Canadian National Railroad Grade Grade
Separation at Range, Griswold
and Michigan Roads
Environmental Assessment

Port Huron Charter and Kimball Townships
St. Clair County, Michigan

Prepared by
Canadian National Railroad Company
St. Clair County Road Commission

March 2008
CANADIAN NATIONAL RAILROAD GRADE SEPARATION AT RANGE, GRISWOLD AND MICHIGAN ROADS ENVIRONMENTAL ASSESSMENT

Located in
Port Huron Charter and Kimball Townships
St. Clair County, Michigan

Prepared by:
Canadian National Railroad Company
St. Clair County Road Commission

In Cooperation with:
Michigan Department of Transportation
Federal Highway Administration

\[3/7/2008\]
Date Approved

\[Signature\]
for Federal Highway Administration

For additional information concerning this proposed project or document, please contact:

Mr. James Warner, P.E.
Director of Engineering
St. Clair County Road Commission
21 Airport Drive
St. Clair, MI 48079
Phone: (810) 364-5720

Mr. David Calabrese, P.E.
Field Operations Group Leader
Federal Highway Administration
315 West Allegan St., Room 201
Lansing, MI 48933
Phone: (517) 702-1825
PREFACE

The National Environmental Policy Act (NEPA) of 1969 requires that Federal government agencies identify and consider the social, economic, and natural environmental impacts of proposed actions as part of their decision-making processes. NEPA also requires that Federal agencies provide information to the public and consider their input when reaching decisions. This Environmental Assessment (EA) has been prepared to satisfy these requirements.

Proposed Federal actions are classified into three different categories under NEPA. Class I actions are those that would “significantly” affect the environment and require preparation of an Environmental Impact Statement (EIS). Class II actions are those that do not have a significant effect on the environment. Typically called “categorical exclusions,” Class II actions do not require preparation of an EA or EIS. Class III actions are those for which the significance of impacts is not clear. These actions require preparation of an EA to determine whether an EIS or Finding of No Significant Impact (FONSI) is the appropriate type of documentation.

This EA has been prepared for the Canadian National Railroad Grade Separation Project located in Port Huron Charter and Kimball Townships, St. Clair County, Michigan. It includes several sections that address the following topics:

- The purpose of and need for the project.
- The alternatives that were considered as part of the project.
- The existing social, economic, and environmental conditions in the project area.
- The likely impacts and benefits associated with the Preferred Alternative.
- Mitigation measures that would minimize any harm created by the Preferred Alternative.
- Consultation and coordination that have been conducted with the public and government agencies.

This EA will be distributed to a variety of Federal, state, and local government agencies for review and comment. It will also be available for public review, and a Public Hearing will be held to provide the public with an opportunity to provide comments and input. If agency and public comments support a determination that the project would not cause significant impacts, the EA will be forwarded to the Federal Highway Administration (FHWA) with the recommendation that a FONSI be prepared. If it is determined that the Preferred Alternative would have significant impacts, an EIS will need to be prepared.
# Table of Contents

## CHAPTER 1 – PURPOSE OF AND NEED FOR ACTION
1.1 Background .......................................................... 1
1.2 Purpose of Project .................................................. 2
1.3 Need for Action ..................................................... 2
1.4 Conclusion ........................................................... 5

## CHAPTER 2 – ALTERNATIVES
2.1 Project Development Process .................................... 6
2.2 Illustrative Alternatives ............................................. 6
2.3 Practical Alternatives .............................................. 10
2.4 Preferred Alternative .............................................. 14

## CHAPTER 3 – EXISTING CONDITIONS
3.1 Land Use ............................................................. 19
3.2 Farmland .............................................................. 20
3.3 Soils / Geotechnical .................................................. 21
3.4 Population Demographics / Environmental Justice ........ 21
3.5 Utilities ................................................................. 23
3.6 Pedestrian and Bicyclists ......................................... 23
3.7 Economic Conditions ............................................. 23
3.8 Air Quality ........................................................... 24
3.9 Noise ................................................................... 25
3.10 Water Resources .................................................. 26
3.11 Wetlands ............................................................. 27
3.12 Floodplains .......................................................... 29
3.13 Threatened and Endangered Species ......................... 29
3.14 Vegetation and Wildlife ......................................... 30
3.15 Cultural Resources ............................................... 31
3.16 Hazardous Materials ............................................ 32
3.17 Visual Conditions ................................................. 32

## CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES
4.1 Land Use ............................................................. 34
4.2 Farmland .............................................................. 35
4.3 Soils / Geotechnical .................................................. 35
4.4 Social Impacts ....................................................... 36
4.5 Environmental Justice ............................................ 36
4.6 Pedestrians and Bicyclists ........................................ 37
4.7 ROW / Relocations ............................................... 37
4.8 Economic Impacts .................................................. 39
4.9 Air Quality ........................................................... 39
4.10 Noise ................................................................. 41
4.11 Water Resources .................................................. 43
4.12 Wetlands ............................................................. 45
4.13 Floodplains .......................................................... 48
4.14 Threatened and Endangered Species ......................... 49
4.15 Vegetation and Wildlife ......................................... 49
4.16 Cultural Resources ................................................................. 50
4.17 Hazardous Materials ............................................................ 50
4.18 Visual Impacts .................................................................. 51
4.19 Permits ........................................................................... 52

CHAPTER 5 – CONSULTATION AND COORDINATION ..........53
5.1 Introduction .................................................................. 53
5.2 Public Involvement .......................................................... 53
5.3 Agency Coordination ....................................................... 54
5.4 EA Recipients ................................................................. 55
5.5 Decision To Be Made ........................................................ 55

REFERENCES .................................................................57

Tables
Table 1-1. Train Delays ............................................................. 3
Table 1-2. Existing Intersection Level of Service (year 2007) ............... 4
Table 1-3. Future Intersection (year 2030) Level of Service .................. 5
Table 2-1. Illustrative Alternative Evaluation Matrix ......................... 8
Table 2-2. Practical Alternatives Evaluation Matrix ......................... 12
Table 3-1. Population Information within Project Area ....................... 21
Table 3-2. Minority and Low-Income Population Information for the Project Area 22
Table 3-3. FHWA Noise Abatement Criteria .................................. 25
Table 3-4. Existing Noise Level Ranges in the Project Area ................. 26
Table 3-5. Number of Wetlands in Project Area by Type .................... 28
Table 3-6. Threatened and Endangered Species Potentially Present in Project Area 29
Table 3-7. Potentially Contaminated Sites within the Project Area* ....... 32
Table 4-1. Results of Carbon Monoxide Hot Spot Analysis * ............. 41
Table 4-2. Impacted Wetlands in the Project Area ........................... 46

Figures
Figure 1 Project Location
Figure 2 Project Area
Figure 3 Illustrative Alternatives
Figure 4 Practical Alternatives
Figure 5 Preferred Alternative
Figure 6 Conceptual Drainage Plan
Figure 7 Michigan Road Overpass - Cross Section and Elevation View
Figure 8 Range Road/ Griswold Road Overpass - Cross Section and Elevation View
Figure 9 Roadway Cross Sections
Figure 10 Environmental Considerations
Figure 10A Wetlands
Figure 11 SEE Impacts of Preferred Alternative

Appendices
Appendix A Rail Operations and Traffic Data
Appendix B Agency Correspondence
Appendix C Conceptual Stage Relocation Plan
CHAPTER 1 – PURPOSE OF AND NEED FOR ACTION

This chapter describes the history behind the Canadian National (CN) Railroad Grade Separation Environmental Assessment (EA). It then describes the purposes of the project and presents relevant information that is helpful in understanding the need for the project. These needs include existing traffic delays caused by train operations, future traffic considerations and emergency services response times.

1.1 Background

The CN Railroad Grade Separation is a transportation improvement project sponsored by CN and the St. Clair County Road Commission (SCCRC) along CN’s rail corridor between Range Road and Michigan Road, in St. Clair County. The purpose of the project is to develop a viable rail-crossing alternative that can be constructed and implemented to meet the project needs. The purpose of the EA is to identify and consider the social, economic, and environmental (SEE) impacts of the proposed action.

The project was initiated when the SCCRC and CN approached the Federal Highway Administration (FHWA) due to concerns about at-grade railroad track crossings on major roads in the project area, especially Michigan Road. The FHWA provided funding through the Corridors & Borders program for the study and design of transportation improvements in the project area. CN Railroad was the recipient of these funds and is working with the SCCRC to administer the project.

A Feasibility Study (FS) was prepared for the project in December 2004 (DLZ 2004). The FS identified a number of transportation alternatives that would satisfy the project purposes while meeting the project needs. An evaluation of the benefits and costs of the alternatives was undertaken. Based on all of the information collected and evaluated during the FS, a Recommended Alternative was selected. The Recommended Alternative is referred to as the Preferred Alternative in the EA.

This EA is being prepared in cooperation with the Charter Township of Port Huron, Kimball Township, the St. Clair County Metropolitan Planning Commission (SCCMPC), and the Michigan Department of Transportation (MDOT).

The project is located in the southeastern part of the lower peninsula of Michigan, in the Charter Township of Port Huron and Kimball Township in St. Clair County. This is approximately two miles west of the City of Port Huron (Figure 1). The project area includes three at-grade rail crossings located on Range Road, Griswold Road, and Michigan Road (Figure 2). The project area also includes the CN Railroad yard at Michigan Road near its intersection with Griswold Road. The rail corridor is owned and operated by CN, and the roads are under the jurisdiction of SCCRC.

CN is one of the major rail freight transportation providers in the Midwest and North America. The CN Railroad yard facility in Port Huron Township provides access to one of only three international rail border crossings between Minnesota and New York. Trains traveling to the United States from Canada first travel through the tunnel under the St. Clair River and enter the
country at the CN Railroad yard where some are randomly inspected by the United States Office of Homeland Security’s Customs and Border Protection (CBP). Due to the border crossing’s economic importance and increased security concerns, the CBP has made an effort to increase security while maintaining efficiency. Though the CBP has been successful in utilizing new inspection technology, there are train delay problems at Range Road, Griswold Road, and Michigan Road in the project area. This can result in substantial delays for local residents and emergency services. It should be noted that CN Railroad business and CBP random inspections can cause trains to stop and backup, often blocking more than one at-grade crossing at a time due to the length of the trains.

1.2 Purpose of Project

The purposes of this project are to:

- Improve safety by reducing potential rail/vehicle conflicts in the project area and improving emergency service vehicle response time
- Alleviate traffic congestion problems at the Range Road, Griswold Road and Michigan Road rail crossings being caused by rail operations and customs inspections
- Assure transportation improvements accommodate projected year 2030 traffic

The project will address the purposes into the future as the purposes will become more acute with the projected increase in vehicular traffic. Any changes to the surrounding road network as a result of these purposes must provide a safe and efficient transportation system consistent with the plans of the SCCRC. SCCRC maintains jurisdiction over roads in the area and is continually improving the safety and travel efficiency of their road system based on their long-range goals.

1.3 Need for Action

1.3.1 Improved Safety and Emergency Services Response Time

Elimination of at-grade railroad crossings, especially in rural areas, is desired to avoid the potential for conflicts between vehicles and trains. Most crossings in rural areas have poor lighting and visibility of trains to motorists under poor visibility conditions can have catastrophic consequences. The crossings in the project area include a variety of warning devices, including red flashing lights warning motorists of an on-coming train and the need to stop, both with and without crossing arms. The single track crossing on Michigan Road south of Griswold Road has no warning devices and is quite close to the intersection. Reducing the number of at-grade crossings would reduce conflict points and improve safety.
Delays caused by trains blocking the roadways become more than just an inconvenience when emergency services vehicles are involved. Fire, police and ambulance services face major challenges in this area. The Port Huron Township Fire Department fire station is located north of the CN Railroad yard, on Lapeer Road. Most of the fire department is composed of volunteers. Problems exist because some of the firefighters live north of the CN Railroad tracks, while others live south of the railroad tracks. When trains block the tracks at Michigan Road and Range Road, fire fighters and emergency medical services have to use long detours to answer calls on either side of the tracks. Under the existing conditions, the fire station can only effectively serve properties on the north side of the tracks if they are blocked. Construction of a second fire station south of the tracks was considered to alleviate this problem. Currently, there are no funds available to construct an additional fire station and the logistical problem of moving fire personnel from one side of the tracks would still remain. Police protection and ambulance services are faced with the same difficulties. A transportation improvement that provides emergency services with unrestricted access (i.e., without train blockages) north and south of the tracks is needed to address this problem.

### 1.3.2 Train Operations and Delays

Train counts were taken at four rail crossings in the project area. The four crossings included the three crossings shown on Figure 2 at Range Road, Griswold Road and Michigan Road. The fourth crossing was the “y” track located south of the intersection of Michigan Road and Griswold Road.

Delays caused by train crossings or blockages in the project area were significant. For example, Michigan Road delays amounted to 5.5 hours and 64 road closures per day, and were caused by a variety of rail activities. Some delays were caused by the time it takes for trains of varying length to be moved through the crossing. The inspections of particular railcars often forced trains to separate and wait for clearance from CBP before proceeding through the rail yard. Other road blockages were caused by the trains stopping on the tracks to allow the changing of train crews. A summary of the train delay information is shown below in Table 1-1. Additional details regarding road closures and reasons for closures are included in Appendix A.

<table>
<thead>
<tr>
<th>Crossing Location</th>
<th>Average Number of Road Closures per Day</th>
<th>Average Total Time of Road Closures per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan Road “y”</td>
<td>8</td>
<td>0.5 hr</td>
</tr>
<tr>
<td>Michigan Road</td>
<td>64</td>
<td>5.5 hr</td>
</tr>
<tr>
<td>Griswold Road</td>
<td>29</td>
<td>3 hr</td>
</tr>
<tr>
<td>Range Road</td>
<td>28</td>
<td>2 hr</td>
</tr>
</tbody>
</table>

The average train counts and delays to motorists are expected to continue in the future. It was generally stated by railroad representatives that the number of trains are expected to remain steady or increase slightly, while the length of trains is expected to remain constant.

An average of 32 trains per day enter the CN Railroad yard. Approximately 16 of these trains are incoming to the U.S. from Canada requiring inspection. New gamma ray inspection equipment has been installed on the Canadian side of the border, which will inspect trains before entering the tunnel. This equipment has been fully operational since November 2004. The new equipment is expected to result in temporary additional delays while staff becomes familiar with it. And overall,
new technology and facilities will assist in more accurate surveillance of railroad cars but will not reduce the time associated with inspecting them.

1.3.3 Existing Traffic Operations

It should be noted that traffic delays, independent of train delays, were not a major reason for performing the project. Existing and future traffic operations required investigation to assure that any transportation solutions developed would accommodate future (year 2030) traffic. Information about existing and future year No-Build traffic volumes are included in Appendix A.

Range Road, Griswold Road and Michigan Road are all important two lane county roads traversing Port Huron and Kimball Townships. Range Road carries north – south traffic through the townships and provides access to I-94 at Dove Road. Michigan Road provides the only direct north – south route to the City of Port Huron from Port Huron Township and is the most used north - south route in the project area. Griswold Road carries most of the local east – west traffic across Port Huron and Kimball Townships. All three roads have been used as detour routes during times of construction or accidents on I-69 and I-94.

Using recently collected traffic data, and supported by previously collected traffic data, a SYNCHRO computer traffic model was developed for the existing roads in the project area. The purpose of this model was to characterize the existing peak hour traffic operations and to serve as a baseline for analysis of future traffic conditions. SYNCHRO is a computerized traffic model that simulates the interactions between traffic. It predicts traffic impacts caused by changes in road widths, intersection geometry, traffic speeds, and traffic signal timing changes. The existing conditions SYNCHRO model that was developed for the project area included all primary routes and major intersections. It should be noted that the SYNCHRO analysis does not model railroad-crossing delays. Additional details regarding the SYNCHRO model and methodology are included in Appendix B of the Feasibility Study (DLZ 2004).

The SYNCHRO model identified the average Level of Service (LOS) and seconds of delay for the existing road network including the LOS for each intersection, intersection approach, and road segment. LOS is a qualitative measurement that reflects the degree of congestion and amount of delay experienced by motorists. LOS is expressed as a letter between A and F. LOS A represents a situation where motorists experience minimal congestion, minimal delays, and free-flow travel. At the other end of the spectrum, LOS F represents a situation where motorists experience extreme congestion, long delays, and severely impeded traffic flows. LOS A, B, C, and D are all considered acceptable, while LOS E and F are considered unacceptable. The SYNCHRO results for the existing intersection LOS are shown below on Table 1-2, noting the approach (e.g., EB=Eastbound traffic, WB=Westbound traffic, etc.) and overall LOS. The results of the traffic modeling indicated that all of the intersections evaluated currently operate with an acceptable LOS.

<table>
<thead>
<tr>
<th>Intersection</th>
<th>EB</th>
<th>WB</th>
<th>NB</th>
<th>SB</th>
<th>Overall LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range Road &amp; Griswold Road</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range Road &amp; Griswold Road</td>
<td>C</td>
<td>C</td>
<td>D</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michigan Road &amp; Griswold Road</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>AM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michigan Road &amp; Griswold Road</td>
<td>C</td>
<td>C</td>
<td>D</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td>PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1.3.4  Future Traffic Operations and Delays

Other than the proposed project, the SCCRC has no plans to construct new roads or structures in the project area in the near future. A new bridge over the Black River at Range Road approximately three miles north of the project area has been considered; however, there is substantial public and local agency opposition to it and it is not included on any local long range plans. Michigan Road will therefore remain the only regional north – south route in Port Huron Township. The SCCRC does plan to widen roadways with turning flares around new developments. New developments such as the Meijer store on Range Road, a proposed County Jail facility and new housing developments will continue to increase traffic on project area roads.

The distribution of these new development trips to the roadway network was made according to the directional distributions contained in the existing conditions SYNCHRO model. The future growth rate for traffic in St. Clair County was estimated at one percent per year. This number is consistent with the traffic projections of the Southeast Michigan Council of Governments (SEMCOG, the local Metropolitan Planning Organization (MPO) for the region) and the SCCMPC Regional Transportation Plan.

Future transportation needs in the project area were assessed using the SYNCHRO model that was developed for the project. The objective of this task was to define the traffic operations problems that will occur in 2030 without construction of any capacity improvements. Committed future road improvement projects that affect capacity (other than those being considered as a part of this project) were added. These included improvements outside of the project area that the road agencies are planning to undertake regardless of what happens with the results of this project. Predicted future intersection LOS for project area intersections without any improvements is included below in Table 1-3. As shown in Table 1-3, the addition of the predicted future traffic resulted in a failing LOS for the intersection of Range Road and Griswold Road. It should be noted that the future modeling did not include improvements to the intersection such as a traffic signal or additional turn lanes. Additional details regarding the traffic volumes and modeling methodology for future conditions are found in Appendix B of the Feasibility Study (DLZ 2004).

<table>
<thead>
<tr>
<th>Intersection</th>
<th>EB</th>
<th>WB</th>
<th>NB</th>
<th>SB</th>
<th>Overall LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range Road &amp; Griswold Road AM</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Range Road &amp; Griswold Road PM</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>D</td>
<td>F</td>
</tr>
<tr>
<td>Michigan Road &amp; Griswold Road AM</td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>Michigan Road &amp; Griswold Road PM</td>
<td>A</td>
<td>A</td>
<td>F</td>
<td>F</td>
<td>C</td>
</tr>
</tbody>
</table>

1.4  Conclusion

As noted above, Range Road, Griswold Road and Michigan Road are important roads in the project area. The analysis of safety concerns, existing train delays, and anticipated future train delays has shown that transportation improvements are needed in the project area. These transportation improvements are needed to satisfy the project purposes and fulfill the project needs.
CHAPTER 2 – ALTERNATIVES

This chapter describes the transportation improvement alternatives considered as part of the CN Railroad Crossing EA as well as the process used to develop and evaluate these alternatives. Some of the alternatives considered have been eliminated from further consideration, and this chapter also provides the justification for dismissing these alternatives. Additionally, this chapter provides a detailed description of the Preferred Alternative and the No Build Alternative as required by the National Environmental Policy Act (NEPA).

2.1 Project Development Process

The project development process includes studying, designing, and constructing transportation improvements that will be funded with federal money or require federal approval. Typically, this process includes the following main phases:

1. Preliminary Studies - includes feasibility studies, and other initial investigations to define problems, receive public input, and identify possible solutions.

2. Social, Environmental, and Economic Studies – includes more detailed studies to specifically define transportation problems, compare alternatives, identify likely benefits and negative impacts, and select a “Preferred Alternative” that can be carried forward into later phases of the process. This phase addresses all relevant environmental regulations (including NEPA) and includes public involvement activities.

3. Design – results in preparation of preliminary and final engineering designs for the Preferred Alternative. Required environmental permits are obtained, and additional coordination with the public occurs.

4. Right-of-Way (ROW) Acquisition – property required to accommodate improvements is acquired from owners at fair market value. This phase includes negotiations with property owners.

5. Construction – A construction contractor is selected, and the project is built.

2.2 Illustrative Alternatives

During the early stages of the study, transportation improvement concepts (Illustrative Alternatives) were developed that satisfied the project’s purpose and need. The Illustrative Alternatives provided a range of options in terms of traffic operations benefits, relative costs, and possible benefits. Each alternative was also evaluated for potential negative impacts. The Illustrative Alternatives were separated for analysis into two main areas, the Range Road area and the Michigan Road area (Figure 2). Two of the major crossings of concern were located near Range Road. The other major rail crossing is located on Michigan Road. A total of seven Illustrative Alternatives were considered at the railway crossings within the Range Road and Griswold Road area, and five Illustrative Alternatives were considered near the Michigan Road rail crossing (Figure 3).

Early preliminary engineering was performed on the Illustrative Alternatives to identify proposed road segments and structures. The analysis performed on the Illustrative Alternatives was limited
only to the level necessary to determine if each warranted further consideration or if enough information existed to eliminate an alternative from further consideration or not.

2.2.1 Range Road Illustrative Alternatives Eliminated
Range Road Illustrative Alternatives #4 and #7 were carried forward as Practical Alternatives. The remaining Illustrative Alternatives were eliminated from consideration as Practical Alternatives for a variety of reasons. The reasons for eliminating the alternatives from consideration are described below. The Illustrative Alternatives are shown on Figure 3.

2.2.1.1 Range Road Illustrative Alternative #1:
This alternative was removed from consideration due to the high cost of the structures and the impacts that would result at the intersection of Range Road and Griswold Road. This alternative would have significant impacts on the residents and businesses located near the intersection of Range Road and Griswold Road, because of the need to raise the grade of the intersection. A considerable amount of ROW would be required from those properties in order to sufficiently increase the grade and design the road and structures to meet standards. This option would have high costs because two structures are required. The Griswold Road structure would be expensive due to the proposed bridge length. The design of the bridge structure was restricted to what would be allowed under FHWA’s skew angle policy. Maintaining traffic on area roads would be difficult because of the construction required at the intersection and because the proposed improvements are in the same location as the existing roadways.

2.2.1.2 Range Road Illustrative Alternative #2:
This alternative was removed from consideration due to the high cost of two structures and the potential impacts to residents and businesses caused by the need to raise the intersection of Range Road and Griswold Road, as well as the proposed Griswold Road alignment. This alternative would have major impacts on the residents and businesses located near the Range Road and Griswold Road intersection due to the grade change. Properties that would not be purchased may require retaining walls. This option was expensive because two structures are required to eliminate the two at-grade crossings. The curved alignment to the south could require the acquisition of residential homes and property.

2.2.1.3 Range Road Illustrative Alternative #3:
This alternative was removed from consideration because it failed to remove the railroad crossing on Range Road.

2.2.1.4 Range Road Illustrative Alternative #5:
This alternative was eliminated from consideration due to impacts to properties from the high elevation of the intersection at the Range Road and Griswold Road. This alternative would have major impacts on the developed properties located near the Range Road and Griswold Road intersection. North-south traffic flow on Range Road was favored under this alternative.
<table>
<thead>
<tr>
<th>Illustrative Alternatives Evaluation Criteria</th>
<th>Comments</th>
<th>Range Road Alt #1</th>
<th>Range Road Alt #2</th>
<th>Range Road Alt #3</th>
<th>Range Road Alt #4</th>
<th>Range Road Alt #5</th>
<th>Range Road Alt #6</th>
<th>Range Road Alt #7</th>
<th>Michigan Road Alt #1</th>
<th>Michigan Road Alt #2</th>
<th>Michigan Road Alt #3</th>
<th>Michigan Road Alt #4</th>
<th>Michigan Road Alt #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossings Eliminated</td>
<td>Number of eliminated at-grade railroad crossings</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Structures Added</td>
<td>Number of new bridges added</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Amount of New Road Added</td>
<td>Length of new or improved roadway</td>
<td>5,880 ft</td>
<td>5,270 ft</td>
<td>4,850 ft</td>
<td>6,340 ft</td>
<td>6,100 ft</td>
<td>6,580 ft</td>
<td>5,470 ft</td>
<td>1,910 ft</td>
<td>4,070 ft</td>
<td>3,690 ft</td>
<td>1,980 ft</td>
<td>1,670 ft</td>
</tr>
<tr>
<td>Improved or Additional Intersections</td>
<td>Number of additional and/or improved intersections</td>
<td>1 Improved; 0 Addtl</td>
<td>1 Improved; 0 Addtl</td>
<td>3 Improved; 2 Addtl</td>
<td>2 Improved; 1 Addtl</td>
<td>2 Improved; 1 Addtl</td>
<td>2 Improved; 1 Addtl</td>
<td>2 Improved; 1 Addtl</td>
<td>1 Improved; 0 Addtl</td>
<td>1 Improved; 0 Addtl</td>
<td>1 Improved; 0 Addtl</td>
<td>2 Improved; 1 Addtl</td>
<td>1 Improved; 1 Addtl</td>
</tr>
<tr>
<td>Alternative Favors North-South Travel</td>
<td>Degree of improvement in direct North-South travel</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Alternative Favors East-West Travel</td>
<td>Degree of improvement in direct East-West travel</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Increase in Travel Time (without train)</td>
<td>Degree of travel time increase from the existing situation if a train is not present</td>
<td>None</td>
<td>None</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>None</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Reduction in Travel Time (with train)</td>
<td>Degree of travel time reduction from the existing situation if a train is present</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Degree of Safety Improvements</td>
<td>Degree to which option reduces conflicts, railroad crossings, and improves roadway alignments</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Estimated Construction Cost</td>
<td>All construction costs are in 2004 dollars with a 20% contingency. PE, CE and ROW acquisition are not included</td>
<td>$3.2 Million</td>
<td>$2.3 Million</td>
<td>$1.2 Million</td>
<td>$1.4 Million</td>
<td>$1.2 Million</td>
<td>$1.2 Million</td>
<td>$1.3 Million</td>
<td>$2 Million</td>
<td>$2.8 Million</td>
<td>$2.3 Million</td>
<td>$5.8 Million</td>
<td>$2.4 Million</td>
</tr>
<tr>
<td>Construction Effects on Traffic</td>
<td>Degree of disruption caused during construction</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Degree of Impacts to Developed Properties</td>
<td>Degree of ROW impacts to properties with development</td>
<td>Medium</td>
<td>Medium</td>
<td>None</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>None</td>
<td>Low</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Approximate Acres of New Right-of-Way Required</td>
<td>Assumes a 60 ft. wide road corridor</td>
<td>2.4 acres</td>
<td>1.9 acres</td>
<td>4.6 acres</td>
<td>4.8 acres</td>
<td>3.4 acres</td>
<td>2.5 acres</td>
<td>4.1 acres</td>
<td>0.9 acres</td>
<td>2.2 acres</td>
<td>3.6 acres</td>
<td>1.4 acres</td>
<td>1.9 acres</td>
</tr>
<tr>
<td>Degree of Wetland Impacts</td>
<td>Evaluation of wetlands directly filled by an alternative</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Number of Potentially Contaminated Sites Impacted</td>
<td>Based on search of regulatory database</td>
<td>None</td>
<td>1 site</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>1 site</td>
<td>2 sites</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Degree of Impacts to Proposed Bike Path (Abandoned Railway)</td>
<td>Notes degree of impact to land for proposed bike path</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>High</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Number of Potentially Significant Historic Archeological Sites Impacted</td>
<td>Notes number of historic archeological sites that are potentially eligible for the National Register of Historic Places that may be impacted</td>
<td>1 site</td>
<td>1 site</td>
<td>None</td>
<td>1 site</td>
<td>1 site</td>
<td>1 site</td>
<td>1 site</td>
<td>1 site</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Impacts to Utilities</td>
<td>Degree of impact on existing utilities in the area</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Degree of Visual Impacts</td>
<td>Based on height and length of new bridge structures and roadways</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
</tr>
</tbody>
</table>

*Assumes that CN RR will move the “y” track **Assumes that Overhead ITC lines will not be affected
2.2.1.5 Range Road Illustrative Alternative #6:

This alternative was removed from consideration because of potential impacts to a proposed bike path and impacts to properties from the high elevation of the intersection at Range Road and Griswold Road. More information on the bike path proposed along the abandoned railroad is found in Section 3.6 of this document. The alternative would also have major impacts on the developed properties located near the Range Road and Griswold Road intersection by locating the overpass on Range Road near the intersection. The proximity of the overpass would require that the intersection be raised substantially.

2.2.2 Michigan Road Illustrative Alternatives Eliminated

Michigan Road Illustrative Alternatives #1 and #5 were carried forward as Practical Alternatives. The remaining Illustrative Alternatives were eliminated from consideration as Practical Alternatives for a variety of reasons. The reasons for eliminating the alternatives from consideration are described below. The Illustrative Alternatives are shown on Figure 3.

2.2.2.1 Michigan Road Illustrative Alternative #2:

This alternative assumes the existing “y” railroad track, south of Griswold Road, would not be relocated. This alternative was eliminated from consideration because of the negative impacts to the road alignment relocating the intersection of Griswold Road and Michigan Road north of the existing intersection. In addition, relocating the intersection could result in impacts to residents and business owners at the existing and proposed intersections.

2.2.2.2 Michigan Road Illustrative Alternative #3:

This alternative was removed from consideration because it would require a large amount of ROW and because it created a new intersection on Griswold Road. The roadway alignment proposed under this alternative was also not desirable because of the sharp curves proposed.

2.2.2.3 Michigan Road Illustrative Alternative #4:

This alternative was eliminated from consideration because of the high construction cost associated with the large bridge structure. This was the most expensive Michigan Road alternative due to the span length of the proposed bridge structure. Additional expense would be incurred due to land acquisition that is required to tie Michigan Road into Griswold Road.

2.2.3 Intelligent Transportation Systems

Intelligent transportation systems (ITS) encompass a broad range of communications–based information, control and electronic technologies. When integrated into a transportation system, these technologies help monitor and manage traffic flow, reduce congestion and provide alternate routes to travelers. An example of an ITS is a changeable message sign (CMS). These CMS signs are often used on highways or roads to alert traffic to detours, congestion, delays, or other important traffic information.
ITS components were considered as part of the Illustrative Alternatives. Specifically, the consideration of CMS to alert traffic of train delays was undertaken. These components were not included in the Practical Alternatives because they failed to provide the safety benefit of removing the railroad crossing conflict. These components may be considered in further detail in later stages of the project.

2.2.4 Underpasses

Underpasses and overpasses were both considered during the Illustrative Alternative phase. However, after more detailed study underpasses were removed from consideration, and only overpasses were included as part of the alternatives considered. Underpasses would require the existing road to be lowered to travel under the railroad tracks. Underpass structures require a 14-foot – 6 inch vertical clearance versus the 23-foot vertical clearance required for overpass structures. Therefore, utilizing underpasses could reduce the length of roadway approach work. However, the cost of building a temporary crossing for rail traffic while the underpass is being constructed far exceeds the cost for additional approach work on overpasses. Drainage problems also influenced the decision to eliminate underpass structures. Underpasses require additional drainage structures and pump houses. Groundwater is located above a clay layer in the project area. This condition was discovered through the geotechnical investigation by geoprobe borings and verified from historic well logs. An elevated water table could create drainage problems at the underpass locations.

2.2.5 Railroad Adjustments

Changes to the existing horizontal and vertical alignment of the railroad tracks are cost prohibitive and were not included as part of the alternatives considered. This was mainly due to the fact that minor adjustments to the horizontal or vertical alignment of railroad tracks can require changes on miles of railroad tracks. No alignment or elevation changes are proposed to the railroad tracks at any of the project rail crossing locations. The tunnel into Canada and the CN Railroad yard layout restrict the horizontal and vertical alignments of the rails. Additionally, there is a high cost associated with the disruption of rail traffic. Therefore, it was not feasible to adjust the rails in order to reduce elevation changes at the proposed bridges or roadways.

2.3 Practical Alternatives

Selected Illustrative Alternatives were advanced for more detailed study as Practical Alternatives. More detailed early preliminary engineering was performed on the alternatives. Specifically, more structure details were developed, intersection types were considered, ROW and construction costs were estimated, and negative impacts were identified. Estimated alternative costs were updated to incorporate the improvements at both Range Road and Griswold Road, design and construction engineering and ROW acquisition. The Practical Alternatives were designed to accommodate year 2030 traffic volumes. The two Practical Alternatives considered improvements at both the Range Road and Michigan Road areas. Both alternatives addressed the project’s purpose and need to varying degrees.

The Practical Alternatives were evaluated by considering their advantages and disadvantages as they relate to evaluation criteria listed in the Practical Alternatives Evaluation Matrix (Table 2-2). The evaluation criteria were developed to assess the feasibility, benefits, and impacts of the
Practical Alternatives based on planning and engineering principles, as well as specific concerns identified by members of the public and stakeholders. The main evaluation categories included: crossings eliminated, traffic operations, safety, ROW impacts, environmental impacts, construction related impacts, and cost.

2.3.1 **Practical Alternative I**

Practical Alternative I would eliminate the at-grade crossings near the Range Road and Griswold Road area and the Michigan Road area by proposing a two-part solution (Figure 4).

2.3.1.1 **Range Road Area**

This alternative would build a grade separated crossing on a newly aligned Griswold Road that would eliminate the existing at-grade railroad crossings on Range Road and on Griswold Road. The new overpass would provide the required vertical clearance of 23 feet. The bridge would convey one lane of traffic in each direction over the railroad tracks. Access on Range Road south of the new roadway segment would be eliminated. Due to changes in grades, a service drive would be required to provide access to some homeowners on Griswold Road, east of Range Road.

2.3.1.2 **Michigan Road Area**

This alternative would construct an overpass on the existing Michigan Road alignment that would eliminate the two existing at-grade rail crossings on Michigan Road, south of Griswold Road. The “y” railroad track located south of the Griswold Road and Michigan Road intersection would be relocated further south on Michigan Road, paralleling the existing three tracks that cross Michigan Road at the CN Railroad yard (Figure 4). One bridge spanning the four tracks would be constructed on the existing alignment. The intersection at Griswold Road and Michigan Road would be raised, requiring additional approach work east and west of the intersection on Griswold Road and north of the intersection on Michigan Road.

2.3.1.3 **Alternative Evaluation**

This alternative could require that a temporary road be constructed prior to work on Michigan Road to maintain existing traffic. Traffic would be shifted east of Michigan Road. The proposed temporary road alignment would be similar to the alignment shown under Michigan Road Practical Alternative II. If the Range Road and Griswold Road portion of this project were constructed first, traffic on Michigan Road could be detoured using the new overpass route or detoured over the existing Range and Griswold Roads. This could reduce the project cost by eliminating the need for a temporary roadway. The cost for the temporary roadway was estimated at approximately $150,000.

This alternative favors east-west travel because of the geometry of the proposed Griswold Road alignment. This option increases overall safety by constructing two grade-separated crossings and eliminating five at-grade crossings. The Michigan Road alignment would follow the existing...
<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Comments</th>
<th>With Signalized Intersections</th>
<th>With Modern Roundabout Intersections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Practical Alternative I</td>
<td>Practical Alternative II</td>
</tr>
<tr>
<td>Crossings Eliminated</td>
<td>Number of eliminated at-grade railroad crossings</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Future Traffic Operations @ Range &amp; Griswold</td>
<td>Based on future (yr 2030) predicted traffic operations for each alternative</td>
<td>AM = LOS A (7.0 sec) PM = LOS A (5.0 sec)</td>
<td>AM = LOS A (6.3 sec) PM = LOS A (8.9 sec)</td>
</tr>
<tr>
<td>Future Traffic Operations @ Michigan &amp; Griswold</td>
<td>Based on future (yr 2030) predicted traffic operations for each alternative</td>
<td>AM = LOS A (7.5 sec) PM = LOS B (12.0 sec)</td>
<td>AM = LOS A (9.3 sec) PM = LOS B (10.9 sec)</td>
</tr>
<tr>
<td>Future Traffic Operations @ New Intersection of Michigan &amp; Griswold</td>
<td>Based on future (yr 2030) predicted traffic operations for each alternative</td>
<td>N/A</td>
<td>AM = LOS A (8.2 sec) PM = LOS B (13.9 sec)</td>
</tr>
<tr>
<td>Future Traffic Operations @ Triangle Intersection</td>
<td>Based on future (yr 2030) predicted traffic operations for each alternative</td>
<td>AM = LOS A (7.2 sec) PM = LOS B (14.5 sec)</td>
<td>AM = LOS A (9.0 sec) PM = LOS A (9.5 sec)</td>
</tr>
<tr>
<td>New Roadways</td>
<td>Approximate square feet of new roadway added minus the roadway removed under the alternative</td>
<td>112,000 square feet</td>
<td>109,000 square feet</td>
</tr>
<tr>
<td>Direction of Travel Priority @ Range &amp; Griswold</td>
<td>Based on whether the new intersection in the triangle parcel favors north/south or east/west travel</td>
<td>East / West</td>
<td>North / South</td>
</tr>
<tr>
<td>Direction of Travel Priority @ Michigan &amp; Griswold</td>
<td>Based on whether the new intersection at Michigan @ Griswold favors north/south or east/west travel</td>
<td>North / South</td>
<td>East / West</td>
</tr>
<tr>
<td>Intersection Safety</td>
<td>Based on studies comparing modern roundabouts with signalized and stop controlled intersections</td>
<td>Significantly less safe than roundabout</td>
<td>Significantly less safe than roundabout</td>
</tr>
<tr>
<td>Improved or Additional Intersections</td>
<td>Number of additional and/or improved intersections</td>
<td>2 Improved; 1 Additional</td>
<td>2 Improved; 2 Additional</td>
</tr>
<tr>
<td>Height of Intersection @ Range &amp; Griswold</td>
<td>Based on the proposed height of the intersection for the alternative</td>
<td>No Change</td>
<td>No Change</td>
</tr>
<tr>
<td>Height of Intersection @ Michigan &amp; Griswold</td>
<td>Based on the proposed height of the intersection for the alternative</td>
<td>3 feet above existing grade</td>
<td>No Change **</td>
</tr>
<tr>
<td>Estimated Alternative Cost @ Range &amp; Griswold</td>
<td>All construction costs are in 2004 dollars with a 20% contingency. Includes PE, CE and ROW costs.</td>
<td>$8.0 million</td>
<td>$7.4 million</td>
</tr>
<tr>
<td>Estimated Alternative Cost @ Michigan &amp; Griswold</td>
<td>All construction costs are in 2004 dollars with a 20% contingency. Includes PE, CE and ROW costs.</td>
<td>$4.2 million</td>
<td>$4.0 million</td>
</tr>
<tr>
<td>Displacements</td>
<td>Number of commercial or residential displacements</td>
<td>1 Residence</td>
<td>None</td>
</tr>
<tr>
<td>Right-of-Way</td>
<td>Approximate acres of new right-of-way required for each alternative</td>
<td>36 acres</td>
<td>38 acres</td>
</tr>
<tr>
<td>Wetlands</td>
<td>Approximate acres of wetlands impacted by an alternative</td>
<td>5.3 acres</td>
<td>6.7 acres</td>
</tr>
<tr>
<td>Contaminated Sites</td>
<td>Number of potentially contaminated sites impacted based on a search of regulatory database</td>
<td>1 Site</td>
<td>1 Site</td>
</tr>
</tbody>
</table>

*Assumes that CN RR will relocate the “y” track
** Relocated intersection of Michigan & Griswold
straight alignment, which is a safety benefit because it eliminates horizontal curvature concerns. The developed properties located near the Griswold Road and Range Road intersection would be minimally impacted with possible driveway relocations. Land acquisition of the triangular parcel of land located between Range Road, Griswold Road, and the abandoned Chesapeake and Ohio railway would be required. Driveways south of Griswold Road, west of the service drive would be re-graded to match the elevation change caused by the newly aligned Griswold Road. The property owners affected by the increase in elevation at the Griswold Road/Michigan Road intersection and the location of the temporary road (if needed) may require driveway relocation. The Practical Alternative considered both signalized and modern roundabout intersections.

2.3.2  Practical Alternative II
Practical Alternative II would eliminate the at-grade crossings near the Range Road and Griswold Road area and the Michigan Road area by proposing a two-part solution (Figure 4).

2.3.2.1  Range Road Area

This alternative would build a grade separated crossing on a newly aligned Range Road that would eliminate the existing at-grade crossings on Range Road and on Griswold Road. A new intersection would be created where the newly aligned roadways meet. Due to changes in grades, a service drive would be required to provide access to some homeowners on Griswold Road, east of Range Road. This service drive would be located off of the newly aligned Griswold Road. A portion of the existing Griswold Road would be removed where the roadway crosses the existing railroad tracks.

2.3.2.2  Michigan Road Area

This alternative includes an overpass on Michigan Road to eliminate the two existing at-grade crossings on the existing Michigan Road alignment, south of Griswold Road. The new Michigan Road alignment would be constructed prior to the removal of the existing Michigan Road for maintaining traffic purposes. The new roadway would be shifted east of Michigan Road, south of the set of three tracks. However, only three tracks would be spanned unlike Practical Alternative I, where the “y” track is relocated to the south and spanned with the bridge. The road would intersect at Griswold Road, between the two tracks east of the Griswold Road and Michigan Road intersection. A new intersection would be created where the relocated Michigan Road intersects with Griswold Road. The new intersection would be close to the existing intersection of Michigan Road and Griswold Road. The traffic signals at these intersections would need to be coordinated because of the concern of traffic queues onto existing at-grade rail crossings. Due to providing a 23-foot vertical clearance under the structure, minor roadwork would be required on Griswold Road at the tie in location.

2.3.2.4  Alternative Evaluation

The Range Road alternative favors north-south travel because of the alignment of the proposed Range Road. North and south traffic would have the priority at the intersection. The Michigan Road alternative favors east-west travel. The free flow of traffic on Michigan Road would be interrupted due to the shift in alignment to the east. This causes traffic traveling north and south to
make two additional stops and turns. Practical Alternative II increases overall safety by building two grade-separated crossings and eliminating four at-grade crossings. Michigan Road alignment would deviate from the existing straight alignment and terminate in between two railroad tracks. These tracks have approximately one train per day and currently do not have crossing gates at either location. The developed properties located near the Griswold Road and Range Road intersection could be minimally impacted with possible driveway relocations. Adjustments to the intersection would be needed to upgrade the intersection for year 2030 traffic projections. Land acquisition of the triangular parcel of land located between Range Road, Griswold Road, and the abandoned Chesapeake and Ohio Railway would be required. The property acquisition would be required at Michigan Road. CN Railroad owns a majority of this property.

### 2.3.3 Intersection Options

Impacts to the existing intersections from the alternatives, and the need to upgrade project area intersections to anticipated year 2030 volumes prompted an investigation of intersection options. Both signalized intersections and modern roundabout intersections were considered during the project. In most circumstances, signalized intersections could be used in conjunction with modern roundabouts, and vice versa. The one notable exception is the new intersection of Michigan Road and Griswold Road proposed under Practical Alternative II (Figure 4). Because of the proximity of the two intersections, similar intersection types were recommended to assure coordination.

#### 2.3.3.1 Signalized Intersections

Signalized intersections were considered at the project area intersections. This type of intersection would generally require widening local roads on intersection approaches and intersection footprints to accommodate the necessary turn lanes to achieve acceptable traffic operations. In most cases, turn lanes could be added within the existing ROW.

#### 2.3.3.2 Modern Roundabout Intersections

Modern roundabout intersections were considered at the project area intersections. The modern roundabout is a commonly used form of intersection traffic control around the world, but has only recently been implemented in the United States. Differing greatly from traffic circles built in the early twentieth century, modern roundabouts are much smaller, have lower speeds and require vehicles approaching the intersection to yield to traffic circulating within the roundabout. Modern roundabout intersections were considered because they generally provide good traffic operations, which require fewer travel and turning lanes, and because they have safety benefits. Generally, roundabouts require more ROW acquisition at intersections to accommodate the necessary geometry but can lessen the need for ROW along approach roads since widening can often be avoided. Traffic modeling information for the modern roundabout intersections is found in Appendix B of the Feasibility Study (DLZ 2004).

### 2.4 Preferred Alternative

#### 2.4.1 Selection of the Preferred Alternative

Selection of the Preferred Alternative was based on the criteria and information shown in Table 2-2. Selection of the Preferred Alternative also considered the comments expressed by CN Railroad,
SCCRC, the Advisory Committee and the general public. In particular, traffic operations were determined to be acceptable under both of the Practical Alternatives. Estimated costs and ROW impacts were similar for both alternatives. In general, modern roundabouts are safer than signalized intersections and were implemented where feasible.

In the Range Road and Griswold Road area, Practical Alternative I was selected over Practical Alternative II. The roadway alignment favoring east-west travel was preferred because it had fewer curves and allowed for higher design speeds. Modern roundabouts were selected over signalized intersections because of their superior traffic operations and safety benefits. Roundabout intersections would increase safety at the intersections while reducing driver delay time by maintaining a LOS A at both intersection locations.

In the Michigan Road area, Practical Alternative I was favored over Practical Alternative II. A signalized intersection was selected over the modern roundabout intersection because of the reduced impacts at the Griswold Road and Michigan Road intersection. The straight alignment of Practical Alternative I was preferred over the curved alignment of Practical Alternative II. Additionally, Practical Alternative I does not create a new intersection between two railroad tracks, which increases safety. Practical Alternative I also had fewer ROW and wetland impacts than Practical Alternative II, because Practical Alternative II required construction of a new road on a new alignment.

2.4.2 Elements of the Preferred Alternative
The Preferred Alternative, shown in Figure 5, would close the existing rail crossings at Range Road, Griswold Road, and Michigan Road. A new Griswold Road alignment would be constructed with an overpass spanning the CN railroad tracks to provide uninterrupted access between Range Road and Griswold Road. Modern roundabout intersections are proposed at the newly created intersection on the new road and the existing intersection of Range Road and Griswold Road. An overpass structure is also proposed on Michigan Road over the existing CN railroad tracks. The existing intersection of Michigan Road and Griswold Road would be improved with a traffic signal and turn lanes. The estimated cost for the Preferred Alternative is approximately $12.8 million, in year 2007 dollars.

Minor modifications were made during the development of the Preferred Alternative based on comments received from the SCCRC and CN Railroad. These modifications included reductions in the size of the roundabouts proposed near Range Road to reduce ROW impacts. In addition, Range Road north of the tracks would not be removed as shown in Practical Alternative I (Figure 4). Instead, the existing Range Road, north of the railroad tracks, would be maintained as a county road to ensure access to the property located west of Range Road. A stop-controlled intersection would be located at the “T” intersection between existing Range Road and the new roadway. The new access road located along Griswold Road would be maintained as a county road with stop control located on the access road at the “T” intersection. A cul-de-sac and turnaround would be located on Range Road and Griswold Road, respectively, near the railroad tracks to allow for vehicular turnaround movements. The proposed new bridge structures on Griswold Road and Michigan Road would be designed to accommodate an approximately ten-foot wide bike path that will meet American Association of State Highway and Transportation Officials (AASHTO) standards (Figure 4).
The additional width on the bridge structures will allow for the future development of bike paths on project area roads. Bike paths are anticipated in the project area to connect to the proposed bike trail being developed along the abandoned rail corridor at the north end of the project area (Figure 2). The cost associated with future bike lanes is not covered under this project and will require the use of separate funding sources by local governments.

The vertical alignment would meet all sight distance requirements and limit the maximum grade to five percent as defined by AASHTO and SCCRC, respectively.

### 2.4.3 Drainage
Consistent with existing roadway conditions, the Preferred Alternative includes ditches along project area roads to receive stormwater. The Preferred Alternative also includes the use of detention basins and other water quality Best Management Practices (BMPs) to pre-treat stormwater before it enters area drains.

A conceptual drainage plan and possible detention basin locations are shown on Figure 6. The proposed basins will be located to avoid impacts to existing wetlands. The basins have been sized to treat the net increase in surface runoff caused by the Preferred Alternative. Detention basins will be located near the ditches to receive runoff and allow suspended sediment to settle. The basins will outlet into vegetated ditches where possible, for additional treatment of roadway runoff before eventually outletting into drains.

### 2.4.4 Overpass Structures
The proposed structures would provide 23 feet of vertical clearance as required by standards in Chapter 28 of the Manual of Railway Engineering published by the American Railway Engineering and Maintenance of Way Association (AREMA) (AREMA 2001). Figures showing the proposed structure cross section have been included as Figures 7 and 8. Vehicular access for the railroad would be provided under the structures with a horizontal clearance of 18 feet from centerline of track to face of substructure per CN’s standards where no maintenance road is required. When the railroad requested a maintenance road be provided (at Michigan Road) this distance is 28 feet. This clearance would eliminate the requirement for crash walls. Open drainage ditches would be provided along the face of the substructure units and tie into the railroad ditches parallel to the tracks.

The bridge structure cross section would include two 12-foot wide lanes, 10-foot, 8-inch wide shoulders, two-tube bridge railing, a ten-foot wide bike path, and a ten-foot high curved pedestrian fence (Figures 7 and 8). Two feet of clear area would be required on each side of the bike path, providing an effective width of 14 feet. The minimum overall structure width would be approximately 63.5 feet, with a minimum clear roadway width of 45.33 feet. The bridge would have a two percent crown and a minimum longitudinal grade of 0.4 percent.

The bridge structures were designed to accommodate a ten-foot wide bike path to provide future access to the county bike trail that is proposed along the abandoned railroad line at the north end of the project area (Figure 2).
2.4.5 Retaining Walls
The proposed structures on Griswold Road and Michigan Road would utilize retaining or Mechanically Stabilized Earth (MSE) walls. The walls would be placed parallel to the tracks, with the abutments located on piles behind the walls. The side slopes would be sloped at one on two, retained by a sloping wall as shown in Figures 7 and 8. It was estimated to be less costly to purchase ROW and spill embankment at a one on two slope than to extend the walls to avoid additional ROW acquisition along Michigan Road.

2.4.6 Typical Roadway Cross Section
The roadways proposed under the Preferred Alternative would consist of two 12-foot wide lanes, one in each direction. The outside and inside shoulders would be eight feet wide, with three feet of the eight feet paved. There would be no sidewalk or curb and gutter except at the new intersections. The crown point would be placed at the center of the roadway, between the two lanes. The cross slope would be two percent across the travel lanes and four percent across the shoulders.

The proposed ditches and back slopes would be modified to accommodate the new pavement section, pavement elevations, and superelevation. Open drainage along new sections of roadway would be constructed. Curb and gutter would be placed at the project intersections, where the drainage would be enclosed. The proposed cross section is shown on Figure 9.

2.4.7 Maintenance Of Traffic
Because of the ability to phase the construction of the Preferred Alternative in the two areas, maintenance of traffic can be simplified. Construction of the Range Road portion of the Preferred Alternative would take place with little or no disruption to vehicular traffic. The structure and majority of the roadwork would be constructed in the triangular parcel of land north of Griswold Road. The Griswold Road and Range Road traffic would be temporarily detoured while the intersection and approaches are being improved. Work on the cul-de-sac or turnarounds at Range Road, north of the tracks, and Griswold Road, west of the tracks, could be performed after traffic is shifted onto the new roadways.

To allow for the maintenance of traffic during the construction of the Preferred Alternative at Michigan Road, Michigan Road traffic could be detoured over to the new roadways at the Range Road area. Temporary traffic detours could be required during intersection improvements at Griswold Road and Michigan Road.

2.4.8 Railroad Coordination
Train traffic would not be interrupted by the construction of the Preferred Alternative. The proposed structure in the Range Road area could be built while accommodating normal train traffic. Railroad flagman and inspection crews would be required for structural work done within the railroad ROW.

Relocation of the “y” track near the Michigan Road and Griswold Road intersection would need to be completed before construction of the Michigan Road overpass can commence. The proposed relocation would shift the “y” track south of its existing location and move it parallel to the three existing tracks (Figure 5).
Relocation of the “y” track near the Michigan Road and Griswold Road intersection was selected over maintaining the existing “y” track alignment. The existing “y” track is located approximately 200 feet from the intersection, requiring the design of any overpass structure on Michigan Road to maintain a vertical clearance of 23 feet over the “y” track. This situation precipitated the consideration of either the relocation of the intersection (Michigan Road Illustrative Alternative #2, Figure 3) or the design of an overpass that spanned the existing intersection (Michigan Road Illustrative Alternative #4, Figure 3). Neither of the alternatives mentioned above were desired. Michigan Road Illustrative Alternative #2 was eliminated from consideration because of the undesired road alignment shifts, impacts to property owners at the existing and relocated intersections and the increased cost of the alternative. Michigan Road Illustrative Alternative #4 was removed from consideration because of the high construction cost associated with the large bridge structure.
CHAPTER 3 – EXISTING CONDITIONS

This chapter describes the existing conditions within the project area. The chapter is organized by topic and only includes information related to relevant issues or regulatory requirements. Issues and topics involving minimal or no impacts as a result of the alternatives have been omitted unless discussion is warranted based on regulatory requirements or an issue has been specifically identified by project stakeholders or members of the public. Examples of these topics and issues include wild and scenic rivers, coastal zone management, etc.

3.1 Land Use

The City of Port Huron is the population center of St. Clair County, containing the majority of the region’s commercial centers, schools, and jobs. The city is located only a few miles east of the project area. While the project area includes both Kimball and Port Huron Townships, almost all of the project area is located in Port Huron Township. Range Road is the border between the townships with Kimball Township being located west of Range Road and Port Huron Township located on the east side of Range Road. As shown on Figure 2, the project area generally extends between Range Road and Michigan Road along Griswold Road.

The Port Huron Township Comprehensive Development Plan (The Charter Township of Port Huron Planning Commission 1996) identified Range Road, Michigan Road and Griswold Road as major thoroughfares, which will carry large volumes of traffic by the year 2010. The plan also showed that Range Road and Michigan Road should be developed for commercial and industrial land uses. The Master Plan for Kimball Township (Kimball Township 1995) indicated that commercial and industrial land uses are planned along Range Road in the project area. Land use in the study area is shown on Insert 1.
The majority of the land in the project area is comprised of residential properties, transportation facilities (i.e., roads, highways, and railroads) or is currently undeveloped. Existing land uses along Range Road are predominantly residential. The north end of Range Road in the project area is residential. Range Road north of its intersection with Griswold Road to the abandoned Chesapeake and Ohio Railway is undeveloped on both the east and west sides of the roadway. The intersection of Range Road and Griswold Road has a newly constructed store in the northwest quadrant of the intersection. South of Griswold Road, Range Road contains mostly residential properties. South of the project area, a new Meijer store is being constructed at the intersection of Range Road and Gratiot Road (BL-94).

Existing land uses along Michigan Road include a mix of commercial, industrial, residential and undeveloped properties. In the project area, the CN Railroad property dominates the majority of land adjacent to Michigan Road. Most of this land remains undeveloped or is used by the railroad. The railroad lines have a major impact on transportation as they run east-west through the project area. The Port Huron Township Fire Department is located near the intersection of Michigan Road and Lapeer Road north of the project area. St. Clair County is also constructing a new jail facility on Michigan Road, south of the project area.

A few commercial and industrial properties are located near the intersection of Michigan Road and Griswold Road. However, most of Griswold Road in the project area remains undeveloped.

### 3.2 Farmland

The Farmland Protection Policy Act (FPPA) requires that all Federal agencies “identify and take into account the adverse effects of Federal programs on the preservation of farmland” and to consider alternatives that would lessen those effects. This act is implemented by the U.S. Department of Agriculture’s (USDA) Natural Resources Conservation Service (NRCS) and regulates farmlands that are designated as “prime”, “unique”, “statewide important”, and “local important”. The NRCS has identified specific soil types that make up these special categories. The FPPA specifically excludes land already in or committed to urban development or water storage from these protected categories. Correspondence received from NRCS indicated that no prime or unique farmland would be impacted by the project. Based on this correspondence, it was determined that none of the land in the project area would be classified as prime farmland and protected under the FPPA.

Part 361 of Public Act 451, Michigan’s Natural Resources and Environmental Protection Act (NREPA) (formerly PA 116, the Farmland and Open Space Preservation Act) protects eligible properties as “open space”. Under this act, the owner of the property may enter into an agreement temporarily restricting the development rights of a parcel. In some instances, this provides tax relief for the property owner. Coordination was conducted with the Michigan Department of Agriculture (MDA) to determine if there are any properties within the project area that are enrolled in this program. The coordination indicated the project area does not contain any properties enrolled or protected under this program (Appendix B).
3.3 Soils / Geotechnical

The majority of the soils in the project area consist of the Allendale-Hoytville soil complex (USDA Soil Conservation Service Soil Survey 1974). This complex consists of somewhat poorly drained Allendale loamy fine sand and very poorly drained Hoytville silty clay loam. These soils typically occur next to each other in units too small and intermingled to be mapped separately. The slopes are level to gently undulating. Allendale loamy fine sand makes up about 45 to 55 percent of this complex and are on the higher, slightly convex, domelike mounds, low ridges, and rises. Slopes are short and generally range from two to four percent. Hoytville silty clay loam is nearly level. It makes up about 35 to 45 percent of the complex and is on the lower, slightly concave depressions and drainage areas.

A soils and geotechnical investigation was used to determine soils suitability to support the proposed bridges and new roadway segments. A truck mounted Geoprobe® investigation identified the presence of a perched water table. A geologist examined and characterized the soil from the borings in accordance with the Unified Soil Classification System (USCS). All of this information is important in determining the type of structure foundation and construction techniques to be used. This investigation provided general information and structural borings will be required during the design phase at the location of all bridge abutments to ensure the proper design is prepared for the conditions.

3.4 Population Demographics / Environmental Justice

3.4.1 Populations

The City of Port Huron is the population center of St. Clair County containing the majority of commercial centers, schools, and jobs in the area. As shown in Table 3-1, the populations of both Kimball and Port Huron Townships have been increasing over the past three decades and are expected to continue this trend in the future. The average household size in Port Huron Township (2.58) is consistent with the U.S. average (2.59), with Kimball Township being slightly higher (2.74). The percent of the population with a disability in both communities is lower than the U.S. average of 19.3% (Port Huron Township 18.6%, Kimball Township 17.5%).

Table 3-1. Population Information within Project Area

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kimball Township</td>
<td>6,152</td>
<td>7,086</td>
<td>7,247</td>
<td>8,628</td>
<td>12,009</td>
</tr>
<tr>
<td>Port Huron Township</td>
<td>7,635</td>
<td>7,830</td>
<td>7,621</td>
<td>8,615</td>
<td>11,744</td>
</tr>
<tr>
<td>City of Port Huron</td>
<td>35,794</td>
<td>33,324</td>
<td>33,694</td>
<td>32,338</td>
<td>29,530</td>
</tr>
<tr>
<td>St. Clair County</td>
<td>120,175</td>
<td>137,243</td>
<td>145,607</td>
<td>164,235</td>
<td>203,255</td>
</tr>
</tbody>
</table>

Source: Southeast Michigan Council of Governments (SEMCOG)
3.4.2 **Environmental Justice**

Executive Order 12898 on Environmental Justice directs Federal agencies to identify and address disproportionately high and adverse human health or environmental effects to minority and low-income populations caused by their programs, policies, and activities. In compliance with this Executive Order, environmental documents first identify the presence or absence of Environmental Justice populations within their project limits. Secondly, the document then notes any disproportionately high and adverse human health or environmental effects to minority and low-income populations. The analysis conducted to determine the presence or absence of Environmental Justice populations and the identification of any disproportionately high and adverse human health or environmental effects to minority and low-income populations are found below.

### 3.4.2.1 Minority Populations

There are two census tracts located within the project area (Figure 10). According to the 2000 U.S. Census data, minority populations represent approximately two to eleven percent of the population in these tracts and represent about five percent of the total population in St. Clair County (Table 3-2). Tracts containing a minority population percentage notably greater than the county or metropolitan area in which they are located can be considered “high” minority areas. As shown on Table 3-2, census tract 6346 has a low percentage of minorities while census tract 6360 could be considered a high minority area.

In addition to census data, other information sources were used to identify minority populations. These included visual inspections of the project area; discussions with members of the public during public information meetings and public outreach efforts; discussions with officials from Port Huron and Kimball Townships, local planning agencies, and the SCCMPC.

![Table 3-2. Minority and Low-Income Population Information for the Project Area](source: US Census 2000)

<table>
<thead>
<tr>
<th>Area</th>
<th>Year 2000 Population</th>
<th>Median Household Income *</th>
<th>Percent of Persons in Poverty</th>
<th>Percent Minority Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Census Tract 6360</td>
<td>3,110</td>
<td>$34,646</td>
<td>12.9%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Census Tract 6346</td>
<td>4,966</td>
<td>$46,784</td>
<td>6%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Kimball Township</td>
<td>8,628</td>
<td>$47,627</td>
<td>8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Port Huron Township</td>
<td>8,615</td>
<td>$43,978</td>
<td>7%</td>
<td>6.5%</td>
</tr>
<tr>
<td>City of Port Huron</td>
<td>32,338</td>
<td>$31,327</td>
<td>17%</td>
<td>13.3%</td>
</tr>
<tr>
<td>St. Clair County</td>
<td>164,235</td>
<td>$46,313</td>
<td>8%</td>
<td>5.1%</td>
</tr>
<tr>
<td>State of Michigan</td>
<td>9,938,444</td>
<td>$44,667</td>
<td>10.3%</td>
<td>20%</td>
</tr>
</tbody>
</table>

* In 1999 US Dollars

### 3.4.2.2 Low-Income Populations

According to FHWA guidance, “low-income” is defined as a household that is at or below the U.S. Department of Health and Human Services’ poverty guidelines. Based on the 2000 Census information collected, Kimball Township has approximately four percent of its population and Port Huron Township has seven percent of its population living at or below the poverty level. Using the same methodology used above for minority populations, areas containing low-income
populations higher than the county or regional average are considered “high” low-income areas. As shown in Table 3-2, the percentage of low-income populations in the project area are higher than the state and county averages. Based on this analysis, it was concluded that there are low-income populations present in the project area.

3.5 Utilities

In addition to publicly owned utilities such as sanitary sewer and water mains, several private companies own utilities within the project area (Figure 10). The majority of the utilities are located parallel to the existing roadways of Range Road, Griswold Road, and Michigan Road. The project area contains overhead and buried fiber optic telephone and cable television lines and buried gas lines running parallel to all three roadways. Overhead high voltage power lines and a buried oil pipeline which pass through the project area.

Utilities such as high voltage overhead electric lines, oil pipelines, gas lines and buried fiber optic cables are expensive to relocate. These utilities are of major concern and their locations were considered when determining proposed roadway and structure locations.

3.6 Pedestrian and Bicyclists

The project area does not contain any existing sidewalks or bicycle paths. Residents in the area may occasionally use bicycles or walk along the roadside for recreation or to reach one of the local commercial establishments. However, the area does not have much pedestrian or bicycle traffic.

The St. Clair County Parks and Recreation Department is constructing an extension to the existing Wadham's to Avoca regional bike path in the project area. The new path is planned along the abandoned railway north of Griswold Road on the north side of the project area (Figure 2). The proposed path enters the project area from the west crossing Range Road at the north end of the project area. The proposed route continues through the project area across the northern boundary of the triangular shaped parcel (Figure 10). Ultimately, the proposed trail is intended to reach the St. Clair River via connecting trails.

3.7 Economic Conditions

The project area is located approximately 45 miles north of the City of Detroit. The City of Port Huron is located only a few miles east of the project area and is the largest city in St. Clair County. As noted in the Land Use section above, the majority of land in the project area is residential or undeveloped and contains
relatively few commercial or industrial properties. There is a newly constructed convenience store located in the northwest quadrant of the intersection of Range Road and Griswold Road. There are also a few commercial/industrial properties located near the intersection of Michigan Road and Gratiot Road. A new Meijer Store is being constructed at the intersection of Range Road and Gratiot Road (BL-94), south of the project area. Members of the Advisory Committee noted potential impacts to existing businesses as a concern.

3.8 Air Quality

Under the direction of the Clean Air Act Amendments (CAAA) of 1990, the U.S. Environmental Protection Agency (EPA) has established health-based National Ambient Air Quality Standards (NAAQS) for six pollutants. These six “criteria” pollutants are lead (Pb), ozone (O₃), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), and particulate matter (PM₁₀, 10-micron and smaller along with PM₂.₅, 2.5 micron and smaller). The project area is in attainment for lead, sulfur dioxide, nitrogen dioxide, carbon monoxide and PM₁₀. For this project, pollutants of principle concern are ozone, carbon monoxide and PM₂.₅.

The Michigan Department of Environmental Quality (MDEQ) monitors air quality in the state. The state of Michigan has been in attainment with the PM₁₀ NAAQS since October 4, 1996. However, on December 17, 2004, the EPA designated seven counties in southeast Michigan (including St. Clair County) as non-attainment for PM₂.₅.

Ozone has the same chemical structure whether it occurs in the upper atmosphere or at ground level. Depending on its location in the atmosphere, ozone can be considered either beneficial or harmful. Beneficial ozone occurs naturally in the stratosphere approximately 10 to 30 miles above the earth's surface and forms a layer that protects life on earth from the sun's harmful rays. Harmful ozone occurs at ground level and causes human health problems, damages crops and other vegetation, and is a key ingredient of urban smog.

Effective June 15, 2004, and amended November 22, 2004, certain counties in Michigan (including St. Clair County) were designated by EPA as being in non-attainment for the 8-hour NAAQS for ozone. Based on EPA’s plan for implementation of the 8-hour standard, it is likely the need to test the proposed project for conformity under the new standard will apply during 2005. Due to the newly implemented 8-hour ozone standard, the 1-hour ozone standard was revoked on June 15, 2005. Currently, only the 8-hour ozone standard is in effect.

Based on the requirements of the CAAA of 1990 and the Transportation Equity Act for the 21st Century (TEA-21), proposed transportation projects in non-attainment/maintenance areas must be included in a long range plan (LRP) and Transportation Improvement Plan (TIP) that conform to state air quality plans as outlined in the State Implementation Plan (SIP). Specifically, “regionally significant” transportation projects must be included in a LRP and TIP that have undergone an emissions analysis to demonstrate “conformity” with the SIP. This approach is intended to assure that transportation projects do not result in violations of the NAAQS. Although this project is not currently included in the regional LRP or TIP, it will have to be added before the EA and Finding of No Significant Impact (FONSI) can be signed by FHWA.
Automobiles contribute nearly 60 percent of the total national CO emissions, and in urban areas with traffic congestion, automobile emissions may represent 95 percent of all CO emissions (MDEQ 2004). Thus the focus of CO controls as well as CO monitoring has been on traffic-oriented sites in urban areas where the main source of CO is automobile exhaust.

### 3.9 Noise

The unit of measurement used in sound measurement is the decibel (dB), and the unit of measurement used for traffic noise is the dB on the A-weighted scale (dBA). The A-weighted scale most closely represents the response of the human ear to sound. The measurement that is used to express dBA levels for traffic noise is the Hourly Equivalent Sound Level \([L_{eq}(h)]\). The \(L_{eq}(h)\) describes the cumulative exposure experienced at a location from all noise-producing events over a 1-hour period. Sound levels measured in the project area ranged from 53.2 dBA to 63.9 dBA.

Traffic noise studies for road projects in Michigan are performed in accordance with 23 CFR 772 and MDOT’s 2003 Procedures and Rules for Implementation of State Transportation Commission Policy 10136. There are five main steps that typically comprise traffic noise studies. These are:

1. Identify noise sensitive receivers
2. Determine existing ambient peak hour noise levels
3. Predict future peak hour noise levels
4. Identify traffic noise impacts
5. Evaluate mitigation measures for sensitive receivers where traffic noise impacts occur

The FHWA Noise Abatement Criteria (NAC) and MDOT’s Procedures and Rules for Implementation of State Transportation Commission Policy 10136 (MDOT 2003) were used to analyze the noise impacts of the Preferred Alternative. Regulations found in 23 CFR Part 772 establish NAC for various land uses, dividing activities into five categories. MDOT has adopted these activity categories and NAC. The five categories are shown in Table 3-3.

<table>
<thead>
<tr>
<th>ACTIVITY CATEGORY</th>
<th>NOISE ABATEMENT CRITERIA (NAC) - (L_{eq}(h))</th>
<th>DESCRIPTION OF ACTIVITY CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>57 dBA (Exterior)</td>
<td>Lands where serenity and quiet are of extraordinary significance and serve an important public need. The preservation of those qualities is essential if the area is to continue to serve its intended purpose.</td>
</tr>
<tr>
<td>B</td>
<td>67 dBA (Exterior)</td>
<td>Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.</td>
</tr>
<tr>
<td>C</td>
<td>72 dBA (Exterior)</td>
<td>Cemeteries, commercial areas, industrial areas, office buildings, and other developed lands, properties, or activities not included in Categories A or B.</td>
</tr>
<tr>
<td>D</td>
<td>No Limit</td>
<td>Undeveloped lands, including roadside facilities and dispersed recreation.</td>
</tr>
<tr>
<td>E</td>
<td>52 dBA (Interior)</td>
<td>Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums where no outside activity occurs.</td>
</tr>
</tbody>
</table>

Source: FHWA Highway Noise Control Standards and Procedures, 23 CFR Part 772
Noise-sensitive receivers are those locations where activities occur that could be affected by increased traffic noise levels (e.g., residences, motels, churches, schools, parks, libraries). Noise-sensitive receivers are located along Griswold Road west of Range Road, one individual residence on Griswold Road east of Range Road, Range Road south of Griswold Road, and on Michigan Road north of Griswold Road. Peak hour noise levels were collected at key locations to determine the affect of existing traffic on noise-sensitive receivers in the project area.

Existing noise levels were measured during peak traffic hours at representative sites throughout the project area. The measured noise levels ranged from 50.1 dBA to 64.1 dBA for the AM peak hour and 58.9 dBA to 66.8 dBA for the PM peak. Due to the close proximity of the railroad to some of the sites, it is likely the noise levels from train traffic are much greater than automobile noise levels. Additionally, existing peak hour $L_{eq}(h)$ noise levels were modeled in the project area with the FHWA Traffic Noise Model (TNM) version 2.1. This model takes into account traffic volumes, vehicle types, vehicle speeds, roadway locations, screening provided by buildings, terrain features, and noise sensitive receiver locations to calculate traffic-generated noise levels. Modeled existing peak hour levels ranged from 43.6 dBA to 65.3 dBA $L_{eq}(h)$ for the AM peak hours and 45.7 dBA to 67.5 dBA for the PM peak hours.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan Road, north of Griswold Road</td>
<td>57.1 dBA - 65.3 dBA</td>
<td>58.6 dBA - 67.5 dBA</td>
</tr>
<tr>
<td>Range Road/Griswold Road Intersection</td>
<td>57.5 dBA - 61.1 dBA</td>
<td>56.2 dBA - 63.3 dBA</td>
</tr>
<tr>
<td>Wall Road</td>
<td>43.6 dBA - 47.1 dBA</td>
<td>45.7 dBA - 60.3 dBA</td>
</tr>
</tbody>
</table>

Currently, receiver two exceeds the NAC levels for criteria B. See Figure 11 for the location of the receivers. More detailed information on existing noise conditions is found in the Traffic Noise Report (DLZ 2005).

3.10 Water Resources

3.10.1 Surface Water

Portions of both the Huffman Drain and the North Branch of Bruce Creek are located within the project area, and are both tributaries to Bruce Creek, which eventually drains into the St. Clair River in the City of Marysville. The drainage areas for both watercourses exceed two square miles. The entire project area is located within the St. Clair River Watershed. Comments received from the St. Clair County Drain Commissioner are found in Appendix B. The Huffman Drain conveys roadside drainage from I-94 and receives discharge from a detention pond north of Griswold Road. The drain is an engineered trapezoidal ditch approximately ten feet wide and 12-18 inches deep. The drain passes south under Griswold Road through a 48-inch corrugated metal pipe culvert. Refer to Figure 11 for the relative location of drains.

The North Branch of Bruce Creek runs south along the east side of Michigan Road before angling southeast away from the roadside. The “creek” is an engineered trapezoidal ditch approximately five feet wide within the project area. The creek receives runoff from the rail yard at the north end
and receives storm water inputs through an 18-inch metal culvert under Michigan Road from a parcel to the west.

The Black River is located approximately two and a half miles north of the project area, but none of the surface waters in the project area flow towards the river. The Black River is not a state or Federal wild and scenic river.

3.10.2 Groundwater

Water that is stored in and slowly filtered through geologic formations is considered to be groundwater. A geologic formation that contains sufficient ground water to supply wells, lakes, springs, streams and/or wetlands is called an aquifer. The project area does not contain any Sole Source Aquifers or Critical Aquifer Protection Areas as defined by the EPA under the authority of the Safe Drinking Water Act. However, as noted in the Soils/Geotechnical section above, groundwater may exist under the project area. The possible existence of high groundwater will need to be considered in the design of structural footings, new roadways, detention basins, roadside ditches and wetland mitigation areas. There are no municipal wells and no known private wells within the project area. Both Kimball Township and Port Huron Township purchase municipal water from the City of Port Huron.

3.11 Wetlands

Michigan’s wetlands are currently regulated under the jurisdiction of Part 303 of NREPA. Unavoidable impacts to wetlands are also subject to the requirements of this Public Act, Section 404 of the Clean Water Act, and Executive Order 11990, Protection of Wetlands. The Executive Order requires the avoidance of impacts to wetlands caused by construction activities that are Federally undertaken, financed, assisted, or approved. Where unavoidable impacts are present, an evaluation and mitigation for the impacts must be performed, regardless of size or regulatory status. Comments received from MDEQ are included in Appendix B.

National Wetland Inventory (NWI) maps indicated the triangular parcel bordered by Range Road on the west and Griswold Road on the south as being almost entirely wetlands. It should be noted that the NWI maps are useful for initial investigations, however they are not relied upon to determine the presence, absence, or extent of wetlands. NWI maps were generally prepared using high altitude photography and in most cases were not verified in the field. For this reason, wetlands were sometimes erroneously identified, missed, or misidentified, particularly in regard to forested wetlands. Additionally, the criteria used in identifying NWI wetlands are different from those currently used by the MDEQ. The wetland determination herein was based on the methodology described in the MDEQ Wetland Identification Manual (2001). Qualified biologists, with the specific intent of determining wetland boundaries, walked the project area. Fieldwork was conducted from September 22 through September 24, 2004. Wetland boundaries were flagged and delineated using a sub-meter accuracy Global Positioning System recorder (Figure 10).

Field investigations identified the presence of 21 wetlands potentially affected by the alternatives in the project area. Eight wetlands were identified near the intersection of Range Road and Griswold Road, and thirteen wetlands were identified near the intersection of Michigan Road and Griswold Road. Ten wetlands were classified as palustrine emergent (PEM), four wetlands are
classified as palustrine scrub/shrub (PSS), three wetlands are classified as palustrine forested (PFO). In addition, there were four palustrine emergent/scrub shrub (PEM/SS) complex wetlands and one palustrine emergent/forested (PFO) wetland. The wetlands ranged in size from approximately 0.04 acres to 24 acres. A summary of the wetland types is shown in the following table. Figure 10A shows the location of each wetland by its ID.

Table 3-5. Wetlands in Project Areas by Type and Quality

<table>
<thead>
<tr>
<th>Wetland I.D.</th>
<th>Wetland Classification*</th>
<th>Size (Acres)</th>
<th>Wetland Quality</th>
<th>Wetland Impacts (ac)</th>
<th>Permitting Impact Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan Road Area Wetlands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>PEM</td>
<td>0.1</td>
<td>Low (dominated by <em>Phragmites</em>)</td>
<td>None</td>
<td>Avoided</td>
</tr>
<tr>
<td>B</td>
<td>PEM</td>
<td>0.1</td>
<td>Low (dominated by <em>Phragmites</em>)</td>
<td>None</td>
<td>Avoided</td>
</tr>
<tr>
<td>C</td>
<td>PSS</td>
<td>0.2</td>
<td>Medium (high proportion exotics)</td>
<td>None</td>
<td>Avoided</td>
</tr>
<tr>
<td>D</td>
<td>PEM</td>
<td>0.5</td>
<td>Low (dominated by <em>Phragmites</em>)</td>
<td>0.01</td>
<td>Minimized</td>
</tr>
<tr>
<td>E</td>
<td>PEM/PSS</td>
<td>3.4</td>
<td>Medium (surrounded by roads/railroad)</td>
<td>0.23</td>
<td>Minimized</td>
</tr>
<tr>
<td>F</td>
<td>PEM</td>
<td>0.2</td>
<td>Medium (exotics dominate herbaceous)</td>
<td>0.10</td>
<td>Minimized</td>
</tr>
<tr>
<td>G</td>
<td>PEM/PSS</td>
<td>0.4</td>
<td>Low (dominated by <em>Phragmites</em>)</td>
<td>None</td>
<td>Avoided</td>
</tr>
<tr>
<td>H</td>
<td>PSS</td>
<td>0.1</td>
<td>Low (very small area adjacent to railroad)</td>
<td>0.02</td>
<td>Minimized</td>
</tr>
<tr>
<td>I</td>
<td>PSS</td>
<td>0.6</td>
<td>Medium (surrounded by roads/railroad)</td>
<td>0.19</td>
<td>Minimized</td>
</tr>
<tr>
<td>J</td>
<td>PEM</td>
<td>1.2</td>
<td>Medium (adjacent to road/railroad)</td>
<td>0.58</td>
<td>Minimized</td>
</tr>
<tr>
<td>K</td>
<td>PSS</td>
<td>0.3</td>
<td>Low (very small area)</td>
<td>None</td>
<td>Avoided</td>
</tr>
<tr>
<td>L</td>
<td>PEM</td>
<td>0.5</td>
<td>Low (dominated by <em>Phragmites</em>)</td>
<td>0.44</td>
<td>Minimized</td>
</tr>
<tr>
<td>U</td>
<td>PFO</td>
<td>11.3</td>
<td>Medium (quality species with adjacent habitat)</td>
<td>0.31</td>
<td>Minimized</td>
</tr>
<tr>
<td>Range Road Area Wetlands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>PEM/PSS</td>
<td>3.3</td>
<td>Medium (quality species with adjacent habitat)</td>
<td>None</td>
<td>Avoided</td>
</tr>
<tr>
<td>N</td>
<td>PEM</td>
<td>0.1</td>
<td>Low (monoculture of cattail at railroad)</td>
<td>None</td>
<td>Avoided</td>
</tr>
<tr>
<td>O</td>
<td>PEM/PSS</td>
<td>1.0</td>
<td>Medium (exotic mixed with quality species)</td>
<td>0.10</td>
<td>Minimized</td>
</tr>
<tr>
<td>P</td>
<td>PFO</td>
<td>14.4</td>
<td>Medium (varied habitat with adjacency)</td>
<td>2.91</td>
<td>Minimized</td>
</tr>
<tr>
<td>Q</td>
<td>PEM</td>
<td>0.2</td>
<td>Low (dominated by <em>Phragmites</em>)</td>
<td>None</td>
<td>Avoided</td>
</tr>
<tr>
<td>R</td>
<td>PEM</td>
<td>0.5</td>
<td>Low (dominated by <em>Phragmites</em>)</td>
<td>None</td>
<td>Avoided</td>
</tr>
<tr>
<td>S</td>
<td>PFO</td>
<td>3.4</td>
<td>Medium (varied habitat with adjacency)</td>
<td>0.55</td>
<td>Minimized</td>
</tr>
<tr>
<td>T</td>
<td>PEM</td>
<td>0.2</td>
<td>Low (small area with <em>Phragmites</em>)</td>
<td>None</td>
<td>Avoided</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>42.0</td>
<td></td>
<td>5.44</td>
<td></td>
</tr>
</tbody>
</table>


The quality of the wetlands in the project area ranges from low to medium. The wetlands around the Michigan Road area were generally of low quality because of past attempts at drainage, placement of fill, water quality impacts (e.g. erosion and contamination from trash) and small size due to habitat fragmentation. The forested wetland south of the CN Railroad yard and east of Michigan Road is marginally higher quality because of its size but is still impacted by the drainage influence of the North Branch of Bruce Creek. The wetlands near Range Road have experienced
impacts similar to those described for Michigan Road wetlands above. The two large wetland complexes within the triangular parcel bordered by Range Road, Griswold Road and the abandoned railroad line, however, exhibit moderate quality. This is in part due to their larger size and their slightly more stable water levels. Functions performed by the wetlands in the project area include: floodflow alteration; sediment/toxicant retention; nutrient removal/transformation; sediment stabilization; and groundwater recharge. Additional information on wetlands in the project area is found in the Wetland Delineation Report (DLZ 2005) prepared for the project.

3.12 Floodplains

The Federal Emergency Management Agency (FEMA), upon the request of a community, typically prepares National Flood Insurance Program (NFIP) maps. These maps identify 100- and 500-year floodplains. The NFIP map, 2606720010A, indicates that there are no mapped floodplains in the project area. It is assumed based on this that the drains contain a 100-year flood within their banks.

3.13 Threatened and Endangered Species

Threatened and endangered species include those that have special designations under NREPA, Part 365, Endangered Species Protection, or the Federal Endangered Species Act of 1973, as amended, Section 7. Early coordination with state and federal agencies (Appendix B) indicated that habitat for two special status species may be present in the project area (Table 3-6).

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Federal Status</th>
<th>State Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myotis sodalis</td>
<td>Indiana bat</td>
<td>Endangered</td>
<td>Endangered</td>
</tr>
<tr>
<td>Trillium undulatum</td>
<td>Painted trillium</td>
<td>Not listed</td>
<td>Endangered</td>
</tr>
</tbody>
</table>

Sources: Michigan Natural Features Inventory, MDNR and U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) has indicated in correspondence “the possibility exists for the endangered Indiana bat (Myotis sodalis) to occur within suitable habitat in the action area”. In Michigan, the summer range of the Indiana bat includes the southern half and most of the western coastal counties of the Lower Peninsula. The females raise their young in small, dispersed maternity colonies roosting in tree hollows and loose bark of dead trees. There are potential bat habitat features in and close to the project area. Field observations confirmed the presence of large silver maples (Acer saccharinum), Eastern cottonwood (Populus deltoides), shagbark hickory (Carya ovata) and some standing dead elm (Ulmus sp.). Some of the wooded areas in and close to the project are inundated with water during the growing season.

A survey of the project area was conducted in March 2005 to evaluate whether it could be possible summer habitat for the Indiana Bat. Dr. Allen Kurta, a qualified biologist and member of the Indiana bat recovery team, conducted the survey of the project area. A complete description of the survey methodologies and results are found in Canadian National Rail Corridor in Port Huron Township, Michigan, and Habitat for Indiana Bats (Kurta 2005). There are no known records of the Indiana bat ever being found in St. Clair County, however, this may also be attributed to the limited number of bat studies conducted in the area.
The eastern side of the project area along Michigan Road was considered to be low-quality Indiana bat habitat. This area contained very few dead trees, and most of these had small diameters and were not suitable for bat roosting.

The western side of the project area near the intersection of Range Road and Griswold Road contained some high quality and some medium quality habitat for Indiana bat. In particular the survey noted that the triangular parcel bordered by Range Road on the west, the CN Railroad on the south and the abandoned rail line on the north contained high quality habitat. The site was noted to contain a very large number of dead elm trees, with large concentrations in the western half of the site.

The Michigan Department of Natural Resources (MDNR) has indicated through correspondence that there has been a known occurrence of the painted trillium (Trillium undulatum) in St. Clair County. The plant’s core territory is the upper Appalachia mountain range. The painted trillium occurrence noted in the database search is likely one of the sites identified in the Michigan Natural Features Inventory (MNFIs) species abstract within the Port Huron State Game Area. The habitat description provided by MNFI lists several plant species along with landscape descriptions that are similar to what was noted in the project area. Tree species noted within the project area that are associated with the trillium include red maple (Acer rubrum), paper birch (Betula papyrifera) and oaks (Quercus spp.). Understory species noted in the project area that are associated with the painted trillium include partridgeberry (Mitchella repens), Canada mayflower (Maianthemum canadense), cinnamon fern (Osmunda cinnamomea) and royal fern (Osmunda regalis).

Two surveys were conducted in late May 2005 and early June 2005 to determine the presence or absence of the painted trillium in the project area. A qualified field biologist/botanist from DLZ, knowledgeable of plants in Michigan conducted the survey of the project area. After two extensive searches of the area during the peak painted trillium bloom period, the species was not found. Despite the fact that the site contains several associates of painted trillium, it was concluded that the project area does not contain this endangered plant species. Additional information on the survey methods and results are found in the Threatened and Endangered Species Survey Report (DLZ 2005).

### 3.14 Vegetation and Wildlife

There were numerous visits to the project site that included a wetlands survey, soils analysis, threatened and endangered species survey, and a noise study. During these field visits, it was observed that the vegetation in the project area includes many introduced/exotic species that would support small animal species found in southern Michigan. Some areas offer a limited amount of protective cover, nesting/denning sites, and food sources such as leaves, berries and seeds. Vegetation communities present in the project area include upland wooded and old field in addition to the wetland habitats described above. The upland wooded vegetation community is dominant in the project area and is comprised primarily of upland hardwood forest and shrub. The old field vegetation community is less common in the project area and is comprised of fallow agricultural areas.
The proximity of development and transportation facilities that cross the area limits habitat quality through fragmentation and human disturbances. Most species in the project area are tolerant of high levels of human activity and related disturbances.

Wildlife species that could possibly be found in the project area include species typically found in open fields and forested lands. Mammal species may include: whitetail deer (*Odocoileus virginianus*), woodchuck (*Marmota monax*), eastern cottontail (*Sylvilagus floridanus*), opossum (*Didelphis marsupialis*), red fox (*Vulpes vulpes*) and several species of mice and voles. A wide variety of migratory birds are likely to utilize the area at certain times of the year. Common bird species may include: song sparrow (*Melospiza melodia*), northern cardinal (*Cardinalis cardinalis*), European starling (*Sturnus vulgaris*), red-winged blackbird (*Agelaius phoeniceus*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), wild turkey (*Meleagris gallopavo*), black-capped chickadee (*Parus atricapillus*), and tufted titmouse (*Parus bicolor*).

### 3.15 Cultural Resources

Cultural resources include structures and archaeological sites that are eligible for listing or listed on the National Register of Historic Places (NRHP). The cultural resources investigation included background research, coordination with the State Historic Preservation Office (SHPO), and field investigations.

A Phase I cultural resources survey of the project area was prepared by the Commonwealth Cultural Resources Group, Inc. (CCRG) and published in January 2005. A 60-acre area of potential effect (APE) was defined for the Preferred Alternative. More information on cultural resources is found in the *Phase I Cultural Resources Survey of Two Canadian National Rail Crossings Kimball and Port Huron Townships, St. Clair County Michigan* (CCRG 2005).

A review of existing records for the project area did not identify any previously recorded archaeological sites that are listed on the NRHP. Historic maps revealed three potential sites for archeological resources within the APE. However, a Phase I archaeological survey (including shovel testing in areas with less than 50 percent ground visibility) of the project area did not reveal any evidence of either prehistoric or historic archaeological sites (CCRG 2005).

The Phase I cultural resources survey included an assessment of above-ground structures. A records review indicated the project area does not contain any previously recorded above-ground sites on the NRHP. None of the potentially affected structures in the project area were noted as being eligible for listing on the NRHP. A visual assessment of many of the older existing structures determined that they have been subject to extensive alteration (updates) over time. The resultant loss of integrity coupled with the absence of associated farmstead buildings and the conversion of one property to subdivided parcels detracts from their significance as architectural/historic resources of the earlier development of Port Huron and Kimball Townships. Based on these investigations it was determined that no archaeological or above-ground cultural resources exist in the project area.
### 3.16 Hazardous Materials

An Environmental FirstSearch™ investigation was conducted in the project area. This investigation performs a search of Federal and state environmental databases. The database search identified four sites in the project area as potential contamination concerns (Table 3-7). Three of the sites were identified on the Underground Storage Tanks (UST) database. This database contains a listing of all USTs in Michigan and is maintained by the MDEQ Storage Tank Division. All three of the sites were noted to have had tanks removed.

The fourth site is the former Grand Trunk Railroad (currently CN) yard located southeast of the intersection of Michigan Road and Griswold Road. The state database identified a release of diesel fuel contaminants in December of 2003. The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database maintained by USEPA noted that during the preliminary investigation of the site, it was determined that no further remedial action was needed. The site is currently designated as an archived site, which according to the U.S. EPA indicates that the site has no further interest under the Federal Superfund Program based on available information. The archive designation is removed and the site is returned to the CERCLIS inventory if more substantive assessment and/or cleanup work is necessary under the Federal Superfund program. Given the previous industrial nature of land uses in the project area, there is the potential for other sites.

#### Table 3-7. Potentially Contaminated Sites within the Project Area*

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Name</th>
<th>Location</th>
<th>Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Grand Trunk Railroad</td>
<td>Griswold &amp; Michigan Roads</td>
<td>CERCLIS, STATE</td>
</tr>
<tr>
<td>2</td>
<td>Total Petroleum / Imlay City Oil</td>
<td>3978 Griswold Road</td>
<td>UST, AST-Removed**</td>
</tr>
<tr>
<td>3</td>
<td>Amerigas</td>
<td>4196 Griswold Road</td>
<td>UST, AST- Removed**</td>
</tr>
<tr>
<td>4</td>
<td>Steve Smith</td>
<td>3996 Griswold Road</td>
<td>UST-Removed</td>
</tr>
</tbody>
</table>

* Potential contamination based on regulatory database search. All sites identified in databases maintained by the U.S. EPA and MDEQ.  
** Aboveground Storage Tank

### 3.17 Visual Conditions

In most ways, visual conditions in the project area are typical of rural-suburban areas in Southeastern Michigan. The project area includes roads, highways and railroad corridors as well as a limited amount of residential, commercial, and industrial land uses. The project area also has many undeveloped parcels containing wetlands or forest vegetation. Terrain in the project area can be considered rolling because of the terrain changes.

*Looking north on Range Road north of Griswold.*
Key viewpoints are from the motorists’ perspective along project area roads and from pedestrians’ views. Panoramic views are not present in the project area due to buildings, trees, and the lack of major elevation changes. Therefore, most views are limited to the immediate foreground (within 0.25 mile), with mid-ground views (0.25 to 4 miles) only occurring when looking down project area roads. The project area does not contain any unique or outstanding visual features, as evidenced by the photographs that are representative of the views in the project area included in this section.
CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES

This chapter describes, by topic (e.g., noise, air quality), the potential SEE impacts that would likely be caused by implementing the Preferred Alternative described in Chapter 3. The descriptions include direct, indirect, construction, and cumulative impacts, and are followed by a listing of mitigation measures. These terms are defined as follows:

- **Direct Impacts** – These impacts occur as a direct result of the Preferred Alternative. Examples of direct impacts include filling wetlands, ROW acquisition, and noise increases.
- **Indirect Impacts** – Also referred to as “secondary” impacts, these are indirectly caused by the Preferred Alternative. These impacts often occur at a later time and are usually located farther away from the project area than the direct impacts. Examples of indirect impacts include induced land use changes and downstream sedimentation of streams caused by stormwater runoff.
- **Construction Impacts** – These are the temporary effects that occur during construction. This could include impacts such as increased noise, dust, and construction detours.
- **Cumulative Impacts** – Cumulative impacts result from combining the direct, indirect, and construction impacts of an alternative with other past, present, and reasonably foreseeable future impacts.
- **Mitigation Measures** - These are actions that will be implemented to avoid, reduce, or compensate for the impacts of the Preferred Alternative. Examples of mitigation measures include wetland creation, noise walls, and assistance to residents being relocated as a result of a project.

This chapter only describes impacts where mitigation may be needed or such discussions are relevant. Typically, discussion is not provided when: (1) impacts would not occur, (2) there are no specific regulatory requirements that pertain to the issue, and (3) the issue has not been identified as a concern by citizens or a government agency during the course of the project. Examples of omitted topics and issues include: coastal zone management, wild and scenic rivers, Section 4(f) properties, and energy. Beyond these items, the level of detail provided is related to the severity of potential impacts for each topic.

Similar to impacts, mitigation measures are only discussed where: (1) they may be warranted based on impacts or (2) are required by regulations. As a result, they are not discussed for some of the topics in this chapter.

4.1 Land Use

4.1.1 No Build Alternative

The No Build Alternative would potentially impact land use in the project area by discouraging opportunities for further development. The existing train delays negatively impact access to properties in the project area. This situation is expected to continue and get worse. Referring to the SYNCHRO turning movement diagrams in Appendix A, it can be seen that traffic is projected to increase significantly between now and 2030, resulting in longer queues and increased delays at intersections compounded by the train blockage delays. This is contrary to the plans of the
communities to develop properties in the vicinity of the Range Road, Griswold Road, and Michigan Road intersections.

4.1.2 Preferred Alternative
The Preferred Alternative would result in the conversion of some undeveloped property to road ROW. Since this alternative would improve traffic operations and access on local roads in the project area, it would likely induce more development than that which would have otherwise occurred under the No Build Alternative. The exact amount of additional development cannot be predicted because it would be influenced to a greater extent by other factors including local zoning, marketing efforts, and economic conditions. Because the Preferred Alternative (including the development it would encourage) is consistent with the goals of both of the affected Townships, it will not result in negative impacts to existing or proposed land uses.

4.2 Farmland

4.2.1 No Build Alternative
Based on a review of township documents and early coordination with the MDA, the project area does not contain any land that could be classified as prime farmland.

4.2.2 Preferred Alternative
The project area does not contain any land that can be classified as prime farmland.

4.3 Soils / Geotechnical

4.3.1 No Build Alternative
The No Build Alternative would not impact soil conditions.

4.3.2 Preferred Alternative
The Preferred Alternative would cause the replacement of some hydric soils with sand and gravel fill to support the new roadway, and would temporarily disturb some soils immediately adjacent to the roadway during construction. Details for the structures required to support the Preferred Alternative have not yet been designed, and are dependent on the condition of the soils and other factors at each construction site. More detailed soil borings will be needed during the design phase to determine the types of footings required. Replacing hydric soils with sand and gravel can increase construction costs, but the exact costs will not be known until designs are finalized.

Additionally, the soil was examined for contamination using a photo ionization detector (PID) to screen for organic vapors, as well as visual and olfactory senses. Although contamination may be present at four or more sites in the general project area, there was no indication, based on PID readings and visual and olfactory observations, that the soil is contaminated at the specific locations where construction would take place. Therefore, construction activities in these tested locations would be unlikely to cause the release of such soil-borne contaminants.
4.4 Social Impacts

4.4.1 No Build Alternative
The No Build Alternative would not directly affect neighborhoods or community functions. However, the existing transportation problems identified in Chapter 1 would still remain. As traffic volumes on the local roads approach their capacity, traffic congestion would occur as an indirect impact to local roads. The traffic backups and travel delays caused by train traffic at the existing railroad crossings would exacerbate this problem. The increased travel time, and the mounting frustration associated with increasing congestion problems could cause a perceived reduction in the quality of life for area residents.

4.4.2 Preferred Alternative
The Preferred Alternative would provide grade separated railroad crossings on Griswold Road and Michigan Avenue, thus eliminating all delays attributable to the existing at-grade crossings, including delays to emergency vehicles. The Preferred Alternative would result in minor impacts to neighborhood access in the project area. As shown in Figure 5, Range Road would become a cul-de-sac just north of the CN railroad crossing. Griswold Road between Range Road and the railroad track crossing would become an access driveway for residents and the business. This would only slightly impact the travel patterns of some residents in the project area.

4.5 Environmental Justice

4.5.1 No Build Alternative
The No Build Alternative could potentially result in disproportionately high and adverse effects on minority and low-income populations in the project area. A gradual increase in traffic will continue regardless of whether or not the Preferred Alternative is constructed. As traffic volumes approach capacity of the existing road system, the resulting congestion and increased train delays will impact all residents of the area.

4.5.2 Preferred Alternative
Based on US Census data, it was concluded that there are low-income populations present in the project area. However, given the scope of the project, minimal impacts, and the benefits to the entire traveling public it has been concluded that the Preferred Alternative would not result in disproportionately high and adverse effects on minority and low-income populations. Negative impacts of the Preferred Alternative include one residential relocation and alignment changes to project area roads. It is unknown if the owner of the residential relocation qualifies as low-income. All impacts to this and other property owners will be mitigated according to the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Construction of the Preferred Alternative is anticipated to result in a variety of benefits that would be enjoyed by all residents, business owners, and motorists in the project area. These benefits include: removal of the at-grade railroad crossings; elimination of train delays on Range Road and Michigan Road; reduction of the number of railroad crossings on Griswold Road north of Michigan Road from two to one; improved traffic operations; and improved response times for emergency response vehicles.
4.6 Pedestrians and Bicyclists

4.6.1 No Build Alternative
The No Build Alternative would not result in impacts to pedestrian and bicycle facilities. When considered in conjunction with projected traffic congestion, over time, cumulative negative impacts to pedestrians and bicyclists may result from increased traffic and congestion along existing roadways.

4.6.2 Preferred Alternative
The Preferred Alternative would not result in negative impacts to pedestrian and bicycle facilities. The Preferred Alternative will not impact the proposed trail to be constructed along the abandoned railway, as the crossings at Range Road and Griswold Road would remain at-grade just as they currently are. The Preferred Alternative includes a pedestrian and bicycle lane on the proposed bridge structures, and vertical grades on the bridges meet the requirements of the Americans with Disabilities Act (ADA) by not exceeding 5 percent. This design can accommodate the construction of separate bicycle paths to be implemented later and ensure all modes of transportation are developable. However, pedestrian and bicycle lanes are not proposed on project area roads as part of the Preferred Alternative.

Additional improvements such as bike lanes on area roads to accommodate bicycle traffic can be built at the same time as the new roadways and intersections are being built for vehicles. Coordination with trails groups and funding sources would be needed to attain the most mutually beneficial improvements for the least amount of money spent.

4.7 ROW / Relocations

4.7.1 No Build Alternative
The No Build Alternative would not result in ROW impacts or relocations to residents or businesses in the project area. Indirect impacts would include small incremental ROW construction and repairs of the road system to service new businesses or to address severe congestion problems, as they occur.

4.7.2 Preferred Alternative
The Preferred Alternative is anticipated to result in one residential relocation and no business relocations. This relocation is a residence located in the southwest quadrant of the intersection of Michigan Road and Griswold Road. ROW acquisition and relocation activities will be conducted in accordance with all relevant Federal and State of Michigan requirements. Relocation assistance will be available to all who are displaced. Services provided may include moving costs, housing replacement costs, purchase supplement costs, and rental assistance.

The Preferred Alternative is estimated to require approximately 38 acres of ROW acquisition, including the one residential displacement. A majority of this (approximately 32 acres) is associated with the triangular parcel located in the northeast quadrant of the intersection of Range Road and Griswold Road. At most of the other impacted properties, a relatively narrow strip of property would be acquired adjacent to the existing ROW, and current property uses would not be affected. All of these ROW impacts are shown on Figure 11.
4.7.3 Measures To Mitigate ROW Acquisition and Relocation Impacts

Compliance with State and Federal Laws
Acquisition and relocation assistance and advisory services will be provided by the County of St. Clair in accordance and compliance with Act 31, Michigan P.A. 1970; Act 227, Michigan P.A. 1972; the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended; and Act 87, Michigan P.A. 1980, as amended. The County of St. Clair will inform individuals, businesses and non-profit organizations of the impact, if any, of the project on their property. Every effort will be made through relocation assistance to lessen the impact when it occurs.

Residential
The County of St. Clair is required by statute to determine the availability of comparable, decent, safe and sanitary housing for eligible displaced individuals. The County of St. Clair has specific programs to implement the statutory and constitutional requirements of property acquisition and relocation of eligible displacees. Appropriate measures will be taken to ensure that all eligible displaced individuals are advised of the rights, benefits, and courses of action available to them.

Business, Farms or Non-Profit Organizations
The County of St. Clair is required by statute to offer relocation assistance to displaced businesses, farms and non-profit organizations. The County of St. Clair has specific programs that will implement the statutory and constitutional requirements of property acquisition and relocation of eligible displacees. Appropriate measures will be taken to ensure that all eligible displaced businesses, farms or non-profit organizations are advised of the rights, benefits, and courses of action available to them. Displaced businesses and organizations will be encouraged to relocate within the same community.

Purchasing Property
The County of St. Clair will pay just compensation for fee purchase or easement use of property required for transportation purposes. “Just compensation” as defined by the courts is the payment of “fair market value” for the property rights acquired plus allowable damages to any remaining property. “Fair market value” is defined as the highest price estimated, in terms of money, the property would bring if offered for sale on the open market by a willing seller, with a reasonable time allowed to find a purchaser, buying with the knowledge of all the uses to which it is adapted and for which it is capable of being used.

Relocation Information
A booklet entitled “Your Rights and Benefits” detailing the relocation assistance program can be obtained from the Michigan Department of Transportation, Real Estate Support Area, P.O. Box 30050, Lansing, Michigan, 48909 or phone (517) 373-2200.

Property Acquisition Information
A booklet entitled “Public Roads & Private Property” detailing the purchase of private property can be obtained from the Michigan Department of Transportation, Real Estate Support Area, P.O. Box 30050, Lansing, Michigan, 48909 or phone (517) 373-2200.
4.8 Economic Impacts

4.8.1 No Build Alternative
The No Build Alternative would not result in direct impacts to economic conditions in the project area. Because traffic congestion would increase under the No Build Alternative, access to project area businesses would become more difficult during peak traffic hours. This would result in slightly less economic activity than would otherwise occur in the project area. Because economic activity and business revenue would be below their full potential, tax revenue and property values would also be below potential levels.

4.8.2 Preferred Alternative
The Preferred Alternative would not directly result in substantial negative changes to economic conditions because it would not change the fundamental economic characteristics in the project area. The Preferred Alternative would accommodate the development already planned by both townships. By accommodating this development, the Preferred Alternative would provide enhanced economic opportunities for the area by creating jobs. Based on this information, business activity and employment would not be negatively affected by this alternative.

It is not possible to predict what impact this alternative would have upon residential and business property values. While parcels adjacent to project area roads could decrease in value due to the proximity of the new roadway, it is also possible that these parcels could increase in value because of reduced congestion and better access to a major arterial road. While these factors are important, it is more likely that property values will depend upon market conditions, zoning ordinances, and parcel-specific building conditions.

Most businesses in the project area would be temporarily impacted by construction activities. Examples of temporary impacts could include detours, delays, construction noise, and dust. Despite these impacts, access to businesses would be maintained during construction. Because most of the details regarding construction will not be known until the design phase of this project, it is not possible to determine how long these temporary construction impacts will last.

The construction of the Preferred Alternative will result in a much better local transportation system through the elimination of train delays on Michigan Road and Range Road in the project area. Participants in the public involvement meetings have indicated that the development opportunities of the properties along these roads has been limited to some extent by train delays. The elimination of these delays is therefore expected to result in improved development opportunities and improved economic conditions in the project area and the region.

4.9 Air Quality

4.9.1 No Build Alternative
Due to the traffic increases projected for the No Build Alternative, it is possible that this alternative could contribute to violations of the NAAQS for CO. However, detailed CO modeling
was not conducted for this alternative because none of the intersections in the project area are currently signalized and the CAL3QHC model cannot be used to model stop-controlled intersections. It is unlikely that the No Build Alternative would directly result in violations of the NAAQS for any other Clean Air Act “criteria” pollutants.

As with CO, hot spot analyses are also desirable for particular matter, both \( PM_{10} \) and \( PM_{2.5} \). However, there is not a consistently reliable methodology available to perform such evaluations. As a result, the EPA’s Transportation Conformity Rule Amendments (40 CFR part 93.123) indicate that particulate matter hot spot analyses are not required until modeling guidance is released and announced as available in the Federal Register. Therefore, a quantitative hot spot analysis for particular matter was not conducted for this project.

4.9.2 Preferred Alternative

As noted above, current EPA and FHWA policies for transportation project do not require microscale analysis of particulate matter impacts because there is no reliable methodology available for modeling it. Conformity of regional pollutants such as ozone is demonstrated through the use of a computer model, administered by the MPO, that incorporates all transportation projects in the approved RTP and TIP. Conformity for this project can be demonstrated when the model shows that the Preferred Alternative, along with all other project on the RTP and TIP, would not cause violations of the NAAQS. The project will be placed on the RTP and regional conformity will be demonstrated before a FONSI can be signed by FHWA. Based on this information and in accordance with EPA, FHWA and MDOT procedures, the air quality impact analysis for this project is limited to a microscale analysis of CO concentrations and a comparison of those concentrations to the established NAAQS for CO.

As of August 30, 1999, all areas in Michigan were designated as attainment for CO and no monitoring needs to be performed for attainment purposes. However, an adverse impact occurs when a sensitive receptor has CO levels that exceed the NAAQS for CO. CO emissions are modeled for the 1-hour and 8-hour condition for the opening day (2008) and the design year (2030). To determine if the proposed project will cause violations of the NAAQS, a microscale, or hot spot, air quality analysis was performed, using EPA’s MOBILE6.2 emissions model and the CAL3QHC CO dispersion model.

A CO “hot spot” analysis was performed for the Preferred Alternative. This hot spot analysis was performed at the intersection of Michigan Road with Griswold Road during the PM peak hour. This intersection was selected because it is proposed to be signalized as part of the preferred alternative and had the highest potential of causing CO violations out of all the intersections in the project area (based on traffic volumes and delay times). A summary of the methodology used to conduct this analysis is provided in the Carbon Monoxide Hot Spot Analysis Technical Memorandum for the CN Rail Crossing Project (DLZ 2005).

CO levels were predicted at locations immediately adjacent to the intersection during worst-case traffic and weather conditions for the years 2008 (the likely first year of operation) and 2030 (the “design” year). This analysis showed that all predicted CO concentrations are below the NAAQS. Results of the CO hot spot analysis are shown below in Table 4-1. Because these locations had the highest potential to cause CO violations of the NAAQS and modeling demonstrated that they
would not do so, it can be assumed that the Preferred Alternative would not cause or contribute to localized CO violations that could be a health threat.

Table 4-1. Results of Carbon Monoxide Hot Spot Analysis *

<table>
<thead>
<tr>
<th>Intersection</th>
<th>2008</th>
<th>2030</th>
<th>NAAQS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-Hour</td>
<td>8-Hour</td>
<td>1-Hour</td>
</tr>
<tr>
<td>Michigan Road &amp; Griswold Road</td>
<td>8.10</td>
<td>4.96</td>
<td>8.00</td>
</tr>
</tbody>
</table>

* All results are in parts per million (ppm)

Construction activities associated with the Preferred Alternative would cause short-term, localized impacts to air quality within the project area. A temporary increase in vehicle emissions is expected as a result of heavy equipment activity, hauling materials, and idling vehicles. Additionally, fugitive dust would be generated through construction activities such as excavation, heavy equipment operation, and other traffic activity. Fugitive dust emissions would vary depending on the level of activity, specific construction techniques, soil characteristics, and weather conditions.

Cumulative impacts to air quality are accounted for by demonstrating regional air quality conformity. This is accomplished by the MPO through the use of a computer model that demonstrates that the Preferred Alternative, along with all other project on the RTP and TIP, would not cause violations of the NAAQS.

All construction contractors that work on this project will be required to comply with relevant Federal, state, and local laws governing the control of air pollution. Contractors will also be responsible for adequate dust control measures to protect public health and welfare. All bituminous plants, Portland cement concrete proportioning plants, and crushers must meet the requirements of Part 55 of NREPA. Portable bituminous or concrete plants will also be required to obtain permits from the MDEQ. Dust collectors will be provided on all bituminous and concrete proportioning plants. Dry, fine aggregate material removed by the dust collector will be returned to the dryer discharge. These requirements will assure that air quality impacts are minimized during construction.

4.10 Noise

4.10.1 No Build Alternative

During the AM peak traffic hour the No Build Alternative (2030) would result in an increase ranging from 0.4 dBA \( L_{eq}(h) \) to 2.4 dBA \( L_{eq}(h) \), relative to existing predicted noise levels. During the PM peak hour, an increase ranging from 0.9 dBA \( L_{eq}(h) \) to 1.2 dBA \( L_{eq}(h) \) would occur. To put this in perspective, a three dBA change is considered the minimum change which can be distinguished by the human ear, and a ten dBA increase is perceived by the human ear as twice as loud as the original level. A 5.0 dBA increase would be perceived as approximately 50 percent louder to the human ear. Overall noise levels would range from 44.9 dBA \( L_{eq}(h) \) to 66.4 dBA \( L_{eq}(h) \) for the AM peak hour and from 46.7 dBA \( L_{eq}(h) \) to 68.5 dBA \( L_{eq}(h) \) for the PM peak hour. The No Build Alternative would result in noise impacts at receiver numbers one and two in the northwest quadrant of the Griswold Road and Michigan Road intersection. See Figure 11 for the location of the impacted receivers.
4.10.2 Preferred Alternative

Future $L_{eq}(h)$ noise levels were predicted for the Preferred Alternative using the TNM 2.1 computer model. Noise levels were predicted for each sensitive receiver using the worst traffic conditions likely to occur on a regular basis during the design year (during either the AM or PM peak traffic hour, depending on location). A detailed description of the noise study methodology is included in the Noise Technical Report for the Environmental Assessment for the Canadian National Railroad Crossing Feasibility Study (DLZ 2005).

According to FHWA and MDOT noise policies, a traffic noise “impact” occurs when either of the following conditions occurs at a receiver:

- The future predicted $L_{eq}(h)$ noise level approaches (is within 1 dBA) or exceeds the Noise Abatement Criteria (NAC) shown in Table 3-3 in section 3.9 (page 25).
- The future predicted $L_{eq}(h)$ noise level substantially exceeds (by 10 or more dBA) the existing $L_{eq}(h)$ noise level.

Predicted noise levels would range from 49.6 dBA $L_{eq}(h)$ to 66.8 dBA $L_{eq}(h)$ for this alternative for the AM peak traffic hour. Overall peak hour ambient sound levels for the Preferred Alternative during the AM peak hour would result in a change ranging from a decrease of 5.3 dBA to an increase of 17.6 dBA relative to existing modeled levels. During the PM peak hour noise levels would range from 49.4 dBA to 67.6 dBA. As a result of the Preferred Alternative a decrease of 5.9 dBA to an increase of 17.5 dBA would occur. As stated above, a three dBA change is considered the minimum change, which can be distinguished by the human ear, and a ten dBA increase is perceived by the human ear as twice as loud as the original level. The Preferred Alternative would result in noise impacts at receivers two and four as the dBA levels exceed the NAC levels for criteria B, as shown in Table 3-3. See Figure 11 for the location of the receivers.

At all sensitive receivers where traffic noise impacts are predicted, noise mitigation measures must be considered in accordance with 23 CFR Part 772.11. Typical measures used to mitigate traffic noise impacts involve the construction of a noise barrier in the form of an earthen berm or vertical wall. Other forms of noise abatement that are sometimes considered include setting lower speed limits, limiting truck traffic on certain streets, re-routing the noise source (on a new alignment), and adding insulation to the buildings of noise receivers. According to MDOT’s Procedures for Implementation of State Transportation Commission Policy 10136, noise abatement is only provided for residentially-zoned land uses and publicly-used or nonprofit institutional structures such as hospitals, libraries, and schools. Additionally, noise barriers will only be implemented if:

- They reduce predicted noise levels by at least 6 dBA;
- They cost less than $38,060 (in 2007 dollars) per benefiting residence; and
- They are a minimum of 600 feet long and a maximum of 25 feet high.

If all of these conditions are satisfied at any specific location, mitigation measures (noise walls) are considered reasonable and feasible and recommended for detailed study and design.

Noise mitigation is not reasonable or feasible for this project even though noise impacts would occur at two receivers. At receiver locations two and four, provision of a continuous 600-foot long
noise barrier is not feasible because it would cut off residential driveways. Therefore, “breaks” in the barrier would be required, limiting its length and effectiveness. Additionally, the noise barrier would exceed the $38,060 maximum cost per benefiting residence and would not be cost-effective. An earthen berm would not be feasible at this location because it would take up most of the yards at adjacent residences.

Additional noise abatement measures were evaluated and found to be either unwarranted or infeasible for this project. Federal and state guidelines allow for the insulation of public use or non-profit institutional structures and, in extreme cases, homes could be provided with air conditioning and insulation. However, predicted noise levels are not high enough to justify air conditioning or insulation as a noise abatement measure. Other options considered to be infeasible include eliminating truck traffic and reducing the speed limit to reduce noise levels.

Construction of the proposed project would result in a temporary increase in the ambient noise level in the vicinity of the roadway. Construction noise on this project should be controlled by measures including but not limited to the following:

- The construction contract specifications should require that the contractor adhere with all Federal, state, and local noise abatement and control requirements.
- Construction activity in the vicinity of residences should be limited to the hours between 7:00 AM and 7:00 PM or as specified by local requirements.
- A responsive communication process should be established with local residents. A telephone number should be posted at the construction site for inquiries concerning project activity.
- Construction equipment should be in good repair and fitted with “manufacturer recommended” mufflers.
- Equipment such as generators, which may be used during the nighttime hours, should be enclosed.
- Local or state jurisdictions should monitor construction noise and advise the contractor of any violation of maximum allowable noise levels.

4.11 Water Resources

4.11.1 No Build Alternative

Surface Water
The No Build Alternative would not result in direct impacts to Huffman Drain or the North Branch of Bruce Creek. However, as a result of anticipated future development in and around the project area, there is a possibility that indirect impacts to surface water quality could result in somewhat degraded water quality conditions. Such impacts to surface water quality would be possible whether or not the new roadways and intersections are constructed.

Groundwater
The No Build Alternative would not result in direct impacts to the groundwater.
4.11.2 Preferred Alternative

Surface Water

Direct, Indirect, and Construction Impacts
The Preferred Alternative would not result in direct impacts to Huffman Drain. However, construction of the overpass on Michigan Road would impact the North Branch of Bruce Creek. Construction of the overpass would result in the installation of longer culverts along the creek as it goes under the road. These activities are regulated by the State of Michigan under Section 301 of NREPA and require a permit from MDEQ and coordination with the St. Clair County Drain Commissioner. Any changes to existing culverts may require a hydraulic analysis to ensure new culverts are properly sized to not interfere with flood flows. While the quality of the existing habitat is low, increasing culvert lengths would result in impacts to aquatic habitat in the drain from vegetation removal, habitat loss, changes in channel substrate, and changes to backwater areas during high flows and enclosing portions of the drain. Aquatic habitat would essentially be removed from these areas where the drain is in a culvert. These impacts may impact the quality of the aquatic habitat in the drain. As both watercourses are designated county drains, they are candidates for routine maintenance to facilitate the efficient movement of water. These maintenance activities typically include removal of accumulated sediments and vegetation. Given the habitat present, the aquatic species likely to be present are tolerant of this type of disturbance and quickly recolonize from upstream and downstream.

The Preferred Alternative will likely result in indirect impacts to surface water quality. These impacts are expected to come from construction and development activities occurring on lands surrounding the new roadways. Construction of the Preferred Alternative will support planned development on adjacent properties. This development will increase the quantity of runoff water and concentrate water at discharge points. This can be somewhat mitigated with development of stormwater management regulations for new development by the local communities and county drain commissioner.

Avoidance and Minimization
Consistent with the comments on early coordination received from the MDA, coordination will be conducted with the St. Clair County Drain Commissioner to ensure that impacts to the Huffman Drain and the North Branch of Bruce Creek will be minimized. In compliance with comments received from the MDEQ, proposed culverts will be aligned in the direction of flow and their openings will be sized to span baseflow channels of the drain. The length of culverts will also be minimized to the extent practical, to reduce disturbances to the drains.

Mitigation
Negative impacts to drainage and surface water quality will be mitigated during construction. Detention basins would prevent changes in the timing of stormwater runoff in project area streams by gradually releasing runoff water. The exact location of these detention basins will be finalized during the design phase of the project. The detention basins will also outlet into vegetated ditches where possible, for additional treatment of highway runoff. Filtering highway runoff through vegetated ditches has been proven an effective method of treating highway runoff by removing sediments and some of the associated pollutants such as oils, greases, and heavy metals. Basins
will be sized to handle the first-flush flow as defined by the *MDOT Road Design Manual* (MDOT 2003) and will be designed such that no harmful interference will occur from a 100-year storm event. Coordination will also be conducted with the St. Clair County Drain Commissioner to ensure that additional drainage water will not cause flooding problems in drains that are at or near capacity. Routine maintenance on detention basins will ensure that trapped sediments are regularly removed. A conceptual drainage plan containing proposed locations of detention basins is shown in Figure 6.

**Cumulative Impacts**
Taking into account past, present, and reasonably foreseeable future factors, the Preferred Alternative is anticipated to result in only minor cumulative impacts to the Huffman Drain and the North Branch of Bruce Creek. However, the Preferred Alternative is not anticipated to cause the drain to violate water quality standards under the CWA, result in a significant loss of aquatic habitat, or impact any of the drains’ other functions or values, due to design measures and the implementation of BMPs. While the Preferred Alternative is anticipated to facilitate land development, all construction and development activities will require regulatory review and will therefore provide all necessary mitigation measures to protect surface water. Positive impacts are expected from the creation of detention basins to slow stormwater runoff and the use of vegetated ditches that filter and treat surface water runoff before it is absorbed into the ground.

The affected drainage area is less than two square miles, therefore a hydraulic analysis is not required for this project, under Part 31 of NREPA.

**Groundwater**
The Preferred Alternative would not cause negative impacts to groundwater in the project area. The Preferred Alternative would not require major excavations, alter existing drainage patterns, or create new potential pathways whereby contaminants could reach the aquifer. However measures taken during construction would mitigate the impacts caused by these activities.

In order to protect groundwater quality, all disturbed sewer lines will be addressed in accordance with standard construction specifications that will be imposed upon the construction contractor. If abandoned water wells or septic systems are encountered during construction, they will be addressed in accordance with standard construction specifications. Beyond these items, the contractor will need to meet all other Michigan Department of Community Health (MDCH), local health department, and MDEQ requirements designed to protect groundwater quality.

### 4.12 Wetlands

#### 4.12.1 No Build Alternative
The No Build Alternative would not result in direct negative impacts to regulated wetlands nor would it cause indirect impacts to wetlands or contribute to cumulative wetland impacts. However, the comprehensive and master plans of Port Huron Township and Kimball Township, respectively, show that Range Road and Michigan Road should be developed for commercial and industrial land uses. As a result of anticipated future development in and around the project area, it is likely that wetland areas will be indirectly and cumulatively impacted. Such impacts to wetlands would be likely whether or not the new roadways and intersections are constructed.
4.12.2 Preferred Alternative

Implementing the Preferred Alternative would result in approximately 5.44 acres of regulated wetlands being filled. Of this, 1.13 acres would be PEM, 0.33 acres are PEM/PSS, 3.77 acres are PFO and 0.21 acres are PSS. These impacts would occur at eleven individual wetlands. The Preferred Alternative was configured to minimize impacts to wetlands that could not be entirely avoided. At most of these locations, a strip of wetland would be filled adjacent to an existing road, with the majority of the wetland remaining. One notable exception is the triangular shaped parcel bordered by Griswold Road, Range Road and the abandoned railroad line. Due to the anticipated road ROW needs, the entire parcel (approximately 32 acres) will be purchased. Within this parcel wetland impacts were minimized to the extent possible given the alignment and footprint of the Preferred Alternative.

Direct and indirect impacts are anticipated at the wetlands in the triangular parcel bordered by Range Road, Griswold Road and the abandoned railroad line. Direct impacts are shown on Figure 11 and include the filling of wetlands for new road segments. Limited indirect impacts such as loss of habitat for migrant bird populations and the alteration of hydrologic regimes are also anticipated. The location of these wetlands may be favorable to migratory bird populations due to the wetlands’ close proximity to the St. Clair River, and the otherwise urbanized nature of the Port Huron and Sarnia landscape. Water drains gently from the site towards Huffman Drain, located to the southeast. Field investigations identified that the hydraulic interaction between the wetlands occurs through both surface water and groundwater interaction. Construction of the Preferred Alternative will likely impact the surface water interaction between some of the wetlands. However, it is anticipated that any changes to the hydrology of the individual wetlands and their ability to receive water from surface runoff and groundwater will be very minor due to the small area of wetlands impacted. The site currently has drainage ditches located along both sets of railroad tracks on the northern and southern borders of the parcel. These ditches provide drainage for the site and will remain after construction of the Preferred Alternative, thus preserving the existing drainage pattern.

The following wetland functions would be impacted to a limited extent: floodflow alteration; sediment/toxicant retention; nutrient removal/transformation and sediment stabilization. It is expected that there will be only minor changes in either the wetlands hydrology or other impacts, since the area of wetlands to be impacted is relatively small. Nevertheless, because detailed engineering has not yet been performed for the Preferred Alternative, a “worst case” approach was used to determine potential impacts. Wetland impacts resulting from the Preferred Alternative are shown on Table 4-2 and Figure 11.

<table>
<thead>
<tr>
<th>Type of Wetland</th>
<th>Area Impacted</th>
<th>Conventional Mitigation Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palustrine Emergent (PEM)</td>
<td>1.13 acres</td>
<td>1.70 acres</td>
</tr>
<tr>
<td>PEM/Palustrine Scrub/Shrub (PEM/SS)</td>
<td>0.33 acres</td>
<td>0.50 acres</td>
</tr>
<tr>
<td>Palustrine Forested (PFO)</td>
<td>3.77 acres</td>
<td>7.54 acres</td>
</tr>
<tr>
<td>Palustrine Scrub/Shrub (PSS)</td>
<td>0.21 acres</td>
<td>0.31 acres</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>5.44 acres</strong></td>
<td><strong>10.05 acres</strong></td>
</tr>
</tbody>
</table>
4.12.3 Mitigation Alternatives:

During coordination with the SCCRC and the MDEQ District Office it was identified that wetland preservation at a 10:1 ratio (protected to impacted) has been used locally as an alternative to wetland construction for mitigation. The option was also suggested by the St. Clair County Drain Commissioner and referenced in the early coordination letter in Appendix B. Preservation has been an effective mitigation option in this region because of the presence of important imperiled wetlands and a high level of development pressure in the area. The Lansing MDEQ office will be reviewing wetland permits for the project since it is a transportation improvement. Additional coordination with the Lansing MDEQ office will be required to confirm the suitability of preservation as a mitigation option.

Preservation

Preservation of wetlands for mitigation is a desirable alternative to constructing wetlands for this project. A total of 54.4 acres of wetland would be required to meet the typical requirements of this mitigation option. Wetland preservation would require the SCCRC to identify suitable parcels, confirm property owner’s interest in selling the parcel, delineation of wetlands in the parcel, acquisition of the parcel and placement of a perpetual easement on the wetlands.

The first priority of the wetland preservation alternative is wetland preservation at the west project limits. Wetland protection in this area has the potential to enhance greenspace preservation and passive recreation opportunities along the abandoned railway that will be converted to a multi-use trail facility. Adjacent undeveloped land contains wetlands that are moderate quality examples of lake plain wetlands. Turnouts, boardwalks and overlooks of the wetland features could provide a water quality education opportunity that would enhance the nearby trail facility.

Several existing isolated wetlands are located in undeveloped parcels along Griswold Road and Dove Road to the south. They are under increasing development pressure from commercial and industrial development. The wetlands in this area are also reasonable quality lake plain wetlands. Specific parcels would be investigated if parcels along Range Road prove to not be viable options.

If parcels in the project area or along Dove Road are not available for preservation, MDEQ has identified several large tracts of wetlands along the St. Clair River that resource agencies are very interested in protecting as part of an ecosystem protection strategy. SCCRC would be responsible for acquiring the parcels and placing them in a conservation easement.

Wetland Creation for Mitigation

If preservation is not an option for this project, a mitigation wetland will be created. In order to compensate for the approximately 5.44 acres of impacts to regulated wetlands caused by the Preferred Alternative, 10.05 acres of wetland mitigation will be created if conventionally constructed wetlands are selected as the mitigation approach for the wetland permit. This acreage reflects the standard MDEQ mitigation ratio of 1.5:1 for impacts to PEM, PSS, and PEM/SS wetlands and a 2:1 ratio for impacts to PFO wetlands. The mitigation wetland will replace wetland functions and values lost as a result of the Preferred Alternative.

Once a preferred mitigation site is identified, a conceptual design plan will be developed. Regardless of the location, the mitigation site will incorporate the following commitments:
• If possible, wetland mitigation will be developed on site.
• The mitigation wetland will consist of at least 10 acres and be located within the St. Clair River watershed.
• NEPA analysis of the proposed site will take place.
• Mitigation wetland acreages will be calculated based on the standard MDEQ ratio of 1.5:1 for PEM, PSS, and POW wetlands and 2:1 for PFO wetlands.
• Functions and values lost as a result of the alternatives will be replaced by the mitigation wetland.
• Mitigation wetlands will be created prior to commencing construction unless a concurrent schedule is agreed upon between SCCRC and MDEQ.
• A detailed wetland mitigation plan will be created in coordination with MDEQ as part of the wetland permit application process. This plan will include a variety of information related to the mitigation wetland.
• The time period for monitoring the success of created mitigation wetlands will be determined in conjunction with MDEQ. The specific timetable for monitoring (including the time of year and frequency of sampling) will be developed in conjunction with the MDEQ and included in the wetland mitigation plan.
• Performance criteria for measuring the success of wetland habitat creation will be developed in conjunction with the MDEQ and included in the wetland mitigation plan.
• If monitoring identifies performance criteria that are not being met, SCCRC will correct or improve these problems in accordance with the wetland permit requirements.
• SCCRC’s wetland mitigation plan will include measures to control the establishment of invasive and/or non-native plant species.
• When wetland mitigation construction drawings are developed, SCCRC will consider including a 100-foot wide perimeter buffer zone adjacent to the wetland mitigation areas. This buffer will be included if it is practical and not cost-prohibitive.
• Annual monitoring reports for the mitigation wetland will be prepared and submitted to MDEQ to confirm progress of the wetland development.
• SCCRC will assure that all mitigation wetlands are protected in perpetuity through the use of deed restrictions, easements, or other legally-binding instruments.

4.13 Floodplains

4.13.1 No Build Alternative
The No Build Alternative would not result in direct, indirect, or cumulative impacts to any designated floodplain. The project area is not within a designated 100-year flood elevation, 500-year flood elevation, or within a mapped and undesignated floodplain area.

4.13.2 Preferred Alternative
The Preferred Alternative would not result in direct, indirect, or cumulative impacts to any designated floodplain. The project area is not within a designated 100-year flood elevation, 500-year flood elevation, or within a mapped and undesignated floodplain area.
4.14 Threatened and Endangered Species

4.14.1 No Build Alternative
The No Build Alternative would not result in direct impacts to any special status species or their habitat. Indirect and cumulative impacts to habitat that could potentially be used by special status species would occur under the No Build Alternative as the project area is developed independently from this project.

4.14.2 Preferred Alternative
The Preferred Alternative would impact the high quality Indiana bat habitat found in the triangular shaped parcel east of Range Road and north of Griswold Road, near the intersection of Range Road and Griswold Road. Portions of this habitat would be eliminated and converted to roads, bridges, ROW, and drainage structures. The lack of suitable habitat along the Michigan Road corridor means that no impacts to habitat will result in this area. Potential impacts to Indiana bat habitat will be mitigated by not cutting any trees considered to be habitat during the time period when this species could be present in Michigan. Specifically, trees considered to be habitat will not be cut between April 1 and October 1 to protect maternal roosting colonies. The Preferred Alternative also includes the purchase of the entire triangular parcel for ROW, thus preserving the majority of the habitat not converted to ROW and preventing it from being developed by the private sector. Coordination is ongoing with USFWS for concurrence with the determination of no effect.

Indirect impacts to suitable Indiana bat habitat are expected to be limited. Construction of the Preferred Alternative is expected to improve transportation circulation in the project area and induce limited development. It should be noted that development is more likely to occur south or east of the intersection of Range Road and Griswold Road and not in areas containing suitable Indiana bat habitat.

Based on the results of field surveys conducted in May and June of 2005, it was concluded that although the area supports several common associates of prairie trillium, the site location may be too wet to support this species, and no specimens were found during the surveys. The upland areas that may be dry enough to support prairie trillium are considerably fragmented by wetland pockets, making the areas too small to support the species. Lastly, several of the areas are considerably disturbed by human use, including the use of ATVs in the area.

4.15 Vegetation and Wildlife

4.15.1 No Build Alternative
The No Build Alternative would result in minimal impacts to vegetation and wildlife. The main impact caused by this alternative would be wildlife road kills.

4.15.2 Preferred Alternative
This alternative would directly result in minor impacts to vegetation and wildlife in the project area. Approximately 38 acres of new ROW will be acquired. These impacts would mainly occur to the upland wooded vegetation community. However, some impacts would also occur to the old field vegetation community. Because impacted areas are adjacent to existing roads or rail, and are
subjected to transportation-related activities on a continual basis, the vegetation communities that would be eliminated are of minimal value as wildlife habitat.

Wildlife species that could be affected are common in the surrounding area, tolerant of noise and visual disturbances, and easily displaced to similar habitats. Wildlife species that are likely to be impacted include species typically found in open fields, wetlands and forested lands. All of these species have adapted to the highly disturbed habitats that exist and will exist and are not expected to be dramatically impacted by the Preferred Alternative. Migratory birds have extensive areas of similar habitat in the immediate vicinity. Sensitive species not tolerant of the construction activities would have adequate habitat during migration to avoid the work areas. Following construction the impacts to migratory birds are expected to be negligible.

The Preferred Alternative would not result in the fragmentation or isolation of any wildlife habitat. There would probably be an increase in wildlife/vehicle crashes because the Preferred Alternative would increase pavement widths and average vehicle speeds. However, it would not affect long-term survival of any species in the project area. The Preferred Alternative would also result in minor indirect and cumulative impacts to vegetation and wildlife due to the loss of habitat from the conversion of the land to transportation infrastructure.

4.16 Cultural Resources

4.16.1 No Build Alternative
The No Build Alternative would not affect cultural resources within the project area.

4.16.2 Preferred Alternative
In accordance with Section 106 of the National Historic Preservation Act, the effects of the project on cultural resources have been evaluated. The findings of the cultural resource survey are included in the Phase I Cultural Resources Survey of Two Canadian National Rail Crossings Kimball and Port Huron Townships, St. Clair County Michigan (CCRG 2005). The evaluation did not identify the presence of any cultural resources in the project area. In addition, coordination letters have been sent to all known tribes in the state notifying them of the project and requesting any information they may have regarding the project area. To date no concerns have been expressed by any of the tribes. Therefore, the implementation of the Preferred Alternative would not adversely affect area cultural resources. Coordination has occurred with the SHPO, who has issued an opinion that no historic properties are affected within the area of potential effect (see Appendix B).

4.17 Hazardous Materials

4.17.1 No Build Alternative
The No Build Alternative would not affect any contaminated sites.

4.17.2 Preferred Alternative
The Preferred Alternative would result in construction impacts and ROW acquisition involving two parcels that have been identified as having potential contamination (section 3.16). The first is located southeast of the intersection of Griswold Road and Michigan Road. This parcel will be
impacted during the construction of the overpass over the Canadian National Railroad tracks. The second parcel is located in the northeast quadrant of the intersection of Griswold Road and Michigan Road. Construction related impacts are anticipated to on both of these parcels during the reconstruction of the intersection of Michigan Road and Griswold Road. The soil at the proposed construction locations on each of the parcels was examined for contamination using a PID to screen for organic vapors, as well as visual and olfactory senses. There was no indication, based on PID readings and visual and olfactory observations, that the soil is contaminated at the specific locations where construction would take place. Therefore, construction activities in these tested locations would be unlikely to cause the release of such soil-borne contaminants.

Consistent with standard FHWA and MDOT procedures for ROW purchase, additional investigations will be performed on these properties before they are purchased to assure that all potential concerns associated with these sites are documented as part of the ROW acquisition process. Based on the number of known contaminated sites that would be impacted and the types of contamination found at these sites, the impacts of the Preferred Alternative would not be major. Specific mitigation strategies will be developed for parcels potentially containing contamination. The strategies will include the following measures:

- All known and potentially contaminated sites will be investigated prior to finalizing plans for adjacent construction.
- All known and potentially contaminated sites will be managed in accordance with applicable State and Federal laws. Where appropriate, site-specific investigations will be completed to evaluate potential contamination and to determine if mitigation is necessary. If site-specific corrective action plans are needed, these plans may include the following mitigation strategies: (1) documenting properties using design and construction documents, (2) educating workers to identify potential contamination sources, (3) using appropriate personal protective equipment during construction, and/or (4) remediation (clean-up) of contaminated soil or groundwater.
- A Worker’s Health and Safety Plan will be developed to address worker protection and general mitigation measures if asbestos or lead are encountered.
- Ongoing coordination will occur with the MDEQ regarding underground storage tank (UST) and leaking UST properties adjacent to construction areas to assure that new exposure pathways are not created.
- A contingency plan will be developed to address the removal of unregistered USTs and the cleanup of any associated contamination, as well as to address other types of previously undocumented contamination found during the construction operations.

4.18 Visual Impacts

4.18.1 No Build Alternative
The No Build Alternative would not affect any visual conditions in the project area.

4.18.2 Preferred Alternative
The Preferred Alternative would result in some negative impacts during the construction phase of the project. There would be construction equipment, torn up roadways, dust and debris, and
construction materials placed along the roadway. This would be temporary and would not affect the long term visual qualities of the construction area.

Despite some changes after construction, the overall visual setting in the project area would remain very similar to its current condition as a result of the Preferred Alternative. Visual changes would consist of additional pavement, new bridge structures, cut slopes and fill embankments, and re-vegetation areas. Considered within the context of the existing setting, these anticipated impacts would not constitute a major change in visual conditions. Some visual qualities may even be improved through the use of decorative structural materials such as textured concrete surfaces for retaining walls and bridge supports.

4.19 Permits

4.19.1 No Build Alternative
The No Build Alternative would not require any additional permits for activities in the project area.

4.19.2 Preferred Alternative
The Preferred Alternative would result in the necessity to obtain permits before construction could begin. The following permits will be required:

- **Part 303 of NREPA Wetland Permit:** Because the Preferred Alternative will result in wetland impacts, this permit is required by NREPA (in lieu of a CWA Section 404 Permit as Michigan has assumed jurisdiction over wetlands from the Federal Government). This permit also regulates stormwater discharges into wetlands. This permit will be obtained from the MDEQ.

- **Construction Site NPDES Permit:** Because the project will disturb more than 5 acres of soil, a Notice of Coverage form will be sent to MDEQ, Water Division prior to construction. As required, a certified stormwater operator will conduct weekly inspections (and/or within 24 hours of a storm event) and maintain documentation to be available upon request.

Other permits may also be required, including permits from the St. Clair County Drain Commissioner, CN, or other public agencies. These requirements will be further investigated during the design phase.
CHAPTER 5 – CONSULTATION AND COORDINATION

5.1 Introduction

Throughout the course of this project, substantial coordination and consultation were conducted with members of the public, tribal entities, and government agencies. This chapter describes the coordination and consultation that was conducted. Additionally, this chapter also describes the decision that will need to be made by the FHWA regarding this project.

5.2 Public Involvement

Public involvement activities undertaken as part of this project included Advisory Committee Meetings and a public information meeting. These efforts involved state government officials, local government officials, citizen groups, property owners, and commercial interests. The input received through these public involvement activities influenced decisions that were made regarding alternatives. This committee included representatives from:

- St. Clair County Road Commission
- Canadian National Railroad
- Michigan Department of Transportation
- Federal Highway Administration
- U.S. Customs and Border Protection
- Port Huron Township
- Kimball Township
- Port Huron Area Schools
- Port Huron Township Fire Department

Shortly after the project began, a Public Information Meeting was held at Baker College in Port Huron on August 31, 2004, for the general public. At this meeting, the project was presented for public input, various alternatives were displayed and the public was given the opportunity to provide comments. Approximately 40 members of the public attended the open house style meeting from 5 p.m. to 8 p.m. Many of the comments received from the public indicated a preference for one or two of the Illustrative Alternatives shown at the meeting. The majority of attendees at the meeting were more concerned about Michigan Road than Range Road. Members of the public also noted that police and fire service are a concern on Michigan Road. During the EA public comment period, a public hearing will be held to solicit input from the public regarding the project and its potential impacts. Outreach efforts will be made and a statement included in the legal notice of availability that accommodations for those with disabilities, limited English proficiency, or other limitations that may prevent the public from understanding the contents of the EA can be made with prior notice. If any tribe notes any special needs for their members, all efforts will be made to meet their needs.
5.3 Agency Coordination

Early coordination letters, which included maps and aerial photographs of the project area, were mailed to potentially interested agencies in September of 2003. These letters informed the agencies that the project was underway and requested that they identify issues of concern and that they note any specific requirements for impact assessment or permitting. Letters from those agencies that responded are included in Appendix B. The list of early coordination letter recipients includes:

- Federal Aviation Administration
- U.S. Army Corps of Engineers-Detroit District
- U.S. Department of Agriculture, Office of the Secretary
- U.S. Department of Agriculture, Natural Resource Conservation Service
- U.S. Department of Interior, Fish & Wildlife Service
- U.S. Department of Interior, National Park Service
- U.S. EPA Region 5, Office of Strategic Environmental Analysis
- U.S. Department of Housing and Urban Development
- Federal Emergency Management Agency
- Advisory Council on Historic Preservation
- Michigan Department of Agriculture
- Michigan Department of Environmental Quality, Transportation and Flood Hazard Management Division
- Michigan Department of Community Health
- Michigan Department of Transportation, Bureau of Aeronautics
- Michigan Department of Natural Resources
- Bureau of Michigan History, State Historic Preservation Officer
- Southeast Michigan Council of Governments
- Michigan United Conservation Clubs, Inc.
- Michigan Environmental Council

Ongoing coordination with recognized tribal entities continues. An early coordination letter and notice of availability were sent to the following:

- Bay Mills Indian Community
- Grand River Bands of Ottawa Indians
- Grand Traverse Band of Ottawa and Chippewa Indians
- Hannahville Potawatomi Indian Community
- Keweenaw Bay Indian Community
- Lac Vieux Desert Band of Lake Superior Chippewa Indians
- Little River Band of Ottawa Indians
- Little Traverse Bay Band of Odawa Indians
- Match-E-Be-Nash-She-Wish Band of Potawatomi Indians
- Nottawaseppi Band of Huron Potawatomi
- Pokagon Band of Potawatomi Indians
- Saginaw Chippewa Indian Tribe
- Sault Ste. Marie Tribe of Chippewa
5.4 EA Recipients

The EA is being made available for public review at five locations near the project area including: the Port Huron Township Hall, Kimball Township Hall, SCCRC, MDOT’s Port Huron Transportation Service Center (TSC), and the St. Clair County Library. The EA is also available in PDF format at http://www.sccrc-roads.org. A notice was sent to all tribes and agencies that previously responded that they had no concerns or interest in the project of the availability online and that a printed copy would be provided upon request. Additionally, the following list of agencies, organizations, and persons received copies of the EA.

- U.S. EPA (Environmental Planning and Evaluation Branch, Region 5, and Washington D.C. offices)
- U.S. Department of the Interior, Fish and Wildlife Service
- Michigan Department of Environmental Quality
- Michigan Department of Natural Resources
- Michigan Department of Agriculture
- Michigan Department of Community Health
- Michigan Environmental Science Board
- Michigan State Historic Preservation Office
- Southeast Michigan Council of Governments
- St. Clair County Metropolitan Planning Commission
- Port Huron Township
- Kimball Township
- Michigan United Conservation Clubs, Inc.
- Clean Water Action
- Sierra Club
- Michigan Environmental Council

5.5 Decision To Be Made

After considering public input, FHWA will make the final decision regarding this project. Based on the analysis of potential impacts presented in this document, public and agency comments, and relevant statutes and regulations, the FHWA will decide the following:

- Whether or not the Preferred Alternative would generate significant impacts to the natural or human environment;
- Whether or not to approve some or all of the components of the Preferred Alternative; and
- What mitigation measures will apply to the project, if approved.

If the FHWA determines that the Preferred Alternative would not cause significant impacts to the human or natural environment and approves some or all of the components of the Preferred Alternative, a FONSI will be issued. The FONSI will document the FHWA’s decision and the rationale for that decision. The FONSI will also include, either explicitly or by reference to the EA, a description of the mitigation measures or other actions that would be required as conditions of approval. Upon issuance of a FONSI, the project will be cleared to proceed on to the design phase of the project. If the FHWA determines that the Preferred Alternative may cause significant
impacts to the human or natural environment, preparation of an EIS documenting a more detailed analysis will be required.
REFERENCES


