT indicated the bridge would be replaced due to its age and overall condition. With the replacement of the bridge, a variety of alternatives were able to be considered.

ALTERNATIVE EVALUATION CRITERIA

The intent of the alternatives development and evaluation process is to identify and screen a broad range of reasonable alternatives that consider the constraints and diverse characteristics located within the project area. The alternatives evaluation process included developing criteria based on the project P&N, applying the P&N to the illustrative alternatives, documenting the elimination of alternatives that did not meet the overall project P&N, and identifying alternatives that moved forward into more detailed evaluation.

The evaluation criteria were developed with input from the local advisory group and include qualitative and quantitative screening measures of each alternative. The criteria and methodology utilized to perform the evaluation of alternatives are summarized below.

Active Transportation
This criterion was established to determine how well alternatives connect to existing and proposed active transportation trails and destinations. Alternatives were rated on a qualitative scale of “good,” “better,” or “best” based on the level of access to active transportation.

Aesthetics
This criterion was established to determine potential aesthetic improvement opportunities associated with each alternative. Alternatives were rated on a qualitative scale of “good,” “better,” or “best” based on the level of opportunity provided for aesthetic treatments and enhancements.

Constructability
This criterion was established to measure and assess how complex each alternative would be to construct. Alternatives were rated on a qualitative scale of “good,” “better,” or “best” based on anticipated complexity of bridge and interchange construction.

Environmental Impacts
This criterion was established to determine the level of anticipated potential environmental impacts associated with each alternative. Alternatives were rated on a qualitative scale of “minimal,” “moderate,” or “significant” based on potential impacts to air quality, ecological resources (wetlands, river, threatened and endangered floral and fauna), contaminated sites, historic resources, parks and recreational resources.

Environmental Justice

This criterion was established to determine potential impacts to disadvantaged populations associated with each alternative. Using the federal government's Climate and Economic Justice Screening Tool established as part of the Justice40 initiative, it was determined that census tract #26115831800 (south of the River Raisin) is classified as disadvantaged. While most of this tract is industrial, the Orchard East neighborhood directly west of the project area includes over 1,000 residents that could potentially be impacted by the project. Alternatives were rated on a qualitative scale of "good," "better," or "best" based upon potential impacts to this neighborhood.

Maintenance

This criterion was established to assess the anticipated level of maintenance that would be required with each alternative. Alternatives were rated on a quantitative scale that included the total square footage of bridge and roadways as well as the number of unique elements that would require ongoing maintenance.

Right-of-Way Impacts

This criterion was established to compare anticipated right-of-way impacts associated with each alternative. Alternatives were rated on a quantitative scale of impacts to adjacent property by total acreage.

Safety

This criterion was established to assess the potential safety improvements associated with each alternative. Alternatives were rated on a qualitative scale of "worse," "good," "better," or "best" based on the merge/weave distance between the Front Street and Elm Avenue interchanges, the number of design exceptions required to build ramps that are below current standards, and whether a weave is present within the alternative.

Traffic Operations

This criterion was established to compare impacts to traffic operations associated with each alternative. Alternatives were rated on a qualitative scale of "good," "better," or "best" based on potential delay and added travel time associated with each.

Wetland Impacts

This criterion was established to compare anticipated potential wetland impacts associated with each alternative. Alternatives were compared by quantifying acres of anticipated wetland impacts associated with each.

RANGE OF ALTERNATIVES

A wide range of illustrative alternatives were considered as part of the brainstorming meeting held at the onset of the study (June 2022). The illustrative alternatives were identified based on the specific needs, goals, and objectives of the PEL to meet the purpose and need. Alternatives from the city-led 2019 I-75 Interchange Modification Study were reviewed and evaluated as part of the brainstorming meeting. As mentioned in the previous section, the confirmation that the bridge over the River Raisin would be replaced allowed the PEL project team to consider a wider variety of alternatives than in the 2019 study.

These alternatives were then ranked against an evaluation matrix that helped determine how well alternatives aligned with the P&N. This helped narrow down the most viable options, known as the practical alternatives. After further evaluation, the PEL team was able to determine acceptable alternatives. This section walks through the alternatives evaluation process.

ILLUSTRATIVE ALTERNATIVES

The close proximity of the Front Street and Elm Avenue interchanges (approximately 1800 feet apart) results in safety issues for vehicles entering and exiting the I-75 freeway due to short ramps, limited merge distances, and slow acceleration speeds for trucks entering the freeway. Closing one of the interchanges would vastly improve the safety and operations of the interchange by eliminating the conflict between two interchanges located so close together. Through discussions with local stakeholders, it was decided Front Street was the preferred interchange to the City of Monroe if only one interchange could be provided. With that in mind, four of the five illustrative alternatives included a “B” option that proposes closing the Elm Avenue interchange. The “A” alternative focused on the Front Street interchange and kept the Elm Avenue interchange open.

Alternative 1A – Elm Open

Alternative 1A would realign Front Street and the Front Street interchange to the south of its current location to allow for adequate acceleration and deacceleration ramps to and from the freeway. The existing Elm Street interchange would remain. A diagram of Alternative 1A is included as an attachment to this report.

Pros:

- Front Street ramps geometrics meet standards
- Provides adequate accel/decel distance on Front Street ramps

Cons:

- Maintain existing layout on Elm Street ramps
- Extensive ROW impacts
- Extensive wetland impacts
- Requires railroad structure reconstruction

Alternative 1B – Elm Closed

Alternative 1B would include the same modifications to the Front Street interchange as Alternative 1A, but close the Elm Avenue interchange allowing for safer merging on and off the freeway. A diagram of Alternative 1B is included as an attachment to this report.

Pros:

- Front Street ramps geometrics meet standards
- Provides adequate accel/decel distance on Front Street ramps
- Eliminates existing weave between Front Street and Elm Avenue interchanges

Cons:

- No access at Elm Avenue
- Extensive ROW impacts
- Extensive wetland impacts
- Requires railroad structure reconstruction

Alternative 2A – Elm Open

Alternative 2A would reconfigure the Front Street interchange without relocating Front Street itself, allowing easier and safer access to and from the freeway. The existing Elm Street interchange would remain. A diagram of Alternative 2A is included as an attachment to this report.

Pros:

- Front Street ramps geometrics meet standards
- Provides adequate accel/decel distance on Front Street ramps

Cons:

- Maintain existing layout on Elm Street ramps
- Extensive ROW impacts
- Extensive wetland impacts
- Requires two new railroad structures

Alternative 2B – Elm Closed

Alternative 2B would include the same modifications to the Front Street interchange as Alternative 2A, but close the Elm Avenue interchange allowing for safer merging on and off the freeway. A diagram of Alternative 2B is included as an attachment to this report.

Pros:

- Front Street ramps geometrics meet standards
- Provides adequate accel/decel distance on Front Street ramps

Cons:

- No access at Elm Avenue
- Extensive ROW impacts
- Extensive wetland impacts
- Requires two new railroad structures

Alternative 3 – Front and Elm Open

Alternative 3 would introduce a new collector-distributor road alongside the freeway which would allow for safer entrance and exit/merges with the mainline I-74 traffic and also maintain access to both the Front Street and Elm Avenue interchanges. A diagram of Alternative 3 is included as an attachment to this report.

Pros:

- CD roads reduce mixing of mainline traffic vs interchange traffic
- CD roads accommodate current geometry
- Standard geometry for entrance and exit ramps to mainline
- Minimal ROW impacts
- Minimal wetland impacts

Cons:

- Geometrics for Front Street and Elm Avenue ramps are substandard (tight radii and short weave segments)
- Extended CD road along mainline I-75 (1.5 miles)
- Requires multiple widened or new bridge structures
- High cost

Alternative 4A – Elm Open

Alternative 4A would realign the Front Street interchange south of its current location, allowing easier and safer access to the freeway. A diagram of Alternative 4A is included as an attachment to this report.

Pros:

- Improved ramp standards
- Simpler geometry provides safer entrances and exits
- Pulls Front Street away from the wastewater treatment plant
- Relocated Front Street can use existing bridge

Cons:

- Widening of I-75 required
- Proximity to wastewater treatment plant will impact I-75 widening for northbound entrance ramp
- Bridges over railroad and Raisin River impacted
- Wetland impacts

Alternative 4B – Elm Closed

Alternative 4B would include the same modifications to the Front Street interchange as Alternative 4A but close the Elm Avenue interchange, allowing for safer merging on and off the freeway. A diagram of Alternative 4B is included as an attachment to this report.

Pros:

- Improved ramp standards
- Simpler geometry provides safer entrances and exits
- Pulls Front Street away from the wastewater treatment plant
- Relocated Front Street can use existing bridge

Cons:

- No access at Elm Street
- Widening of I-75 required
- Proximity to wastewater treatment plant will impact I-75 widening for northbound entrance ramp
- Bridges over railroad and Raisin River impacted
- Wetland impacts

Alternative 5A – Elm Open

Alternative 5A would reconstruct both interchanges in-kind to limit impacts to adjacent properties and natural habitats, while improving the geometry of ramps for safer and more efficient access to the freeway. A diagram of Alternative 5A is included as an attachment to this report.

Pros:

- Front Street ramp geometrics meet standards
- Provides adequate accel/decel distances
- Improvement to Elm Avenue ramp geometrics
- Minor wetland impacts
- Lowest cost

Cons:

- Some moderate ROW impacts
- Maintain substandard geometrics at Elm Avenue Ramps
- Requires structure expansion or new bridge over railroad

Alternative 5B – Elm Closed

Alternative 5B would include the same modifications to the Front Street interchange but close the Elm Avenue interchange, allowing for safer merging on and off the freeway. A diagram of Alternative 5B is included as an attachment to this report.

Pros:

- Front Street ramp geometrics meet standards
- Provides adequate accel/decel distances
- Improvement to Elm Avenue ramp geometrics
- Minor wetland impacts
- Lowest cost

Cons:

- No access at Elm Avenue
- Some moderate ROW impacts
- Requires structure expansion or new bridge over railroad

Table 1 illustrates how the illustrative alternatives compare to each other when graded against the evaluation criteria and indicates whether the alternative was eliminated or carried forward as a practical alternative. Alternatives 3, 5A, and 5B all tested better than the other alternatives, achieving the highest grade in six (6), four (4), and five (5) categories, respectively.

Table 1. Score Comparison of Illustrative Alternatives

Criteria	1A	1B	2A	2B	3	4A	4B	5A	5B
Active Transportation	Good	Better	Good	Better	Good	Good	Better	Good	Better
Aesthetics	Good	Better	Good	Better	Best	Good	Better	Good	Better
Constructability	Good	Good	Good	Good	Better	Good	Good	Good	Good
Environmental Impacts	Significant	Significant	Moderate	Moderate	Minimal	Significant	Significant	Minimal	Minimal
Environmental Justice	Good	Good	Better	Better	Best	Good	Good	Better	Better
Maintenance	Good	Better	Better	Better	Good	Good	Good	Better	Best
Right-of-way Impacts	20.9 acres	20.9 acres	22.0 acres	22.0 acres	7.7 acres	37.8 acres	37.8 acres	4.8 acres	4.8 acres
Safety	Worse	Best	Good	Best	Better	Worse	Best	Good	Best
Traffic Operations	Best	Good	Best	Better	Best	Best	Better	Best	Good
Wetland Impacts	8.44 acres	8.44 acres	6.48 acres	6.48 acres	1.70 acres	5.34 acres	5.34 acres	1.67 acre	1.67 acre
Summary of Results	Eliminated	Eliminated	Eliminated	Eliminated	Carried Forward	Eliminated	Eliminated	Carried Forward	Carried Forward

In addition to the evaluation process, MDOT solicited direct community feedback on the illustrative alternatives using an online survey (Appendix B). Table 2 illustrates the results of the survey; with over 200 responses, Alternatives 3 and 5A were scored the highest by the survey respondents. Common themes from the open-ended survey questions included a desire to keep the Elm Avenue interchange open, improve safety, improve roadway quality, and protect and expand natural habitats.

Table 2. Average Score of Survey Results

Alternative	Avg. Score
1A	2.49
1B	1.98
2A	2.85
2B	2.41
3	3.08
4A	2.64
4B	2.04
5A	3.01
5B	2.40

Ultimately, the qualitative and quantitative evaluation helped determine whether the illustrative alternatives were aligned with the project P&N. All but three alternatives were screened out during the illustrative alternatives process:

- 1 (A and B): Though Alternative 1A was ranked highly for traffic operations, it had one of the poorer safety ratings among the rest of the alternatives. 1B had a high safety rating. However, both alternatives would have significant environmental impacts, including wetland disturbance. 1B was also the lowest ranked alternative in the survey results.
- 2 (A and B): 2A ranked well from a traffic operations standpoint but poorly from a safety standpoint. 2B ranked well from a safety standpoint. However, both alternatives would have moderate environmental impacts and some of the largest right-of-way impacts among the illustrative alternatives.
- 4 (A and B): Both 4A and 4B would have had the largest right-of-way impacts among the illustrative alternatives. They would also have significant environmental impacts. From a safety standpoint, 4A had a ranking of “worse” for safety.

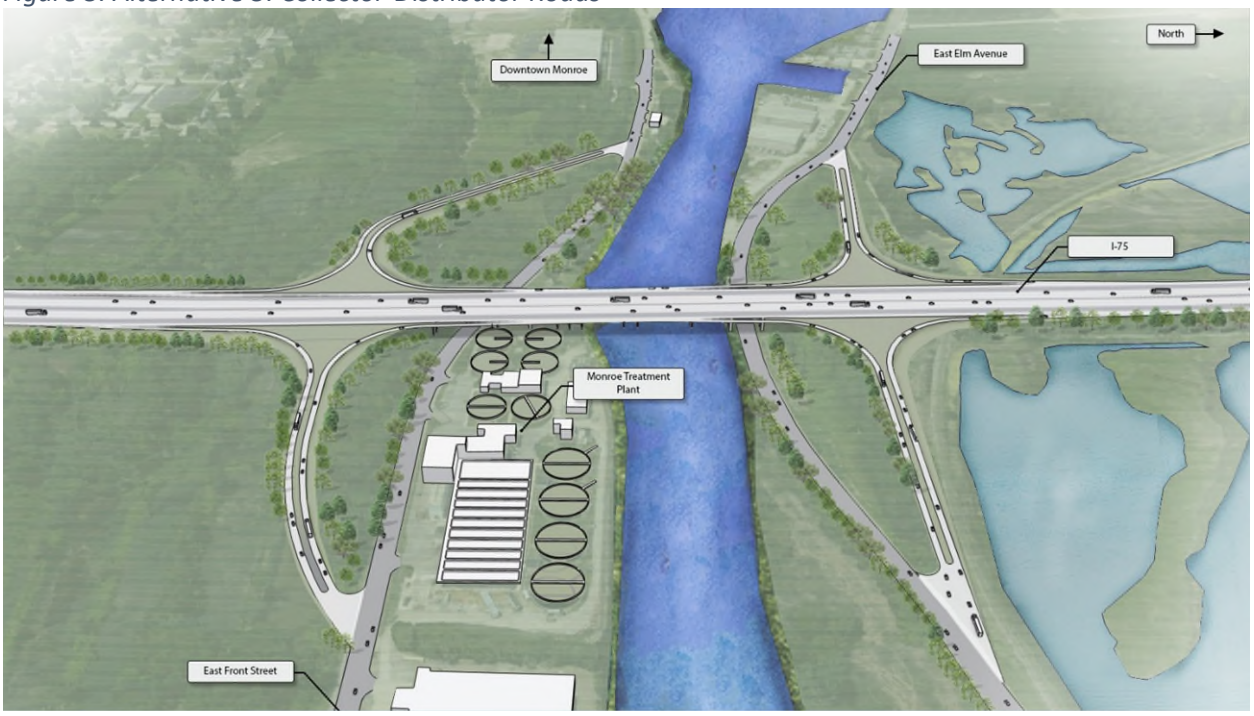
PRACTICAL ALTERNATIVES

Based on the illustrative alternatives evaluation and community feedback, alternatives 3, 5A, and 5B were carried forward as practical alternatives. These three practical alternatives were then evaluated against each other based on the evaluation criteria. Conceptual cost estimates for each alternative were developed to provide additional criteria for consideration.

Alternative 3

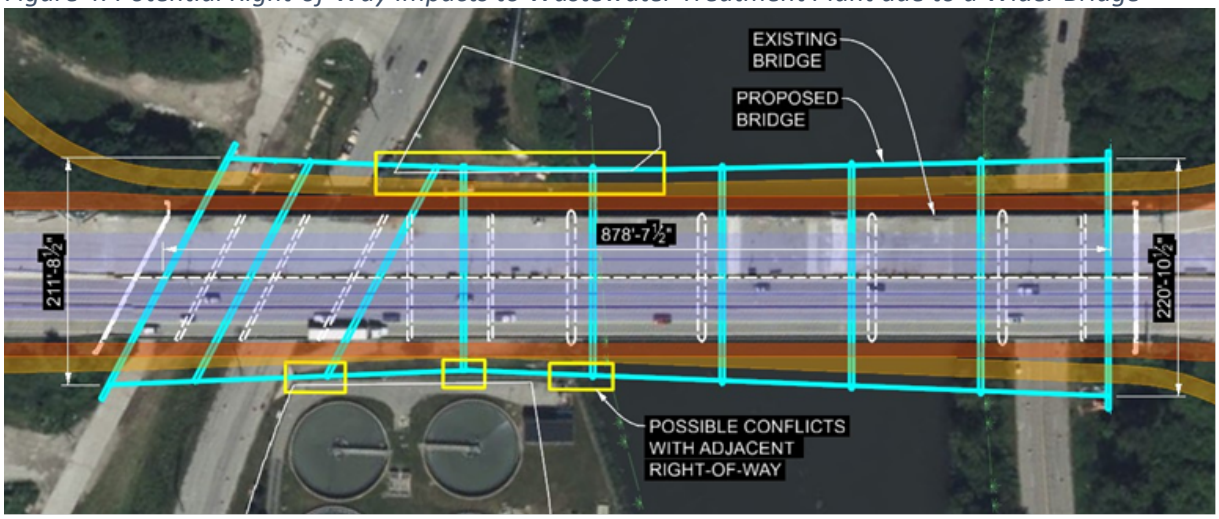
This alternative would add a new 1.5-mile collector-distributor (CD) road adjacent to the mainline freeway which allows for slower exit and merge speeds between the mainline I-75 traffic and the exit/entrance ramps at the Front Street and Elm Avenue interchanges. The CD roads reduce the mixing of mainline traffic vs interchange traffic and accommodates the current interchange geometry and both interchange locations. This alternative results in minimal wetland impacts. Right-of-way is needed along the south side of Front Street both east and west of the freeway to construct new freeway ramps. The CD road alternative requires a much wider bridge over the River Raisin along with approximately 1.5 miles of freeway reconstruction which results in greater overall construction costs including a wider bridge over the existing rail line located just south of the Front Street interchange.

Figure 3. Alternative 3: Collector-Distributor Roads



Since Alternative 3 requires a wider bridge than the current configuration, the bridge expansion will create possible conflicts with the wastewater treatment plant located in the southeast quadrant of the existing bridge. Of the practical alternatives, this is a constructability challenge that is unique to Alternative 3. The bridge expansion and location of the wastewater treatment plant is shown in Figures 3 and 4.

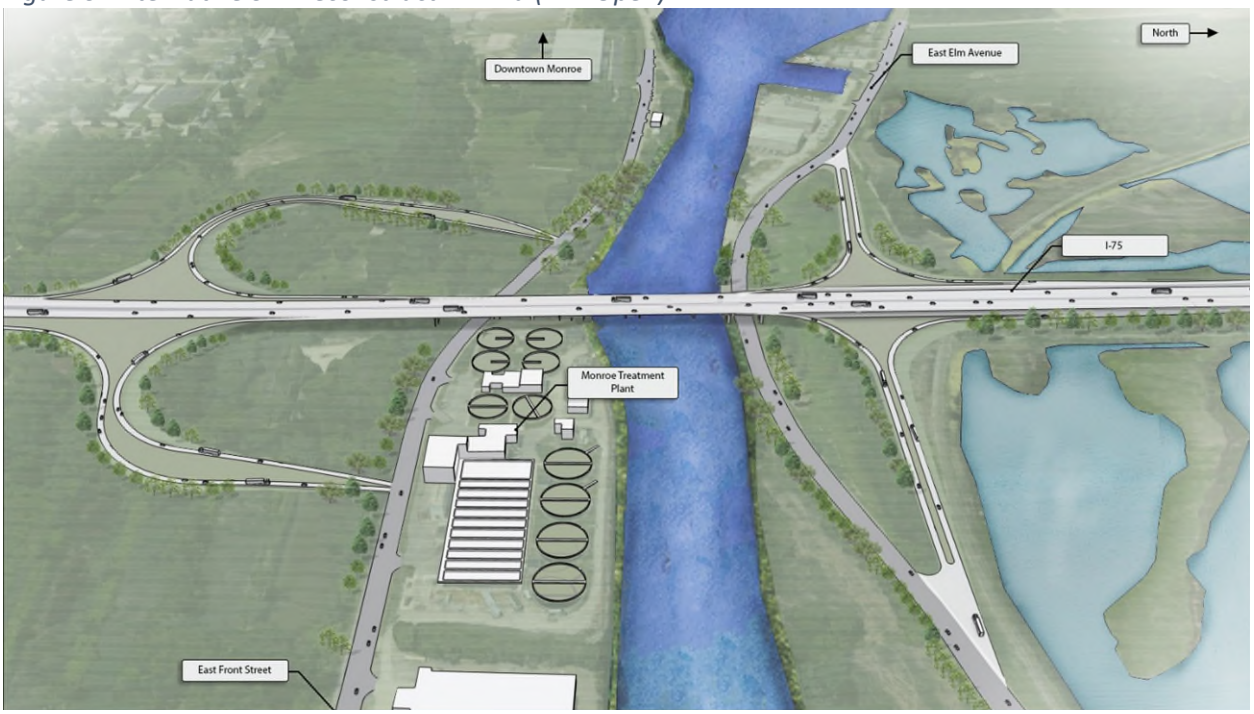
Figure 4: Potential Right-of-Way Impacts to Wastewater Treatment Plant due to a Wider Bridge



Alternative 5A

This alternative would reconstruct both interchanges similar to the existing layout to limit impacts to adjacent properties and natural habitats, while improving the geometry of the Front Street ramps but maintaining the substandard geometrics of the Elm Avenue ramps. This alternative has minimal wetland impacts and is significantly lower in cost than Alternative 3. Minimal right-of-way is needed along the south side of Front Street both east and west of the freeway to improve the ramp alignments.

Figure 5. Alternative 5A: Reconstruct In-Kind (Elm Open)



Alternative 5B

This alternative is the same as Alternative 5A, except it closes the Elm Avenue interchange which removes the merging and weaving of traffic at this location which improves the operations of the Front Street interchange. Right-of-way impacts and wetland impacts are the same as Alternative 5A.

Figure 6. Alternative 5B: Reconstruct In-Kind (Elm Closed)

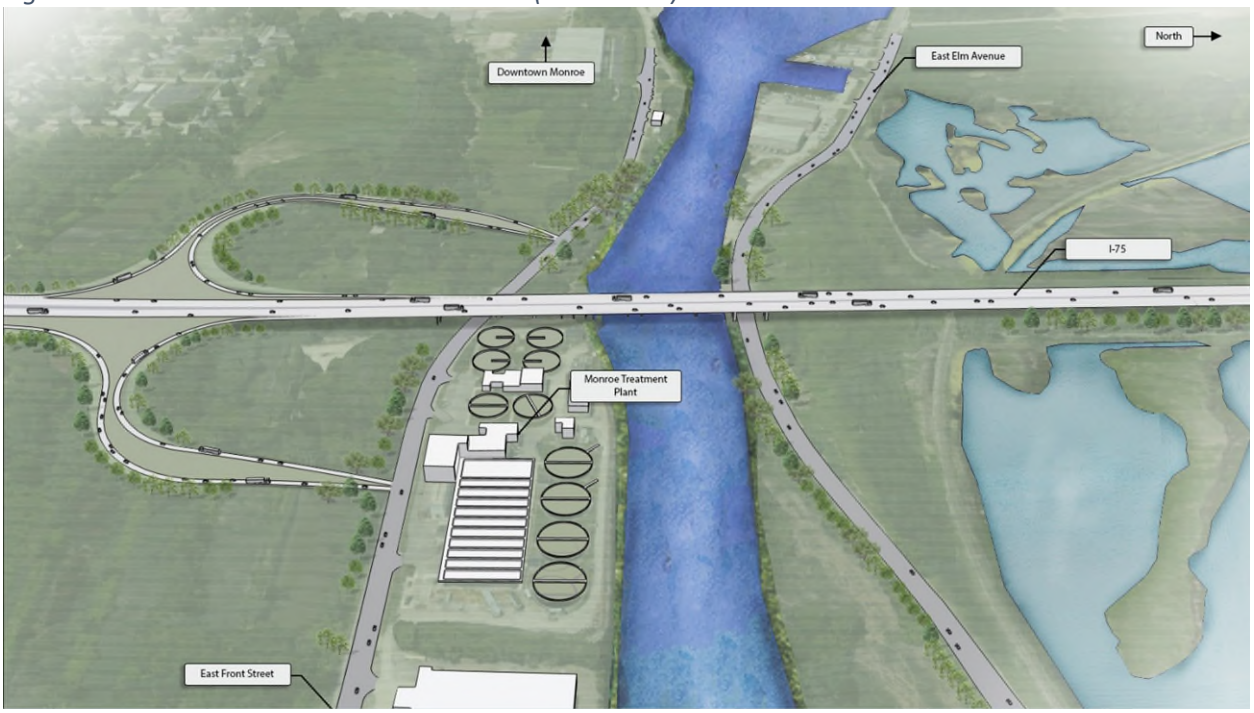


Table 3 illustrates the practical alternatives evaluation, with Alternatives 3 and 5B scoring highest.

Table 3. Practical Alternatives Evaluation

Criteria	Alternative 3	Alternative 5A	Alternative 5B
Active Transportation	Better	Good	Best
Aesthetics	Best	Good	Better
Constructability	Better	Good	Better
Environmental Impacts	Minimal	Minimal	Minimal
Environmental Justice	Best	Better	Good
Maintenance	Good	Better	Best
Right-of-way Impacts	7.7 acres	4.8 acres	4.8 acres
Safety	Better	Good	Best
Traffic Operations	Best	Better	Good
Wetland Impacts	1.70 acres*	1.67 acres*	1.67 acres*
Cost	$244M	$151M	$146M

* Please see Table 7 for the final wetland impact estimates for the practical alternatives.

Table 4 provides additional detail about the pros and cons associated with each practical alternative.

Table 4. Pros and Cons of Practical Alternatives

	Alternative 3	Alternative 5A	Alternative 5B
Pros	CD roads reduce mixing (mainline vs. trucks) CD roads accommodate current geometry and spatial constraints CD roads maintain access to Elm Avenue and Front Street Minor right-of-way impacts Minor wetland impacts Highest score in illustrative alternatives public feedback	Front Street ramps meet geometric standards Front Street ramps provide adequate acceleration/deceleration Minor wetland impacts Cost efficient Second-highest score in illustrative alternatives public feedback	Same as 5A, but with adequate merge/weave distances Lowest cost of the practical alternatives
Cons	Front Street and Elm Avenue ramps to CD roads include tight radii, short merge/weave distances CD roads extend impacts to Dixie and Laplaisance Requires multiple widened/new bridges Highest cost of the practical alternatives Constructability issue due to wider bridge adjacent to wastewater treatment plant	Moderate right-of-way impacts Requires bridge expansion over railroad	Same as 5A, but eliminated Elm Avenue interchange

ACCEPTABLE ALTERNATIVE

Acceptable alternatives are identified based on performance during the practical alternatives phase (see Table 3) and through additional stakeholder engagement. Based on these criteria, Alternatives 3 and 5B were identified as the PEL's acceptable alternatives. A summary of the evaluation for each alternative is below.

- Alternative 5B: Reconstruct In-Kind (Elm Closed)

    - Meets goals established in the P&N (safety, operations, etc.)
    - Limited impacts on ROW, wetlands, and environmental features
    - Lowest cost of practical alternatives
- Alternative 3: Collector/Distributor (C/D) Roads
    - Meets goals established in the P&N (safety, operations, gateway opportunities, etc.)
    - More impacts on ROW and wetlands
    - Highest cost of practical alternatives
    - Not currently feasible due to high costs

While Alternative 3 is noted as currently infeasible due to high costs, MDOT will conduct NEPA-level (environmental) analysis of this alternative while investigating opportunities to potentially fund the alternative alongside local partners.

ENVIRONMENTAL RESOURCES REVIEWED

During the scoping phase and initial data-gathering phase of this project, environmental resources were identified and assessed to determine whether detailed analysis would be required as part of the PEL; this included an MDOT Environmental Scoping Review, located in Appendix F. Ecological (wetlands, river, T&E) resources, and traffic were identified as the key issues for the environmental review process. This section contains a summary of the analysis of these resources and how they impacted the decision-making process of this project.

ENVIRONMENTAL RESOURCES WITH ANTICIPATED IMPACTS

Threatened and Endangered (T&E) Resources

Desktop and field reviews (spring 2022) were conducted of potential rare and/or protected species (flora and fauna) and their habitats within the project area. This included a desktop review of potential rare and/or protected species and their habitats within the project area. The review used the USFWS Information for Planning and Consultation (IPaC) to identify federally listed species, as well as the Michigan Natural Features Inventory (MNFI) databases to identify state-specific species. The findings of these desktop reviews were used to select times to conduct field surveys for the potential protected species within the project area. At the time this report was published, two of the T&E species identified changed federal and/or state ranks since 2022; these changes are noted in Table 5. The paragraphs below detail the results of the IPaC and MNFI reviews that were used to inform survey timing. See Appendix F for the Protected Species Memo that informed this section.

IPaC Review

The IPaC review found nine federally threatened (LT) or endangered (LE) plants and animals potentially inhabiting the project area, as well as one candidate species. See Table 5 for a list of these species.

Table 5: Federally listed species identified by the April 2022 IPaC review

Classification	Species	Common Name	Federal Rank	State Rank
Mammal	*Myotis sodalis*	Indiana bat	LE	E
Mammal	*Myotis septentrionalis*	Northern long-eared bat	LE*	T*
Bird	*Charadrius melodus*	Piping plover	LE	E
Bird	*Calidris canutus rufa*	Rufa red knot	LT	N/A
Reptile	*Sistrurus catenatus*	Eastern massasauga	LE*	SC
Mussel	*Epioblasma torulosa rangiana*	Northern riffleshell	LE	E
Mussel	*Vilosa fabalis*	Rayed bean	LE	E
Insect	*Lycaeides melissa samuelis*	Karner blue butterfly	LE	T
Insect	*Danaus plexippus*	Monarch butterfly	Candidate	N/A
Plant	*Platanthera leucophaea*	Eastern prairie fringed orchid	LT	E

*The federal and/or state ranks of these species have changed since the IPaC review in 2022, and are reflected here

The only species from the IPaC review known to have been found within the project area was a mussel, the rayed bean. The remaining nine species had not been found or reported within the project area but were determined to have the potential to be given prior information of their presence/habitat within the geographic area (1- to 2-mile radius) of the project. One species, the eastern massasauga rattlesnake, was identified in the IPaC review, so it is listed in Table 5; however, there is neither Tier 1 (known to be

occupied) or Tier 2 (potential for occupation due to proximity to Tier 1 habitat) habitats within the project area for eastern massasauga rattlesnake.

MNFI Rare Species Review

The Rare Species Review (RSR) from the MNFI database identified 33 state-threatened or endangered species with known occurrences within the project area, including four federally listed species (three endangered mussels and one threatened plant). Mussels and plants represent most of the state-listed species within the project area, with 13 and 12 species, respectively. The RSR review also identified the entire stretch of the River Raisin within the project area as a Group 3 Mussel Stream. Per the RSR, many of the occurrences listed are historical (>20 years old). Of the 33 protected species listed as known to occur within the project area, only 12 have been recorded within the past 20 years (Table 6).

Table 6: Species known to occur within the project area within the last 20 years (MNFI, 2022)

Classification	Species	Common Name	Federal Rank	State Rank
Bird	*Falco peregrinus*	Peregrine falcon		E
Bird	*Ixobrychus exilis*	Least bittern		T
Fish	*Opsopoeodus emiliae*	Pugnose minnow		E
Reptile	*Pantherophis gloydi*	Eastern fox snake		T
Mussel	*Toxolasma parvum*	Lilliput		E
Mussel	*Obovaria olivaria*	Hickorynut		E
Mussel	*Obliquaria reflexa*	Threehorn wartyback		E
Mussel	*Truncilla donaciformis*	Fawnsfoot		T
Plant	*Nelumbo lutea*	American lotus		T
Plant	*Castanea dentata*	American chestnut		E
Plant	*Platanthera leucophaea*	Prairie white-fringed orchid	LT	E
Plant	*Asclepias sullivantii*	Sullivant's milkweed		T

Field Review

In September 2022, a botanist with GEI conducted a field site assessment for protected plant and animal species known or likely to be found near or within the project area. The GEI botanist identified 119 plant species within the assessment area, or which 42 were non-native. Habitats observed within the project area include highly disturbed upland fields, abandoned industrial areas, disturbed remnant wetlands, man-made open water ponds and lagoons, and a portion of the River Raisin.

The field assessment revealed that side oats grama (State Endangered) and American lotus (State Threatened) are the only state-protected species located within the assessment area. The side oats grama was observed within the off-ramp southeast of I-75 and west of the River Raisin. Despite the poor habitat, the small population of side oats grama appeared to be thriving. American lotus was observed dominating a large lagoon at the northeast corner of the assessment area just east of I-75.

Suitable habitats for other protected plant and animal species were not observed during the field site assessment nor within the bottom substrates of the River Raisin. While the American lotus population is unlikely to be significantly impacted by construction on the highway interchange; however, the small, isolated patch of side oats grama may be vulnerable to destruction within the project area if the area is significantly disturbed.

A freshwater mussel survey and relocation was completed in 2018 in the River Raisin under the direction of MDOT for the area under the I-75 bridge. No state or federally protected mussels were found during the 2018 salvage effort. Habitats under the bridge are marginally suitable for rare mussels due to silty substrates and turbidity. Depending on final bridge design, further discussion with MDNR to determine if more analysis is needed will be conducted.

Of the two state-protected species that were observed within the project area, side oats gramma is likely the only species at risk of being disturbed by the proposed project. In addition to listing species known to occur within the project area, the MNFI review also includes recommended management and conservation measures for select species – eastern fox snake, least bittern, American lotus, and Sullivant's milkweed. Conservation measures will be needed to minimize project impacts when an alternative is selected, especially for the eastern fox snake, which has been known to occur within the project area.

The desktop and field review conducted reflects the known state of rare and protected species populations within the project area as of September 2022. Natural systems and plant and animal populations are dynamic. Conditions within the project area may change to the benefit or detriment of any or all species identified, and further coordination will be needed with regulating agencies (MDNR and/or USFWS) to determine future permitting requirements.

The PEL ecological assessment was focused on botanical resources which would affect alternatives alignments and design and did not complete any aquatic assessments or bridge evaluations for potential bat habitat.

Wetland Resources

During the spring of 2022, field wetland delineations within the project area were conducted, with most existing wetlands determined to be palustrine emergent (PEM) and palustrine scrub-shrub (PSS) and dominated by non-native species such as common reed (Phragmites australis) and glossy buckthorn (Frangula alnus). Two (2) palustrine forested wetlands (PFO) that were dominated by cottonwood (Populus deltoides) and silver maple (Acer saccharinum) overstories were also identified. It was concluded that the wetlands identified within the project area would be regulated by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) pursuant to Part 303 of the Natural Resource and Environmental Protection Act (NREPA) and an EGLE Part 303 permit will be required for the anticipated wetland impacts.

Additional wetland areas were identified during field visits in early-2023 and were coordinated for inclusion alongside MDOT environmental staff and EGLE staff in the fall of 2023. Additional recommendations to strengthen the documentation as required by EGLE were also identified.

Streams Resources

The Front Street and Elm Avenue interchanges from I-75 are located on either side of the River Raisin. The River Raisin flows east for almost 139 miles before emptying into Lake Erie approximately two miles east of the I-75 bridge. The river is approximately 350 feet wide at this location and home to warm-water fish, although few migrate between the river and Lake Erie due to seven dams on the river located in Monroe. The replacement of the I-75 bridge will require an EGLE Part 301 permit for work in a regulated watercourse.

There are three other smaller creeks/drains located within the study area, with no substantial impacts anticipated by the proposed project. These creeks/drains include: Plum Creek which is located

approximately 4,030 feet south of Front Street, Davis Drain which is located approximately 1,300 feet north of the Laplaisance Road, and Laplaisance Creek which is located approximately 1,000 feet south of the Laplaisance Road.

Floodplains

The existing bridge over the River Raisin has two piers located within the river with no reported existing flooding problems. The proposed new bridge, yet to be designed, and should not result in any change in the natural and beneficial floodplain values, flood risk or damage. An EGLE Part 31 permit will be required for cut and fill in the floodplain area.

Alternatives-Level Analysis of Potential T&E and Wetlands Impacts

Following the identification of sensitive ecological resources, impacts to wetland areas associated with the alternatives were analyzed. Wetlands and protected species within the project area were assumed to be disturbed by fill for new/expanded roadways, permanent and/or temporary access to the construction area, and heavy equipment moving through the construction area.

Alternatives 3 and 5 (A and B) result in the least amount of wetland impact by acreage, while Alternative 4 (A and B) results in the most wetland impact. Alternative 3 and 5 (A and B) would also result in far fewer wetlands being fragmented, while the other three alignments would lead to the fragmentation of several larger wetland complexes.

All alignments would result in impacts to the small population of side oats grama, a state-endangered plant species, within the off-ramp southeast of I-75. The impact to this population would likely result in destruction within the project area. However, based on the lack of other populations of this species within Monroe County, lack of suitable habitat identified by 19th century land surveys, and the propensity of MDOT to plant prairie grasses in slope stabilization seed mixes, this may not represent a native remnant population of side oats grama. Regardless, each alignment alternative will result in full impact to this population and therefore does not affect the ecological impact ranking.

A summary of impacts to ecological resources are noted for each alternative in Table 7. Based on the acreage of wetland impact and amount of presumed fragmentation of habitats, the table provides a ranking of the five alignments from least ecological impacts (rating of 1) to most ecological impacts (rating of 5). This table also provides a ranking of the alignments if side oats grama is determined to be a remnant of a natural population and if impacts to it are considered.

Table 7. Alternatives Impacts to Ecological Resources

Alternative	Total Wetland Impacts (acres)	Protected Species Impact Ranking
#1 (A or B)	12.91	4
#2 (A or B)	11.73	3
#3	3.66	1
#4 (A or B)	12.95	5
#5 (A or B)	3.82	2

TRAFFIC

Base Conditions

A base condition microsimulation model (from the existing 2019 base conditions) was developed in VISSIM consisting of the AM peak period (6:00 AM-9:00 AM) and the PM peak period (3:00 PM-6:00 PM) with traffic count data from a variety of years, and then calibrated and validated. Data was collected on I-75 between Laplaisance Road to Dixie Highway; the mainline and ramp counts were collected between 2016 and 2019.

The base condition model (from the existing 2019 base conditions) indicated that I-75 experiences minimal congestion northbound (NB) and southbound (SB) during the peak periods, maintaining near free-flow speeds through the entirety of the project area. Slower speeds are experienced on the entry/acceleration and exit/deceleration ramps at the Front Street and Elm Avenue interchanges. These slower speeds can be attributed to the low design speed for these high curvature ramps and the limited acceleration/deceleration distance provided for vehicles. In regard to surface streets, most individual movements, approaches, and intersections have a Level of Service C or better with acceptable queue length results, apart from the intersection of NB I-75 and Dixie Highway and the intersection of SB I-75 and Laplaisance Road.

Alternatives Analysis

The three (3) practical alternatives (3, 5A, and 5B) were analyzed in VISSIM with traffic volumes grown from the base condition model to anticipated 2045 traffic volumes. Alternatives were evaluated to determine the potential impact to traffic operations within the project area.

Based on the freeway results in the traffic analysis, all of the proposed alternatives will operate effectively with minimal delay in the proposed future conditions. Based on the surface street results in the analysis, any of the proposed alternatives should also operate effectively with minimal delay in the assumed future conditions; however, as demonstrated in the analysis of Alternative 5B, additional signal infrastructure should be added to the eastbound (EB) approach of the NB I-75 and Dixie Highway intersection to facilitate the increase in demand for the EB left-turn, regardless of preferred alternative.

ENVIRONMENTAL RESOURCES WITH FEW/NO ANTICIPATED IMPACTS

The following resources were not evaluated in detail as part of the PEL project. These items will be fully evaluated and analyzed as part of the NEPA process.

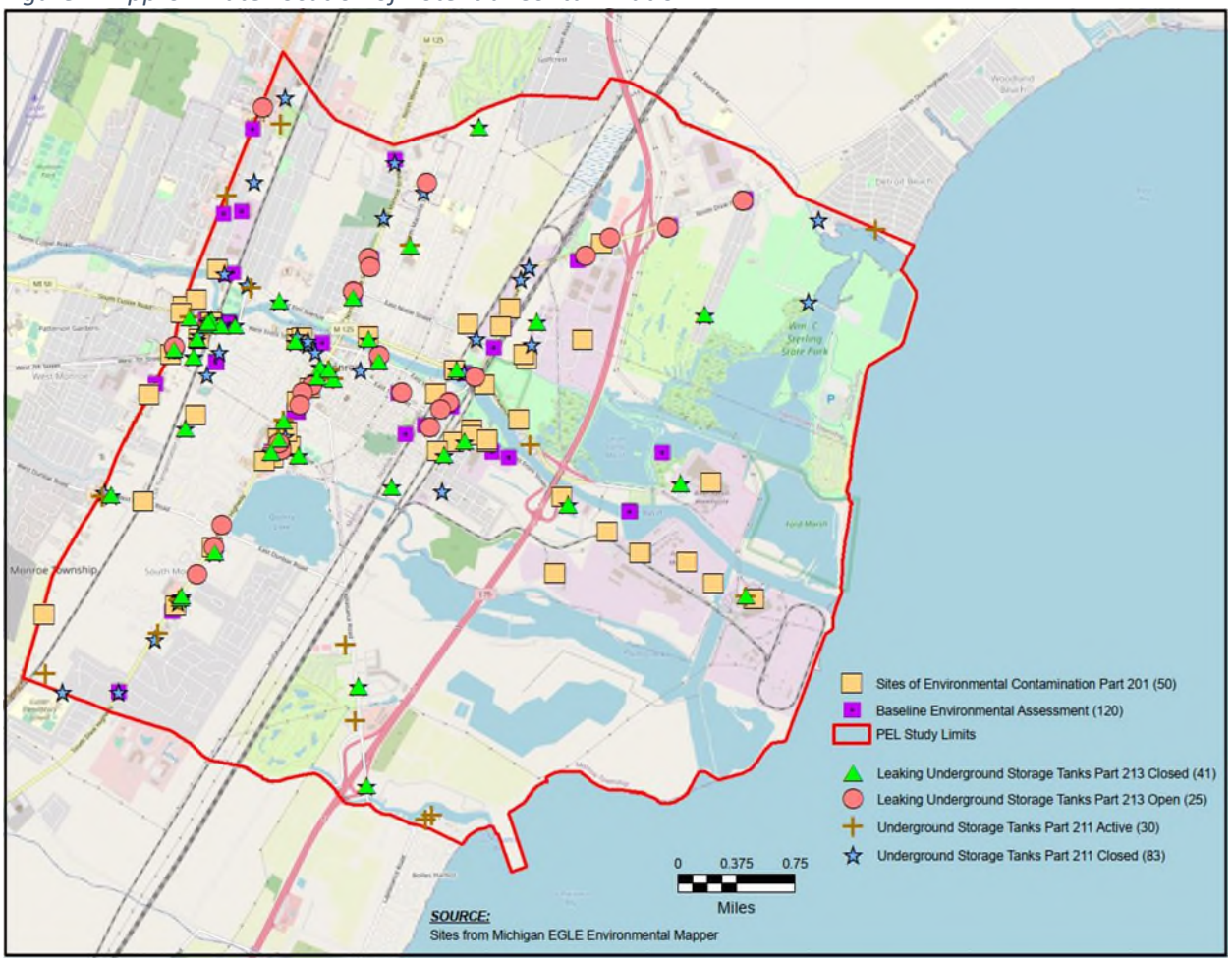
Air

- Monroe County is within the Detroit Metropolitan Area Ozone Non-Attainment area for National Ambient Air Quality Standards (NAAQS) levels.
- Air quality impacts are not anticipated as a result of this project but will be evaluated further during NEPA.

Contamination

- A total of 349 sites of known or potential subsurface contamination and/or underground storage tanks (USTs) were identified within the project area as part of the existing conditions analysis. See Figure 7 for a map of potential contamination.
- The sites identified are not anticipated to be impacted by the alternatives considered but will be evaluated further during NEPA.

Figure 7: Approximate Location of Potential Contamination



Cultural Resources

- The Michigan State Historic Preservation Office (SHPO) was consulted but as the SHPO response was not yet received, information concerning any inventoried archaeological sites and previous archaeological investigations conducted in and near the project area are not yet available from SHPO. Nonetheless, types of information that have been collected to help assess the effects the project may have on archaeological resources are known historic uses of the area, and disturbances that have occurred in the area that would limit or eliminate the potential of areas to have important archaeological sites. That information is comprised of historic and modern maps and aerial photographs, coupled with some historic and modern documents about the area. Therefore, a collection of 15 historic maps that document the development of the area since 1844 was examined.
- The results of the analysis described above are detailed in this section. Though cultural and historic resources were identified as part of the existing conditions analysis and will be further evaluated further during NEPA.
- Cultural and historic properties identified are not anticipated to be impacted by the alternatives considered; most of the landforms that would be impacted by potential design alternatives have been extensively disturbed and have a very limited potential for the presence of significant archaeological resources. Noted disturbances include the late historic and modern construction of infrastructure such as roadways (e.g., I-75), a wastewater treatment plant and associated drainage ponds, and modern landfills; industrial development with modern razing of those developments (e.g., the Consolidated Packaging Corporation facility); and the distribution of historic swamplands (often now drained or filled).
- Dunbar Road crosses I-75 approximately 0.85 mile south of the Front Street interchange. The bridge carrying Dunbar Road is one of a small number of remaining concrete curved t-beam bridges and is listed on the National Register of historic Places. This bridge is located beyond the anticipated limits of the proposed improvements.
- Three areas along the River Raisin display a modest archaeological potential. The first, a narrow strip of land west of I-75, was commercially developed for riverine activities by the 1850s or before, and it has variously remained in aspects of that development since that time. However, that use (including its modern components) has also likely impacted the integrity of soil horizons which could contain evidence of pre-contact activity and archaeological resources. It is not known if any substantive archaeological resources have survived. The second, an area east of I-75, does not appear to have been extensively developed, unless parts have been infilled. Similarly, the areas east of I-75 and the wastewater treatment plant, between E. Front Street and the river, has not been developed except for possible infilling that could be associated with construction and maintenance of the nearby Port of Monroe's turning basin. These areas could warrant archaeological field investigations to more fully assess their archaeological potentials, in the event ground-disturbing activities are proposed at these locations.
- The area north of E. Elm Avenue, between Detroit Avenue and swamps/ponds to the east, does not appear to have been substantively developed since the mid-nineteenth century. Portions of that area that occur within a selected alternative will likely need to be archaeologically investigated.

Environmental Justice

- Environmental Justice (EJ) communities were identified as part of the existing conditions analysis. There are two Census Block Groups within the project area (Block Group 2, Census Tract 8317 & Block Group 1, Census Tract 8318). Census Tract 8318 contains larger average populations of people of color compared to the respective Monroe City and Monroe County average (12% and 7%).
- EJ communities would not be directly impacted by the alternatives considered, but proximity of infrastructure/traffic to these communities and potential accessibility benefits were considered as part of the decision-making process and will be evaluated further during NEPA.

Noise

- Sensitive noise receptors were identified within the project area and include recreation/park areas and industrial areas.
- There are also sensitive noise receptors (residential) adjacent to the project area.
- Noise impacts to adjacent sensitive noise receptors are not anticipated as a result of this project but will be evaluated further during NEPA.

Recreational

- River Raisin Heritage Trail System runs along the River Raisin (8 miles total) through the project area, under I-75 on the north side of the river and northeast through Sterling State Park.
- Six recreational resources are adjacent to the project location, including William C. Sterling State Park, Hellenberg Park, River Raisin National Battlefield Park, River Raisin Country Club, Heck County Park, Parkside, South Monroe Townsite, and Links of Lake Erie. Impacts to recreational assets are not anticipated as a result of this project but will be evaluated further during NEPA; additionally, linkages and enhancements to these assets could be included in the final design of the bridge and interchange areas.

CUMULATIVE IMPACTS

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over time and resource specific, such as wetlands. Potential cumulative impacts for consideration as part of this PEL study include impacts to adjacent wetlands due to developable property which could result in additional (cumulative) wetland impacts.

The two (2) acceptable alternatives proposed for further consideration have minimal impacts to wetlands due to their narrower footprint compared to other illustrative alternatives and were selected due to their limited impact to adjacent developable property. Since no new access to adjacent properties is being provided as part of the proposed alternatives, it is not anticipated that either alternative will have any cumulative impact on wetlands or any other biological resource located in the area.

NEXT STEPS FOR PROJECT IMPLEMENTATION

Through coordination and interaction with the resource agencies, stakeholders, and the public, potential mitigation measures were developed for actions that could result in adverse effects. The mitigation measures are preliminary considerations that will be validated during NEPA and then integrated into the project once it moves into the design phase.

ECOLOGICAL RESOURCES

The proposed new bridge over the River Raisin will require the construction of several piers to support the bridge. Additionally, construction of temporary access roads and structures to facilitate construction of piers and the bridge structure will result in temporary impacts to the river and adjacent wetlands. These features are not proposed to be permanent – only temporary to facilitate construction of the piers and bridge – and upon completion, will be removed and the wetlands restored.

Historically, EGLE has not required mitigation for temporary wetland impacts when the existing wetland community type is not permanently altered. Mitigation methods are used to minimize impacts to the wetlands and the wetlands are then returned to their original wetland type and stature within 12 months of initiating the temporary impacts/use of the wetland. Equipment and timber mats, use of geo-textile, and other fabrics have been used in the past for temporary access roads and paths. These strategies have proven effective in reducing damage to wetlands upon their removal. Where there will be a change in wetland type (e.g., from PFO to PEM), EGLE requires a 1:1 mitigation ratio since estimates find that it takes approximately ten (10) years for trees to re-establish in PFO wetlands.

Restored wetland areas will be replanted with native plant species, respective of the water regimes and wetland types. Native plant species will include use of native seed mixes, shrub, and tree saplings (or larger tree stock) indigenous to this eco-region. Mitigation for permanent wetland impacts will require compensatory mitigation using defined mitigation ratios.

BIOLOGICAL RESOURCES

Flora

If any endangered species are determined to be present, and avoidance is not possible, a MDNR Threatened and Endangered Species Permit will be required. This would typically include mitigation strategies such as fencing and signage to avoid plants, transplanting impacted species, and site/habitat restoration.

Fauna

If any endangered species are determined to be present, and avoidance is not possible, mitigation could be required and may include fencing, wildlife friendly erosion control, and restrictions on tree removal.

FUTURE NEPA CONSIDERATIONS

From a NEPA perspective, the most critical issues moving forward from the PEL project are related to the ecological impacts from a new river crossing and the associated interchange areas. However, since the PEL process identified, analyzed, assessed, and quantified potential areas of concern that could result in significant impacts, it is anticipated that a documented Categorical Exclusion will provide a sufficient level of review to satisfy NEPA requirements.

Although extensive coordination occurred with MDOT's partner resource agencies, future coordination is anticipated to quantify specific impacts to surrounding wetlands and threatened/endangered species once design is advanced. Specifically, as the two (2) acceptable alternatives advance into the NEPA phase, further determination and assessment of proposed impacts will provide greater insight into the feasibility of a particular alternative over the other.

If more significant issues are identified upon additional review of the two (2) remaining alternatives, an Environmental Assessment (EA) may be required to further develop mitigation strategies and formally determine that the action will not have a significant environmental impact.

Depending on the final design and associated environmental impacts, potential mitigation may be required. Mitigation measures are commitments that will be integrated into the project once the locally acceptable alternative proceeds to the design phase. Below is a preliminary list of potential mitigation that may be required for the project.

- Wetlands: Wetland mitigation will be required if the wetland impacts exceed 1/3 acre per wetland complex or more than one acre for the entire project.
- Endangered Species: Flora: If avoidance is not possible, a Michigan Department of Natural Resources (MDNR) Threatened and Endangered Species Permit is required which would typically include mitigation such as fencing and signage to avoid plants, transplanting impacted species, and site/habitat restoration.
- Streams: Depending on potential impacts from the final roadway and bridge design, stream mitigation measures are possible and will require coordination with the Aquatic Resource Specialist. Stream mitigation requirements will be dependent on the baseline quality/rating of the River Raisin as well as the mitigation type (restoration, enhancement, preservation, etc.) being implemented.
- Tree Replacements: The resource specialist or MDOT roadside development unit will make recommendations on tree replacement requirements.

POTENTIAL ISSUES FOR FUTURE CONSIDERATION

FINAL ALTERNATIVE SELECTION

With two (2) alternatives identified as "acceptable" emerging from the PEL, MDOT will continue to analyze both **Alternative 5B: Reconstruct In-Kind (Elm Closed)** and **Alternative 3: Collector/Distributor (C/D) Roads** for feasibility. Alternative 5B is the most feasible option given the cost. While Alternative 3 is considered less feasible due to high costs, MDOT will continue to conduct NEPA-level analysis of this alternative while investigating potentially funding opportunities alongside local partners. In 2024, MDOT applied for a National Infrastructure Project Assistance (Mega) grant; if awarded, this could open up funding opportunities for the alternatives chosen during this process. MDOT will determine when a decision is required on the final alternative so the agency can move into further project development and implementation.

ECOLOGICAL RESOURCES

During the PEL project, significant field investigation and analysis of ecological resources was conducted to facilitate a smooth transition into the NEPA phase. Field investigations in Fall 2023 conducted by MDOT environmental staff and EGLE staff further confirmed wetland resources in the area will be impacted by the proposed project. Additional coordination, field investigation, and analysis is anticipated as the project advances into the NEPA phase, which will include MDOT, EGLE, and United States Army Corps of Engineers (USACE), and other resource agencies as required.

AESTHETIC OPPORTUNITIES

A new bridge over the River Raisin will be highly visible to freeway traffic, marine traffic, and the local community. MDOT published an Aesthetic Design Guide for I-75 from the state line to I-275, which includes the section in this report. The design guide includes design elements for bridges. New replacement bridges should be designed in a way for them to relate to the existing bridges, and to set a design standard for future bridge replacement or rehabilitation. Bridge aesthetics for replaced or rehabilitated bridges include aesthetics recommendations regarding arched concrete girders, substructures, sloped paving per MDOT standard, wing wall pilasters, and barrier rustication. Any bridge work must incorporate the aesthetic recommendations as outlined in the guide.

The aesthetic design guide also includes preferred aesthetic options for corridor landscaping. This includes a "rural approach" that seeks to provide a neat but natural looking combination of grasses, trees, and shrubs; there are recommended species for all three in the design guide. As outlined in the discussion of how to approach landscaping and slope restoration, landscape designers must coordinate the landscape plans with all other elements of work performed under the project.

MDOT will work with local partners and consult the aesthetic design guide to determine what design elements could make the bridge more context sensitive, the design of pier and abutment treatments (i.e., color, texture, and shape), active transportation accommodations to provide linkages to the local trail network, and signage and gateway treatments to welcome travelers to Michigan and Monroe.

CITY OF MONROE FUTURE CONSIDERATIONS

Aesthetics

The City needs to decide what types of gateway signage, plantings, and other attributes are desired at the new Front Street interchange and work with MDOT to develop an implementable plan. Updated aesthetics should be in line with the guidelines set forth in the I-75 Aesthetic Design Guide.

East Heritage Neighborhood Master Plan

Continue to work with MDOT regarding implementation of this master plan.

Front Street Future Development

Coordinate with MDOT regarding potential developing properties that could impact the design at the Front Street interchange.

APPENDICES INDEX

Appendix A – Presentations from LAC and Community Meetings

- LAC Meeting 1 (February 24, 2022)
- LAC Meeting 2 (April 27, 2022)
- LAC Meeting 3 and Community Meeting 1 (June 8, 2022)
- LAC Meeting 4 (November 11, 2022) and Community Meeting 2 (November 16, 2022)
- LAC Meeting 5 and Community Meeting 3 (March 15, 2023)
- Community Meeting 4 (November 1, 2023)

Appendix B – Public Engagement

- Surveys
- Videos

Appendix C – Existing Conditions Report

Appendix D – Purpose and Need Memo

Appendix E – Evaluation Memo

Appendix F – Ecological Assessment

- January 2023: MDOT Environmental Scoping Memo
- July 2022: Wetland Delineation Technical Memo
- December 2022: Protected Species Report
- March 2023: Field and desktop review of wetland delineation and potential alignment impacts

Appendix G – Traffic Memos

- Modeling Methodology and Assumptions Memo
- Data Verification and Screening Memo
- Base Conditions Memo
- VISSIM Calibration and Validation Memo
- Alternatives Analysis Memo

Appendix H – Admin Team