4.0
ENVIRONMENTAL CONSEQUENCES

THIS PAGE INTENTIONALLY
LEFT BLANK

Section 4 evaluates the environmental and socioeconomic consequences of the alternatives under consideration. This section contains revisions, clarifications, and updates from what was presented in the 2010 FEIS. These changes include the following:

- The Indirect and Cumulative Effects Analysis has been revised, updated, and clarified to reflect the most recent development trends, updated land use plans, and currently proposed access configurations.
- The detailed evaluation sheets (referred to as Factor Sheets) format and content have been updated to be consistent with the current factor sheets* being used on WisDOT environmental documents.
- The impacts have been updated to reflect design refinements+ that have been made since the Record Of Decision (ROD).
- The wetland delineation has been updated and the impacts presented in this section have been updated to reflect the new delineation.
- The Unique Area Impact Evaluation information (which includes Section 4(f) resources) has been updated and revised to reflect changes since the FEIS. Since this information required extensive clarification and updating, the information has been removed from this section and included in Section 5.

*Factor Sheets are a more condensed method for documenting the results of the NEPA process. They are generally used by WisDOT and FHWA in Environmental Assessments and Environmental Reports. The sheets were used in this EIS as part of a WisDOT pilot effort to streamline the environmental documentation process. Since the FEIS used the Factor Sheet format, it has been retained in this LS SFEIS/ROD, except for Section 5, which was significantly revised.

+ Design refinements are minor changes to roadway alignments, access configurations, slope limits, etc. that normally occur during the design process as more information is obtained and more design has been performed. The refinements do not change the fundamental concept of the project nor do they fundamentally change the impact conclusions presented within the NEPA process.

Maroon text signifies updates addressing changed conditions or analysis, clarifications, or additional information
Items that are considered revisions that target specifically identified issues in the January 19, 2012 Notice of Intent to prepare an LS EIS are shown in blue text.
Yellow highlight signifies updates from the LS SDEIS to this LS SFEIS/ROD.
For tables and figures, the title of the Table or Figure has been shown in maroon or blue to indicate whether it has been revised since the 2010 FEIS.

4.1 INTRODUCTION

This section describes the beneficial and adverse social, economic, and environmental consequences of the No-Build, Build Alternatives, and Corridor Preservation Alternatives. The section is broken into different parts. Sections 4.2 and 4.3 address commitments of resources and the relationship between uses of the environment and long-term productivity. Section 4.4 addresses indirect and cumulative effects: Sections 4.5 and 4.6 provide a summary of the impacts in matrix form, and Section 4.6 contains factor sheets that provide more detail on individual impacts.

A. Indirect and Cumulative Effects

The indirect and cumulative effects discussion in Section 4.4 provides a summary of the indirect effects of the Preferred Build Alternative. Indirect effects are caused by the alternative but are later in time or removed in distance from the actual construction of the alternative. Section 4.4 also provides a summary of the cumulative effects of the Preferred Build Alternative. Cumulative effects are the incremental impacts of the alternative on resources, when combined with other past, present, and reasonably foreseeable future actions, regardless of who creates the impact. Appendix C provides a more detailed evaluation of the indirect and cumulative effects.

B. Environmental Cost Matrix

The matrices in Tables 4.5-1, 4.5-2, and 4.5-3 provide an overview of the environmental impacts and costs from the 2004 DEIS, the 2010 FEIS, and the LS SDEIS. The matrices include estimates of construction and real estate costs in the year of expenditure, land acquisition estimates, farmland area affected,

residential properties affected, and natural environment issues such as wetlands, uplands, endangered species, archaeological/historical resources, and air and noise quality.

The method used to attribute right of way impacts to either the WIS 23 roadway or the trail is shown graphically in Figure 4.1-1. For the analysis, the impacts allocated to the Old Plank Road Trail include some of the slopes associated with the 4-lane roadway expansion. This allocation method places the trail within the right of way being designated for the road. Without the trail, about 35 percent of land allocated to the trail would still be needed for the 4-lane expansion. Without the WIS 23 expansion, an additional 35 percent of land allocated for the trail would be needed for the trail.

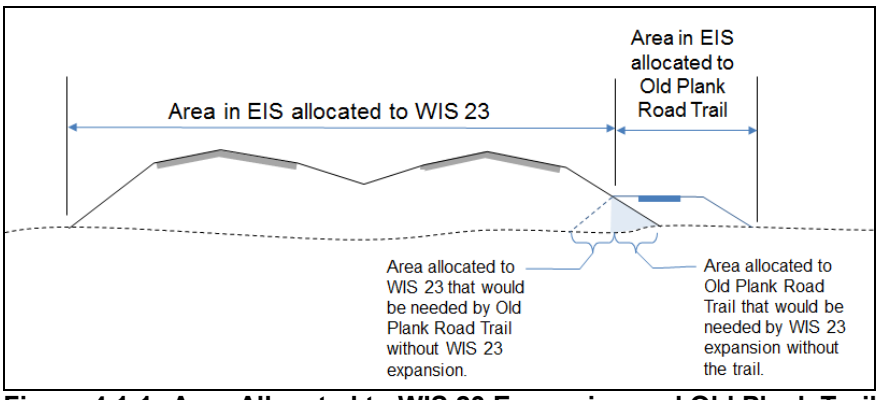


Figure 4.1-1 Area Allocated to WIS 23 Expansion and Old Plank Trail

C. Environmental Evaluation Matrix

The matrix contained in Section 4.6 provides an overview of the effects of the No-Build, Build, and Preferred Build Alternatives as well as the Corridor Preservation Alternatives. The effect of each specific factor is defined as adverse, benefit, none, or not applicable for each corridor alternative. The environmental effect is summarized for each factor, and if further investigation is necessary, a detailed evaluation of the factor is discussed further in Section 4.6.

D. Detailed Factor Sheets

Following the Environmental Evaluation Matrix, detailed evaluation of the specific environmental factors is presented using individual factor sheets. As mentioned, Factor Sheets are a more condensed method for documenting the results of the NEPA process. They are generally used by WisDOT and FHWA in Environmental Assessments and Environmental Reports. The sheets were used in this EIS as part of a WisDOT pilot effort to streamline the environmental documentation process. Since the 2010 FEIS used the Factor Sheet format, it has been retained in this LS SFEIS/ROD, except for Section 5, which was significantly revised.

The Wisconsin Department of Natural Resources (WDNR), the Wisconsin State Historical Society, the US Army Corps of Engineers (USACE), the United States Fish & Wildlife Service (USFWS), and the United States Environmental Protection Agency (USEPA) have commented on this proposed project throughout the scoping process. This coordination is reflected in the individual Factor Sheet discussions. Some of these agencies commented on the LS SDEIS. Their comments and responses to their comments are contained in Section 7 of this LS SFEIS/ROD. Coordination with these agencies will continue.

4.2 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES

A. Build Alternatives

The No-Build Alternative includes irretrievable money, time, and personal hardship related to the high rate of personal injury and property damage crashes that are anticipated along the existing route. The increases in cost, time, and frustration levels associated with decreasing levels of service for vehicle movement and operational energy expenditure are tied to the inefficient facility. The impairment of recreational, service, emergency, and business travel within the project area also creates irretrievable commitments of resources.

The Build Alternatives require irreversible commitments of resources such as land acquisition of residential and commercial properties, wetland and farmland destruction, and access acquisition. Land converted from private use to public use displaces local tax revenues. Economic resources committed to the project

include irretrievable federal and state funding for construction and maintenance. WIS 23 has been enumerated and approved by the Transportation Projects Commission (TPC). According to the most recent report from WisDOT to the TPC dated February 1, 2014, sufficient funding has been designated to the WIS 23 project to allow commencement of construction in fiscal year 2015 and completion in fiscal year 2018. The report to the TPC assumes that total funding for the Majors Highway Program will continue at fiscal year 2015 levels, though WisDOT cannot predict what the exact level of support for the Majors program will be in future biennial budgets. Revenue and budget information for the 2015-2017 Biennial Budget is not available, but 2013 Wisconsin Act 20 approved the 2013-2015 Biennial Transportation Budget. Figure 4.2-1 is taken from WisDOT's *2013-15 Biennial Budget Highlights, 2013 Wisconsin Act 20* and illustrates the revenue sources for the $7.024 billion biennial transportation budget for 2013-15.

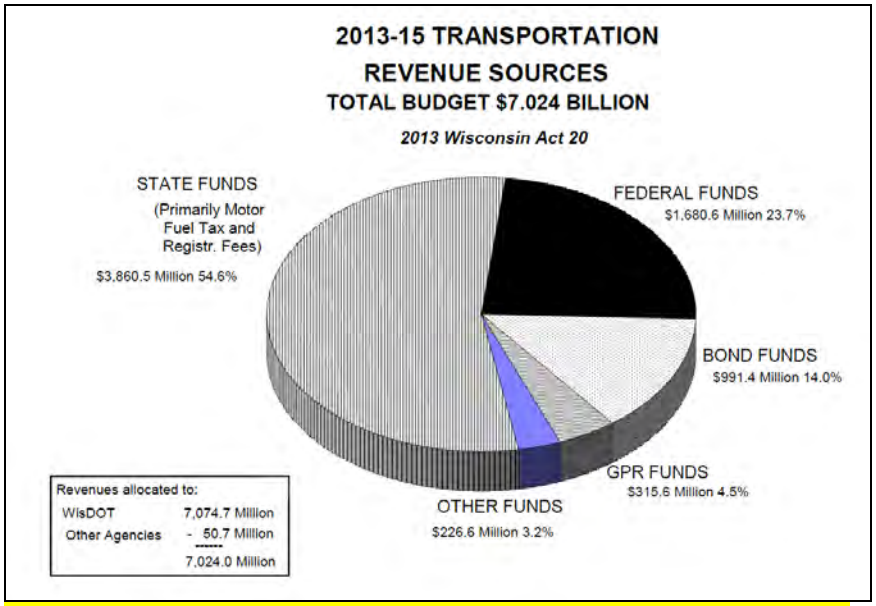


Figure 4.2-1 2013-15 Wisconsin Transportation Revenue Sources

Approximately 14 percent of the revenue is obtained through bonding. Figure 4.2-2 is from the same publication and illustrates the budgeted expenditures for the biennial period. The $130,000,000 projected WIS 23 Preferred Build Alternative construction cost makes up 1.9 percent of the total budget and 3.6 percent of the portion of the budget allocated toward highway improvements. As mentioned, funds spent on the WIS 23 Preferred Build Alternative would not be available for other highway improvements and/or local program street improvements.

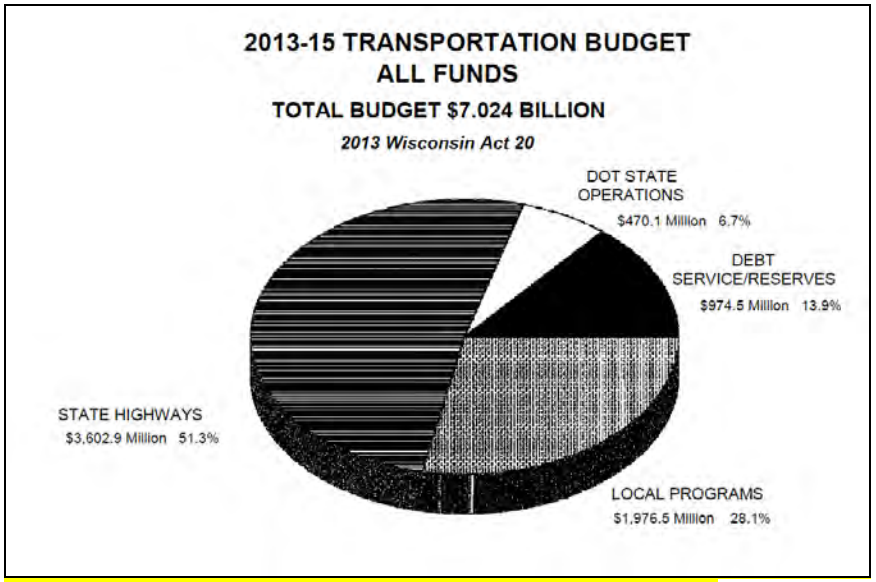


Figure 4.2-2 2013-15 Wisconsin Transportation Budget

In addition, irretrievable resources such as fuel, labor, and highway materials are required to construct the Build Alternatives. Labor and materials are expected to remain in adequate supply. Construction energy expended to build the improved facility is considered irretrievable; however, the savings in operational energy requirements on the more efficient facility should compensate for the construction energy usage.

The commitment of these resources is based on the concept that the traveling public and local residents will benefit from the improved quality of WIS 23. Benefits, which are anticipated to outweigh the commitments of resources, will include improved safety, greater facility capacity, and travel time savings.

B. Corridor Preservation

The No Corridor Preservation Alternatives do not irretrievably commit resources, money, or time for right of way of future transportation improvements. The No Corridor Preservation alternative could preclude future transportation options by not preserving opportunities that are presently available. This preclusion could result in less than optimal future transportation solutions.

The Corridor Preservation Alternatives do preserve and therefore commit land for future transportation right of way. This preserves future transportation opportunities. This commitment, however, is neither irreversible nor irretrievable. Future circumstances could remove these preservation measures, and protected land could have all restrictions removed.

4.3 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Any Build and No-Build Alternative, as well as the Corridor Preservation or the No Corridor Preservation Alternative, involves short-term and long-term trade-offs. Short-term consequences for Build Alternatives include the more immediate impacts of the project. Long-term consequences relate to direct or indirect effects on future generations. Short-term consequences for Corridor Preservation Alternatives include the reduction in property rights for areas needed for future transportation improvements.

Short-term consequences for Build Alternatives include some increased localized noise, air, and water pollution and some traffic delays during construction. These impacts are important to those experiencing them; however, the impacts do not have a lasting effect on the quality of the environment. Other short-term consequences involve additional fuel use by motorists and construction equipment during construction. Public funds will also be committed to build the facility.

The proposed improvement project does not have a precedent-setting nature for future projects. The alternatives being studied offer common congestion relief and safety improvements that follow accepted standards. Factors such as highway improvement projects, sewer line extensions, the area's economic vitality, available land, land costs, housing supply, development regulations, and community planning may enable development. Construction of the Preferred Build Alternative is not expected to solely stimulate substantial long-term indirect impacts, but it could slightly accelerate the pace of indirect development. Potential indirect impacts related to development are described in Section 4.4 and Appendix C of this LS SFEIS/ROD. The purpose of the improvement project is to address existing and future traffic needs and to preserve highway mobility and safety to avert future highway improvements. Development will continue in this area for the same reason that it has been occurring for the last decade and because of the factors listed above. The counties in the study area have grown in population since European settlement and continue to grow in towns, villages, and cities with few exceptions. This growth is planned in adopted comprehensive plans consistent with State Statutes. This growth is also consistent with population projections from Wisconsin's Demographic Services Center. Local governments and Sheboygan and Fond du Lac counties are zoning properties consistently with adopted plans to accommodate development resulting from growth trends.

The Build Alternatives will not preclude future transportation options. The proposed project is expected to provide acceptable capacity and safety for the foreseeable future. If additional capacity were required beyond what is provided by this project, other modal alternatives or additional highway alternatives could still be pursued.

The Corridor Preservation Alternatives also will not preclude future transportation options. When future transportation options are needed, a range of alternatives will be evaluated at that time within the NEPA

process. The Corridor Preservation Alternatives; however, will preserve opportunities that could be lost without a preservation action.

Long-term environmental impacts resulting from Build Alternatives include the creation of new environmental effects such as new structures, wetland losses, loss of uplands, and additional right of way distances for wildlife crossings.

Long-term benefits realized from the Build Alternatives include improved convenience, safety, and energy use for those living in the project area and for those traveling through the area.

The No-Build Alternative avoids all the short-term and localized construction impacts. Safety and mobility would continue to deteriorate under the No-Build Alternative as capacity needs are not met. As traffic volumes increase in the future, the congestion and crash potential on the existing route will increase, thus reducing the long-term productivity of the area.

4.4 INDIRECT AND CUMULATIVE EFFECTS (ICE)

Section 4.4 evaluates indirect and cumulative effects of the alternatives under consideration. The Indirect and Cumulative Effects (ICE) Analysis has been revised, updated, and clarified as part of the 2013 LS SDEIS and this LS SFEIS/ROD. The ICE analysis presented in the 2010 FEIS was prepared in the spring of 2008. The updated analysis was completed in the winter of 2012 and accounted for recent economic and development trends. The analysis used the most recent WisDOT guidance for conducting an indirect and cumulative effects analysis and accounted for recent legal opinions. The analysis included a workshop on January 17, 2012, with a panel made up local and regional land use and transportation planners, economic development professionals, and agricultural, natural, and cultural resource experts.

The Council on Environmental Quality (CEQ) states that "indirect" effects are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects or other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems," (CFR 1508.8). A "cumulative" effect is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time," (CFR 1508.7).

A. Indirect Effects Analysis

The project team followed the six-step analysis method described in WisDOT's Guidance for Conducting an Indirect Effects Analysis (November 2007). These steps include the following:

1. Scope, Select Tools/Activities, and Determine the Study Area
2. Inventory the Study Area for Notable Features
3. Identify Impact Causing Activities of the Proposed Project Alternatives
4. Identify the Potentially Significant Indirect Effects
5. Analyze Indirect Effects, Describe their Significance for Project Alternatives, and Evaluate Assumptions
6. Assess Consequences and Identify Mitigation Strategies.

The following paragraphs summarize the findings of these six steps. The complete indirect effects analysis in the ICE document is organized around these steps and can be found in Appendix C.

1. Scope, Select Tools/Activities, and Determine Study Area

In selecting tools, the study team referenced Appendix B in WisDOT's Guidance for Conducting an Indirect Effects Analysis. The study team used all of the various methods referred to in this document, trend analysis, expert panels, and the Delphi method[1] were most appropriate because these methods leveraged the use of up-to-date, readily available and broadly recognized data sources and the most knowledgeable local and resource experts. Local land use staff and community officials have the greatest insight into local development trends and have the greatest awareness of potential development proposals.

a. Scope

To understand the scope of probable indirect impacts of highway expansion and corridor preservation measures, the project team compiled all available land use plans, zoning ordinances, and zoning maps for each municipality within the ICE study area (the study area boundaries are depicted on Figure 4.4-1). Based upon an analysis of these documents, the project team identified the areas where impacts are likely to occur. The following criteria were used to identify such locations:

- Existing land use and development patterns.
- Population projections.
- Areas planned for development through local land use plans.
- Currently established land use controls.
- Locations of future WIS 23 interchanges and other access changes.
- Locations of significant natural resource features.

b. Select Tools and Activities

In selecting tools, the study team referenced Appendix B in WisDOT's Guidance for Conducting an Indirect Effects Analysis. As mentioned, of the various methods referred to in this document, trend analysis, expert panels, and the Delphi method[2] were most appropriate because these methods leveraged the use of existing information and knowledge.

Following this initial analysis, the project team contacted the Planning Directors for Sheboygan County and Fond du Lac County. Based upon their expertise and familiarity with local land use patterns, the planners answered questions regarding where potential changes in residential, commercial, industrial, and institutional development might occur as a result of highway expansion. Both planners were also asked to identify how the expansion might affect farmland, wetlands, and other environmental resources in the highway's surrounding communities over the long term. The project team also contacted local officials in the corridor area. Planners from the town of Empire, city of Fond du Lac, and city of Plymouth were interviewed about their municipality's future land use plans along WIS 23.

Following interviews with county and local planners, the project team solicited opinions on potential impacts of project alternatives from local experts using the Delphi method. Experts were selected based on their professional areas of expertise and their local knowledge of the project ICE study area. The expert panel members included local and regional land use and transportation planners, other local officials, economic development professionals, and agricultural, natural, and cultural resource experts. An inventory report was provided to panel members to provide an overview of the project and proposed alternatives as well as existing conditions and policies of state and local government. Panel members were asked to review the inventory report, respond to an online survey, and complete a mapping exercise identifying potential indirect and cumulative effects for each of the WIS 23 alternatives. Panelists were also asked to attend a facilitated panel discussion where panelists shared their survey and map responses. The discussion format enabled the identification of points of consensus and disagreement on possible impacts. Representatives from the following agencies and communities participated in the panel:

[1] The Delphi method is a structured communication technique that relies on a panel of experts. Typically a panel of experts answers questionnaires. After the questionnaires are completed, a facilitator provides an anonymous summary of the findings and reasons for them. In a meeting, or otherwise, experts are encouraged to revise their earlier answers in light of the replies of other members of their panel.
[2] ibid

- Town of Plymouth
- Town of Greenbush
- Town of Forest
- Town of Marshfield
- Town of Taycheedah
- Village of St. Cloud
- Village of Mt Calvary
- Village of Glenbeulah
- City of Plymouth
- City of Fond du Lac
- Sheboygan County Planning Department
- Fond du Lac County Planning Department
- Fond du Lac Metropolitan Planning Organization
- East Central Wisconsin Regional Planning Commission
- Bay-Lake Wisconsin Regional Planning Commission
- WisDNR Wildlife Management, Eastern Fond du Lac and Sheboygan Counties
- Ice Age Trail (National Park Service)
- Wisconsin Department of Agriculture, Trade, and Consumer Protection
- University of Wisconsin-Extension, Sheboygan County
- University of Wisconsin-Extension, Fond du Lac County
- Wade House Historic Site-Wisconsin Historical Society
- Glacial Lakes Conservancy
- Niagara Escarpment Resource Network

Information gathered from the initial project team analysis, county and local planner interviews, and expert panel process was used to identify potential indirect and cumulative effects of WIS 23 expansion. These effects are summarized in this section and incorporated in Appendix C.

c. Determine ICE Study Area

Land use planners on the study team interacted with staff planners and resource experts from Fond du Lac County, Sheboygan County, and East Central Wisconsin Planning Commission to determine the likely range of influence from the WIS 23 corridor. These land use and resource experts and others were part of the WIS 23 expert panel (see section b. above) and had the opportunity to comment on the study area boundaries in the Expert Panel Survey and on accompanying maps depicting the boundary. Additionally, expert panelists had the opportunity to discuss study area boundaries with the study team in the Expert Panel Meeting held on January 17, 2012 where it was confirmed that the study area boundary was appropriate.

The ICE study area is depicted on Figure 4.4-1 and extends roughly 3.5 miles north of the corridor and roughly 4.5 miles south of the corridor. The ICE study area is defined by commutershed and civil boundaries. It includes all or part of the following jurisdictions: city of Fond du Lac, village of Mt. Calvary, village of St. Cloud, town of Empire, town of Forest, town of Taycheedah, and town of Marshfield in Fond du Lac County and the city of Plymouth, village of Glenbeulah, town of Greenbush, and town of Plymouth in Sheboygan County.

Beyond the study area, the influence of WIS 23 diminishes as other arterial corridors provide access.

Delineation of the ICE study area boundary was influenced by the location of other available parallel corridors that provide logical alternate routes for WIS 23. On the south side of WIS 23, the presence of US 45, which runs to the southeast from the western end of the WIS 23 corridor, and WIS 67, which runs east and west at the eastern end of the WIS 23 corridor, and County Highway B, which connects US 45 and WIS 67 just south of town boundaries, are the next southerly route options. There are also a series of east/west county highways that provide additional parallel route options. Proximity of these routes and town boundaries informed the decision on where the southerly study area boundary was placed.

On the north side of WIS 23, the presence of WIS 149 running east in the town of Taycheedah provides an appropriate alternate route and a logical northern boundary at the west end of the study area. At the point where WIS 149 heads to the northeast in the town of Marshfield, town boundaries connected by County A provide a logical continuation of the study area boundary to the east.

In addition to these alternate parallel routes, the selection of the study area was also influenced by the location of municipal boundaries. The census collects socioeconomic and housing data by census blocks and tracts, which commonly follow municipal boundaries. Therefore, municipal boundaries were also used to delineate the WIS 23 study area for the ease of analysis of the socioeconomic impacts of the project alternatives. The 2010 census provided the data for mapping the location of environmental justice populations in municipalities surrounding the WIS 23 corridor and those maps (provided on pages 21-24 of Appendix C), illustrate the following information:

Map 2: Minority populations are primarily concentrated at the west end of the study area, in the city of Fond du Lac, and west of the WIS 23 proposed improvements, and will not be impacted. The higher-than-average population of minorities in the census tract directly to the east of the city of Fond du Lac is primarily due to the presence of Taycheedah Correctional Institution. This population will not be substantially impacted by WIS 23 improvements.

Map 3: Hispanic and Latino populations are concentrated at the west end of the study area in the city of Fond du Lac and west of the WIS 23 proposed improvements and will not be substantially impacted.

Map 4: Concentrations of individuals below the poverty level are concentrated at both ends of the study area in the cities of Fond du Lac and Plymouth. This population is concentrated beyond the WIS 23 proposed improvements and will not be substantially impacted.

Map 5: Elderly populations are concentrated throughout most of the study area and are likely to be mildly impacted by changes to access on WIS 23. However, the study team

determined that elderly populations, like the general population, will benefit from the increased safety measures in the corridor.

Given the general acceptance of the study area boundaries by the expert panel, the location of parallel and alternate routes, and the low impact of WIS 23 proposed improvements on environmental justice populations, the study team determined that the study area boundaries were logical and appropriate.

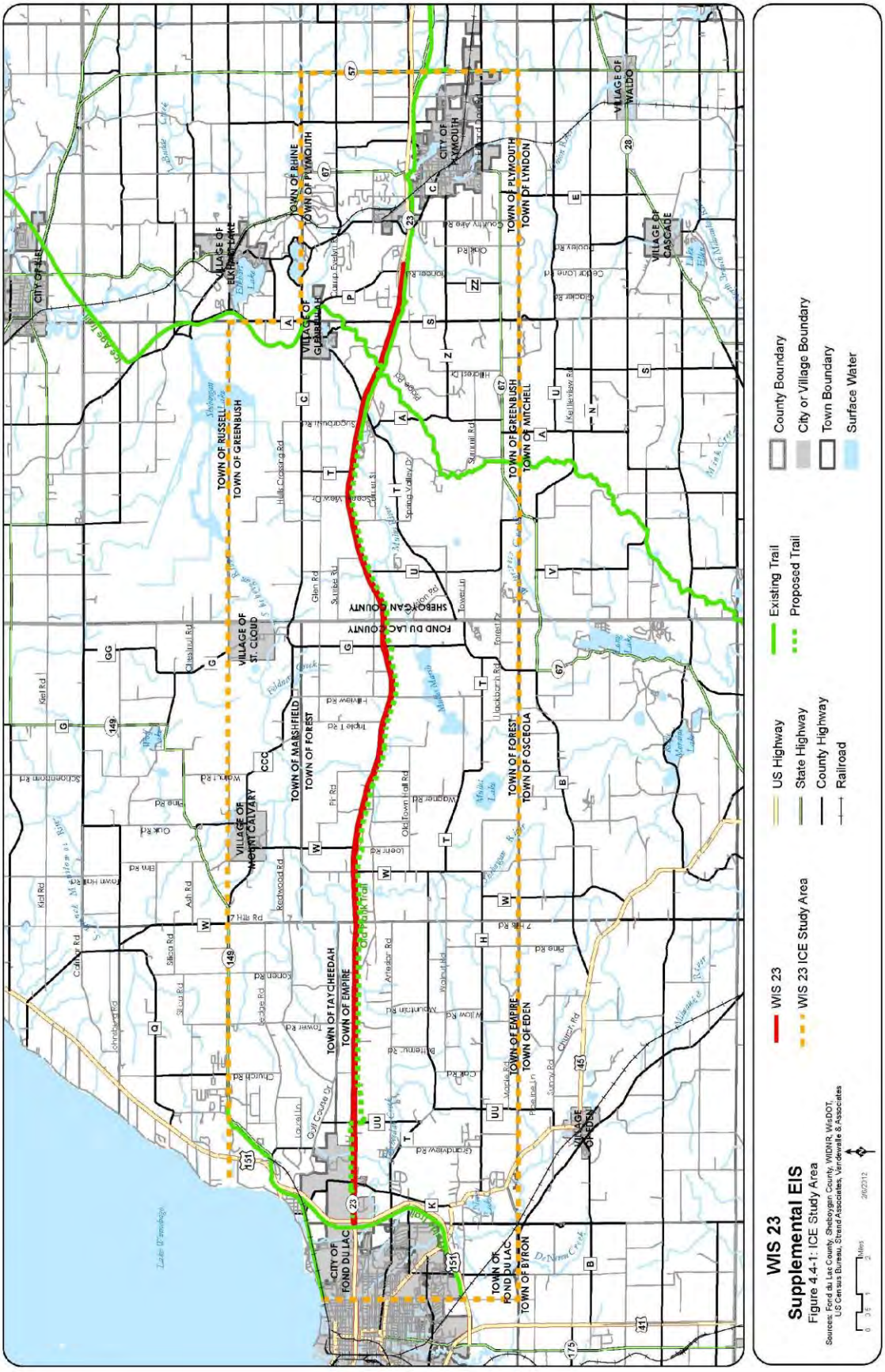

WIS 23
Supplemental EIS
Figure 4.4-1: ICE Study Area
Sources: Ford du Lac County, Sheboygan County, WIDNR, WisDOT, US Census Bureau, Strand Associates, Vandewalle & Associates
2/6/2012
Miles
0 1 2
County Boundary
City or Village Boundary
Town Boundary
Surface Water
Existing Trail
Proposed Trail
US Highway
State Highway
County Highway
Railroad
WIS 23
WIS 23 ICE Study Area
CITY OF FOND DU LAC
TOWN OF FOND DU LAC
TOWN OF BYRON
VILLAGE OF EDEN
TOWN OF EMPIRE
TOWN OF EDEN
TOWN OF TAYCHEEDAH
VILLAGE OF MOUNT CALVARY
TOWN OF MARSHFIELD
TOWN OF FOREST
VILLAGE OF ST. CLOUD
TOWN OF OSCEOLA
TOWN OF GREENBUSH
TOWN OF MITCHELL
TOWN OF RUSSELL
TOWN OF PLYMOUTH
TOWN OF LYNDON
TOWN OF RHINE
CITY OF PLYMOUTH
VILLAGE OF ELKHART LAKE
VILLAGE OF GLENBEULAH
VILLAGE OF CASCADE
VILLAGE OF WALDO
CITY OF SHEBOYGAN
SHEBOYGAN COUNTY
FOND DU LAC COUNTY

Figure 4.4-1

2. Study Area Inventory and Notable Trends

a. Population Trends

In January 2014 the Wisconsin Department of Administration (WDOA) released population projections for 2040. These new population projections have lower growth rates than the ones presented for 2030 in the 2013 LS SDEIS. In many instances the 2040 population projections are less than those for 2030. The slower population growth may also slow the rate of development expected in the corridor. The anticipated locations and types of development remain unchanged and the basic findings of this indirect effects analysis also remain unchanged. Table 4.4-1 shows the official WDOA's 2030 and 2040 population projections for each of the municipalities included in this ICE study area. The expected population growth rate for the entire area over the next 25 years (without highway expansion) is less than the statewide growth rate and more than the growth rate for Sheboygan County and Fond du Lac County. The most substantial (absolute) growth is projected to occur in the city of Fond du Lac with other substantial growth also occurring in the city of Plymouth and the towns of Fond du Lac and Taycheedah, which are adjacent to the cities of Fond du Lac and Plymouth, respectively.

Table 4.4-1 Population Projections for the ICE Study Area, 2010-2030, 2040

	2010 Population	Previous WDOA 2030 Projection	New WDOA 2040 Projection	Change in Pop 2010-2040	% Change 2010-2040
City of Fond du Lac	43,021	50,312	45,920	2,899	6.74%
City of Plymouth	8,445	10,696	9,785	1,340	15.87%
Town of Taycheedah	4,205	4,773	5,305	1,100	26.16%
Town of Plymouth	3,195	3,857	3,560	365	11.42%
Town of Empire	2,797	3,265	3,130	333	11.91%
Town of Greenbush	2,565	3,355	2,630	65	2.5%
Town of Fond du Lac	3,015	2,697	4,455	1,440	47.76%
Town of Forest	1,080	1,211	950	-130	-12.04%
Town of Marshfield	1,138	1,133	1,140	2	0.18%
Village of Mt. Calvary	762	1,237	495	-267	-35.04%
Village of St. Cloud	477	523	410	-67	-14.05%
Village of Glenbeulah	463	499	560	97	20.95%
Total Study Area Population	71,163	83,558	78,340	7,177	10.09%
State of Wisconsin	5,686,986	6,541,180	6,491,635	804,649	14.15%

Sources: U.S. Census Bureau, 2010; Wisconsin Department of Administration 2013 Estimates

b. Land Use Plans

A number of communities in the ICE study area had comprehensive plans or land use plans that depicted areas for future growth and preservation. Plans current as of January 2012 were used in this analysis.

The city of Fond du Lac's future land use plan shows residential and commercial development on the east side of the city occurring over the next 20 years (to the year 2030). New development planned east of the city and along the WIS 23 corridor consists mostly of moderate density development served by municipal sewer and water. Residential development is planned to extend

from the current developments on the east side of Fond du Lac to County UU on the north and south sides of WIS 23. Commercial and institutional development is also planned for all four quadrants of the US 151/WIS 23 interchange. There is an existing golf course on the west side of County UU, north of WIS 23, that provides an amenity for future residential development in this area.

The town of Taycheedah's Plan shows the majority of town lands remaining in agricultural use with growth concentrated along the Lake Winnebago shoreline, north of the city of Fond du Lac.

The town of Empire's future land use plans do not show any development along the WIS 23 corridor except at the intersection of County Highway UU and WIS 23, which is planned for smaller-scale commercial and industrial development. The remainder of the corridor is planned for long-term agricultural use.

The city of Plymouth's future land use plans indicate development south of WIS 23. Plymouth's plans show a frontage road and commercial development immediately south of WIS 23, with new residential development south of the commercial development. Currently, the city of Plymouth is not planning land use changes for the area north of WIS 23.

The town of Marshfield's land use plan indicates additional residential development around the village of Mount Calvary on the west, north, and east sides and institutional development on the south side.

The town of Greenbush's plan indicates a desire to preserve the majority of town lands for agricultural use, with some commercial and/or residential development planned for the County A/WIS 23 interchange area and additional residential development located in the village of Glenbeulah where it can be served by municipal sewer and water.

The village of Glenbeulah's plan indicates additional future residential development in the north and northeast portions of the village, with some additional commercial development located toward the center of the village just off County A.

Other plans for the ICE study area include the Sheboygan County Farmland Preservation Plan, the Fond du Lac County Farmland Preservation Plan, the Long-Range Transportation and Land Use Plan for the Fond du Lac Metropolitan Planning Organization (MPO), the Fond du Lac Land and Water Resource Management Plan, and the city of Fond du Lac 2040 Water System Development Plan. The land use recommendations for these documents are generally consistent with the local land use plans discussed above.

Several other federal and/or state highway projects that may impact traffic volumes within the WIS 23 corridor are being studied, are under construction, or have been recently completed. The WisDOT Connections 2030 Long-Range Multi-modal Transportation Plan includes a summary of several state trunk highway projects and project studies intended to improve traffic safety and efficiency. It includes the WIS 23 project. Other recommendations include ongoing upgrades to improve US 41 to comply with interstate standards (especially between Fond du Lac and Appleton east of the WIS 23 project area), the future designation of US 41 as a federal interstate highway, and improvements to US 151 south and west of the project area. These projects may have indirect and cumulative effects on land use and development throughout the region, including the WIS 23 ICE study area.

c. Notable Features

The area has several notable features that are described in Section 3 of this LS SFEIS/ROD. The following paragraphs summarize some of these features.

(1) Agriculture

Fond du Lac and Sheboygan counties have 279,922 acres and 157,607 acres of cropland, respectively. According to the USDA 2007 Census of Agriculture and UW Extension, agriculture accounts for $2.3 billion in sales in Fond du Lac County. The 2006 Agricultural Impact Statement (AIS) for the project published by the Department of Agriculture, Trade, and Consumer Protection states that an estimated 17 percent of all economic activity in the county is agriculturally related. Rated on a number of farmland preservation indicators, Fond du Lac

County, though classified as an urban county, continues to have a very strong agricultural industry. It ranked 8th among Wisconsin counties in 2003 in production of corn for grain, 6th in production of corn for silage, 10th in soybean production, and 1st in winter wheat. Dairy is the largest sector within county agriculture. For Sheboygan County, the USDA 2007 Census of Agriculture and UW Extension estimates that agriculture accounts for $3.3 billion in sales. The 2006 AIS for the project states that Sheboygan County is more urbanized than Fond du Lac County, but it still remains a very important agricultural county. The report estimated that 21 percent of all economic activity in Sheboygan County is agriculturally related. Sheboygan County ranked 16th among Wisconsin counties in production of corn for silage, 16th in soybeans, 14th in oats, and 4th in winter wheat. Dairy is the largest sector within county agriculture, with a large portion being postprocessing such as cheese products.

(2) Wetlands

According to WDNR aerial photography (1978-79), Fond du Lac County has 69,128 acres of wetlands that account for 14.9 percent of the land cover in the county. Sheboygan County (1987 aerial photography) has 40,447 acres of wetlands that account for 12.3 percent of the county. There are several notable wetland complexes near the WIS 23 corridor. Mullet Marsh (339 acres) is located about 1 mile south of WIS 23. The Sheboygan Marsh area (over 14,000 acres of land and surface water publically owned) is located about 2 miles north of WIS 23 in the project area.

(3) Water Quality

Four watershed areas are found within the ICE study area: the eastern Lake Winnebago Watershed, the Onion River Watershed, the Sheboygan River Watershed, and the Mullet River Watershed (which flow into the Sheboygan River.) There are four stream/river crossings along the corridor: the Sheboygan River, a tributary to the Sheboygan River, the Mullet River, and Taycheedah Creek.

Taycheedah Creek and the Onion River do not cross WIS 23 in the ICE study area. Mullet River crosses WIS 23 near the town of Greenbush and is classified as a Warm Water Sport Fish Community stream. The Mullet River is unique in that it flows from the warm water headwaters into a cold water segment. Between Glenbeulah and Plymouth, spring inflows lower stream temperatures and the river supports cold water sport fish.

Most of the ICE study area is located within the Sheboygan River basin, which has been identified by the USEPA as a Great Lakes Area of Concern. Area of Concerns are geographic areas that are severely degraded, often because of water contamination from chemicals such as PCBs and heavy metals or excessive nutrient contributions. Much of the Sheboygan River is on the WDNR's impaired waters list, though not the section within the WIS 23 corridor. Land uses and practices within the Sheboygan River basin that have contributed to adverse environmental conditions include agricultural and urban runoff, municipal and industrial discharges, wetland removal, and shoreline modification.

(4) Uplands

Much of the woodlands and upland habitat in the ICE study area is located within the Kettle Moraine State Forest–Northern Unit. The forest has been identified as an area of scenic and scientific value and is protected as a unit of the Ice Age National Scientific Reserve. Numerous areas with geographic features of scientific value are located within the ICE study area but are not yet within or protected as part of the Ice Age National Scientific Reserve, including the interlobate moraine. These areas contain woodlands, wetlands, streams, grasslands, kettles, kames, and lakes.

A portion of the Niagara Escarpment is also located in the ICE study area. Because of the distinctive geology of this natural feature, a number of unique plant and animal species rely on the integrity of the escarpment. As indicated in a *Niagara Escarpment Inventory of Findings* report,[3] the escarpment's ecosystems have been threatened by development. The escarpment ridge is located just east of Fond du Lac in an area that has been planned for long-term

[3] The Niagara Escarpment Inventory of Findings 1999-2001 and Considerations for Management, Final Report, May 1, 2002, Natural Heritage Inventory Program, Bureau of Endangered Resources, Wisconsin Department of Natural Resources.

development; therefore, development pressure in the long term may negatively impact the Niagara Escarpment

Sheboygan Marsh County Park and Sheboygan Marsh State Wildlife Area are located 2 miles north of the WIS 23 corridor. The area historically known as Sheboygan Marsh includes over 14,000 acres of land and surface water. It contains the largest restored wetland in the Wisconsin watersheds of lakes Michigan and Superior. The Sheboygan Marsh Wildlife Area portion of the marsh includes over 8,166 acres of public lands, of which Sheboygan County owns 7,414 acres and Wisconsin owns 752 acres. The remainder of the marsh is privately owned.

Mullet Creek Wildlife Area is located 1 mile south of the WIS 23 corridor and is a 2,217-acre property located in east central Fond du Lac County. The Mullet Lake State Natural Area is located about .05 mile southwest of Mullet Creek Wildlife Area. The lake and swamp complex is the headwaters of the Mullet River in the priority watershed of the Sheboygan River.

(5) Threatened and Endangered Species

Within the WIS 23 corridor area, there are 21 plant and animal species state listed as either threatened, endangered, or special concern within the approximately 19.1 miles between Fond du Lac and Sheboygan counties. Eight state threatened species and two state endangered species are considered potentially affected based on WDNR project coordination. The state endangered species include rainbow shell mussel and Midwest Pleistocene vertigo upland snail. State threatened species include the snow trillium, slippershell mussel, ellipse mussel, red-shouldered hawk, cerulean warbler, Acadian flycatcher, hooded warbler, and Blanding's turtle. More information is contained in Section 3 of this LS SFEIS/ROD.

The project team worked with WDNR and USFWS to obtain rare species data for the ICE study area, which is larger than the corridor study area. WIS 23 crosses through Empire and Forest townships in Fond du Lac County and Greenbush and Plymouth townships in Sheboygan County.

Table 4.4-2 shows the number of rare species occurrences by township, in the broader ICE study area. This information is provided to summarize the general density of threatened and endangered species in both Fond du Lac and Sheboygan counties in comparison to the project alignment and occurrences within the four townships that the project traverses.

The Sheboygan County towns of Greenbush and Plymouth contain more threatened and endangered species than towns adjacent to WIS 23 in Fond du Lac County. This is partially based on the presence of the Kettle Moraine Forest in Sheboygan County. Fond du Lac County has 36 reported threatened and endangered species occurrences and Sheboygan County has reported 40 occurrences. Cumulatively both counties have 54 rare species.

Table 4.4-2 Rare Species Occurrences in Towns and Counties within ICE Study Area

Town	Town	Range	Rare Plants	Rare Terrestrial Animals (including birds)	Aquatic Animals	Total Rare Species per Town (or County)	Total Rare Habitats
Empire (FDL County)	15N	18E	1	--	--	1	-
Forest (FDL County)	15N	19E	--	2	--	2	2
Greenbush (Sheboygan Co.)	15N	20E	2	6	3	11	2
Plymouth (Sheboygan Co.)	15N	21E	4	3	2	9	3
Total Occurrence Summary for all WIS 23 Towns	**4**	**4**	**6**	**10**	**5**	**21**	**7**
Occurrences Summary for Fond du Lac County	T13N to T17N	R14E to R19E	9	19	8	36	30
Occurrences Summary for Sheboygan County	T13N to T16N	R20E to R22E	18	14	8	40	33
Occurrence Summary for both WIS 23 Project Counties (Fond du Lac and Sheboygan)	**4**	**9**	**22**	**10**	**22**	**54**	**39**

Threatened and Endangered Species Data obtained from WDNR on-line Natural Heritage Inventory (NHI 11/14/12) and from WDNR correspondence March 2013. Note: Only threatened and endangered species are included in table. State Special Concern Species were not included in tallies.

(6) Historic and Archaeological Resources

Within the broader ICE study area, there are numerous historic resources. Wisconsin's Architecture and Historic Inventory (AHI) is a search engine that provides historical and architectural information for about 120,000 properties within Wisconsin. Listing on the AHI is not an indication of whether the property is eligible for the National Register of Historic Places (NRHP). This resource indicates there are 4,155 listings for Fond du Lac County and 2,655 listings for Sheboygan County.

Directly within the WIS 23 corridor, there are 17 potential historic sites and another 2 sites associated with the connection roads and interchange. Effects to all these resources were avoided except for those discussed below. Among historic resources potentially directly affected by WIS 23 alternatives are two historic and one archaeological resources eligible for or on the NRHP. The St. Mary's Springs Academy is on the east end of Fond du Lac and has two contributing buildings that are built in the Georgian Revival style and Richardsonian Romanesque Revival style. It is associated with the Sisters of St. Agnes of the Roman Catholic Church. Impacts to this property were avoided. The Old Wade House is now a state park near the Kettle Moraine State Forest and is run by the State Historical Society. It is a living history portrayal of a restored stagecoach inn built around 1850. Within the park are three structures that are on the National Register of Historic Places (NRHP). Impacts to the properties on the NRHP were avoided. The Sippel archaeological site is a small Yankee homestead/farm in the town of Greenbush. It was occupied between 1848 and 1875. The owners and inhabitants played instrumental roles in the early development of the Greenbush community, serving as farmers and merchants.

(7) Air Quality

The proposed WIS 23 project is located in the Lake Michigan Intrastate Air Quality Control Region. These air quality regions monitor National Ambient Air Quality Standards established

by the USEPA under the authority of the Clean Air Act. Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect public welfare from any known or anticipated adverse effect. Table 4.4-3 lists the standards for the different air pollutants and whether they are a primary or secondary standard.

Table 4.4-3 National Ambient Air Quality Standards

Pollutant	Type	Standard	Averaging Time a	Regulatory Citation
SO_2	Primary	0.14 ppm (365 µg/m^3)	24-hour	40 CFR 50.4(b)
SO_2	Primary	0.030 ppm (80 µg/m^3)	annual	40 CFR 50.4(a)
SO_2	Secondary	0.5 ppm (1,300 µg/m^3)	3-hour	40 CFR 50.5(a)
PM_{10}	Primary and Secondary	150 µg/m^3	24-hour	40 CFR 50.6(a)
$PM_{2.5}$	Primary and Secondary	35 µg/m^3	24-hour	40 CFR 50.7(a)
$PM_{2.5}$	Primary and Secondary	15 µg/m^3	annual	40 CFR 50.7(a)
CO	Primary	35 ppm (40 mg/m^3)	1-hour	40 CFR 50.8(a)(2)
CO	Primary	9 ppm (10 mg/m^3)	8-hour	40 CFR 50.8(a)(1)
O_3	Primary and Secondary	0.12 ppm (235 µg/m^3)	1-hour b	40 CFR 50.9(a)
O_3	Primary and Secondary	0.075 ppm (150 µg/m^3)	8-hour	40 CFR 50.10(a)
NO_2	Primary and Secondary	0.053 ppm (100 µg/m^3)	annual	40 CFR 50.11(a) and (b)
Pb	Primary and Secondary	0.15 µg/m^3	Rolling 3 months	40 CFR 50.1

a. Each standard has its own criteria for how many times it may be exceeded, in some cases using a three-year average.
b As of June 15, 2005, the 1-hour ozone standard no longer applies to areas designated with respect to the 8-hour ozone standard (which includes most of the United States, except for portions of 10 states).

Fond du Lac County is presently in attainment of all National Ambient Air Quality Standards (NAAQS). Sheboygan County was designated nonattainment for the 2008 Ozone Standard on April 30, 2012 (Federal Register/Vol. 77, No. 98/ Monday, May 21, 2012). Sheboygan County is also designated nonattainment for the 1997 Ozone standard, but that standard was revoked on July 20, 2013.

(8) Trails

There are three trails within the project corridor. The Old Plank Road Trail is a 17-mile paved trail that accommodates bicyclists, runners, and walkers. The Trail parallels WIS 23 from Sheboygan west to the Kettle Moraine State Forest. The Ice Age Trail is about a 1,000-mile footpath winding through Wisconsin that follows the moraine of the Wisconsin Glacier. It travels through the Northern Unit of the Kettle Moraine State Forest and crosses WIS 23 near Julie Court. The State Equestrian Trail also travels through the Northern Unit of the Kettle Moraine Forest and crosses WIS 23 at the same location.

(9) Environmental Justice (EJ) Populations

Environmental justice populations are described in Appendix C and depicted on Maps 2-5 of the Appendix. Minority and low-income populations are located at the ends of the ICE study in the cities of Plymouth and Fond du Lac. Several census tracks in the ICE study area also have a greater proportion of elderly individuals (age 65+) when compared to county averages. These concentrations are likely to remain because they are closer to urban areas and the associated services, housing, and employment opportunities associated with urban areas.

3. Impact-Causing Activities of the Project Alternatives.

The No-Build Alternative does not provide access management features, does not provide travel time improvements, and does not include trail enhancements. The No-Build Alternative will have no impacts since it serves as the baseline condition.

The Preferred Build Alternative would expand WIS 23 to 4 lanes and construct interchanges and J-turns at high use intersections. It also extends the Old Plank Road Trail to Fond du Lac and installs a grade-separated crossing for the Ice Age Trail and State Equestrian Trail. The net benefits include improved travel time, increased safety, and better trail facilities along and across WIS 23. The possible disadvantages include the purchase of about 424 acres of new right of way consisting of cropland, uplands, and wetlands. Disadvantages also include the relocation of 33 residences, 10 businesses, and 19 farms.

The benefits of the Preferred Build Alternative could also enable effects that are indirectly associated with the project. Improved travel times could, over time, cause people to make locational choices that increase the pace of development along the corridor. Access management features could affect the location of new development, particularly commercial development. The indirect effects of changes to development pace and location would create impacts to the natural environment.

The improved travel times, mobility, and safety would also increase daily travel volumes in the corridor. Figure 4.4-2 illustrates the difference in 2035 traffic volumes the corridor would experience between the No-Build and Preferred Build Alternatives.[4]

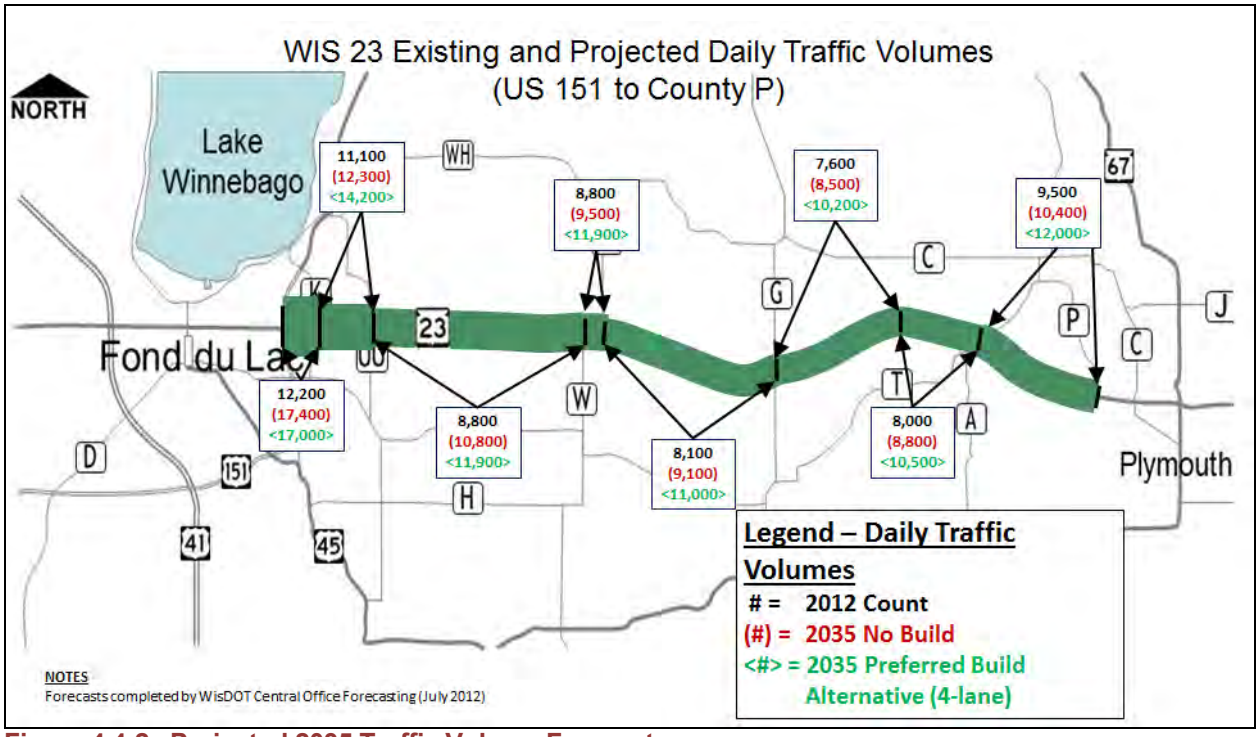


Figure 4.4-2 Projected 2035 Traffic Volume Forecasts

4. Identify Potentially Significant Indirect Effects

Potential indirect effects include loss of farmland and uplands from a possible increased rate of development in the corridor. Tables 4.4-4 and 4.4-5 summarize some of the impact-causing activities associated with the No-Build and Preferred Build Alternatives and the corresponding indirect effect. The tables also summarize influencing factors that support and discourage those changes. Figures 4.4-3-5, 4.4-4, and 4.4-5 at the end of this section illustrates these changes.

[4] Forecast volumes were updated in July 2012 by WisDOT's Traffic Forecasting Section in Madison using both a newly developed travel demand model (TDM) for the Northeast Region and other postprocessing measures that use traffic counts. See Section 1.3 of this LS SFEIS/ROD.

Table 4.4-4 Summary of Indirect Effects of No-Build Alternative

Location and Potential Impact-Causing Activity	Potential Indirect Effect	Influencing Factors	
		Supports Change	Discourages Change
No improvements would be provided other than routine maintenance.	Reduced safety and increasing congestion may reduce development in corridor, particularly in middle area more distant from Fond du Lac and Plymouth.	There are no improvements associated with the No-Build Alternative.	Most town land planned and/or zoned for agricultural preservation. Farmland preservation plans in place. No sewer or water available in towns.

Table 4.4-5 Summary of Indirect Effects of Preferred Build Alternative (including Corridor Preservation Alternative)

Location and Potential Impact-Causing Activity	Potential Indirect Effect	Influencing Factors	
		Supports Change	Discourages Change
Expansion of WIS 23 from 2 to 4 lanes from US 151 to County P	Potential slight increases in the pace of growth in existing and planned interchange locations along the corridor. Potential slight acceleration of the loss of farmland and natural resources as a result of development.	Development is planned for cities and villages. Sewer and water available in cities and villages. Some town areas are planned and/or zoned for development.	Most town land planned and/or zoned for agricultural preservation. Farmland preservation plans in place. No sewer or water available in towns.
Wisconsin American Drive/ WIS 23 Roundabout	May facilitate accelerated development in the area.	Local land use plan recommends urban development in areas near improvement.	Current access north of WIS 23 is limited.
Jug-handle interchange at County K	Potential slight increases in the pace and amount of commercial and residential development on eastern fringe of Fond du Lac. Potential acceleration of farmland loss and impacts to other natural resources including the Niagara Escarpment from conversion to development.	Area has been planned for future urban growth by the city of Fond du Lac. Planned development of new municipal water infrastructure to serve this area. Municipal sewer and water available. Higher land values may lead to increased farmland sales for development.	Presence of Niagara Escarpment nearby might warrant careful consideration of the impacts of development. Changes in local land development or natural resource protection policies. Land acquisition by public or land conservation organizations. High agricultural commodity prices incentivize continued farming.
WIS 23 access removal at the following intersections: Mary Hill Park Drive Hilltop Drive Log Tavern Road Triple T Road Banner Road Hickory Road Division Road Julie Lane Ridge Road Sandstone Lane Twinkle Lane	Potential decreases in the pace and amount of development occuring adjacent to these intersections. Fewer impacts to farmland and other natural resources.	Municipal sewer and water not yet available at most intersections. Minimal areas planned for development in rural areas.	Areas near cities and villages planned for future urban growth.

Table 4.4-5 Summary of Indirect Effects of Preferred Build Alternative (including Corridor Preservation Alternative)

Location and Potential Impact-Causing Activity	Potential Indirect Effect	Influencing Factors	
		Supports Change	Discourages Change
WIS 23 access reductions at the following intersections: • Whispering Springs Drive (RIRO) • Taft Road (RIRO) • Tower Road (RIRO, northbound dedicated left-turn lane, and eastbound J-turn) • Poplar Road (RIRO) • 7 Hills Road (RIRO, dedicated left-turn lanes, and J-turns) • County W (RIRO, dedicated left-turn lanes, J-turns) • Hillview Road (RIRO and northbound dedicated left-turn lane) • Chickadee Drive (RIRO) • County U (RIRO and westbound J-turn) • County T (RIRO and eastbound J-turn) • Plank Road (RIRO and eastbound J-turn) • Sugarbush Road (RIRO and dedicated left-turn lanes) • County A (RIRO, dedicated left-turn lanes, and westbound J-turn) • Plank Road (intersection relocation and RIRO) • County S (RIRO and J-turns) Note: RIRO = Right-In/Right-Out	Potential slight decreases in the pace and amount of development occuring adjacent to these intersections. Fewer impacts to farmland and other natural resources.	No municipal sewer and water available. Intersections planned by town for long-term agriculture.	Areas near cities and villages planned for future urban growth.
Interchange at County UU	Potential slight increases in the pace and amount of development around interchange. Potential acceleration of farmland and natural resource loss from conversion to development. Potential impacts to the Niagara Escarpment.	Area immediately surrounding interchange has been planned for development by the town. Area planned for long-term city growth and municipal sewer and water. Close to Fond du Lac market area.	Presence of Niagara Escarpment nearby might warrant careful consideration of the impacts of development.
Interchange at County G	Potential slight increases in the pace and amount of development in the village of St. Cloud. Potential slight acceleration of farmland and natural resource loss from conversion to development.	Village has municipal sewer and water to serve development. Some development already located in the area around the County G/WIS 23 intersection. Already zoned for development.	Municipal sewer and water not yet available at interchange.
Extension of the Old Plank Road Trail from west of Greenbush to Fond du Lac; new underpass in the town of Greenbush	Potential increase in usership and increased safety. Potential economic benefits to communities with trail access.	Increased connectivity to regional trail network.	None.

Table 4.4-5 Summary of Indirect Effects of Preferred Build Alternative (including Corridor Preservation Alternative)

Location and Potential Impact-Causing Activity	Potential Indirect Effect	Influencing Factors	
		Supports Change	Discourages Change
Corridor Preservation Alternative – Grade Separations Tower Road 7 Hills Road Scenic View Drive Sugarbush Road	Potential reduction in the amount of development at these intersections. Fewer impacts to farmland and other natural resources.	No municipal sewer and water available. Most intersections planned by Town for long-term agriculture.	Sugarbush Road intersection planned for development.
Corridor Preservation Alternative – Interchanges County W County A	Potential increases in the pace and amount of development around future interchange areas. Potential acceleration of farmland and natural resource loss from conversion to development.	County A/T area planned for development.	County W intersection planned by Town for long-term agriculture.

5. Analyze Indirect Effects, Describe Their Significance for the Project Alternatives and Evaluate Assumptions.

The study team collected and compiled an inventory of local and regional trend data including population and housing trends and projections; demographics, including environmental justice populations; income, labor force, industries, and commuting patterns; agricultural resources; natural resources; land use and development patterns; archaeological and historical resources; and local, county, regional, and state plans and regulations. These notable features were selected based on guidance from WisDOT's Guidance for Conducting an Indirect Effects Analysis as well as a determination by the study team that they were relevant to the analysis. This information has been compiled and is included in Appendix C. Information from the inventory was considered in the preparation of this indirect effects analysis.

a. No-Build Alternative

(1) Development

(a) General Development Pattern

Expert panelists and the ICE study team agreed that under the No-Build Alternative, future land development within the WIS 23 study area will most likely occur in the locations planned for in adopted comprehensive plans (see Figures 4.4-3 to 4.4-6a). Panelists further indicated that the amount of land identified in comprehensive plans is adequate to accommodate future development, particularly in light of the current economic climate which has substantially slowed land development in recent years. Adopted comprehensive plans indicate that future development will primarily occur in undeveloped lands at the periphery of cities and villages. While the majority of outlying town lands are planned to remain as agriculture, open space, or natural areas, the following areas are planned for future development in the vicinity of WIS 23:

- Residential and mixed use development at the south end of the town of Taycheedah, east of County UU.
- Highway commercial development at the intersection of County UU and WIS 23 in the town of Empire.
- Unspecified future development in the town of Forest on the north side of WIS 23, west of Triple T Road.
- Residential and commercial development in Greenbush at the intersection of County A and WIS 23, east of the Wade House historic site.

- Two areas of rural residential development in the town of Greenbush south of WIS 23 on either side of the Kettle Moraine State Forest.
- Commercial development along the WIS 23 frontage in the town of Plymouth, west of WIS 57 and east of the city of Plymouth.

Areas where panelists identified potential development that may occur under the No-Build Alternative beyond that designated in adopted comprehensive plans are depicted on Map 10 of Appendix C and Figure 4.4-3. As is required under state statutes, local zoning supports development and preservation as indicated in adopted comprehensive plans. While certain areas have been planned and zoned for development in the study area, access to urban services and the real estate market will ultimately drive the pace, location, and intensity of future development.

(b) Residential Development

Expert panelists and the ICE study team generally agreed that the location of future residential development will generally occur in locations planned by study area communities. As indicated in adopted comprehensive plans (see Figures 4.4-3 to 4.4-6a), new residential development in the study area is planned primarily in city and village growth areas, such as the east side of the city of Fond du Lac, the east and west sides of the city of Plymouth, and the north side of the village of Glenbeulah. Small areas of residential development are planned in the town of Greenbush and Empire, but otherwise very little new rural development is planned in study area towns, which is supported by farmland preservation zoning limiting minimum lot sizes to between 10 to 35 acres.

Expert panelists identified areas where residential development may occur under the No-Build Alternative on Map 10 in Appendix C and Figure 4.4-3. These areas include lands in the town of Taycheedah to the east and northeast of Fond du Lac, along county highways on all sides of Mt. Cavalry, surrounding Wolf Lake in Marshfield, on the north and south side of St. Cloud, on the north side of Glenbeulah, east of the city of Plymouth near County S and County Z, and scattered residential development throughout the study area.

Expert panelists indicated, and the ICE study team agrees, that scattered, nonfarm residential construction has occurred over the past couple of decades, which has reduced the amount of woodlands, natural areas, and farmland in the study area. Panelists suggested that low land prices and inadequate land use controls may have encouraged this trend. Recently adopted farmland preservation plans and zoning regulations, in combination with the slow economy, will likely continue to reduce this trend. However, areas not protected by conservation or farmland preservation zoning may be at risk for long range future residential development if and when economic conditions improve.

(c) Commercial Development

Expert panelists and the ICE study team generally agreed that the location of future commercial development will generally occur in locations planned by study area communities. The city of Plymouth plans for substantial commercial growth outside of the study area on its east side to the south of WIS 23 and adjacent to WIS 57. The city of Fond du Lac plans for future mixed-use development at the northeast quadrant of the WIS 23/US 151 interchange. The town of Forest anticipates a small area of commercial at the juncture of County G/County T, and the town of Plymouth anticipates commercial development along WIS 23 corridor to the northeast of the city of Plymouth.

Expert panelists and the ICE study team agreed that the timing of future commercial development will likely be tied to a broader economic recovery. Expert panelists and the ICE study team further agreed that increased traffic congestion and growing safety issues along the WIS 23 corridor may have a detrimental impact on future economic growth under the No-Build Alternative, including the timing of future commercial development.

Some panelists identified a few areas of potential future small scale highway-oriented commercial development that are *not* planned by local communities (these are depicted on Map 10 of Appendix C and Figure 4.4-3). These are located primarily at county highway intersections with WIS 23, as well as a large area of possible future commercial development on the southeast side of Fond du Lac where future residential development is now planned by the city.

(d) Industrial Development

Very little industrial development is planned to occur in the study area. The city of Plymouth has identified industrial growth areas on the south side of the city in the study area and additional areas outside the study area. Expert panelists and the ICE study team generally agreed that industrial development will likely occur in these locations under the No-Build Alternative; however, as with commercial development, the timing of future industrial development will likely be tied to a broader economic recovery. Expert panelists and the ICE study team further agreed that increased traffic congestion and growing safety issues along the WIS 23 corridor may have a detrimental impact on future industrial development under the No-Build Alternative.

(e) Institutional Development

Expert panelists indicated the Agnesian HealthCare recently announced that it will be opening a new hospital at the WIS 23/WIS 49 intersection in Ripon, approximately 25 miles west of the study area. This facility will provide healthcare services to a portion of the population in the study area. In addition the ICE study team notes that additional new small scale institutional development to serve local needs under the No-Build Alternative is anticipated to occur as needed, generally based on the pace of new residential development.

(f) Redevelopment

As indicated previously, the present economic climate has substantially slowed land development and redevelopment in recent years. The ICE study team feels limited redevelopment is expected to occur in the study area under the No-Build Alternative; however, the timing of such redevelopment will likely be tied to a broader economic recovery.

(g) Community Character

Expert panelists and the ICE study team generally agreed that the No-Build Alternative is not expected to significantly alter the existing character of study area communities, as development trends are likely to generally continue. These trends are likely to continue if ICE study area communities follow their adopted long range comprehensive plans which account for and are designed to accommodate modest continued growth trends. Small scale highway-oriented commercial development may have a slight impact on rural character as local zoning ordinances do not contain provisions that protect community character.

(2) Agricultural Land

The majority of study area towns plan for the continuation of farming in existing agricultural areas. Farmland preservation plans prepared by Fond du Lac and Sheboygan counties aid in the preservation of productive farmland and protect farm operations from conflict with incompatible uses. However, the degree to which these plans are followed will vary depending on evolving growth policies and other land use regulations. The rate at which farmland is converted to nonagricultural uses will largely be a factor of economic conditions and each community's desire to preserve agriculture.

Expert panelists and the ICE study team generally agreed that only minimal farmland would likely be lost in the near term under the No-Build Alternative beyond that associated with planned development in city and village growth areas. However, panelists indicated that in the longer term, agricultural land in the towns adjacent to urban

areas (i.e., Taycheedah, Plymouth, and Empire) may experience development pressure, particularly as the economy rebounds.

It is the ICE study team's opinion that because the decision to sell farmland for scattered rural residential development is often more related to personal circumstances and require only on-site well and septic systems, the timing and location of such development are very difficult to predict.

(3) Wetlands

Wetland areas of regional significance are located in the study area. These include the Sheboygan River Marsh area, which has been identified by WDNR as a Land Legacy Place, Sheboygan Marsh County Park and State Wildlife Area, Kiel Marsh State Wildlife Area, Mullet Creek Wildlife Area, Mullet Lake State Natural Area, and Calvary Marsh. As indicated in the *Land Legacy Report*, protecting the open space around and between wetlands would buffer them from conflicting land uses and would link them together in an ecologically valuable corridor. Efforts in this general regard have been undertaken in Sheboygan County; land conservancies have acquired 1,100 acres that are protected by conservation easements. WDNR and land conservancies will likely continue to work to protect natural areas through land acquisition and conservation easements.

Expert panelists indicated, and the ICE study team agrees, that the amount of wetland areas lost to future development would be minimal under the No-Build Alternative because of the minimal amount of new development. In terms of wetland quality, panelists suggested, and the ICE study team agrees, that the quality of wetlands in or adjacent to planned development areas may be minimally impacted by stormwater runoff from impervious surfaces associated with new development. Panelists noted that such impacts will likely accelerate over the long term and as the economy rebounds, particularly surrounding the city of Plymouth where substantial development is planned. In addition, wetlands are strongly protected under federal and state law. Ultimately, the level of impact will vary based on development type, local regulations, mitigation activities, and future conservation efforts.

(4) Water Quality

As indicated earlier, the study area is located almost entirely within the Sheboygan River basin, which has been identified by the USEPA as an Area of Concern. Area of Concerns are geographic areas that are severely degraded, often resulting from water contamination from chemicals such as PCBs and heavy metals or excessive nutrient contributions. The main land uses and practices within the Sheboygan River basin that have contributed to adverse environmental conditions include agricultural and urban runoff, municipal and industrial discharges, wetland removal, and shoreline modification. In addition, as stated in the Niagara Escarpment Inventory of Findings Report, the Escarpment area is sensitive to groundwater contamination.

Panelists indicated that under the No-Build Alternative, impacts to surface water levels and groundwater recharge areas are not anticipated beyond that associated with planned development in city and village growth areas and current trends in rural residential land development. Panelists did note, however, that stormwater runoff associated with new development, combined with higher traffic volumes and substantially more pollutants along the WIS 23 corridor, could result in increases in water pollutants. The level of impact will vary based on development type, local regulations, and mitigation activities. Overall, panelists concur and the ICE study team agrees that these impacts to surface water and groundwater are anticipated to be minimal under the No-Build Alternative.

(5) Upland Habitat

(a) Woodlands and Ecologic Resources

Much of the woodlands in the study area are located within the Kettle Moraine State Forest-Northern Unit. The forest has been identified as an area of scenic and scientific value and is protected as a unit of the Ice Age National Scientific Reserve. Numerous areas with geographic features of scientific value are located within the study area but are not yet within or protected as part of the Ice Age National Scientific Reserve, including the interlobate

moraine. These areas contain woodlands, wetlands, streams, grasslands, kettles, kames, and lakes.

A portion of the Niagara Escarpment is also located in the study area. Because of the distinctive geology of this natural feature, a number of unique plant and animal species rely on the integrity of the escarpment. As indicated in the Niagara Escarpment Inventory of Findings report, the escarpment's ecosystems have been threatened by development, not only in Wisconsin, but in the upper peninsula of Michigan, New York, and Canada. The escarpment ridge is located just east of the city of Fond du Lac in an area that has been planned for long term development (see Map 7a of Appendix C); therefore, a high degree of development pressure in the long term may impact woodlands and ecological resources in the vicinity of the Niagara Escarpment.

Expert panel members and the ICE study team generally agreed that there will be minimal impact to woodlands under the No-Build Alternative because of new development. Such development, particularly rural residential, could occur in woodlands or alter woodland and wildlife habitat areas. The ICE study team suggests the impact will mainly be because of additional rural residential development in areas planned and zoned for such. Impacts include habitat fragmentation and reduction of the natural aesthetic caused by residences and woodland clearing on the face or top of the Escarpment.

However, panel members noted that it is a goal of WDNR and Niagara Escarpment Network to acquire and preserve additional lands of scientific value. Expert panel members and the ICE study team generally agreed there may be negligible impacts woodlands that are within the planned expansion areas of the Kettle Moraine State Forest and the Niagara Escarpment under the No-Build Alternative if these acquisition and preservation efforts are successful.

(b) Glacial Features

There are numerous glacial features throughout the study area. One panel member noted that these features are not currently protected through local regulation. Expert panel members and the ICE study team generally agreed there will likely be minimal impacts to glacial features under the No-Build Alternative because there will be a limited amount of new development in areas where prominent glacial features are present.

(6) Threatened and Endangered Species

As mentioned, within the 19.1-mile WIS 23 corridor area there are 21 plant and animal species listed as either threatened, endangered, or special concern. The majority are located in the towns of Forest and Greenbush. Expert panelists indicated, and the ICE study team agrees, that the No-Build Alternative is not expected to substantially impact these populations of endangered species because of absence of land-disturbing development activity indirectly related to the No-Build Alternative.

(7) Historic and Archaeological Resources

Expert panelist expected access to the St. Mary's Springs Academy, as a functioning school, could become more problematic under the No-Build Alternative because of the difficulty of accessing WIS 23 at the at-grade intersection. Impacts to the school, as a historic resource, would not occur as a direct effect of the WIS 23 highway. Existing access to the Old Wade House State Park via WIS 23 currently poses traffic safety issues. It was anticipated by the expert panel that the Old Wade House State Park, as a functioning park, could be negatively impacted by growing traffic congestion and safety issues under the No-Build Alternative because of the difficulty accessing the site. Because the historic structures on the NRHP within the park are distant from the roadway, there would be no direct effect to the historic resources in the park.

The No-Build Alternative would not require the area occupied by the Sippel Archaeological site, therefore, there would be no direct impact to the site. Known archaeological resources are protected from disturbance by state and federal regulations. Expert panel members did not identify specific archaeological resources and suggested that impacts to such resources would likely be minimal, if any, under the No-Build Alternative. Undocumented archaeological resources are always at risk of being disturbed by development activity, however, the historically

low development trends in the ICE study area are expected to continue under the No-Build Alternative, likely having a low impact on these resources.

(8) Air Quality

Motor vehicles contribute several pollutants listed in the National Ambient Air Quality Standards. These include the following:

(a) Nitrogen oxides react with ammonia, moisture, and other compounds to form nitric acid vapor and related particles. These compounds can affect lung tissue.

(b) Volatile Organic Compounds (VOC) combine with oxides of nitrogen, react and create ozone. While beneficial in the upper atmosphere, ozone irritates the respiratory system at ground level. According to a 2005 USEPA report, about 26 percent of VOCs come from on-road motor vehicles.

(c) Carbon monoxide reduces the blood's ability to deliver oxygen to the body. Motor vehicle travel is the major contributor of carbon monoxide in the United States.

Other pollutants are also discussed in Section 4.6 of this LS SFEIS/ROD. With the No-Build Alternative, average daily traffic volumes on WIS 23 will increase from 8 to 23 percent by the year 2035. Corresponding to the increased WIS 23 traffic volumes will be increased side road volumes that both feed WIS 23 and lead to destinations from WIS 23. Motor vehicle technology and cleaner fuels have been leading to a reduction in motor vehicle exhaust pollution. However, increased vehicle volumes may result in additional emissions.

As mentioned, Sheboygan County is not in attainment for the 8-hour standard for ground-level ozone as part of the NAAQS. Such emissions could effect Sheboygan County's nonattainment status. The conformity analysis indicates the Sheboygan Area Transportation Plan is consistent with the approved motor vehicle emissions budgets for Air Quality.

(9) Trails

The Old Plank Road Trail is a 17-mile multiuse trail that parallels WIS 23 from Sheboygan to Greenbush, linking with the Ice Age Trail in the Kettle Moraine State Forest–Northern Unit. Other trails in the study area include Ice Age Trail, the State Equestrian Trail, and a snowmobile trail—each of which directly crosses the WIS 23 between Plank Road and County S.

Expert panelists and the ICE study team agreed that impacts associated with the No-Build Alternative include continuation of the existing at-grade Ice Age Trail/State Equestrian Trail crossing on WIS 23, where high speed traffic is present, which many panelist indicated they had personally experienced difficulty crossing at this location. Also, the proposed extension of the Old Plank Road Trail west to Fond du Lac would either be delayed or would not occur which panelists representing local governments indicated was something their constituents desired.

(10) Environmental Justice Populations

Environmental justice populations are described in Chapter 2 and depicted on Maps 2 to 5 of Appendix C. Minority and low-income populations are located at the ends of the ICE study area in the cities of Plymouth and Fond du Lac. Several census tracks in the ICE study area also have a greater proportion of elderly individuals (i.e., age 65+) when compared to county averages.

The study team determined that minority and low income populations will not be disproportionately adversely impacted by the No-Build Alternative because generally employment and social services are available in Fond du Lac and Plymouth where such population concentrations occur and therefore travel on WIS 23 is generally not required. Conversely, elderly populations will be more adversely affected by increased congestion and decreased safety because they are concentrated in the central portion of the ICE study area and need to travel to the urban areas at the ends of the ICE study area for services.

b. Preferred 4-Lane Build on Alignment Alternative

(1) Development

(a) General Development Pattern

As with the No-Build Alternative, expert panelists and the ICE study team agreed that future land development within the study area will generally follow adopted comprehensive plans. In the written questionnaire, there was some disagreement among panelists about the location, pace, and intensity of development that may occur under the Build Alternative as depicted on Maps 15 and 16 of Appendix C and Figure 4.4-4. However, after discussing these impacts at the panel workshop meeting, expert panelists generally concurred with one another. Specifically, they identified development impacts that may occur within the jurisdiction they represent and deferred to other panelists for impacts in their communities.

It is the opinion of the expert panel and the ICE study team that the general locations of development at the western and eastern ends of the corridor will not be impacted under the Build Alternative because development in the cities of Fond du Lac and Plymouth respond to the provision of urban utilities and services. However, the pace of future development in these cities may be slightly accelerated as a result of reduced access along WIS 23 between the two cities pushing development to the ends of the corridor, where the preservation of access, reduced congestion, and improved ease of travel will attract development. The location, amount, and pace of future development in the rural central portion of the corridor (in the towns of Taycheedah, Forest, Greenbush, and Plymouth) may be further altered. Specifically, development will likely concentrate at future interchanges including County UU, County W (north), and County G and be reduced where new access restrictions occur including Tower Road and 7 Hills Road. In the vicinity of Greenbush hamlet, future interchange improvements at County T/A will likely be offset by access reductions at Sugarbush Road.

The ICE study teams feels that the pace and amount of growth related to the indirect effects of the Build Alternative will likely only be slightly higher than those associated with the No-Build Alternative because of a combination of factors: regional growth trends have been and are likely to continue to be modest, the Preferred Build Alternative is not a new highway facility but rather a modification of a long-existing highway, and the Preferred Build Alternative generally reduces the number of access points which has the strong tendency to focus additional development near remaining access points.

(b) Residential Development

Expert panelists and the ICE study team generally agreed that residential development impacts will vary in the study area. For example, residential development may concentrate at higher densities in more urbanized areas and in other areas with highway access. Slightly shortened travel time for commuters and traveler comfort related to capacity and safety improvements may lead to slight increases in the amount of residential development in rural areas compared to the No-Build Alternative. Smaller communities within the study area may experience modest increases in the pace and amount of residential growth as a result of improved access to major employment centers beyond the study area. Areas identified by panelists for possible residential development beyond areas identified in comprehensive plans are shown on Maps 15 through 17 of Appendix C and Figure 4.4-4.

Other impacts associated with the Preferred Build Alternative include the direct access of rural residential lots to WIS 23 and response times of emergency vehicles. Expert panelists noted that a number of residential driveways presently have direct access to WIS 23. The Preferred Build Alternative will require alternate access and the potential relocation of driveway access to rural roads and county highways. Panelists also indicated that response times for emergency vehicles may be affected under the Preferred Build Alternative, particularly in the town of Greenbush. Higher response times could slightly reduce the amount of residential development in the study area. The WisDOT project manager indicated that access for emergency services would be coordinated in the design phase if the Preferred Build Alternative is implemented.

(c) Commercial Development

Expert panel members and the ICE study team generally agreed that commercial development will continue to be focused in planned commercial areas under the Preferred Build Alternative, but unplanned highway-oriented commercial development may also occur at proposed interchange locations as a result of increased capacity and a focusing of access at proposed interchanges, combined with a general reduction of access between interchanges. However, panelists noted and the ICE study team agrees that large increases in commercial development in rural areas, as well as large scale projects, are unlikely to occur until utilities and urban services are available in those areas. The ICE study teams notes that there are no plans for such provision of services at the time of writing.

In addition to the location of future commercial development, panelists indicated the Preferred Build Alternative may have the impacts in the study area listed below. This may be because of slight increases in traffic volume and commercial development under the Preferred Build Alternative.

1) Higher-value commercial development may result.
2) New economic development initiatives, such as marketing campaigns, creation of tax incremental financing districts, and new business parks and shopping centers may emerge.
3) Employment related development may be channeled closer to WIS 23 and at higher concentrations.
4) Communities with easier access to WIS 23 may experience greater economic growth than communities not directly on the corridor.
5) Businesses may be encouraged to locate in the vicinity of WIS 23 corridor to take advantage of enhanced access and visibility.
6) Connection of Sheboygan and Fond du Lac via a 4-lane highway may cause new economic development opportunities to emerge throughout the study area.

(d) Industrial Development

Industrial development is primarily planned in the city of Plymouth on the south, southeast, and northwest sides of the city. Expansion to existing quarrying operations may also occur in the town of Plymouth as suggested by the town's comprehensive plan.

Expert panelists and the ICE study team generally agreed that the location of future industrial development will generally occur as planned under the Preferred Build Alternative, but at a somewhat accelerated pace and potentially at a somewhat greater intensity (e.g., more impervious surface area per acre) as a result of increased capacity and a focusing of access at proposed interchanges, combined with a general reduction of access in between interchanges. Panelists indicated that future industrial development may also be focused at interchange locations to take advantage of increased visibility. Panelists also suggested that new economic development initiatives may emerge, such as marketing campaigns, new tax incremental financing districts, and new industrial parks—such as in the city of Plymouth where industrial development is planned to occur.

(e) Institutional Development

As suggested in the No-Build Alternative, additional new locally serving institutional development in the study area is anticipated to occur as needed generally based on the pace of new residential development. However, compared to the No-Build Alternative, institutional development may potentially occur at a somewhat faster rate under the Preferred Build Alternative when the economy recovers because of slight increases in the amount and pace of new residential development. Panelists also indicated that the intensity (e.g. more impervious surface area per acre) of new institutional development will likely be somewhat greater under the Preferred Build Alternative as a result of increased capacity and a focusing of access as proposed interchanges, combined with a general reduction of access in between interchanges.

(f) Redevelopment

As indicated previously, the present economic climate has substantially slowed land development and redevelopment in recent years. Expert panelists and the ICE study team generally agree that limited redevelopment is expected to occur in the study area under the Preferred Build Alternative in the current economic climate; however, when the economy rebounds, redevelopment may occur at a slightly faster pace and at a slightly greater intensity/density under the Preferred Build Alternative as a result of increased capacity, reduced travel time, and reduced congestion. Redevelopment will most likely occur in urbanized areas, such as the cities of Fond du Lac and Plymouth.

(g) Community Character

Expert panelists and the ICE study team generally agreed that the Preferred Build Alternative is not expected to significantly alter the existing character of study area communities, as development trends are likely to be only slightly increased compared to the No-Build Alternative. These trends are likely to continue if ICE study area communities follow their adopted long range comprehensive plans which account for and are designed to accommodate modest continued growth trends. However, some panelists indicated the rural character of the towns may be affected by accelerated growth of nearby cities and villages. Others suggested that easier access provided by WIS 23 may increase demand for "country-living" under the Preferred Build Alternative, and the increased development could negatively affect rural character in such areas. Finally, near future rural interchanges new small scale highway-oriented commercial development may also have a slight impact on rural character, as local zoning ordinances do not contain provisions which protect community character.

Panelists and the ICE study team generally agreed that community character will ultimately be dependent upon local government regulation and the quality of development and siting decision. Panelists also indicated that the Preferred Build Alternative will not increase the number of billboards in the study area because of lack of demand for off-site advertising. The ICE study team notes that adopting regulations that prevent billboards would be a more certain way of avoiding this adverse impact on community character.

(2) Agricultural Land

The majority of towns in the study area plan for the continuation of farming, except in small areas planned for development. County farmland preservation plans in combination with exclusive agricultural zoning further protect land that is planned to remain in agricultural uses and enables continuation of farming.

Expert panelists and the ICE study team agreed that the Preferred Build Alternative will likely slightly accelerate the conversion of farmland in areas planned for future development and an overall increase in urbanization may increase development pressure in rural areas. In addition, some towns may allow development on low quality farmland.

The panel concurred that two counteracting trends would influence development at interchange locations. First, the development values of the land will likely increase providing an incentive for landowners to sell to developers. Second, town representatives and the Wisconsin DATCP representative on the panel also noted that agricultural commodity prices are very high, which is providing an incentive to continue to farm. Areas of farmland not planned for development around interchange locations will likely experience development pressure and may result in the additional loss of farmland at these locations. As mentioned earlier, land development has been slow in recent years because of the slow economy; therefore, the degree to which land development is accelerated as a result of the highway expansion may be negligible until the economy makes a full recovery.

In addition, expert panelists noted a concern that closure of existing access to farm fields may result in the fragmentation of existing farms on opposite sides of the highway corridor. Fragmentation could lead to greater distances traveled by farm vehicles and may result in less productive and economically viable farm operations. However, the WisDOT project manager indicated that farm field access will be maintained and direct median crossovers will

be included as part of the Preferred Build Alternative design which will be available for use by farm machinery, police and maintenance vehicles, and others.

(3) Wetlands

As noted under the No-Build Alternative, several wetland areas of regional significance are located in the study area, the protection of which is a priority for WDNR and local land conservancies. Expert panelists indicated that the loss of wetlands may occur under the Preferred Build Alternative. However, wetlands are protected from development by state and federal regulations; therefore the ICE study team feels that substantial loss of wetlands is not anticipated under the Preferred Build Alternative. Where wetland areas are proposed to be filled for development, mitigation and/or replacement is required.

Expert panelists indicated, and the ICE study team agrees, that the amount of wetland areas lost to future development would be slightly increased under the Preferred Build Alternative compared to the No-Build Alternative because of slight increases in the amount of new development. Panelists also noted that impacts resulting from increased pace and amount of development will likely accelerate over the long term as the economy rebounds, particularly surrounding the city of Plymouth where substantial areas are proposed for development near wetland areas. Panelists also suggested that the quality of wetlands in or adjacent to planned development areas may be minimally impacted by stormwater runoff from impervious surfaces associated with new development. In addition, wetlands are strongly protected under federal and state law. Ultimately, the level of impact will vary based on development type, local regulations, mitigation activities, and future conservation efforts.

(4) Water Quality

As indicated under the No-Build Alternative, the study area is located almost entirely within the Sheboygan River Basin, which has been identified by the USEPA as a Great Lakes Area of Concern. System improvements under the Preferred Build Alternative will increase the impervious surface area in the study area and the number of vehicles using the corridor. These factors may contribute to increases in the peak rate and volume of stormwater runoff and pollutants, including chloride, salt, and other deicing chemicals. In addition, as stated in the Niagara Escarpment Inventory of Findings Report, the Escarpment area is sensitive to groundwater contamination.

Expert panelists indicated, and the ICE study team agrees, that increased stormwater runoff and land development under the Preferred Build Alternative may reduce the area available for groundwater recharge which may alter surface water levels and further reduce water quality through increased sedimentation and increased temperature, particularly after periods of heavy rain and/or snow melt. However, panelists indicated, and the ICE study team agrees, the degree of these impacts would likely be slightly higher compared to the No-Build Alternative. One member of the expert panel indicated that the marshes in the study area receive much of the runoff in this corridor. There will be an increased impact to the marshes in the study area under the Preferred Build Alternative because of increased impervious surface area and new development.

(5) Upland Habitat

i. Woodland and Ecologic Resources

The majority of large tracts of woodlands in the study area are located in the Kettle Moraine State Forest–Northern Unit. As described earlier, the Forest is a unit of the Ice Age National Scientific Reserve. Numerous other areas containing geographic features of scientific value, including the interlobate moraine, are located within the study area but are not yet within or protected by an Ice Age National Scientific Reserve.

As described earlier, the Niagara Escarpment is located in the study area. Hydrologic disruption and outright destruction of some of Escarpment features because of road construction is identified as a current threat in the Niagara Escarpment Inventory of Findings report. The report also indicates that residential development is one of the most pressing threats to the Niagara Escarpment as past residential development and associated infrastructure has also fragmented sensitive habitats and may destroy rare plant and animal species.

Expert panel members and the ICE study team generally agreed that there will be slightly increased impacts to woodlands under the Preferred Build Alternative compared to the No-Build Alternative as a result of slightly increased pace and amount of development. Such development, particularly rural residential, could occur in woodlands or alter woodland and wildlife habitat areas. Panelists also indicated that invasive species, such as phragmites, spread rapidly along highway corridors, which is another possible impact of the Preferred Build Alternative. Expert panelists indicated that the Preferred Build Alternative could further impact the Escarpment, unique glacial features, and other resources areas of ecological significance. The ICE study team suggests the impact will mainly result from rural residential development in areas planned and zoned for such. Impacts include habitat fragmentation and related impacts on threatened and endangered species, and reduction of the natural aesthetic caused by residences and woodland clearing on the face or top of the Escarpment.

However, panel members noted that it is a goal of WDNR and Niagara Escarpment Network to acquire and preserve additional lands of scientific value. Expert panel members and the ICE study team generally agreed there may be minimal impacts to woodlands that are within the planned expansion areas of the Kettle Moraine State Forest and the Niagara Escarpment under the Preferred Build Alternative if these acquisition and preservation efforts are successful.

ii. Glacial Features

There are numerous glacial features throughout the study area. One panel member noted that these features are not currently protected through local regulation. Expert panel members and the ICE study team generally agreed there will likely be slightly increased impacts to prominent glacial features under the Preferred Build Alternative because of lack of protection (e.g., overlay zoning) and slightly increased amounts of new development compared to the No-Build Alternative. These impacts would be reduced if the WDNR implements its plans to acquire 7,000 acres of new land around the Kettle Moraine State Forest.

(6) Threatened and Endangered Species

There are 21 rare species within the project corridor study area (see Section 3). In the broader ICE study area, there are 36 occurrences of rare species in Fond du Lac County and 40 occurrences of rare species in Sheboygan County. Interaction with the WDNR indicates one state endangered and nine threatened species could potentially be directly affected by WIS 23 improvements. The state endangered species is rainbow shell mussel. State threatened species include the yellow gentian, snow trillium, slippershell mussel, ellipse mussel, red-shouldered hawk, cerulean warbler, Acadian flycatcher, hooded warbler, and Blanding's turtle.

Panelists indicated, and the ICE study team agrees, that reduction and degradation of habitat as a result of slightly increased pace and amount of development under the Preferred Build Alternative could further threaten or potentially cause the displacement or loss of these threatened species, both along the corridor and in the broader county context. More discussion on adverse effects to threatened and endangered species is presented in the cumulative effects section.

(7) Historic and Archaeological Resources

Recent revisions to the historic boundary of the St. Mary's Springs Academy site have led to a No Adverse Effect for the property from improvements proposed under the Preferred Build Alternative. The County K jug-handle associated with the Preferred Build Alternative will make access in to and out of the site easier. There should be no direct impact to St. Mary's Springs Academy historic boundary as a result of the Preferred Build Alternative. Expert panelists indicated that the Old Wade House State Park would be positively impacted by the Preferred Build Alternative with the recently constructed visitor center and carriage house museum which interface with an expansion to WIS 23 and associated improvements. Further, panelists indicated that the site would benefit from improved visibility and access for both cars and bicycles. The historic properties on the NRHP within the park are distant from WIS 23, so there would be no direct impact on these resources.

It is difficult to determine the Preferred Build Alternative's indirect effect on historic structures outside of the WIS 23 corridor. There are no laws preventing private entities from altering these

structures, and it is not clear that a slightly increased pace of development would affect the razing or restoration of existing structures.

Staff on the expert panel did not identify specific archaeological resources that may be impacted under the Preferred Build Alternative other than the Sippel site (which is a direct impact, see Section 4.6 B6). As indicated under the No-Build Alternative, archaeological resources are protected from disturbance by state and federal regulations. Expert panel members did not identify any specific archaeological resources that may be impacted under the Preferred Build Alternative; however, potential loss of undiscovered archaeological sites was noted as a potential impact of the Preferred Build Alternative. The ICE study team suggests new development indirectly related to the Preferred Build Alternative would require ground-disturbing activities. These activities could adversely impact unknown archaeological sites, and since archaeological reconnaissance is not required for private development, these sites would not be avoided. Since the amount of new development under the Preferred Build Alternative is likely to be slightly greater compared to the No-Build Alternative, the likelihood of adversely impacting unknown archaeological sites would be slightly higher. The development footprint associated with building development sites is smaller than that of a major roadway corridor, so development impacts to archaeological resources, when compared to the roadway's direct impacts, are likely to be much smaller.

(8) Air Quality

As mentioned under the No-Build Alternative on page 4-15, motor vehicles contribute several pollutants listed in the National Ambient Air Quality Standards that affect human health. These pollutants include nitrogen oxides and volatile organic compounds that lead to ozone, carbon monoxide, and minor amounts of particulate matter. Other pollutants are also discussed in Section 4.6 of this LS SFEIS/ROD.

The Preferred Build Alternative will have higher traffic volumes and higher travel speeds. Additionally, the projected 2035 daily traffic volumes are 17 percent higher (weighted average) than what would normally occur with the No-Build Alternative. The projected 2020 daily summer traffic on the Sheboygan County portion of WIS 23 represents about 2.52 percent of the total vehicle miles traveled (VMT) in Sheboygan County for a summer day. With the Preferred Build Alternative, WIS 23 has 0.13 percent more VMT contribution to the total county VMT.[5] The emissions associated with these higher traffic volumes combined with other human activities such as manufacturing, off-road vehicles, and other sources emit VOCs and NOx that contribute to ground-level ozone levels in Sheboygan County. WDNR and USEPA have in place a set of regulations that are designed to decrease emissions from motor vehicles, areas sources and industrial sources over time. Programs and regulations are in place at the federal and state level to control vehicle emission including regulations in the early 2000s and 2007 further controlling emissions from vehicles and fuels. These are projected to reduce vehicle pollutant emissions over the next 25 years.

As mentioned, Sheboygan County is not in attainment for the 8-hour standard for ground-level ozone as part of the NAAQS. The conformity analysis indicates the Sheboygan Area Transportation Plan is consistent with the SIP for Air Quality even with the expansion of WIS 23 to 4 lanes. Therefore while the Preferred Build Alternative could have more VOC and NOx emissions than the No-Build Alternative, the conformity analysis which was approved in February 27, 2013 indicates the Sheboygan Area Transportation Plan is consistent with the emission budgets set forth to bring the county back into attainment.

(9) Trails

The Ice Age Trail, the State Equestrian Trail, and a snowmobile trail currently cross WIS 23 between Plank Road and County S. As part of the expansion project, an underpass will be constructed to provide a safer crossing across WIS 23 and to ensure these important recreational corridors are not interrupted. The WisDOT project manager noted that proposed park and rides in the Preferred Build Alternative could also include trail heads.

[5] Based on total VMT obtained from Sheboygan Area MPO conformity analysis in the 2013-2016 TIP

Expert panelists indicated, and the ICE study team agrees, that the extension of the Old Plank Road Trail from Plymouth to Fond du Lac will be a positive impact of the Preferred Build Alternative. As proposed under the Preferred Build Alternative, the Old Plank Road Trail will connect with the 7-mile Prairie Trail in Fond du Lac which is part of a larger system of trails to link the Peebles Trail and the Wild Goose Trail in Dodge County. Panelists also indicated the Preferred Build Alternative will result in safer and more efficient access to trails which will provide economic benefits for communities with trail access. While the trail network is anticipated to be improved in the study area, expert panel members and the ICE study team do not anticipate new land development associated with the expanded trail network.

The Niagara Escarpment Network is in the process of developing a Niagara Escarpment Greenway Plan which will include a future north-south hiking trail along the escarpment that will cross the WIS 23 corridor. Extension of the Old Plank Road Trail under the Preferred Build Alternative would connect with this and other future trails, improving the regional trail network.

(10) Environmental Justice Populations

Minority and low income populations are located at the ends of the ICE study are in the cities of Plymouth and Fond du Lac. Several census tracks throughout the ICE study area also have a greater proportion of elderly individuals (i.e., age 65+) when compared to county averages.

The ICE study team determined that environmental justice populations will not be disproportionately adversely impacted by the Preferred Build Alternative. The most substantial changes to access in the Preferred Build Alternative occur in the town of Greenbush near the villages of Glenbeulah and Elkhart Lake. However, there are no concentrations of environmental justice populations in this area. A variety of less substantial access restrictions are proposed along other points in the corridor which may make access somewhat less convenient and trips slightly longer for the concentrations of elderly population in the central part of the ICE study area in the towns of Marshfield and Forest and the villages of Mount Calvary and St. Cloud. However, such access restrictions are likely to be offset by reduced highway congestion and safer conditions under the Preferred Build Alternative.

6. Assess Consequences and Identify Mitigation Activities.

The indirect effects analysis indicates the predominant consequence of indirect effects from the Preferred Build Alternative is the potentially increased pace of development that could occur outside the urban centers as a result of improved safety and increased mobility on WIS 23. Since most of the sensitive resources in the ICE study area are located in nonurban areas, the consequence of the indirect effect of rural development includes adverse impacts on agricultural land, water quality, and upland habitat, which are not protected to the same extent as wetlands.

NEPA does not specifically require substantive mitigation for project impacts: direct, indirect, or cumulative. The CEQ regulations require that the environmental impacts statement include consideration and discussion of possible mitigation for project impacts (40 CFR §§ 1502.14((f), 1502.16(e-h), 1505.2(c), 1508.25(b)(3)).[6]

Questions 19a. and 19b. of the *CEQ 40 Questions and Answers* provide additional guidance on mitigation to be addressed and documented in a NEPA document.

> "*The mitigation measures discussed in an EIS must cover the range of impacts of the proposal. The measures must include such things as design alternatives that would decrease pollution emissions, construction impacts, esthetic intrusion, as well as relocation assistance, possible land use controls that could be enacted, and other possible efforts."*
>
> *"All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies, and thus would not be committed to as part of the RODs of these agencies. This will serve to alert agencies or officials who can implement these extra measures, and will*

[6] http://www.environment.fhwa.dot.gov/projdev/qaimpact.asp accessed on June 2013

encourage them to do so. To ensure that environmental effects of a proposed action are fairly assessed, the probability of the mitigation measures being implemented must also be discussed. Thus the EIS and the Record of Decision should indicate the likelihood that such measures will be adopted or enforced by the responsible agencies."

Provisions regarding FHWA's legal responsibility and authority for mitigating project impacts are found in FHWA's Environmental regulations Section 771.105(d):

"Measures necessary to mitigate adverse impacts will be incorporated into the action and are eligible for Federal funding when the Administration determines that:

1. *The impacts for which the mitigation is proposed actually result from the Administration action; and*

2. *The proposed mitigation represents a reasonable public expenditure after considering the impacts of the action and the benefits of the proposed mitigation measures. In making this determination, the Administration will consider, among other factors, the extent to which the proposed measures would assist in complying with a Federal statute, Executive Order, or Administration regulation or policy."*

It is important that we understand how mitigation is defined in the NEPA process. Replacement or compensation is the last of a sequence of considerations that constitute the overall mitigation expectation of the CEQ regulations (40 CFR § 1508.20). Mitigation includes avoidance and minimization of project impacts first. This hierarchy is often referred to as "sequencing" and means that impact avoidance and minimization measures should be considered early and as an integral component of the alternatives development and analysis process. Replacement or compensation for impacts are intended primarily to deal with residual impacts that cannot be avoided or minimized.

The following paragraphs summarize project sequencing as it pertains to all impacts, direct, indirect, and cumulative.

a. Avoidance Measures

(1) Corridor Selection

In the development, evaluation, and screening of alternative corridors, WisDOT considered both the direct environmental impacts of the corridor alternatives as well as the indirect and cumulative effects. The consideration of direct, indirect, and cumulative effects led to the selection of the on-alignment corridor, Alternative 1, as the Preferred Alternative. The selection of Alternative 1 had the following effects:

(a) It reduced the quantity of direct impacts to farmland, wetlands, and uplands.

(b) It reduced the number of severed farm parcels and the amount of farmland required. Farm severances make agriculture less sustainable and can lead to a reduction in farming activities and the conversion of severed parcels to other land uses (an indirect effect). Alternative 1 had the least amount of farm severances and cropland required.

(c) It reduced the amount of roadway lane mileage associated with WIS 23 improvements. Selection of an off-alignment corridor would have increased lane mileage because new bypass lanes would be constructed in addition to the existing WIS 23 lanes. Alternative 1 would have about a third less pavement than some off-alignment alternatives. Additional lane mileage has direct environmental effects, such as degraded water quality, induced traffic, the corresponding air quality impacts, and severance of natural communities. Selection of Alternative 1 avoided the impacts that would have occurred with additional lane mileage of the off-alignment alternatives.

(d) It avoided potential residential and commercial development from occurring along an off-alignment corridor (an indirect effect). This included avoiding the corresponding environmental impacts that would have been associated with this development.

In addition to the selection of Alternative 1 as the Preferred Build Alternative, WisDOT also selected the No Corridor Preservation Option for the US 151/WIS 23 connection. By not preserving lands for a future system interchange, WisDOT avoided potential indirect effects to properties adjacent to the options. The avoided indirect effects included decreased marketability of parcels and potentially reduced investment and reinvestment in affected properties.

(2) Preferred Alternative Features

WisDOT seeks to incorporate design components and features into the Preferred Alternative that minimize the adverse effects of the potential project. Many of these components address direct effects, but they also have regional influence. The WIS 23 Preferred Project incorporates a 16-mile extension of the Old Plank Road Trail. This extension enhances the ability of WIS 23 to serve nonmotorized modes of transportation and offsets potential negative project effects to nonmotorized modes.

b. Minimization Measures

WisDOT implements access management on roadways and access points along state highways. The implementation of access management can affect the development potential of properties served by that project (an indirect effect). In implementing access management, WisDOT seeks not to restrict or impede existing land uses but seeks to prevent traffic from potential future development from negatively impacting highway operations. By implementing access restrictions, new development, particularly commercial development, is less likely to occur near the access restriction. Similarly, by permitting access, development is able to occur in planned locations and at higher densities. The WIS 23 Preferred Alternative incorporates access management, which is detailed in Table 2.7-1 of this LS SFEIS/ROD for the project. Of the current 42 full-access intersections, the Preferred Alternative incorporates 7 cul-de-sacs, 14 right-in/right-out access restrictions, 11 J-turn access restrictions, and 3 interchanges/jug-handle. While providing sufficient local access, these access restrictions will have the effect of directing development away from rural intersections with less access toward intersections with more access.

c. Mitigation Measures

Mitigation for direct effects includes wetland mitigation, the provision of a grade-separated crossing for the Ice Age Trail/State Equestrian Trail, the replacement of forest land to the Northern Unit of the Kettle Moraine State Forest, and data recovery for the Sippel Archaeological site. Other than access management, no direct mitigation measures are proposed that specifically target indirect effects.

d. Avoidance, Minimization, and Mitigation Measures Outside of WisDOT's and FHWA's Jurisdiction.

Although neither WisDOT nor FHWA has jurisdiction over local land use policy and, or decisions, the project team has identified several avoidance, minimization, and mitigation measures that may further reduce indirect and cumulative impacts if implemented by other entities. They are identified here for consideration by the appropriate outside entities. Policy choices by local governments regarding planning and existing and future land use regulations can play a large role in either facilitating or minimizing potential indirect effects of the WIS 23 project. Local jurisdictions through land use policies and decisions have a greater influence on other actions that contribute to indirect effects. Land use tools available to local jurisdictions commonly used to avoid and reduce impacts to resources include the following:

(a) Comprehensive Planning. Wisconsin law requires communities that wish to regulate land adopt a comprehensive plan to guide local land use decisions. These decisions—for example, the location, type, quantity and character of development, protection of agricultural lands and natural resources, local utilities and community facilities, and economic development initiatives—are closely related to impacts analyzed in this report. Comprehensive plans may be amended from time to time and are required to undergo a complete update every ten years.

(b) Zoning. A zoning ordinance and map can be used to determine appropriate locations and other regulations for specific land uses. For example, zoning land for exclusive agricultural use can help ensure that it will not be developed for nonagricultural uses until zoning policies have changed or a rezoning has occurred. Overlay zoning above and beyond state and federal regulations for natural resource features, such as isolated wetlands, uplands woodlands, shorelands, steep slopes, drainageways, habitat areas, and historic sites, may also be adopted by local jurisdictions. According to state law, zoning ordinances and maps are required to be consistent with the local comprehensive plan.

(c) Land Division. Land division ordinances must also be consistent with the local comprehensive plan under state law. These ordinances determine the manner in which land may be divided, design standards, types of public improvements needed to serve development, access control at time of land division, and, in conjunction with the zoning ordinance, the development density.

(d) Extraterritorial Jurisdiction. Wisconsin Statutes specifically allow cities and villages to prepare plans for and to regulate land divisions within their extraterritorial jurisdictions in unincorporated (township) areas. Such extraterritorial powers can help reduce development in agricultural areas and can help ensure that that when development does occur, it can be developed in a manner consistent with local zoning and the comprehensive plan.

(e) Official Mapping. Official mapping is a plan implementation tool authorized under Wisconsin Statutes for adoption as an ordinance by cities, villages, and towns. These maps may be used to show alignments of future roads, expanded right of way for existing roads, and other planned public facilities, such as parks and trails. When land development is proposed in an area with a planned facility as depicted on the official map, the municipality may obtain or reserve land for that future facility through public dedication, public purchase, or reservation for future purchase.

(f) Conservation Easements. Purchase of agricultural or conservation easements to prohibit development are voluntary and allow the landowner to be compensated for limiting the development potential of the land. Conservation easements are permanent and are carried over to subsequent landowners when the property is sold.

(g) Urban Service Area. In Wisconsin, urban service area boundaries around municipalities may be legally extended (e.g., public sewer and water). Urban service areas are useful in managing the location and timing of urban and suburban growth.

(h) Tax Increment Financing (TIF). Communities may utilize TIF to fund public improvements that would otherwise not occur without the use of TIF. Local governments may adopt TIF districts to direct development and redevelopment to specific locations in a community. Typically, these are compact areas served by public utilities.

(i) Stormwater Best Management Practices (BMP). Traditional stormwater management practices attempt to carry water away from a developed site as quickly as possible after a storm or are designed to hold water on-site in constructed ponds. Alternatively, BMPs aim to control runoff by managing precipitation as close to where it hits the ground as possible, thereby facilitating infiltration of precipitation into groundwater and evaporation of water back into the atmosphere. This approach decreases peak stormwater quantities and improves the overall quality of the stormwater that does enter streams and lakes. The severity of water quality impacts is dependent on the magnitude and duration of upstream hydrologic events including sediment inputs, flooding, and land use change. However, these impacts may be minimized through local and county stormwater ordinances and BMP. BMPs will be administered both in the design of the roadway and during construction. WisDOT through Trans 401, Wisconsin Administrative Code and the WisDOT/WDNR Cooperative Agreement will comply with the substantive requirements of Chapter 147, Wisconsin Statutes, Wisconsin Pollutant Discharge Elimination System (WPDES).

e. Monitoring and Evaluation of Indirect Effects

Section 6 of this LS SFEIS/ROD contains the commitments to mitigation and monitoring regarding effects of the Preferred Alternative. It includes continued coordination with WDNR regarding threatened and endangered species, commitments regarding archaeological and historic sites, wetland monitoring, as well as measures to offset impacts to Section 4(f) properties. WisDOT and FHWA will work within their jurisdictional limitations to minimize adverse indirect effects. These efforts will be primarily associated with the roadway project corridor and are primarily limited to the duration of the construction project. Local communities and state agencies with jurisdiction in the study area will have the ability to monitor and evaluate impacts on land and resources on a long-term basis. Communities have the ability to approve or not approve development proposals and can influence the pace of development for years after WIS 23 improvements are completed. Other agencies with federal authority, such as the US EPA and US Army Corps of Engineers, also have the authority to monitor impacts to natural resources such as floodplains, wetlands, and water quality.

Figures 4.4-3 to 4.4-6a show the locational effects of possibly increased pace of development from the indirect effects analysis. Substantive comments from members of the expert panel are noted in comment bubbles in these figures.

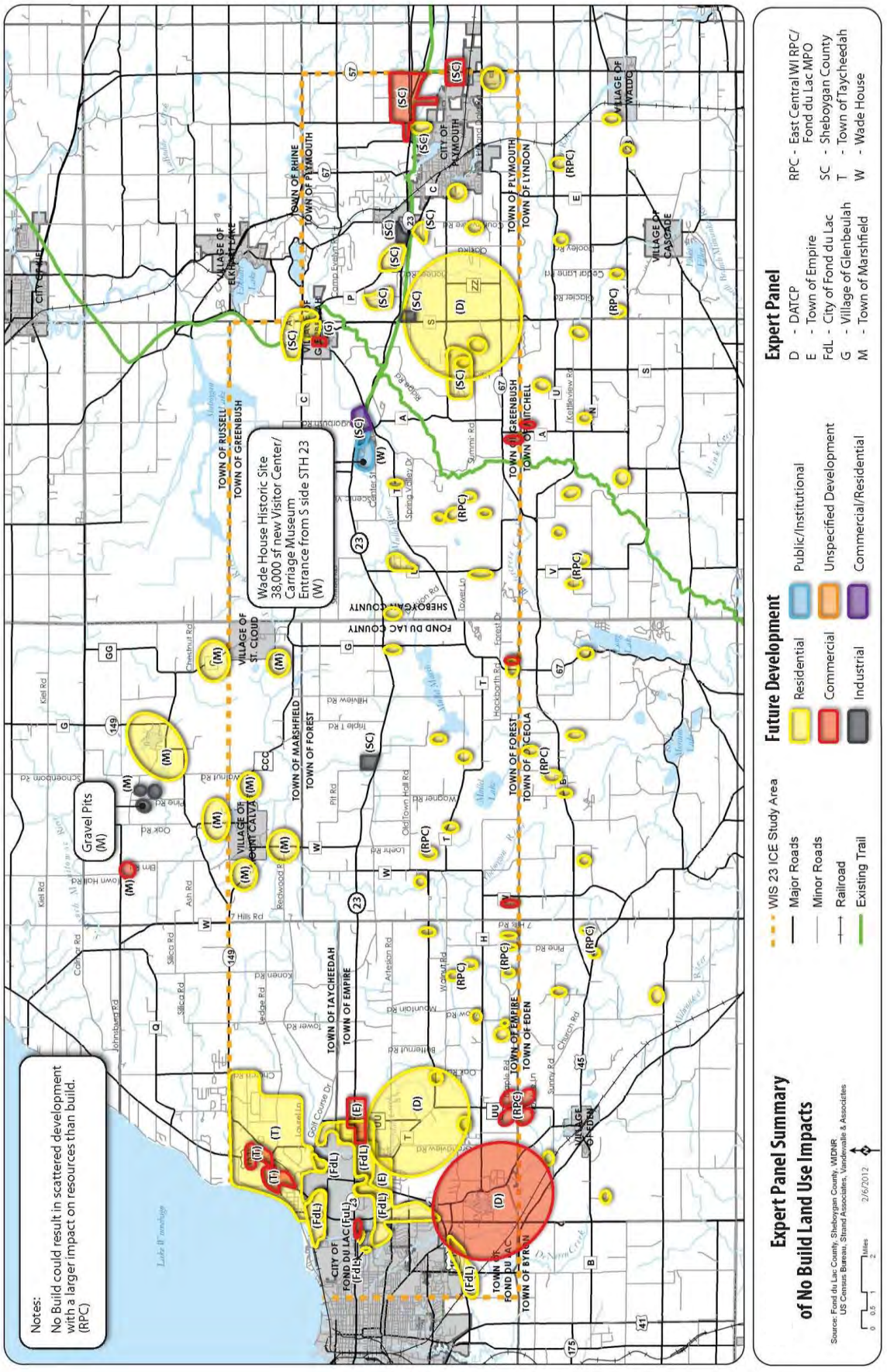

Notes:
No Build could result in scattered development with a larger impact on resources than build. (RPC)
Wade House Historic Site
38,000 sf new Visitor Center/ Carriage Museum
Entrance from S side STH 23 (W)
Gravel Pits (M)
Expert Panel Summary of No Build Land Use Impacts
WIS 23 ICE Study Area
Major Roads
Minor Roads
Railroad
Existing Trail
Future Development
Residential
Commercial
Industrial
Public/Institutional
Unspecified Development
Commercial/Residential
Expert Panel
D - DATCP
E - Town of Empire
FdL - City of Fond du Lac
G - Village of Glenbeulah
M - Town of Marshfield
RPC - East Central WI RPC/ Fond du Lac MPO
SC - Sheboygan County
T - Town of Taycheedah
W - Wade House
Source: Fond du Lac County, Sheboygan County, WIDNR, US Census Bureau, Strand Associates, Vandewalle & Associates
2/6/2012

Figure 4.4-3

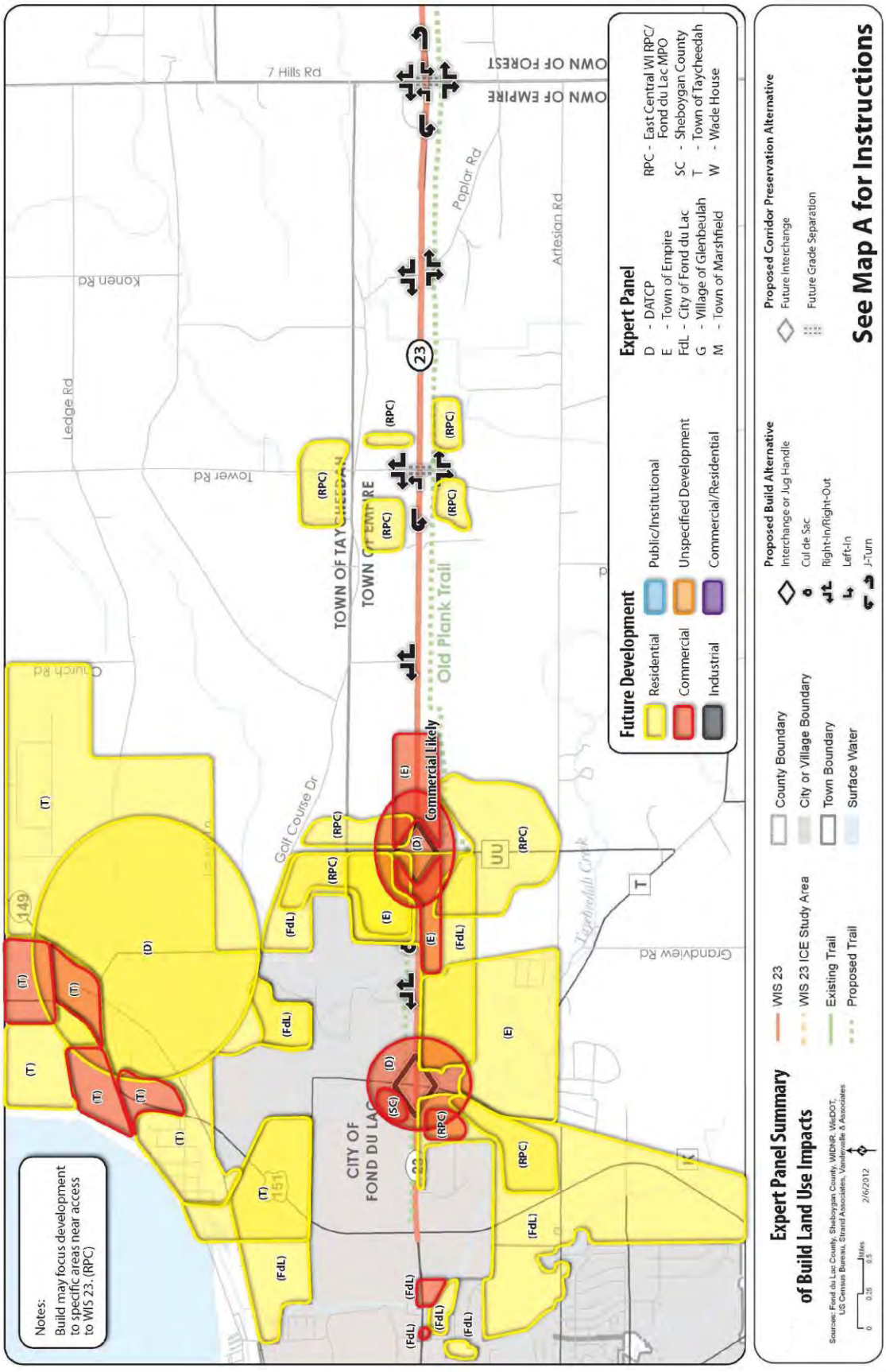

Expert Panel Summary of Build Land Use Impacts
See Map A for Instructions
Notes:
Build may focus development to specific areas near access to WIS 23. (RPC)
Future Development
Residential
Commercial
Industrial
Public/Institutional
Unspecified Development
Commercial/Residential
Expert Panel
D - DATCP
E - Town of Empire
FdL - City of Fond du Lac
G - Village of Glenbeulah
M - Town of Marshfield
RPC - East Central WI RPC/ Fond du Lac MPO
SC - Sheboygan County
T - Town of Taycheedah
W - Wade House
Proposed Build Alternative
Interchange or Jug Handle
Cul de Sac
Right-In/Right-Out
Left-In
J-Turn
Proposed Corridor Preservation Alternative
Future Interchange
Future Grade Separation
WIS 23
WIS 23 ICE Study Area
Existing Trail
Proposed Trail
County Boundary
City or Village Boundary
Town Boundary
Surface Water
Old Plank Trail
Commercial Likely
CITY OF FOND DU LAC
TOWN OF TAYCHEEDAH
TOWN OF EMPIRE
TOWN OF FOREST
7 Hills Rd
Poplar Rd
Artesian Rd
Ledge Rd
Tower Rd
Koonen Rd
Church Rd
Golf Course Dr
Grandview Rd
Sources: Fond du Lac County, Sheboygan County, WIDNR, WisDOT, US Census Bureau, Strand Associates, Vandewalle & Associates
2/6/2012

Figure 4.4-4a

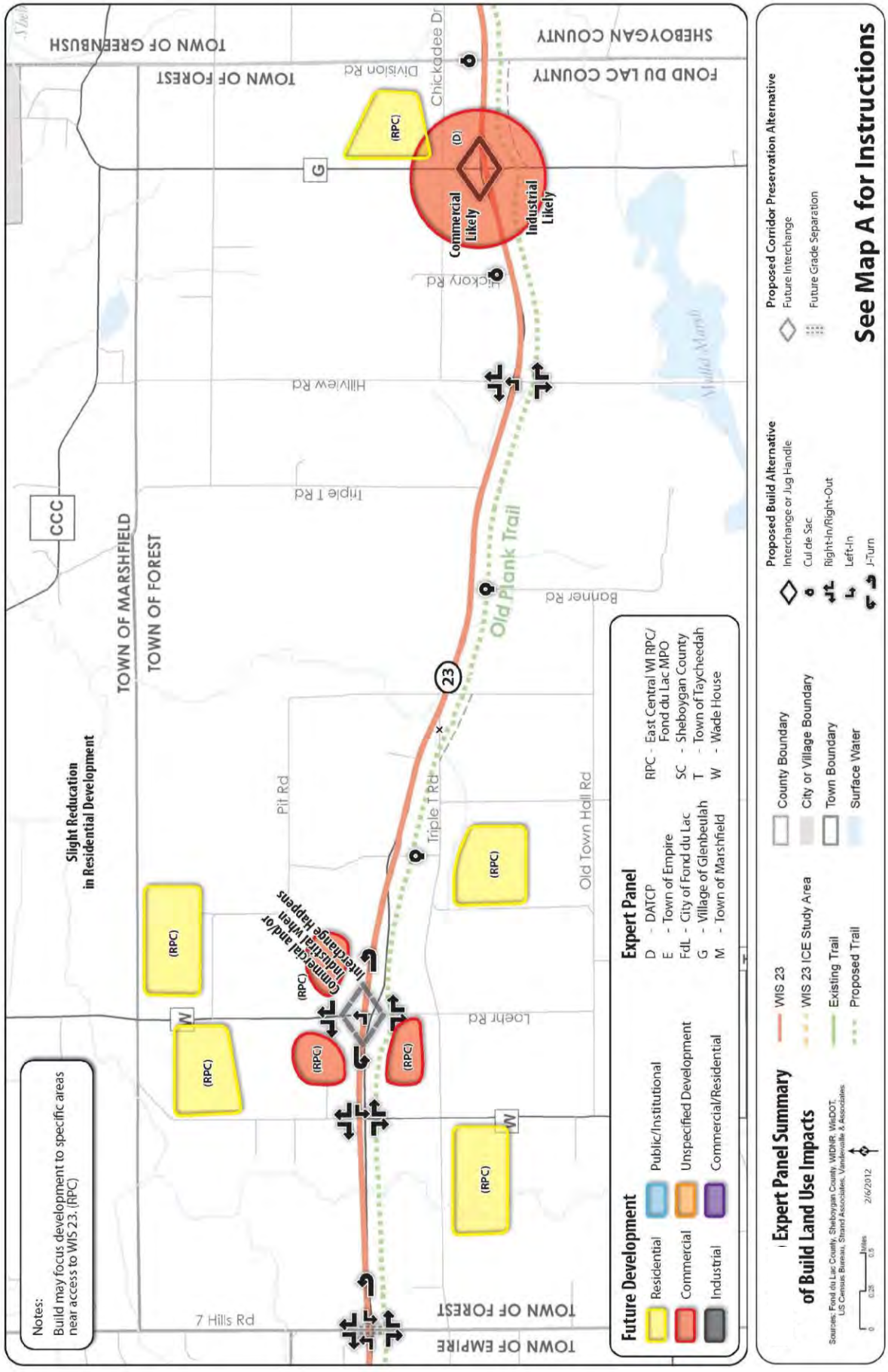

Notes:
Build may focus development to specific areas near access to WIS 23. (RPC)
Slight Reducation in Residential Development
Commercial and/or Industrial when Interchange Happens
Future Development
Residential
Commercial
Industrial
Public/Institutional
Unspecified Development
Commercial/Residential
Expert Panel
D - DATCP
E - Town of Empire
FdL - City of Fond du Lac
G - Village of Glenbeulah
M - Town of Marshfield
RPC - East Central WI RPC/ Fond du Lac MPO
SC - Sheboygan County
T - Town of Taycheedah
W - Wade House
Expert Panel Summary of Build Land Use Impacts
Sources: Fond du Lac County, Sheboygan County, WIDNR, WisDOT, US Census Bureau, Strand Associates, Vandewalle & Associates
2/6/2012
WIS 23
WIS 23 ICE Study Area
Existing Trail
Proposed Trail
County Boundary
City or Village Boundary
Town Boundary
Surface Water
Proposed Build Alternative
Interchange or Jug Handle
Cul de Sac
Right-In/Right-Out
Left-In
J-Turn
Proposed Corridor Preservation Alternative
Future Interchange
Future Grade Separation
See Map A for Instructions
TOWN OF GREENBUSH
TOWN OF FOREST
SHEBOYGAN COUNTY
FOND DU LAC COUNTY
TOWN OF MARSHFIELD
TOWN OF FOREST
TOWN OF EMPIRE
CCC
Division Rd
Chickadee Dr
Hickory Rd
Hillview Rd
Triple T Rd
Bonner Rd
Old Plank Trail
Pit Rd
Triple T Rd
Old Town Hall Rd
Loehr Rd
7 Hills Rd
Commercial Likely
Industrial Likely
(RPC)
(D)
23
G
M
W

Figure 4.4-4b

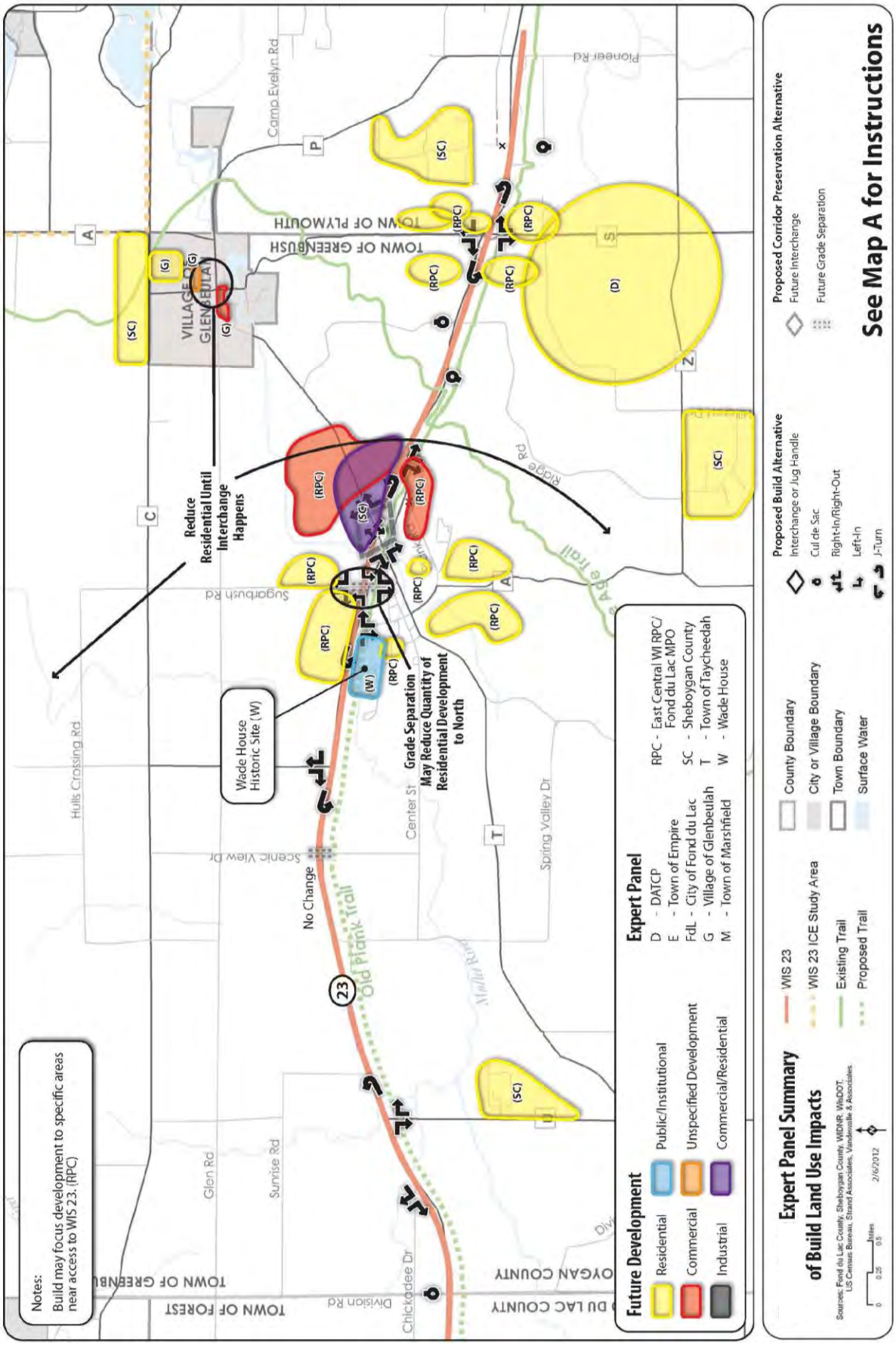

Expert Panel Summary of Build Land Use Impacts
Sources: Fond du Lac County, Sheboygan County, WIDNR, WisDOT, US Census Bureau, Strand Associates, Vandewalle & Associates
2/6/2012
WIS 23
WIS 23 ICE Study Area
Existing Trail
Proposed Trail
County Boundary
City or Village Boundary
Town Boundary
Surface Water
Proposed Build Alternative
Interchange or Jug Handle
Cul de Sac
Right-In/Right-Out
Left-In
J-Turn
Proposed Corridor Preservation Alternative
Future Interchange
Future Grade Separation
See Map A for Instructions
Future Development
Residential
Commercial
Industrial
Public/Institutional
Unspecified Development
Commercial/Residential
Expert Panel
D - DATCP
E - Town of Empire
FdL - City of Fond du Lac
G - Village of Glenbeulah
M - Town of Marshfield
RPC - East Central WI RPC/ Fond du Lac MPO
SC - Sheboygan County
T - Town of Taycheedah
W - Wade House
Notes:
Build may focus development to specific areas near access to WIS 23. (RPC)
Reduce Residential Until Interchange Happens
Wade House Historic Site (W)
Grade Separation May Reduce Quantity of Residential Development to North
No Change
TOWN OF GREENBUSH
TOWN OF PLYMOUTH
VILLAGE OF GLENBEULAH
TOWN OF FOREST
SHEBOYGAN COUNTY
FOND DU LAC COUNTY
Camp Evelyn Rd
Pioneer Rd
Sugarbush Rd
Hulls Crossing Rd
Scenic View Dr
Center St
Spring Valley Dr
Ridge Rd
Glen Rd
Sunrise Rd
Division Rd
Chickadee Dr
Old Plank Trail
Ice Age Trail

Figure 4.4-4c

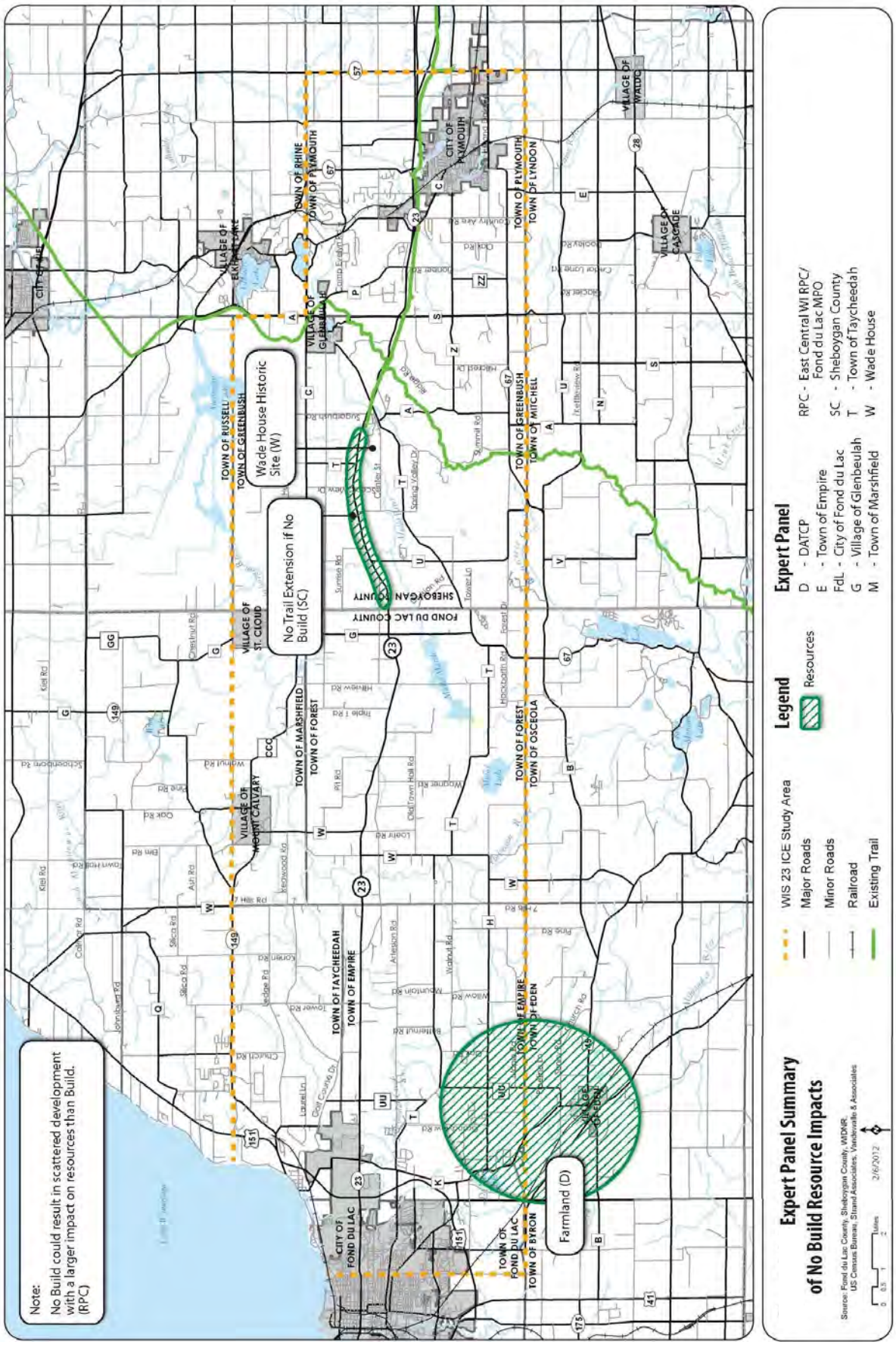

Note:
No Build could result in scattered development with a larger impact on resources than Build. (RPC)
Wade House Historic Site (W)
No Trail Extension if No Build (SC)
Farmland (D)
Expert Panel Summary of No Build Resource Impacts
Source: Fond du Lac County, Sheboygan County, WDNR, US Census Bureau, Strand Associates, Vandewalle & Associates
2/6/2012
Legend
WIS 23 ICE Study Area
Major Roads
Minor Roads
Railroad
Existing Trail
Resources
Expert Panel
D - DATCP
E - Town of Empire
FdL - City of Fond du Lac
G - Village of Glenbeulah
M - Town of Marshfield
RPC - East Central WI RPC/ Fond du Lac MPO
SC - Sheboygan County
T - Town of Taycheedah
W - Wade House

Figure 4.4-5

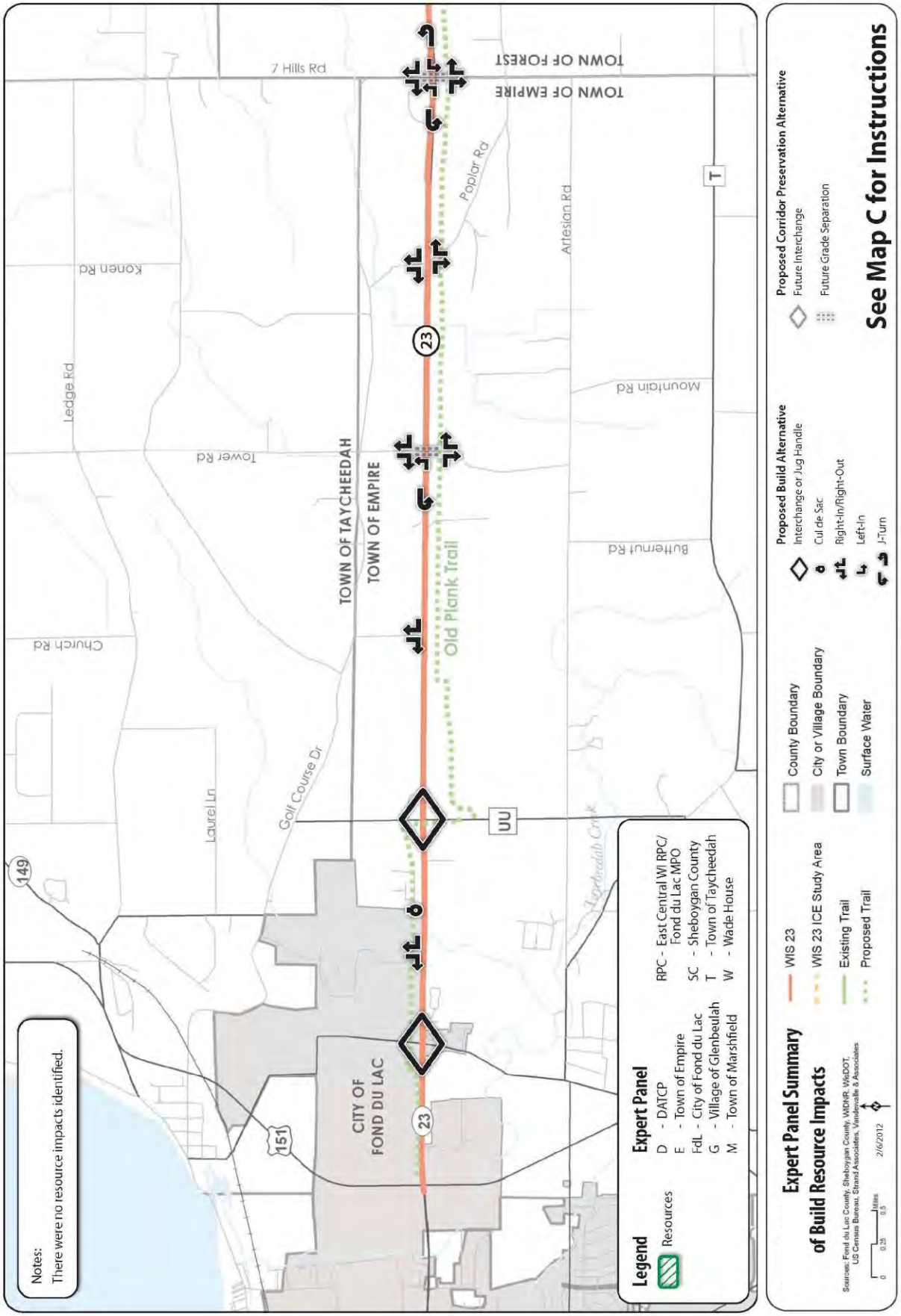

Notes:
There were no resource impacts identified.
Legend
Resources
Expert Panel
D - DATCP
E - Town of Empire
FdL - City of Fond du Lac
G - Village of Glenbeulah
M - Town of Marshfield
RPC - East Central WI RPC/ Fond du Lac MPO
SC - Sheboygan County
T - Town of Taycheedah
W - Wade House
CITY OF FOND DU LAC
TOWN OF TAYCHEEDAH
TOWN OF EMPIRE
TOWN OF FOREST
TOWN OF EMPIRE
7 Hills Rd
Poplar Rd
Artesian Rd
Mountain Rd
Buttermut Rd
Old Plank Trail
Golf Course Dr
Laurel Ln
Tower Rd
Ledge Rd
Koneen Rd
Church Rd
Tayebeulah Creek
149
151
23
23
UU
T
Expert Panel Summary of Build Resource Impacts
Sources: Fond du Lac County, Sheboygan County, WDNR, WisDOT, US Census Bureau, Strand Associates, Vandewalle & Associates
0 0.25 0.5 Miles
2/6/2012
WIS 23
WIS 23 ICE Study Area
Existing Trail
Proposed Trail
County Boundary
City or Village Boundary
Town Boundary
Surface Water
Proposed Build Alternative
Interchange or Jug Handle
Cul de Sac
Right-In/Right-Out
Left-In
J-Turn
Proposed Corridor Preservation Alternative
Future Interchange
Future Grade Separation
See Map C for Instructions

Figure 4.4-6a

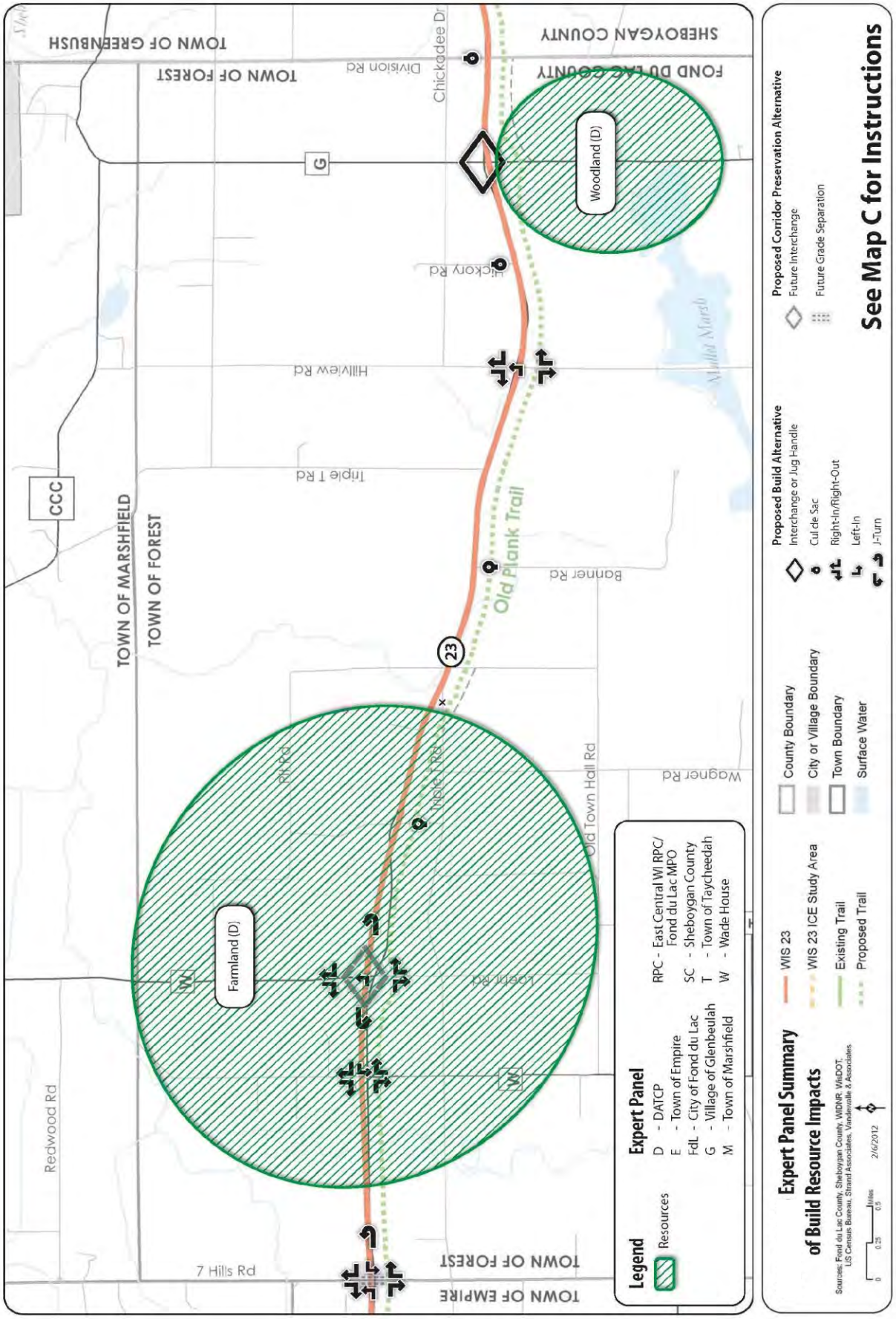

TOWN OF GREENBUSH
TOWN OF FOREST
SHEBOYGAN COUNTY
FOND DU LAC COUNTY
TOWN OF MARSHFIELD
TOWN OF FOREST
TOWN OF FOREST
TOWN OF EMPIRE
Division Rd
Chickadee Dr
Hickory Rd
Hillview Rd
Triple T Rd
Banner Rd
Old Plank Trail
Old Town Hall Rd
Wagner Rd
Loehl Rd
Rill Rd
Redwood Rd
7 Hills Rd
CCC
G
23
W
Woodland (D)
Farmland (D)
Legend
Resources
Expert Panel
D - DATCP
E - Town of Empire
FdL - City of Fond du Lac
G - Village of Glenbeulah
M - Town of Marshfield
RPC - East Central WI RPC/ Fond du Lac MPO
SC - Sheboygan County
T - Town of Taycheedah
W - Wade House
Expert Panel Summary of Build Resource Impacts
WIS 23
WIS 23 ICE Study Area
Existing Trail
Proposed Trail
County Boundary
City or Village Boundary
Town Boundary
Surface Water
Proposed Build Alternative
Interchange or Jug Handle
Cul de Sac
Right-In/Right-Out
Left-In
J-Turn
Proposed Corridor Preservation Alternative
Future Interchange
Future Grade Separation
See Map C for Instructions
Sources: Fond du Lac County, Sheboygan County, WIDNR, WisDOT, US Census Bureau, Strand Associates, Vandewalle & Associates
Miles
2/6/2012

Figure 4.4-6b

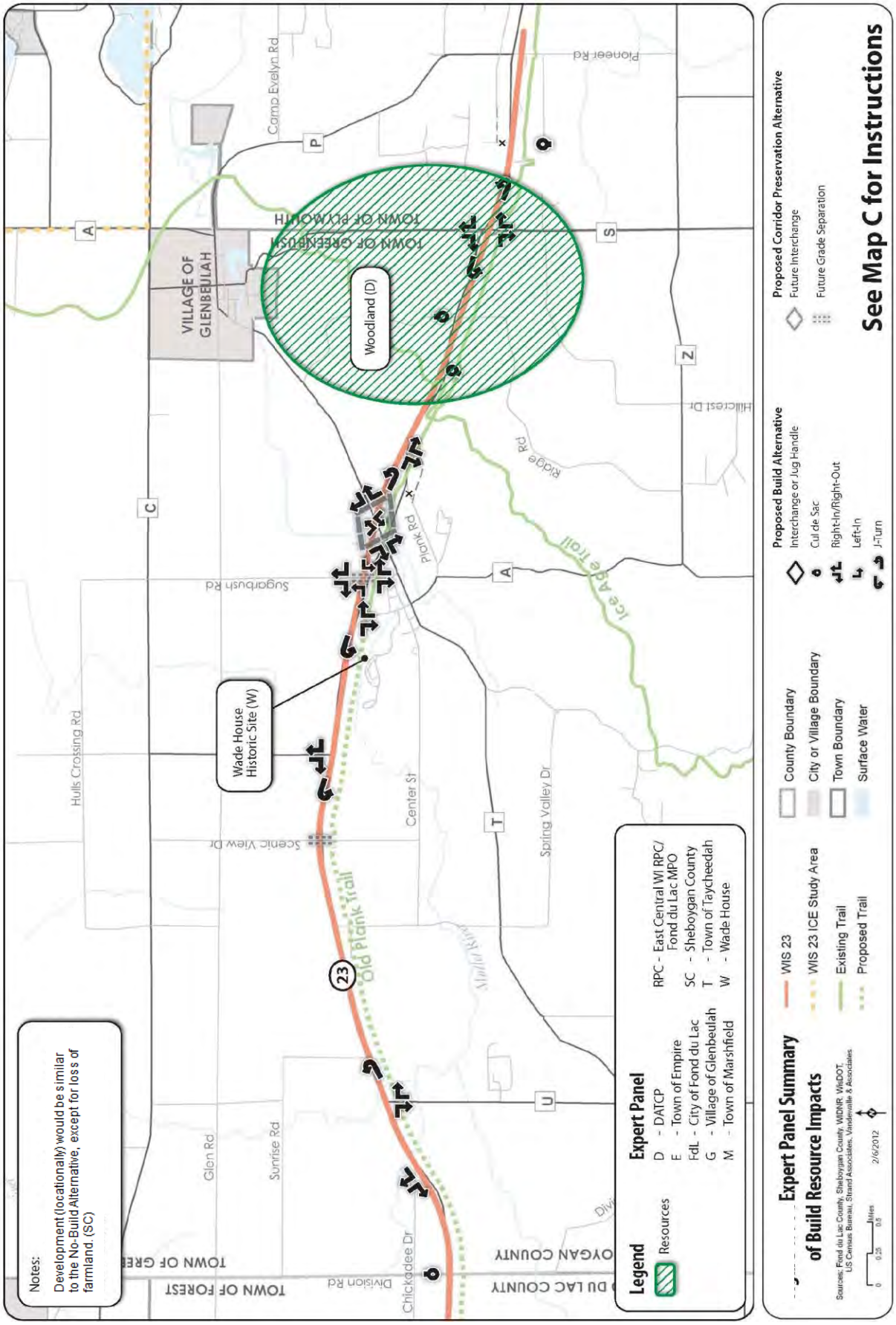

Expert Panel Summary of Build Resource Impacts
See Map C for Instructions
Proposed Build Alternative
Interchange or Jug Handle
Cul de Sac
Right-In/Right-Out
Left-In
J-Turn
Proposed Corridor Preservation Alternative
Future Interchange
Future Grade Separation
County Boundary
City or Village Boundary
Town Boundary
Surface Water
WIS 23
WIS 23 ICE Study Area
Existing Trail
Proposed Trail
Legend
Resources
Expert Panel
D - DATCP
E - Town of Empire
FdL - City of Fond du Lac
G - Village of Glenbeulah
M - Town of Marshfield
RPC - East Central WI RPC/ Fond du Lac MPO
SC - Sheboygan County
T - Town of Taycheedah
W - Wade House
Notes:
Development (locationally) would be similar to the No-Build Alternative, except for loss of farmland. (SC)
Woodland (D)
Wade House Historic Site (W)
VILLAGE OF GLENBEULAH
TOWN OF GREENBUSH
TOWN OF PLYMOUTH
TOWN OF FOREST
DU LAC COUNTY
OYGAN COUNTY
Old Plank Trail
Ice Age Trail
Camp Evelyn Rd
Pioneer Rd
Sugarbush Rd
Hulls Crossing Rd
Scenic View Dr
Center St
Spring Valley Dr
Plank Rd
Ridge Rd
Hillcrest Dr
Glen Rd
Sunrise Rd
Division Rd
Chickadee Dr
Miller Run
Sources: Fond du Lac County, Sheboygan County, WIDNR, WisDOT, US Census Bureau, Strand Associates, Vandewalle & Associates
2/6/2012

Figure 4.4-6c

B. Cumulative Effects Analysis

Cumulative effects are defined as "impact[s] on the environment which results from the incremental impact of the action when added to other past, present, and reasonably forseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." Figure 4.4-7 illustrates how project effects combine with other actions unrelated to the highway project to produce a cumulative effect.

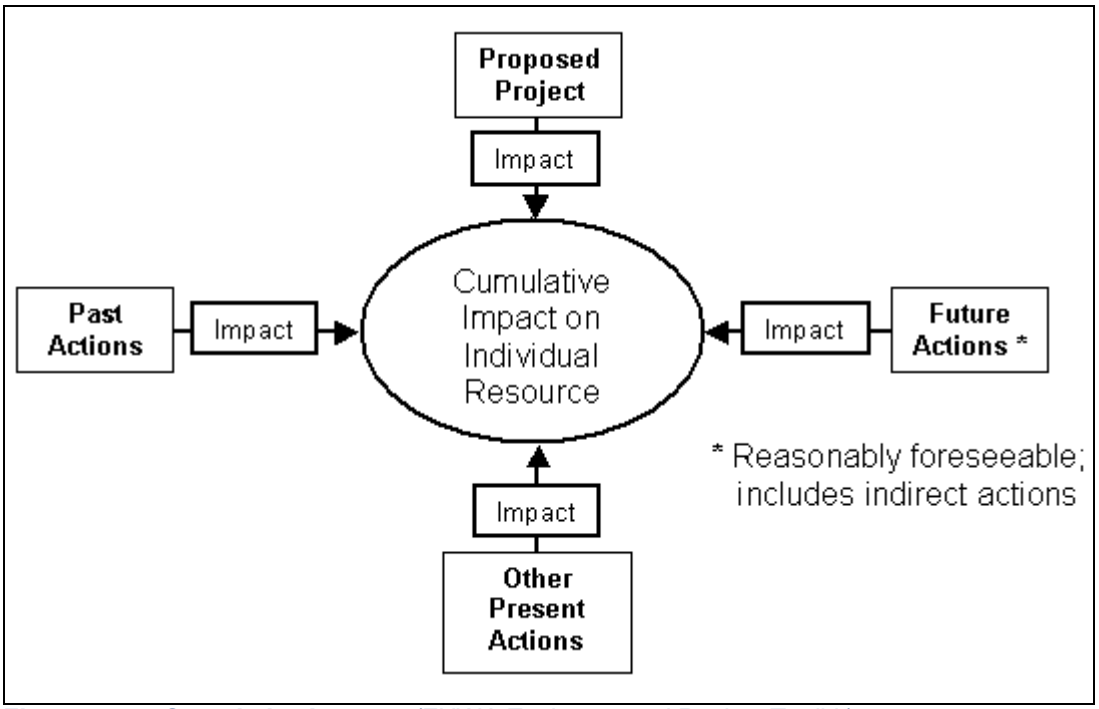


Figure 4.4-7 Cumulative Impacts (FHWA Environmental Review Toolkit)

The project team performed a qualitative assessment of the potential cumulative effects of the Preferred Build Alternative along with the Preferred Corridor Preservation Alternatives. The analysis considered these project effects when combined with activities that have occurred upon a resource in the ICE study area in the recent past, those that are presently underway, and those that may be reasonably foreseen. The cumulative effect analysis was updated from the one presented in the 2010 FEIS in that more recently available information was included, updated direct impacts were referenced, the 2012 opinions of the expert panel were incorporated, and trends were referenced to suggest the significance of the impact.

Methodology

The Council on Environmental Quality's "Eleven-Step" Process (referenced in the WisDOT's "Guidance for Conducting an Indirect Effects Analysis") was used to conduct the WIS 23 cumulative impacts analysis.

Scoping for the cumulative effects analysis

1. Identify the significant issues associated with the proposed action and define the assessment.
2. Establish geographic scope for the analysis.
3. Establish time frame for analysis (into future).
4. Identify other actions affecting the natural, historic, cultural resources, ecosystems and human communities of concern.

Describing the affected environment

5. Characterize resources identified in scoping in terms of their response to change and capacity to withstand stress.
6. Characterize the stresses affecting these resources and their relation to regulatory thresholds.
7. Define a baseline condition for the resources.

8. Determining the environmental consequences
9. Identify the important cause and effect relationships between human activities including the proposed project and resources.
10. Determine the magnitude and significance of cumulative effects to those resources identified in the analysis.
11. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.
12. Monitor the cumulative effects of the selected alternative and adapt management.

These steps and the analysis associated with each are presented below.

1. Issues Associated with the Proposed Build Action and Corridor Preservation Alternatives

The study team collected and compiled an inventory of local and regional trend data including population and housing trends and projections; income, labor force, industries, and commuting patterns; agricultural resources; natural resources; land use and development patterns; archaeological and historical resources; and local, county, regional, and state plans and regulations. These notable features were selected based on guidance from WisDOT's Guidance for Conducting an Cumulative Effects Analysis (2007) as well as a determination by the study team that they were relevant to the analysis. This information has been compiled and is included in Appendix C. Information from the inventory was considered in the preparation of the cumulative effects analysis. This analysis will address the following resources, which have been identified as being directly and/or indirectly impacted.

a. Development Patterns
b. Agricultural Land
c. Wetlands
d. Water Quality
e. Upland Habitat
f. Threatened and Endangered Species
g. Historic and Archeological Resources
h. Air Quality
i. Trails
j. Environmental Justice Populations

2. Geographic Scope

The ICE study area for this cumulative effects analysis encompasses the same area used for the indirect effects analysis (see Figure 4.4-1). Land use planners on the study team interacted with staff planners from Fond du Lac County, Sheboygan County, and East Central Wisconsin Planning Commission to determine the likely range of influence from the WIS 23 corridor. Beyond the ICE study area, the influence of WIS 23 diminishes as other arterial corridors provide access to adjacent lands. In some instances in the cumulative effects discussion, countywide impact trends are used for both Fond du Lac and Sheboygan counties. Countywide information was referenced because of its availability (as opposed to town-based information) and because it provided useful information on regional trends as well as the magnitude of effects.

3. Time Frame for Analysis

The time frame for this cumulative effects analysis spans from 10 years prior to the preparation of this analysis to 20 years beyond the preparation of this analysis. This future horizon year corresponds with many of the local community plans that are used to help identify reasonably foreseeable actions in the ICE study area. However, it can be reasonably assumed that the effects identified in this analysis would continue to be valid after 20 years if local policies and regulations remained generally the same. The prior year horizon also acknowledges the completion of proximate transportation projects, such as the Fond du Lac bypass.

4. Other Actions Affecting the Resources, Ecosystems, and Human Communities of Concern

a. Past Actions: The WIS 23 corridor has experienced little change in land use patterns in the past two decades. There are two major roadway projects that were recently completed. The US 151 bypass of Fond du Lac located at the west end of the corridor (construction in

2005-2008) and WIS 23 Coary Lane to County O/OJ (construction in 2003-2005) located on the east end of the corridor. The Fond du Lac bypass project east of US 41 and the WIS 23 project east of Coary Lane lies within the ICE study area. The US 151 Fond du Lac bypass project constructed a 4-lane divided expressway around the south and east sides of the city of Fond du Lac. The WIS 23 project expanded 3 miles of WIS 23 from 2 to 4 lanes near Plymouth WI.

The majority of the ICE study area remains in agricultural use. Over the years, unsewered residential development has occurred in the towns mostly along the WIS 23 corridor. Most concentrated development has occurred within and around cities and villages located in the ICE study area including primarily the cities of Fond du Lac and Plymouth and, to a much lesser extent, the villages of Mount Calvary, Glenbeulah, and St. Cloud. Some industrial development has occurred in the cities of Fond du Lac and Plymouth and some commercial development is sparsely scattered at intersections along the WIS 23 corridor.

The activities of other entities have affected the ICE study area. Local land use policies and decisions have led to the conversion of farmland and woodlands for scattered residential and nonresidential development over the past decades. Table 4.4-6 compares farm data from the 2007 and 2002 Census of Agriculture.

Table 4.4-6 Census of Agriculture Data

	2002 Fond du Lac County	2007 Fond du Lac County	2002 Sheboygan County	2007 Sheboygan County
Number of Farms	1634	1643	1116	1059
Land in Farms (acres)	344,286	335,745	195,248	191,719
Average Farm Size (acres)	211	204	175	181
Total Cropland (acres)	292,255	279,922	166,592	157,607

Incremental development in the ICE study area has also impacted natural resources, particularly the Niagara Escarpment, which is located in the ICE study area (the escarpment brow extends north/south along the eastern periphery of the city of Fond du Lac),[7] and the Kettle Moraine State Forest,[8] which intersects with WIS 23 in the town of Greenbush.

In 2008 the Blue Sky Green Field Wind Energy Center was constructed in Fond du Lac County, Wisconsin. The 10,600-acre wind farm is located in the towns of Calumet and Marshfield in northeast Fond du Lac County and is the largest operating wind farm in Wisconsin.

b. Present and Future Actions: As of December 2012, the following WisDOT studies were being conducted or were near completion in the vicinity of the project ICE study area:

[7] The Niagara Escarpment is the steep face of a 650-mile bedrock ridge that runs from Rochester, New York, across portions of southeastern Canada, and then southward north and west of Lake Michigan to southeastern Wisconsin. In Wisconsin, the escarpment extends for over 230 miles from Door Peninsula to northern Waukesha and Milwaukee counties. In the ICE study area, the Escarpment runs north to south through the center of Fond du Lac County and is a prominent feature near the southeastern shore of Lake Winnebago.

[8] Kettle Moraine State Forest-Northern Unit is a 27,725-acre forest stretching across Sheboygan, Fond du Lac, and Washington counties. Made up of geological formations caused by retreating glaciers, the forest is managed for forestry and outdoor recreation. Textbook examples of glacial landforms are scattered throughout the forest, such as drumlins, kames, eskers, and kettles. Botanically, the forest is quite diversified with nearly 60 species of trees present, together with numerous shrubs, wild flowers, ferns, and other plant life. This state park is comprised mostly of forests and lakes and provides habitat for a diversity of species, including whitetail deer, hawks, turkeys, raccoons, squirrels, and possums. The Kettle Moraine State Forest-Northern Unit is part of the Ice Age National Scientific Reserve established in 1964 to project glacial landforms and landscapes in Wisconsin. The Wade House State Historic Site, situated in Greenbush at the entrance of the Kettle Moraine State Forest, once served as an inn and stopping point for stage coaches traveling on the Fond du Lac-Sheboygan Plank Road.

(1) The WIS 23 Corridor Preservation Study
This study considered alternatives to preserve and map for future conversion a 10-mile section of the WIS 23 corridor between County P and WIS 32 to a freeway to provide greater safety and mobility. This study determined where land acquisitions for frontage roads, overpasses, and interchanges were necessary for such freeway conversion. No construction is planned as a part of this study. Implementation of the improvements will occur as determined by future operational needs.

(2) The US 151 Fond du Lac Bypass Corridor Preservation Study
This study is addressing long-term transportation needs of two segments of the US 151 Fond du Lac bypass between WIS 175 and County WH. The first segment is a 5.2-mile 4-lane divided expressway between WIS 175 and WIS 23. The preservation study will map the right of way needs for the location of future overpasses and interchanges. WisDOT's long-term vision of this segment is an ultimate freeway conversion with increased mobility and traveler safety. The second segment is a 2.9-mile 2-lane highway between WIS 23 and County WH. Right of way was previously acquired along this segment to accommodate a future 4-lane segment. The preservation study for this segment includes a long-term safety and operations evaluation. It is likely three projects will be implemented from this study before the year 2020. These projects include the County V interchange with US 151, the County T overpass over US 151, and improvements to the DuCharme Parkway/US 151 intersection.

(3) US 41 Conversion Study
In the previous federal surface transportation law known as Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the US 41 corridor is recommended for Interstate conversion and is identified as a high priority corridor based on its importance for providing regional, national and international freight and vehicle movements. WisDOT, in consultation with FHWA, is studying potential impacts of converting US 41 from a noninterstate freeway on the NHS to an Interstate Highway between the Zoo Interchange on Interstate 94 (I-94/I-894) in Milwaukee and the US 41/I 43 interchange in Green Bay. The overall study corridor extends through Kenosha, Racine, Milwaukee, Waukesha, Washington, Dodge, Fond du Lac, Winnebago, Outagamie, and Brown counties. A portion of the corridor is aligned with US 45 from the Zoo Interchange to the US 45/41 split in Washington County. New I-41 signage would extend from the US 41/I-94 interchange south of the Wisconsin/Illinois state line, then continue north concurrently with I-94 to the Mitchell Interchange, then northwesterly concurrent with I-894 to the Zoo Interchange. From the Zoo Interchange, the new signing would extend north along US 45 and US 41 through Fond du Lac, the Fox Valley, and Green Bay and end at the I-43 interchange. Because the route from the south terminus to the Zoo Interchange along I-94 and I-894 is already an Interstate highway, that area is not part of the conversion of US 41. However, it is part of the study area since it would be signed consistent with the numbering for the converted section of US 41.

Table 4.4-7 lists the cumulative direct impacts of past, presently planned, and planned future transportation WisDOT projects within the ICE study area.

Table 4.4-7 Cumulative Direct Impacts of Past, Present, and Future Projects

Project (Actual or Planned Construction)	WIS 23 Expansion Coary Lane to County O/OJ (2004-05)	Fond du Lac Bypass (2005-08)	WIS 23 Fond du Lac to Plymouth (2015-18)	US 151 Fond du Lac Bypass (County T, V, DuCharme Improv) (2017?)	Fond du Lac Bypass Corridor Preservation (2035?)	WIS 23 Corridor Preservation (2035?)	US 41 Interstate Conversion	Total
Agricultural Area to R/W (acres)	15	178	225	55.8	98.9	39	0	611.7
Wetlands Filled (acres)	4	4.2	48.1	2.5	27.4	1.7	0	87.9
Upland Habitat Affected (acres)	1	~ 15*	47.9	11.6	0.0	8.5	0	84.0
Total Area Converted to R/W (acres)	18	323	424	148.4	68.6	68	0	1050.0
Residential Relocations	2	2	33	1	3 to 5	3	0	44 to 46
Commercial Relocations	0	1	8 (Bldgs) 10 (Bus)	0	0	2	0	11 (Blds) 13 (Bus)
Farm Relocations	0	0	19	0	1	4	0	24
Ag Severances	0	19	5	0	0	2	0	26

* Area affected estimated by using aerial mapping

(5) Other Actions in the Area

To counter undesired rural development trends, local regulations have changed. These changes have affected farmland preservation planning, zoning, and acquisition of conservation easements to protect natural areas from future development. Other past activities, such as agricultural practices, urbanization, and stream channelization, have negatively impacted the quality of waterways in the ICE study area. Modern agricultural practices, wetland mitigation banking, and environmental cleanup of impaired waters, such as the Sheboygan River, have helped to improve conditions in the ICE study area.

As indicated in the ICE Analysis (Appendix C), agencies have planned for future land conservation through acquisition in the ICE study area and beyond, in particular expansion of the Kettle Moraine State Forest. At the same time, expert panelists suggested that commodity prices are currently high and are expected to continue to increase, which raises the value of agricultural land. This, in turn, may negatively affect agencies' ability to acquire additional land for conservation purposes. This increase in commodity prices may also drive some farmers to convert wooded areas to tillable land causing additional negative impacts on natural resources through runoff and habitat loss. These trends are not influenced by the WIS 23 project.

The pace and amount of residential and nonresidential development that may occur as a result of the No-Build and Build Alternatives are tied to market demand resulting from a combination of demographic factors and economic conditions. The country is emerging from an economic recession, which has slowed market demand in recent years. This is illustrated by residential building permit issued in Fond du Lac and Sheboygan counties (see Table 4.4-8).

Table 4.4-8
Annual New Privately Owned Residential Building Permits, Estimates with Imputation (from US census)

County	2006	2007	2008	2009	2010	2011
Sheboygan	318	237	135	89	67	56
Fond du Lac	334	255	172	128	125	101

The number of residential building permits in Sheboygan and Fond du Lac counties is considerably lower in 2011 than in 2006. Based on its demographic, land use, and economic development expertise, and as confirmed by the ICE expert panel, the study team believes the market demand for new development is likely to return to prerecession trends as the economy rebounds.

5. Characterization of the Resources, Ecosystems, and Human Communities Identified During Scoping in Terms of Their Response to Change and Capacity to Withstand Stress

Much of the characterization of resources in the ICE study area has already been described in Section 3 of this LS SFEIS/ROD and in the indirect effects analysis (page 4-9). The following paragraphs summarize these resources and ecosystems while providing some supplemental information.

a. Agricultural Land

Agriculture is a major industry in Fond du Lac and Sheboygan counties, providing 8,692 and 8,464 jobs, respectively. Fond du Lac County is a leading dairy producer ranking 4th in the state and 26th in the nation in dairy production. Sheboygan County ranks near the top of the state's dairy industry as it is home to more than 9 dairy processors and 4 cheese factories.

Market forces affect how much land is in agriculture and which crops are grown, which is a function of population growth, local plans, and zoning controls. Once converted to development, agricultural land will likely never return to agricultural use. The result is a consistent long-term trend in the reduction of agricultural lands.

Population growth and development have led to the incremental loss of farmland in the ICE study area. Data from the USDA Census of Agriculture, 2002 and 2007 censuses reveal that Fond du Lac and Sheboygan counties lost almost 5 percent of their cropland. Based on local land use plans, this trend is likely to continue. Population growth in the ICE study area has historically been comparable to the state average. Local land use plans indicate a strong desire by all communities in the ICE study area to preserve agricultural lands by directing development to areas adjacent to existing cities and villages where it can be served by sewer and water and generally developed at greater densities, thereby reducing the acreage needed to accommodate that development and reducing the conversion of agricultural land.

b. Wetlands

Wetlands are scattered throughout the ICE study area, with large concentrations located primarily in the towns of Forest, Marshfield, and Greenbush. The incremental filling of wetlands has occurred over time as a result of development and the conversion of land to agricultural uses. Many of the larger concentrations of remaining wetlands in the ICE study area are located on state-managed lands. Three wetland mitigation banks exist directly adjacent to improvements being considered. They include the Taycheedah Creek wetland mitigation site, the Pit Road wetland mitigation site, and the Old Wade House wetland mitigation site. The Mullet Marsh is located about 1 mile south of the WIS 23 corridor and the Sheboygan Marsh State Wildlife Area is located about 2 miles north of WIS 23 corridor. A comparison of pre-European settlement land cover data (source: WDNR GIS dataset, Original Vegetation Cover of Wisconsin, 1990) and recent land cover (source: United States Geological Survey, National Land Cover dataset, 2001) indicates that approximately 98 percent of presettlement wetlands remain in the ICE study area.

The majority of historic and ongoing wetland loses in the ICE study area have resulted mostly from farming and conversion of small wetlands which are not protected under local, state, or federal regulations. Wetland ecosystems are very sensitive to change from disruption of native

ground cover as a result of farming or development activity. Ongoing significant adverse impacts result from chemical application from farming or lawn care and increased impervious surfaces within their watershed.

c. Water Quality

Water quality in the ICE study area is generally good; however, some waterways have been negatively affected by urban and agricultural runoff, stream channelization, and point source discharges.

The Sheboygan River Basin, of which most of the ICE study area is a part, has been identified by the USEPA as a Great Lakes Area of Concern. Portions of the Sheboygan River are on the Wisconsin's impaired waters list. The section of the river within the WIS 23 corridor is not on the impaired waters list.

Several trout streams are located in the ICE study area, including Feldner's Creek and the Mullet River. Feldner's Creek and Ben Nutt Creek are also considered Exceptional Resource Waterways. Exceptional Resource Waters are characterized by excellent water quality, high recreational value, and high quality fisheries. These may receive treated wastewater discharges or may receive future discharges necessary to correct environmental or public health problems.

The western portion of the ICE study area (west of Taft Road) is located in the Lake Winnebago East Watershed, which generally flows from east to northwest into Lake Winnebago. This watershed includes the Taycheedah Creek and is part of the Upper Wolf River drainage basin and extends along the east shore of Lake Winnebago in Calumet and Fond du Lac counties. It is predominantly an agricultural watershed, but it does include more than one-third of the city of Fond du Lac as well as the rapidly developing area east of Fond du Lac on the west slope of the Niagara Escarpment.

The city of Fond du Lac suffers stormwater peak-flow problems. This is primarily because of its location in a topographical depression next to a lake. The flatness of the terrain does not allow water to drain quickly. This problem is magnified by continued development along the eastern and southern fringe of the city in the watershed (Source: *State of the Upper Fox River Basin*, Wisconsin Department of Natural Resources, 2001).

The quality of groundwater has also been impacted over the years by urban and agricultural land use practices and pollutants associated with chemical storage, road salt use, accidental spills, leaking underground storage tanks, leaking underground pipes and sewers, animal feedlots, fertilizers, septic tanks, sewage lagoons, sumps and dry wells, and improperly abandoned wells.

d. Upland Habitat

Undeveloped lands in the ICE study area are predominantly in agricultural use. Much of the upland habitats are located in the Kettle Moraine State Forest in Sheboygan County and along the Niagara Escarpment. Nearby natural areas include Mullet Marsh and Sheboygan Marsh.

(1) The Kettle Moraine State Forest (Northern Unit) is located within the ICE study area (see footnote 6). This state park comprises mostly forests and lakes and provides habitat for a diversity of species including whitetail deer, hawks, turkeys, raccoons, squirrels, and possums. Figure 4.4-8 illustrates the boundaries of the state forest at the time of this writing as they relate to the WIS 23 corridor and also shows the state's plan for the projected forest boundary.

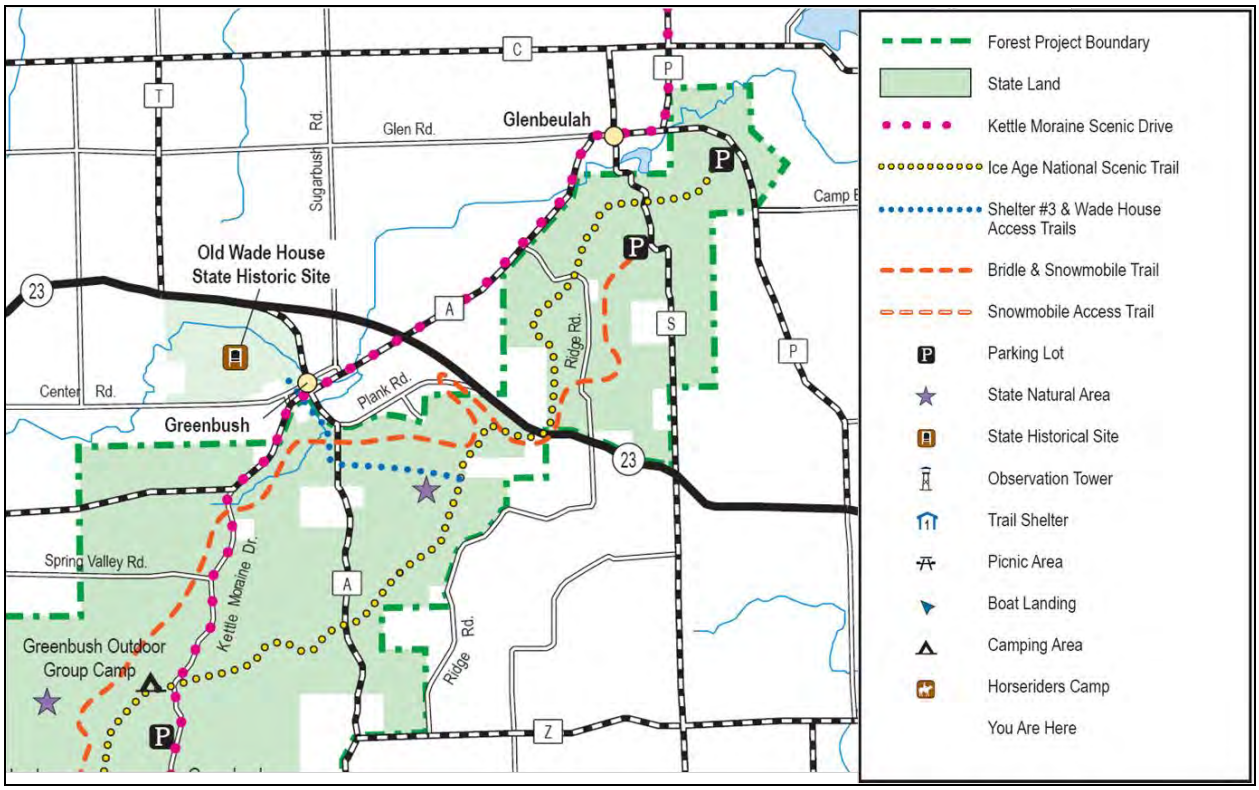


Figure 4.4-8 Kettle Moraine State Forest Boundaries

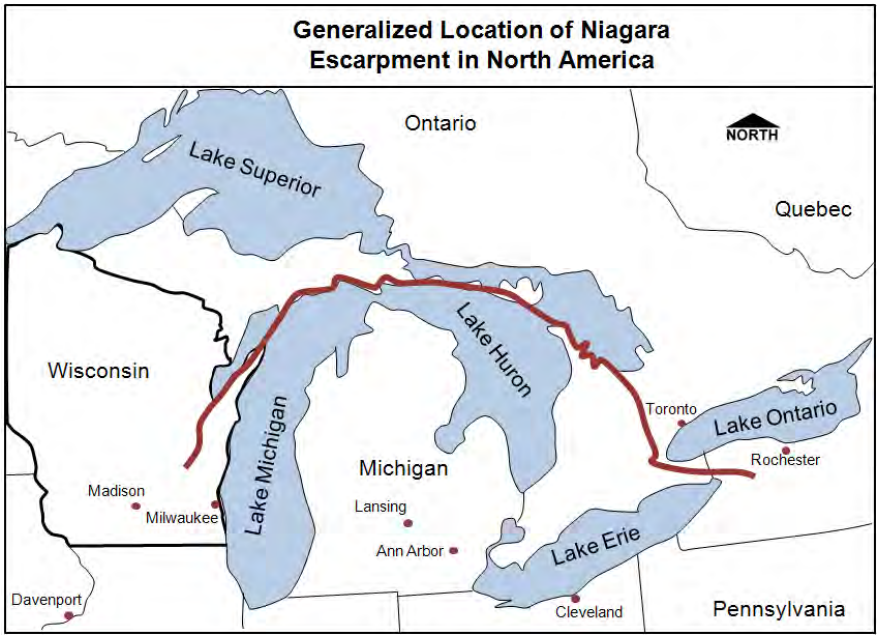


Figure 4.4-9 The Niagara Escarpment (shown in dark line)

(2) The Niagara Escarpment (which is a long cliff, see Figure 4.4-9 and footnote 7), which is located within the ICE study area, is a statewide critical natural resource area because of its unique geology, the number of rare plants and animals that rely on the escarpment's distinct ecosystem and microclimate, and the land's sensitivity to groundwater contamination. The Escarpment extends for over 1,000 miles from New York through Canada, Michigan, and into Wisconsin. Many areas of the Escarpment have been compromised over the years by development. The Niagara Escarpment Report (1999-2001) prepared by the WDNR documents the biodiversity associated with the Escarpment and lists recommended management strategies to ensure the long-term integrity of this significant natural feature.

(3) Sheboygan Marsh County Park and Sheboygan Marsh State Wildlife Area are located 2 miles north of the WIS 23 corridor. Expansive coniferous swamps of northern white cedar and tamarack, more commonly found in northern Wisconsin, occupy over 4,000 acres of the marsh. The Sheboygan River flows through the marsh and its waters are held back by a dam at the northeast corner of the marsh. The open waters and adjoining wetlands of this restored flowage total over 1,700 acres in size. The Sheboygan Marsh is in a 133-square-mile watershed and receives surface and groundwater drainage from farmlands, small urban communities, and part of the Northern Unit of the Kettle Moraine State Forest.

(4) Mullet Marsh is located 1 mile south of the project corridor. Mullet Creek Wildlife Area is located in the southeastern part of the marsh and consists of wetland, forest, grassland and farmland. The 495-acre Mullet Lake State Natural Area is located about 0.5 miles southwest of Mullet Creek Wildlife Area. The 200-acre hard-water seepage lake is surrounded by a wetland complex of tamarack, shrub carr, sedge meadow, and swamp forest. The lake and swamp complex is the headwaters of the Mullet River in the priority watershed of the Sheboygan River.

As mentioned, there also is a variety of privately owned upland areas that lie adjacent to the corridor. Market forces affect how much land is in development and where it is located, which is function of population growth, local plans, and zoning controls. Local plans and zoning rarely protect these areas. Once converted to development, upland habitat will likely never return to undeveloped natural area.

e. Threatened and Endangered Species

There are 54 total plant and animal species listed as either threatened or endangered within Fond du Lac and Sheboygan Counties. Eight state threatened species and two state endangered species could be potentially directly affected by the WIS 23 corridor based on WDNR project coordination. Within the larger ICE area, residential and commercial development also has the opportunity to adversely affect rare species. Habitat loss, habitat disruption or degradation, loss of travel corridors, fragmentation, roadway and other sources of mortality, and depredation from development (whether agricultural or municipal expansion) are some of the primary reasons why these species are state threatened or endangered species.

The three freshwater mussels that may be potentially directly affected by the Preferred Alternative are likely the most susceptible rare species on the project corridor. Their response to change is poor as related to draining, encroachment of habitat, loss of water quality buffers, and water pollution. Fifty-four percent of all mussels in Wisconsin are listed as rare species. Siltation from all mechanisms, including agriculture and roadway runoff, causes loss of aquatic bed habitat for these species. Water chemistry through increased fertilizer and agrichemical use, stormwater runoff, and residential development has also affected these species.

Threatened reptilian species such as the Blanding's turtle and the Butler's garter snake are documented to have stable populations and found to be present in greater extent and density than previously thought throughout the ICE study area. Many impacts to these species result from concentrating beneficial habitats and loss of riparian buffers along streams. Natural succession from the exclusion of fire and reduced forestry management is reducing suitable, open upland habitat needed for many additional species. Increased runoff results in wetland sedimentation that often alters and degrades native plant communities, favoring monotypic stands of nuisance or exotic species not beneficial to these species. Roads have also fragmented habitats and resulted in altered hydrology and mortality for some species.

Migratory-rare woodland-nesting birds and red-shouldered hawk populations in this part of Wisconsin are generally considered stable based on the woodland habitat in and near the Kettle Moraine Forest. Destruction of wintering and breeding habitat through deforestation and rural home development continue to present a large threat. Other limiting factors include forest fragmentation, contaminants, loss of key tree species to diseases, cowbird parasitism, and human disturbance. Invasive shrubs and herbaceous plants could be affecting the long-term ability of forests to regenerate into conditions suitable for some of these species and is precluding regeneration of large, mature trees in various woodland communities.

Rare plants are the final listed species of concern. The yellow gentian is a candidate for delisting. It has proven to be capable of tolerating change and disturbance and has expanded its presence in suitable habitat types. The snow trillium is a more sensitive listed species in the project. Being a near-climax species, it has low tolerance for change and stress. Wetland clearing and grading of mature, wooded riparian habitat may have a further effect on this species. Continued suburban development, riparian clearing and filling, increased flooding, rural habitat loss and fragmentation from woodland home sites, invasive shrubs and herbaceous plants, and loss or harvest of large, mature trees in oak woodlands diminish the habitat for snow trillium.

f. Historic and Archaeological Resources

As mentioned previously in the indirect effects analysis, there are numerous historic resources within the broader ICE study area. Wisconsin's Architecture and Historic Inventory (AHI) indicates that there are 4155 historic listings for Fond du Lac County and 2655 historic listings for Sheboygan County. Wisconsin also keeps an Archaeological Site Inventory that includes known archaeological sites, cemeteries, and cultural sites. Determinations of Eligibility for the National Register of Historic Places have not been performed for most of the resources listed within these data bases. Directly within the WIS 23 corridor there were 17 potential historic sites and another 2 sites associated with the connection roads and interchange. Effects to all these resources were avoided except for those discussed below.

The Old Wade House Park is under state ownership and is being managed by the State Historical Society for preservation. The St. Mary's Springs Academy is eligible for the National Register of Historic Places (NRHP) and is a functioning school. Facility changes by the owner over the past decade have altered the contributing characteristics and the historic significance of this resource. Future management decisions could change the historic integrity of the site. The Sippel archaeological site directly on the corridor is a small Yankee homestead/farm in the town of Greenbush. It was occupied between 1848 and 1875. This site would likely remain relatively undisturbed in absence of landscape altering activities.

g. Air Quality

Page 4-13 briefly describes the National Ambient Air Quality Standards (NAAQS) and the conformity of Fond du Lac County and Sheboygan County with those standards. Fond du Lac County is presently in attainment of all National Ambient Air Quality Standards (NAAQS). Sheboygan County was designated nonattainment for the 2008 Ozone Standard on April 30, 2012 (Federal Register/ Vol. 77, No. 98/ Monday, May 21, 2012). Sheboygan County is also designated nonattainment for the 1997 Ozone standard, but that standard was revoked on July 20, 2013.

h. Trails

The three trails in the ICE study area vary in their purpose and character. The Ice Age Trail is intended to provide access to the kettle moraine formations in a manner that highlights glacial land forms. To best meet this objective the natural landscape should be as free from development as possible. Therefore, increasing development diminishes the experience of the resource. The Old Plank Road Trail is intended to provide a recreational experience along the route historically linking Sheboygan to Fond du Lac. For this reason the trail corridor is very close to WIS 23 and adjacent developed areas. Future development will likely occur near the WIS 23 corridor; however, the study team notes that such development is not inconsistent with the recreation purpose and character of this trail.

State, county, and local governments in the ICE study area continually plan for the acquisition and development of new trails. Other agencies, such as the Niagara Escarpment Network, also work toward these goals. The Ice Age Trail and State Equestrian Trail have an established at-grade crossing of WIS 23 that would likely continue in absence of other influences. The Old Plank Road Trail extends from Sheboygan to the Northern Unit of the Kettle Moraine State Forest. Extension of this trail to the west is planned, but it will probably occur in the distant future unless a funding source is identified.

i. Environmental Justice (EJ) Populations

Environmental justice populations are described in Appendix C and depicted on Maps 2 to 5 of the Appendix. Minority and low income populations are located at the ends of the ICE study in the cities of Plymouth and Fond du Lac. Several census tracks in the ICE study area also have a greater proportion of elderly individuals (age 65+) when compared to county averages. These concentrations are likely to remain because they are closer to urban areas and the associated services, housing, and employment opportunities associated with urban areas. EJ populations have a lower ability to respond to change and capacity to withstand stress related to age, income, education, general health, and access to health care.

6. Characterize Stresses Affecting these Resources, Ecosystems, and Human Communities and their Relation to Regulatory Thresholds

Table 4.4-9 summarizes stresses and factors that are affecting resources.

Table 4.4-9 Stresses Affecting Resources

Resource	Stresses and Factors Affecting Resource
Agricultural Land	Development and urbanization. High commodity prices.
Wetlands	Urban and agricultural runoff. Point-source discharges. Runoff from roads.
Water Quality	Urban and agricultural runoff. Stream channelization and erosion. Point-source discharges. Runoff from roads.
Upland Habitat:	Development and urbanization. High commodity prices encourages land clearing for agriculture.
Northern Unit of Kettle Moraine State Forest	High land prices decrease ability to acquire remaining tracts of land. Built environment, including road and agricultural runoff, diminish resources within State Forest.
Niagara Escarpment	Development and urbanization within the escarpment fragment natural communities. Wind turbines increase fragmentation of natural resources.
Threatened and Endangered Species	Diminished water quality in streams and wetlands. Reduction in upland habitat caused by urbanization and agriculture
Historic and Archaeological Resources	Property modifications and changes in the surrounding area can diminish historic value. Construction activities can disturb unrecorded archaeological sites.
Trails	Funding constraints may prevent trail extensions and enhancements.
Environmental Justice Populations	Gentrification can increase housing costs. Economic conditions affect employment opportunities.
Air Quality	NOx and VOCs from industry and mobile sources create ozone

Population growth, future development, sewer service extensions, transportation and other infrastructure improvements, and agricultural practices could continue to negatively impact wetlands, water quality, upland habitats, and wildlife in the ICE study area. Agricultural land may also be lost because of increasing urbanization in the ICE study area, but rising commodity prices may stem this trend.

7. Baseline Condition for the Resources, Ecosystems, and Human Communities

The baseline conditions for the purposes of this cumulative effects analysis are predicted based on information provided by local land use plans, county plans, United State Geological Survey data, WDNR data, and WDOA population reports and are generally described in this cumulative effects analysis.

8. Important Cause and Effect Relationships Between Human Activities and Resource, Ecosystems, and Human Communities

The WIS 23 Build Alternatives will directly affect land uses and resources. Land that will be purchased for right of way will decrease the amount of cropland, upland habitat, and housing. The WIS 23 Build Alternatives will also indirectly affect land uses and resources by promoting more efficient and safe travel between the Fond du Lac metropolitan area and the Sheboygan metropolitan area. As described in the indirect effect analysis, this project has the potential to accelerate the timing of future development in the ICE study area. Where access has been restricted and focused by the construction of new interchanges, the project will also likely focus the location of development. Additional development in the ICE study area may lead to a loss in agricultural land and will further encroach on and fragment natural habitats such as wetlands and woodlands. Habitat loss may also threaten rare sensitive species. Development will also generate additional stormwater runoff, which will impact water quality in the region and the previously identified rare species. See Appendix C for additional details in cause and effect relationships between human activities and resource, ecosystems, and human communities. Figure 4.4-5 schematically illustrates how WIS 23 Build Alternatives along with other unrelated actions cumulatively affect resources.

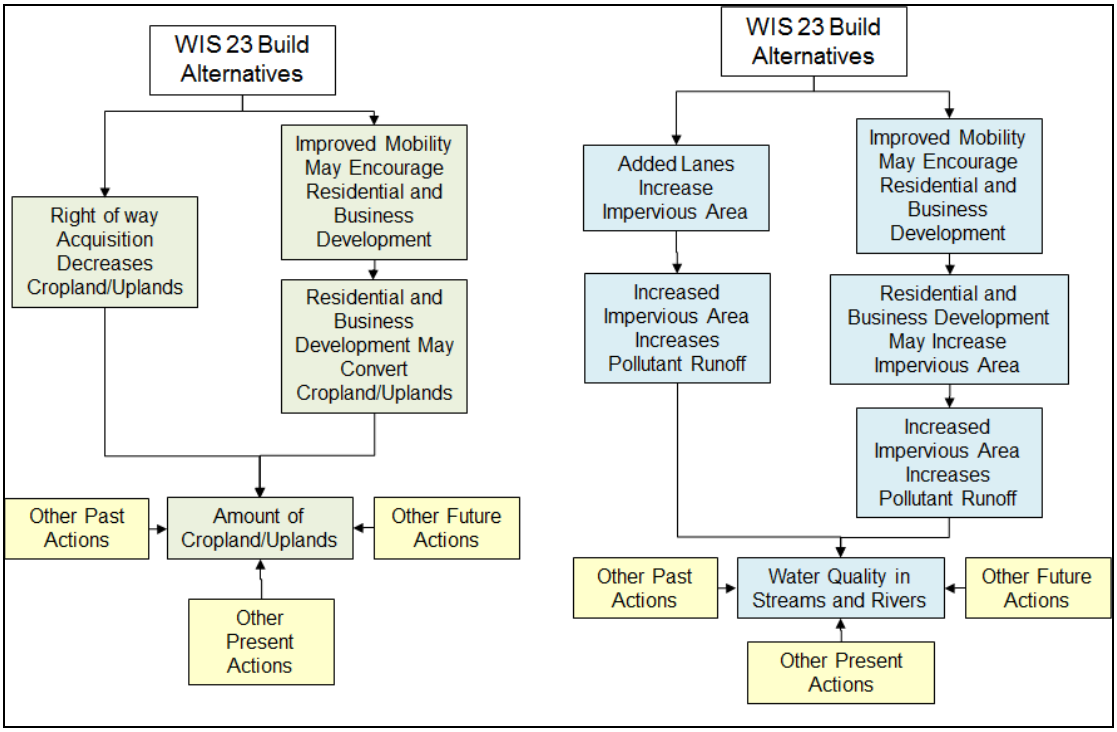


Figure 4.4-10 Examples of Cumulative Effects on Resources

Table 4.4-10 illustrates some cause and effect relationships between resources and the WIS 23 project and how combined they can cause a cumulative impact. The table is meant for illustration purposes only and is not exhaustive.

Table 4.4-10 Example Cause Effect Relationships

Resource	Other Activities Causing Impacts	Potential WIS 23 Impacts
Water quality	Agricultural runoff	Increase pavement and resulting pollutants. Development indirectly enabled by the project have pavements and resulting pollutants.
Farmland	Exurban residential development. Commodity prices	Direct acquisition of farmland for right of way. Indirect residential development on agricultural lands.

Table 4.4-10 Example Cause Effect Relationships		
Resource	**Other Activities Causing Impacts**	**Potential WIS 23 Impacts**
Uplands	Exurban residential development fragmenting uplands	Direct acquisition of uplands for right of way. Indirect residential development on uplands.
Threatened and Endangered Species	Exurban development reducing habitat. Agricultural runoff diminishing water quality and habitat.	Right of way acquisition reducing habitat. Severing habitat corridors. Pavement runoff diminishes water quality.
Archaeological Resources	Development alters landscapes, potentially adversely affecting unknown resources	Road constructing affecting known archaeological resources. Indirect development alters landscapes potentially affecting unknown resources.
Air Quality	Aging vehicle fleet remains in operation, keeping VOC and NOx levels high. Improving standards on newer vehicles reducing VOC and NOx emissions, leading to lower ground level ozone levels Air quality of Chicago Metro area	Increased vehicle miles traveled on WIS 23 may increase vehicle emissions of VOCs and NOx, which are precursors to ground level ozone.

Local governments have the ability to influence direct, indirect, and cumulative effects to land use and resources through the administration of land use controls that determine where development occurs, what types of development occur, and the density to which the development occurs.

9. Estimated Magnitude and Significance of Cumulative Effects

The following paragraphs describe the estimated magnitude of the cumulative effects based on input from the expert panel and the study team's expertise. Additional detail is provided in Appendix C.

a. General Development Patterns

The ICE study area has experienced modest change in land use patterns in the past two decades. The majority of the ICE study area is rural and much of it remains in agricultural use. Over the years, some unsewered residential development has occurred in most of the towns in the study area. Most concentrated development has occurred within and around cities and villages located in the study area, primarily in the cities of Fond du Lac and Plymouth, and to a much lesser extent the village of Mount Calvary, Glenbeulah, and St. Cloud. Some industrial development has occurred in the cities of Fond du Lac and Plymouth and some highway-oriented commercial development is very sparsely scattered along the WIS 23 corridor. The construction and opening of the US 151 Fond du Lac bypass has enabled development on the east side of Fond du Lac. This development has included a residential subdivision, a church and school complex, and an office park oriented to medical services.

Under the No-Build Alternative, future land development within the ICE study area will most likely occur in the locations planned for development in adopted comprehensive plans. The ICE study team believes WIS 23's contribution to cumulative effects on development patterns under the No-Build Alternative will be minimal because there will be no changes to WIS 23. The continuation of steady long-term trends for modest development, lack of major regional transportation improvements and other large scale development projects, and the continued long-term economic viability of agricultural activities will reduce the likelihood of land conversion for other development.

The Preferred Build Alternative, has the potential to concentrate development at access points and accelerate the pace of future development in the study area. In general, the expert panel and the ICE study team agreed that the main indirect effect of the Preferred Build

Alternative is creation of a modest demand for more development, primarily located at the ends of the study area.

The panelists generally agreed that long-term economic conditions and local government planning and zoning policies, combined with the access control elements of the Preferred Build Alternative, would strongly influence the location of development, which has a cumulative impact on changing development patterns. The panelists also cited other factors that cumulatively affect development patterns include long-term economic conditions and local policies which could be more influential than the Preferred Build Alternative.

Projects associated with the US 151 Fond du Lac bypass corridor preservation plan, when and if implemented, may orient commercial and industrial development to roadways that maintain access to US 41 and US 151. This includes County V as well as a possible future US 41 service interchange located south of Fond du Lac.

b. Agricultural Land

Under the No-Build Alternative there are no direct impacts or acquisition to agricultural land. The cumulative effect of WIS 23 on agricultural land would be minimal based on development trends and current economic conditions.

Population growth and past development decisions have led to the incremental loss of farmland in the ICE study area. The construction of the WIS 23 Preferred Build Alternative would directly require the acquisition of 225 acres of farmland. Also, as indicated in Appendix C, expert panelists agreed that the Preferred Build Alternative will likely accelerate the conversion of farmland in areas planned for future development, and an overall increase in urbanization may increase development pressure in rural areas (an indirect effect). When the economy makes a recovery, other factors that will contribute to the cumulative loss of farmland include exurban residential development, commodity prices, and agricultural workforce. According to the US Agricultural Census, Fond du Lac and Sheboygan counties lost 8,985 acres of farmland between 2002 and 2007. The amount of agricultural land required for the WIS 23 Preferred Build Alternative represents 2.5 percent of this total. If impacts associated with the constructed US 151 Fond du Lac Bypass, the constructed WIS 23 project near Plymouth, the planned US 151/County V and T improvements, and future US 151 corridor preservation improvements are included, the total farmland acreage converted to highway right of way over approximately a 30-year period will be about 613 acres. Local government planning and zoning decisions and general economic conditions will also influence the impacts.

c. Wetlands

Wetlands are scattered throughout the area with large concentrations primarily located in the towns of Forest, Marshfield, and Greenbush, which are mostly permanently protected through public ownership. The incremental filling of wetlands elsewhere has occurred over time as a result of development. The conversion of wetlands to agricultural uses has also occurred over time. A comparison of pre-European settlement and current land cover data indicates that approximately 98 percent of historic wetlands remain in the study area because of public acquisition of large wetlands in the Sheboygan Marsh and the Mullet Marsh areas. The cumulative effects on wetlands under the No-Build Alternative will be minimal since there are no direct impacts, and because many of the larger concentrations of remaining study area wetlands are located on state-managed lands or are otherwise subject to state and federal wetland regulations and are therefore protected from development and actively managed.

There may be cumulative impacts on wetlands under the Preferred Build Alternative that will alter or fill about 48.1 acres of wetlands. These are direct project impacts. According to WDNR records using aerial photography, there are about 109,600 acres of wetlands in Fond du Lac and Sheboygan Counties. The wetland filled by the Preferred Alternative represents about 0.04 percent of this total. If wetland impacts associated with the constructed US 151 Fond du Lac Bypass, the constructed WIS 23 project near Plymouth, the planned US 151/County V and T improvements, and future US 151 corridor preservation improvements are included, the total wetland acreage converted to highway right of way approximately a 30-year period will be about 88 acres. Wetlands filled by the Preferred Build Alternative, as well as all other past, present, and

future highway projects, have been and will be mitigated at wetland mitigation bank sites near the corridor. With the wetland mitigation, the WIS 23 Preferred Alternative would not have a cumulative effect on wetland acreages.

Expert panelists indicated that additional impervious surfaces associated with the roadway expansion and new development will increase stormwater runoff and reduce the quality and ecological integrity of wetland areas, including wetlands of regional significance. The cumulative effect to wetlands from the Preferred Build Alternative would consist mainly of continued water quality effects created by salt and debris from the existing roadway and slightly increased impervious surfaces. Other factors that contribute to the cumulative impact on wetlands include exurban development and associated pavements, pollutant loadings from agriculture, as well as exotics (see water quality).

d. Water Quality

The quality of surface water and groundwater in the study area has been impacted over the years by urban and agricultural land use practices and pollutants associated with chemical storage, road salt, accidental spills, leaking underground storage tanks, leaking underground pipes and sewers, animal feed lots, fertilizers, septic tanks, sewage lagoons, sumps and dry wells, and improperly abandoned wells.

Past, present, and future transportation projects other than WIS 23 in the region and development increases may affect water quality and will likely contribute to incremental increases in the amount of urban runoff that enters and is distributed throughout the basin because of increased impervious surfaces. The Fond du Lac Bypass provided up to 70 additional acres of impervious surface within the ICE study area. The WIS 23 expansion near Plymouth added up to 15 additional acres of impervious surface within the ICE study area. Future public acquisition or private preservation of natural areas in the study area may help improve water quality by keeping lands undeveloped.

The cumulative effect contribution to surface water and groundwater degradation by the No-Build Alternative will be minimal and limited to what is occurring with pavement runoff.

The construction of the Preferred Build Alternative will add more than 90 acres of impervious surface. Also, expert panelists and the ICE study team indicated that increased stormwater runoff and land development under the Preferred Build Alternative may impact soils for groundwater recharge and may alter surface water levels, particularly after periods of heavy rain and/or snow melt. However, panelists indicated the degree of these impacts to be minimal; this may be because the Preferred Build Alternative would be constructed on-alignment rather than establishing a new route. Over time, the increased development under the Preferred Build Alternative will likely contribute to incremental increases in the amount of urban runoff that enters and is distributed throughout the Sheboygan River basin. As indicated previously, Lake Winnebago and De Neveu Creek are designated as Section 303(d) water resources; they may be at a higher risk for impacts.

One member of the expert panel indicated the marshes in the study area receive much of the runoff in this corridor. There will be an increased impact to the marshes in the study area under the Preferred Build Alternative because of increased impervious surface area and new development. The WisDOT project manager indicated that BMP will be employed during construction of the highway to minimize erosion and runoff.

Other contributors to the cumulative effect on surface water and groundwater quality in the study area include urban and agricultural land use practices and pollutants associated with chemical storage, road salt, accidental spills, leaking underground storage tanks, leaking underground pipes and sewers, animal feed lots, fertilizers, septic tanks, sewage lagoons, sumps and dry wells, and improperly abandoned wells.

e. Upland Habitat

(1) Woodlands and Ecologic Resources

A comparison of pre-European settlement and current land cover data indicates that approximately 55 percent of historic forested lands remain in the study area—a significant portion of this is the Kettle Moraine State Forest. WDNR plans to acquire approximately 7,000 acres of new land, conduct restoration activities, and improve management practices to protect wildlife and enhance recreation. In addition, WDNR recently partnered with the Hardwood Forestry Fund, a 501(c)(3) foundation that establishes sustainable forests for future generations. The foundation received a grant in 2011 from the American Forest's Global ReLeaf program to plant 20,800 trees on 20 acres of the Kettle Moraine State Forest – Northern Unit near Plymouth. The planting efforts will aid in reduction of the forest fragmentation, allowing for more contiguous native hardwood forests. Additional benefits include production of woody biomass, carbon sequestration, the improvement of habitat for forest interior wildlife species, and the increased opportunity for forest-based recreational opportunities.

The No-Build contribution to the cumulative impacts on woodlands is negligible because there will be no direct impacts to woodlands and ecological resources. Other factors, such as long-term development resulting from modest population growth will lead to minimal conversion of woodlands over time. The decisions and actions of state agencies and other environmental organizations, such as those described above, may help counteract the negative cumulative impacts to woodlands over the next 20 years through purchase and permanent protection of lands with woodlands as called for in plans for the Escarpment and Kettle Moraine.

The Niagara Escarpment Report documents the biodiversity associated with the escarpment and lists recommended strategies to ensure long-term integrity of this natural feature. However, many areas of the escarpment continue to see steady population growth and increases in development pressure, including most recently by the development of wind farms along the ridge. In 2011, the Bay-Lake Regional Planning Commission prepared a Niagara Escarpment Overlay Zoning Guide to help Wisconsin communities delineate, develop, implement, and enforce overlay zoning to protect the escarpment. The contribution of the No-Build to this cumulative degradation of the escarpment is negligible because it has no direct acquisition requirements in the escarpment and does not improve mobility or accessibility to the escarpment.

The construction of the Preferred Build Alternative will require about 48 acres of woodlands and uplands, a direct impact. According to their respective regional planning commissions, Fond du Lac County has 58,700 acres of woodlands and Sheboygan County has 103,500 acres of woodlands, which is a subset of upland habitat. The Preferred Build Alternative upland requirements represents about 0.05 percent of this total. If impacts associated with the constructed US 151 Fond du Lac Bypass, the constructed WIS 23 project near Plymouth, the planned US 151/County V and T improvements, WIS 23 and future US 151 corridor preservation improvements are considered, the total woodland and upland acreage converted to highway right of way over approximately a 30-year period will be about 84 acres.

Expert panel members and the ICE study team generally agreed that the Preferred Build Alternative will have a modest contribution to the cumulative impact to woodlands, the Escarpment, and other resources areas of ecological significance. Indirect development effects of the Preferred Build Alternative, which contribute to the cumulative impact on uplands, could occur in woodlands or alter woodland and wildlife habitat areas. Table 4.4-8 illustrates recent residential building permits issued for Fond du Lac and Sheboygan counties and shows between 150 and 650 building permits were issued per year between 2006 and 2011. This provides a gauge of development pressures on upland habitat. In addition, other factors contributing to the cumulative impact on uplands include increasing commodity prices that may lead some farmers to clear woodlands for farm fields. Panelists also indicated that invasive species, such as phragmites, spread rapidly along highway corridors, which is another possible impact of the Preferred Build Alternative.

(2) Glacial Features

There are numerous glacial features throughout the study area. One panel member noted these features are not currently protected through local regulation. There will be no direct effects and minimal indirect impacts to glacial features resulting from the No-Build Alternative because of lack of protection (e.g., overlay zoning) and modest amounts of new development. Therefore the No-Build Alternative's contribution to the cumulative negative effects to glacial features will be minimal.

The Preferred Build Alternative will increase the footprint of the WIS 23 corridor, which will add to the cumulative detrimental effect on glacial features, particularly near the Kettle Moraine State Forest. The Preferred Build Alternative's potential to increase the pace of development, an indirect effect, could also contribute to the cumulative negative effect on glacial features.

f. Threatened and Endangered Species

It is difficult to estimate the presettlement populations of threatened and endangered species except by gauging changes in their habitat. The current amount of Wisconsin waters acreages and stream threads is comparable to the amount that existed in presettlement conditions; however, the water quality has diminished which has likely resulted in decreased mussel populations. The current forested acres in the state and the study area have also declined since presettlement conditions which may contribute to fragmentation and reduced quality of wildlife habitat, including that of the garter snake and turtles. Similarly, wooded species and the introduction of exotic/invasive species into open canopy wetlands and grasslands has decreased suitable habitat for wildlife.

The No-Build Alternative will have no direct impacts and likely minimal indirect impacts to habitat areas and environs that support threatened and endangered species. Therefore the No-Build Alternative's contribution to cumulative adverse effects to threatened and endangered species is likely to be minimal.

The Preferred Build Alternative's direct acquisition of 424 acres will reduce habitat. Indirect impacts associated with expansion of the WIS 23 corridor may include additional reduction and degradation of habitat from development, which could further threaten or potentially cause the displacement or loss of these threatened species.

The Preferred Build Alternative could adversely affect threatened and endangered species through habitat reduction associated with right of way acquisition and other development pressures. Increases in impervious area will degrade water quality that could affect rare mussel populations within the corridor. Increased runoff can result in wetland sedimentation that can alter and degrade native plant communities, favoring monotypic stands of nuisance or exotic species.

The purchase of approximately 424 acres of new right of way needed will alter habitats that support rare birds within the area. Because the right of way purchase follows the existing corridor, limited fragmentation will occur. Right of way acquisition in wetlands and uplands may affect reptilian habitat. The increased roadway corridor width may also increase mortality rates.

g. Historic and Archaeological Resources

The No-Build Alternative will have no direct effects on archaeological or historical resources eligible for inclusion on the NRHP. Therefore the No-Build Alternative will have limited contribution to cumulative adverse effects on cultural resources.

As for direct effects of the Preferred Build Alternative, the proposal will not affect St. Mary's Springs Academy (eligible for the NRHP) nor will it adversely affect the Old Wade House State Park. Data recovery will be performed at the Sippel archaeological site, which will be affected by the Preferred Build Alternative. The direct effects of the Preferred Build Alternative will modestly contribute to cumulative effects on historic resources.

Other actions that could affect historic and archaeological sites include the redevelopment and/or razing of existing buildings with historic significance. Also residential and commercial development activities that alter the landscape could adversely affect unknown archaeological resources. The number of historic resources within Fond du Lac and Sheboygan Counties is briefly discussed on page 4-15 and includes 4155 historic listings for Fond du Lac County and 2655 historic listings for Sheboygan County on Wisconsin's Architecture and Historic Inventory. The direct effects of WIS 23 improvements, combined possible redevelopment and development impacts could create a cumulative impact to historic resources. This impact is anticipated to be modest when compared to the direct effects of Preferred Build Alternative. This characterization is based on a comparison of potential ground disturbing activities. The WIS 23 Preferred Build Alternative will disturb about 424 acres of new right of way and will have an adverse effect on one archaeological site eligible for the NRHP. If increased development directly occurring as an indirect effect of the Preferred Alternative amounted to an additional 0 to 125 homes, it could cause the disturbance of 0 to 25 or more acres, which is a small fraction of the ground disturbance activities that are a direct result of the Preferred Build Alternative.

h. Air Quality

As mentioned previously, NOx and VOC emissions are precursors to the formation of ozone, and Sheboygan County is in nonattainment for the 8-hour standard for ground-level ozone (Fond du Lac County is in attainment.) The impact-causing effects of the WIS 23 Preferred Build Alternative on these emissions is complicated. Figure 4.4-11 shows generic emission graphs for VOCs and NOx emissions versus speed. These curves do not represent the full range of effects associated with travel at different speeds. Emissions rates are higher during stop-and-go, congested traffic conditions than free-flow conditions operating at the same average speed. Emission rates vary based on the speed a vehicle is traveling. USEPA's model for highway vehicle emissions - MOBILE 6.2[9] - shows how speed affects emissions rates. VOC and CO emissions rates typically drop as speed increases. NOx emission rates increase at higher speeds. Emissions rates at all speeds have been falling over time as newer, more controlled vehicles enter the fleet.[10]

The US 151 Fond du Lac bypass is a past highway project that provided a new 4-lane expressway on a new

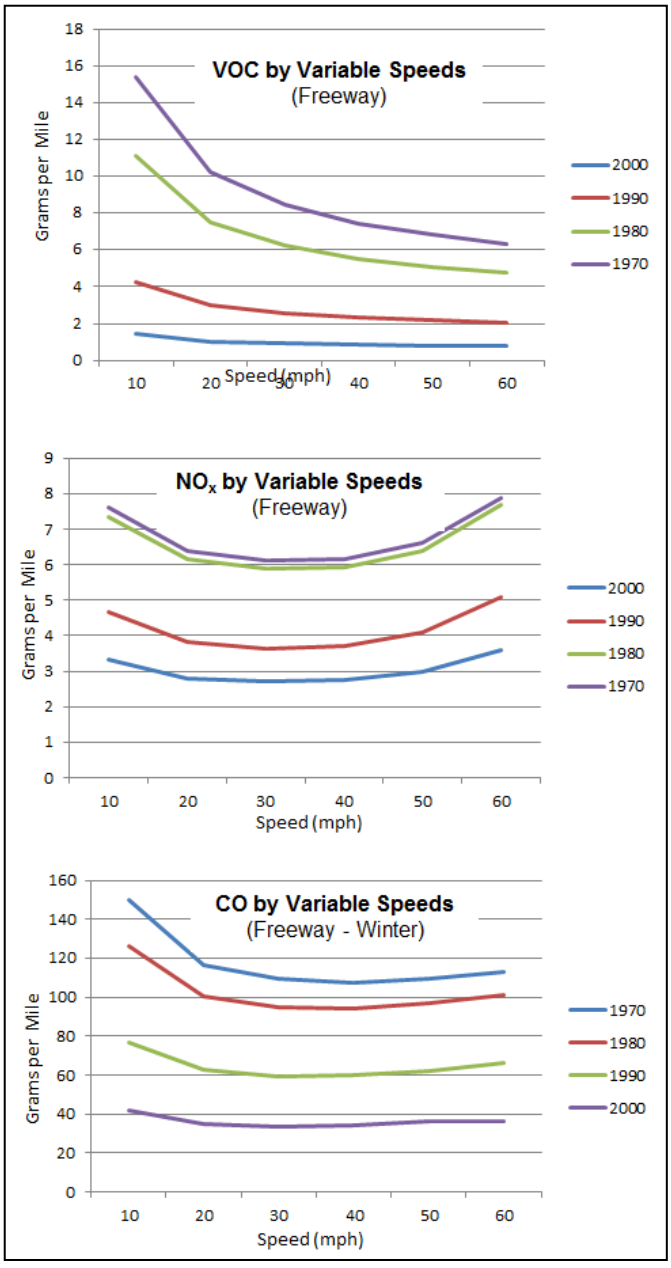


Figure 4.4-11 Generic Emission vs. Speed
Source :US EPA. MOBILE 6.2 Model run 24 September 2003

[9] USEPA has a new air quality model called MOVES; however, air quality modeling for Sheboygan County was performed using the previous model Mobile 6.2)
[10] http://www.fhwa.dot.gov/environment/air_quality/publications/fact_book/page15alt2.cfm June 2013

alignment. Traffic volumes on the bypass now range from 14,000 to 18,500 vpd. Many of these trips represent travel that once occurred on US 151 as it went through central Fond du Lac. Some of this bypass traffic volume are new trips that would not have occurred without the bypass. The increase in vehicle miles traveled (VMT) produced by the US 151 bypass would increase emissions in Fond du Lac County. As mentioned, Fond du Lac County is currently in attainment for National Ambient Air Quality Standards (see discussion later in this section).

The WIS 23 No-Build Alternative will have lower traffic volumes and lower travel speeds than the Preferred Build Alternative. The 17 percent (weighted average) WIS 23 traffic volume increase that is forecast to occur between 2012 and 2035 with the No-Build Alternative will increase the number of vehicles on the roadway, potentially increasing vehicle emissions. That combined with increases in vehicle miles traveled throughout Fond du Lac and Sheboygan counties may lead to increases in exhaust pollutants that could be partially offset by technology advances. The projected 2020 daily summer traffic on the Sheboygan County portion of WIS 23 represents about 2.39 percent of the total VMT in Sheboygan County for a summer day.[11]

The Preferred Build Alternative will have higher traffic volumes and higher travel speeds. Additionally, the projected 2035 daily traffic volumes are 17 percent higher (weighted average) than what would normally occur with the No-Build Alternative. The projected 2020 daily summer traffic on the Sheboygan County portion of WIS 23 represents about 2.52 percent of the total vehicle miles traveled in Sheboygan County for a summer day. With the Preferred Build Alternative, WIS 23 has 0.13 percent more VMT contribution to the total county VMT. The emissions associated with these higher traffic volumes combined with other human activities such as manufacturing, off-road vehicles, and other sources emit VOCs and NOx that contribute to ground-level ozone levels in Sheboygan County. WDNR and USEPA have in place a set of regulations that are designed to decrease emissions from motor vehicles, areas sources and industrial sources over time. Programs and regulations are in place at the federal and state level to control vehicle emission including regulations in the early 2000s and 2007 further controlling emissions from vehicles and fuels. These are projected to reduce vehicle pollutant emissions over the next 25 years.

As mentioned, Sheboygan County is nonattainment for the 8-hour standard for ground-level ozone NAAQS. The Clean Air Act requires that states prepare state implementation plans (SIP) for air quality to identify how the NAAQS in the nonattainment area will ultimately be met. In Wisconsin, this is the responsibility of the WDNR. The attainment demonstration included in the SIP takes into account many emission sources and details regulations to reduce emissions from those sources. The mobile source sector is responsible for reducing its emissions as well. The SIP provides emissions budgets that act as emissions ceilings for the mobile sector. The Clean Air Act requires that in nonattainment areas the planning agencies demonstrate that mobile source emissions resulting from the modeling for changes to the transportation system "conform" to the budgets included in Wisconsin's SIP. In Sheboygan County, Bay Lake Regional Planning Commission prepares a conformity analysis for ozone as part of its long range transportation plan as well as its transportation improvement program. The most recent conformity analysis is contained in Appendix C of the Sheboygan MPO TIP for Calendar Years 2013 to 2016. The expansion of WIS 23 to 4 lanes included in the conformity analysis and is discussed on pages C-5 and C-19. As for VOC emissions, the conformity plan states the following:

> *The transportation system volatile organic compound emissions under the transportation system plan and transportation improvement program, when analyzed for all of Sheboygan County, are less than the motor vehicle emissions budgets for volatile organic compounds …thus meeting this criterion for consistency.*[12]

[11] Based on the Table C-5 in Appendix C, the conformity analysis for the Sheboygan MPO TIP for the 2013 to 2016 Calendar Years. Only Sheboygan County is referenced because it is in nonattainment. Fond du Lac County is in attainment.
[12] The motor vehicle emission budgets used for conformity purposes are contained in the "8-Hour Ozone Redesignation Request and Maintenance Plan for the Sheboygan County Subpart 2 Moderate Nonattainment Area."

Table C.6
Forecast Volatile Organic Compound Emissions from the Transportation System in Sheboygan County Under the Update to the Year 2035 SATP/2013 - 2016 TIP and the State Implementation Plan for Air Quality: 2015, 2020, 2030 and 2035 (On a Hot Summer Weekday) Using Mobile 6.2 Emission Factors

	Sheboygan County	
Year	State Implementation Plan (tons)*	Year 2035 SATP (tons)
2015	2.010	1.071
2020	1.320	0.879
2030	1.320	0.884
2035	1.320	0.919

*The State Implementation Plan budget for volatile organic compounds was 2.010 tons for 2012, and 1.320 tons for 2020.

Source: Wisconsin Department of Natural Resources, 2010 and 2013; and Bay-Lake Regional Planning Commission, 2013.

Note: SATP = Sheboygan Area Transportation Plan

As for NOx emissions, the conformity plan states the following:

> *The transportation system nitrogen oxide emissions under the transportation system plan and transportation improvement program, when analyzed for all of Sheboygan County, are less than the motor vehicle emissions budgets for nitrogen oxides …thus meeting this criterion for consistency.* [13]

Table C.7
Forecast Nitrogen Oxide Emissions from the Transportation System in Sheboygan County Under the Update to the Year 2035 SATP/2013 - 2016 TIP and the State Implementation Plan for Air Quality: 2015, 2020, 2030 and 2035 (On a Hot Summer Weekday) Using Mobile 6.2 Emission Factors

	Sheboygan County	
Year	State Implementation Plan (tons)*	Year 2035 SATP (tons)
2015	4.150	2.117
2020	1.790	1.300
2030	1.790	0.893
2035	1.790	0.882

*The State Implementation Plan budget for nitrogen oxides was 4.150 tons for 2012, and 1.790 tons for 2020.

Source: Wisconsin Department of Natural Resources, 2010 and 2013; and Bay-Lake Regional Planning Commission, 2013.

Therefore, while the Preferred Build Alternative is projected to produce more vehicle miles traveled, it represents a very modest increase in the overall VMT for Sheboygan County (0.13 percent in 2020). The conformity analysis indicates the Sheboygan Area Transportation Plan is consistent with the approved motor vehicle emissions budgets for Air Quality even with the expansion of WIS 23 to 4 lanes. Therefore while the Preferred Build Alternative could have more VOC and NOx emissions than the No-Build Alternative, the conformity analysis indicates the Sheboygan Area Transportation Plan is consistent with the emission budgets set forth to bring the county back into attainment.

[13] The motor vehicle emission budgets used for conformity purposes are contained in the "8-Hour Ozone Redesignation Request and Maintenance Plan for the Sheboygan County Subpart 2 Moderate Nonattainment Area. "

i. Trails

State, county, and local governments and other organizations in the study area continually plan for the acquisition and development of new trails. The US 151 Fond du Lac bypass, constructed in 2005-2008, created the Prairie Trail, a multiuse path that travels around the east and south sides of Fond du Lac. For the WIS 23 corridor, the potential indirect impacts to trails of the No-Build Alternative include delay of extension of the Old Plank Road Trail west to Fond du Lac and delay of construction of underpass for safe passage across WIS 23 for the Ice Age Trail and snowmobiles. There would be no cumulative impact from the No-Build Alternative to trails. The current WIS 23 at-grade high speed crossing of the Ice Age Trail and State Equestrian Trail on WIS 23 would remain. This alternative also would delay extension of the Old Plank Road Trail from the Northern Unit of the Kettle Moraine State Forest to Fond du Lac.

The Preferred Build Alternative's contribution to cumulative impact to trails and nonmotorized travel is beneficial through the provision of a more complete local and regional trail network. The Preferred Alternative extends the Old Plank Road Trail west to the Prairie Trail in Fond du Lac. It also provides a grade-separated trail crossing of WIS 23 for the Ice Age Trail. This combined with other actions, such as local trail improvements which include the Wild Goose-Prairie Connector, the Mascoutin Valley Trail Extension, and Union Pacific Trail Conversion, will make nonmotorized travel easier. Another factor contributing to the positive cumulative effect on trails and nonmotorized travel are the provisions contained in Wisconsin Administrative Code Trans 75, which requires bicycle and pedestrian facilities on highway projects unless the project qualifies for an exception.

j. Environmental Justice Populations

There are no direct impacts to environmental justice populations under the No-Build Alternative. In terms of indirect impacts, the study team determined that concentrations of minority and low-income populations will not be disproportionately adversely impacted by the No-Build Alternative because generally employment and social services are available in Fond du Lac and Plymouth where such population concentrations occur. Conversely, concentrations of elderly populations will be more adversely affected where they are concentrated in the central portion of the ICE study area and need to travel to the urban areas at the ends of the ICE study area for services.

In terms of cumulative impacts, in the long term, the percentage of elderly populations is projected to increase in the coming decades based on data from the Wisconsin Department of Administration Demographic Services, 2013 Estimates. The lack of improvements under the No-Build Alternative will not address safety problems currently found in the corridor. This safety issue may contribute to the cumulative adverse safety impact on elderly residents and drivers who are more at risk where safety problems exist. As a result, these safely problems that are not addressed with the No-Build Alternative are likely to adversely impact a slightly larger percentage of the population within the ICE study area.

There are no direct impacts to environmental justice populations under the Preferred Build Alternative. Indirect impacts under the Preferred Build Alternative may include access restrictions which are proposed along points in the corridor that may make access somewhat less convenient and trips slightly longer for the concentrations of elderly population in the central part of the ICE study area in the towns of Marshfield and Forest and the villages of Mount Calvary and St. Cloud. However, such access restrictions are likely to be offset by reduced highway congestion and safer conditions under the Preferred Build Alternative.

In terms of cumulative impacts, in the long term, the percentage of elderly populations is projected to increase in the coming decades based on data from the Wisconsin Department of Administration Demographic Services, 2013 Estimates. The improvements under the Preferred Build Alternative will address safety problems currently found in the corridor and thus help correct a problem which disproportionately impacts elderly residents and drivers who are more at risk where safety problems exist. Other cumulative effects of the Preferred Build Alternative will be modest and may include:

(a) Need for additional public and nonmotorized vehicle transportation. The availability of public and nonmotorized vehicle transportation options (i.e., sidewalks, bike lanes, paths, and trails) varies throughout the study area, with metro areas having a greater abundance of such options. As new development occurs, additional transportation options may be needed to provide multiple transportation options beyond the single occupancy vehicle. Transportation options will be helpful for all individuals in the ICE study area to reach new employment destinations.

(b) Need for safe, affordable housing in the vicinity of employment destinations. Similarly, as modest new employment-related growth occurs as a result of the Preferred Build Alternative, the need for new, safe, affordable housing will likely occur. In Fond du Lac and Plymouth, higher density housing is planned near locations planned for employment. Future development of these areas may fill the need to provide affordable housing in the ICE study area.

Summary

In addition to the cumulative effects described in a.-j. above, cumulative adverse effects resulting from the WIS 23 Preferred Alternative include the conversion of farmland to right of way, which augments other development activities that are converting farmland to other uses. Another cumulative effect is residential development in the Niagara Escarpment lands east of Fond du Lac. Residential development is currently occurring in the escarpment. Improved mobility from WIS 23 could indirectly increase the pace of residential development in the escarpment (and indirect effect), which would create a cumulative impact to the uplands of the escarpment.

The combination of access controls and interchanges associated with the Preferred Build Alternative will likely have the result of focusing development near the interchanges and reducing scattered development throughout the remainder of the ICE study area (an indirect effect). By reducing the indirect effect of scattered development, the cumulative effect to agricultural lands and uplands will be reduced.

The cumulative effect of the WIS 23 project when combined with other actions analyzed above will be the incremental loss of agricultural land and other natural areas in the ICE study area, particularly surrounding the cities of Fond du Lac and Plymouth where development is planned.

10. Alternatives to Avoid, Minimize, or Mitigate Significant Cumulative Effects

The WIS 23 Preferred Alternative will contribute to the cumulative effect on resources, with other contributors being past, present, and future actions by other entities. The predominant contribution to cumulative effects from the WIS 23 Preferred Alternative includes loss of farmland, loss of uplands, degradation of water quality, and a small degradation air quality.

The indirect effects section of this LS SFEIS/ROD excerpted FHWA's environmental toolkit that described FHWA's responsibility in the mitigation of indirect and cumulative effects.[14] NEPA does not specifically require substantive mitigation for project impacts; direct, indirect, or cumulative. The CEQ regulations require that the environmental impacts statement include consideration and discussion of possible mitigation for project impacts (40 CFR §§ 1502.14((f), 1502.16(e-h), 1505.2(c), 1508.25(b)(3)).

While this section specifically addresses cumulative effects, direct and indirect effects represent WIS 23's contribution toward the cumulative effect on a resource and are therefore discussed.

[14] http://www.environment.fhwa.dot.gov/projdev/qaimpact.asp accessed June 2013

a. Avoidance Measures

(1) Corridor Selection

In the development, evaluation, and screening of alternative corridors, WisDOT considered both the direct environmental impacts of the corridor alternatives and the indirect and cumulative effects. The consideration of direct, indirect, and cumulative effects led to the selection of the on-alignment corridor, Alternative 1, as the Preferred Alternative. The selection of Alternative 1 had the following effects:

(a) It reduced the quantity of direct impacts to farmland, wetlands, and uplands. (See Table 4.5-1 of this LS SFEIS/ROD. Alternative 1 requires up to 23 percent less right of way and 42 percent fewer wetland impacts than some of the off-alignment alternatives.) In doing so, it reduced the highway improvement's contribution to cumulative effects.
(b) It reduced the number of severed farm parcels and the amount of farmland required. Alternative 1 requires up to 57 percent less farmland than some of the off-alignment alternatives. Farm severances make agriculture less sustainable and can lead to a reduction in farming activities and the conversion of severed parcels to other land uses (an indirect effect that leads to a cumulative effect on resources). Alternative 1 had the least amount of farm severances and cropland required.
(c) It reduced the amount of roadway lane mileage associated with WIS 23 improvements. Selection of an off-alignment corridor would have increased lane mileage because new bypass lanes would be constructed in addition to the existing WIS 23 lanes. Alternative 1 would have about a third less pavement than some off-alignment alternatives. Additional lane mileage has direct environmental effects, such as degraded water quality, induced traffic, the corresponding air quality impacts, and severance of natural communities. Selection of Alternative 1 avoided the impacts that would have occurred with additional lane mileage of the off-alignment alternatives.
(d) It avoided potential residential and commercial development from occurring along an off-alignment corridor (an indirect effect that leads to a cumulative effect on resources). This included avoiding the corresponding environmental impacts that would have been associated with this development.

(2) Alignment Refinements

With the selection of Alternative 1 as the Preferred Alternative, several alignment modifications were incorporated into the alternative to avoid direct impacts, which then decrease the cumulative impact of the project on area resources. These alignment refinements included shifting the roadway alignment north of the Old Wade House State Park and south of the Pit Road wetland mitigation site. Both alignment shifts decreased wetland impacts, decreasing the cumulative effect of the project on area wetlands.

(3) Preferred Alternative Features

WisDOT seeks to incorporate design components and features into the Preferred Alternative that minimize the adverse effects of the potential project. Many of these components address direct effects, but they also have regional influence and a cumulative effect. The WIS 23 Preferred Project incorporates a 16-mile extension of the Old Plank Road Trail. his extension enhances the ability of WIS 23 to serve nonmotorized modes of transportation and offsets potential negative project effects to nonmotorized modes.

b. Minimization Measures

(1) Impact Minimization

Through the final design process, WisDOT seeks to minimize impacts to adjacent properties and resources. This minimization reduces the direct impacts of the alternatives, which contribute to the overall cumulative impacts on particular resources. Between the publishing of the 2010 FEIS, design refinements have reduced the amount of impact on some resources, such as cropland which was reduced by 20 acres and uplands/woodlands which was reduced by 24 acres. Some

impact categories have risen since the publishing of the 2010 FEIS–mostly because of revised boundaries (wetlands) or property owner requests (residential relocations).

(2) Construction Impact Minimization

WisDOT will seek to minimize construction impacts through the implementation of various measures that are described in Section 6 of this LS SFEIS/ROD. These measures reduce direct construction impacts, which consequently reduce the project's contribution on the cumulative impact on these resources. Measures to minimize construction impacts include the following:

(a) A transportation management plan (TMP) will provide reasonably convenient access to residences, businesses, farm parcels, community services, and local roads during construction.
(b) Special provisions to reduce the short-term impacts of construction noise will require that motorized equipment be operated in compliance with all applicable local, state, and federal laws and regulations on noise levels permissible within and adjacent to the project construction site.
(c) The special provisions and plan set will include measures to reduce water quality and quantity impacts occurring through construction. WisDOT through Trans 401, Wisconsin Administrative Code, and the WisDOT/WDNR Cooperative Agreement will comply with the substantive requirements of Chapter 147, Wisconsin Statutes, Wisconsin Pollutant Discharge Elimination System (WPDES) to reduce water quality and hydrology impacts. Precautions will be taken at the Sheboygan River and Mullet River Creek crossings to preclude erosion and stream siltation.
(d) To reduce impacts to wildlife, construction work will be scheduled during nonbreeding seasons. Section 4.6 C-7 of this LS SFEIS/ROD details commitments being made to reduce impacts to rare species as coordinated with the WDNR over the winter of 2013.
(e) During construction, impacts to wetlands from erosion and sediment transport will be minimized or prevented by implementing erosion control best management practices as specified in the construction contract
(f) For agriculture, reasonable access will be provided to farms. Existing drainage systems (ditches and tiles) will be kept operational during construction.

(3) Access Management

WisDOT implements access management on roadways and access points along state highways. Access management reduces the indirect effects of a project, which reduces the Preferred Alternative's overall contribution to a cumulative effect on a resource. Access management and its effect in development were described in the indirect effects section. Of the current 42 full-access intersections, the Preferred Alternative incorporates 7 cul-de-sacs, 14 right-in/ right-out access restrictions, 11 J-turn access restrictions, and 3 interchanges/jug-handle. While providing sufficient local access, these access restrictions will have the effect of directing development away from rural intersections with less access toward intersections with more access.

c. Mitigation Measures

(1) Direct Impact Mitigation and Corresponding Contribution to Cumulative Impacts

Mitigation was provided for the US 151 Bypass, a past project, in the creation of the Taycheedah Wetland Mitigation Bank. The construction of the Prairie Trail with this project also augmented nonmotorized travel in the ICE study area.

For WIS 23, WisDOT is providing mitigation for several types of direct impacts. Mitigating direct impacts reduces or eliminates the WIS 23 project's contribution to cumulative impacts of specific resources. Direct impact mitigation includes:

(a) The mitigation of approximately 48 acres of wetlands being filled through the establishment of a wetland mitigation bank.
(b) The provision of a grade-separated crossing of WIS 23 for the Ice Age Trail and State Equestrian Trail.

(c) The replacement of 2.21 acres of land required from the Northern Unit of the Kettle Moraine State Forest with 4.275 acres of land to be transferred to State Forest ownership.
(d) The Phase III data recovery at the Sippel Archaeological Site to document the information from this archaeological resource.

Mitigation will occur for other present and future projects, such as the US 151/County V and County T improvements as well as future improvements associated with US 151 and WIS 23 corridor preservation. At a minimum the mitigation will include wetland mitigation and acquiring right of way in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act, as well as other measures. Details of the mitigation associated with each project will be described in each project's NEPA documentation.

d. Avoidance, Minimization, and Mitigation Measures Outside of WisDOT's and FHWA's Jurisdiction.

As mentioned in the indirect effects section, neither WisDOT nor FHWA has jurisdiction over local land use policy or decisions. The project team has identified several avoidance, minimization, and mitigation measures that may further reduce indirect and cumulative effects if implemented by other entities. hey are identified here for consideration by the appropriate outside entities. Policy choices by local governments regarding planning and existing and future land use regulations can play a large role in either facilitating or minimizing potential indirect effects of the WIS 23 project and their resulting contribution to cumulative effects on resources. WisDOT can control WIS 23's direct effects that contribute to the cumulative effect of other past, present, and future actions on resources. Land use tools available to local jurisdictions commonly used to avoid and reduce impacts to resources were described in the indirect effects section and include the following:

- Comprehensive Planning
- Farmland Preservation Planning
- Zoning Ordinance
- Subdivision/Land Division Ordinance
- Extraterritorial Jurisdiction
- Official Mapping
- Conservation Easements
- Urban Service Area
- Tax Increment Financing (TIF).

Use of these tools can decrease the negative consequences of indirect development on resources.

11. Monitor and Evaluate the Cumulative Effects of the Selected Alternative and Adapt Management

Section 6 of this LS SFEIS/ROD contains the commitments to mitigation and monitoring regarding effects of the Preferred Alternative. It includes continued coordination with WDNR regarding threatened and endangered species, commitments regarding archaeological and historic sites, wetland monitoring, and measures to offset impacts to Section 4(f) properties. WisDOT and FHWA will work within their jurisdictional limitations to minimize adverse indirect and cumulative effects. These efforts will be primarily associated with the roadway project corridor and are primarily limited to the duration of the construction project. Local communities and state agencies with jurisdiction in the study area will have the ability to monitor and evaluate impacts on land and resources on a long-term basis. Communities have the ability to approve or not approve development decisions and can influence the pace of development for years after WIS 23 improvements are completed. Other agencies with federal authority, such as the USEPA and USACE, also have the authority to monitor impacts to natural resources such as floodplains, wetlands, and water quality.

4.5 ENVIRONMENTAL COST MATRICES

The DEIS released in 2004 broadly evaluated 6 alternatives on various alignments that expanded WIS 23 to 4 lanes. The analysis did not include local road improvements, interchanges, or extension of the Old Plank Road Trail but was used to select a basic alignment in which WIS 23 improvements would take place. Table 4.5-1 lists the impacts and alternatives as they were presented in the 2004 DEIS. These impacts were used in the initial evaluation and in the selection of a preferred alternative.

Table 4.5-1 DEIS Comparison of 4-Lane Expansion Alternatives
(Without interchanges, local roads, and Old Plank Road Trail)

			DEIS QUANTITIES - 2004					
			4-Lane Expansion Impacts Only					
Route Segments		NO	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Road Type	UNIT	BUILD	Expressway	Expressway	Future	Convertible	Freeway	
Road Length	Miles	19.07	19.07	18.80	19.00	19.10	19.00	19.10
FOUR-LANE EXPANSION COST								
Roadway - New Construction	Millions 2003$ (2012$)	0.00	39.4 (48.3)	47.4 (58.1)	61.2 (75.1)	61.1 (74.9)	61.3 (75.1)	61.1 (74.9)
Roadway - Rehab of Old Roadway	Millions 2003$ (2012$)	0.00	5.9 (7.3)	4.7 (5.7)	1.7 (2.1)	1.9 (2.4)	1.7 (2.1)	1.9 (2.4)
Real Estate - Land and Buildings	Millions 2003$ (2012$)	0.00	5.3 (6.5)	3.0 (3.7)	1.2 (1.5)	1.7 (2.1)	1.0 (1.2)	1.5 (1.8)
Real Estate - Property Without Buildings	Millions 2003$ (2012$)	0.00	2.2 (2.7)	2.6 (3.2)	3.3 (4.0)	3.3 (4.0)	3.2 (4.0)	3.2 (4.0)
SUBTOTAL	Millions 2003$ (2012$)	**0.00**	**52.9 (64.8)**	**57.7 (70.8)**	**67.5 (82.7)**	**68.0 (83.4)**	**67.2 (82.4)**	**67.8 (83.1)**
ACCESS PRESERVATION COST								
Grade Separations (# of crossings)		0	0	2	10	10	10	10
SUBTOTAL	Millions 2003$ (2012$)	**0.0**	**0.0**	**2.0 (2.5)**	**10 (12.3)**	**10 (12.3)**	**10 (12.3)**	**10 (12.3)**
OTHER COSTS								
Utilities	Millions 2003$ (2012$)	0.00	1.1 (1.4)	0.9 (1.0)	0.5 (0.6)	0.5 (0.6)	0.5 (0.6)	0.5 (0.6)
Jurisdictional Transfers	Millions 2003$ (2012$)	0.00	0.00	1.2 (1.5)	3.9 (4.8)	3.6 (4.4)	3.9 (4.8)	3.6 (4.4)
Wetland Mitigation	Millions 2003$ (2012$)	0.00	0.4 (0.5)	0.3 (0.4)	0.4 (0.5)	0.4 (0.5)	0.4 (0.5)	0.5 (0.6)
Side-Road Connection and Rehab	Millions 2003$ (2012$)	0.00	2.0 (2.5)	3.0 (3.7)	3.0 (3.7)	3.0 (3.7)	3.0 (3.7)	3.0 (3.7)
SUBTOTAL	Millions 2003$ (2012$)	**0.00**	**3.5 (4.3)**	**5.4 (6.6)**	**7.8 (9.5)**	**7.5 (9.2)**	**7.8 (9.6)**	**7.6 (9.3)**
TOTAL COSTS	Millions 2003$ (2012$)	**0.00**	**56.3 (69.1)**	**65.1 (79.8)**	**85.3 (104.5)**	**85.6 (104.9)**	**85.0 (104.2)**	**85.3 (104.6)**
EIS IMPACTS								
Existing R/W Used	Acres	0	420 (429)+	311	152	152	182	182
Total Land Converted to Highway R/W	Acres	0	277 (215)+	331	427	430	408	411
Farmland Converted to Highway R/W	Acres	0	128 (92)+	169	296	298	282	283
Residential Relocations	Number	0	26 (21)+	19 (17)+	8 (20)+	8	8	8
Business Relocations (Not Including Farms)	Number	0	7 (3)+	10 (2)+	6 (2)+	8	6	8
Farm Relocations	Number	0	11 (17)+	5 (7)+	3 (4)+	3	3	3
Farms Severed	Number	0	0	5	28	25	25	22
Wetland Acres Filled	Acres	0	58 (37.1)+	52 (37.9)	64 (59.5)	73 (63.9)	70 (59.0)	79 (64.5)
Upland Habitat Affected	Acres	0	12 (38.4)+	19	31	30	31	30
Floodplain Encroachment	yes/no	NO	YES	YES	YES	YES	YES	YES
Threatened and Endangered Species	yes/no	NO	YES	YES	YES	YES	YES	YES
Historical Resources	number	0	6 (19)+	7	3	3	3	3
Archaeological *(Sites needing future evaluation)	Resources	0	18 (4)*	22 (9)*	22 (12)*	22 (12)*	22 (12)*	22 (12)*
Contaminated Sites	Each	0	(27)	(16)	(7)	ND	ND	ND
Noise Receptors - Currently exceeding NLC - Future (2035) exceeding NLC	 Each Each	 (29) (44)	 (29) (47)	 (29) (54)	 (21) (47)	ND	ND	ND

( )+ Subsequent evaluation after the 2004 revised the number of relocations. Costs revised using implicit price deflator.

Note: Broad Corridor Impacts associated with the 4-lane expansion were used to selected a preferred alignment. Once the preferred alignment was selected, the Preferred Alternative augmented it with other access and multimodal features, increasing the total impacts.

Following comments on the 2004 DEIS from the public and agencies, additional components were added to the Preferred Build Alternative to enhance its function and meet community needs. These added components include extending a multiuse trail alongside WIS 23 and providing grade-separated interchanges/connections at several high-use intersections. Table 4.5-2 presents the impacts listed in the 2009 SDEIS and 2010 FEIS that show the impacts for each added component (e.g., the trail, the grade-separated crossings, and the interchanges) with the figures updated to reflect the most recent data.

Table 4.5-2 Alternative Environmental Cost Matrix

Updated 2013 Impact Values and Categories	UNIT	NO BUILD[3]	Build Alternatives: Preferred Build Alternative: Alt 1 4-ln Expansion Totals[1]	Build Alternatives: Preferred Build Alternative: Connection Roads and Interchanges Totals	Build Alternatives: Preferred Build Alternative: Old Plank Trail[5] Totals	Build Alternatives Total	Corridor Preservation Measures: WIS 23 Corridor Connection Rds, Grade Separation, and Interchanges: No WIS 23 Preservation Totals	Corridor Preservation Measures: WIS 23 Corridor Connection Rds, Grade Separation, and Interchanges: Preferred WIS 23 Preservation Totals	Corridor Preservation Measures: US 151 / WIS 23 System Interchange: Preferred No US 151/WIS 23 Preservation Totals	Corridor Preservation Measures: US 151 / WIS 23 System Interchange: US 151/WIS 23 23-1 Preservation Totals	Corridor Preservation Measures: US 151 / WIS 23 System Interchange: US 151/WIS 23 23-2 Preservation Totals	Preferred Corridor Preservation Measures
Road Length	Miles	19.07	19.07	N/A	N/A	19.07	N/A	N/A	N/A	N/A	N/A	N/A
FOUR-LANE EXPANSION AND ACCESS PRESERVATION COST												
Design	Millions $	6.7	9			9.0	N/A	N/A	N/A	N/A	N/A	N/A
Real Estate[5]	Millions $		26.5			26.5	N/A	N/A	N/A	N/A	N/A	N/A
Utility	Millions $		5.4			5.4	N/A	N/A	N/A	N/A	N/A	N/A
Construction	Millions $		87.3			87.3						
SUBTOTAL	Millions $	**6.7**	**128.2**			**128.2**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
FUTURE ACCESS PRESERVATION COST (Construction and Real Estate)												
System interchange Roadway Construction	Millions $	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	47.2	70.9	N/A
System interchange Real Estate	Millions $	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.1	0.9	N/A
CTH W Interchange with Connections	Millions $	N/A	N/A	N/A	N/A	N/A	N/A	9.8	N/A	N/A	N/A	9.8
CTH A Interchange with Connections	Millions $	N/A	N/A	N/A	N/A	N/A	N/A	8.6	N/A	N/A	N/A	8.6
Grade Separation Overpass (Sugarbush, Tower, Seven Hills, Hillview, Scenic View, County P)	Millions $	N/A	N/A	N/A	N/A	N/A	N/A	19.6	N/A	N/A	N/A	19.6
SUBTOTAL	Millions $	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**38.0**	**N/A**	**50.3**	**71.8**	**38.0**
TOTAL COSTS[2]	Millions $	**6.7**	**128.2**			**128.2**	**N/A**	**38.0**	**N/A**	**50.3**	**71.8**	**38.0**
EIS IMPACTS												
Existing R/W Used	Acres	0	429	25	32	**486**	0	20	0	36	55	**20**
Total Land Converted to Highway R/W	Acres	0	215	119	90	**424**	0	68	0	62	52	**68**
Cropland Converted to Highway R/W	Acres	0	92	81	52	**225**	0	39	0	4	28	**39**
Residential Relocations	Number	0	21[6]	12	0	**33**	0	3	0	5	0	**3**
Business Relocations (Not Including Farms)	Number	0	3	5 Bldgs 7 Bus	0	**8 Bldgs 10 Bus**	0	2	0	3 Bldgs 5 Bus	0	**2**
Farm Relocations (One or more farm buildings)	Number	0	17	2	0	**19**	0	4	0	0	0	**4**
Farms Severed	Number	0	0	5[4]	0	**5**	0	2	0	1	1	**2**
Wetlands filled	Acres	0	37.1	0.8	10.2	**48.1**	0	1.7	0	12.1	7.6	**1.7**
Upland/Woodland Habitat Affected	Acres	0	38.4	2.2	7.3	**47.9**	0	8.5	0	5.9	0.1	**8.5**
Excess Right of Way Purchased	Acres	0	158.2			**158**	0	N/A	0	N/A	N/A	**N/A**
Floodplain Encroachment	yes/no	NO	YES	YES	YES	**YES**	NO	YES	NO	YES	YES	**YES**
Threatened and Endangered Species	yes/no	NO	YES	YES	NO	**YES**	NO	YES	NO	YES	YES	**YES**
Impacted Noise Receptors (2035)	Each	44	47			**47**	ND	ND	9	2	2	**9**
Potentially Contaminated Sites (Phase II)	Each	0	27 (5)			**27 (4)**	0	2	0	0	0	**0**
Historical Resources In Corridor (Number Adversely Effected)	Number	0	19(0)	2(0)	N/A	**19(0)**	0	0	0	2 (0)	2 (0)	**0**
Archaeological Resources	Number Phase II (III)	0	4(1)	0	0	**4(1)**	0	0	0	2 (0)	1 (0)	**0**

[1] Includes crossing for Ice Age Trail.

[2] All Costs are in Year of Expenditure dollars, 2015 for Preferred Build Alternative, 2030 for Improvements Associated with Corridor Preservation

[4] Three of the farms severed by the connection roads and interchanges are also severed by the trail that runs along the proposed roadway.

[5] Approximately 35% of right of way allocated to Old Plank Road Trail would be needed if WIS 23 were expanded without trail. See discussion Section 4.1

[6] Residential relocations for 4-Lane expansion also includes the relocation due to the relocation of the utility poles.

As mentioned, since the publication of the 2010 FEIS, the impacts have been updated as part of the normal design refinement process. Table 4.5-3 compares the impacts presented in the 2010 FEIS with the updated impacts obtained from the current design refinement. The impacts vary from what was presented in the 2010 FEIS because as design has progressed there is a greater understanding of the actual right of way needs. Many of these refinements involved access and right of way modifications that occurred during right of way negotiations and are described in Section 2.7 in this combined LS SFEIS and ROD (LS SFEIS/ROD). In most cases, the direct right of way impacts have been reduced. The number of relocations has increased, primarily because of property owners requesting relocation because of access changes.

Table 4.5-3 Preferred Alternative Environmental Cost Matrix

Selected Alternative Environmental Cost Matrix

		CURRENT Values		2010 FEIS Values (No Longer Current)	
Updated 2013 Values and Impact Categories	**UNIT**	**Build Alternatives Total**	**Selected Corridor Preservation Measures**	**Build Alternatives Total**	**Preferred Corridor Preservation Measures**
Road Length	Miles	19.07	N/A	19.07	N/A
FOUR-LANE EXPANSION AND ACCESS PRESERVATION COST					
Design	Millions $	9.0	N/A	9.0	N/A
Real Estate [2]	Millions $	26.5	N/A	26.5	N/A
Utility	Millions $	5.4	N/A	5.4	N/A
Construction	Millions $	87.3		98.8	
SUBTOTAL	Millions $	**128.2**	**N/A**	139.7	N/A
FUTURE ACCESS PRESERVATION COST (Construction and Real Estate)					
System interchange Roadway Construction	Millions $	N/A	N/A	N/A	N/A
System interchange Real Estate	Millions $	N/A	N/A	N/A	N/A
CTH W Interchange with Connections	Millions $	N/A	9.8	N/A	9.8
CTH A Interchange with Connections	Millions $	N/A	8.6	N/A	8.6
Grade Separation Overpass (Sugarbush, Tower, Seven Hills, Hillview, Scenic View, County P)	Millions $	N/A	19.6	N/A	19.6
SUBTOTAL	Millions $	**N/A**	**38.0**	N/A	38.0
TOTAL COSTS[1]	Millions $	**128.2**	**38.0**	139.7	38.0
EIS IMPACTS					
Existing R/W Used in Alternative	Acres	**486**	**20**	494	31
Total Land Converted to New Highway R/W	Acres	**424**	**68**	423	72
Cropland Converted to Highway R/W	Acres	**225**	**39**	245	41
Residential Relocations	Number	**33**	**3**	24	4
Business Relocations (Not Including Farms)	Number	**8 Bldgs 10 Bus**	**2**	5	2
Farm Relocations (One or more farm buildings)	Number	**19**	**4**	16	1
Farms Severed	Number	**5**	**2**	7	2
Wetlands filled	Acres	**48.1**	**1.7**	43	2
Upland/Woodland Habitat Affected	Acres	**47.9**	**8.5**	72	11
Excess R/W Puchased (due to relocations)	Acres	**158**	**N/A**	N/A	N/A
Floodplain Encroachment	yes/no	**YES**	**YES**	YES	YES
Threatened and Endangered Species	yes/no	**YES**	**YES**	YES	YES
Impacted Noise Receptors (2035)	Each	**47**	**9**	ND	ND
Potentially Contaminated Sites (Ph II)	Each	**27 (4)**	**0**	ND	ND
Historical Resources Nearby (Number Adversely Effected)	Number	**19(0)**	**0**	19(0)	N/A
Archaeological Resources	Number Phase II (III)	**4(1)**	**0**	5(1)	0

N/A = Not Applicable, ND = Not Determined, R/W = right of way

[1] All Costs are in Year of Expenditure dollars, 2015 for Preferred Build Alternative, 2030 for Improvements Associated with Corridor Preservation

[2] Approximately 35% of right of way allocated to Old Plank Road Trail would be needed if WIS 23 were expanded without trail. See discussion Section 4.1

Since the release of the 2010 FEIS WisDOT has been purchasing right of way and relocating businesses and households. In the rural portion of the WIS 23 corridor (east of Taft Road) right of way has been acquired from 57 parcels, 12 residences have been relocated, and 1 business has been relocated. In the urban section of the WIS 23 corridor (west of Taft Road), 9 residences have been relocated and 1 businesses have been relocated. Other than these relocations, no direct right of way has been purchased in the urban section because the right of way plat has not yet been completed.

The Environmental Evaluation Matrix summarizes the impacts of the alternatives according to different impact categories. This section contains revisions, clarifications, and updates to information presented in the 2010 FEIS. These changes include the following:

- The presentation order of the impact categories has been changed to coincide with the new Factor Sheets.
- The impacts have been updated to reflect design refinements that have been made since the 2010 Record Of Decision (ROD).

*Factor Sheets are a more condensed method for documenting the results of the NEPA process. They are generally used by WisDOT and FHWA in Environmental Assessments and Environmental Reports. The sheets were used in this EIS as part of a WisDOT pilot effort to streamline the environmental documentation process. Since the FEIS used the Factor Sheet format, it has been retained in this LS SFEIS/ROD, except for Section 5, which was significantly revised.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
A-1 General Economics					See Factor Sheet 4.6 A-1 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☒	☐	☐	☐	The economic impact of the No-Build Alternative would primarily be noticed in the long term. Increased traffic would create more congestion on WIS 23 and result in less efficient movement of goods between economic centers. The No-Build Alternative would not accommodate farm equipment as well as the Build Alternatives.
Alternative 2	☐	☒	☐	☐	All Build Alternatives involve capacity expansion from 2 lanes to 4 lanes. One economic advantage of the proposed action is the travel time savings and improved safety because of reduced delays and congestion. The Build Alternatives would update WIS 23 to meet the standards for Corridors 2030 Connector routes and decrease the cost of moving goods and services between economic centers.
Alternative 3	☐	☒	☐	☐	
Preferred Build Alternative	☐	☒	☐	☐	The Preferred Build Alternative (Alternative 1) would have the same benefits as the 4-lane expansion associated with Alternatives 2 and 3. Connection roads and interchanges would reduce the conflict points created by at-grade intersections, which would improve safety and congestion. Also, the Old Plank Road Trail would provide a continuous trail from Sheboygan to Fond du Lac, which could create specialized tourist-oriented businesses along the corridor.
Alternative 1 (4-Lane Expansion)	☐	☒	☐	☐	
Connection Roads and Interchanges	☐	☒	☐	☐	
Old Plank Road Trail					

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☒	☐	☒	☐	The WIS 23 No Corridor Preservation Alternative would leave land unencumbered–maintaining property values and usages. Future transportation improvements could lead to greater business impacts.
Preferred WIS 23 Corridor Preservation	☒	☒	☐	☐	The Preferred WIS 23 Corridor Preservation Alternative could reduce the utility and value of land within the corridor preservation boundaries. Long-term benefits include easier implementation of future WIS 23 transportation improvements and reduced impacts on business properties.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☒	☒	☐	☐	The Preferred US 151/WIS 23 Interchange No Corridor Preservation Alternative would leave land unencumbered–maintaining property values and usages. Future transportation improvements could lead to much greater business impacts, particularly in the southeast interchange quadrant.
Option 23-1 Corridor Preservation	☒	☒	☐	☐	The US 151/WIS 23 Interchange Corridor Preservation Alternatives could reduce the utility and value of land within the corridor preservation boundaries. For Option 23-1, the effects would be primarily in the southeast interchange quadrant. For Option 23-2, they would be primarily in the northeast, northwest, and southwest quadrants. Long-term benefits include easier implementation of a future US 151/WIS 23 system interchange and reduced impacts on business properties.
Option 23-2 Corridor Preservation	☒	☒	☐	☐	
A-2 Economic Development and Business Impact					See Factor Sheet 4.6 A-2 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☒	☐	☐	☐	Over time, increased congestion associated with the No-Build Alternative could adversely affect the local economy. Increased traffic would create more congestion on WIS 23 and result in less efficient movement of goods between economic centers. This could result in less economic investment in corridor communities.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Alternative 2	☒	☒	☐	☐	All Build Alternatives involve capacity expansion from 2 lanes to 4 lanes. An economic advantage of the proposed action is the travel time savings and improved safety because of reduced delays and congestion. The Build Alternatives would update WIS 23 to standards for Corridors 2030 Connector routes and improve the efficiency of moving goods and services between economic centers. For Alternative 2 and Alternative 3, an adverse effect would occur from the relocation of 2 businesses, not including up to an additional 7 business relocations if connection roads and interchanges were incorporated with these alternatives. Up to 7 operating farms would need to be acquired, removing them from the farm business.
Alternative 3	☒	☒	☐	☐	
Preferred Build Alternative	☒	☒	☐	☐	The Preferred Build Alternative (Alternative 1) along with connection roads and interchanges would save travel time and improve safety. Improved transportation facilities improve the real and perceived access to corridor businesses. High quality transportation corridors also help attract business and industry to area communities. The Preferred Alternative would improve the efficiency of moving goods and services between economic centers. Adverse effects from the Preferred Build Alternative include the right of way required from business and farm operations. The 4-lane expansion, connection roads, and interchanges would require 10 individual business relocations in 8 business buildings. There would be 19 farm relocations required. Additionally, there are several utilities that border WIS 23 that would require relocation. These include overhead and underground power lines, overhead and underground telecommunications lines, and some natural gas and petroleum pipeline crossings. The majority of the utility relocations would occur within or directly adjacent to the roadway right of way. WisDOT would continue to coordinate with affected utilities through the design process.
Alternative 1 (4-Lane Expansion)	☒	☒	☐	☐	
Connection Roads and Interchanges	☒	☒	☐	☐	
Old Plank Road Trail					
Corridor Preservation Alternatives					
WIS 23 Corridor	☒	☐	☒	☐	
No Corridor Preservation					The WIS 23 No Corridor Preservation Alternative would leave land unencumbered. Safety would deteriorate as traffic and congestion increase; however, no relocations would be required for this alternative.
Preferred WIS 23 Corridor Preservation	☒	☒	☐	☐	The Preferred WIS 23 Corridor Preservation Alternative would ease the construction of future transportation improvements that improve the safety of WIS 23. These future improvements would concentrate access to the safest locations (benefit). When improvements associated with the Preferred WIS 23 Corridor Preservation Alternative are constructed in the future, an additional 2 business relocations and 4 farm relocations would be required.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☒	☐	☒	☐	The Preferred US 151/WIS 23 Interchange No Corridor Preservation Alternative would leave land unencumbered. The existing interchange is not as efficient as a high quality transportation connection.
Option 23-1 Corridor Preservation	☒	☒	☐	☐	The US 151/WIS 23 Interchange Corridor Preservation Alternatives would ease the future construction of system interchange improvements. These improvements, when implemented, would further improve corridor mobility and safety, reducing business transportation costs and providing a high quality transportation connection. The construction of improvements associated with the Option 23-1 Corridor Preservation Option would require the future relocation of 3 business buildings containing 5 individual businesses and would sever the Wisconsin American business park. In the near term, the Option 23-1 Corridor Preservation Option could also reduce the marketability of vacant parcels within the business park. The Option 23-2 Corridor Preservation Option would not require any future business relocations.
Option 23-2 Corridor Preservation	☐	☒	☐	☐	
A-3 Agricultural Impact					See Factor Sheet 4.6 A-3 for detailed evaluation and the project's Agricultural Impact Statement (AIS) in Appendix K of the 2010 FEIS.
Build Alternatives					
No-Build Alternative	☒	☒	☐	☐	Adverse effects include farm equipment having difficulty accessing field entrances, crossing the highway, and traveling adjacent to the highway. The high WIS 23 traffic volumes pose a hazard to the equipment, and the equipment can interfere with WIS 23 traffic. The No-Build alternative has the benefit of having no farm operations or agricultural land affected by the highway expansion. No farms are severed or farm operations relocated.
Alternative 2	☒	☒	☐	☐	Alternative 2's 4-lane expansion would create a wider cross section that better accommodates slow-moving farm equipment. The median would also provide a refuge so that some farm equipment can cross the roadway in two stages (benefit). The 4-lane expansion would require the relocation of about 7 farm operations and require the acquisition of about 169 acres of cropland for new highway right of way. This alternative may also sever about 5 farm operations.
Alternative 3	☒	☒	☐	☐	Alternative 3's 4-lane expansion would create a wider cross section that better accommodates slow-moving farm equipment. The median would also provide a refuge so that farm equipment can cross the roadway in two stages (benefit). The 4-lane expansion would require the relocation of 4 farm operations and the acquisition of about 296 acres of cropland for new highway right of way. This alternative may also sever about 28 farm operations.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☒	☐	☐	The Preferred Build Alternative (Alternative 1) 4-lane expansion would create a wider cross section that better accommodates slow-moving farm equipment. The median would also provide a refuge so that farm equipment can cross the roadway in two stages (benefit). It would require the relocation of about 17 farm operations and the acquisition of about 92 acres of cropland for new highway right of way. The 4-lane expansion does not sever any farms. Additionally, utility relocations associated with the project may have a small effect on farm operations. It is anticipated the majority of these relocations would occur within or directly adjacent to the proposed right of way.
Connection Roads and Interchanges	☒	☒	☐	☐	Connection roads and interchanges associated with the Preferred Build Alternative would aid access to fields and in some cases provide a grade-separated crossing of WIS 23. They would require the relocation of 2 farm operations and the acquisition of an additional 81 acres of cropland for new highway right of way, and they would sever 5 farm operations.
Old Plank Road Trail	☒	☐	☐	☐	Old Plank Road Trail would require the acquisition of about 52 acres of cropland for right of way. Some of this would have been required without the Old Plank Road Trail. See discussion in Section 4.1. In total, the Preferred Build Alternative requires 19 farm relocations, severs 5 farms, and converts 225 acres of cropland to highway right of way.
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☒	☐	☒	☐	The WIS 23 No Corridor Preservation Alternative would leave land unencumbered. There would be no additional cropland required or farm relocations. However, future transportation improvements could create greater impacts to farm operations.
Preferred WIS 23 Corridor Preservation	☒	☒	☐	☐	The Preferred WIS 23 Corridor Preservation Alternative would reserve right of way for future grade separations and interchanges. When implemented, these grade separations would provide opportunities to travel across WIS 23 without crossing WIS 23 traffic (benefit). The grade separations would require the relocation of about 4 farm operations and the acquisition of about 39 acres of cropland for new highway right of way. These overpasses and interchanges would sever 2 farm operations.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☒	☐	☒	☐	The Preferred US 151/WIS 23 Interchange No Corridor Preservation Alternative would leave land unencumbered. If future system interchange improvements are ever implemented, they likely would have greater business impacts because future right of way would not be preserved.

4.6 ENVIRONMENTAL EVALUATION MATRIX					
	EFFECTS				
ENVIRONMENTAL FACTORS	ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Option 23-1 Corridor Preservation	☒	☒	☐	☐	The US 151/WIS 23 Option 23-1 Corridor Preservation Option would preserve about 4 acres of farmland that would eventually be purchased for highway right of way. When implemented, the improvements associated with the Option 23-1 Corridor Preservation Option would sever 1 farm operation.
Option 23-2 Corridor Preservation	☒	☒	☐	☐	The US 151/WIS 23 Option 23-2 Corridor Preservation Option would preserve about 28 acres of farmland that would eventually be purchased for new highway right of way. When implemented, the improvements associated with the Option 23-2 Corridor Preservation Option would sever 1 farm operation.
B-1 Community or Residential					See Factor Sheet 4.6 B-1 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☒	☐	No effect.
Alternative 2	☒	☒	☐	☐	Improvements to WIS 23 would make traveling on WIS 23 safer. WIS 23 serves as a roadway that allows people to drive to community facilities such as churches, commercial development, parks, and municipal buildings. The Build Alternatives would allow residents to continue to drive to community facilities. Access restrictions at some intersections on WIS 23 could increase indirection to some community facilities. The WIS 23 improvements would not divide any communities. Alternatives 2 and 3 would result in some adverse effects. Right of way acquisition would be required from residential and community properties and 17 to 20 residential relocations would be necessary.
Alternative 3	☒	☒	☐	☐	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☒	☐	☐	The Preferred Build Alternative (Alternative 1) would have similar benefits and adverse effects as Alternatives 2 and 3. Residential right of way acquisition would be necessary and the relocation of 33 households would be needed. About 21 households would be needed for the 4-lane expansion. Connection roads and interchanges would provide connectivity across and to the WIS 23 highway (benefit) yet would require about 12 residential relocations. The Old Plank Road Trail would provide a continuous trail from Sheboygan to Fond du Lac, which would enhance nonmotorized access but would also require right of way acquisition.
Connection Roads and Interchanges	☒	☒	☐	☐	
Old Plank Road Trail	☒	☒	☐	☐	
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☒	☐	☒	☐	The WIS 23 No Corridor Preservation Alternative would leave land unencumbered. No additional relocations would occur; however, future transportation improvements could lead to greater residential and community impacts.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Preferred WIS 23 Corridor Preservation	☒	☒	☐	☐	The Preferred WIS 23 Corridor Preservation Alternative would allow the future construction of improvements that enhance roadway safety and provide connections across and to the WIS 23 highway (benefit). The Preferred WIS 23 Corridor Preservation would require right of way acquisition and the eventual relocation of about 3 households when improvements are fully implemented.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☒	☐	☒	☐	The Preferred US 151/WIS 23 Interchange No Corridor Preservation Alternative would leave land unencumbered. Future development could cause greater residential and community impacts.
Option 23-1 Corridor Preservation	☒	☒	☐	☐	The US 151/WIS 23 Interchange Corridor Preservation Alternatives would allow future construction of system interchanges that accommodate high traffic volumes safely and provide a high mobility connection. Both Corridor Preservation Options would reduce development options for private land and would require future right of way acquisition. The Option 23-1 Corridor Preservation option would eventually require the purchase of 5 homes and the relocation of associated households. The Option 23-2 Corridor Preservation option does not require the purchase of any homes.
Option 23-2 Corridor Preservation	☐	☒	☐	☐	
B-2 Indirect Effects					See Section 4.4 and Appendix C for more information.
Build Alternatives					
No-Build Alternative	☒	☒	☐	☐	The Build Alternatives are likely to increase the pace of population growth and development in the study area. The result could be an increased pace of incremental loss of agricultural land and other natural areas in the study area, particularly surrounding the cities of Fond du Lac and Plymouth. Tables 4.4-4 and 4.4-5 summarize some of the impact-causing activities associated with the No-Build and Preferred Build Alternatives and the corresponding indirect effect. The tables also summarize influencing factors that support and discourage those changes.
Alternative 2	☒	☒	☐	☐	
Alternative 3	☒	☒	☐	☐	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☒	☐	☐	
Connection Roads and Interchanges	☒	☒	☐	☐	
Old Plank Road Trail	☒	☒	☐	☐	
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☒	☒	☐	☐	
Preferred WIS 23 Corridor Preservation	☒	☒	☐	☐	

4.6 ENVIRONMENTAL EVALUATION MATRIX					
	EFFECTS				
ENVIRONMENTAL FACTORS	ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☒	☒	☐	☐	
Option 23-1 Corridor Preservation	☒	☒	☐	☐	
Option 23-2 Corridor Preservation	☒	☒	☐	☐	
B-3 Cumulative Effects					See Section 4.4 for more information.
Build Alternatives					The estimated magnitude and significance of cumulative effects are described in Section 4.4 and Appendix C including: ▪ The status or condition of the resource from changes created by past, present, and reasonably foreseeable actions. ▪ The contribution of the proposed project to the overall cumulative impact to the resource, in support of a significance determination. The WIS 23 Preferred Alternative's main contribution to cumulative adverse effects include the conversion of farmland to right of way, which augments other development activities that are converting farmland to other uses. Past highway projects, such as the US 151 bypass and WIS 23 expansion near Plymouth; planned highway projects such as County V and T, as well as possible future projects associated with US 151 and WIS 23 corridor preservation have and will impact farmland. Other WIS 23 contributions to cumulative impacts include the conversion of uplands and wetlands to right of way, water quality effects, and some air quality effects. Improved mobility from WIS 23 could indirectly increase the pace of resident development in the Niagara Escarpment (and indirect effect), which would create a cumulative impact to the uplands including those of the escarpment.
No-Build Alternative	☐	☐	☒	☐	
Alternative 2	☒	☐	☐	☐	
Alternative 3	☒	☐	☐	☐	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☐	☐	☐	
Connection Roads and Interchanges	☒	☐	☐	☐	
Old Plank Road Trail	☒	☐	☐	☐	
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☒	☐	☐	☐	
Preferred WIS 23 Corridor Preservation	☒	☐	☐	☐	
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☒	☐	☐	☐	
Option 23-1 Corridor Preservation	☒	☐	☐	☐	
Option 23-2 Corridor Preservation	☒	☐	☐	☐	

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
B-4 Environmental Justice					WisDOT collected and analyzed information on the race, color, national origin, and income level of persons located within the project area by checking 2010 census information and contacting the County Human Services. As depicted in Figure 3.6-1, concentrations of Environmental Justice populations are located at the east and west ends of the corridor around the cities of Fond du Lac and Plymouth.
Build Alternatives					
No-Build Alternative	☐	☐	☒	☐	The No-Build will not affect low income or minority populations.
Alternative 2	☐	☐	☒	☐	
Alternative 3	☐	☐	☒	☐	Alternatives 2 and 3 will not affect low income and minority populations.
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☐	☐	☒	☐	Disproportionate adverse impacts to minority groups or low-income communities are not anticipated as a result of Alternative 1 and the Old Plank Road Trail. The Connection Roads and Interchanges portion of the Preferred Alternative would relocate one access that could serve environmental justice populations. A manufactured home community near Greenbush would have its access to WIS 23 changed, increasing indirection by up to 1.1 miles. No other impacts would occur to residents within the subdivision.
Connection Roads and Interchanges	☒	☐	☐	☐	
Old Plank Road Trail	☐	☐	☒	☐	
Corridor Preservation Alternatives					The public involvement process was inclusive of all residents and population groups in the study area and did not exclude any persons because of income, race, color, religion, national origin, sex, age or handicap.
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☐	
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	Corridor Preservation Alternatives would not affect low income and minority populations within the corridor. There are no known low income or minority populations in the areas being preserved for overpasses, interchanges, or access removals.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☐	
Option 23-1 Corridor Preservation	☐	☐	☒	☐	
Option 23-2 Corridor Preservation	☐	☐	☒	☐	

4.6 ENVIRONMENTAL EVALUATION MATRIX					
	EFFECTS				
ENVIRONMENTAL FACTORS	ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
B-5 Historic Resources					See Factor Sheet 4.6 B-5 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☐	☒	No effects.
Alternative 2	☐	☐	☒	☐	Based on updated 2006 evaluation, there were 7 potential historic sites in Alternative 2 with 1 of these sites currently listed on the National Register of Historic Places.
Alternative 3	☐	☐	☒	☐	Based on updated 2006 evaluation, there were 3 potential historic sites on Alternative 3 with 1 site currently on the NHRP and 2 sites eligible for the NRHP.
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☐	☐	☒	☐	There were 19 potential historic sites on the 4-lane expansion associated with the Preferred Build Alternative (Alternative 1). Of those 19 there were 2 sites associated with the connection roads and interchange. One site is already on the NRHP and 2 sites are eligible for the NRHP. After refinement of the highway design, only 1 of the NRHP eligible sites was affected by the proposed expansion (St. Mary's Springs Academy). A Memorandum of Agreement (MOA) regarding this site was provided in the 2010 FEIS. In 2005, St. Mary's Springs removed two of the contributing resources to the historic complex. This resulted in a revision to the historic boundary in 2012. The WIS 23 project no longer has an adverse effect on the complex with the revised historic boundary. SHPO signed a new Determination of Eligibility with the revised historic boundary on December 6, 2012. A revised MOA was signed on March 19, 2013. See the discussion of Historic Resources in Section 4.6 B-5, and Appendix D.
Connection Roads and Interchanges	☐	☐	☐	☒	No effects.
Old Plank Road Trail	☐	☐	☒	☐	Old Plank Road Trail requires additional right of way acquisition from St. Mary's Springs Academy since the trail is located north of WIS 23 at this location. The trail will be located outside the historic boundary of the complex, and there is no effect. The trail will also require right of way from the Old Wade House State Park. No adverse effect would occur to structures within the park that are on the NRHP. The impacts associated with the trail were included in the 106 process. See the discussion of Historic Resources in Section 4.6 B-5.
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☐	☒	No effects.
Preferred WIS 23 Corridor Preservation	☐	☐	☐	☒	No effects.

4.6 ENVIRONMENTAL EVALUATION MATRIX					
	EFFECTS				
ENVIRONMENTAL FACTORS	ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
US 151/WIS 23 Interchange	☐	☐	☐	☒	No effects.
Preferred No Corridor Preservation					
Option 23-1 Corridor Preservation	☐	☐	☐	☒	The US 151/WIS 23 Interchange Corridor Preservation Options would not affect any historic resources eligible for the NRHP.
Option 23-2 Corridor Preservation	☐	☐	☐	☒	
B-6 Archaeological Sites					See Factor Sheet 4.6 B-6 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☒	☒	No effects.
Alternative 2	☒	☐	☐	☐	There are 9 archaeological sites potentially affected that may be eligible for the NRHP.
Alternative 3	☒	☐	☐	☐	There are 12 archaeological sites potentially affected that may be eligible for the NRHP.
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☐	☐	☐	Four sites were identified as potentially affected and potentially eligible for the NRHP. After evaluation, 3 sites were avoided. The remaining 1 site was determined to be eligible for the NRHP (Sippel Site) and a Phase II and Data Recovery Plan have been completed. Four-lane expansion (Alternative 1) would disturb 100 percent of this site. An MOA between FHWA, WisDOT, SHPO, and other interested parties has been signed and is included in Section 4.6 B-6. Section 106 coordination is complete. Impacts to the Sippel Site qualify for an exception to Section 4(f) approval. 23 CFR 774.13(b) states that an archaeological site can be excepted from Section 4(f) approval when the resource has minimal value for preservation in place and the SHPO does not object to this finding.
Connection Roads and Interchanges	☐	☐	☒	☒	No effects.
Old Plank Road Trail	☐	☐	☒	☒	No effects.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☒	No effects.
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☒	No effects.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☒	No effects.
Option 23-1 Corridor Preservation	☐	☐	☒	☒	No effects.
Option 23-2 Corridor Preservation	☐	☐	☒	☒	No effects.
B-7 Tribal Issues					
Build Alternatives					
No-Build Alternative	☐	☐	☒	☐	Letters about the project were sent to 16 tribes asking if they would like to be a consulting party or have any concerns with the project. Two tribes, the Menominee Indian Tribe and the Iowa Tribe of Oklahoma, replied that they would like to be a consulting party. These tribes were sent additional information including the final Section 106 documentation. No issues have been noted by any of the tribes. With the release of the 2013 LS SDEIS two tribes presented responses. The Stockbridge Munsee tribe indicated no knowledge of cultural resources in the project area. The Bad River Band of Lake Superior Tribe of Chippewa Indians requested review fees.
Alternative 2	☐	☐	☒	☐	
Alternative 3	☐	☐	☒	☐	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☐	☐	☒	☐	
Connection Roads and Interchanges	☐	☐	☒	☐	
Old Plank Road Trail	☐	☐	☒	☐	
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☐	
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☐	
Option 23-1 Corridor Preservation	☐	☐	☒	☐	
Option 23-2 Corridor Preservation	☐	☐	☒	☐	

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
B-8 Section 4(f) and 6(f) or Other Unique Area					The information pertaining to Section 4(f) and Section 6(f) resources has been moved and consolidated in Section 5 of this LS SFEIS/ROD. The following sentences briefly identify corridor Section 4(f) resources as well as other types of unique properties.
No-Build Alternative	☐	☐	☒	☐	No effects.
All Build Alternatives affect the following properties:	☒	☒	☐	☐	There are four Section 4(f) properties that are potentially affected by the Preferred Build Alternative: • The Northern Unit of the Kettle Moraine State Forest is a 4(f)/6(f) property, which incorporates the Ice Age Trail (IAT) and State Equestrian Trail near the WIS 23 corridor. The WIS 23 Preferred Alternative will have an effect on this property which is described in Section 5.3 and Section 5.7 of this LS SFEIS/ROD. • The Old Wade House State Park is a 4(f) property and will be affected by the WIS 23 Preferred Alternative. Section 5.4 of this LS SFEIS/ROD describes impacts to this resource. • The St. Mary's Springs Academy is eligible for the NRHP and a Section 4(f) property. Because of recent revisions in the historic boundary for the property, the WIS 23 Preferred Alternative will not have a Section 4(f) use of the property. This property is described in Section 5.5 of this LS SFEIS/ROD. • The Sippel Archaeological Site is eligible for the NRHP. This site qualifies for an exception for Section 4(f) approval. 23 CFR 774.13(b) states that an archaeological site can be excepted from Section 4(f) approval when the resource has minimal value for preservation in place and the SHPO does not object to this finding. More information is provided in Section 5.6 of this LS SFEIS/ROD.
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☒	☐	☐	
Connection Roads and Interchanges	☐	☐	☐	☒	
Old Plank Road Trail	☒	☒	☐	☐	
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☐	
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☐	
Option 23-1 Corridor Preservation	☐	☐	☒	☐	The Old Plank Road Trail is not considered a Section 4(f) property according to 23 CFR 774.13(f). Trail continuity will be maintained.
Option 23-2 Corridor Preservation	☒	☐	☐	☐	The Taycheedah Creek Mitigation Site in the southwest quadrant of the existing US 151 and WIS 23 interchange was created as part of the US 151 bypass project. This is not a 4(f) property, but it is a covenanted property with special restrictions. The US 151/WIS 23 Interchange Corridor Preservation Option 23-2 would encompass a portion of this area and impact it when constructed. See Section 4.6 B-8 for additional information on this site. The Pit Road Wetland Mitigation site in the northwest quadrant of the existing Pit Road and WIS 23 intersection was created in the late 1980s as part of the improvements made to WIS 23. This is not a 4(f) property, but it is a covenanted property with special restrictions. The Preferred Build Alternative would not impact this area. See Section 4.6 B-8 for additional information on this site.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
B-9 Aesthetics					See Factor Sheet 4.6 B-9 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☒	☐	No change.
Alternative 2	☒	☐	☐	☐	The 4-lane expansion associated with Alternative 2 would increase the width of highway right of way approximately 125 feet when on the existing alignment. This would diminish the visual character of the area and countryside. Alignment 2 travels off the existing alignment for about 4 miles and would clear a corridor about 300 feet wide. This area is minimally disturbed and consists primarily of agricultural fields. This alignment would create agricultural viewsheds for travelers of the highway, but it could diminish visual quality for residents adjacent to the new highway facility.
Alternative 3	☒	☐	☐	☐	Some of the visual impacts would occur on the existing alignment where the width of the highway right of way would increase approximately 125 feet. This would diminish the visual character of the existing corridor and countryside. Alternative 3 would disturb the greatest amount of farmland and countryside of the Build Alternatives as it travels off-alignment for up to 8 miles clearing a corridor 300 feet wide. This off-alignment area is minimally disturbed and consists primarily of agricultural fields. This would create agricultural viewsheds for travelers of the highway, but it would diminish the visual quality for residents adjacent to the new highway.
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☐	☐	☐	The Preferred Build Alternative 4-lane expansion (Alternative 1) would increase the width of highway right of way approximately 125 feet. The increased highway width would diminish the visual character of the area and countryside. The view of the roadway corridor would become more pronounced for residents adjacent to the current roadway.
Connection Roads and Interchanges	☒	☐	☐	☐	Connection roads and interchanges could diminish the visual quality of the area. The grade-separated roadways would have the side road raised to cross over WIS 23. This would block views for both travelers on the highway and residents located near the grade-separated crossings.
Old Plank Road Trail	☐	☐	☒	☐	Old Plank Road Trail does not currently exist along much of the corridor. Trail users would have rural views to one side and views of a 4-lane expanded highway to the other side. The trail would increase the width of the transportation corridor, yet it probably would not reduce the visual quality for adjacent residents.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☐	No change.
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	The Preferred WIS 23 Corridor Preservation Alternative in itself would not affect the visual quality of the area. Improvements associated with the corridor preservation, if implemented, would diminish the visual character in a similar fashion to the Preferred Build Alternative's interchanges. The grade-separated roadways would raise the side roads over WIS 23. This would block rural views for both travelers on the highway and residents located near the grade-separated crossings.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☐	No change.
Option 23-1 Corridor Preservation	☐	☐	☒	☐	The US 151/WIS 23 Interchange Corridor Preservation Options in themselves would not degrade the visual quality of the corridor. If constructed, the improvements associated with the corridor preservation would raise the US 151/WIS 23 connection above the existing roadway and therefore would block views from adjacent land uses, which are primarily commercial. Option 23-1 is a two-level interchange, yet it travels through a business park. Parcels on one side of the free-flowing ramps would not be visible to parcels on the other side of the free-flowing ramp. Option 23-2 would be a three-level interchange that would be a prominent feature in the surrounding area as it would be at least 50 feet higher than the adjacent ground. While these options would not split the business park in the southeast quadrant, land uses in each quadrant of the interchange would not be able to see land uses in other quadrants.
Option 23-2 Corridor Preservation	☐	☐	☒	☐	
C-1 Wetlands					See Factor Sheet 4.6 C-1 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☒	☐	No effect.
Alternative 2	☒	☐	☐	☐	About 60 wetland sites were identified within the 4-lane expansion corridor for Alternative 2. There are about 99.5 acres of wetlands within the Alternative 2 corridor, with 37.9 acres likely to be filled. If interchanges, connection roads, and the Old Plank Road Trail extension were constructed with Alternative 2, additional wetland acreage would be filled.
Alternative 3	☒	☐	☐	☐	About 46 wetland sites were identified within the 4-lane expansion corridor for Alternative 3, totaling 115.8 acres. About 59.5 acres of these wetlands are likely to be filled. If interchanges, connection roads, and the Old Plank Road Trail extension were constructed with Alternative 3, additional wetland acreage would be filled.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Preferred Build Alternative					A permit from the USACE under Section 404 of the Clean Water Act will be required for the Preferred Build Alternative. The actual permit status will determined through coordination with the USACE. Any fill associated with crossings of the rivers would be included in the application for the permit for the entire project. A water quality certification from the WDNR would also be necessary to comply with Section 401 of the Clean Water Act.
Alternative 1 (4-Lane Expansion)	☒	☐	☐	☐	The Preferred Build Alternative 4-lane expansion (Alternative 1) would affect about 88 wetland sites and would fill 37.1 acres of wetlands.
Connection Roads and Interchanges	☒	☐	☐	☐	Connection roads and interchanges would disturb about 0.8 acres of wetlands, and the Old Plank Road Trail would disturb about 10.2 acres of wetlands for a total of 48.1 acres of wetlands filled.
Old Plank Road Trail	☒	☐	☐	☐	
Corridor Preservation Alternatives					Utility relocations associated with the project may have a small effect on wetlands. It is anticipated that the majority of these relocations would occur within or directly adjacent to the proposed right of way. Most of the impacts are associated primarily with pole relocations but may also include conduit placement. These impacts are reasonably represented by acreages depicted above. More information would become available during the design phase.
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☐	The WIS 23 No Corridor Preservation Alternative would not affect any wetlands.
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	The Preferred WIS 23 Corridor Preservation Alternative would preserve future right of way in areas containing about 1.7 acres of wetlands. The improvements associated with the Corridor Preservation, if implemented, would likely result in the filling of these wetlands.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☐	The Preferred US 151/WIS 23 Interchange No Corridor Preservation Alternative would not affect any wetlands.
Option 23-1 Corridor Preservation	☐	☐	☒	☐	With the US 151/WIS23 Interchange Corridor Preservation Options, Option 23-1 would preserve future right of way that contains about 12.1 acres of wetlands, primarily in the southeast quadrant. The Option 23-2 Corridor Preservation would protect future right of way that contains about 7.6 acres of wetlands, of which 1.6 acres are part of the Taycheedah Creek wetland mitigation bank. When constructed, the ramps associated with the Option 23-2 would bridge the wetlands in this bank.
Option 23-2 Corridor Preservation	☐	☐	☒	☐	

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
C-2 Rivers, Streams & Floodplains					See Factor Sheet 4.6 C-2 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☒	☐	No effect.
Alternative 2	☒	☐	☐	☐	The 4-lane expansion associated with Alternative 2 would require additional bridge crossings at the Sheboygan River for the new set of lanes. Also, new box culvert crossings would be required north of the existing WIS 23 box culvert at the Mullet River and a new culvert at an unnamed tributary to the Sheboygan River.
Alternative 3	☒	☐	☐	☐	The 4-lane expansion associated with Alternative 3 would require two new bridge crossings of the Sheboygan River, south of existing WIS 23. Alternative 3 would also require an extension of the Mullet River culvert and a new box culvert for an unnamed tributary to the Sheboygan River north of the existing WIS 23 box culvert.
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☐	☐	☐	The Preferred Build Alternative (Alternative 1) would require an additional bridge crossing of the Sheboygan River and a 3 cell box culvert extension at the Mullet River. It will also require 2 new culvert pipes at an unnamed tributary to the Sheboygan River. The additional bridge at the Sheboygan River will raise the 100 year flood level. See Factor Sheet 4.6 C-2 for more details.
Connection Roads and Interchanges	☐	☐	☒	☐	There are no crossings associated with the Preferred Build Alternative's connection roads and interchanges.
Old Plank Road Trail	☒	☐	☐	☐	Old Plank Road Trail would require a crossing of the Sheboygan River, the Mullet River, and an unnamed tributary to the Sheboygan River. There will be increased backwater effects within the right of way at the Sheboygan River crossing, see Factor Sheet 4.6 C-2 for more details.
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☐	The WIS 23 No Corridor Preservation Alternative would not have an effect on streams and floodplains.
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	There are no crossings associated with the Preferred WIS 23 Corridor Preservation Alternative.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☐	The Preferred US 151/WIS 23 Interchange No Corridor Preservation Alternative would not affect any streams and floodplains.

4.6 ENVIRONMENTAL EVALUATION MATRIX					
	EFFECTS				
ENVIRONMENTAL FACTORS	ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Option 23-1 Corridor Preservation	☐	☐	☒	☐	The Option 23-1 and Option 23-2 Corridor Preservation Options would encompass part of Taycheedah Creek. Initially no impacts would occur. If constructed, the improvements associated with these Corridor Preservation Options would require bridged crossings of Taycheedah Creek.
Option 23-2 Corridor Preservation	☐	☐	☒	☐	
C-3 Lakes or Other Open Water					There is no further need for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☐	☒	There are no lakes or open water resources directly affected by any of the alternatives considered.
Alternative 2	☐	☐	☐	☒	
Alternative 3	☐	☐	☐	☒	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☐	☐	☐	☒	
Connection Roads and Interchanges	☐	☐	☐	☒	
	☐	☐	☐	☒	
Old Plank Road Trail					
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☐	☒	
Preferred WIS 23 Corridor Preservation	☐	☐	☐	☒	
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☐	☒	
Option 23-1 Corridor Preservation	☐	☐	☐	☒	
Option 23-2 Corridor Preservation	☐	☐	☐	☒	
C-4 Groundwater, Wells and Springs					
Build Alternatives					
No-Build Alternative	☐	☐	☐	☒	There are no known potable wells or monitoring wells affected by any of the alternatives considered. There are no known spring recharge areas affected by the alternatives considered. The increased impervious surface area of the Build Alternatives will result in more stormwater runoff and a less even distribution and natural infiltration of precipitation along the project corridor. The additional paved area will reduce the extent and distribution of areas along the corridor where precipitation can infiltrate exposed soils and will increased stormwater runoff.
Alternative 2	☐	☐	☐	☒	
Alternative 3	☐	☐	☐	☒	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☐	☐	☐	☒	
Connection Roads and Interchanges	☐	☐	☐	☒	

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Old Plank Road Trail	☐	☐	☐	☒	The stormwater will be directed to grass swales and eventually conveyed to the groundwater table via infiltration, to wetlands, or to streams along the project corridor. At these stormwater management locations, the stormwater is treated and used to recharge groundwater replenish wetlands or stream base flow. This redistribution of precipitation is not expected to have any significant adverse or beneficial effects on spring recharge areas, aquifer recharge, or groundwater levels.
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☐	☒	
Preferred WIS 23 Corridor Preservation	☐	☐	☐	☒	
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☐	☒	
Option 23-1 Corridor Preservation	☐	☐	☐	☒	
Option 23-2 Corridor Preservation	☐	☐	☐	☒	
C-5 Upland Habitat					See Factor Sheet 4.6 C-5 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☒	☐	No effect.
Alternative 2	☒	☐	☐	☐	The 4-lane expansion associated with Alternative 2 would affect about 19 acres of uplands. Most impacts would be along the edges and borders of existing upland habitat areas.
Alternative 3	☒	☐	☐	☐	The 4-lane expansion associated with Alternative 3 would affect about 31 acres of uplands. Most impacts would be along the edges and borders of existing upland habitat areas, yet some of these upland impacts do occur as the alternative travels off the existing alignment.
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☐	☐	☐	The Preferred Build Alternative 4-lane expansion (Alternative 1) would affect about 38.4 acres of uplands. Because the expansion is along the existing WIS 23 alignment, all impacts would be along the edges of existing upland habitat areas bordering the highway. Utility relocations associated with the project may affect some upland habitat. It is anticipated that the majority of these relocations would occur within or directly adjacent to the proposed right of way and are associated primarily with pole relocations and conduit placement.
Connection Roads and Interchanges	☒	☐	☐	☐	The Preferred Build Alternative's connection roads and interchanges would require the acquisition of about 2.2 acres of uplands. Impacts would be along the edges of existing upland habitat areas bordering the highway.

4.6 ENVIRONMENTAL EVALUATION MATRIX					
	EFFECTS				
ENVIRONMENTAL FACTORS	ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Old Plank Road Trail	☒	☐	☐	☐	Old Plank Road Trail would require the acquisition of approximately 7.3 acres of uplands. Because the trail borders the highway, impacts would be along the edges of existing upland habitat areas bordering the highway.
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☐	The WIS 23 No Corridor Preservation Alternative would not have an effect on upland habitat.
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	The Preferred WIS 23 Corridor Preservation Alternative would preserve 8.5 acres of uplands for the future construction of the connection roads, overpasses, and interchanges. Areas preserved would be along the edges of existing upland habitat areas bordering the highway. Initially no impacts would occur. Improvements associated with the corridor preservation, if constructed, would clear these uplands.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☐	The Preferred US 151/WIS 23 Interchange No Corridor Preservation Alternative would not affect any upland habitat.
Option 23-1 Corridor Preservation	☐	☐	☒	☐	The US 151/WIS 23 Interchange Corridor Preservation Alternatives would preserve lands that contain upland habitat. Approximately 5.9 acres of uplands are contained in areas being preserved with Option 23-1, and approximately 0.1 acre of uplands is contained in areas being preserved by Option 23-2. Initially no impacts would occur. If improvements associated with these corridor preservation areas are constructed, impacts would be along the edges of existing upland habitat areas bordering the highway.
Option 23-2 Corridor Preservation	☐	☐	☒	☐	

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
C-6 Coastal Zone					
Build Alternatives					The project's effects do not extend into or affect any of the Coastal Zone Management Areas of Special Concern.
No-Build Alternative	☐	☐	☐	☒	
Alternative 2	☐	☐	☐	☒	
Alternative 3	☐	☐	☐	☒	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☐	☐	☐	☒	
Connection Roads and Interchanges	☐	☐	☐	☒	
Old Plank Road Trail	☐	☐	☐	☒	
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☐	☒	
Preferred WIS 23 Corridor Preservation	☐	☐	☐	☒	
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☐	☒	
Option 23-1 Corridor Preservation	☐	☐	☐	☒	
Option 23-2 Corridor Preservation	☐	☐	☐	☒	There is no further need for detailed evaluation.
C-7 Threatened and Endangered Species					See Factor Sheet 4.6 C-7 for detailed evaluation.
Build Alternatives					Threatened, endangered, or special concern species within the corridor include 1 federally protected species and 20 state protected species in the project corridor. Communication with the WDNR transportation liaison indicates that the WDNR has no current concern, as of December 12, 2012, for 10 of the 20 state-listed species and the one federally listed species occurring in the WIS 23 corridor.
No-Build Alternative	☐	☐	☒	☐	
Alternative 2	☒	☐	☐	☐	
Alternative 3	☒	☐	☐	☐	
Preferred Build Alternative					No federally listed species will be affected by the project. State endangered species possibly affected by the project include rainbow shell mussel and the Midwest Pleistocene vertigo upland snail. State threatened species possibly affected by the project include snow trillium, Blanding's turtle, slippershell mussel, ellipse mussel, Cerulean warbler, Acadian flycatcher, hooded warbler, and red-shouldered
Alternative 1 (4-Lane Expansion)	☒	☐	☐	☐	
Connection Roads and Interchanges	☒	☐	☐	☐	

This graphic of the State of Wisconsin illustrates the Coastal Wetlands Project Study Area. Green-shaded areas are the Coastal Zone, and blue lines represent a 6-mile buffer from the coasts.

4.6 ENVIRONMENTAL EVALUATION MATRIX					
	EFFECTS				
ENVIRONMENTAL FACTORS	ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Old Plank Road Trail	☒	☐	☐	☐	hawk. Provisions will be made to minimize adverse effects to these species. See Section 4.6 C-7.
Corridor Preservation Alternatives					
WIS 23 Corridor	☒	☐	☐	☐	
No Corridor Preservation	☒	☐	☐	☐	
Preferred WIS 23 Corridor Preservation	☒	☐	☐	☐	
US 151/WIS 23 Interchange	☒	☐	☐	☐	
Preferred No Corridor Preservation	☒	☐	☐	☐	
Option 23-1 Corridor Preservation	☒	☐	☐	☐	
Option 23-2 Corridor Preservation	☒	☐	☐	☐	
D-1 Air Quality					See Factor Sheet 4.6 D-1 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☒	☐	The proposed WIS 23 project is located in the Lake Michigan Intrastate Air Quality Control Region. These air quality regions monitor National Ambient Air Quality Standards (NAAQS) established by the USEPA under the authority of the Clean Air Act. Six pollutants are monitored under different period durations for a total of 12 National Ambient Air Quality Standards. The Clean Air Act requires federal highway projects conform to the purpose of the State Implementation Plan (SIP). Conformity to a SIP means that proposed projects will not cause or contribute to any new violations of NAAQS; increase the frequency or severity of NAAQS violations; or delay timely attainment of the NAAQS. Fond du Lac County is presently in attainment of all National Ambient Air Quality Standards (NAAQS). Sheboygan County was designated nonattainment for the 2008 Ozone Standard on April 30, 2012 (Federal Register / Vol. 77, No. 98 / Monday, May 21, 2012 Sheboygan County is also designated nonattainment for the 1997 Ozone standard, but that standard will be revoked effective July 20, 2013. The project is located outside of a Metropolitan Planning Organization's boundaries. As such, WisDOT is responsible for carrying out air quality conformity analyses for projects in these areas. WisDOT has agreed with the Sheboygan Metropolitan Planning Organization to include the WIS 23 project in its conformity analysis. The most recent plan conformity finding is February 27, 2013. Wisconsin Administrative Code NR 411 used to govern indirect sources of carbon monoxide by establishing a permitting process for highway and parking facilities. Proposed highway projects needed to qualify for an exemption or model the proposed carbon monoxide emissions and obtain a permit. Wisconsin Act 121 repealed the provisions of Wisconsin Administrative Code NR 411. WisDOT still uses the provisions of NR 411 in NEPA
Alternative 2	☐	☐	☒	☐	
Alternative 3	☐	☐	☒	☐	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☐	☐	☒	☐	
Connection Roads and Interchanges	☐	☐	☒	☐	
Old Plank Road Trail	☐	☐	☒	☐	
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☐	
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☐	

4.6 ENVIRONMENTAL EVALUATION MATRIX					
	EFFECTS				
ENVIRONMENTAL FACTORS	ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Option 23-1 Corridor Preservation	☐	☐	☒	☐	documentation to evaluate air quality impacts of a proposed action.
Option 23-2 Corridor Preservation	☐	☐	☒	☐	The WIS 23 expansion associated with the Preferred Build Alternative would have been exempt from indirect source permit requirements under NR 411 because it meets the following exceptions detailed under NR 411.04(2)(b): • A portion of the modified highway is located in Sheboygan County (a metropolitan county), and the increase in peak-hour volume is less than 1200 motor vehicles per hour for all segments. • The remaining portion of the modified highway located in Fond du Lac County (a nonmetropolitan county) and the increase in peak-hour volume is less than 1800 motor vehicles per hour for all segments. • Where there is a shift in intersection approach legs ° Roadway edge shifted toward any potential receptor location is 12 or more feet. ° The highway segment has no more than 2 approach lanes. ° Any potential receptor is located more than 25 feet from the nearest proposed roadway edge. ° The peak-hour volume on each approach is less than 1800 motor vehicles per hour for all segments The FHWA's Interim Guidance on MSAT (December 6, 2012) presents a tiered approach to analyzing MSAT in NEPA documents. Using that guidance, the proposed WIS 23 project is considered to have low potential MSAT effects, requiring a qualitative analysis. Examples of the types of projects considered to have low potential MSAT effects include minor widening projects, new interchanges, or projects where design year traffic is projected to be less than 140,000 to 150,000 AADT. Forecast WIS 23 traffic volumes range from 8,000 to 12,000 vpd, less than 10 percent of these values.
D-2 Construction Stage Sound Quality					See Factor Sheet 4.6 D-2 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☒	☐	Variations in building setbacks, land use activity zones, local intensity of specific construction activities, and special temporal distribution would result in varying degrees of exposure to construction noise and therefore varying impacts. Adverse impacts resulting from construction noise are expected to be localized and temporary. WisDOT Standard Specifications 107.8(6) and 108.7.1 would apply
Alternative 2	☒	☐	☐	☐	
Alternative 3	☒	☐	☐	☐	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☐	☐	☐	

4.6 ENVIRONMENTAL EVALUATION MATRIX					
	EFFECTS				
ENVIRONMENTAL FACTORS	ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Connection Roads and Interchanges	☒	☐	☐	☐	
Old Plank Road Trail	☒	☐	☐	☐	
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☐	The WIS 23 Corridor Preservation Alternative and the US 151/WIS 23 Interchange Corridor Preservation Options do not have construction stage sound impacts. When and if the improvements associated with these improvements are implemented, applicable measures from WisDOT Standard Specifications would apply.
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☐	
Option 23-1 Corridor Preservation	☐	☐	☒	☐	
Option 23-2 Corridor Preservation	☐	☐	☒	☐	
D-3 Traffic Noise					See Factor Sheet 4.6 D-3 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☒	☐	☐	☐	No-Build–Approximately 109 receptors are in receiving range of existing highway noise, with 29 already experiencing noise levels approaching or exceeding the national criteria used to consider noise abatement measures. Under the No-Build Alternative, noise levels would continue and likely increase as traffic volumes increases.
Alternative 2	☒	☐	☐	☐	With the 4-lane expansion associated with Alternative 2–Approximately 116 receptors are in receiving range of existing highway noise, with 29 already experiencing noise levels approaching or exceeding the national criteria used to consider noise abatement measures. Under Alternative 2, 54 receptors would experience noise levels approaching or exceeding the national criteria, a net increase of 27 receptors.
Alternative 3	☒	☐	☐	☐	With the 4-lane expansion associated with Alternative 3–Approximately 122 receptors are in receiving range of existing highway noise, with 21 already experiencing noise levels approaching or exceeding the national criteria used to consider noise abatement measures. Under Alternative 3, 47 receptors would experience noise levels approaching or exceeding the national criteria, a net increase of 26 receptors.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☐	☐	☐	The Preferred Build Alternative 4-lane expansion (Alternative 1)–Approximately 109 receptors are in receiving range of existing highway noise, with 29 already experiencing noise levels approaching or exceeding the national criteria used to consider noise abatement measures. Under Alternative 1, 44 receptors would experience noise levels approaching or exceeding the national criteria, a net increase of 15 receptors. Noise barriers are not reasonable along WIS 23 generally because of the rural nature of the corridor and the spacing between receptors. A letter with this noise analysis was sent to the jurisdictions informing them of these impacts and asking them to consider this in their land use plans.
Connection Roads and Interchanges	☐	☐	☒	☐	Connection roads and interchanges would not have an additional effect (not already considered) on receptors along the corridor.
Old Plank Road Trail	☐	☐	☒	☐	Old Plank Road Trail would not increase noise levels for receptors along the corridor.
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☒	☐	The WIS 23 No Corridor Preservation Alternative would not increase noise levels for households along the corridor.
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	The Preferred WIS 23 Corridor Preservation Alternative would not increase noise levels for households along the corridor. When improvements associated with this corridor preservation are constructed, noise impacts would be evaluated at that time.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☐	The Preferred US 151/WIS 23 Interchange No Corridor Preservation Alternative would not increase noise levels for households along the corridor beyond normal traffic noise impacts based on increasing volumes. Currently no houses experience noise levels approaching or exceeding the national criteria used to consider noise abatement measures.
Option 23-1 Corridor Preservation	☐	☐	☒	☐	The US 151/WIS 23 Interchange Corridor Preservation Option 23-1 in itself would not increase noise levels. Improvements associated with this corridor preservation would increase noise levels. Approximately 64 receptors are in receiving range of existing highway noise. With the construction of Option 23-1, 2 receptors would experience noise levels approaching or exceeding the national criteria.
Option 23-2 Corridor Preservation	☐	☐	☒	☐	The US 151/WIS 23 Interchange Corridor Preservation Option 23-2 in itself would not increase noise levels. Improvements associated with this corridor preservation option would increase noise levels. Approximately 65 receptors are in receiving range of existing highway noise. Under Option 23-2 Preservation, 2 households would experience noise levels approaching or exceeding the national criteria.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	BENEFIT	NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
D-4 Hazardous Substances or Contamination					See Factor Sheet 4.6 D-4 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☐	☒	No effects.
Alternative 2	☒	☒	☐	☐	There are 12 aboveground storage tank (AST) sites along Alternative 2. There are 2 leaking underground storage tank (LUST) sites along Alternative 2. There are 2 underground storage tank (UST) sites along Alternative 2.
Alternative 3	☒	☒	☐	☐	There are 6 AST sites along Alternate 3. There is one LUST site on Alternative 3.
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☒	☐	☐	An updated assessment indicates 27 sites along the existing roadway alignment. There are 13 AST sites (one is a AST/Junk site), 3 LUST/UST sites, 3 junk sites, 3 vehicle repair sites, 1 vacant site, and 4 UST sites along the Preferred Build Alternative. Phase 2 investigations have been performed. WisDOT is seeking to avoid the limits of contamination on contaminated parcels. If contamination cannot be avoided, WisDOT will work with concerned parties to ensure that the disposition of any petroleum contamination is resolved to the satisfaction of the WDNR, WisDOT BTS, and the FHWA before acquisition of, or proposed construction within questionable sites and before advertising the project for letting. More information is contained in Section 4.6 D-4.
Connection Roads and Interchanges	☐	☐	☒	☒	No additional effects.
Old Plank Road Trail	☐	☐	☒	☒	No additional effects.
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☐	☒	No effects.
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☒	No additional effects.
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☐	☒	No effects.
Option 23-1 Corridor Preservation	☐	☐	☒	☒	No additional effects.
Option 23-2 Corridor Preservation	☐	☐	☒	☒	No additional effects.

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
D-5 Storm Water Management					See Factor Sheet 4.6 D-5 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☐	☒	All Build Alternatives would increase the amount of impervious area and increase peak flow discharges. Stormwater management issues would be addressed by following TRANS 401 and the WisDOT/WDNR Cooperative Agreement during the design phase of the project. Stormwater provisions for the construction project would follow Wisconsin State Regulations and guidelines for highway projects and Postconstruction Standards outlined in TRANS 401.106.
Alternative 2	☒	☒	☐	☐	
Alternative 3	☒	☒	☐	☐	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☒	☐	☐	Other than to comply with the state stormwater management regulations that are in place at the time of construction, there are no additional commitments. Stormwater management measures will be accommodated within the proposed right of way. The following is a list of Best Management Practices (BMPs) the WisDOT typically incorporates into projects similar to the WIS 23 project.
Connection Roads and Interchanges	☒	☒	☐	☐	
Old Plank Road Trail	☒	☒	☐	☐	
Corridor Preservation Alternatives					
WIS 23 Corridor					Basic Principles and BMPs Limit disturbance of natural drainage features and vegetation. Prior to land disturbance, prepare and implement an approved erosion and sediment control plan. Protect areas that provide important water quality benefits and/or that are susceptible to erosion and sediment loss. Reduce direct discharge of highway runoff into streams and wetlands by having it flow through a filter strip or vegetated swale. Reduce runoff velocities by using weirs or other barriers to dissipate high velocities. Geometric Design Features/Stormwater Facilities Vegetated grass strips or grass swales adjacent to the highway could remove about 65 percent of suspended sediments. Infiltrated trenches that consist of shallow ditches backfilled with stone could remove about 75 percent of suspend sediments. Filtration basins and sand filters that are lined with filter media such as sand or gravel, depending on the design, could remove up to about 80 to 90 percent of suspended sediments. The WIS 23 Corridor Preservation Alternative and the US 151/WIS 23 Interchange Corridor Preservation Options do not affect stormwater. When and if the improvements associated with these improvements are implemented, the previous described measures would apply.
No Corridor Preservation	☐	☐	☒	☒	
Preferred WIS 23 Corridor Preservation	☐	☐	☒	☐	
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☒	☒	
Option 23-1 Corridor Preservation	☐	☐	☒	☐	
Option 23-2 Corridor Preservation	☐	☐	☒	☐	

4.6 ENVIRONMENTAL EVALUATION MATRIX

ENVIRONMENTAL FACTORS	EFFECTS: ADVERSE	EFFECTS: BENEFIT	EFFECTS: NONE	NOT APPLICABLE	COMMENTS (Blackened-out cells in Not Applicable column require a check in at least one of the other columns).
D-6 Erosion Control					See Factor Sheet 4.6 D-6 for detailed evaluation.
Build Alternatives					
No-Build Alternative	☐	☐	☐	☒	The No-Build Alternative has no need for erosion control.
Alternative 2	☒	☐	☐	☐	Build Alternatives would require erosion control. To protect the drainage areas, streams, and rivers and to control construction site runoff, all Build Alternative construction documents would include detailed sedimentation and erosion control measures. The use of silt fences, turbidity barriers, sedimentation ponds, cofferdams, and the timely mulching and seeding or sodding of roadway slopes and other exposed areas would reduce runoff and siltation for all the build alternatives. An erosion control implementation plan would be prepared by the contractor and approved by WisDOT before the construction begins. During construction, erosion and sedimentation into adjacent surface waters would be minimized through the strict application of WisDOT's *Standard Specifications for Highway and Structure Construction.* Timely mulching and seeding or sodding of roadway slopes and other exposed areas would provide long-term erosion control. During construction, techniques such as silt fences, turbidity barriers, bale dikes, temporary interceptor ditches, ditch checks, ditch liners, and sediment ponds would be used where possible to minimize erosion. The use of a silt screen below the water level during construction operations in drainage areas might also be used to reduce off-site siltation. Unstable materials would be disposed of in upland areas, not in wetlands or waterways. Actual in-river construction for any bridge structure would stir up bottom sediment. Resuspension of the sediments would increase turbidity, release nutrients, and increase the oxygen demand on the river. This type of sedimentation is difficult to control and is an unavoidable impact of bridge construction. However, minimizing the use of in-river construction techniques and using cofferdams, silt screens, and turbidity barriers would reduce sedimentation. Riprap would be placed along the waterline at bridge abutments as necessary to reduce damage caused by erosion or wave action. Use of a granular-type material for fill in the wetlands and adjacent to the streams would also be required as necessary to reduce potential siltation. The WIS 23 Corridor Preservation Alternative and the US 151/WIS 23 Interchange Corridor Preservation Options do not affect erosion. When and if the improvements associated with these improvements are implemented, the previous described measures would apply.
Alternative 3	☒	☐	☐	☐	
Preferred Build Alternative					
Alternative 1 (4-Lane Expansion)	☒	☐	☐	☐	
Connection Roads and Interchanges	☒	☐	☐	☐	
Old Plank Road Trail	☒	☐	☐	☐	
Corridor Preservation Alternatives					
WIS 23 Corridor					
No Corridor Preservation	☐	☐	☐	☒	
Preferred WIS 23 Corridor Preservation	☐	☐	☐	☒	
US 151/WIS 23 Interchange					
Preferred No Corridor Preservation	☐	☐	☐	☒	
Option 23-1 Corridor Preservation	☐	☐	☐	☒	
Option 23-2 Corridor Preservation	☐	☐	☐	☒	

The following Factor Sheets are a more condensed method for documenting the results of the NEPA process. They are generally used by WisDOT and FHWA in Environmental Assessments and Environmental Reports. The sheets were used in this EIS as part of a WisDOT pilot effort to streamline the environmental documentation process. Since the FEIS used the Factor Sheet format, it has been retained in this LS SFEIS/ROD, except for Section 5, which was significantly revised. WisDOT has revised its Factor Sheet format, content, and order of discussion since the 2010 FEIS. This revision has led to a significant rearrangement of information, although most of the information content remains. The following list shows the Factor Sheet designation and topic in this LS SFEIS compared to the Factor Sheet designation presented in the 2010 FEIS.

LS SFEIS/ROD Factor Sheet Designation	Topic	2010 FEIS Factor Sheet Designation
A-1	General Economics Evaluation	A.
A-2	Economic Development and Business Impact Evaluation	C.
A-3	Agricultural Impact Evaluation	D.
B-1	Community and Residential Impact Evaluation	B.
B-5	Historic Resources Evaluation	P.
B-6	Archaeological Sites Impact Evaluation	Q.
B-8	Unique Area Impact Evaluation	O.
B-9	Aesthetics	S.
C-1	Wetlands Evaluation	F.
C-2.1	Rivers Streams Floodplains, Sheboygan River	G.
C-2.2	Rivers Streams Floodplains, Unnamed Tributary	G.
C-2.3	Rivers Streams Floodplains, Mullet River	G.
C-2.4	Rivers Streams Floodplains, Taycheedah Creek	G.
C-5	Upland Habitat	I.
C-7	Threatened and Endangered Species	No Factor Sheet
D-1	Air Quality Evaluation	L.
D-2	Construction Stage Sound Quality	M.
D-3	Traffic Noise	N.
D-4	Hazardous Substance or Contamination	R.
D-5	Stormwater Evaluation	K.
D-6	Erosion Control Evaluation	Not Provided

The new Threatened and Endangered Species Factor Sheet C-7 collects the rare species information that was in the other 2010 FEIS Factor Sheets and puts it in one location in this LS SFEIS/ROD.

All impacts have been updated to reflect the most recent design refinements.

Because the structure of the Factor Sheets has fully changed, only changes in general content are marked in either maroon or blue text.

The General Economics Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

GENERAL ECONOMICS EVALUATION

Factor Sheet A-1

1. Briefly describe the existing economic characteristics of the area around the project:
The main economic centers in this area exist in the cities of Fond du Lac and Sheboygan. A majority of land in the study area is used as nonirrigated cropland as indicated by the color brown on the land use maps shown in Figures 4.6 A-1.1 through 4.6 A-1.4.

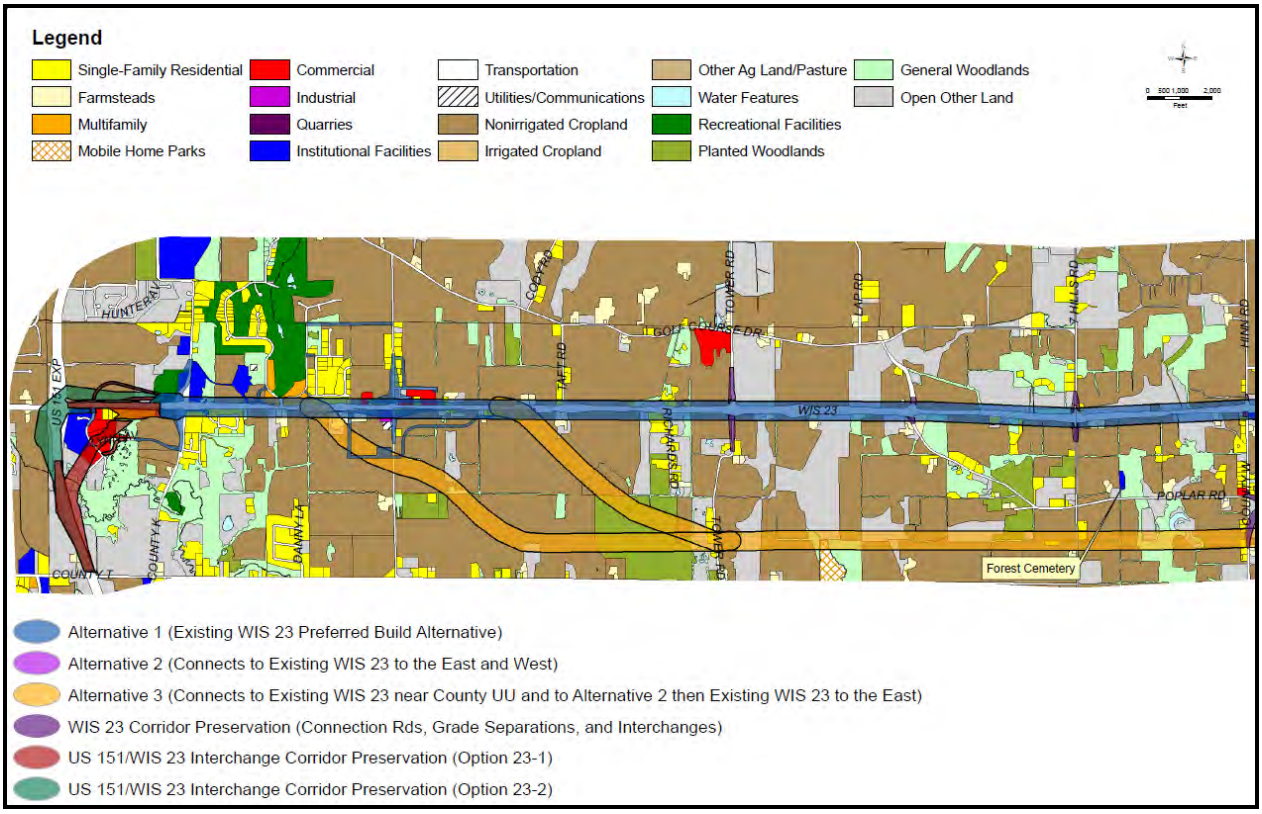


Figure 4.6 A-1.1 WIS 23 Existing Land Use-West Section

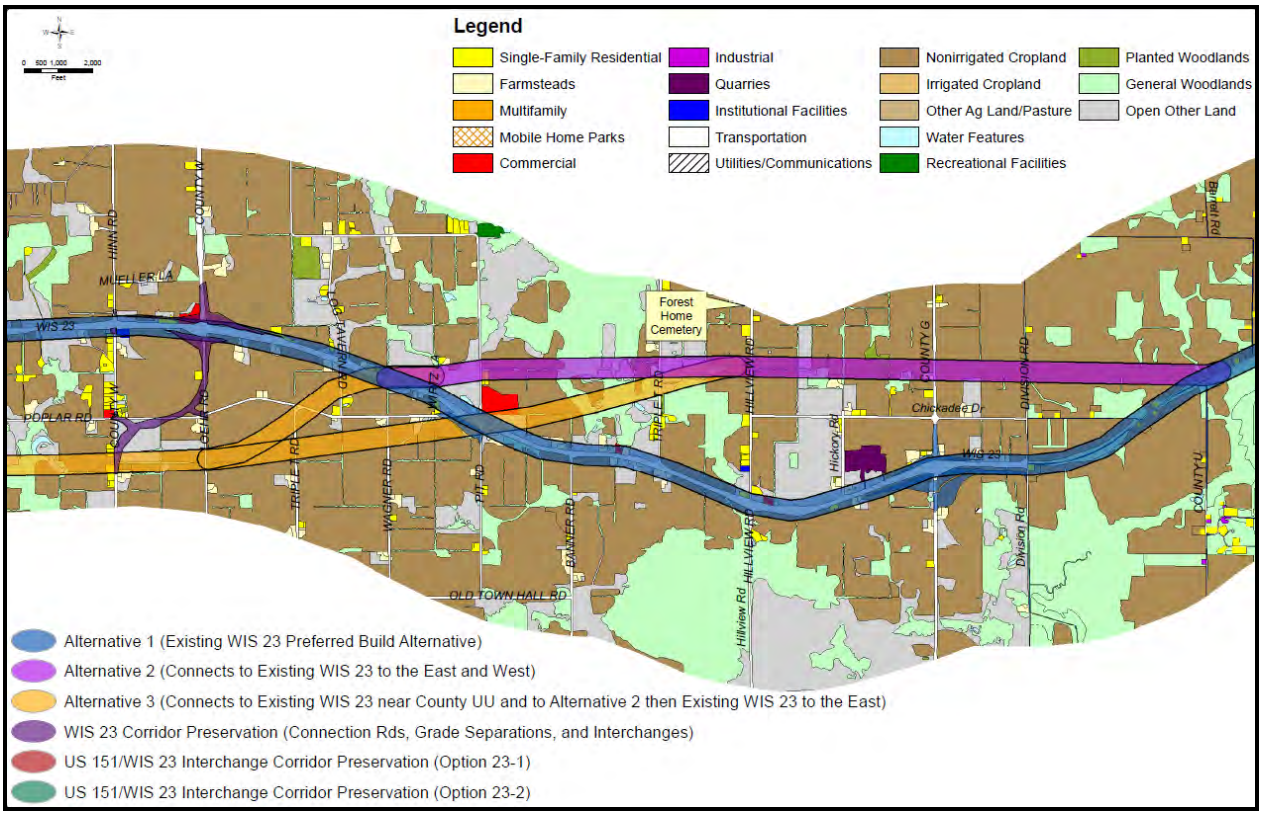


Figure 4.6 A-1.2 WIS 23 Existing Land Use-Middle Section

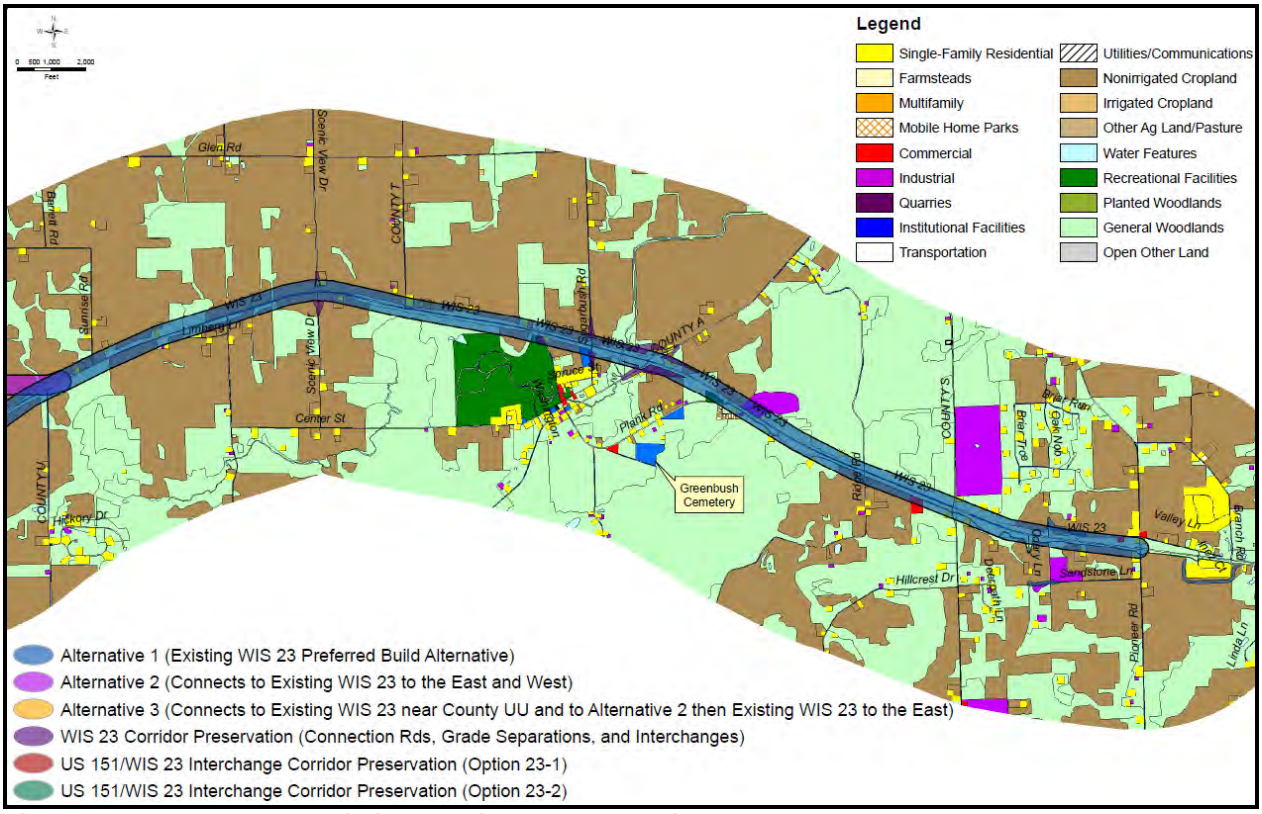


Figure 4.6 A-1.3 WIS 23 Existing Land Use-East Section

The following is a list of some businesses in the study area. Those in bold are impacted farms or businesses.

- Agriculture implement business
- Agriculture supply business
- Automotive repair business
- **Automotive sales and service**
- Automotive sales business
- **Cash crop farm**
- **Cedar furniture and fencing**
- **Concrete producer business**
- **Dairy farm**
- **Dairy farm**
- **Equestrian center**
- **Farm**
- Farm market business
- Gasoline station
- **Gasoline station**
- Golf course
- **Graphics service**
- Gravel pit
- **Machine shop and welding**
- Medical and outpatient services
- **School**
- **Tavern**
- **Tractor sales and repair**
- **Trailer sales and service**
- **Veal farm**
- **Woodworking shop**

According to the 2006-2010 American Community Survey, 28 percent of the population in the towns of Greenbush, Empire, Plymouth, and Forest are employed in the manufacturing sector. Seventeen percent of the population is employed in the educational, health care, and social services sector. Figure 4.6 A-1.4 shows industry for the employed civilian population 16 years and older.

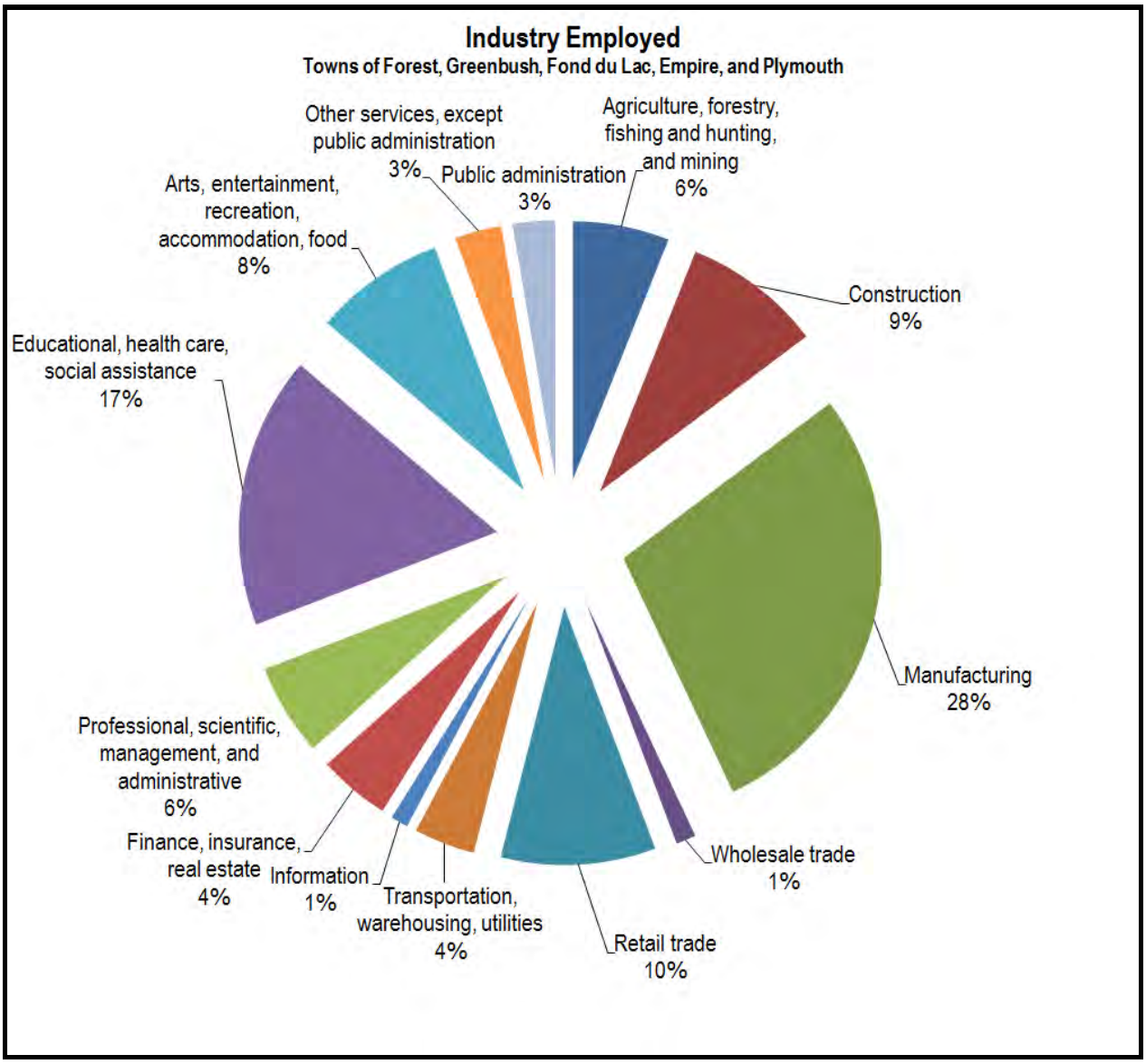


Figure 4.6 A-1.4 Industry Employed Civilian Population

2. Discuss the economic advantages and disadvantages of the proposed action and whether advantages would outweigh disadvantages. Indicate how the project would affect the characteristics described in item 1 above:

The Preferred Build Alternative will have several economic disadvantages:

- Ten businesses in 8 buildings and 19 farm operations will be relocated. These businesses will be provided with relocation payments from WisDOT, but they will still experience the hardship of transferring business operations to another location.
- The purchase of 225 acres of agricultural land will decrease the land base for approximately 96 farms.
- Access modifications may increase indirection for travelers that have origins and destinations on opposite sides of WIS 23. This may affect farmers that have field operations on both sides of WIS 23.
- Funds used for the construction of the Preferred Build Alternative, once committed, are unavailable for other highway projects or uses throughout the state.

There are several economic advantages of the Preferred Build Alternative. These include:

- The provision of safety features, such as interchanges, access modifications, and median, will decrease economic and personal losses associated with injuries and property damage attributable to crashes.
- Higher and more reliable travel speeds will decrease transportation costs of the delivery of goods and services between economic centers. It will also make commuter and recreational travel more efficient.
- Wider shoulders and multiple lanes will decrease the effect of farm machinery on WIS 23 travel flow. It will also ease the travel of farm machinery on WIS 23.

It is anticipated that over the life of the project, the economic advantages of the project will outweigh the disadvantages. Safety improvements that reduce fatalities and critical injuries typically provide substantial economic benefits that normally more than outweigh construction costs.

3. What effect will the proposed action have on the potential for economic development in the project area?

☒ **The proposed project will have no effect on economic development.**
☐ **The proposed project will have an effect on economic development.**

Mobility and access modifications may influence the potential for development, which is described in the indirect and cumulative effects section (Section 4.4). The Preferred Build Alternative and Preferred Corridor Preservation Alternatives will update WIS 23 to meet the design standards for Corridors 2030 Connector Routes and maintain the efficiency of moving goods and services between economic centers. Efficient movement of goods is attractive to businesses located in urbanized areas such as Fond du Lac and Sheboygan. In contrast, over time, increased congestion associated with the No-Build Alternative could adversely affect the local economy. Long-term impacts of the No-Build Alternative may include increased travel time costs for highway users including businesses.

The Business Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

BUSINESS EVALUATION

Factor Sheet A-2

1. Is a Conceptual Stage Relocation Plan attached to this document?

☒ Yes Appendix B of the 2010 FEIS contains a Conceptual Stage Relocation Plan updated on March 3, 2009.

☐ No - (Explain) _____

2. Describe the economic development or existing business areas affected by the proposed action:

No-Build Alternative: Over time, increased congestion associated with the No-Build Alternative could adversely affect the local economy. Long-term impacts of the No-Build Alternative may include increased travel time costs for highway users including businesses.

Build Alternatives: All Build Alternatives would improve travel time and safety because of reduced delays and congestion. The Build Alternatives would update WIS 23 to meet the design standards for Corridor 2030 Connector Routes and reduce the cost of moving goods and services between economic centers.

Alternative 2: One repair service station and one cattle auction company would be relocated.

Seven farm operations would be relocated and other farm businesses may be affected by loss of farmland. The portion of this alternative located on new alignment would not affect farm buildings.

Alternative 3: The gas station at County W would no longer be located adjacent to the relocated WIS 23. The gas station may not experience as much drive-by traffic and may experience a decrease in sales. Alternative 3 would relocate a repair service station and a cattle auction company. Four farm operations would also be relocated. The portion of this alternative located on new alignment would not affect farm buildings.

Preferred Build Alternative: The 4-Lane Build On-alignment Alternative (Alternative 1) would require relocating 3 businesses. The connection roads and interchanges would relocate 7 individual businesses in 5 business buildings. Table 4.6 A-2.1 summarizes the business relocations associated with the Preferred Build Alternative that ties the relocation to a location in Figures 2.7-13 to -25.

Table 4.6 A-2.1 Preferred Build Alternative Business Relocations

Preferred Build Alternative Improvement	Type of Business Relocation	Map Identifier (Fig 2.7-13 to -25)
Alternative 1	Repair service station	B3
Alternative 1	Cattle auction company	B11
Alternative 1	Salvage yard	B46
Connection Road and Interchanges	Concrete products manufacturer (2 buildings)	B14, B15
Connection Road and Interchanges	Sign manufacturer	B21
Connection Road and Interchanges	Vacant commercial building	B20
Connection Road and Interchanges	Business building with the following businesses - Auto center (closed-Vacant) - Implement dealer - Trailer rental - Powder coating	B24

Alternative 1 would also require relocating 17 farm operations on the mainline. The connection roads and interchanges would require relocating 2 farm operations. The Old Plank Road Trail would not relocate any businesses or any farm operations.

The Preferred Build Alternative would also require the relocation of several utilities, many of which are listed in Section 3.4. Utilities affected include power companies that have overhead power lines and underground power and gas lines. One home would be relocated as a result of utilities. Telephone and cable companies are also in the area and both have overhead and underground lines. A sanitary district has underground lines in a small portion of the western corridor.

Corridor Preservation Alternatives

Table 4.6 A-2.2 summarizes the future business relocations that would occur if and when improvements associated with the preservation area are implemented. The following paragraphs also summarize these impacts.

Table 4.6 A-2.2 Corridor Preservation Business Relocations

Preferred Preservation Alternative	Type of Business Relocation	Map Identifier (Fig 2.7-13 to -25)	Preferred?
WIS 23 Corridor Preservation	Service/gas station	CB39	Yes
WIS 23 Corridor Preservation	Trailer sales	CB38	Yes
Option 23-1	Paint and Body Shop	CB80	No
Option 23-1	Office Bldg with: - Law Office - Insurance Office - Adoption Agency	CB75	No
Option 23-1	Dermatology Office	CB74	No

WIS 23 Corridor

No Corridor Preservation

No effects. The WIS 23 No Corridor Preservation Alternative would leave commercial land unencumbered. If future transportation improvements are needed, business impacts could be greater because businesses were allowed to be developed in areas where transportation improvements may be needed.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation areas encompass a service station and a trailer sales operation and would require the relocation of 4 farm operations in addition to the Preferred Build Alternative impacts. Building improvements within these preservation areas would be restricted, and eventually, the business properties would need to be acquired and businesses relocated when improvements are implemented.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

No effects. The Preferred US 151/WIS 23 No Corridor Preservation Alternative would leave commercial land unencumbered. If a future system interchange is needed, business impacts could be greater because development was allowed to occur and right of way was not preserved.

Option 23-1 and Option 23-2 Corridor Preservation

The Option 23-1 Corridor Preservation area contains a paint and body shop, a medical building, and an office building housing three businesses (total of 5 relocations). Building improvements within this area would be restricted, and

property from several business parcels would eventually need to be acquired. No farm relocations would be required

The Option 23-2 Corridor Preservation area does not contain businesses within the preservation area. No farm relocations would be required.

3. Identify and discuss existing modes of transportation and their traffic within the economic development or existing business area:

The predominant travel mode within the corridor is motorized vehicles. Some transit service is available on the west end of the corridor through Fond du Lac transit, which extends from Fond du Lac to County K. Also, the Old Plank Road Trail, a multiuse trail, exists in the Sheboygan County portion of the corridor from County A east to Sheboygan. Both alternate transportation modes represent a very small proportion of the east-west travel along WIS 23.

No-Build Alternative

Long-term impacts of the No-Build Alternative may include increased travel time costs for highway users including businesses because of increased congestion. Additionally, access onto and off the highway would become more difficult with increasing traffic volumes. This could create safety issues as drivers try and gauge gaps in traffic.

All Build Alternatives

WIS 23 is a connection between economic centers and business areas in Fond du Lac and Sheboygan. All Build Alternatives involve capacity expansion from two lanes to four lanes. Economic advantages of the build alternatives are the decreased travel time and improved safety. It is not anticipated any Build Alternative would substantially alter modal choice.

Preferred Build Alternative

The Preferred Build Alternative would have the same effects as the Build Alternatives listed above. The grade separations and interchanges would improve safety. The Old Plank Road Trail would create a nonmotorized route from Fond du Lac to Sheboygan, encouraging some alternate mode travel.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

No effects to mode choice.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation would not affect travel modes. It would preserve right of way needed for future transportation improvements. These improvements, when implemented, would improve safety along the corridor by replacing some of the existing at-grade accesses with grade separations or interchanges. This also could modify access routes to businesses in the corridor. It is not anticipated this preservation would alter modal choice.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

No effects. The Preferred US 151/WIS 23 No Corridor Preservation Alternative would have minimal effect on the mode choice within the corridor.

Option 23-1 and Option 23-2 Corridor Preservation

The Option 23-1 and Option 23-2 Corridor Preservation Alternatives would preserve right of way for a future system interchange between US 151 and WIS 23. Accommodations would be made for the Old Plank Road Trail constructed with the Preferred Build Alternative. It is unlikely this corridor preservation alternative would have an effect on mode choice.

4. **Identify and discuss effects on the economic development potential and existing businesses that are dependent upon the transportation facility for continued economic viability:**

☐ The proposed project would have no effect on a transportation-dependent business or industry.

☒ The proposed action may change the conditions for a business that is dependent upon the transportation facility. Identify effects, including effects which may occur during construction.

No-Build Alternative

The No-Build Alternative would have no effect on the economic development potential of existing businesses other than the continued effects of increasing congestion. Access out of driveways and side roads, particularly left turns, would grow more difficult as traffic volumes increase. This could create safety issues as drivers try and gauge gaps in traffic.

Build Alternatives

Alternative 2 Some businesses located on local roads would be subject to reduced access, such as right-in/right-out types of intersections, J-turns, or eventual grade separation.

Alternative 3 The Citgo gas station at County W would not be located adjacent to the relocated WIS 23. The gas station would not have WIS 23 drive-by traffic exposure and may experience a decrease in sales. Also, as with Alternative 2, some businesses located on local roads would likely be subject to reduced access, such as right-in/right-out types of intersections, J-turns, or eventual grade separation.

Preferred Build Alternative

Alternative 1 (4-lane Build On-alignment)

The 4-lane expansion requires the relocation of three businesses. Additionally, some businesses located on local roads would be subject to reduced access, such as right-in/right-out types of intersections, J-turns, or other access treatments. These roads include businesses at County W and Pit Road. Reduction in access may increase indirection for patrons of a service station at County W. As mentioned, reconstruction and expansion of the WIS 23 corridor would require the relocation of several overhead and underground utilities. Much of this relocation expense would be borne by the utilities.

Connection Roads & Interchanges

Interchanges associated with the Preferred Build Alternative would require the relocation of 5 business buildings and 7 individual businesses (depending on the vacancies of a business building). This removes the potential for development at these businesses' current locations, but the opportunity to expand business facilities may be facilitated during the relocation process.

Old Plank Road Trail

The construction of the Old Plank Road Trail is not anticipated to greatly affect the economic development potential of adjacent properties. It may provide a small increase in economic tourism.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

The No Corridor Preservation Alternative would not affect economic development potential in the short term. This alternative could lead to increased business impacts if and when transportation improvements are constructed.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation designates areas for future grade separations and interchanges. The mapping of these future access modifications could affect investment in and sale of business properties affected by the access changes. Additionally, there are 2 businesses in the Preferred WIS 23 Corridor Preservation area. Building improvements and/or additional buildings for these businesses would be restricted. When future transportation improvements are implemented, they would require the relocation of these businesses.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

The No Corridor Preservation Alternative would not affect economic development potential in the short term. This alternative could lead to substantial business impacts if and when transportation improvements are implemented. Preliminary traffic analyses indicate the need for transportation improvements at this connection are in the distant future.

Option 23-1 Corridor Preservation

Option 23-1 designates a future right of way that bisects the Wisconsin American business park, potentially reducing the marketability of the remaining vacant parcels. Additionally, 3 business buildings which house 5 individual businesses within the preservation area for Option 23-1 that would have development restrictions placed upon them. Future transportation improvements could eventually require the relocation of these businesses.

Option 23-2 Corridor Preservation

Option 23-2 designates future right of way that surrounds the WIS 23/US 151 diamond interchange. It would have fewer direct effects on the Wisconsin American Business Park than Option 23-1. The corridor preservation would have access implications that could affect marketability of the remaining vacant parcels.

5. Describe both beneficial and adverse effects on:

A. The existing business area affected by the proposed action. Include any factors identified by business people that they feel are important or controversial.

No-Build Alternative

The No-Build Alternative would have the adverse effect of continued difficult access to and from driveways and side roads. Left-turn and crossing movements would be particularly difficult. The No-Build alternative would not require any business relocations.

Alternative 2

Some businesses located on local roads would have the adverse effect of reduced access, such as right-in/right-out types of intersections, J-turns, or eventual grade separation. This alternative would also have an adverse effect on 2 businesses and 7 farm relocations. Beneficial effects would include improved mobility and safer access at J-turns and interchange locations.

Alternative 3

Alternative 3 would have fewer adverse relocation effects because the alignment travels south of the WIS 23/County UU intersection, avoiding 5 businesses associated with the interchange/local roads. Alternative 3 would still impact 2 businesses and 4 farm relocations. As mentioned, the Citgo gas station at County W would not be adjacent to the relocated WIS 23 and would experience the adverse effect of loss of drive-by business. Beneficial effects would include improved mobility and safer access at J-turns and interchange locations.

Preferred Build Alternative

Alternative 1 (4-lane Build On-alignment)

The Preferred 4-Lane Build On-alignment would have the adverse effect of 3 business relocations. These include:

- A vehicle service center
- A cattle auction company
- A salvage yard

Proposed access modifications, such as J-turns, would also create some indirection for access to businesses at the County W north intersection. Beneficial effects include increased WIS 23 mobility and safety.

Connection Roads and Interchanges

The Connection Roads and Interchanges associated with the Preferred 4-lane Build On-alignment would have an adverse effect on 5 business buildings and 7 individual business relocations, all of them surrounding the County UU interchange. These include:

- A concrete plant and warehouse
- A sign manufacturer
- A vacant commercial building
- A business building (with 4 businesses within)

Beneficial effects include better and safer access at J-turns and interchanges.

Old Plank Road Trail

The Old Plank Road Trail is not anticipated to substantially affect businesses along the corridor. There may be a small business benefit because of potential increase in recreational tourism.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

The No Corridor Preservation Alternative would not adversely affect businesses. This alternative could lead to increased business impacts if and when transportation improvements are constructed.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation designates areas for future grade separations and interchanges. The mapping of these future access modifications would adversely affect business development flexibility. There are two businesses (trailer sales and a service center) within the Preferred WIS 23 Corridor Preservation area. Building improvements and/or additional buildings for these parcels would be restricted. When and if future transportation improvements are implemented, these businesses would need to be relocated. The corridor preservation measures would have the beneficial effect of lowering transportation improvement costs by limiting development in areas that may ultimately need to be purchased for right of way.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

The No Corridor Preservation Alternative would not have an adverse or beneficial affect on businesses. If a system interchange is constructed, this alternative would have the adverse effect of increased business disruption and increased right of way costs. Preliminary traffic analyses indicate the need for transportation improvements at this connection are in the distant future.

Option 23-1 Corridor Preservation

Option 23-1 would have the adverse effect of restricting development opportunities along a strip of land that bisects the Wisconsin American Business Park. Option 23-1 may also have a potential adverse effect of reducing the marketability of the remaining vacant parcels. Additionally, 3 business buildings

which house 5 individual businesses within the Option 23-1 preservation that would have development restrictions placed upon them. Future transportation improvements if implemented would eventually require the relocation of these businesses.

Option 23-2 Corridor Preservation

Option 23-2 designates future right of way that surrounds the WIS 23/US 151 diamond interchange. Future access restrictions of this alternative, if and when implemented, could adversely affect the marketability of the remaining vacant parcels.

B. The existing employees in businesses affected by the proposal. Include, as appropriate, a discussion of effects on minority populations or low-income populations.

No-Build Alternative

The No-Build Alternative would have the adverse effect of continued difficult access to places of employment. The No-Build Alternative does not have any business relocations, which could be considered a beneficial effect.

Alternative 2

Alternative 2 would require the relocation of 2 businesses and 7 farm operations, having the adverse effect of displacing 34 workers. Employees would have the beneficial effect of improved and safer access.

Alternative 3

Alternative 3 would require the relocation of 2 businesses and 4 farm operations, having the adverse effect of displacing 22 workers. Employees would have the beneficial effect of improved and safer access.

Preferred Build Alternative

Alternative 1 (4-lane Build On-alignment)

The Preferred 4-Lane Build On-alignment would have the adverse effect of 3 business relocations and associated employee displacements. Employees would have the beneficial effect of improved and safer access.

Connection Roads and Interchanges

The Connection Roads and Interchanges associated with the Preferred 4-lane Build On-alignment would have the adverse effect of relocating 5 buildings which house 7 business establishments, and associated employee displacements, mostly around the County UU interchange. (These displacements would also have occurred with Alternative 2 if an interchange were implemented at this location). Beneficial effects include better and safer access at the County UU interchange.

Old Plank Road Trail

The Old Plank Road Trail is not anticipated to substantially affect business employees along the corridor. It does provide the benefit of more and safer mode choices for businesses along the corridor.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

The No Corridor Preservation Alternative would have no effect on employees.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor preservation would have no effect on employees. If improvements are implemented, approximately 35 workers would be displaced.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

The No Corridor Preservation Alternative would have no effect on employees. If system interchange improvements are implemented, potentially more workers would be displaced than the corridor preservation options because with corridor preservation no new businesses would locate within the improvement footprint.

Option 23-1 Corridor Preservation

The Option 23-1 Corridor Preservation would have no direct effect on employees, but it may discourage businesses within the preservation areas from expanding and increasing their employee base. If improvements are implemented, approximately 107 workers would be displaced.

Option 23-2 Corridor Preservation

The Option 23-2 Corridor Preservation would have no direct effect on employees, but it may discourage businesses within the preservation areas from expanding and increasing their employee base.

6. Estimated number of businesses and jobs that would be created or displaced because of the project:

Often a high quality transportation infrastructure increases the desirability of a region when competing for industry and business. Access to the national transportation system is often a key factor in site selection for manufacturing and corporate centers. Successfully attracting industry to a region increases jobs. Construction of the WIS 23 roadway would lead to many jobs for the 2- to 3-year construction period. The Preferred Build Alternative would relocate up to 8 business buildings which house 10 individual businesses excluding agriculture or 29 individual businesses including agriculture. See table 4.6 A-2.3 for an estimate of possible jobs displaced for the Preferred Build Alternative.

Table 4.6A-2.3 Preferred Build Alternative Job Displacement

	Preferred Build Alternative			Other Build Alternatives	
All Build Alternatives	**4-Lane Expansion Alt 1**	**Connection Roads And Interchanges**	**Old Plank Road Trail**	**4-Lane Expansion Alt 2**	**4-Lane Expansion Alt 3**
Retail businesses displaced	0	0	0	**0**	**0**
Retail jobs displaced	**0**	**0**	**0**	**0**	**0**
Service businesses displaced	1	3	0	**1**	**1**
Service jobs displaced	**2**	**20**	**0**	**2**	**2**
Wholesale businesses displaced	0	0	0	**0**	**0**
Wholesale jobs displaced	**0**	**0**	**0**	**0**	**0**
Manufacturing businesses displaced	1	2	0	**0**	**0**
Manufacturing jobs displaced	**2**	**26**	**0**	**0**	**0**
Agricultural businesses displaced	17	2	0	8	5
Agricultural jobs displaced	**72**	**8**	**0**	**32**	**20**
Vacant businesses displaced	0	2	0	0	0
Total number of businesses displaced	20	9	0	9	6
Total number of jobs displaced	**76**	**54**	**0**	**34**	**22**

Note: All agricultural businesses were estimated to have 4 jobs.

The Preferred Corridor Preservation Alternatives have two active businesses excluding agriculture, or 6 businesses including agriculture, within the preservation area. Eventually, future transportation improvements would require the relocation of these businesses. See Table 4.6 A-2.4 for an estimate of future possible jobs affected for the Corridor Preservation Alternatives.

Table 4.6A-2.4 Corridor Preservation Alternatives Businesses and Jobs Affected

Businesses and Jobs Affected when Improvements within Corridor Preservation Areas are Implemented	Corridor Preservation Alternatives				
	WIS 23 Connection Roads, Grade Separations, and Interchanges		US 151/WIS 23 System Interchange		
	No Preservation	Preferred Preservation	Preferred No Preservation	23-1 Preservation	23-2 Preservation
Retail businesses displaced	0	0	0	0	0
Retail jobs affected	**0**	**0**	**0**	**0**	**0**
Service businesses affected	0	2	0	5	0
Service jobs affected	**0**	**19**	**0**	**107**	**0**
Wholesale businesses affected	0	0	0	0	0
Wholesale jobs affected	**0**	**0**	**0**	**0**	**0**
Manufacturing businesses affected	0	0	0	0	0
Manufacturing jobs affected	**0**	**0**	**0**	**0**	**0**
Agricultural businesses affected	0	4	0	0	0
Agricultural jobs affected	**0**	**16**	**0**	**0**	**0**
Vacant businesses affected	0	0	0	0	0
Total number of businesses affected	0	6	0	5	0
Total number of jobs affected	**0**	**35**	**0**	**107**	**0**

Note: All agricultural businesses were estimated to have 4 jobs.

Right of way acquisition activities and discussions with land owners have revealed no disproportionate impacts or concentrations of environmental justice workers.

7. Are any owners or employees of created or displaced businesses elderly, disabled, low-income or members of a minority group?

☒ No - Area demographics do not show high numbers of low income or minority residents along the corridor. Most of the concentrations exist near the communities of Plymouth and Fond du Lac and are not directly affected by the WIS 23 Preferred Alternative. Based on early right of way acquisition activities, it is not anticipated that the created or displaced businesses would have a high percentage of elderly, disabled, low-income or minority employees.

☐ Yes – If yes, complete Factor Sheet B-4, Environmental Justice Evaluation.

8. Is Special Relocation Assistance Needed?

☒ No

☐ Yes – Describe special relocation needs.

There appear to be no unusual circumstances regarding the business relocations.

9. Identify all sources of information used to obtain data in item 8:

☒ WisDOT Real Estate Conceptual Stage Relocation Plan (CSRP)
☐ Multiple Listing Service (MLS)
☐ Newspaper listing(s)
☒ Other - Identify: Real estate negotiations that occurred after the Record Of Decision.

10. Describe the business relocation potential in the community:

A. Availability of business buildings in the community.

The March 2009 CSRP (Appendix B of the 2010 FEIS) showed there are ample local commercial real estate listings for potential displacements in the Fond du Lac and Plymouth areas.

B. Number of available and comparable business buildings by type and price (Include business buildings in price ranges comparable to those being dislocated, if any).

The types of available and comparable businesses found were listed as office, retail, special purpose, wholesale, bed and breakfast, storage, restaurant, tavern, recreation, manufacturing, warehouse, and service stations. There are also farm properties available. The available and comparable business buildings are listed in the following table by price.

Table 4.6 A-2.5 Comparable Buildings and Properties

Price Range	Available Business Buildings	Available Farm Properties
Under $99,999	8	0
$100,000 to $199,999	16	2
$200,000 to $299,999	4	4
$300,000 to $499,999	6	3
Over $500,000	12	3

11. Describe how relocation assistance will be provided in compliance with the WisDOT Relocation Manual or FHWA regulation 49 CFR Part 24. Check all that apply:

☒ Business acquisitions and relocations will be completed in accordance with the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended." In addition to providing for payment of "Just Compensation" for property acquired, additional benefits are available to eligible displaced persons forced to relocate from their business. Some available benefits include relocation advisory services, reimbursement of moving expenses, and replacement of business payments. In compliance with state law, no person would be displaced unless a comparable replacement business would be provided.

Compensation is available to all displaced persons without discrimination. Before initiating property acquisition activities, property owners will be contacted and given an explanation of the details of the acquisition process and Wisconsin's Eminent Domain Law under Section 32.05, Wisconsin Statutes. Any property to be acquired will be inspected by one or more professional appraisers. The property owner will be invited to accompany the appraiser during the inspection to ensure the appraiser is informed of every aspect of the property. Property owners will be given the opportunity to obtain an appraisal by a qualified appraiser that will be considered by WisDOT in establishing just compensation. Reasonable cost of an owner's appraisal will be reimbursed to the owner if received within 60 days of initiation of negotiations. Based on the appraisal(s) made, the value of the property will be determined, and that amount offered to the owner.

☐ Describe other relocation assistance requirements, not identified above.

12. Identify any difficulties relocating a business displaced by the proposed action and describe any special services needed to remedy identified unusual conditions:

No special services or unusual conditions are anticipated, or have been encountered to date, that would complicate relocations for the Preferred Build Alternative or the Preferred Corridor Preservation Alternative. Most business establishments would be able to use a standard commercial building. Businesses being relocated that have special spatial needs and would require appropriate zoning include the following:

- A concrete products plant.
- A cattle auction company.
- A salvage yard.

13. Describe any additional measures which will be used to minimize adverse effects or provide benefits to those relocated. Also discuss accommodations made to minimize adverse effects to businesses that may be affected by the project, but not relocated:

No additional measures are anticipated to be needed to minimize adverse effects for those being relocated. Access to remaining businesses was a consideration in the placement and selection of access control measures at intersections, including J-turns and interchanges.

The Agriculture Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

AGRICULTURE EVALUATION

Factor Sheet A-3

1. Total acquisition interest, by type of agricultural land use:

Figures 4.6 A-3.1 to 4.6 A-3.4 show the Build Alternatives and Corridor Preservation Alternatives with adjacent land use. Table 4.6 A-3.1 compares the agricultural acreage for the Preferred Build Alternative as well as the other Build Alternatives. The initial 4-lane expansion acreages were used in selection of the Preferred Build Alternative after the release of the 2004 DEIS. Once selected, the Preferred Build Alternative added additional components such as connector roads, interchanges, and a trail extension that improved safety and enhanced nonmotorized travel and these were reported in the 2009 SDEIS and 2010 FEIS. Similar increases to Alternatives 2 and 3 estimates would be expected with comparable enhancements. The total acreages for the Preferred Build Alternative differ from those found in the 2006 AIS because of these safety and nonmotorized travel enhancements.

	Other Build Alternatives			Preferred Build Alternative		
Type of Land acquired from Farm Operations:	**No-Build**	**4-Lane Expansion Alt 2**	**4-Lane Expansion Alt 3**	**4- Lane Expansion Alt 1**	**Connection Roads And Interchanges**	**Old Plank Road Trail**
Cropland and pasture acres	0	169	296	92	81	52
Woodland/upland acres	0	19	31	38.4	2.2	7.3

Table 4.6 A-3.1 Type of Agricultural Land Acquired by Preferred Build Alternative

Table 4.6 A-3.2 compares the agricultural acreage preserved with the Corridor Preservation Alternatives. Eventually this acreage will need to be acquired if future transportation improvements are implemented.

	Corridor Preservation Alternative				
	WIS 23 Corridor Connection Roads, Grade Separations, and Interchanges		**US 151/WIS 23 System Interchange**		
Type of Land preserved from Farm Operations:	**No Preservation**	**Preferred Preservation**	**Preferred No Preservation**	**23-1 Preservation**	**23-2 Preservation**
Cropland and pasture acres	0	39	0	4	28
Woodland/upland acres	0	8.5	0	5.9	0.1

Table 4.6 A-3.2 Type of Agricultural Land Preserved by Corridor Preservation Alternative

2. Indicate number of farm operations from which land will be acquired:

Total Number of Farm Operations from Which:	**No-Build**	**Preferred Build Alternative (4-Lane Expansion)**	**Alternative 2 (4-Lane Expansion)**	**Alternative 3 (4-Lane Expansion)**
Land will be acquired	0	96	43	52
1 acre or less will be acquired	0	23	8	10
More than 1 acre but less than 5 acres will be acquired	0	44	15	7
More than 5 acres will be acquired	0	29	20	35

Table 4.6 A-3.3 Number of Farm Operations

The connection roads, interchanges, and Old Plank Road Trail of the Preferred Build Alternative generally will not affect additional farm properties but instead will affect the same properties listed in the above table. Utility relocations associated with the project may have a small effect on farm operation. It is

anticipated the majority of these relocations will occur within or directly adjacent to the proposed right of way.

The Corridor Preservation Alternatives will also preserve additional land from these farm operations. The preservation will not result in the purchase of right of way immediately but will preserve the right of way area for the implementation of future transportation improvements.

3. Is land to be converted to highway use covered by the Farmland Protection Policy Act?

☐ No
- ☐ The land was purchased prior to August 6, 1984 for the purpose of conversion.
- ☐ The acquisition does not directly or indirectly convert farmland.
- ☐ The land is clearly not farmland
- ☐ The land is already in, or committed to urban use or water storage.

☒ Yes (This determination is made by the Natural Resources Conservation Service (NRCS) via the completion of the Farmland Impact Conversion Rating Form, NRCS Form AD-1006)
- ☒ The land is prime farmland which is not already committed to urban development or water storage.
- ☐ The land is unique farmland.
- ☐ The land is farmland which is of statewide or local importance as determined by the appropriate state or local government agency.

4. Has the Farmland Impact Conversion Rating Form (AD-1006) been submitted to NRCS?

☐ No - Explain.

☒ Yes
- ☐ The Site Assessment Criteria Score (Part VI of the form) is less than 60 points for this project alternative.
  Date Form AD-1006 completed. _____
- ☒ The Site Assessment Criteria Score is 60 points or greater.
  Date Form AD-1006 completed. 12/21/12

5. Is an Agricultural Impact Statement (AIS) Required?

☐ No
- ☐ Eminent Domain will not be used for this acquisition
- ☐ The project is a “Town Highway” project
- ☐ The acquisition is less than 1 acre
- ☐ The acquisition is 1-5 acres and DATCP chooses not to do an AIS.
- ☐ Other. Describe _____

☒ Yes
- ☐ Eminent Domain may be used for this acquisition.
- ☐ The project is not a “Town Highway” project.
- ☐ The acquisition is 1-5 acres and DATCP chooses to do an AIS.
- ☒ The acquisition is greater than 5 acres.

The Department of Agriculture, Trade and Consumer Protection (DATCP) completed an Agricultural Impact Study (AIS) (October 17, 2006) for the Preferred Alternative, Alternative 1. The Executive Summary of the AIS is provided as Appendix K of the 2010 FEIS. DATCP produced an addendum in 2010.

6. Is an Agricultural Impact Notice (AIN) Required?

☐ No, the project is not a State Trunk Highway Project - AIN not required but complete questions 7-16.

☒ Yes, the project is a State Trunk Highway Project - AIN may be required.
  Is the land acquired "non-significant”?
  - ☐ Yes - (All must be checked) An AIN is not required but complete questions 7-16.
    - ☐ Less than 1 acre in size
    - ☐ Results in no severances
    - ☐ Does not significantly alter or restrict access
    - ☐ Does not involve moving or demolishing any improvements necessary to the operation of the farm
    - ☐ Does not involve a high value crop

Factor Sheet A-3

☒ No

☐ Acquisition 1 to 5 acres - **AIN required**. Complete Pages 1 and 2, Form DT1999,
(Pages 1 and 2, Figure 1, Procedure 21-25-30.)

☒ Acquisition over 5 acres - **AIN required**. Complete Pages 1, 3 and 4, Form DT1999. (Pages 1, 3 and 4, Figure 1, Procedure 21-25-30)

Note: An AIN was prepared for the project and an Agricultural Impact Statement was prepared and released in October 17, 2006. A subsequent update was prepared by DATCP in 2010. The following questions are answered to provide information more current than the information provided in the AIS.

7. Identify and describe effects to farm operations because of land lost due to the project:

No-Build This alternative will not directly cause the loss of farmland.

Alternative 2 Numerous farm operations would lose agricultural land adjacent to the existing highway. Acreages will vary depending on the frontage length and location. For the on-alignment portion of Alternative 2, the typical amount of right of way needed will be an additional 120 feet. For the off-alignment portion of Alternative 2, 250 feet of right of way will be needed. Approximately 169 acres of farmland will be needed for the 4-lane roadway expansion alone. Additional acres, comparable to Alternative 1, will be needed for the Old Plank Road Trail as well as overpasses and interchanges. Approximately 7 farm operations will be relocated. In addition, Segment B of this alternative would sever approximately 5 farm operations as it travels off the existing alignment. Of the 169 acres needed for the roadway portion of this alternative, about 90 acres are distant from existing WIS 23 and have not been previously disturbed by highway facilities.

Alternative 3 The majority of acreage lost will be from farms off existing WIS 23, previously not disturbed by highway facilities. For the 4-lane roadway, approximately 296 acres of farmland will be required from over 35 farm operations. There will be additional farmland needed for the Old Plank Road Trail as well as overpasses and interchanges. Approximately 4 farm operations will be relocated. In addition, this alternative will sever approximately 28 farm operations. Of the approximately 296 acres needed for this alternative, about 30 of those acres are from operations adjacent to existing WIS 23.

Preferred Build Alternative

Numerous farm operations will lose agricultural land adjacent to the existing highway. Acreages will vary depending upon the frontage length. Typical right of way needed will be about 120 feet. For the 4-lane expansion (Alt 1), 92 acres of crop land is needed. The Old Plank Road Trail requires an additional 52 acres, and the connection roads and interchanges require 81 acres. The 4-lane expansion also will relocate 17 farm operations, and the connection roads and interchanges will relocate 2 farm operations and sever 5 farm operations.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

This alternative will not encumber or restrict development on farmland.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation Alternative will preserve 39 acres of agricultural land, which will eventually be acquired for highway right of way. Structures or structure improvements will be restricted within these areas. The preservation areas also contain 4 farm operations, which will also have building restrictions placed on them. Eventually these farm operations will need to be relocated when transportation improvements are implemented. These improvements, when implemented, would also sever 2 farm operations.

US 151/WIS 23 Interchange
Preferred No Corridor Preservation
This Preferred Alternative will not encumber or restrict development on farmland.

Option 23-1 and Option 23-2 Corridor Preservation
Option 23-1 and Option 23-2 Corridor Preservation would encumber and place development restrictions on farm acreage. Option 23-1 Corridor Preservation would preserve 4 acres of farmland. Option 23-2 Corridor Preservation would preserve about 28 acres of farmland. No farm operations are located within the preservation area for these alternatives. Both options would sever 1 farm operation.

8. Describe changes in access to farm operations caused by the proposed action:

No-Build This alternative would not directly change farm access.

All Build Alternatives
WisDOT would work with owners of farm operations to minimize or combine as many access points as possible. Many properties would have right-in/right-out driveways. Median breaks will be intermittently spaced to allow U-turns to access properties. Refer to the AIS for additional details.

Alternative 2 This alternative will remove approximately 7 farm operations and their access points. Numerous other field entrances will be modified. The off-alignment Segment B will sever 5 farm fields that will require either new highway crossings or greater travel distances.

Alternative 3 This alternative will remove approximately 4 farm operations. This alternative will remove the fewest number of existing access points. However, there will be approximately 28 additional farm severances. With these severances, it will be necessary to provide either new highway crossings for access or greater distances to travel for the farmer.

Preferred Build Alternative
This alternative will remove approximately 17 farm operations for the 4-lane expansion (Alternative 1) and 2 farm operations for the connection roads and interchanges. As mentioned, most farm properties will have their access modified to right-in/right-out movements only, with median breaks providing an opportunity to access both directions of travel. The access to many field entrances will be modified. Special median break siting consideration will be given in areas where farmers own land on both sides of the roadway.

Corridor Preservation Alternatives
WIS 23 Corridor

No Corridor Preservation
This alternative will not encumber, restrict development, or change access to farmland.

Preferred WIS 23 Corridor Preservation
As mentioned in the Preferred Build Alternative, most farm properties will already have their access modified to right-in/right-out movements only, with median breaks providing an opportunity to access both directions of travel. This preservation preserves right of way for future transportation improvements. Many of these transportation improvements may reduce access further by installing grade separations and removing local road access. So when implemented, improvements associated with the Corridor Preservation will alter some access to farm properties and result in 2 severances. Additionally, there are 4 farm operations located within the preservation area. Eventually, future transportation improvements will require the relocation of these farm operations.

US 151/WIS 23 Interchange
Preferred No Corridor Preservation
This Preferred Alternative will not encumber, restrict development, or change access to farmland.

Option 23-1 and Option 23-2 Corridor Preservation

Option 23-1 and Option 23-2 Corridor Preservation Alternatives would require the preservation of additional farmland acres. The preservation itself, however, would not change access to farm properties.

9. Indicate whether a farm operation will be severed because of the project and describe the severance (include area of original farm and size of any remnant parcels):

The AIS indicates that "severances will occur near the proposed interchanges and where new frontage roads need to be built to provide access to properties that will lose direct access to WIS 23."

Preliminary estimates by WisDOT indicate the following related to severances for the Preferred Build Alternative:

				Preferred Build Alternative		
	No-Build	**4-Lane Expansion Alt 2**	**4-Lane Expansion Alt 3**	**4-Lane Expansion Alt 1**	**Connection Roads And Interchanges**	**Old Plank Road Trail**
Total Number of Farm Operations to be severed:	0	5	28	0	5	0

Parcels With Severed Agricultural Acres				
Preferred Alternative Component	***Location***	***Severed Parcel (Remaining Piece 1)***	***Severed Parcel (Remaining Piece 2)***	***Severed Parcel (Remaining Piece 3)***
Connection Roads	Lynn Avenue extension to County K (south of WIS 23).	21 acres	14 acres	---
Connection Roads	Ledgewood Drive connection to WIS 23 (north of WIS 23).	68 acres	1 acres	---
Connection Roads	County UU connection to landlocked parcels (west of County UU/south of WIS 23).	104 acres	27 acres	---
Connection Roads	County UU connection to landlocked parcels (east of County UU/south of WIS 23).	89 acres	12 acres	2 acres
Connection Roads	County UU connection to landlocked parcels (east of County UU/south of WIS 23).	27 acres	9 acres	---

Table 4.6 A-3.4 Preferred Build Alternative Farm Severances

The Corridor Preservation Alternatives will not directly sever properties, but improvements associated with the preservation efforts will sever properties when implemented. Preliminary estimates by WisDOT indicate the following related to severances for the Corridor Preservation Alternatives:

	Corridor Preservation Alternatives				
	WIS 23 Corridor Connection Roads, Grade Separations, And Interchanges		**US 151/Wis System Interchange**		
	No Preservation	**Preferred Preservation**	**Preferred No Preservation**	**23-1 Preservation**	**23-2 Preservation**
Total Number of Farm Operations to be severed:	0	2	0	1	1

Parcels with Severed Acres				
Preferred Alternative Component	***Location***	***Severed parcel (Remaining Piece 1)***	***Severed parcel (Remaining Piece 2)***	***Severed parcel (Remaining Piece 3)***
Connection Roads	County W connection road (south of WIS 23).	2.5 acres	2 acres	1 acres
Connection Roads	County W connection road (south of WIS 23).	80 acres	3 acres	2 acres
Option 23-1 and Option 23-2	County K connection road to WIS 23 (north of WIS 23).	168 acres	5 acres	---

Table 4.6 A-3.5 Corridor Preservation Farm Severances

10. Identify and describe effects generated by the acquisition or relocation of farm operation buildings, structures or improvements (e.g., barns, silos, stock watering ponds, irrigation wells, etc.). Address the location, type, condition and importance to the farm operation as appropriate:

The AIS identifies parcels where one or more buildings are likely to be acquired.

No-Build This alternative will not directly cause the loss of farm buildings.

Alternative 2 This alternative will affect approximately 20 farm buildings (7 farm operations).

Alternative 3 This alternative will affect approximately 10 farm buildings (4 farm operations).

Preferred Build Alternative

This alternative will affect approximately 57 farm buildings (17 farm operations from the 4-lane expansion (Alternative 1) and 2 farm operations from the connection roads and interchanges.)

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

This alternative will not cause the loss of farm buildings.

Preferred WIS 23 Corridor Preservation

The WIS 23 Corridor Preservation Alternative will not immediately cause the loss of farm buildings. Eventually if future transportation improvements are implemented, it will require the relocation of any farm buildings in the preservation area. There are 4 farm operations currently in the preservation area.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

This Preferred Alternative will not cause the loss of farm buildings.

Option 23-1 and Option 23-2 Corridor Preservation

These alternatives would not directly cause the loss of farm buildings.

11. Describe effects caused by the elimination or relocation of a cattle/equipment pass or crossing. Attach plans, sketches, or other graphics as needed to clearly illustrate existing and proposed location of any cattle/equipment pass or crossing:

☒ Does Not Apply.
☐ Replacement of an existing cattle/equipment pass or crossing is not planned. Explain.
☐ Cattle/equipment pass or crossing will be replaced.
☐ Replacement will occur at same location.
☐ Cattle/equipment pass or crossing will be relocated. Describe.

12. Describe the effects generated by the obliteration of the old roadway:

☒ Does Not Apply.
☐ Applies – Discuss.

None of the alternatives have substantial amounts of obliterated roadway. With Alternative 2 or 3, existing WIS 23 that is not used will be transferred to a local jurisdiction. Any small areas of roadway that need to be obliterated will be graded so that it blends with adjacent land.

13. Identify and describe any proposed changes in land use or indirect development that will affect farm operations and are related to the development of this project:

None of the alternatives directly affect change in adjacent farmland use other than the acreage converted to highway right of way. Secondary development pressures could affect farm operations and influence continued farm operation of lands. Farmland conversion will need to follow local government land use plans. The indirect and cumulative effects analysis, contained in Appendix C of this document, describes potential indirect effects to land use changes resulting from the Build Alternatives.

The Preferred Build Alternative is likely to increase the pace of development in the study area. Taken together, the effect of the WIS 23 project and other actions will be the incremental loss of agricultural land in the study area, particularly surrounding the cities of Fond du Lac and Plymouth.

14. Describe any other project-related effects identified by a farm operator or owner that may be adverse, beneficial or controversial:

No-Build

This alternative will not affect any farm operations. Transporting farm equipment along or across WIS 23 will continue to become more dangerous as traffic increases.

Build Alternatives

Where the existing highway will be used for expansion, transportation of equipment along or across WIS 23 will become considerably safer. Medians will be wide enough to accommodate some types of farm equipment. Farm machinery will be able to cross two lanes of traffic from one direction and wait in the median for a gap in traffic from the other direction. This two-stage crossing is easier than waiting for a gap in traffic from both directions. Wider shoulders can better accommodate farm machinery outside the paved travel lanes.

Access to many farm operations will be right-in/right-out only, with cross access provided at median breaks. This will cause some indirection associated with field access points. Refer to the AIS for additional detail.

Alternative 2

Some farm operators have concerns over severed fields and the use of previously undisturbed prime farmland for road right of way. Alternative 2 would sever 5 farms.

Alternative 3

Many farm operators have concerns over severed fields and the use of previously undisturbed prime farmland for road right of way. Alternative 3 would sever 28 farms.

Preferred Build Alternative

The Preferred Alternative expands the existing highway, so transportation of equipment along or across WIS 23 will become considerably safer. Access to many farm operations will be right-in/right-out only, with cross access provided at median breaks. This may cause some indirection associated with field access points. Farm operators have concerns over severed fields and the use of previously undisturbed prime farmland for road right of way. The connection roads and interchanges would sever 5 farms.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

This alternative will not additionally affect any farm operations.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation will not have immediate project effects, although the official mapping may affect the marketability of some parcels. Construction of the improvements associated with the corridor preservation will improve crossing WIS 23 at selected intersections along the corridor. This will primarily be through the installation of grade separations. The grade separations will prevent direct access to WIS 23. Additionally, some local roads will have their access to WIS 23 removed. This may increase travel distances between fields. Access to many farm operations will continue to be right-in/right-out only, with cross access provided at median breaks.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

This Preferred Alternative will not additionally affect any farm operations.

Option 23-1 and Option 23-2 Corridor Preservation

These corridor preservation options would not have immediate project effects, although the official mapping would have affected the marketability of some parcels.

15. Indicate whether minority or low-income population farm owners, operators, or workers will be affected by the proposal: (Include migrant workers, if appropriate.)

☒ No

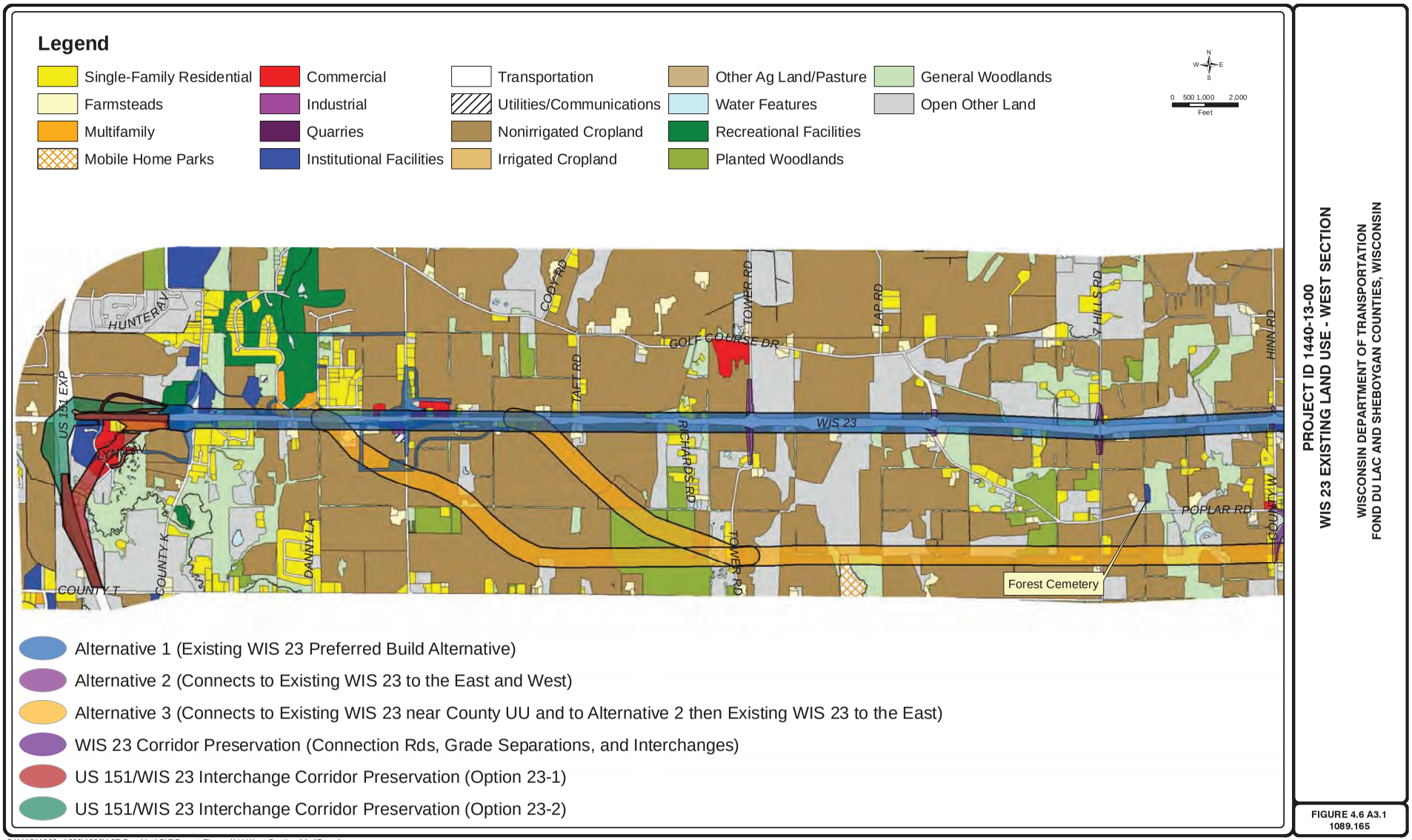
☐ Applies – Discuss.

According to DATCP, the bulk crops grown in this area are corn and soybeans. These crops are harvested using farm machinery.

16. Describe measures to minimize adverse effects or enhance benefits to agricultural operations:

Farm field access will be considered in the placement of median breaks. During construction, reasonable access will be provided to agricultural land. Existing drainage systems, ditches, and tiles will be kept operational during construction. WisDOT will work with farm owners and operators to minimize project impacts. Full consideration will be given to the recommendations of the DATCP AIS and the AIS update. Commits regarding these recommendations can be found in Section 6.14.

Figures 4.6 A-3.1 to A-3.4 follow this page.

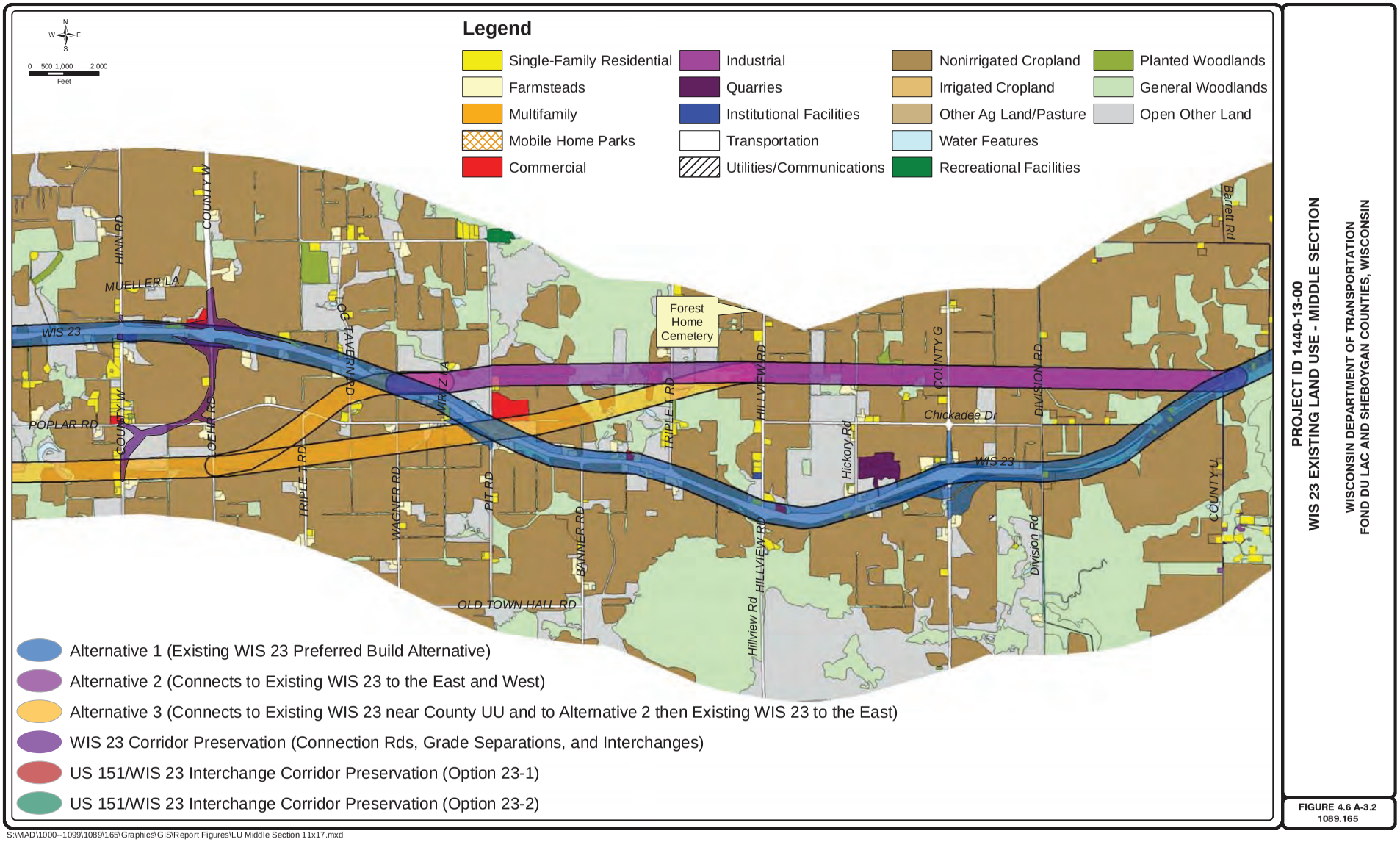


PROJECT ID 1440-13-00
WIS 23 EXISTING LAND USE - WEST SECTION

WISCONSIN DEPARTMENT OF TRANSPORTATION
FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

FIGURE 4.6 A3.1
1089.165

S:\MAD\1000--1099\1089\165\Graphics\GIS\Report Figures\LU West Section 11x17.mxd

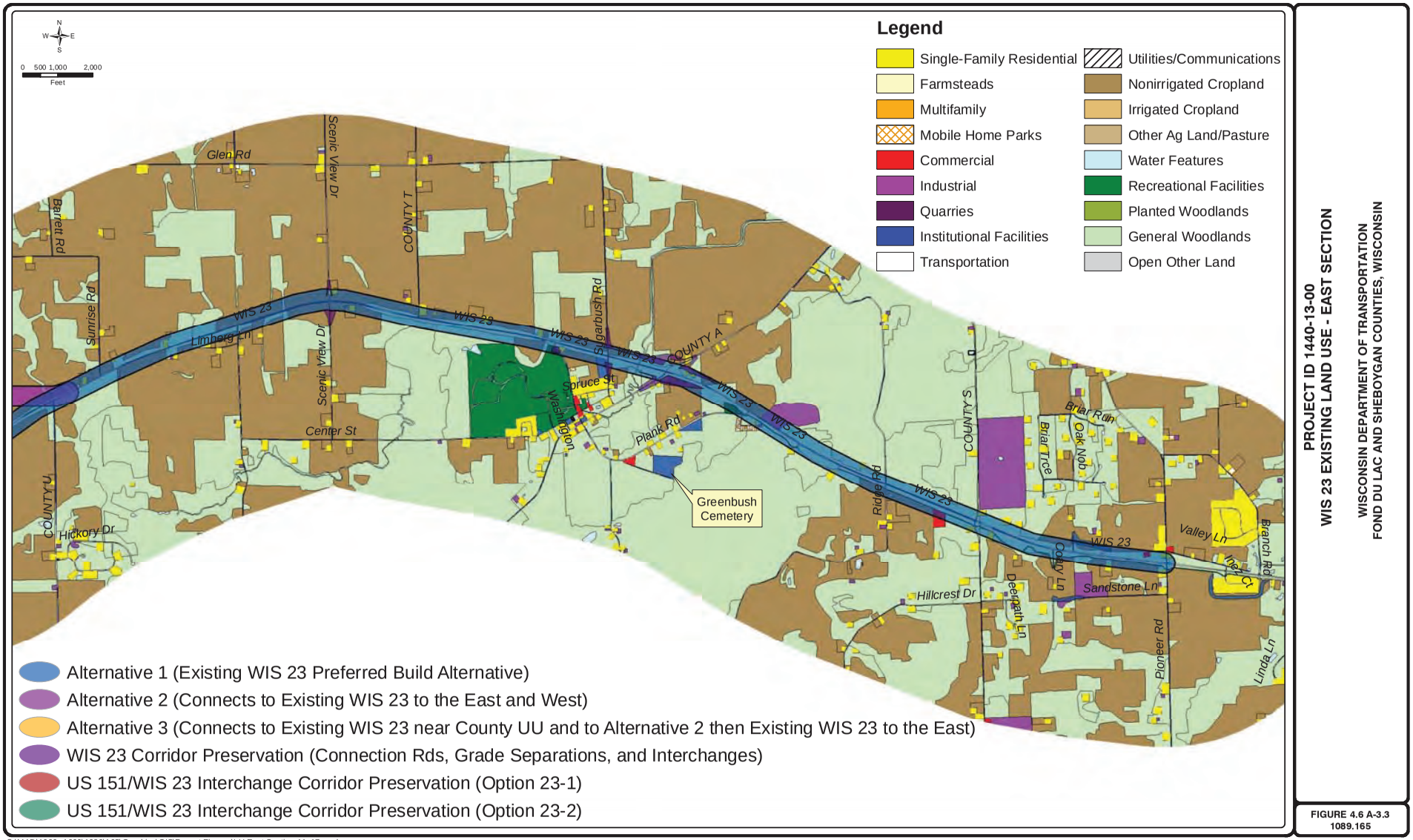


PROJECT ID 1440-13-00
WIS 23 EXISTING LAND USE - MIDDLE SECTION

WISCONSIN DEPARTMENT OF TRANSPORTATION
FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

FIGURE 4.6 A-3.2
1089.165

S:\MAD\1000--1099\1089\165\Graphics\GIS\Report Figures\LU Middle Section 11x17.mxd

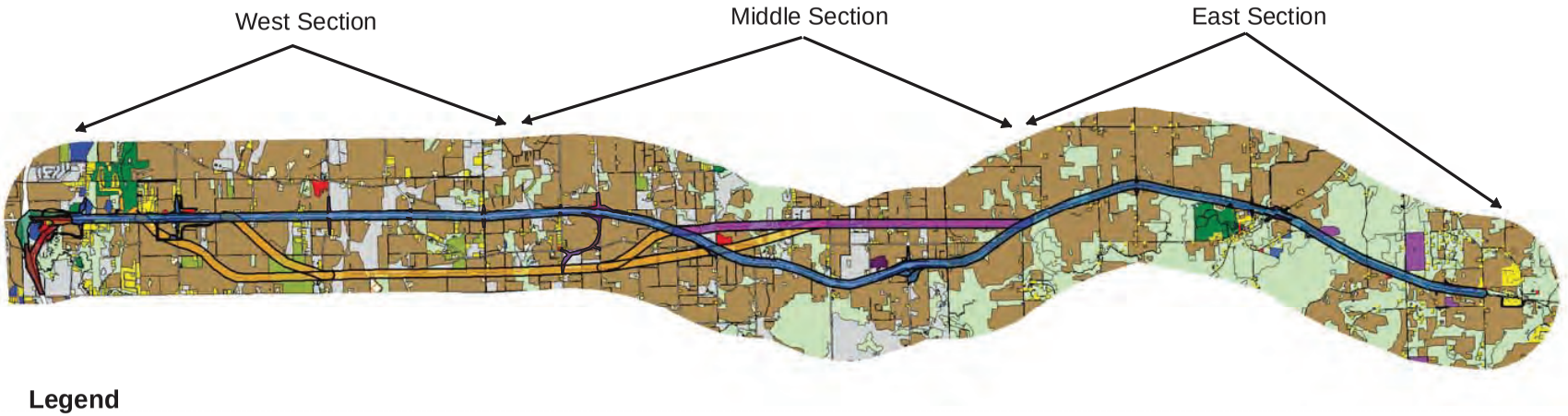


PROJECT ID 1440-13-00
WIS 23 EXISTING LAND USE - EAST SECTION

WISCONSIN DEPARTMENT OF TRANSPORTATION
FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

FIGURE 4.6 A-3.3
1089.165

S:\MAD\1000--1099\1089\165\Graphics\GIS\Report Figures\LU East Section 11x17.mxd



Legend

Single-Family Residential	Commercial	Transportation	Other Ag Land/Pasture	General Woodlands
Farmsteads	Industrial	Utilities/Communications	Water Features	Open Other Land
Multifamily	Quarries	Nonirrigated Cropland	Recreational Facilities	
Mobile Home Parks	Institutional Facilities	Irrigated Cropland	Planted Woodlands	

- Alternative 1 (Existing WIS 23 Preferred Build Alternative)
- Alternative 2 (Connects to Existing WIS 23 to the East and West)
- Alternative 3 (Connects to Existing WIS 23 near County UU and to Alternative 2 then Existing WIS 23 to the East)
- WIS 23 Corridor Preservation (Connection Rds, Grade Separations, and Interchanges)
- US 151/WIS 23 System Interchange (Option 23-1 Preservation)
- US 151/WIS 23 System Interchange (Option 23-2 Preservation)

N
W E
S

0 0.5 1 2
Miles

PROJECT ID 1440-13-00
WIS 23 EXISTING LAND USE

WISCONSIN DEPARTMENT OF TRANSPORTATION
FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

FIGURE 4.6 A-3.4
1089.165

S:\MAD\1000--1099\1089\165\Graphics\GIS\Report Figures\LU Overall 11x17.mxd

The Community or Residential Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

COMMUNITY OR RESIDENTIAL EVALUATION

Factor Sheet B-1

1. **Give a brief description of the community or neighborhood affected by the proposed action:**

Figure 4.6 B-1.1 illustrates the local government jurisdictions the WIS 23 corridor travels through. They include the cities of Fond du Lac and Plymouth, and the towns of Empire, Forest, Greenbush, and Plymouth in Fond du Lac and Sheboygan counties. Demographic characteristics for these jurisdictions are provided in Table 4.6 B-1.1.

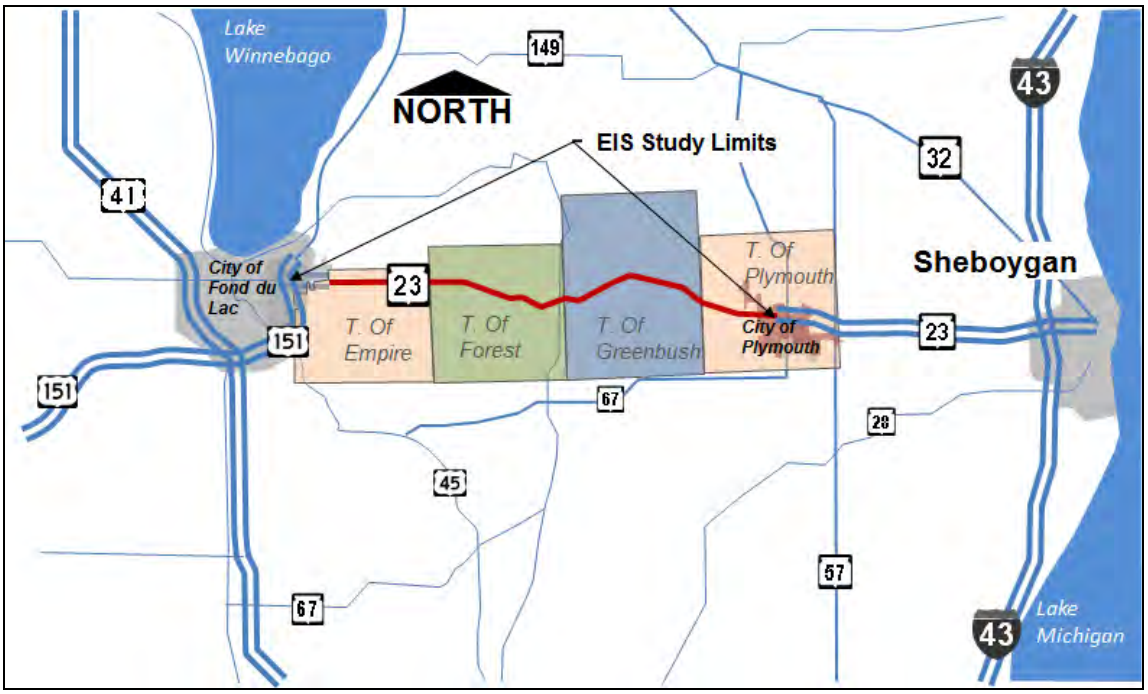


Figure 4.6 B-1.1 WIS 23 Local Government Jurisdictions

City of Fond du Lac Population 43,021

Demographic Characteristics

Census	% of Population
Owner-occupied housing	59.5
Median Age (years)	36.9 years
Public Transportation Commuters	0.6
Automobile Commuters (Alone)	79.1
Non-white population	9.4
Persons below poverty level (percent)	13.7

Town of Empire Population 2,797

Demographic Characteristics

Census	% of Population
Owner-occupied housing	94.8
Median Age (years)	46.7 years
Public Transportation Commuters	0.2
Automobile Commuters (Alone)	84.5
Non-white population	2.2
Persons below poverty level (percent)	3.9

Table 4.6 B-1.1 Demographic Characteristics

Town of Forest Population 1,080

Demographic Characteristics

Census	% of Population
Owner-occupied housing	89.6
Median Age (years)	43.4 years
Public Transportation Commuters	0.0
Automobile Commuters (Alone)	81.8
Non-white population	1.6
Persons below poverty level (percent)	4.0

Town of Greenbush Population 2,565

Demographic Characteristics

Census	% of Population
Owner-occupied housing	91.2
Median Age (years)	43.2 years
Public Transportation Commuters	0.0
Automobile Commuters (Alone)	78.5
Non-white population	2.3
Persons below poverty level (percent)	5.5

Town of Plymouth Population 3,195

Demographic Characteristics

Census	% of Population
Owner-occupied housing	92.5
Median Age (years)	47.7 years
Public Transportation Commuters	0.0
Automobile Commuters (Alone)	81.7
Non-white population	1.6
Persons below poverty level (percent)	1.8

City of Plymouth Population 8,445

Demographic Characteristics

Census	% of Population
Owner-occupied housing	62.8
Median Age (years)	40.8 years
Public Transportation Commuters	0.0
Automobile Commuters (Alone)	85.9
Non-white population	3.8
Persons below poverty level (percent)	11.0

Sources: U.S. Census Bureau, 2010 and 2008-2012 American Community Survey 5-year Estimates

Table 4.6 B-1.1 (cont) Demographic Characteristics

No-Build Alternative No effects.

All Build Alternatives WIS 23 serves as a roadway that allows people to drive to community facilities such as churches, commercial development, parks, and municipal buildings. The Build Alternatives will allow residents to continue to drive to community facilities.

Preferred Build Alternative

A few residential groupings along the corridor will be affected by access changes to WIS 23. The Mary Hill Park Drive development consisting of about 20 single-family residences will have its WIS 23 access routed through the County K jug-handle with very minor indirection. In the Whispering Springs Drive development, about 3 single-family residences and 9 multifamily residences will have a new entrance west of the current WIS 23 entrance. The Inez Court residential development consisting of about 11 single-family residences will have

its WIS 23 access routed to Pioneer Road. These access changes can be seen in Figure 4.6 B-1.2.

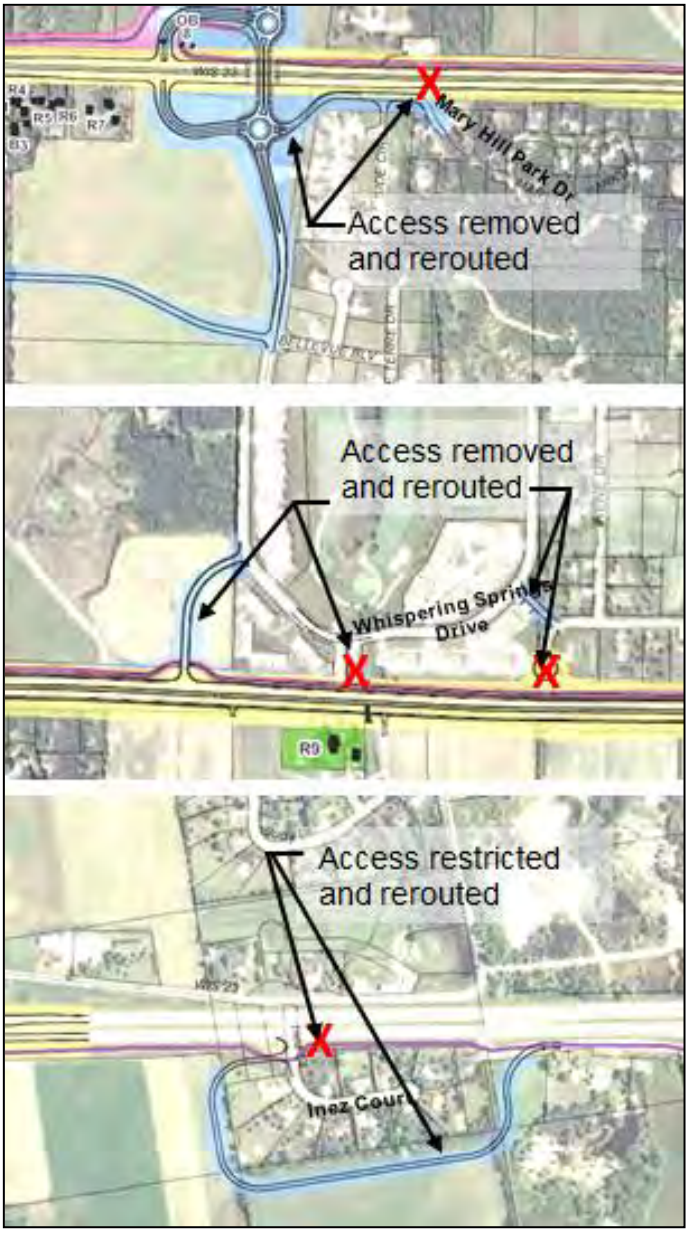


Figure 4.6 B-1.2 Access Changes

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

No effects. The WIS 23 No Corridor Preservation would not affect neighborhoods or communities.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation Alternative would not directly affect any neighborhoods or communities. When improvements associated with the Preferred WIS 23 Corridor Preservation are implemented, two subdivisions along the corridor will require access modifications. Also, when implemented, the residents located on south County W will need to travel along the rerouted roadway to the proposed interchange at County W. The subdivision residents

south of County A, including all residents on Plank Road, will be routed to County A to access WIS 23. When implemented, Plank Road will have its access removed from both WIS 23 connections, and Sugarbush Road will become a grade separation. This Preferred WIS 23 Corridor Preservation will affect the manufactured home community located on Plank Circle. The manufactured home community, consisting of about 16 residences, currently has direct access to WIS 23 and Plank Road. When improvements associated with the Preferred WIS 23 Corridor Preservation are constructed, the manufactured home park's accesses to WIS 23 will be removed and rerouted to County A. Figure 4.6 B-3.3 illustrates the access changes around County A associated with the Preferred Corridor Preservation Alternative if improvements are implemented.

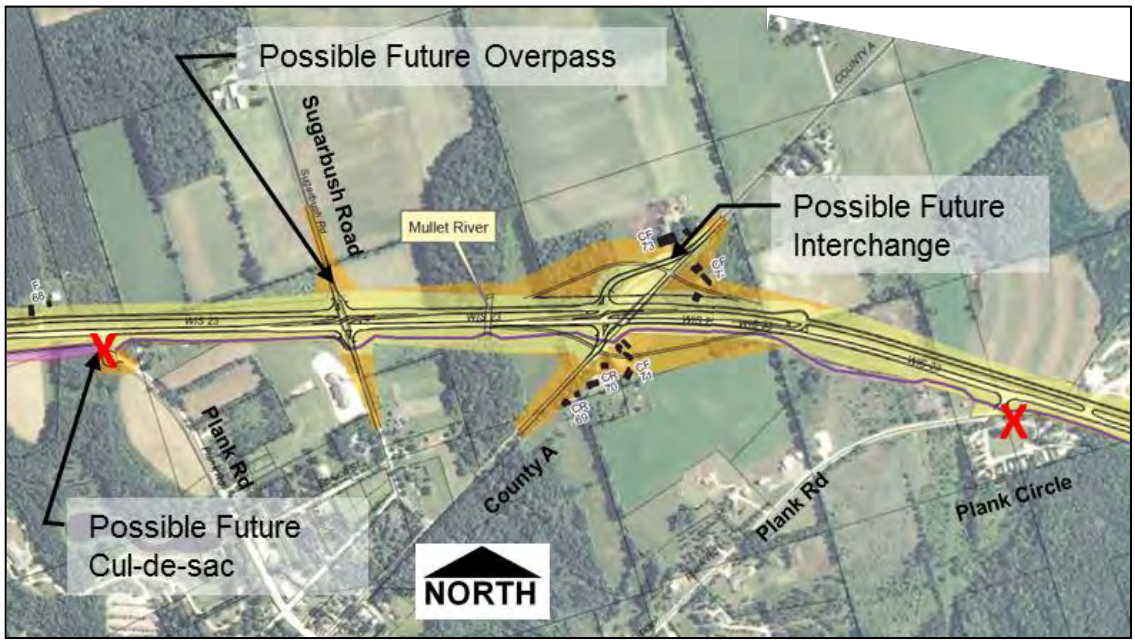


Figure 4.6 B-1.3 Corridor Preservation Possible Access Changes–County A

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

No effects. The Preferred US 151/WIS 23 Interchange No Corridor Preservation Alternative will leave land unencumbered. No additional impacts will occur to the communities and neighborhoods around US 151/WIS 23.

Option 23-1 and Option 23-2 Corridor Preservation

The US 151/WIS 23 Interchange Corridor Preservation Options 23-1 and 23-2 would not have a direct impact on residential properties, other than possibly restricting the commercial development of some properties currently zoned for residential uses.

2. Identify and discuss existing modes of transportation and their importance within the community or Neighborhood:

The primary mode of transportation on WIS 23 is automobile with about 11 percent of the traffic being trucks. Farm equipment also uses WIS 23 to access farms and farm fields.

Fond du Lac Area Transit runs special routes to area schools. These routes, called school trippers, serve the area of the school district and run only at school opening and closing times. Route 120 serves St. Mary's Springs High School from areas east of County K.

Fond du Lac Area Transit, in a joint and cooperative effort with the city of Fond du Lac and Fond du Lac County, offers a transportation alternative for those citizens who are unable to use regular transit service. The paratransit service is called HANDIVAN. This is a wheelchair-lift-equipped van service. The

curb-to-curb service serves areas within the Fond du Lac corporate limits, plus portions of neighboring towns within three-quarters of a mile from a fixed bus route.

JOBTRANS is a general public shared-ride taxi arrangement between Fond du Lac Area Transit and a private city taxi company for individuals within the city of Fond du Lac and village of North Fond du Lac who reside or wish to travel more than three-quarters of a mile from a fixed bus route and within a designated JOBTRANS service area. JOBTRANS marketing objective is work commuting but is available for any purpose.

3. Identify and discuss the probable changes resulting from the proposed action to the existing modes of transportation and their function within the community or neighborhood:

No-Build Alternative

No effects will occur in the short term. Not providing additional capacity will result in increased congestion and increased difficulty crossing and entering the highway in the long term.

All Build Alternatives

All Build Alternatives involve capacity expansion from 2 lanes to 4 lanes. The additional capacity will allow WIS 23 to provide good long-term operational characteristics. The proposed action will also improve travel safety by reducing conflict points. Driveways will be relocated when possible to safer locations. Several low-volume intersections will have their WIS 23 access removed and redirected to better crossing/access locations. A median will be provided that allows a 2-stage crossing of WIS 23 from a side road. A side-road vehicle can cross 2 lanes of traffic from one direction and wait in the median for a gap in traffic from the other direction. This 2-staged crossing is easier than waiting for a gap in traffic from both directions. Wider shoulders can better accommodate farm machinery outside of the paved travel lanes. Traffic operations and travel speeds will be better during peak hours.

Preferred Build Alternative

The Preferred Build Alternative includes a 4-lane expansion of WIS 23 (Alternative 1), a jug-handle at County K, interchanges at County UU and County G, and an extension of the Old Plank Road Trail. The changes to transportation modes for the Preferred Alternative are the same as those described above under All Build Alternatives. The connection roads and interchanges will provide reasonable access to and across WIS 23. Some side-road access to or across WIS 23 will be removed, increasing indirection for all travel modes. The Old Plank Road Trail is an extension of a multiuse trail that already exists from Sheboygan to Greenbush. This trail extension will enhance nonmotorized transportation from Sheboygan to Fond du Lac. Park and ride lots will be included at the County UU and County G interchanges, encouraging the opportunity for ride sharing.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

Providing no corridor preservation will not affect transportation modes. If transportation improvements are needed in the future, the implementation of grade separations, connection roads, and interchanges will be more difficult and some connections may not be feasible. This could preclude future transportation options.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation Alternative will not immediately affect transportation modes. When implemented, the connection roads and interchanges associated with the preservation areas will provide reasonable and safe access to and across WIS 23. Grade separations will provide safe access across WIS 23 but will remove direct access to WIS 23 from the side road.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

The Preferred No Corridor Preservation Alternative will have no effect on existing modes of transportation.

Option 23-1 and Option 23-2 Corridor Preservation

The US 151/WIS 23 Interchange Corridor Preservation Option 23-1 and Option 23-2 would not immediately affect area transportation modes. If improvements associated with the corridor preservation were implemented, they would increase the mobility for motor vehicle traffic at the US 151/WIS 23 interchange.

4. Briefly discuss the proposed action's direct and indirect effect(s) on existing and planned land use in the community or neighborhood:

No-Build Alternative — No effects.

All Build Alternatives — Farmland preservation is the predominant planned land use in the project area. All Build Alternatives will acquire farmland. WIS 23 alternatives on new location (not adjacent to WIS 23) would have fewer direct impacts on buildings or homes but will sever properties. Acreage impacts calculated for the DEIS found that Alternatives 1, 2, and 3 would acquire approximately 128, 169, and 296 acres of farmland, respectively. (Alternative 1 has since been revised to 92 acres).

The Preferred Build Alternative described in this LS SFEIS/ROD will require up to 225 acres of cropland. This acreage is higher than the values presented in the 2004 DEIS because of the additional components included as part of this alternative, specifically the interchanges, connecting roads, and trail extension. The total acreage is comparable to the values presented in the 2009 SDEIS and 2010 FEIS. Similar increases to the 2004 DEIS acreages for Alternatives 2 and 3 would be expected when accounting for Old Plank Road Trail Road improvements, interchanges, and connecting road intersection improvements.

Transportation improvements can also facilitate indirect and cumulative effects, especially if the transportation improvement affects travel characteristics by improving speed and/or land accessibility.

The Build Alternatives will modify access. Access characteristics will be reduced. Some driveways may be relocated to abutting local roads. Some public intersections will be redesigned using current design standards to improve safety. Some intersections will have their access removed from WIS 23 and redirected to other intersections.

Preferred Build Alternative

Farmland

The Preferred Build Alternative will acquire farmland in the project area. Farm homesteads and buildings located next to WIS 23 right of way will be directly affected depending on where the farm buildings are located in relation to the additional lanes. The 4-lane expansion on the existing alignment (Alternative 1) will require 92 acres of cropland. The connection roads and interchanges will require another 81 acres of cropland, and the Old Plank Road Trail will require 52 acres of cropland. There are also farm relocations required for the Preferred Build Alternative. The 4-lane expansion (Alternative 1) will relocate 17 farm operations and the connection roads and interchanges will relocate 2 farm operations.

Business and Commercial Land

Several town and city land use plans designate commercial uses near higher volume intersections. These intersections include the US 151/WIS 23 interchange, County K, County UU, County W, and County G. The Preferred Alternative maintains highway access at these locations and, therefore, is

consistent with these land uses. Yet some land planned for commercial uses will be needed for right of way. The 4-lane on-alignment expansion (Alternative 1) will require 3 business relocations. Additionally, the connection roads and interchanges will require the relocation of 5 business buildings housing 7 individual businesses.

Residential Land
Town and city land use plans designate scattered areas adjacent to WIS 23 for residential. The 4-lane expansion will impact the residential lands by causing 21 residential relocations and by altering residential access to WIS 23. The connection roads and interchanges will require an additional 12 residential relocations for a total of 33 residential relocations for the Preferred Build Alternative.

The Preferred Build Alternative will also indirectly affect land use by making some areas more accessible through interchanges and other areas less accessible through cul-de-sacs and grade separations. Additionally, improved travel times associated with a 4-lane facility may influence workers location choices for housing. Section 4.4 summarizes the indirect effects and cumulative effects associated with the Preferred Build Alternative. A revised indirect and cumulative effects analysis is incorporated in Appendix C.

Corridor Preservation Alternatives

WIS 23 Corridor
No Corridor Preservation

Farmland
The No Corridor Preservation Alternative will not encumber or restrict new building construction on farmland or farm buildings. There would be no effect to existing and planned land use.

Commercial Land
The No Corridor Preservation Alternative will not encumber or restrict new building construction of commercial buildings. The intersections with designated commercial uses will continue to have access to WIS 23. There would be no effect to existing and planned land use.

Residential Land
The No Corridor Preservation Alternative will not encumber or restrict new building construction on residential properties. There would be no effect to existing and planned land use. Access to properties will not change from the Preferred Build Alternative.

Preferred WIS 23 Corridor Preservation

Farmland
The Preferred WIS 23 Corridor Preservation Alternative will restrict new building construction on farmland in the project area. Farm homesteads and buildings located next to selected intersections along WIS 23 will be directly affected depending on where the farm buildings are located in relation to the additional improvements. This corridor preservation will encumber about 39 acres of cropland, which eventually will need to be acquired. There are also 4 farmsteads located within the preservation area. The corridor preservation will restrict improvements to these buildings. When improvements associated with the corridor preservation are implemented, these farmsteads will also need to be acquired if improvements are constructed.

Commercial Land
Town and city land use plans designate commercial uses near higher volume intersections. These intersections include the US 151/WIS 23 interchange, County K, County UU, County W, and County G. With the implementation of the

Preferred Build Alternative these intersections will all have access to WIS 23. The Preferred WIS 23 Corridor Preservation Alternative restricts development on land needed for the future construction of the County W interchange. Retaining access at these intersections through future interchanges is consistent with land use plans. Some land planned for commercial uses will be contained within the corridor preservation area, restricting the development of commercial properties within this area. The Preferred WIS 23 Corridor Preservation Alternative currently has 2 businesses located within the preservation area. The corridor preservation will restrict building enhancements to these business properties and eventually these business properties will need to be acquired if improvements are constructed.

Residential Land
Town and city land use plans designate scattered areas adjacent to WIS 23 for residential. The Preferred WIS 23 Corridor Preservation Alternative currently has 3 residential properties located within the preservation area. The corridor preservation will restrict building enhancements to these residences and eventually the residences will need to be acquired if improvements are constructed.

The Preferred Corridor WIS 23 Preservation could have indirect effects. The identification of future access (interchange) locations could direct commercial investment to those locations. This in turn could result in more concentrated development than what would ordinarily occur and community plans would acknowledge WIS 23 access locations. The identification of grade separations and future road closures could also influence how farmers purchase property when enlarging their operations. These corridor preservation measures eventually would reduce farm and residential impacts when improvements are implemented. The mapping preservation measures could also cause some disinvestment or lack of maintenance of buildings directly within the preserved areas.

US 151/WIS 23 Interchange
Preferred No Corridor Preservation

Farmland
The Preferred No Corridor Preservation Alternative will not encumber or restrict new building construction on farmland or farm buildings.

Commercial Land
The Preferred No Corridor Preservation Alternative will not encumber or restrict new building construction on commercial properties. The existing US 151/WIS 23 interchange will continue to provide access to and from WIS 23.

Residential Land
The Preferred No Corridor Preservation Alternative will not encumber or restrict new building construction on residential properties. Access to properties will not change from the Preferred Build Alternative.

Option 23-1 and Option 23-2 Corridor Preservation

Farmland
The Option 23-1 and Option 23-2 Corridor Preservation Alternatives would restrict building on farmland in the project area. Option 23-1 would preserve 4 acres of cropland and Option 23-2 would preserve 28 acres of cropland. Eventually this farmland would need to be acquired for highway right of way.

Commercial Land
Several area land use plans designate commercial uses near higher volume intersections. One of these intersections is the US 151/WIS 23 interchange. Either Option 23-1 or Option 23-2 Corridor Preservation would affect the development of commercial uses in this area. Option 23-1 may have a greater

effect on the development of planned commercial uses since it preserves future right of way through the Wisconsin American Business Park. Option 23-1 Corridor Preservation has 3 business properties which house 5 businesses located within the preservation area that would eventually need to be relocated if improvements are constructed. Option 23-2 Corridor Preservation does not have any business properties within the preservation area.

Residential Land
In the southern limits of the US 151/WIS 23 interchange, there are several developing residential areas. Option 23-1 Corridor Preservation has 5 residential properties located within the preservation area where future building improvements would be restricted. Eventually these residential properties would need to be acquired for highway right of way. There are no residential properties located within the preservation area for Option 23-2.

5. Address any changes to emergency or other public services during and after construction of the proposed project:

No-Build Alternative — No effects.

All Build Alternatives — There will be some effect on emergency and other public services after construction of all build alternatives. Emergency service routes will remain similar on WIS 23 with improvements. Local road intersections that have their access removed from WIS 23 could add 1 to 3 miles to response routes, depending on the location. Also, this travel would occur on local roadways that may have different winter maintenance policies than the WIS 23 roadway. Access treatments associated with each intersection were developed with local emergency service providers. Refer to Section 2.7 for details on local road access changes that are planned.

Preferred Build Alternative

The 4-lane expansion (Alternative 1) will remove access points from WIS 23 requiring some additional travel on local road systems. Additionally, access treatments such as J-turns and right-in/right-out intersections will increase indirection for emergency response providers. The J-Turn intersections will have mountable curb and gutter and thicker asphalt pavement within the island to allow emergency vehicles the ability to go straight through or turn onto WIS 23 if they so choose. Minimizing indirection was a consideration in the development of the type and location of access treatments for each intersection. The Old Plank Road Trail will not affect emergency service routes along the corridor.

Corridor Preservation Alternatives
WIS 23 Corridor
No Corridor Preservation

No effects. The effect on emergency or other public services will be the same as the Preferred Build Alternative.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation Alternative will not affect access to or across WIS 23. If implemented, the improvements associated with this corridor preservation alternative will remove access from WIS 23 and install connection roads, grade separations, and interchanges. This implementation will require greater travel distances on local roads by emergency responders for some locations. The increased indirection could increase from 1 to 4 miles. The additional travel would occur on local roadways that may have different maintenance policies than WIS 23. Emergency response routes were a factor in determining the placement of interchanges and grade separations.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

No effects. The effect on emergency or other public services will be the same as the Preferred Build Alternative.

Option 23-1 and Option 23-2 Corridor Preservation

Option 23-1 and Option 23-2 Corridor Preservation would not affect emergency access or public services. The road improvements associated with the Option 23-1 and 23-2 Corridor Preservation, if implemented, would improve the mobility between US 151 and WIS 23. Other side-road access would be the same as with the Preferred Build Alternative.

6. Describe any physical or access changes that will result. This could include effects on lot frontages, side slopes or driveways (steeper or flatter), sidewalks, reduced terraces, tree removals, vision corners, etc.:

No-Build Alternative — No effects.

All Build Alternatives — The effects on residential properties would vary based on the access treatments incorporated at each intersection. Properties on the existing alignment will likely have the physical characteristics of their driveways modified (steeper or flatter). Also, where the Build Alternative follows the existing alignment, most properties will have their access reduced to right-in/right-out. Residents will need to travel to a median break to make left turns.

Preferred Build Alternative

The intersection access treatments described in 2.7 and the provision of a full median will increase the indirection to residential properties. Many driveway accesses will also be right-in/right-out. Residents will need to travel to a median break to make left turns. Also, near the County UU and County G interchanges, many residential properties will be served by access roads rather than having direct access onto WIS 23, County UU, or County G. These access changes can be seen in Figures 2.7-13 to -25. The effects on residential properties will vary with design. These effects will include modified roadway slopes, driveway grade changes (steeper or flatter), and tree removal.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

No effects. The effect on physical and access changes to properties will be the same as the Preferred Build Alternative.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation Alternative will preserve future right of way that may affect development on property frontages. Implementation of the improvements associated with the corridor preservation would eventually remove access from WIS 23. When this occurs, many residential properties will have their access relocated to side roads or access roads. Some median breaks may still be provided for driveways with right-in/right-out access.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

No effects. The effect on physical and access changes to properties will be the same as the Preferred Build Alternative.

Option 23-1 and Option 23-2 Corridor Preservation

Option 23-1 and Option 23-2 Corridor Preservation would not affect access to properties but may restrict development on frontages. The system interchanges

would change the physical characteristics of the adjacent properties by modifying slopes and driveways and removing trees and vegetation.

7. Indicate whether a community/neighborhood facility will be affected by the proposed action and indicate what effect(s) this will have on the community/neighborhood:

No-Build Alternative

No effects.

All Build Alternatives

St Mary's Springs Academy private school has a baseball diamond at the northwest quadrant of the intersection of County K and WIS 23. The County K jug-handle would be part of any build alternative and would affect the field.

Preferred Build Alternative

As mentioned, St. Mary's Springs Academy private school has a baseball diamond at the northwest quadrant of the intersection of County K and WIS 23. This baseball field will be removed because of the jug-handle being installed at the WIS 23 and County K intersection. This is not a 4(f) property since it is privately owned. It is also not a 6(f) property (see Figure 2.7-14 and documentation in Section 4.6 B-5).

The Preferred Build Alternative will extend the Old Plank Road trail across the northern border of the Old Wade House State Park, directly adjacent to WIS 23 right of way. This will not adversely affect the park and provides additional routes to the park. See Section 5.4

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

No effects to community facilities.

Preferred WIS 23 Corridor Preservation

No effects to community facilities.

US 151/WIS 23 Connection

Preferred No Corridor Preservation

No effects to community facilities.

Option 23-1 and Option 23-2 Corridor Preservation

Option 23-1 and Option 23-2 Corridor Preservation could restrict some development on recreation fields in the northwest quadrant of the US 151/WIS 23 interchange owned by St. Mary's Springs private school. Currently there are no plans to build on these fields.

8. Identify and discuss factors that residents have indicated to be important or controversial:

Farmland preservation is important to this area. Residents are very interested in preserving the rural character of the area and are in favor of preventing or minimizing urban sprawl. Some have expressed concern regarding the extension of the Old Plank Road Trail along WIS 23 from the town of Greenbush to the city of Fond du Lac. Some interested in farmland preservation or minimizing right of way acquisition may not be in favor of this accommodation because of the farmland required to construct the trail. There could be small indirect development impacts from the proposed trail. Some retail and service-oriented business development that targets trail users could occur. Fond du Lac and Sheboygan counties are in favor of a trail along WIS 23 and have held meetings to help determine support and location for the trail. These meetings found support for a multiuse trail from the adjacent communities. The location of the trail was determined and is included as part of the Preferred Build Alternative. Figure 4.6 B-1.4 shows the location of the proposed Old Plank Road Trail.

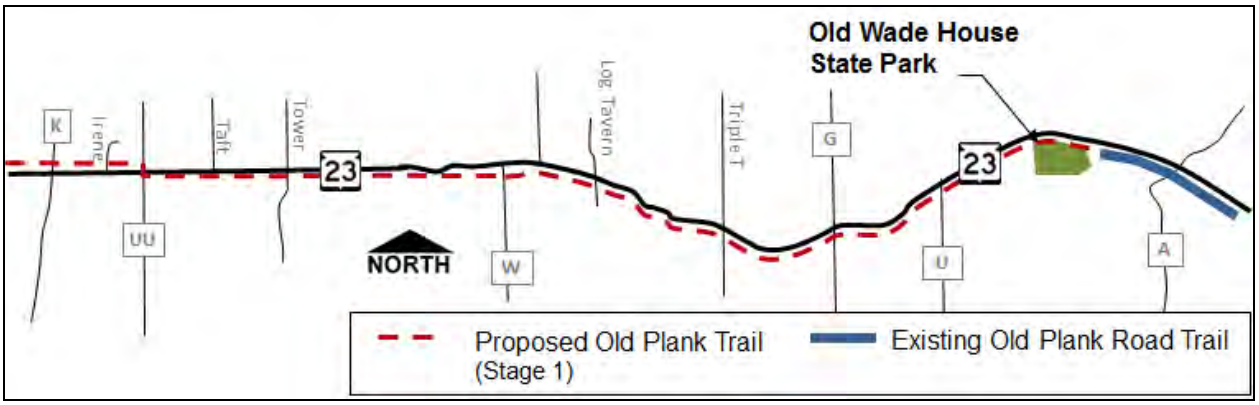


Figure 4.6 B-1.4 Proposed Old Plank Road Trail

9. List any Community Sensitive Design considerations, such as design considerations and potential mitigation measures.

The Old Plank Road Trail is a community sensitive design[15] consideration that the adjacent communities and many residents support. The County UU and County G interchanges also incorporate park and ride lots that encourage ride sharing.

10. Indicate the number and type of any residential buildings that will be acquired because of the proposed action. If either item a) or b) is checked, items 11 through 18 do not need to be addressed or included in the environmental document. If item c) is checked, complete items 11 through 18 and attach the Conceptual Stage Relocation Plan to the environmental document:

☐ None identified.
☐ No occupied residential building will be acquired as a result of this project. Provide number and description of non-occupied buildings to be acquired.
☒ Occupied residential building(s) will be acquired. Provide number and description of buildings, e.g., single family homes, apartment buildings, condominiums, duplexes, etc.

For the No-Build Alternative, no occupied residential buildings will be acquired.

Estimated residential relocations for the 4-lane expansion for all the Build Alternatives were compared in the 2004 DEIS based on the Conceptual Stage Relocation Plan (CSRP) dated February 2004. Once a 4-lane expansion Preferred Alternative was selected based on these impacts, additional components were added to the 4-lane expansion to increase highway safety and enhance alternate modes of travel. Table 4.6 B-1.2 shows the estimated residential relocations for all parts of the Preferred Build Alternative and compares them with the 4-lane expansion part of the other Build Alternatives. An updated CSRP (September 26, 2006, and March 3, 2009) was provided as Appendix B of the 2010 FEIS. One of the single-family home relocations listed in the following table is a result of a utility tower relocation rather than the road expansion itself.

All Build Alternatives	Preferred Build Alternative			Other Build Alternatives	
	4-Lane Expansion Alt 1	Connection Roads And Interchanges	Old Plank Road Trail	4-Lane Expansion Alt 2	4-Lane Expansion Alt 3
Single-Family Homes	21	12	0	17	20
Apartment Buildings, Duplexes or Condominiums	0	0	0	0	0

Table 4.6 B-1.2 Preferred Build Alternative Residential Buildings Relocated

[15] Community Sensitive Design, sometimes referred to as Context Sensitive Design or Context Sensitive Solutions, is a collaborative, approach involving all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. Treatments can include aesthetic treatments to bridges, plantings, or other features that support and enhance the adjacent community.

Table 4.6 B-1.3 shows the estimated residential properties within the preservation area for all parts of the Corridor Preservation Alternatives. An updated CSRP (September 26, 2006, and March 3, 2009) was provided as Appendix B of the 2010 FEIS.

	Corridor Preservation Alternatives				
	WIS 23 Corridor Preservation (Connection Roads, Grade Separation, and Interchanges)		US 151/WIS 23 System Interchange Preservation		
	No Preservation	Preferred Preservation	Preferred No Preservation	23-1 Preservation	23-2 Preservation
Single-Family Homes	0	3	0	5	0
Apartment Buildings, Duplexes or Condominiums	0	0	0	0	0

Table 4.6 B-1.3 Corridor Preservation Alternative Residential Buildings Affected

11. Anticipated number of households that will be relocated from the occupied residential buildings identified in item 10, above:

Only updates to the Preferred Build Alternative and Corridor Preservation Alternatives are shown.

Build Alternatives

No-Build Alternative No occupied residential buildings will be acquired.

Preferred Build Alternative

4-Lane Expansion (Alternative 1)
Total Number of Households to be Relocated–21
Number of relocated households by type and price range of dwelling.

Number of Single Family Dwelling.	Price Range
0	Less than $49,999
1	$50,000 to $99,999
5	$100,000 to $149,999
6	$150,000 to $199,999
3	$200,000 to $249,999
6	Over $250,000

Table 4.6 B-1.4 Preferred Build Alternative Relocation Types

Connection Roads and Interchanges
Total Number of Households to be Relocated–12
Number of relocated households by type and price range of dwelling.

Number of Single Family Dwelling.	Price Range
0	Less than $49,999
1	$50,000 to $99,999
1	$100,000 to $149,999
2	$150,000 to $199,999
4	$200,000 to $249,999
4	Over $250,000

Table 4.6 B-1.5 Connection Roads and Interchanges Relocation Types

Old Plank Road Trail
Total Number of Households to be Relocated–0
Number of relocated households by type and price range of dwelling. N/A

Corridor Preservation Alternatives

WIS 23 No Preservation
Total Number of Households to be Relocated–0
Number of relocated households by type and price range of dwelling. N/A

WIS 23 Corridor Connection Roads, Grade Separations, and Interchanges
Total Number of Households to be Relocated–3
Number of relocated households by type and price range of dwelling.

Number of Single Family Dwelling.	Price Range
0	Less than $49,999
0	$50,000 to $99,999
1	$100,000 to $149,999
0	$150,000 to $199,999
2	$200,000 to $249,999
0	Over $250,000

Table 4.6 B-1.6 Corridor Preservation Future Relocation Types

US 151/WIS 23 System Interchange
Preferred No Preservation
Total Number of Households to be Relocated–0
Number of relocated households by type and price range of dwelling. N/A

23-1 Preservation

Total Number of Households to be Relocated–5
Number of relocated households by type and price range of dwelling.

Number of Single Family Dwelling.	Price Range
0	Less than $49,999
0	$50,000 to $99,999
4	$100,000 to $149,999
1	$150,000 to $199,999
0	$200,000 to $249,999
0	Over $250,000

Table 4.6 B-1.7 US 151/WIS 23 Corridor Preservation Future Relocation Types

23-2 Preservation
Total Number of Households to be Relocated–0
Number of relocated households by type and price range of dwelling. N/A

12. Describe the relocation potential in the community:

The March 2009 CSRP (Appendix B of 2010 FEIS) states the real estate market is very active with an abundant number of transactions. The potential number of relocations caused by this project will not cause undue hardship to the local real estate market. Replacement properties available in December of 2012 are listed below and include listings in the city of Fond du Lac. The number of listings that do not include the city of Fond du Lac are shown in parentheses.

a. Number of Available Dwellings

1 Bedroom	2 Bedrooms	3 Bedrooms	4 or More Bedrooms
7 (4)	106 (30)	360 (159)	167 (76)

b. Number of Available and Comparable Dwellings by Type and Price. (Include dwellings in price ranges comparable to those being dislocated, if any.)

Single Family Dwellings	Price Range
273 (61)	under $99,000
134 (51)	$100,000 to $149,999
143 (89)	$150,000 to $249,999
90 (68)	over $250,000

Table 4.6 B-1.8 Relocation Potential

13. Identify all the sources of information used to obtain the data in item 12:

☒ WisDOT Real Estate Conceptual Stage Relocation Plan ☒ Multiple Listing Service (MLS)

☐ Newspaper Listing(s) ☒ Other – U.S. Census Bureau

14. Indicate the number of households to be relocated that have the following special characteristics:

☒ None identified.

☐ Yes - _____ total households to be relocated. Complete table below

Based on the project's public involvement process to date, there are no known special household characteristics with respect to race, income level, tenure, elderly, or other factors.

15. Describe how relocation assistance will be provided in compliance with the WisDOT Relocation Manual or FHWA regulation 49 CFR Part 24:

☒ Residential acquisitions and relocations will be completed in accordance with the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended." In addition to providing for payment of "Just Compensation" for property acquired, additional benefits are available to eligible displaced persons required to relocate from their residence. Some available benefits include relocation advisory services, reimbursement of moving expenses, replacement housing payments, and down payment assistance. In compliance with state law, no person would be displaced unless a comparable replacement dwelling would be provided. Federal law also requires that decent, safe, and sanitary replacement dwelling must be made available before any residential displacement can occur.

Compensation is available to all displaced persons without discrimination. Before initiating property acquisition activities, property owners would be contacted and given an explanation of the details of the acquisition process and Wisconsin's Eminent Domain Law under Section 32.05, Wisconsin Statutes. Any property to be acquired would be inspected by one or more professional appraisers. The property owner would be invited to accompany the appraiser during the inspection to ensure the appraiser is informed of every aspect of the property. Property owners will be given the opportunity to obtain an appraisal by a qualified appraiser that will be considered by WisDOT in establishing just compensation. Based on the appraisal(s) made, the value of the property would be determined, and that amount offered to the owner.

☐ Identify other relocation assistance requirements not identified above.

16. Identify any difficulties or unusual conditions for relocating households displaced by the proposed action:

There are no apparent unusual circumstances regarding the residential relocations.

17. Indicate whether Special Relocation Assistance Service will be needed. Describe any special services or housing programs needed to remedy identified difficulties or unusual conditions noted in item #14 above:

☒ None identified

☐ Yes - Describe services that will be required

There is no apparent special relocation assistance needed.

18. Describe any additional measures that will be used to minimize adverse effects or provide benefits to those relocated, those remaining, or to community facilities affected:

WisDOT will work with those affected to find the best solution to the relocated household in a timely fashion. No community facilities will be affected.

The Historic Resources Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated. Information regarding Section 4(f) is discussed in Section 5 of this LS SFEIS/ROD. Also, the historic boundary to St. Mary's Springs Academy has been revised so that there is no longer Section 4(f) use from the WIS 23 Preferred Alternative. This has resulted in a revised Memorandum of Agreement.

HISTORIC RESOURCES EVALUATION

Factor Sheet B-5

Section 106 Form or other documentation, with all necessary approvals, must be attached to the Environmental Document for all projects.

The sites listed in Table 4.6 B-5.1 were identified within the Area of Potential Effect (APE) with potential to be impacted by the alternatives analyzed. The sites were identified either by field reviews or a literature search. The APE was studied between September 2002 and June 2006 and consisted of the area 1 mile on either side of WIS 23 from County K to County P. In the spring of 2006, an update to the APE was studied that covered several additional areas surrounding intersections. In 2008 a subsequent addition to the APE included areas surrounding the US 151/WIS 23 interchange and the County K intersection. The locations of sites identified are shown in Appendix M of the 2010 FEIS with the Architecture/History Survey Form.

Alt	Site Name	Location	May be Eligible for the NRHP	Adverse Effect	Significance of the structure and/or buildings.	Does FHWA Section 4(f) apply?
1, 2, 3	St. Mary's Springs Academy Complex	255 CTH K	Yes	No (previously Yes in 2010 FEIS)	Historically and architecturally	No (previously Yes in 2010 FEIS)
2	Foursquare Farmhouse	N6568 Hickory Rd	Yes	No	Historic	No
1, 2	Tower Road House	N6001 Tower Rd	No	No	Historic	No
1, 2, 3	Queen Anne House	W7710 Spruce St.	Yes	No	Historic	No
1, 2, 3	Old Wade House, Robinson Hurling Sawmill, Charles Robinson House	Old Wade House State Park	Yes, Buildings listed on NRHP	No	Historic	No
1, 2, 3	Italianate House	W4182 WIS 23	No	Not applicable	Historic	No
1, 2, 3	St. Paul's Church	W2090 WIS 23		Not applicable	Historic	No
1, 2, 3	Greek Revival House	W1985 WIS 23	No	Not applicable	Historic	No
1, 2, 3	Foursquare House	W1982 WIS 23	No	Not applicable	Historic	No
1, 2, 3	Colonial House	W1398 WIS 23	No	Not applicable	Historic	No
1	Foursquare House	W151 WIS 23	No	Not applicable	Historic	No
1, 2, 3	Foursquare House	W9204 WIS 23	No	Not applicable	Historic	No
1, 2, 3	Queen Anne House	W8830 WIS 23	No	Not applicable	Historic	No
1	Former Elder Grove School	N6411 CTH G	No	Not applicable	Historic	No
1, 2, 3	Queen Anne House	W8255 WIS 23	No	Not applicable	Historic	No
1, 2, 3	Log Cabin	W7432 Plank Rd	No	Not applicable	Historic	No
1, 2, 3	Queen Anne House	N6660 W CTH A	No	Not applicable	Historic	No
1, 2, 3	Foursquare House	W1518 CTH TTT	No	Not applicable	Historic	No
1, 2, 3	Gable Ell House	W1769 Poplar Rd	No	Not applicable	Historic	No
2, 3	Queen Anne House	N3679 CTH W	No	Not applicable	Historic	No
1, 2, 3	Greek Revival House	W2889 Poplar Rd	No	Not applicable	Historic	No
2, 3	Gable Ell House	N6364 Townline Rd	No	Not applicable	Historic	No
2, 3	Greek Revival House	W3213 Artesian Rd	No	Not applicable	Historic	No
23-1, 23-2	Phillips House	N6579 CTH K	Yes	No	Historic	No
23-1, 23-2	Rienzi Cemetery	N6101 CTH K	Yes	No	Historic	No

Table 4.6 B-5.1 Summary of Historic Sites

Factor Sheet B-5

The project historian identified additional properties within the APE with potential for being listed on the NRHP, but completion of a Determination of Eligibility (DOE) was recommended for only the St. Mary's Springs Academy. Other properties in or adjacent to the project area are either not eligible for the NRHP or will not be impacted by the Preferred Build Alternative.

The St. Mary's site was determined to be eligible for the NRHP under Criterion A (religious property with architectural importance) and Criterion C (a birthplace or grave of a historical figure is eligible if the person is of outstanding importance) based on a survey performed in 2002. The 2010 FEIS identified an adverse effect on the St Mary's Springs Academy and a Determination of Eligibility (DOE), Section 106 Finding of Effect, and a Memorandum of Agreement (MOA) were prepared. The MOA was signed by St. Mary's Springs Academy, SHPO, FHWA, and WisDOT and was provided in the 2010 FEIS.

Changes in contributing resources have since resulted in a revision of the historic site boundary. In 2005, St Mary's Springs removed two of the contributing resources to the site. Upon reexamination of the surviving resources in 2012, the project historian concluded that the demolition of Boyle Hall removed the historic resource which gave other lesser resources their historic significance. Thus these other lands (the designed landscape) that were once associated with the Academy complex are now considered to be extraneous to the potentially eligible resources which are extant. A new DOE was submitted to SHPO and approved on December 6, 2012. The revised St. Mary's Springs Academy historic boundary encloses just that portion of land belonging to the high school that has historically been associated with the Academy's Main Building and two associated objects and one associated structure. These objects (statues) and structure (balustrade bridge) are located immediately adjacent to the Main Building. Table 4.6 B-5.2 summarizes the changes in the St Mary's Spring Academy from 2002 to 2012.

Resource Type	Contributing Resources 2002	Resources Extant in 2005	Contributing Resources 2012
Buildings	Boyle Hall Main Building First Powerhouse Building Second Powerhouse Building	Main Building First Powerhouse Building	Main Building
Site	Designed Landscape		
Structure	Bridge	Bridge	Bridge
Objects	Lourdes Grotto Guardian Angle and Child Statue Our Lady of Lourdes Statue Our Lady of Fatima Statue	Lourdes Grotto Guardian Angle and Child Statue Our Lady of Lourdes Statue Our Lady of Fatima Statue	Our Lady of Lourdes Statue Our Lady of Fatima Statue
Noncontributing Resources	Garage Building (modern) Building with Water Pumping Equipment Circular Plan Reservoir St Mary's Springs Academy Sign St Mary's Springs High School Sign	Building with Water Pumping Equipment Circular Plan Reservoir St Mary's Springs Academy Sign St Mary's Springs High School Sign	Not applicable

Table 4.6 B-5.2 Changes in Contributing Factors to St Mary's Springs Academy.

In 2011 St Mary's Springs Academy requested modifications to the County K roadway alignment that moved the roadway farther from the school site. The revision in the location of the historic boundary resulted in the WIS 23 project not adversely impacting the new historic boundary. A revised Memorandum of Agreement was submitted to SHPO on January 7, 2013. SHPO signed the revised Memorandum on March 19, 2013. Figure 4.6 B-5.1 illustrates the revised County K alignment, the revised historic boundary for St Mary's Springs Academy, and the area of right of way that needs to be purchased from St. Mary's Springs Academy. Appendix D contains the revised MOA.

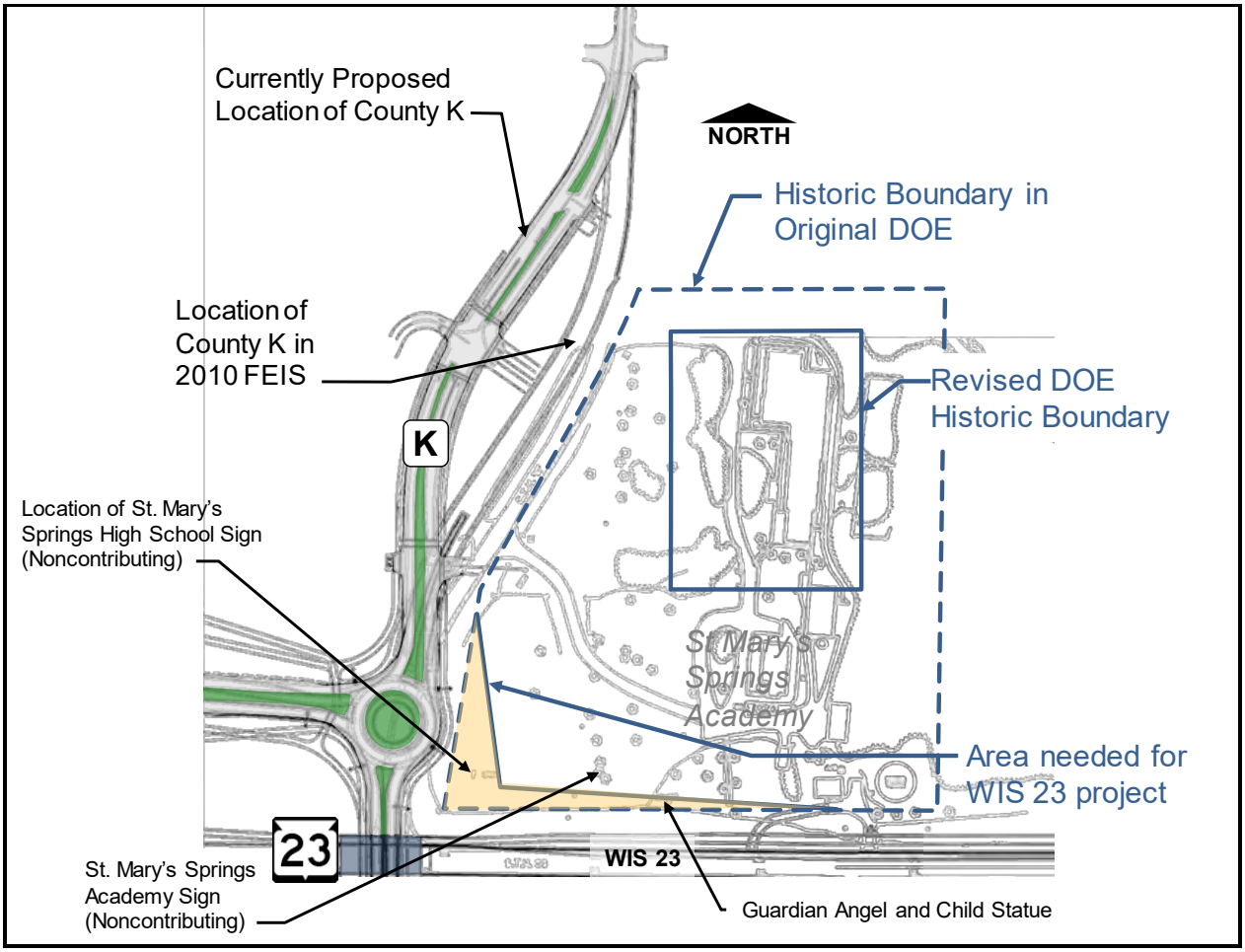


Figure 4.6 B-5.1 St. Mary's Springs at WIS 23/County K Intersection

1. Parties contacted:

Parties Contacted	Date Contacted	Comments Received		
		No	Yes	Check if Attached
St. Mary's Springs Academy	February 2009 June 4, 2013		X	☐
SHPO	September 2007 January 2013 March 19, 2013		X	☐

Table 4.6 B-5.3 Agency Contacts

2. Property Name: St. Mary's Springs Academy

3. Location: 255 County Highway K

4. Use: School

5. Property type:
☐ Bridge
☒ Building
☐ Historic District
☒ Other: Guardian Angel Statue

6. Property Designations:

- ☐ National Historic Landmark (NHL)
- ☒ National Register of Historic Places (NRHP)
- ☐ State Register of Historic Places
- ☐ Local Registry
- ☐ Tribal Registry

7. A Determination of Eligibility (DOE) has been prepared:

- ☐ No - Property is already on NRHP or NHL.
- ☒ Yes - DOE prepared.
- ☐ Other: _____

8. Describe the significance of the structures and/or buildings:

The historic St. Mary's Springs Academy is associated with the Roman Catholic Church which is the institutional successor to the Academy. As originally surveyed in 2002, the Academy's Main Building was part of a complex that consisted of four main buildings: the rectilinear plan Richardsonian Romanesque Revival-style Boyle Hall, completed in 1902; the similar but much smaller rectilinear plan first powerhouse building, also built in 1902; the irregular plan Georgian Revival-style Main Building, completed in 1929; and the rectilinear plan Astylistic Utilitarian-style second powerhouse building, which was also completed in 1929. In 2005, however, Boyle Hall and the second powerhouse building, which were both vacant and not in use in 2002, were demolished, as was a smaller historic garage building.

In addition to St. Mary's Springs Academy's Main Building, there are also two contributing objects and a contributing structure that are located immediately adjacent to the building. These objects include a marble statue of Our Lady of Lourdes dating from 1929, which is housed in a rock grotto that is located between the 1929 Main Building and the now demolished second powerhouse; a short bridge built in 1929 that has stone balustrades and which is located below and between the 1929 Main Building and its powerhouse; and a marble statue of Our Lady of Fatima, which is located just below (west of) the 1929 Main building and which was put in place in 1946.

The demolition of Boyle Hall, the second powerhouse building, and a small garage building in 2005 led to a revised determination of eligibility and a revision in the historic boundary for the property. See Figure 4.6 B-5.1 for the new historic boundary.

9. In compliance with the requirements of Section 106, of the National Historic Preservation Act, the proposed project's effects on the historic property, (e.g., structure or building) have been evaluated in the following report, a copy of which is:

- ☐ In the project file, or
- ☒ Attached to this document:
  - ☐ Documentation for determination of no historic properties affected

    (Reported on the Section 106 Review Form).
  - ☐ Documentation for determination of no adverse or conditional no adverse effect to historic properties.
  - ☒ Documentation for Consultation about adverse effect(s). A Memorandum of Agreement has been completed.
  - ☐ No. Consultation about effects is continuing.
  - ☐ Yes, a copy of the MOA is attached to this document. Summarize MOA stipulations below:

The MOA that was incorporated in the 2010 FEIS had conditions that WisDOT agreed to offset the adverse effects to St. Mary's Springs. These conditions are now not necessary since there is no longer an adverse effect on the St Mary's Springs property and they have been removed in the revised MOA. In a separate letter WisDOT has maintained their commitment to relocate the Guardian Angel with Child Statue. See Figure 4.6 B-6.3 and Appendix D.

10. Do FHWA requirements for Section 4(f) apply to the project's use of the historic property?

☒ No
- ☐ Project is not federally funded.
- ☒ No right of way or Permanent Limited Easements will be acquired from the property and the project will not substantially impair the characteristics that qualify the property for the NRHP.
- ☐ Right of way will be acquired from the NRHP property but a *de minimus* finding has been proposed.
- ☐ Other – Explain:

☐ Yes – Complete Factor Sheet B-8, Section 4(f) and 6(f) or other Unique Areas.

The Archeological Sites Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated. Information regarding Section 4(f) are discussed in Section 5 of this LS SFEIS/ROD. Also, a revised Memorandum of Agreement has been completed because of revisions to the historic boundary of a historic resource (See Factor Sheet B-5).

ARCHAEOLOGICAL SITES EVALUATION

Factor Sheet B-6

If there are any effects to an archaeological site and any American Indian Tribes express interest in the project, Factor Sheet B-7, the Cultural Resources Tribal Issues Factor Sheet must also be completed.

Section 106 Form or other documentation, with all necessary approvals, must be attached to the Environmental Document for all projects.

1. Parties Contacted:

Parties Contacted	Date Contacted	Comments Received		
		No	Yes [1]	Check if Attached
Bad River Band of Lake Superior Chippewa	June 10, 2002 and October 26, 2007 August, 2013	X	X	☒ In Section 7
Forest County Potawatomi Community of Wisconsin	June 10, 2002 and October 26, 2007	X		☐
Ho-Chunk Nation	June 10, 2002 and October 26, 2007	X		☐
Lac de Flambeau Band of Lake Superior Indians of Wisconsin	June 10, 2002 and October 26, 2007	X		☐
LacCourte Oreilles Band of Lake Superior Chippewa Indians of Wisconsin	June 10, 2002 and October 26, 2007	X		☐
Menominee Indian Tribe of Wisconsin	June 10, 2002 and October 26, 2007		X	☐
Mohican Nation, Stockbridge Munsee Community of Wisconsin	June 10, 2002 and October 26, 2007 August, 2013	X	X	☒ In Section 7
Oneida Tribe of Indians of Wisconsin	June 10, 2002 and October 26, 2007	X		☐
St. Croix Chippewa Indians of Wisconsin	June 10, 2002 and October 26, 2007	X		☐
Iowa Tribe of Oklahoma	June 10, 2002		X	☐
Prairie Band Potowatomi Nation	June 10, 2002 and October 26, 2007	X		☐
Sac & Fox Nation of Oklahoma	June 10, 2002 and October 26, 2007	X		☐
Sokaogon Chippewa (Mole Lake) Community of Wisconsin Chippewa	June 10, 2002	X		☐
Red Cliff Band of Lake Superior	June 10, 2002	X		☐
Sac & Fox Nation of Missouri	October 26, 2007	X		☐
Sac & Fox Nation of the Mississippi in Iowa	October 26, 2007	X		☐
Bureau of Indian Affairs, Fort Snelling, MN	June 10, 2002 and October 26, 2007	X		☐
SHPO	July 2002		X	☐

[1] Menominee Indian Tribe of Wisconsin and the Iowa Tribe of Oklahoma expressed interest to be consulting parties.

Table 4.6 B-6.1 Native American Parties Contacted

2. Property Designations:

- ☐ National Historic Landmark
- ☒ National Register of Historic Places (NRHP)
- ☐ State Register of Historic Places
- ☐ Local Registry
- ☐ Tribal Registry

3. Sites Identified by record search or Phase I survey. Attach map to appendices depicting site(s)' approximate location within alternative:

Alternative	Site #	Site Name	Description & Site Information (e.g., historic, prehistoric, village, campsite, etc.)	Site Recommended for Phase II Evaluation? Y/N	Site Avoided? Y/N
1, 2	47 FD-473	Gruber	Historic Euro-American	No	Yes
1, 3	47 FD-474	District 2 School	Historic Euro-American	No	Yes
1	47 FD-475	Reitz	Historic Euro-American	No	Yes
1, 2	47 FD-476	Log Tavern	Historic Euro-American	No	Yes
1	47 FD-477	Bowe	Historic Euro-American	No	Yes
1	47 FD-478	Poch	Historic Euro-American	No	Yes
1, 2, 3	47 FD-479	Mary Hill	Historic Euro-American Pre-contact Native American	No	Yes
1, 2	47 FD-481	Koepke	Historic Euro-American	No	Yes
2, 3	47 FD-490	Simon	Pre-contact Native American	No	Yes
2, 3	47 FD-491	Swamp Cabbage	Pre-contact Native American	No	Yes
2, 3	47 FD-492	Gueling Well	Historic Euro-American	No	Yes
3	47 FD-494	Windy Beans	Pre-contact Native American	No	Yes
3	47 FD-496	Braun	Pre-contact Native American	No	Yes
1, 2, 3	47 FD-497	Storm Front	Pre-contact Native American	No	Yes
1, 2	47 FD-509	Pine Acres	Historic Euro-American	No	Yes
3	Not assigned	Point Dance	Pre-contact Native American	No	Yes
1, 2, 3	47 SB-381	Limberg	Historic Euro-American	Yes	Yes
2, 3	47 SB-381	Red Beans and Rice	Pre-contact Native American	No	Yes
2, 3	47 SB-382	Jambalaya	Pre-contact Native American	No	Yes
1, 2, 3	47 SB-383	Thistle Flake	Pre-contact Native American	No	Yes
1, 2, 3	47 SB-385	Mullet River North	Pre-contact Native American	Yes	Yes
1, 2, 3	47 SB-386	Mullet River South	Pre-contact Native American	Yes	Yes
1, 2, 3	47 SB-387	China Bowl	Historic Euro-American	No	Yes
1, 2, 3	47 SB-388	Big Bolt	Historic Euro-American	No	Yes
1, 2, 3	47 SB-393	Davies Bridge	Historic Euro-American	No	Yes
1, 2, 3	47 SB-394	Sippel	Historic Euro-American	**Yes**	**No**
2, 3	47 SB-395	Loud Geese	Pre-contact Native American	No	Yes
2, 3	47 SB-396	Bartz	Pre-contact Native American	No	Yes
2, 3	47 SB-398	Bartz Point 2	Pre-contact Native American	No	Yes
1, 2, 3	47 FD-17 BFD-150	Academy Hill Mound	Pre-contact Native American Burial/Cemetery	No	Yes
23-1	47FD-332	Shy Lady	Pre-contact Native American	No	Yes
23-1	47FD-336	Oneota Huber	Pre-contact Native American	No	Yes
23-1, 23-2	47FD-374	Stanchfield IV	Pre-contact Native American	Possibly	Yes
23-1	47FD-333	Diving Hawk	Pre-contact Native American	Yes	Yes
23-2	47FD-578	JAC-25	Pre-contact Native American	No	Yes
23-2	47FD-522	St. Agnes	Pre-contact Native American	No	Yes

Table 4.6 B-6.2 Archaeological Sites WIS 23

No-Build Alternative — No sites will be affected.

Preferred Build Alternative (Alternative 1) — Four sites potentially affected, two prehistoric Native American and two Euro-American. Avoidance measures reduced the number to only one site that is eligible for the NRHP that is potentially affected: the Sippel site.

Alternative 2 — Nine sites potentially affected, seven prehistoric Native American and two Euro-American.

Alternative 3 Twelve sites potentially affected, ten prehistoric Native American and two Euro-American.

Corridor Preservation Alternatives

WIS 23 Corridor
No Corridor Preservation
No sites will be affected.

Preferred WIS 23 Corridor Preservation
Two sites exist near one intersection, but there are no potentially eligible sites within preservation area.

US 151/WIS 23 Interchange
Preferred No Corridor Preservation
No sites will be affected.

Option 23-1 Corridor Preservation
Option 23-1 travels near or over five pre-contact Native American sites (47FD374, 47FD333, 47FD332, 47FD522, and 46FD336). Of these, one (47FD374) has not been field-verified and its NRHP status is unknown, and one is potentially eligible for the NRHP, 47FD0333. The alignment for the northbound off-ramp associated with Option 23-1 was modified to fully avoid these sites.

Option 23-2 Corridor Preservation
Option 23-2 travels near or over four pre-contact Native American sites (47FD0374, 47FD332, 47FD578, and 47FD522). Of these, none are potentially eligible for the NRHP; however, one (47FD374) has not been field-verified and its NRHP status is unknown. The alignment for Option 23-2 fully avoids this site.

Phase II Archaeological reports were completed for the four sites listed in Table 4.6 B-6.2 and an Archaeology report has been prepared by the Wisconsin Historical Society, Museum Archaeology Program (MAP). The report, *Archaeological Investigations Along STH 23 and Alternate Corridors from CTH K in Fond du Lac County to CTH P in Sheboygan County, Wisconsin,* Research Report Number 188, is dated December 2006.

4. Sites evaluated by Phase II survey:

Site #	Site Name	Site Determined Eligible for or already listed in the NRHP? Y/N	Site Avoided? Y/N
47 SB-381	Limberg	Yes	Yes
47 SB-385	Mullet River North	Yes	Yes
47 SB-386	Mullet River South	Yes	Yes
47 SB-394	Sippel	Yes	No

Table 4.6 B-6.3 Phase II Survey Findings

Only the Sippel site (47 SB-394) was determined to be eligible and could not be avoided.

5. Do any sites identified in Phase I or II investigations (Question 3 and 4) involve human burials?

☒ No

Forest Home Cemetery, Forest Cemetery, and Greenbush Cemetery are near existing WIS 23, located about 1,000, 1,500 and 2,000 feet from the highway, respectively. Forest Home Cemetery is north of WIS 23 on Hillview Road in Fond du Lac County. Forest Cemetery is located south of WIS 23 just north of Poplar Road, west of County W, also in Fond du Lac County. Greenbush Cemetery is south of WIS 23 between Plank Road and Cemetery Lane in Sheboygan County. None of the cemeteries will be affected by the construction of the additional lanes.

While there are no known burial sites, there are two uncatalogued burial sites, Academy Hill Mound (47FD-17/BFD0150) and an unnamed burial site (47 FD-245).

☐ Yes
☐ American Indian Burial:
Complete Factor Sheet B-7, Tribal Issues.
☐ Euro-American Burial:
☐ Documentation Attached:
Cemetery Name(s): _____
_____
☐ Consultation with Wisconsin Historical Society (Burial Sites Office and SHPO):
Dates: _____
☐ Burials will not be affected:
Identify _____
☐ Burials will be affected:
Identify _____
☐ Documentation attached:
☐ Unknown Affiliation:

6. List Environmental Commitments to avoid impacts to sites listed as "Avoided" in Phases I and II, above.

WisDOT has made commitments regarding the avoidance of the Storm Front site. The revised MOA contains commitments, which include the following:

Prior to construction, WisDOT or its agent will ensure that protective fencing is placed at the Storm Front (47FD497) to prevent inadvertent disturbances. A qualified archaeologist shall assist in the location and placement of the fence. This area shall not be used for the staging of equipment and personnel, sources of borrow, or a location for the placement of waste material or batch plant.

7. Identify effects on those sites not avoided in question #4:

Site # 47 SB-394 the Sippel Site. (Complete questions below for each site listed in Question 4, above.)

List any commitments to avoid having an adverse effect. (Also list on the Environmental Commitments Basic Sheet)
☒ Yes, the adverse effect is unavoidable. Describe the adverse effect:
The construction of the additional set of lanes will require full use of the site. At this location, it is not possible to alter the alignment to avoid impacts.

☒ Do FHWA requirements for Section 4(f) apply to the project's use of the historic property?
☒ No
☐ Project is not Federally funded.
☒ Other–Explain: 23 CFR 774.13(b) and Question 3A from FHWA's Section 4(f) Policy Paper (July 20, 2012) indicates an archaeological site is not Section 4(f) when the resource has minimal value for preservation in place and the SHPO does not object to this finding.
☐ Yes - Complete Factor Sheet B-8, Section 4(f) 6(f) or Other Unique Areas.
☐ Property is eligible for NRHP and project will have adverse effect.
☐ Other, Explain: _____

☒ Has Documentation for Consultation been prepared?
☐ No
☒ Yes - Complete Question 8

The project archaeologist indicates that the Sippel site will be impacted by the Preferred Build Alternative. A Finding of Effect was prepared for the Sippel site and there will be an adverse effect. A Data Recovery Plan (April 2007) was prepared and Phase III data recovery is proposed. The revised MOA includes provisions for the Sippel Site.

The following bullets list the provisions and commitments in the MOA that pertain to known archaeological sites.

- The WisDOT will implement the project data recovery plan titled *The Sippel (47SB394) Site*: A Mid Nineteenth Century Yankee Homestead in the Town of Greenbush, Sheboygan County.

- Prior to construction, WisDOT or its agent will ensure that protective fencing is placed at the Storm Front (47FD497) to prevent inadvertent disturbances. A qualified archaeologist shall assist in the location and placement of the fence. This area shall not be used for the staging of equipment and personnel, sources of borrow, or a location for the placement of waste material or batch plant.

- The WisDOT Project Engineer (PE) or Project Manager (PM) shall notify all parties of this MOA in writing ten working days prior to the start of construction and monitoring.

- At preconstruction meetings, the WisDOT PE/PM shall ensure the stipulations contained in the MOA are reviewed with and understood by the responsible party(ies). Responsible parties also include subcontractors.

- Prior to construction, the WisDOT or authorized agent shall petition the Director of the Wisconsin Historical Society (WHS) for permission to work within the recorded boundaries of two known uncatalogued burial sites, Academy Hill Mound (47FD-17/BFD0150) and the unnamed burial site (47 FD-245), in compliance with Wis. Stat. § 157.70. These activities include, but are not limited to, removal of the existing pavement, sidewalk, roadbed (subgrade and base course), parking surfaces, building foundation wall/floor removal, and any excavation below the ground/soil elevation for underground utilities or other designated features.

- A professional archaeologist, as defined in the Secretary of the Interior's Professional qualifications Standards (48 FR 44738), will monitor construction-related activities within the recorded boundaries of the Academy Hill Mound (47FD-17 /BFD0150) and unnamed burial site (47FD245).

- Upon completion of monitoring, the archaeologist will submit a summary report of the results of the monitoring.

- Upon discovery of a significant undisturbed archaeological resource, the archaeologist will inform the on-site WisDOT PE/PM to stop construction activities in the immediate area. The on-site WisDOT PE/PM shall ensure protective fencing is installed. The archaeologist will provide the on-site WisDOT PE/PM with a time estimate for completion of field activities. The area will remain fenced until field activities are completed. Upon completion, the archaeologist shall notify the WisDOT PE/PM that construction activities may resume.

- WisDOT will ensure that all construction contracts contain provisions describing potential delays to the contractor, in the event of a discovery of archaeological materials or human remains during construction. This will include language to stop construction in the area of the discovery to permit implementation of mitigation measures. These provisions shall include the opportunity for consulting tribes to perform tribal ceremonial activities.

- The WisDOT on-site PE/PM will immediately notify WisDOT BTS who will notify all signatories of the MOA of any discoveries encountered during construction.

- All archaeological research undertaken for this project will meet the Wisconsin Archaeological *Survey Guide for Public Archaeology in Wisconsin*, as revised (dated 2012).

- WisDOT shall ensure a qualified archaeologist conducts archaeological surveys for all proposed borrow sites, batch plants, waste sites and staging areas to be used for this undertaking. Upon completion of these efforts, the archaeologists will submit a summary report of the results.

- Non-tribal land:
  - If potentially significant archaeological materials unrelated to a human burial are discovered, the on-site WisDOT PE/PM in consultation with WisDOT BEES shall ensure Section 106 procedures pursuant to 36 CFR 800 will be followed or another area will be obtained.
  - If human remains are discovered, all activities will cease, and the on-site WisDOT PE/PM will ensure compliance with Wisconsin Statute 157.70
- Tribal Land: Prior to any proposal request, for any activity on tribal land, consultation with appropriate THPO or Tribal Representative is required.

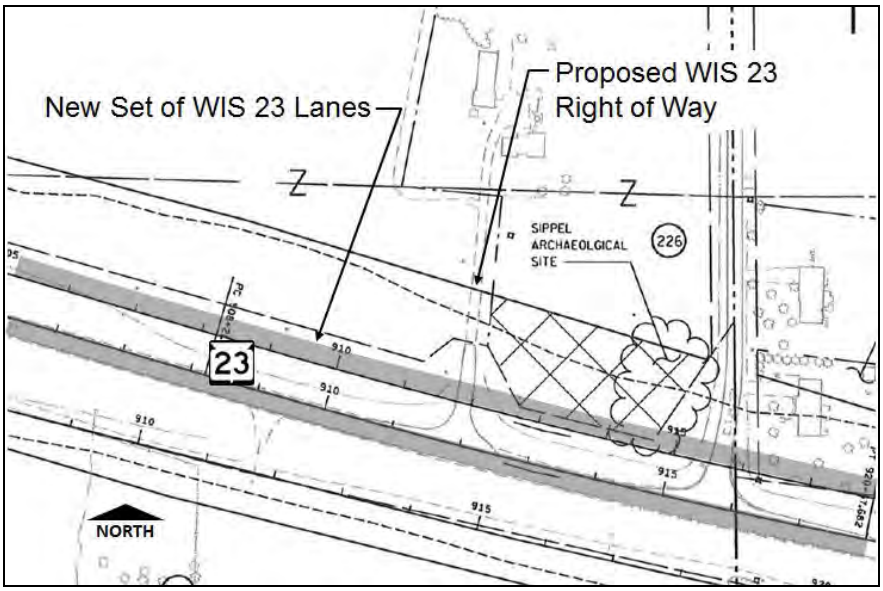


Figure 4.6 B-6.1 Sippel Site Impacts

In addition to the above stipulations, the Stockbridge Munsee Tribe has requested notification if a Native American cultural site is uncovered.

8. Has a Memorandum of Agreement been signed?

☐ No – Pending:
Explain - _____

☒ Yes, attached:
Signatories and dates of signature:

☐ ACHP	_____
☒ FHWA	March 5, 2013
☒ WHS	March 19, 2013
☐ American Indian Tribes	_____
☒ WisDOT	March 4, 2013
☒ Other: St. Mary's Springs Academy	June 4, 2013

Commitments:

☒ Data Recovery:

☒ Yes Date plan accepted: April 2007
The Sippel (47SB394) Site: A Mid Nineteenth Century Yankee Homestead in the Town of Greenbush, Sheboygan County Prepared by Kelly Hamilton and Rodney Riggs of the Museum Archaeology Program

☐ No

☐ Monitoring.

☐ Other: _____

The MOA contained in the 2010 FEIS contained provisions for both St. Mary's Springs Academy and the Sippel Archaeological Site. Because of site modifications on the St. Mary's Springs Academy site and revisions in the historic boundary, the MOA no longer applies to the St. Mary's Springs site. The new

MOA removes stipulations for the St Mary's Springs site and is shown on the following pages. In a separate letter, WisDOT has maintained their commitment to relocated the Guardian Angel with Child Statute on the St Mary's Springs property.

Amended Memorandum of Agreement (MOA) Amendment #1 (dated February 2013)
Supersedes MOA document executed June-July 2009 (dated February 2009)
Project ID 1440-13/15-00 (STH 23)
Fond du Lac and Sheboygan Counties, Wisconsin

AMENDED
MEMORANDUM OF AGREEMENT
BETWEEN THE FEDERAL HIGHWAY ADMINISTRATION
AND
THE WISCONSIN STATE HISTORIC PRESERVATION OFFICE
REGARDING CONSTRUCTION OF STH 23
CTH K TO CTH P (PROJECT ID 1440-13/15-00 WHS #06-0864/FD/SB)
FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN
SUBMITTED TO THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
PURSUANT TO 36CFR 800.6

Whereas, the Federal Highway Administration (hereinafter FHWA), the Wisconsin State Historic Preservation Office (hereinafter SHPO), the Wisconsin Department of Transportation (hereinafter WisDOT), and St. Mary's Springs Academy executed a Memorandum of Agreement in June-July 2009 (signed on June 2009 and July 2009, respectively); and

Whereas the same parties have agreed that an amendment to this Memorandum of Agreement should be executed; and

Whereas, the Sippel site (47SB394) is eligible for the National Register, and

Whereas, the undertaking could have effects on the Sippel site (47SB394), and

Whereas, the St. Mary's Springs Academy (formerly referred to as the St. Mary's Springs Academy Complex) is eligible for the National Register; and

Whereas contributing resources have been demolished within the historic property boundary of the St. Mary's Springs Academy; and

Whereas, the SHPO has concurred with a revised historic property boundary of the St. Mary's Springs Academy (Attachment 1); and

Whereas, the consulting parties concur the proposed project actions will not adversely affect the National Register eligible St. Mary's Springs Academy; and

Whereas, the Storm Front (47FD497) site and the Forest Home Cemetery (BFD-0092) were identified through field research; and have been avoided by project redesign; and

Whereas the Ho-Chunk Nation, Oneida Nation of Wisconsin, Menominee Indian Tribe of Wisconsin, and the Iowa Tribe of Oklahoma have been provided a copy of the above-mentioned Memorandum of Agreement of June-July 2009, the archaeological report titled: *Archaeological Investigations Along STH 23 and Alternate Corridors from CTH K in Fond du Lac County to CTH P, in Sheboygan County, Wisconsin*, and the data recovery plan titled: *A Mid Nineteenth Century Yankee Homestead in the Town of Greenbush, Sheboygan County* addressing findings and effects; and

Whereas, this undertaking is not on federal or tribal land, and all burials will be treated as inadvertent and un-cataloged discoveries in accordance with Wis. Stat. §157.70; and

Page 1 of 59

Figure 4.6 B-6.2 Revised MOA

Amended Memorandum of Agreement (MOA) Amendment #1 (dated February 2013)
Supersedes MOA document executed June-July 2009 (dated February 2009)
Project ID 1440-13/15-00 (STH 23)
Fond du Lac and Sheboygan Counties, Wisconsin

Whereas, it is in the public interest to expend public funds to minimize and mitigate the potential impacts of this project on significant historic properties; and

Now, therefore, the above-mentioned Memorandum of Agreement of June-July 2009 is amended by replacing all its stipulations with the following. [See Attachment #2 for a list of stipulations in the above-mentioned Memorandum of Agreement of June-July 2009 which no longer apply.]

STIPULATIONS

The FHWA shall ensure that the following measures are carried out:

I. Archaeological Resources

AR1. The Sippel (47SB394) archaeological site is located entirely within the Area of Potential Effects (APE) and cannot be avoided through project redesign. The WisDOT will implement the project data recovery plan titled: The Sippel (47SB394) Site: A Mid Nineteenth Century Yankee Homestead in the Town of Greenbush, Sheboygan County (Attachment #3).

AR2. Prior to construction, WisDOT or its agent will ensure that protective fencing is placed at the Storm Front (47FD497) to prevent inadvertent disturbances. A qualified archaeologist shall assist in the location and placement of the fence. This area shall not be used for the staging of equipment and personnel, sources of borrow, or a location for the placement of waste material or batch plant.

II. Discoveries – 36 CFR 800.6

D1. Archaeological

A. The WisDOT Project Engineer (PE) or Project Manager (PM) shall notify all parties of this MOA in writing ten working days prior to the start of construction and monitoring.

B. At preconstruction meetings, the WisDOT PE/PM shall ensure the stipulations contained in this MOA are reviewed with and understood by the responsible party(ies). Responsible parties also include sub-contractors.

C. Prior to construction, the WisDOT or authorized agent shall petition the Director of the Wisconsin Historical Society (WHS) for permission to work within the recorded boundaries of two known uncatalogued burial sites, Academy Hill Mound (47 FD-17/BFD0150) and the unnamed burial site (47 FD-245), in compliance with Wis. Stat. §157.70. These activities include, but are not limited to, removal of the existing pavement, sidewalk, roadbed (Sub-grade and Base course), parking surfaces, building foundation wall/floor removal, and any excavation below the ground/soil elevation for underground utilities or other designated features.

1. A professional archaeologist, as defined in the Secretary of the Interior's Professional qualifications Standards (48 FR 44738), will monitor construction-related activities

Page 2 of 59

Figure 4.6 B-6.2 Revised MOA (cont'd)

within the recorded boundaries of the Academy Hill Mound (47 FD-17/BFD0150) and unnamed burial site (47FD245).

2. Upon completion of monitoring, the archaeologist will submit a summary report of the results of the monitoring.

D. Upon discovery of a significant undisturbed archaeological resource, the archaeologist will inform the on-site WisDOT PE/PM to stop construction activities in the immediate area. The on-site WisDOT PE/PM shall ensure protective fencing is installed. The archaeologist will provide the on-site WisDOT PE/PM with a time estimate for completion of field activities. The area will remain fenced until field activities are completed. Upon completion, the archaeologist shall notify the WisDOT PE/PM that construction activities may resume.

E. WisDOT will ensure that all construction contracts contain provisions describing potential delays to the contractor, in the event of a discovery of archaeological materials or human remains during construction. This will include language to stop construction in the area of the discovery to permit implementation of mitigation measures. These provisions shall include the opportunity for consulting tribes to perform tribal ceremonial activities.

F. The WisDOT on site PE/PM will immediately notify WisDOT BTS-CR, who will notify all signatories of this MOA of any discoveries encountered during construction.

G. All archaeological research undertaken for this project will meet the Wisconsin Archaeological Survey *Guide for Public Archaeology in Wisconsin*, as revised (dated 2012).

H. WisDOT shall ensure a qualified archaeologist conducts archaeological surveys for all proposed borrow sites, batch plants, waste sites and staging areas to be used for this undertaking. Upon completion of these efforts, the archaeologist will submit a summary report of the results.

1. Non-tribal land:
   a). If potentially significant archaeological materials unrelated to a human burial are discovered, the on-site WisDOT PE/PM in consultation with WisDOT BEES shall ensure Section 106 procedures pursuant to 36 CFR 800 will be followed or another area will be obtained.
   b). If human remains are discovered, all activities will cease, and the on-site WisDOT PE/PM will ensure compliance with Wis. Stat. §157.70.
2. Tribal Land: Prior to any proposal request, for any activity on tribal land, consultation with appropriate THPO or Tribal Representative is required.

D2. Human Remains

A. Because this project does not involve federal or tribal land, treatment of discovered human remains will comply with Wis. Stat. §157.70 Any such finds will be considered within the category of a "known uncatalogued burial site", and a Wisconsin Historic Preservation Division standard contract for treatment of human remains will be followed. (Attachment #4).

B. WisDOT BTS-CR, will notify all signatories of this MOA of any human remains discoveries encountered during construction

Figure 4.6 B-6.2 Revised MOA (cont'd)

C. Human skeletal elements discovered in non-burial context (unintended or accidental location) are considered isolated human remains.
   1. Isolated remains may include, but not limited to; teeth, bones in previously disturbed context (e.g. fill), and bones in refuse context.
   2. Disposition of these remains will be coordinated with the signatories of this MOA upon completion of the construction activities.

III. Public Interpretation

P1. The WisDOT or its agent shall prepare appropriate material for public interpretation of the significant information gained from the historic properties investigated as part of WisDOT Project ID 1440-13/15-00, (STH 23/CTH "K" to CTH "P"), Sheboygan and Fond du Lac Counties. The extent of public interpretation will proportionally reflect the significance and quantity of recovered historic materials. The FHWA/WisDOT will make the final determination regarding sufficient funding to appropriately interpret the data recovered and to account for inflationary costs. The anticipated cost of the public interpretation for this undertaking is not to exceed $15,000.

P2. WisDOT shall form a committee, known as the "Public Interpretation Committee" [PIC] consisting of the FHWA, WisDOT, SHPO, Consulting Tribes, archaeology consultant, and a representative of a local historical society or local state historic site.

P3. The PIC shall establish a Public interpretation plan [Plan]. The Plan shall include background information on the general nineteenth century history of the area and specifically, information based on the archaeological and architectural history survey results and analyses of what activities occurred historically in and around the project area. As well, the Plan shall include a description of what surveys were undertaken to derive this information, and how they were carried out.

P4. The PIC shall incorporate into the Plan: a mechanism(s) to display the public interpretation, and include locations for the public interpretation.
   A. Potential mechanisms for public interpretation may include signage, portable/temporary public or museum type displays, handouts and Internet-based materials.
   B. Potential locations for public interpretive displays may include the WHS Wade House Historic Site, other public buildings, or historical centers.

P5. The mechanism for the public interpretation will be chosen within one (1) year after the data recovery is completed. The public interpretation plan will be completed within one (1) year after the mechanism(s) of interpretation is selected.

P6. WisDOT, in coordination with interested parties, will conduct a media day during the field portion of the project. Any media contacts will be reported to BTS-CR and FHWA.

Figure 4.6 B-6.2 Revised MOA (cont'd)

Amended Memorandum of Agreement (MOA) Amendment #1 (dated February 2013)
Supersedes MOA document executed June-July 2009 (dated February 2009)
Project ID 1440-13/15-00 (STH 23)
Fond du Lac and Sheboygan Counties, Wisconsin

D. Dispute Resoultion – 36 CFR 800.7

CR1. Should any signatory or concurring party to this MOA object to any action carried out or proposed by the FHWA with respect to the implementation of this amended MOA for the STH 23: CTH K to CTH P undertaking (WisDOT ID: 1440-13/15-00) Sheboygan and Fond du Lac Counties Wisconsin. The FHWA shall consult with the objecting signatory to resolve the objection. The signatories shall resolve disputes regarding the completion of the terms of the Agreement in compliance with 36 CFR 800.6. If the signatories cannot agree regarding a dispute, any one of the signatories may request the participation of the ACHP to assist. If after initiating such consultation the FHWA determines that the objection cannot be resolved through consultation, the FHWA shall forward all documentation relevant to the objection to the Council in accordance with 36 CFR 800.7.

CR2. Disputes regarding disposition of human remains will be in accordance with stipulations set forth in Wis. Stat. §157.70.

E. Amendments/Termination – 36 CFR 800.6

Any party to this amended agreement may propose to the FHWA that the agreement be amended or terminated, whereupon the agency shall consult with the other parties to this agreement to consider such an action. The execution of any such action shall be governed by 36 CFR 800.6.

F. Duration – 36 CFR 800.6

This amended agreement shall be null and void if its terms are not carried out within three (3) years of date of completion of construction (2015 projected), which includes field and laboratory work, unless the signatories agree to an extension for carrying out its terms. In such event, FHWA shall so notify the parties to this agreement and if it chooses to continue with the undertaking, shall re-initiate review of the undertaking in accordance with 36 CFR Part 800.

Page 6 of 59

Figure 4.6 B-6.2 Revised MOA (cont'd)

Amended Memorandum of Agreement (MOA) Amendment #1 (dated February 2013)
Supersedes MOA document executed June-July 2009 (dated February 2009)
Project ID 1440-13/15-00 (STH 23)
Fond du Lac and Sheboygan Counties, Wisconsin

Execution of this amended Memorandum of Agreement by the FHWA, the WisDOT and the Wisconsin SHPO, and its subsequent acceptance by the ACHP, and implementation of its terms, evidence that FHWA has afforded the ACHP an opportunity to comment on the STH 23: CTH K to CTH P undertaking (WisDOT ID: 1440-13/15-00) Sheboygan and Fond du Lac Counties Wisconsin, and the plan for taking in account historic properties during implementation of the undertaking.

Federal Highway Administration

By: [redacted] Date: 3/5/13

Bethaney Bacher-Gresock, Environmental Program Manager

Wisconsin State Historic Preservation Office

By: [redacted] Date: 3/19/13

Michael Stevens, Wisconsin State Historic Preservation Officer

Invited Signatories:

Wisconsin Department of Transportation

By: [redacted] Date: 3/4/13

Rebecca Burkel, Director, Bureau of Technical Services

St. Mary's Springs Academy

By: [redacted] Date: 6/4/13

Page 7 of 59

Figure 4.6 B-6.2 Revised MOA (cont'd)

Division of Transportation
System Development
Northeast Regional Office
944 Vanderperren Way
Green Bay, WI 54304-0080

Scott Walker, Governor
Mark Gottlieb, Secretary
Internet: www.dot.wisconsin.gov

Telephone: Phone: (920) 492-5643
Facsimile (FAX): (920) 492-5640
E-Mail: ner.dtsd@dot.wi.gov

May 31, 2013

St. Mary's Springs Academy
255 County Road K
Fond du Lac, WI
54937

Attention: Alan H. Marcuvitz
William B. Everson

Alan and Bill,

As part of the WIS 23 Expansion project from Fond du Lac to Plymouth, the Wisconsin Department of Transportation (WisDOT) northeast region, the State Historical Society and St. Mary's Springs Academy (Academy) had a Memorandum of Agreement (MOA) in place in 2008 that set forth a detailed requirement to move the Guardian Angel with Child Statue (the Statue) from its present location. As you know, since that time, the MOA has been rewritten and does not include any language in the agreement on the Statue as it is no longer within the historic boundary of the Academy.

Although no longer required by the MOA, this letter documents WisDOT's commitment to move the Statue as detailed in the 2008 MOA as it falls within the area of property acquisition. Attached is the description from the 2008 MOA that WisDOT will honor as part of our project development process. However, items 1 and 2 of the attachment no longer apply, and the Academy will determine the location of the Statue on their property on County K. Also, WisDOT will no longer need to provide visual documentation of the Statue's new location to the consulting parties as previously spelled out in the 2008 MOA.

We appreciate the Academy's efforts in working with us on this project and look forward to a successful completion. Should you have any questions or wish to discuss this matter further, please contact me by calling 1 (920) 492-5678.

Sincerely,

[redacted]

Colleen Harris, P.E.
Deputy Director

Attach.

Figure 4.6 B-6.2 Revised MOA (cont'd)

Memorandum of Agreement (February 19, 2009) Final
Project ID 1440-13/15-00 (STH 23: CTH K to CTH P)
Sheboygan and Fond du Lac Counties, Wisconsin

Attachment #1

Relocation of the Guardian Angel with Child Statue

1. The new location for the Statue will:
   a. Be within the historic boundaries of the St. Mary's Springs Academy Complex.
   b. Not detract from any other contributing element in the Complex.
   c. Involve as short a move as possible given that it meets the above criteria.

2. The SHPO will be given an opportunity to comment on the new location in sufficient time before the move so that adjustments to the location can be made if necessary.

3. WisDOT or its agent will consult with the St. Mary's Springs Academy to determine the roles and responsibilities for accomplishing the move of the Guardian Angel with Child Statue (the Statue).
   a. It is permissible under the terms of this MOA, for the St. Mary's Springs Academy to assume the lead or principal role in overseeing the relocation of the Statue.
   b. If the St. Mary's Springs Academy does assume the lead or principal role, the costs associated with this role will be reimbursable by WisDOT.
   c. If the St. Mary's Springs Academy does assume the lead or principal role WisDOT or its agent will arrange a meeting to establish how the activities will be done and what contracts and approvals may be needed to facilitate WisDOT's reimbursement of the St. Mary's Springs Academy.
   d. If the St. Mary's Springs Academy does not assume the lead or principal role WisDOT BEES and WisDOT Northeast Region will consult on who will be responsible for which specific activities.

4. WisDOT BEES or WisDOT Northeast Region will develop and confirm with the St. Mary's Springs Academy the role of insuring the proper relocation of the Statue.
   a. The St. Mary's Springs Academy's role will include identifying the appropriate relocation site, alerting appropriate St. Mary's Springs Academy staff about the impending move, and establishing appropriate safeguards for the safety of students and staff at the St. Mary's Springs Academy during site preparation, moving the Statue, and restoration of the former site.
   b. Costs for such identifying, preparing and safeguarding the site and the move shall be reimbursable, provided the St. Mary's Springs Academy follows the procedures provided to it by WisDOT.

5. WisDOT or the St. Mary's Springs Academy per Item 1 above, will ensure that the Statue is moved by a qualified professional mover who has the capacity to move large historic objects properly
   a. Prior experience with similar moves is preferred.
   b. Familiarity with John Obed Curtis, Moving Historic Buildings, 1979, (Moving Historic Buildings) will be required. The mover may gain this familiarity after being selected, but before s/he is awarded the contract.
   c. Familiarity with Moving Historic Buildings will be demonstrated to BEES by a mutually agreeable method including but not limited to face-to-face meeting, written response/proposal, or telephone conference call.

9 of 37

Figure 4.6 B-6.2 Revised MOA (cont'd)

The Section 4(f) and 6(f) or Other Unique Area Factor Sheet has been updated to the format currently used by WisDOT. Only summary information regarding Section 4(f) resources is provided in this factor sheet. Section 4(f) evaluations with more detailed information have been moved to Section 5 of this LS SFEIS/ROD.

SECTION 4(f) AND 6(f) OR OTHER UNIQUE AREAS

Factor Sheet B-8

1. Property Names

Table 4.6 B-8.1 lists the 11 properties considered as unique areas. Four of these properties are Section 4(f) resources and 1 is considered a Section 6(f) property. Some Section 4(f) resources are coincident with other Section 4(f) resources. The general property locations and more detailed site figures are provided with the 4(f) and 6(f) Evaluations in Section 5.

Table 4.6 B-8.1 Unique Properties

Property Name and Location	Description/Comments	Section 4(f) and 6(f) Applicability
State Equestrian Trail *Adjacent to Ice Age Trail*	The bridle trail winds through the forest (39.5 miles). Owned and maintained by WDNR. The trail crosses WIS 23 near Julie Road within the Kettle Moraine State Forest Management Area.	2010 FEIS included this resource with the Ice Age Trail in the same Section 4(f) *de minimis* impact finding. This finding is also included in this LS SFEIS/ROD combined with the *de minimis* impact finding for the Northern Unit of the Kettle Moraine State Forest. (See Section 5.3)
Old Plank Road Trail *Adjacent to WIS 23 in Sheboygan County*	This 17-mile trail on WisDOT-owned right of way is a maintained multiuse trail that accommodates bicyclists, runners, walkers, in-line skaters, horseback riders, moped users, Nordic skiers, and snowmobiles on 10 feet of asphalt and 8 feet of turf. The trail parallels WIS 23 from the City of Plymouth to the Town of Greenbush, linking with the Ice Age Trail in the Kettle Moraine State Forest.	Not considered a Section 4(f) resource according 23 CFR 774.13(f). This provides an exception for Section 4(f) as follows *"(3) Trails, paths, bikeways, and sidewalks that occupy a transportation facility right-of-way without limitation to any specific location within that right-of-way, so long as the continuity of the trail, path, bikeway, or sidewalk is maintained";* Old Plank Road Trail continuity will be maintained.
Old Wade House State Park *Town of Greenbush*	Owned and operated by Wisconsin Department of Administration in cooperation with the Wisconsin Historical Society and WDNR. The park includes over 500 acres of land surrounding several historic structures on the NRHP. A section of the Old Plank Road Trail extension will pass through the north end of the property.	2010 FEIS included a Section 4(f) *de minimis* impact finding. This finding, with additional information, is included in Section 5.4 of this LS SFEIS/ROD.
Wetland Enhancement and Mitigation lands on Old Wade House State Park *Town of Greenbush*	During the Robinson Hurling Dam restoration project, on the north end of the Old Wade House State Park lands, the State Historic Society constructed a wetland mitigation and enhancement site south of WIS 23. Coordination with state (SHS/WDNR) and federal agencies (USACE) has not identified covenants or permit conditions placed on existing mitigation lands.	The 2010 FEIS included a Section 4(f) *de minimis* impact finding for the Old Wade House State park. This finding is also included in this document. The Old Plank Road Trail extension will be designed to minimize encroachment into the wetlands and buffer in the vicinity of the wetland mitigation site. This resource is discussed in Section 5.4 of this LS SFEIS/ROD.
St. Mary's Springs Academy *City of Fond du Lac*	This is a privately owned Catholic high school with several potentially historic structures on the property that are eligible for the NRHP.	2010 FEIS included a Section 4(f) *de minimis* impact finding. Since there is no longer an adverse effect because of revisions in the historic boundary, it is no longer a Section 4(f) use of the property. St. Mary's Springs Academy is discussed in Section 5.5 of this LS SFEIS/ROD.
St. Mary's Springs Athletic Field *City of Fond du Lac*	This is a privately owned Catholic high school athletic field and is not used by the general public.	Not considered a Section 4(f) property according to 23 USC 138 because it is privately owned.

Table 4.6 B-8.1 Unique Properties

Property Name and Location	Description/Comments	Section 4(f) and 6(f) Applicability
Sippel Archaeological Site 47 SB-394	Historic Euro-American homestead site that is about 0.3 acres in size and is eligible for the NRHP (the site will be impacted by the Preferred Build Alternative).	2010 FEIS incorrectly included a Programmatic Section 4(f) evaluation for this property[16]. It now has been determined that it qualifies for an exception for Section 4(f) approval. 23 CFR 774.13(b) states that an archaeological site can be excepted from Section 4(f) approval when the resource has minimal value for preservation in place and the SHPO does not object to this finding. The Sippel Site is discussed in Section 5.6 of this LS SFEIS/ROD.
Taycheedah Creek Wetland Mitigation Site *Southwest corner of existing US 151 and WIS 23 interchange*	The site is a wetland mitigation bank site constructed by WisDOT to offset wetland losses incurred for the US 151 Fond du Lac bypass project. It contains three irregularly shaped wildlife ponds with 8:1 slopes and a maximum depth of 5 feet. The ponds account for approximately 1 acre of the parcel's overall use. Wet meadow seeding zones comprise approximately 11.3 acres and upland comprises about 2.5 acres. The site was a condition for the US 151 project's individual 404 permit.	No Section 4(f) impacts because: • Its primary purpose is wetland mitigation, not a refuge, and therefore it is not a Section 4(f) property and therefore it is not a Section 4(f) resource according to 23 CFR 774.11 and FHWA's Section 4(f) Policy Paper Question 1A (July 20, 2012). • The No Corridor Preservation Alternative was selected for the US 151/WIS 23 interchange; therefore no impacts will occur.
Pit Road Wetland Mitigation and Enhancement Site *Town of Forest*	The 3.6-acre Wetland Mitigation Site north of WIS 23 at Pit Road was created to offset wetland losses from a previous WIS 23 project between Fond du Lac and Sheboygan in the late 1980s and early 1990s.	No Section 4(f) impacts because its primary purpose is wetland mitigation, not a refuge, and therefore it is not a Section 4(f) property according to 23 CFR 774.11 and FHWA's Section 4(f) Policy Paper Question 1A (July 20, 2012).

[16] The Programmatic evaluation for Federally Aided highway projects with minor involvements with historic sites cannot be used in Environmental Impact Statements. http://www.environment.fhwa.dot.gov/4f/4fmhist.asp accessed on January 2013

2. Location

Table 4.6 B-8.1 generally describes the resource locations and Figure 4.6 B-8.1 schematically illustrates the locations on a map.

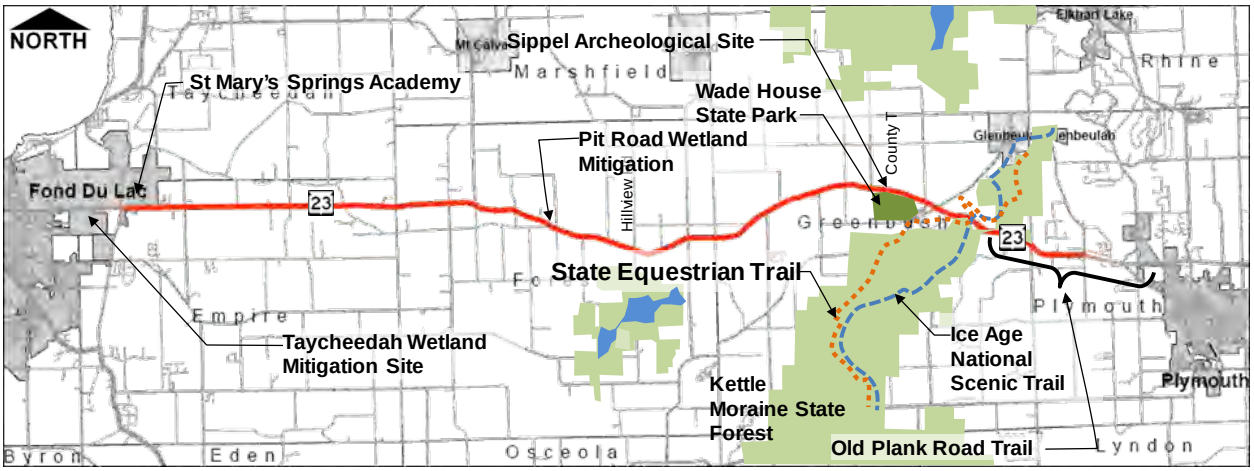


Figure 4.6 B-8.1 Unique Area Locations

3. Ownership or Administration: See Table 4.6 B-8.1

4. Type of Resource:

- ☒ Public Park.
- ☒ Recreational lands.
- ☒ Ice Age National Scenic Trail.
- ☐ NRCS Wetland Reserve Program.
- ☐ Wildlife Refuge.
- ☐ Waterfowl Refuge.
- ☒ Historic/Archaeological Site eligible for the National Register of Historic Places (NRHP).
- ☒ Other–Identify: Wetland Mitigation Sites

5. Do FHWA requirements for section 4(f) apply to the project's use of the property?

☒ No–Check all that apply:

- ☐ Project is not federally funded.
- ☐ No land will be acquired in fee or PLE and the alternative will not affect the use.
- ☐ Property is not on or eligible for the NRHP.
- ☐ Property is on or eligible for the NRHP however includes a *de minimus* effect finding.
- ☐ Interstate Highway System Exemption.
- ☒ Other–Explain:
  - See Section 5 of this LS SFEIS/ROD.

☐ Yes–Check all that apply:

☐ Indicate which of the Programmatic/negative declaration 4(f) Evaluation(s) applies. If Programmatic 4(f), attach appropriate :

- ☐ Historic Bridge.
- ☐ Park minor involvement.
- ☐ Historic site minor involvement.
- ☐ Independent bikeway or walkway.
- ☐ Great River Road.
- ☐ Net Benefit to Section 4(f) Property. Explain: _____

☐ Full 4(f) evaluation approved on _____.

Section 4(f) or 6(f) Evaluations are provided in Section 5.

6. Was special funding used to acquire the land or to make improvements on the property?

☐ No–Special funding was not used for the acquisition of this property.
☒ Yes:
☒ s.6(f) LWCF (Formerly LAWCON).–Kettle Moraine State Forest–Northern Unit – See Section 5.7
☐ Dingell-Johnson (D/J funds).
☐ Pittman-Robertson (P/R funds).
☐ Other–Describe:

7. Describe the significance of the property:

For Section 4(f) properties:

- The Northern Unit of the Kettle Moraine State Forest, the Ice Age Trail, and the State Equestrian Trail are discussed in Section 5.3 of this LS SFEIS/ROD.
- The Old Wade House State Park is discussed in Section 5.4 of this LS SFEIS/ROD.
- The Old Wade House Wetland Mitigation Site was created during the Hurling Sawmill and Dam restoration project in the late 1990s. The Old Plank Road Trail will be placed south of WIS 23 on wetlands adjacent to the wetland mitigation site within existing highway right of way. Impacts to the wetland mitigation site are discussed in Section 5.4 of this LS SFEIS/ROD.
- St. Mary's Springs Academy is discussed in Section 5.5 of this LS SFEIS/ROD.
- The Sippel Archaeological Site is discussed in Section 5.6 of this LS SFEIS/ROD.

The following paragraphs describe unique properties that are not Section 4(f) properties.

The **Old Plank Road Trail** is a 17-mile multiuse trail that currently accommodates bicyclists, runners, walkers, in-line skaters, horseback riders, moped users, Nordic skiers, and snowmobiles. The multiuse trail is owned and maintained by Sheboygan County and has 10 feet of asphalt. The trail parallels WIS 23 from the city of Plymouth to the town of Greenbush, linking with the Ice Age Trail in the Kettle Moraine State Forest. This trail was built on existing highway right of way and therefore there is no 4(f) impact according to 23 CFR 774.13 (f) and Question 15C of the FHWA 4(f) Policy Paper (July 20, 2012). The Old Plank Road Trail is shown on Figure ES-9. Starting at the east end of the project, the trail will be extended to the west and connected with trails in Fond du Lac. The trail will be located along the south side of WIS 23 to County UU. There, the trail will cross to the north side of WIS 23 and continue west. The trail will have a 10-foot-wide asphalt surface. A typical section of WIS 23 and the trail are provided as Figure 2.7-3.

The **Taycheedah Creek Mitigation Site** is located in the southwest quadrant of the US 151/WIS 23 diamond interchange. It was constructed to offset wetland losses from the US 151 Fond du Lac bypass. It contains three wildlife ponds with a maximum depth of 5 feet. In addition to the wildlife ponds are three finger-shaped channels designed for northern pike spawning habitat. Each channel is designed as part of the riparian ecosystem and is interdependent on the abutting Taycheedah Creek. In the spring when the creek reaches bankful, the pike can escape from the main current into the shallow vegetative channels that pike prefer for breeding. In addition to the function of wildlife habitat, the mitigation also provides additional flood storage capacity within the immediate watershed during melting and rain events when the creek is flashy and reaches bankful. The ponds account for approximately 1 acre, the shallow marsh pike channels 1.7 acres, wet meadow seeding zones 11.3 acres, and an additional 2.5 acres of upland buffer. The USACE required protective covenants. Regulatory permitting required that these covenants are agreed to as a permit condition; the deed restrictive covenants are conservation easements in perpetuity. The site was a condition for the US 151 project's individual 404 permit. The site is shown on Figure 4.6 B-8.8. It is not a 4(f) or 6(f) resource.

The **Pit Road Wetland Mitigation Site** is a WisDOT-constructed site to mitigate 2.48 acres of wetland for WIS 23 between Fond du Lac and Sheboygan around 1990. The site is located in the northwest quadrant of WIS 23 and Pit Road. The area has no known protective covenants or conservation easements on the lands. During preliminary design, agencies and WisDOT were (and remain) in agreement that the Pit Road Mitigation area will be avoided. The site is shown on Figure 4.6 B-8.9 and is not a 4(f) or 6(f) resource.

8. Describe the proposed alternative's effects on this property:

a. Describe any effects on or uses of land from the property. For other areas, include or attach statements from officials having jurisdiction over the property which discusses the alternative's effects on the property: **(A map, sketch, plan, or other graphic which clearly illustrates use of the property and the project's use and effects on the property must be included.)**

Section 4(f) and 6(f) resources are discussed in Section 5 of this LS SFEIS/ROD. Several unique areas discussed in this factor sheet are not Section 4(f) properties.

- The Old Plank Road Trail is not a 4(f) property or impact according 23 CFR 774.13(f). Trail continuity will be maintained.
- The Taycheedah Creek Wetland Mitigation Site is not a 6(f) or 4(f) property, but it is a property with restrictions that fulfill a previous individual 404 permit.
- The Pit Road Wetland Mitigation Site is not a 6(f) or 4(f) property and does not appear to be a property with special provisions or restrictions.

The **Old Plank Road Trail** will be extended from its current end point near Greenbush, westward to connect with the Prairie Trail in the city of Fond du Lac.

The **Taycheedah Creek Mitigation Site** is a wetland mitigation bank site constructed by WisDOT's Southeast Region to offset wetland losses incurred for the US 151 Fond du Lac Bypass project. The restoration involved the acquisition of approximately 17 acres of agricultural land that was graded to create restored wetlands and wildlife habitat. Restoration credits have all been debited for the Bypass. One of the US 151/WIS 23 Interchange Corridor Preservation Options (23-2) travels over a portion of this wetland mitigation site. See Figure 4.6 B-8.2. Since Option 23-2 Corridor Preservation is not preferred, no impacts will occur to the site from either the Preferred Build Alternative or the Preferred Corridor Preservation Alternative.

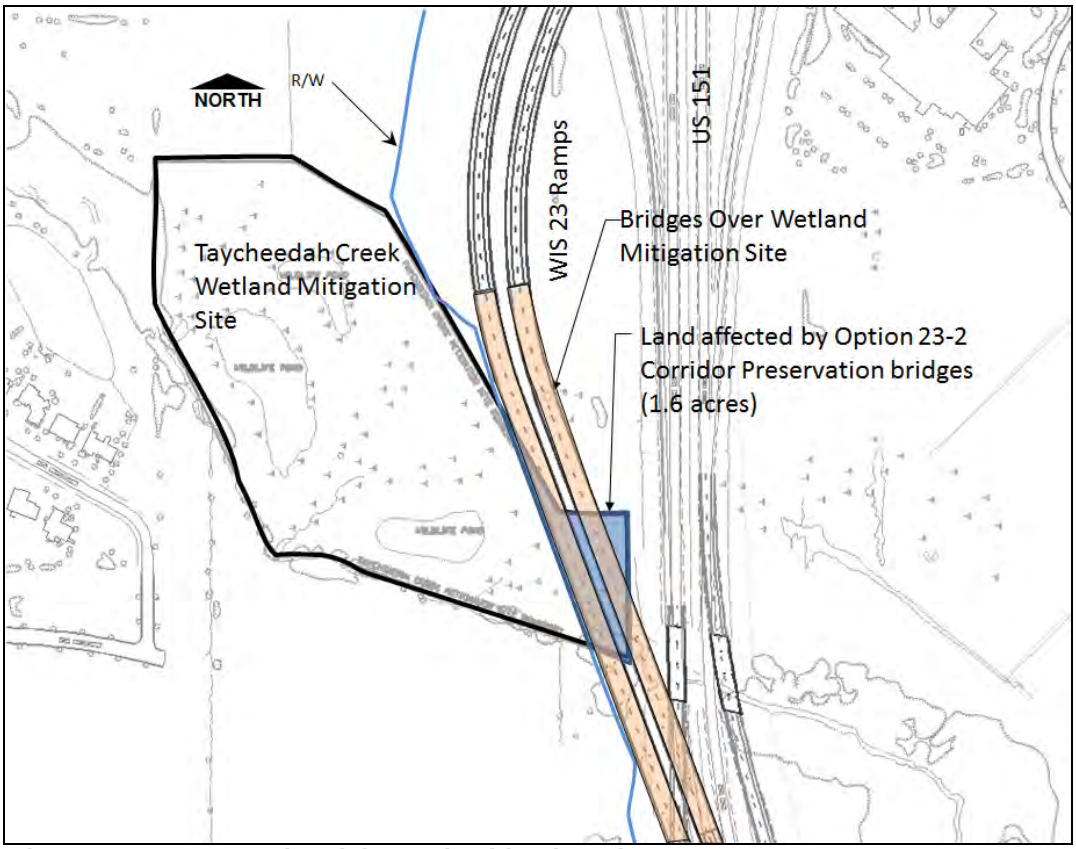


Figure 4.6 B-8.2 Taycheedah Creek Mitigation Site

The **Pit Road Mitigation Site** is a WisDOT-constructed 3.6-acre mitigation site to mitigate 2.48 acres of wetland for WIS 23 improvements between Fond du Lac and Sheboygan around 1990. The site is located in the northwest quadrant of WIS 23 and Pit Road. The area has no known protective covenants or conservation easements on the lands. During preliminary design, agencies and WisDOT were (and remain) in agreement that the Pit Road Mitigation area will be avoided by placing the additional lanes on the south side of the road. This wetland impact and avoidance of wetlands are also discussed in Section 4.6 C-1.

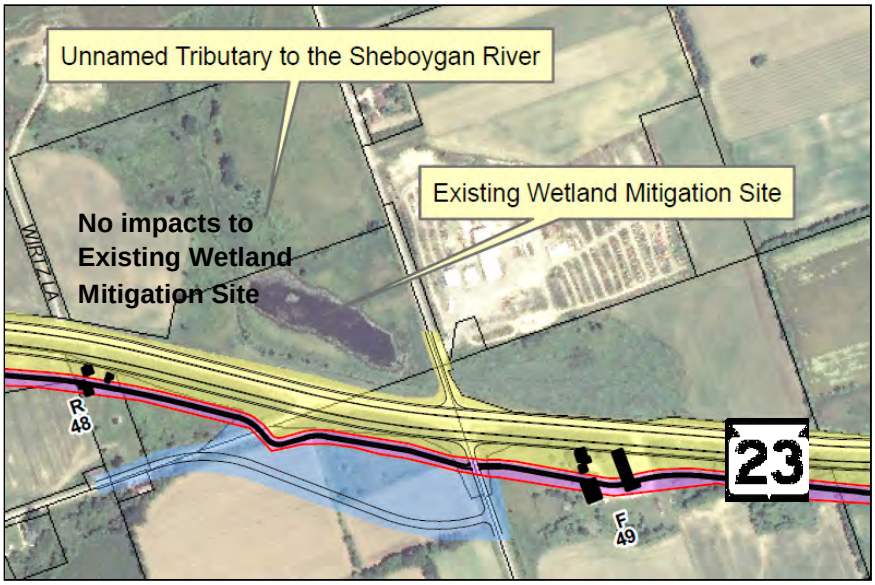


Figure 4.6 B-8.3 Pit Road Wetland Mitigation Site

b. Discuss the following alternatives and describe whether they are feasible and prudent and why:

Section 4(f) properties are discussed in Section 5 of this LS SFEIS/ROD.

9. Indicate which measures will be used to minimize adverse effects, mitigate for unavoidable adverse effects or enhance beneficial effects:

Section 4(f) properties are discussed in Section 5 of this LS SFEIS/ROD. For the Sippel Archaeological site, WisDOT will implement the project data recovery plan titled *The Sippel (47SB394) Site*: A Mid Nineteenth Century Yankee Homestead in the Town of Greenbush, Sheboygan County. Wetland impacts, when encountered, will be impacted at appropriate ratios (see Wetland Factor Sheet) No other mitigation is required for other unique properties.

10. Briefly summarize the results of coordination with other agencies that were consulted about the project and its effects on the property:
(For historic and archeological sites, refer to Factor Sheet B-5 and/or B-6 for documentation. For other unique areas, attach correspondence from officials having jurisdiction that documents concurrence with impacts and mitigation measures.)

Agency coordination correspondence, Section 4(f) *de minimis* impact findings, letters, documentation for consultation, and agreements related to the Section 4(f) and 6(f) properties are summarized in Section 5.

The Aesthetics Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

AESTHETICS EVALUATION

Factor Sheet B-9

1. Landscape Characteristics:

a. Identify and briefly describe the visual character of the landscape:

Fond du Lac County is currently urban near the US 151/WIS 23 interchange through County K, a distance of 0.7 miles. From County K eastward to County UU, a distance of 1.6 miles, the corridor becomes more rural in character with dispersed residences. This WIS 23 section travels up the Niagara Escarpment, a dominant land form in Fond du Lac County. From County UU to County W, a distance of 5.5 miles, the existing land is slightly rolling with sporadic glacial deposits known as drumlins. Farming dominates the landscape with intermittent residential housing. Easterly from County W to Scenic View Drive in Sheboygan County, 7.4 miles, is a rising upland, partially wooded area to the north and wetland to the south. WIS 23 for the most part follows those natural features as it approaches the Northern Unit of the Kettle Moraine State Forest. The Kettle Moraine State Forest and surrounding areas are made up of heavily forested ridges, conical hills, and flat outwash plains, mostly composed of sand and gravel. From the Kettle Moraine State Forest, WIS 23 follows a fairly steep grade toward County P, 4.8 miles, as the Kettle Moraine State Forest area gives way to farmland and the community of Plymouth.

b. Indicate the visual quality of the view-shed and identify landscape elements which would be visually sensitive:

The above-described area is fairly unique in Wisconsin and provides quality viewsheds and landscape elements throughout. These viewsheds extend from County K, which runs over the glacial formed Niagara Escarpment, through the drumlin formations of Fond du Lac County, to the moraine ridge in Sheboygan County.

2. User/viewer Characteristics:

a. Identify and discuss the viewers who will have a view of the improved transportation facility:

All Build Alternatives

At the west end of the corridor, viewers of the facility would include employees and patrons of businesses in the Wisconsin American Business Park. Students and faculty of St. Mary's Springs Academy would also have direct views of WIS 23 and improvements at the County K intersection. East of County K, most of the viewers of the corridor would be residents of rural homes and farms. There would also be viewers from a few commercial businesses located at the more highly traveled intersections.

Patrons of the Old Wade House State Park and Northern Unit of the Kettle Moraine State Forest may have views of the improved WIS 23 facility, depending on where they are located within the property.

Corridor Preservation Alternatives

Viewers of the Corridor Preservation Alternatives, if improvements associated with the corridor preservation were implemented, would include residents of rural homes and farms and patrons of the relatively few commercial establishments near intersections.

US 151/WIS 23 Interchange Corridor Preservation Alternatives

Viewers of US 151/WIS 23 Corridor Preservation Alternatives, if improvements were implemented, would include primarily employees and patrons of businesses in the Wisconsin American

business park. Students and faculty of St. Mary's Springs Academy would also have direct views of the US 151/WIS 23 interchange. Depending on which interchange option were implemented, residents living in the southwest quadrant of the interchange and patrons of businesses in the northwest quadrant of the interchange could also have a view of the facility.

b. Identify and discuss users of the transportation facility who will have a view from the facility:

The primary viewers from the improvements will be commuters, tourists/recreationists, business patrons, park users using the facilities, and other people driving though the corridor to get to work, school, and businesses. Nonmotorized traffic will have additional viewing opportunities from the trail.

3. Effects:

a. Describe whether and how the project would affect the visual character of the landscape:

No-Build There would be no change of visual character.

Alternative 2 The 4-lane expansion associated with Alternative 2 would increase the width of highway right of way approximately 125 feet when on-alignment. This will require clearing vegetation and trees, creating a broader corridor without vegetation. Alignment 2 travels off the existing alignment for about 4 miles. This area is minimally developed and consists primarily of agricultural fields. This will create agricultural viewsheds for travelers of the highway, but it diminishes viewsheds for residents adjacent to the new highway facility.

Alternative 3 Much of the visual impacts would occur on the existing alignment where the width of the highway right of way would increase approximately 125 feet. This will require clearing vegetation and trees, creating a broader corridor without vegetation. Alternative 3 would disturb the greatest amount of farmland and countryside of the Build Alternatives as it travels off-alignment for up to 8 miles. This off-alignment area is minimally disturbed and consists primarily of agricultural fields. This will create agricultural viewsheds for travelers of the highway, but it diminishes viewsheds for residents adjacent to the new highway.

Preferred Build Alternative

4-Lane Expansion (Alternative 1)

The 4-lane expansion (Alternative 1) will increase the width of highway right of way approximately 125 feet. This will require clearing vegetation and trees, creating a broader corridor without vegetation. The view of the roadway corridor will become more pronounced for residents adjacent to the current roadway. Some features such as drumlins or wetlands would require grading and expose cuts.

Connection Roads and Interchanges

Connection roads and interchanges alter the highway landscape. Additional land would be required to raise roadways and create ramps. The grade-separated roadways will have the side road raised to cross over WIS 23. This will block rural views for both travelers on the highway and residents located near the grade-separated crossings.

Old Plank Road Trail

The Old Plank Road Trail does not currently exist along the corridor. Trail users will have country views to one side and views of a 4-lane expanded highway to the other side. The trail will increase the width of the transportation corridor, yet it probably will not greatly reduce the visual quality for adjacent residents.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

There would be no change of visual character.

Preferred WIS 23 Corridor Preservation

The initial corridor preservation activities would maintain the visual character. When constructed, the improvements associated with the Preferred WIS 23 Corridor Preservation Alternative would diminish the visual character in a similar fashion to the connection roads and interchanges in the Preferred Build Alternative. The grade-separated roadways will have the side road raised to cross over WIS 23. This will block rural views for both travelers on the highway and residents located near the grade-separated crossings.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

There would be no change of visual character.

Option 23-1 Corridor Preservation

The initial corridor preservation activities would have maintained visual character. When constructed, the system interchange associated with the Option 23-1 creates an interchange that is raised above the existing roadway and therefore would block views from adjacent land uses, which are primarily commercial. The Option 23-1 system interchange, when constructed, would be a 2-level interchange that travels through a business park. Parcels on one side of the freeflowing ramps would not be visible to parcels on the other side of the freeflowing ramp. Patrons and users of the business park would have a clear view of the facility.

Option 23-2 Corridor Preservation

The initial corridor preservation activities would have maintained visual character. When constructed, the system interchange associated with Option 23-2 would be a 3-level interchange that would be a prominent feature in the surrounding area as it would be at least 50 feet higher than the adjacent ground. While this system interchange alternative would not split the business park in the southeast quadrant, land uses in each quadrant of the interchange would not have been able to see land uses in other quadrants.

b. Indicate the effects the project would have on the viewer groups:

No-Build Alternative

There would be no new effects on the viewer groups.

Alternative 2 The portion of this alternative that does not follow the existing roadway will infringe upon the view of some residents that previously viewed only farmland and natural terrain. The view of the highway would detract from the previous view scene.

Alternative 3 The portion of the alternative that does not follow the existing roadway will infringe upon the view of some residents that previously viewed only farmland and natural terrain. The view of the highway would detract from the previous view scene.

Preferred Build Alternative

4-Lane Expansion (Alternative 1)

This alternative, much of Alternative 2, and the eastern portion of Alternative 3 will follow the existing roadway. The property viewers of the improved facility will remain the same, with some viewers being closer to the additional lanes. The

overall visual impact will be that of a broader corridor. Travelers on WIS 23 will view a similar landscape, yet the roadway corridor will be broader with some alteration to adjacent topography.

Connection Roads, Overpasses, Interchanges

The overpasses and interchanges will increase the highway footprint, but property viewers will remain the same, with some viewers being closer to the additional lanes. As mentioned, residents and businesses near an overpass will have their view blocked by that facility.

Old Plank Road Trail

Construction of the Old Plank Road Trail is a contributor to the increase in corridor width. Other than that, the trail itself should not diminish view quality for adjacent landowners. Travelers on the Old Plank Trail will see a roadway corridor on one side of the trail and existing topography on the other side of the trail.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

There would be no new effects on the viewer groups.

Preferred WIS 23 Corridor Preservation

Initially the corridor preservation will not affect viewer groups. Yet if improvements associated with the Preferred WIS 23 Corridor Preservation Alternative are constructed, they will increase the highway footprint. Viewers from adjacent properties will remain the same. As mentioned, residents and businesses near an overpass will have their view blocked by that facility.

US 151/WIS 23 Connection

Preferred No Corridor Preservation

There would be no new effects on the viewer groups.

Option 23-1 Corridor Preservation

Initially the Option 23-1 Corridor Preservation would not have affected viewer groups. As mentioned, Option 23-1 when constructed would have been raised above the existing roadway and therefore would block views from adjacent land uses. The viewer group primarily affected with the construction of Option 23-1 are patrons and employees of the Wisconsin American Business Park in the southeast quadrant.

Option 23-2 Corridor Preservation

Initially the Option 23-2 Corridor Preservation would not affect viewer groups. When constructed, Option 23-2 would have been a 3-level interchange that would be a prominent feature in the surrounding area. Because of this, Option 23-2 would have affected more viewer groups. Those affected include patrons and employees in the commercial/business areas in the northwest and southeast quadrants. Additionally, residents in the southwest quadrant would also have had a view of the facility.

4. Mitigation:

a. Have aesthetic commitments been made?

☒ No

☒ Yes - Discuss:

No-Build There would be no mitigation necessary.

All Build Alternatives

Measures to minimize adverse aesthetic impacts would include roadway design features to blend existing landscape, planting, and natural vegetation of the cut and fill slopes. Vegetative screening will be considered where practicable to minimize the impacts to adjacent properties, and the WisDOT will preserve the existing vegetation as much as possible. Planting of local nonnative conifer species will be discouraged and to the extent possible, new plantings will be of native grasses, wildflowers, shrub species, and native wetland plant species in disturbed wetlands and mitigation sites.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

There would be no mitigation necessary.

Preferred WIS 23 Corridor Preservation

When improvements associated with the Preferred WIS 23 Corridor Preservation Alternative are constructed, they will have similar mitigation measures as the Preferred Build Alternative.

US 151/WIS 23 Connection

Preferred No Corridor Preservation

There would be no mitigation necessary.

Option 23-1 and Option 23-2 Corridor Preservation

When improvements associated with Option 23-1 and Option 23-2 Corridor Preservation Alternative are constructed, they would have similar mitigation measures as the Preferred Build Alternative.

The Wetlands Evaluation Factor Sheet has been updated to the format currently used by WisDOT, which has been changed considerably. Impacts have been updated to reflect a wetland delineation that was performed in 2011 and design refinements. More information is known about mitigation opportunities. There are few substantive changes from the 2010 FEIS.

WETLANDS EVALUATION

Factor Sheet C-1

1. Describe Wetlands:

Wetland locations and evaluations for the project were based on WDNR mapped wetlands and other on- and offline resource mapping provided by WDNR staff. After initial project alignment development, to facilitate early evaluation and quantification, the wetlands were then field-delineated by WisDOT staff and WDNR reviewers using Global Positioning System (GPS) technology.

These field reviews allowed for the early evaluation of locations of wetlands and their general quality and identification of special habitats in need of early avoidance and minimization. The wetland delineations were again updated in 2011.

In Fond du Lac County, high quality wetlands occur in the following areas:

A. North of WIS 23 between Pit Road and Triple T Road – Mixed hardwood and cedar swamp
B. At the Sheboygan River area crossing WIS 23 – Riparian emergent wet meadow
C. South of WIS 23 near Division Road – Shrub swamp
D. South of WIS 23 adjacent to Hillview Road – Mullet Creek Wildlife Area, mixed hardwoods and emergent wet meadow

In Sheboygan County, many of the higher quality wetlands are located south of WIS 23 in the following areas:

E. West of Spring Valley Drive - Meadows and shallow marsh
F. Old Wade House Historic Site - Meadows and wooded swamp
G. Mullet River - Riparian forest and wooded swamp

Figure 4.6 C-1.1 schematically illustrates the location of these sites with the letter designations listed above.

Figure 4.6 C-1.1 High Quality Wetland Sites

There are three existing wetland mitigation sites adjacent to the WIS 23 corridor, the WisDOT Taycheedah Creek Wetland Mitigation Site near the US 151/WIS 23 connection, the WisDOT/County Pit Road Wetland Mitigation Site, and the State Historical Society's Old Wade House Wetland Enhancement and Mitigation Site.

Prior to the 2009 SDEIS and the 2010 FEIS, WisDOT and WDNR jointly catalogued wetland sites along the potential alternative corridors. The field inventory used GPS to electronically collect wetland boundaries within a 600-foot corridor width of the corridors being considered with GPS. The delineated

boundaries provide greater understanding of the location and type of wetlands than the WDNR wetland mapping. As mentioned, in 2011 WisDOT again field-delineated the wetlands affected by the Preferred Build Alternative as part of the Section 404 permitting process. Table 4.6 C-1.1 describes the various types of the wetlands that would be impacted by the alternatives being considered and the wetland acreage for each alternative and type of wetland. The table also documents the number of wetlands impacted and whether the impacts would be longitudinal encroachments (as typical of the on-alignment alternative) or a bisection of previously nonimpacted wetlands. Figures 4.6 C-1.2 to 4.6 C-1.6 show the location and type of wetland based on the field review.

During initial field reviews, the WDNR identified several Natural Resource Areas it considered to have high habitat value. The WDNR considered these areas as a substantial resource areas involving a combination of habitats or areas of concern regarding potential environmental degradation from the project. (See memo dated March 6, 2003, in Appendix D of the 2010 FEIS.) These WDNR identified Natural Resource Areas are shown in Figures 4.6 C-1.2 to C-1.6 and referenced in Table 4.6 C-1.1.

Table 4.6 C-1.1 shows the impacts for various sections of the alternative evaluated. The acreages have been updated based on the most recent slope intercepts for the Preferred Build Alternative and the recent wetland delineation performed in 2011.

Table 4.6 C-1.1 Wetland Impacts (acres) by Type and Alternative

	Aquatic Bed	*Wooded Swamp*	*Wet Meadow*	*Riparian Palustrine Emergent*	*Riparian Palustrine Forested*	*Shallow Marsh*	*Shrub Scrub*	Total Impact	WDNR Identified Natural Resource Areas Affected
	AB	WS	M	RPE	RPF	SM	SS		
Preferred Build Alternative									
Alt. 1 - *Segment(s) A*	0.0	2.0	18.8	1.0	1.9	9.1	4.4	37.1	#3
No. of Wetlands Impacted :	0	5	54	2	2	10	15	88	
Wetland Bisections :	NA	NA	NA	NA	NA	NA	NA	0	
Wetland Longitudinal Encroachments :	0	5	54	2	2	10	15	88	
Old Plank Trial - *Segment(s) A*	0.0	1.2	6.5	0.3	0.0	0.4	1.8	10.2	#3
No. of Wetlands Impacted :	0	5	23	1	0	4	7	40	
Wetland Bisections :	NA	NA	NA	NA	NA	NA	NA	0	
Wetland Longitudinal Encroachments :	0	5	23	1	0	4	7	40	
Connection Roads and Interchanges - *Segment(s) A*	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.8	
No. of Wetlands Impacted :	0	0	5	0	0	0	0	5	
Wetland Bisections :	0	0	0	0	0	0	0	0	
Wetland Longitudinal Encroachments :	0	0	5	0	0	0	0	5	
Corridor Preservation Alternatives									
WIS 23 Corridor (Connection Roads, Grade Separations, and Interchanges)									
No Preservation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
No. of Wetlands Impacted :	0	0	0	0	0	0	0	0	
Wetland Bisections :	0	0	0	0	0	0	0	0	
Wetland Longitudinal Encroachments :	0	0	0	0	0	0	0	0	
Preferred Preservation - *Segment(s) A*	0	0.3	0.7	0.0	0.6	0.0	0.1	1.7	
No. of Wetlands Impacted :	0	3	7	0	3	0	1	12	
Wetland Bisections :	0	0	0	0	0	0	0	0	
Wetland Longitudinal Encroachments :	0	3	7	0	3	0	1	12	
US 151/WIS 23 System Interchange									
Preferred No Preservation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
No. of Wetlands Impacted :	0	0	0	0	0	0	0	0	
Wetland Bisections :	0	0	0	0	0	0	0	0	
Wetland Longitudinal Encroachments:	0	0	0	0	0	0	0	0	

Table 4.6 C-1.1 Wetland Impacts (acres) by Type and Alternative

	Aquatic Bed	*Wooded Swamp*	*Wet Meadow*	*Riparian Palustrine Emergent*	*Riparian Palustrine Forested*	*Shallow Marsh*	*Shrub Scrub*	Total Impact	WDNR Identified Natural Resource Areas Affected
	AB	WS	M	RPE	RPF	SM	SS		
Option 23-1 Preservation - *Segment F*	0.0	0.2	2.7	0.0	8.3	0.0	0.9	12.1	
No. of Wetlands Impacted :	0	1	3	0	2	0	2	8	
Wetland Bisections :	0	0	1	0	0	0	0	1	
Wetland Longitudinal Encroachments :	0	1	2	0	2	0	2	7	
Option 23-2 Preservation - *Segment G*	0.0	0.0	2.0	1.6	1.2	0.0	2.8	7.6	
No. of Wetlands Impacted :	0	0	3	1	1	0	3	8	
Wetland Bisections :	0	0	0	0	0	0	0	0	
Wetland Longitudinal Encroachments :	0	0	3	1	1	0	3	8	
Other Build Alternatives									
Alt. 2 - *Segments A, B, A*	0.0	5.8	14.8	2.8	1.3	7.8	5.5	37.9	#3, #4
No. of Wetlands Impacted :	0	4	39	3	2	3	9	60	
Wetland Bisections :	0	1	1	1	0	1	1	5	
Wetland Longitudinal Encroachments :	0	3	38	2	2	2	8	55	
Alt. 3 - *Segments A/C, B, A*	0.3	6.0	25.6	2.6	5.5	16.8	2.7	59.5	#1, #2, #5, #6, #7
No. of Wetlands Impacted :	1	2	31	3	2	4	3	46	
Wetland Bisections :	0	1	3	2	1	2	0	9	
Wetland Longitudinal Encroachments :	1	1	28	1	1	2	3	37	

Note: Below are the variations of Alternative 3 with different connection arrangements.

Alt. 4 - *Segments A/C, C, D, B, A*	0.0	8.0	28.1	4.2	8.6	12.6	2.4	63.9	#1, #2, #4, #6, #7
No. of Wetlands Impacted :	0	3	25	3	3	3	4	41	
Wetland Bisections :	0	2	4	1	1	2	2	12	
Wetland Longitudinal Encroachments :	0	1	21	2	2	1	2	29	
Alt. 5 - *Segments A, E, C, B, A*	0.3	6.0	25.7	0.5	8.6	15.6	2.3	59.0	#1, #2, #5, #6, #7
No. of Wetlands Impacted :	1	2	23	1	3	4	2	36	
Wetland Bisections :	0	2	4	1	1	3	1	12	
Wetland Longitudinal Encroachments :	1	0	19	0	2	1	1	24	
Alt. 6 - *Segments A, E, C, D, B, A*	0.3	10.0	25.5	2.1	8.6	15.6	2.4	64.5	#1, #2, #4, #6, #7
No. of Wetlands Impacted :	0	2	22	1	3	3	2	33	
Wetland Bisections :	0	2	4	1	1	2	1	11	
Wetland Longitudinal Encroachments :	0	0	18	0	2	1	1	22	

Source: Evaluations during DEIS/SDEIS period.

Table 4.6 C-1.1 Wetlands Impacts Type and Alternative

2. Are any impacted wetlands considered "wetlands of special status" per WisDOT Wetland Mitigation Banking Technical Guideline, page 10?

☐ No
☒ Yes:
- ☐ Advanced Identification Program (ADID) Wetlands
- ☒ Other – Describe:

Wetlands of special status are those that are unique to their locality or ecologically unique, or a resource agency has placed a nationwide emphasis on its protection. For Wisconsin, these would include bottomland hardwoods. Wetlands of special status also include those that have federal or state threatened and endangered species, lands where public or private funds have been used to restore, protect, or manage a wetland, or the wetland is on a listing of historic/archeological sites.

For the WIS 23 project, these wetlands of special status include:

- The three wetland mitigation areas, Taycheedah Creek Wetland Mitigation Site, Pit Road Wetland Mitigation Site, and the Old Wade House Wetland Enhancement and Mitigation Site. These areas are shown as G3, A42/43, and A64/65 respectively on Figures 4.6 C-1.2 to 4.6 C-1.6
- The Sheboygan River crossing which contains rare freshwater mussels .
- The Mullet River culvert extension where there is wooded swamp and possible fresh water mussels. Blandings turtle may also exist at this location.

3. Describe proposed work in the wetland(s), e.g., excavation, fill, marsh disposal, other:

No-Build Alternative This alternative requires no wetland conversion and has no impacts.

Build Alternatives

All Build Alternatives would impact wetland areas through a combination of excavation and fill along the 19.1-mile project. WisDOT design would comply with wetland sequencing. Wetland impacts would first be avoided, then minimized. Wetland areas unable to be avoided or minimized would require appropriate wetland mitigation. In addition to loss of wetland acreage, the project would also affect wetland function and value(s). Table 4.6 C-1.2 summarizes the acres of wetlands within the Build Alternative corridors and how many of them would be filled. Table 4.6 C-1.3 shows the wetland impacts by location and is tied to the wetland numbers designated in Figures 4.6 C-1.2 to C-1.6.

Alternative 2

The 4-lane expansion associated with Alternative 2 has many of the same wetland areas that the Preferred Build Alternative 1 would have, including the Sheboygan River crossing (bridge), *Natural Resource Area No. 3*, and the Mullet River crossing (culvert). Alternative 2 avoids the wetland mitigation bank near Pit Road. The mitigation bank is avoided because this alternative travels on a new alignment 0.5 to 0.7 miles north of WIS 23.

The Alternative 2 corridor that travels off the existing alignment would travel through 16 wetland acres, with an estimated 12 of those acres being directly filled. Alternative 2 travels near or through approximately 60 wetland areas of wetlands, totaling 99.5 acres within the corridor. Because not all wetlands within the right of way would be filled, the actual wetland impacts would total about 37.9 acres. See Wetland Type Maps on Figures 4.6 C-1.2 to 4.6 C-1.6.

Alternative 2 would also place fill in a high quality cedar swamp, in WDNR identified *Natural Resource Area No. 4*, in the Town of Forest. This area is found in a wooded ravine with some natural springs on the south edge of a wooded wetland that extends northward about 2 miles to the Sheboygan River. WDNR concerns for this wetland area resulted in a shift in Alternative 2 to avoid as much of the wetland as possible. See the Section 2.4 for a description. An estimated 4 acres of wetlands would still be directly affected.

Alternative 3

This alternative has between 116 and 132 acres of wetlands within the studied corridor, varying with the type of connection (Alternative 3 to 6). An estimated 59.5 acres would be directly filled and impacted because of road construction. This alternative impacts the same wetlands described in Alternative 2 in Sheboygan County. In Fond du Lac County, the alternative would bisect wetlands contiguous with Taycheedah Creek, affecting up to 14.3 acres.

Alternative 3 would also place fill adjacent to WDNR identified *Natural Resource Area Numbers 1 and 2* near the Sheboygan River in the Forest Township. (Wetland Type Map Figure 4.6 C-1.3 and 1.4.) Alternative 3 would also place fill adjacent to *Natural Resource Area No. 5,* which is a wetland area at the upper reaches of the Town of Forest Swamp (Wetland Type Map Figure 4.6 C-1.5).

Preferred Build Alternative

4-lane Expansion (Alternative 1)

This alternative would be built on-alignment and has 88 individual areas of existing wetlands ranging in size from 0.01 acres to 11.49 acres. Wetland areas would be filled where the new WIS 23 lanes would be added. Likely wetlands that would be filled total about 37.1 acres with avoidance and minimization techniques employed. These impacts include an area of riparian wetland impacts of 0.94 acres (A27/A28) and 1.98 acres (A68/A69) contiguous to the Sheboygan and Mullet Rivers, respectively.

Connection Roads and Interchanges

The connection roads and interchanges would fill an additional 0.8 acres of wetlands. These wetlands occur at the proposed local roads.

Old Plank Road Trail

The Old Plank Road Trail would fill an additional 10.2 acres of wetlands. These wetlands are generally contiguous with the wetland areas described in the 4-lane expansion associated with Alternative 1. Wetlands associated with the Old Plank Trail are shown in Figures 4.6 C-1.7 to 4.6 C-1.18.

The Old Wade House Wetland Enhancement and Mitigation site is managed by the Wisconsin Historical Society. The mitigation site was created in the late 1990s when restoration and wetland enhancement work was done. At this location, the 4-lane expansion was built north of WIS 23 to avoid this mitigation site. The Old Plank Road Trail would travel adjacent to WIS 23 and minimize effects to this mitigation site. This site is located on the northern boundary of the Old Wade House property. Figure 4.6 C-1.19 illustrates the Old Plank Road Trail as it travels adjacent to the wetland mitigation site.

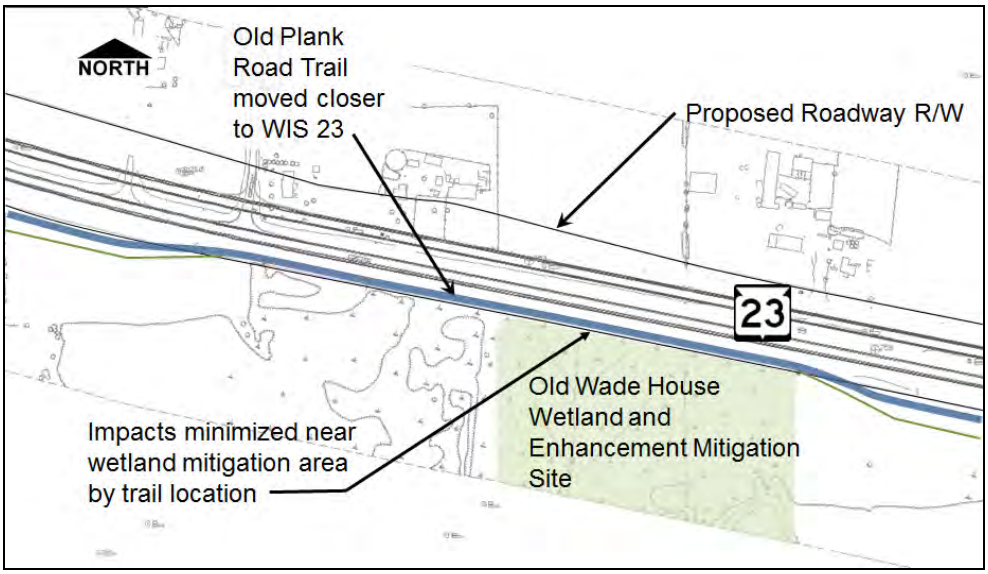


Figure 4.6 C-1.19 Old Plank Road Trail and Old Wade House Wetland Mitigation Site

Utility relocations associated with the project may also affect wetlands. It is anticipated that the majority of these relocations would occur within or directly adjacent to the proposed right of way. Impacts would primarily be associated with pole relocations but may also include conduit placement. These impacts are reasonably represented by the roadway effects described in this section.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

No effects. No wetlands would be affected if the WIS 23 No Corridor Preservation Alternative is chosen.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation Alternative would preserve areas that contain wetlands. Future transportation improvements associated with these preservation areas, if constructed, would impact wetlands. At that time further NEPA documentation would occur and as part of the NEPA process wetland impacts would first be avoided, then minimized. Wetland areas unable to be avoided or minimized would require appropriate wetland mitigation.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

No effects. No wetlands would be affected for the Preferred US 151/WIS 23 No Corridor Preservation Alternative.

Option 23-1 Corridor Preservation

Option 23-1 Corridor Preservation would not directly affect any wetlands. Future transportation improvements associated with this corridor preservation, if constructed, would fill 8 areas of existing wetlands ranging in size from 0.06 acres to 5.60 acres, totaling 12.1 impacted acres. The Option 23-1 system interchange would not affect the existing wetland mitigation site west of US 151.

Option 23-2 Corridor Preservation

Option 23-2 Corridor Preservation would not directly affect any wetlands. Future transportation improvements associated with this corridor preservation, if constructed, would impact 8 areas of existing wetlands ranging in size from 0.14 acres to 5.60 acres, totaling nearly 7.6 impacted acres. Wetland area G3 is the Taycheedah Creek Wetland mitigation site, an existing wetland mitigation site constructed to offset wetland losses associated with the US 151 Fond du Lac bypass. This wetland is a “red-flag” wetland mitigation site that requires advanced coordination with WDNR. See Figure 4.6 C-1.20. The wetland mitigation bank was a commitment to an individual 404 US Army Corps of Engineers Permit and a WDNR 401 Water Quality Certification associated with the Fond du Lac bypass project.

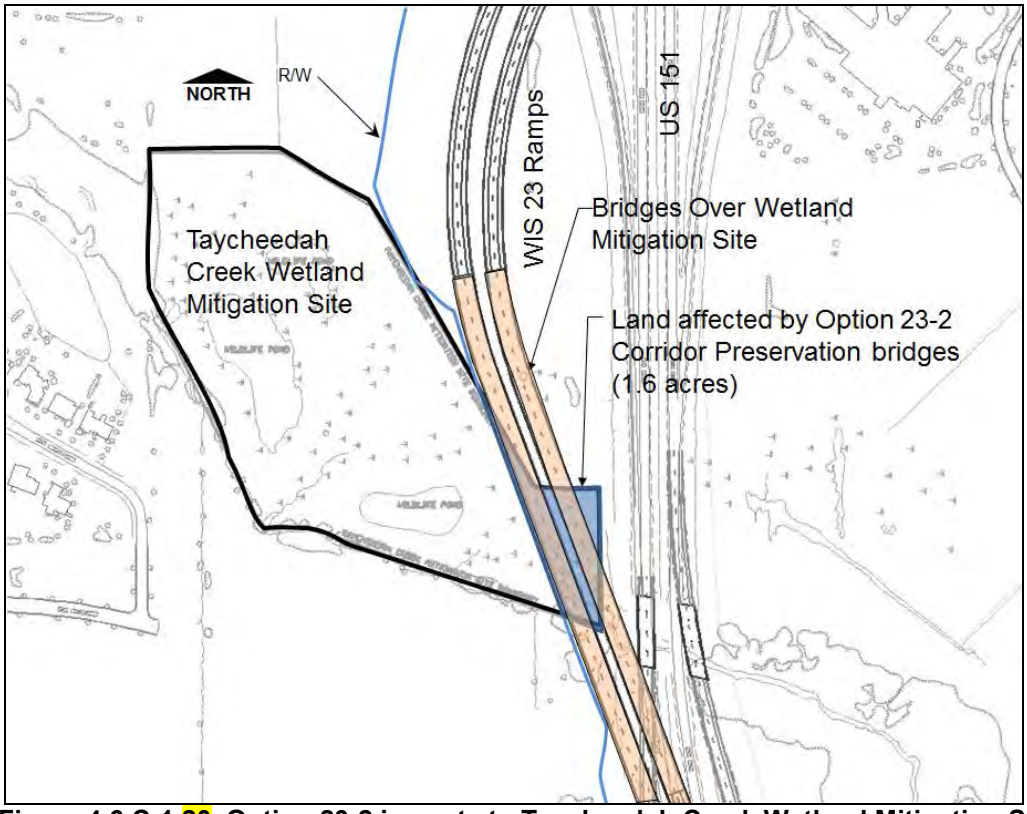


Figure 4.6 C-1.20 Option 23-2 impacts to Taycheedah Creek Wetland Mitigation Site

Table 4.6 C-1.2 summarizes wetland impacts for each alternative. These impacts are updated from the 2010 FEIS based on the delineation that was performed in 2011/2012 and refinements to the slopes of the proposed roadway. A summary of this evaluation and the practicable alternative finding is provided in Section 6.8. Table 4.6 C-1.3 provides a more detailed list of impacts by the locations shown in Figures 4.6 C-1.2 to 4.6 C-1.6. The wetland impacts for Alternatives 2 and 3 were not updated because they were not part of the Preferred Build Alternative.

Table 4.6 C-1.2 Summary of Wetland Impacts
(Alternatives 2 and 3 not updated)

Wetlands Affected	Acres in Corridor+	Estimated Acres Filled for Construction
Preferred Build Alternative		
4-lane expansion (Alt 1)	147.14	37.1
Connection roads and interchanges		0.8
Old Plank Road Trail		10.2
TOTAL PREFERRED ALTERNATIVE	**147.14**	**48.1**
Other Build Alternatives (without connection roads and interchanges)		
Alternative 2	99.5*	37.9*
Alternative 3	115.8*	59.5*
Note: Below are the variations of Alternative 3 with different connection arrangements.		
Alternative 4	120.6*	73.0*
Alternative 5	127.0*	70.0*
Alternative 6	131.3*	79.0*

*Note: acres do not include connection roads, interchanges or preservation areas. If connection roads, interchanges, and preservation areas were included, these totals would have an additional 11 acres of wetland impacts and totals would be greater than the Preferred Alternative.
+ Using a uniform corridor width of 250 feet.

Table 4.6 C-1.2 Summary of Wetland Impacts
(Alternatives 2 and 3 not updated)

Wetlands Affected	Acres in Corridor+	Estimated Acres Filled for Construction
Preferred Corridor Preservation Alternatives		
Preferred WIS 23 Preservation	~2.1	1.7
Preferred No US 151/WIS 23 Preservation	0.0	0.0
TOTAL PREFERRED CORRIDOR PRESERVATION ALTERNATIVES	**NA**	**1.7**
Other Corridor Preservation Alternatives		
No WIS 23 Corridor Preservation	0.0	0.0
Option 23-1 Preservation	16.7	12.1
Option 23-2 Preservation	12.6	7.6
TOTAL OTHER CORRIDOR PRESERVATION ALTERNATIVES	**12.6 or 16.7**	**7.6 or 12.1**

Table 4.6 C-1.3 Detailed Wetland Impacts by Location
(Alternatives 2 and 3 not updated)

			Other Build Alternatives		Preferred Build Alternative			Corridor Preservation Alternatives				
								WIS 23 Connection Roads, Grade Separation, and Interchange		US 151/WIS 23 System Interchange		
Wetland Number	Wetland Name	Acres	4-lane expans (Alt 2)	4-lane expans (Alt 3)	4-lane expans (Alt 1)	Connect Roads and Interch	Old Plank Road Trail	No Pres	Preferred Pres	Preferred No Pres	23-1 Pres	23-2 Pres
A1 (C1 also)	Meadows	0.23	0.02	0.02	0.02	0	0.02	0	0	0	0	0
A2 (C2 also)	Meadows	0.18	0.07	0.07	0.10	0	0	0	0	0	0	0
A3	Shallow Marsh	0.33	0.15	0	0.15	0	0	0	0	0	0	0
A4	Shrub Scrub	0.45	0.02	0	0.03	0	0.10	0	0	0	0	0
A5	Meadows	1.20	0.13	0	0.15	0	0.26	0	0	0	0	0
A6	Shrub Scrub	0.54	0.12	0	0.19	0	0	0	0	0	0	0
A7	Meadows	0.86	0.70	0	0.72	0	0	0	0	0	0	0
A8	Meadows	0.63	0.02	0	0.02	0	0.37	0	0	0	0	0
A9	Wooded Swamp	0.51	0.01	0	0.01	0	0.17	0	0	0	0	0
A10	Shrub Scrub	0.19	0.08	0	0.07	0	0	0	0	0	0	0
A11	Meadows	0.12	0.07	0	0.04	0	0	0	0	0	0	0
A12	Meadows	1.70	0.02	0	0.21	0	0.41	0	0	0	0	0
A13	Wooded Swamp	0.23	0.03	0	0.08	0	0.05	0	0	0	0	0
A14	Meadows	1.45	0.55	0	1.02	0	0.25	0	0	0	0	0
A15	Shrub Scrub	1.62	0	0	0.15	0	0.54	0	0	0	0	0
A16	Meadows	4.35	2.33	0	2.35	0	0	0	0	0	0	0
A17	Wooded Swamp	0.97	0	0	0.03	0	0.25	0	0	0	0	0
A18	Meadows	0.20	0.04	0	0.10	0	0	0	0	0	0	0
A19	Meadows	1.07	0.06	0	0.07	0	0.35	0	0	0	0	0
A20	Shrub Scrub	1.82	0.23	0	0.23	0	0.44	0	0	0	0	0
A21	Meadows	0.32	0.25	0	0.24	0	0	0	0	0	0	0
A22	Meadows	0.47	0.24	0	0.24	0	0	0	0	0	0	0
A23	Shrub Scrub	3.16	2.15	0	2.37	0	0	0	0.09	0	0	0
A24	Wooded Swamp	3.90	1.73	0	1.91	0	0	0	0	0	0	0
A25	Shallow Marsh	10.84	3.79	0	3.93	0	0	0	0	0	0	0
A26	Meadows	0.07	0	0	0	0	0	0	0	0	0	0

Table 4.6 C-1.3 Detailed Wetland Impacts by Location
(Alternatives 2 and 3 not updated)

Wetland Number	Wetland Name	Acres	Other Build Alternatives		Preferred Build Alternative			Corridor Preservation Alternatives				
								WIS 23 Connection Roads, Grade Separation, and Interchange		US 151/WIS 23 System Interchange		
			4-lane expans (Alt 2)	4-lane expans (Alt 3)	4-lane expans (Alt 1)	Connect Roads and Interch	Old Plank Road Trail	No Pres	Preferred Pres	Preferred No Pres	23-1 Pres	23-2 Pres
A27	Riparian Emergent	1.02	0.61	0	0.68	0	0	0	0	0	0	0
A28	Riparian Emergent	1.99	0.07	0	0.26	0	0.28	0	0	0	0	0
A29	Meadows	0.19	0.10	0	0.10	0	0	0	0	0	0	0
A30	Meadows	0.10	0.05	0	0.09	0	0	0	0	0	0	0
A31	Meadows	2.42	1.04	0	1.06	0	0	0	0.15	0	0	0
A33	Meadows	0.07	0.07	0	0.05	0	0	0	0.03	0	0	0
A34	Meadows	0.01	0.01	0	0.01	0	0	0	0	0	0	0
A35	Meadows	0.95	0.64	0	0.64	0	0.20	0	0	0	0	0
A36	Meadows	0.32	0.29	0	0.07	0	0	0	0	0	0	0
A37	Meadows	1.46	0.30	0	0.05	0	0	0	0	0	0	0
A38	Meadows	0.22	0	0	0	0	0	0	0	0	0	0
A39	Meadows	0.28	0	0	0	0	0	0	0	0	0	0
A40	Meadows	0.06	0	0	0	0	0	0	0	0	0	0
A41	Meadows	1.31	0	0	0.53	0.22	0.44	0	0	0	0	0
A42 (C17 & C18)	Meadows	4.05	0	0	0.96	0	0	0	0	0	0	0
A43 (C19 also)	Aquatic Bed	1.89	0	0	0	0	0	0	0	0	0	0
A44 (C16 also)	Meadows	1.34	0	0	1.30	0	0.04	0	0	0	0	0
A45 (C20 also)	Shallow Marsh	5.98	0	0	1.31	0	0	0	0	0	0	0
A46	Meadows	3.23	0	0	2.08	0	0.77	0	0	0	0	0
A47	Meadows	0.90	0	0	0.06	0	0	0	0	0	0	0
A48	Meadows	0.85	0	0	0.41	0	0.24	0	0	0	0	0
A49	Meadows	0.19	0	0	0.10	0	0.04	0	0	0	0	0
A50	Meadows	0.22	0	0	0.14	0	0	0	0	0	0	0
A51	Aquatic Bed	0.85	0	0	0	0	0	0	0	0	0	0
A53	Shrub Scrub	0.64	0	0	0.06	0	0.03	0	0	0	0	0
A54	Meadows	0.28	0	0	0.08	0	0	0	0	0	0	0
A55	Meadows	0.59	0	0	0.37	0	0	0	0	0	0	0
A56	Meadows	0.76	0	0	0.04	0	0.11	0	0	0	0	0
A57 (B11 also)	Meadows	2.54	0	0	0.24	0	0.72	0	0	0	0	0
A58 (B10 also)	Shrub Scrub	1.51	0.43	0.43	0.44	0	0	0	0	0	0	0
A59	Meadows	0.41	0.20	0.20	0.01	0	0	0	0	0	0	0
A60	Meadows	0.98	0.27	0.27	0.24	0	0	0	0	0	0	0
A61	Shallow Marsh	7.08	3.81	3.81	3.12	0	0	0	0	0	0	0
A62	Meadows	2.32	0.16	0.16	0.02	0	1.08	0	0	0	0	0
A63	Meadows	1.58	0.03	0.03	0.16	0	0.40	0	0	0	0	0
A64	Wooded Swamp	3.56	0	0	0	0	0.35	0	0	0	0	0
A65	Meadows	5.12	0.30	0.30	0	0	0.92	0	0	0	0	0
A66	Wooded Swamp	1.54	0	0	0	0	0.41	0	0.22	0	0	0
A67	Meadows	1.10	0.04	0.04	0.51	0	0	0	0	0	0	0
A68	Riparian Forested	1.48	0	0	0.55	0	0	0	0	0	0	0
A69	Riparian Forested	2.42	1.28	1.28	1.43	0	0	0	0.62	0	0	0
A70	Meadows	0.07	0	0	0	0	0	0	0.07	0	0	0
A71	Meadows	0.29	0.33	0.33	0.30	0	0	0	0	0	0	0

Table 4.6 C-1.3 Detailed Wetland Impacts by Location
(Alternatives 2 and 3 not updated)

Wetland Number	Wetland Name	Acres	Other Build Alternatives		Preferred Build Alternative			Corridor Preservation Alternatives				
								WIS 23 Connection Roads, Grade Separation, and Interchange		US 151/WIS 23 System Interchange		
			4-lane expans (Alt 2)	4-lane expans (Alt 3)	4-lane expans (Alt 1)	Connect Roads and Interch	Old Plank Road Trail	No Pres	Preferred Pres	Preferred No Pres	23-1 Pres	23-2 Pres
A72	Meadows	0.18	0.51	0.51	0.18	0	0	0	0	0	0	0
A73	Meadows	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0
A74	Shrub Scrub	0.21	0.08	0.08	0.15	0	0	0	0	0	0	0
A75	Meadows	0.26	0.26	0.26	0.24	0	0	0	0	0	0	0
A76	Meadows	1.21	0.14	0.14	0.19	0	0	0	0	0	0	0
A77	Meadows	1.17	1.02	1.02	0.96	0.13	0	0	0	0	0	0
A78	Meadows	0.14	0.63	0.63	0.14	0	0	0	0	0	0	0
A79	Meadows	1.51	0	0	0	0	0	0	0	0	0	0
A80	Meadows	0.02	0	0	0	0	0	0	0	0	0	0
A81	Meadows	0.03	0	0	0	0	0	0	0	0	0	0
A82	Meadows	0.62	0	0	0	0	0	0	0	0	0	0
A84	Meadows	0.02	0	0	0	0	0	0	0	0	0	0
A85	Meadows	0.32	0	0	0	0	0.01	0	0.26	0	0	0
A88	Meadows	0.08	0	0	0	0	0	0	0	0	0	0
A89	Meadows	0.81	0	0	0	0	0	0	0	0	0	0
A90	Meadows	0.31	0	0	0	0	0	0	0	0	0	0
A91	Meadows	0.55	0	0	0	0.33	0	0	0	0	0	0
A92	Shallow Marsh	0.06	0	0	0	0	0	0	0	0	0	0
A93	Meadows	0.28	0	0	0	0	0	0	0	0	0	0
A94	Wooded Swamp	1.29	0	0	0	0	0	0	0	0	0	0
A95	Shallow Marsh	1.39	0	0	0	0	0	0	0	0	0	0
A96	Meadows	0.64	0	0	0	0	0	0	0	0	0	0
A97	Wooded Swamp	2.17	0	0	0	0	0	0	0	0	0	0
A98	Wooded Swamp	0.89	0	0	0	0	0	0	0	0	0	0
A99	Shallow Marsh	0.22	0	0	0	0	0	0	0	0	0	0
A100	Wooded Swamp	0.03	0	0	0	0	0	0	0	0	0	0
A101	Meadows	0.08	0	0	0	0	0	0	0	0	0	0
A102	Shallow Marsh	1.14	0	0	0	0	0	0	0	0	0	0
A103	Shrub Scrub	0.28	0	0	0.11	0	0	0	0	0	0	0
A104	Meadows	0.10	0	0	0.06	0	0	0	0	0	0	0
A105	Shrub Scrub	0.12	0	0	0	0	0	0	0	0	0	0
A106	Meadows	0.19	0	0	0	0	0	0	0	0	0	0
A107	Wooded Swamp	1.45	0	0	0	0	0	0	0	0	0	0
A108	Riparian Forested	0.57	0	0	0	0	0	0	0	0	0	0
A109	Wooded Swamp	0.45	0	0	0	0	0	0	0	0	0	0
A110	Wooded Swamp	0.42	0	0	0	0	0	0	0	0	0	0
A111	Riparian Forested	2.28	0	0	0	0	0	0	0.01	0	0	0
A112	Wooded Swamp	0.41	0	0	0	0	0	0	0.03	0	0	0
A113	Wooded Swamp	11.49	0	0	0	0	0	0	0	0	0	0
A114	Meadows	0.18	0	0	0	0	0	0	0	0	0	0
A115	Meadows	0.37	0	0	0.32	0.03	0	0	0	0	0	0
A116	Meadows	0.06	0	0	0	0.06	0	0	0	0	0	0

Factor Sheet C-1

Table 4.6 C-1.3 Detailed Wetland Impacts by Location
(Alternatives 2 and 3 not updated)

Wetland Number	Wetland Name	Acres	Other Build Alternatives		Preferred Build Alternative			Corridor Preservation Alternatives				
								WIS 23 Connection Roads, Grade Separation, and Interchange		US 151/WIS 23 System Interchange		
			4-lane expans (Alt 2)	4-lane expans (Alt 3)	4-lane expans (Alt 1)	Connect Roads and Interch	Old Plank Road Trail	No Pres	Preferred Pres	Preferred No Pres	23-1 Pres	23-2 Pres
A117	Meadows	0.09	0	0	0	0	0	0	0	0	0	0
A118	Shrub Scrub	0.05	0	0	0	0	0	0	0	0	0	0
A119	Wooded Swamp	0.10	0	0	0	0	0	0	0	0	0	0
A120	Shrub Scrub	0.09	0	0	0	0	0	0	0	0	0	0
A121	Wooded Swamp	3.38	0	0	0	0	0	0	0	0	0	0
A122	Shallow Marsh	3.16	0	0	0	0	0	0	0	0	0	0
A123	Meadow	0.27	0	0	0	0	0	0	0	0	0	0
A200	Meadow	1.48	0	0	0	0	0	0	0.03	0	0	0
A201	Meadow	0.18	0	0	0.17	0	0.01	0	0	0	0	0
A202	Meadow	0.20	0	0	0.20	0	0	0	0	0	0	0
A203	Meadow	0.35	0	0	0.33	0	0.01	0	0.01	0	0	0
A204	Meadow	0.07	0	0	0.07	0	0	0	0	0	0	0
A205	Shallow Marsh	0.13	0	0	0.11	0	0.01	0	0	0	0	0
A206	Wooded Swamp	0.50	0	0	0	0	0	0	0	0	0	0
A207	Meadow	0.31	0	0	0	0	0	0	0.12	0	0	0
A208	Meadow	0.12	0	0	0.12	0	0	0	0	0	0	0
A209	Meadow	0.14	0	0	0.05	0	0.06	0	0	0	0	0
A210	Shallow Marsh	0.05	0	0	0.05	0	0	0	0	0	0	0
A211	Meadow	0.10	0	0	0	0	0.05	0	0	0	0	0
A212	Shallow Marsh	0.34	0	0	0.15	0	0.19	0	0	0	0	0
A213	Shallow Marsh	0.11	0	0	0	0	0.11	0	0	0	0	0
A214	Shrub Scrub	0.06	0	0	0.06	0	0	0	0	0	0	0
A215	Shrub Scrub	0.11	0	0	0.06	0	0.05	0	0	0	0	0
B1 (D2 also)	Shrub Scrub	0.28	0.25	0	0	0	0	0	0	0	0	0
B2 (D3 also)	Meadows	3.72	2.30	0	0	0	0	0	0	0	0	0
B4	Riparian Emergent	3.16	2.10	0	0	0	0	0	0	0	0	0
B5	Meadows	0.01	0	0	0	0	0	0	0	0	0	0
B6	Meadows	0.01	0	0	0	0	0	0	0	0	0	0
B7	Wooded Swamp	9.24	4.00	0	0	0	0	0	0	0	0	0
B8	Meadows	0.28	0.45	0.45	0	0	0	0	0	0	0	0
B9	Meadows	0.42	0.30	0.30	0	0	0	0	0	0	0	0
B10 (A58 also)	Shrub Scrub	1.51	2.18	2.18	0	0	0	0	0	0	0	0
B11 (A57 also)	Meadows	2.54	0.70	0.70	0	0	0	0	0	0	0	0
C1 (A1 also)	Meadows	0.23	0	0.25	0	0	0	0	0	0	0	0
C2 (A2 also)	Meadows	0.18	0	0.14	0	0	0	0	0	0	0	0
C3	Riparian Emergent	2.37	0	1.50	0	0	0	0	0	0	0	0
C4	Riparian Emergent	0.99	0	0.60	0	0	0	0	0	0	0	0

Table 4.6 C-1.3 Detailed Wetland Impacts by Location
(Alternatives 2 and 3 not updated)

Wetland Number	Wetland Name	Acres	Other Build Alternatives		Preferred Build Alternative			Corridor Preservation Alternatives				
								WIS 23 Connection Roads, Grade Separation, and Interchange		US 151/WIS 23 System Interchange		
			4-lane expans (Alt 2)	4-lane expans (Alt 3)	4-lane expans (Alt 1)	Connect Roads and Interch	Old Plank Road Trail	No Pres	Preferred Pres	Preferred No Pres	23-1 Pres	23-2 Pres
C5 (E1 also)	Meadows	3.77	0	1.78	0	0	0	0	0	0	0	0
C6 (E2 also)	Shallow Marsh	10.10	0	5.00	0	0	0	0	0	0	0	0
C7 (E3 also)	Meadows	5.95	0	4.00	0	0	0	0	0	0	0	0
C8	Meadows	23.26	0	12.00	0	0	0	0	0	0	0	0
C9	Wooded Swamp	8.74	0	4.00	0	0	0	0	0	0	0	0
C10	Riparian Forested	7.04	0	4.25	0	0	0	0	0	0	0	0
C11	Shallow Marsh	6.32	0	4.00	0	0	0	0	0	0	0	0
C12 (D1 also)	Meadows	0.03	0	0.09	0	0	0	0	0	0	0	0
C13	Meadows	0.15	0	0.10	0	0	0	0	0	0	0	0
C14	Meadows	0.65	0	0.50	0	0	0	0	0	0	0	0
C15	Riparian Emergent	1.04	0	0.50	0	0	0	0	0	0	0	0
C16 (A44 also)	Meadows	1.34	0	0.70	0	0	0	0	0	0	0	0
C17 (A42 also)	Meadows	4.05	0	0.20	0	0	0	0	0	0	0	0
C18 (A42 also)	Meadows	4.05	0	0.20	0	0	0	0	0	0	0	0
C19 (A43 also)	Aquatic Bed	1.89	0	0.25	0	0	0	0	0	0	0	0
C20 (A45 also)	Shallow Marsh	5.98	0	4.00	0	0	0	0	0	0	0	0
C21	Wooded Swamp	2.87	0	2.00	0	0	0	0	0	0	0	0
C22	Meadows	0.08	0	0.08	0	0	0	0	0	0	0	0
D1 (C12 also)	Meadows	0.03	0	0	0	0	0	0	0	0	0	0
D2 (B1 also)	Shrub Scrub	0.28	0	0	0	0	0	0	0	0	0	0
D3 (B2 also)	Meadows	3.72	0	0	0	0	0	0	0	0	0	0
E1 (C5 also)	Meadows	3.77	0	0	0	0	0	0	0	0	0	0
E2 (C6 also)	Shallow Marsh	10.10	0	0	0	0	0	0	0	0	0	0
E3 (C7 also)	Meadows	5.95	0	0	0	0	0	0	0	0	0	0
F1	Riparian Forested	2.71	0	0	0	0	0	0	0	0	2.71	0
F2 (G1 also)	Riparian Forested	5.60	0	0	0	0	0	0	0	0	5.59	0
F3 (G2 also)	Shrub Scrub	1.48	0	0	0	0	0	0	0	0	0.46	0
F4	Meadows	0.06	0	0	0	0	0	0	0	0	0.06	0
F5	Meadows	1.35	0	0	0	0	0	0	0	0	1.35	0
F6	Wooded Swamp	0.73	0	0	0	0	0	0	0	0	0.19	0

Table 4.6 C-1.3 Detailed Wetland Impacts by Location
(Alternatives 2 and 3 not updated)

Wetland Number	Wetland Name	Acres	Other Build Alternatives		Preferred Build Alternative			Corridor Preservation Alternatives				
								WIS 23 Connection Roads, Grade Separation, and Interchange		US 151/WIS 23 System Interchange		
			4-lane expans (Alt 2)	4-lane expans (Alt 3)	4-lane expans (Alt 1)	Connect Roads and Interch	Old Plank Road Trail	No Pres	Preferred Pres	Preferred No Pres	23-1 Pres	23-2 Pres
F7	Wooded Swamp	0.21	0	0	0	0	0	0	0	0	0	0
F8 (G7 also)	Meadows	1.37	0	0	1.32	0	0.04	0	0	0	1.30	0
F9 (G8 also)	Shrub Scrub	1.58	0	0	0.06	0	0.38	0	0	0	0.48	0
G1 (F2 also)	Riparian Forested	5.60	0	0	0	0	0	0	0	0	0	1.23
G2 (F3 also)	Shrub Scrub	1.48	0	0	0	0	0	0	0	0	0	1.46
G3	Riparian Emergent	1.63	0	0	0	0	0	0	0	0	0	1.61
G4	Shrub Scrub	0.19	0	0	0	0	0	0	0	0	0	0.19
G5	Meadows	0.59	0	0	0	0	0	0	0	0	0	0.59
G6	Meadows	0.14	0	0	0.03	0	0	0	0	0	0	0.11
G7 (F8 also)	Meadows	1.37	0	0	0	0	0	0	0	0	0	1.29
G8 (F9 also)	Shrub Scrub	1.58	0	0	0	0	0	0	0	0	0	1.07

4. List any observed or expected waterfowl and wildlife inhabiting or dependent upon the wetland: (List should include both permanent, migratory and seasonal residents).

No-Build — No effects. This alternative requires no wetland conversion and has no impacts to inhabiting wildlife.

Build Alternatives

Alternative 2

Alternative 2 would impact Section 10 in the Town of Forest, which contains a high quality white cedar swamp. This block of white cedar swamp hardwoods has numerous springs and extends into the town of Marshfield. This area provides outstanding wildlife habitat for turkey and deer. Additionally, this area is one of the only ruffed grouse habitat areas in Fond du Lac County. The WDNR recommended that an endangered resource survey be conducted if this alternative were selected. In this forested block, there is a private pheasant restoration project in parts of Fond du Lac and Sheboygan Counties, including the south half of Sections 11 and 12 in the town of Forest. The critical wild pheasant habitat components are securing upland nesting cover, such as alfalfa/brome/timothy or big bluestem, Indian grass, switchgrass, and shrub-carr, or monotypic cattails for winter cover. Any loss of these habitat types would have a negative effect on the success of this restoration project.

Alternative 3

This alternative would affect mature riparian woodlands, upland foraging areas, and the sedge meadow and shallow marsh near the lower reaches of the Sheboygan River which provides nesting habitat for blue-winged teal, mallards, and ring-necked pheasants, and sandhill cranes in Section 18 of the town of Forest (*Natural Resource Area No. 2*). The adjacent riparian habitat and shrub swamp in this area provides habitat for deer, cottontail rabbit, and wintering ring-necked pheasant. Impacts near *Natural Resource Areas No. 6 and No. 7* would affect wildlife travel corridors by minimizing already minor widths and blocks of habitat.

Preferred Build Alternative

Adjacent to the existing roadway, waterways, wetlands, and adjacent upland areas produce broods of mallards, teal, wood ducks, beaver, muskrat and other wetland-

dependent large and small mammals and reptiles. Various state-listed rare woodland bird species such as the red-shouldered hawk, Acadian flycatcher, Cerulean warbler and hooded warbler may use the lowlands found in the Mullet Creek Wildlife Area, south of the existing highway, near Hillview Road or the riparian corridor and woodlands adjacent to the Mullet River east of Greenbush. The Preferred Build Alternative does not bisect existing wetlands but generally creates additional longitudinal filling of wetlands.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

No effects. This alternative requires no wetland conversion and has no impacts to inhabiting wildlife.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation Alternative would preserve areas that contain wetlands and inhabiting wildlife. Wildlife expected in the corridor preservation areas includes the species listed for the Preferred Build Alternative. The future transportation improvements associated with these corridor preservation areas, if constructed, would have similar impacts as those listed with the Preferred Build Alternative.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

No effects. This alternative requires no wetland conversion and has no impacts to inhabiting wildlife.

Option 23-1 and Option 23-1 Corridor Preservation

Option 23-1 and Option 23-2 Corridor Preservation Alternatives would not affect wildlife. Wildlife expected in the corridor preservation areas includes the species listed for the Preferred Build Alternative. The future transportation improvements associated with these corridor preservation options, if constructed, would have similar impacts as those listed with the Preferred Build Alternative.

5. Federal Highway Administration (FHWA) Wetland Policy:

☐ Not Applicable - Explain

☒ Individual Wetland Finding Required - Summarize why there are no practicable alternatives to the use of the wetland.

Avoiding wetland areas was a key factor in the selection of the Preferred Build Alternative. The on-alignment Alternative 1 had fewer wetland impacts than the off-alignment Alternatives 2 and 3. Avoidance of wetlands was also considered in the placement of the additional lanes. Both the Pit Road and Old Wade House wetland mitigation sites were avoided by switching the placement of the new lanes for the 4-lane expansion to the opposite side of the road. Because the project expands the existing 2-lane roadway to a divided 4-lane roadway, there is no practicable alternative to the use of the wetlands that would be affected. Off-alignment alternatives have greater impacts, and alternatives that do not expand WIS 23 do not satisfy the project Purpose and Need. Wetland impacts would be further minimized through design efforts and appropriate mitigation would be provided. See Section 6.8 for a mitigation summary.

Since the publication of the 2010 ROD, wetland impacts have increased from what was presented in the 2010 FEIS. This is primarily because the updated wetland delineation identified more wetland areas within the WIS 23 area of effect.

☐ Statewide Wetland Finding: **NOTE: All three boxes below must be checked for the Statewide Wetland Finding to apply.**

- ☐ Project is either a bridge replacement or other reconstruction within 0.3 mile of the existing location.
- ☐ The project requires the use of 7.4 acres or less of wetlands.

☐ The project has been coordinated with the DNR and there have been no significant concerns expressed over the proposed use of the wetlands.

6. Erosion control or storm water management practices which would be used to protect the wetland are indicated on form: (Check all that apply)

☐ Factor Sheet D-6, Erosion Control Impact Evaluation
☒ Factor Sheet D-5, Stormwater Impact Evaluation
☐ Neither Factor Sheet - Briefly describe measures to be used

7. US Army Corps of Engineers (USACE) Jurisdiction - Section 404 Permit (Clean Water Act):

☐ Not Applicable – No fill to be placed in wetlands or wetlands are not under USACE jurisdiction.
☒ Applicable - Fill would be placed in wetlands under the jurisdiction of the USACE
Indicate area of wetlands filled: Approximately 48.1 acres of wetlands would be filled with the Preferred Build Alternative. No wetlands would be filled with the corridor preservation measures. See Table 4.6 C-1.3 for a listing of wetlands filled by each alternative that was investigated.
Type of 404 permit anticipated:
☒ Individual Section 404 Permit required.
☐ General Permit (GP) or Letter Of Permission (LOP) required to satisfy Section 404 Compliance.
Indicate which GP or LOP is required:
☐ Non-Reporting GP
☐ Provisional GP
☐ Provisional LOP
☐ Programmatic GP
Expiration date of 404 Permit, if known _____

8. Section 10 Waters (Rivers and Harbors Act). For navigable waters of the United States (Section 10) indicate which 404 permit is required:

☒ No Section 10 Waters.

Indicate whether Pre-Construction Notification (PCN) to the U.S. Corps of Engineers(USACE) is:
☒ Not applicable.
☐ Required: Submitted on: (Date)

Status of PCN
USACE has made the following determination on: (Date)

USACE is in the process of review, anticipated date of determination is: (Date)

Wetland sequencing by WisDOT and an individual Section 404 wetland permit would be required from the USACE. Appropriate wetland mitigation would be required for the 404 permit and the Section 401 Water Quality certification that may be issued by WDNR.

9. Wetland Avoidance and Impact Minimization: [Note: Required before compensation is acceptable]

A. Wetland Avoidance:

1. Describe methods used to avoid the use of wetlands, such as using a lower level of improvement or placing the roadway on new location, etc.:

Avoidance of wetlands was first investigated through the construction of a lower-build 2-lane alternative. These alternatives did not satisfy the project purpose and need. The wetlands were avoided through the selection of the WIS 23 alignment location, on-alignment versus off-alignment.

- For the WIS 23 expansion, the Preferred Build Alternative, on-alignment alternative (Alternative 1), when compared to off-alignment Alternatives 2 and 3, has fewer direct impacts (filling). It also has fewer indirect impacts (alteration of associated recharge,

buffering, or critical habitat protection) to more ecologically significant wetlands such as wooded swamp, riparian recharge areas, and shrub/scrub habitats. Such differences are noted by greater impacts to wooded swamps and riparian forested/emergent habitat types shown in Table 4.6 C-1.3.

- The Preferred Build Alternative, Alternative 1, has impacts to more easily restorable wetland habitats such as wet meadow and shallow marsh. Both types are easily restorable through altering hydrology at a determined mitigation site containing hydric soils. The wetland impacts of Alternatives 2 and 3 included wooded swamps and riparian floodplains which are more difficult to restore and/or mitigate.

Further avoidance occurred in the selection of where the additional lanes would be constructed. Generally the additional 2 lanes were placed where the least amount of wetland impacts would occur. This included:

- Placing the additional lanes on the north side of the existing highway near the Old Wade House mitigation site to minimize impacts to this wetland mitigation site.
- Placing the additional lanes on the south side of the existing highway near Pit Road to avoid impacts to the Pit Road Wetland Mitigation Site.

2. Indicate the total area of wetlands avoided:

Selection of Alternative 1 as the Preferred Alternative reduced wetland impacts by 0.8 to 27.4 acres compared to other 4-lane Build Alternatives, depending on which off-alignment alternative it is being compared to.

Altering the placement of lanes is estimated to avoid 3 to 5 additional acres at specific wetland mitigation areas.

B. Minimize the amount of wetlands affected:

1. Describe methods used to minimize the use of wetlands, such as a increasing of side slopes or use of retaining walls, equalizer pipes, upland disposal of hydric soils, etc.:

Specific wetland minimization efforts are noted on the WIS 23 wetland type and alignment maps provided in Figures 4.6 C-1.2 to 4.6 C-1.6. Areas where design modifications minimized wetlands impacts include:

- Steepened slopes near Pit Road.
- Steepened slopes on WIS 23 between Poplar Road and Hinn Road.
- Alignment modifications and shifts to the north at County U and east of Scenic View Drive.
- Steepened slopes near the Mullet River crossing with an extended box culvert.

Further minimization measures will be considered during final design.

2. Indicate the total area of wetlands saved through minimization:

It is estimated that an additional 3 to 5 acres of wetlands were saved based on increases in side slopes.

10. Compensation for Unavoidable Wetland Loss:

According to Section 401 (b) (1) of the Clean Water Act, unavoidable wetland losses must be mitigated on-site, if possible. If no on-site opportunities exist, near/off-site wetland compensation sites must be considered. If neither exists, the losses may be debited to an existing wetland mitigation bank site.

WisDOT is planning on-site mitigation to compensate for the impacts associated with the WIS 23 Preferred Build Alternative at two sites in Fond du Lac county. The first property is owned by WisDOT

and has approximately 50 acres that could be used for mitigation. This site would be mostly wetland creation. This planned site is in the Mullet River watershed.

A second property has recently been acquired in the town of Empire. About 70 acres was acquired and mitigation will focus on wetland restoration. About 10 acres of the site is currently wetlands where a preservation credit may be pursued. The other acreage were previously wetlands that have been ditched and drained. With these acres an enhancement credit will be pursued. This second site is in the Sheboygan River watershed.

It is anticipated that the first property could provide about 20 acres of credit and the second property could provide more than 40 acres of credit. WisDOT believed this will be fully sufficient for mitigation needs. If it is not, additional on-site and near site properties will be pursued.

If changes occur that prevent the implementation of these plans, WisDOT would continue the pursuit of on-site mitigation opportunities.

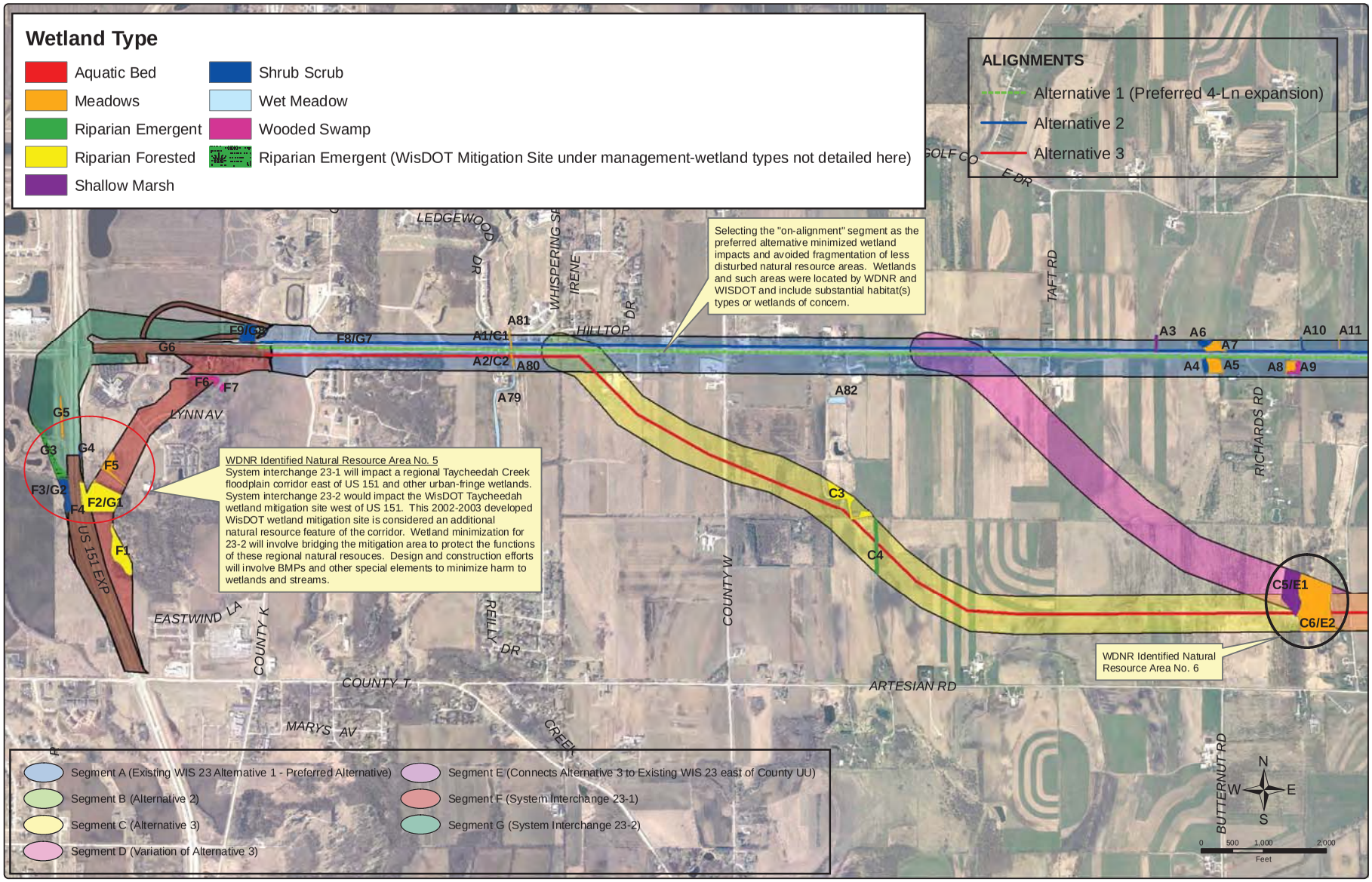
11. If on-site compensation is not possible, explain why and describe how a search for an off-site compensation site was conducted:

On-site mitigation of highway wetland impacts is a priority of WisDOT. Currently it is not anticipated an off-site mitigation site would be required. If on-site plans are not able to be implemented, WisDOT would work with WDNR to find suitable wetland mitigation site options.

12. Summarize the coordination with other agencies regarding the compensation for unavoidable wetland losses: Attach appropriate correspondence:

WisDOT and WDNR staffs have jointly identified impacted wetlands and potential wetland mitigation sites in the vicinity of the highway project as the corridor field reviews were being conducted.

The final wetland mitigation plan would be developed during final design with input from WDNR staff.

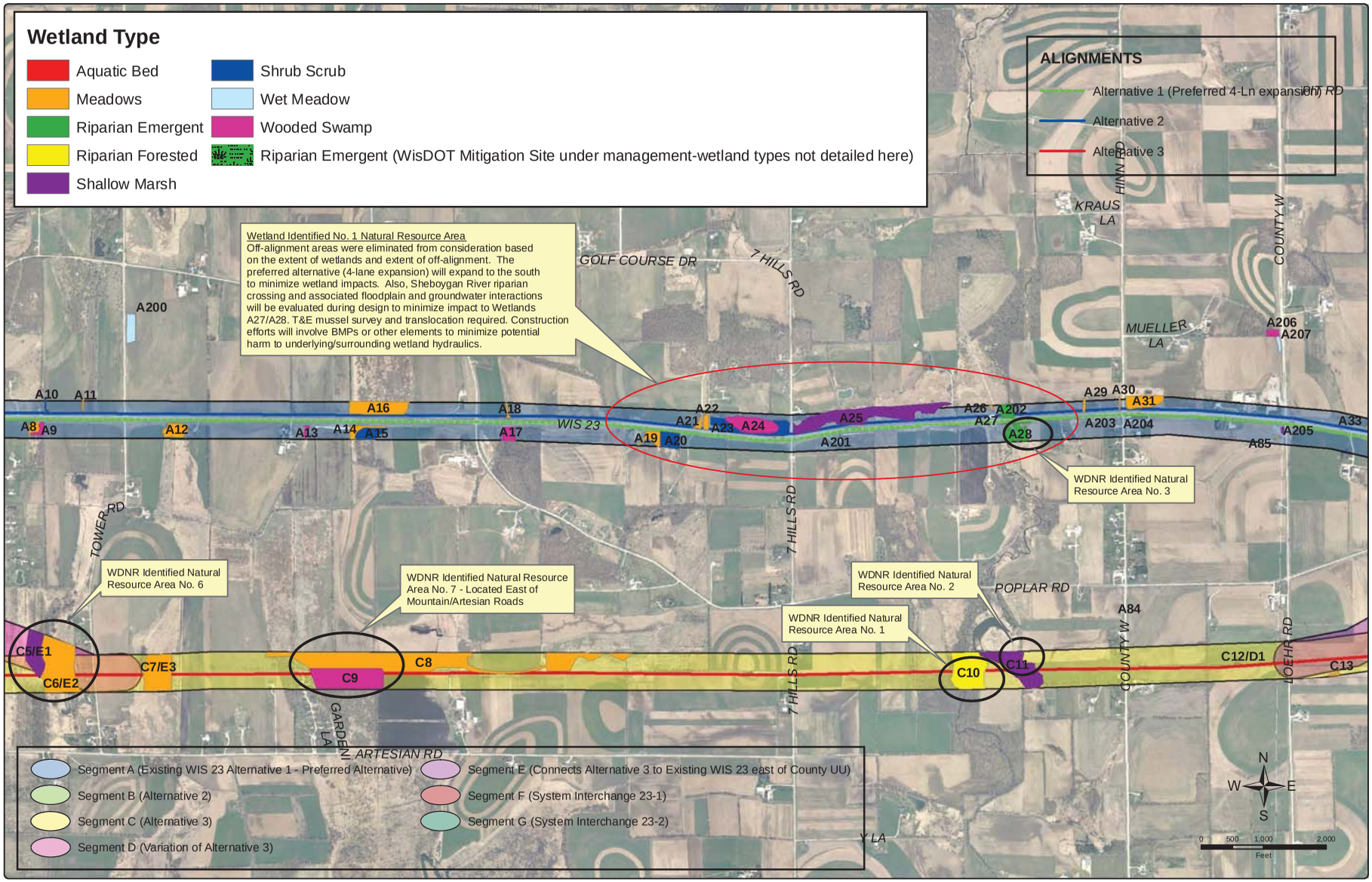


PROJECT ID 1440-13-00
WIS 23 WETLAND TYPES

WISCONSIN DEPARTMENT OF TRANSPORTATION
FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

FIGURE 4.6 C-1.2

S:\MAD\1000--1099\1089\165\Graphics\GIS\Report Figures\Wetlands 1 of 5 11x17.mxd

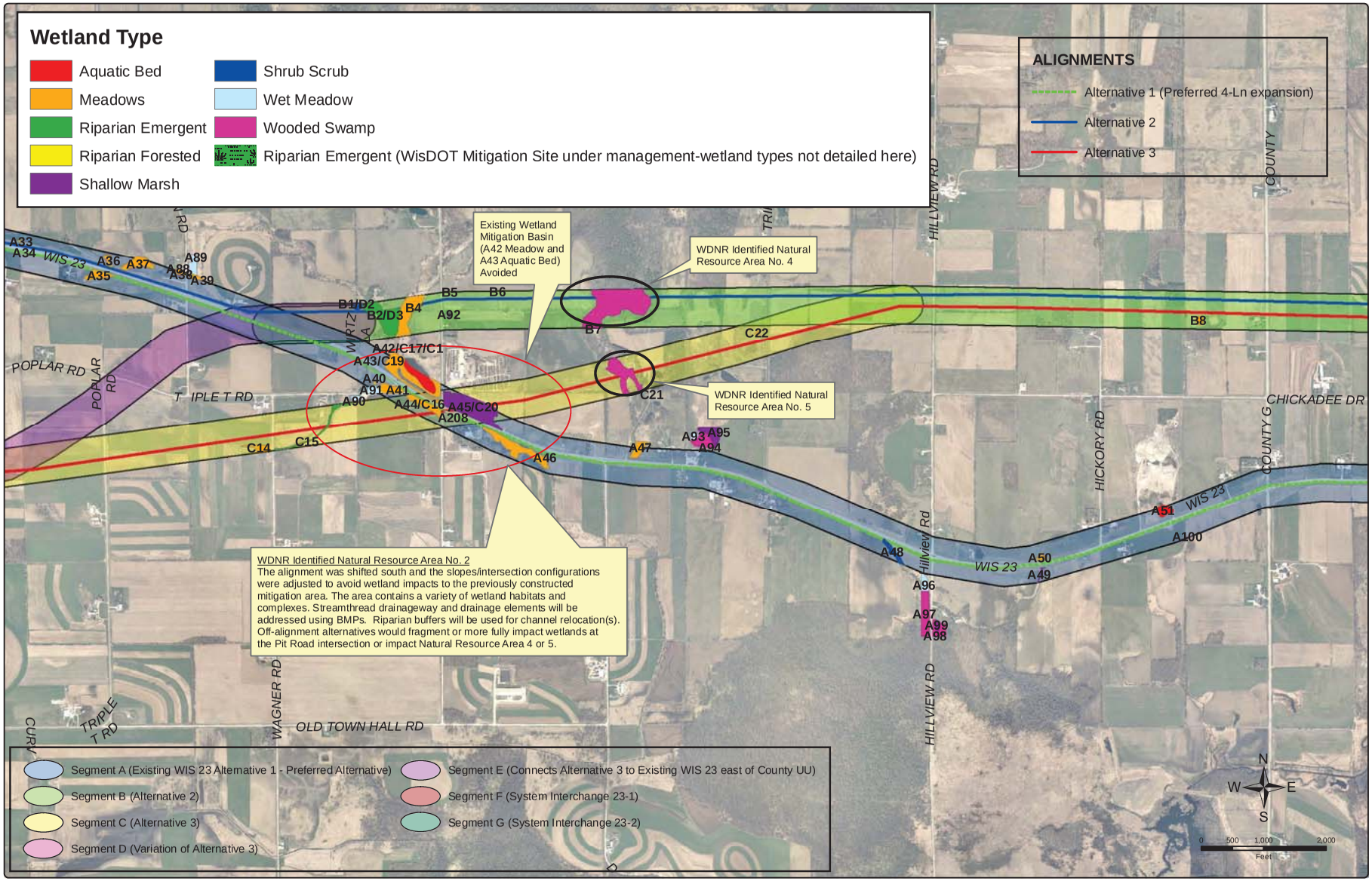


PROJECT ID 1440-13-00
WIS 23 WETLAND TYPES

WISCONSIN DEPARTMENT OF TRANSPORTATION
FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

FIGURE 4.6 C-1.3

S:\MAD\1000--1099\1089\165\Graphics\GIS\Report Figures\Wetlands 2 of 5 11x17.mxd

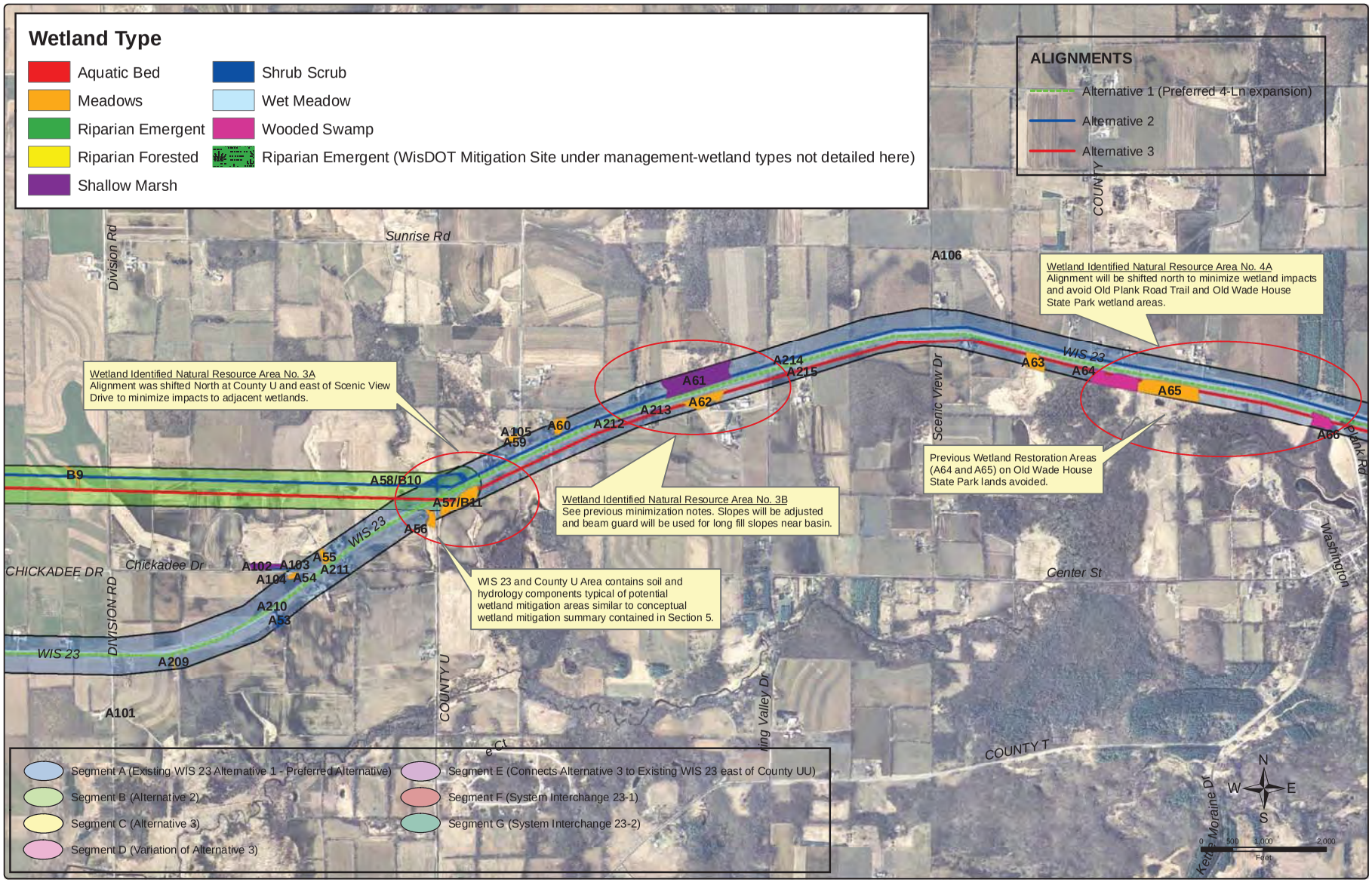


PROJECT ID 1440-13-00
WIS 23 WETLAND TYPES

WISCONSIN DEPARTMENT OF TRANSPORTATION
FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

FIGURE 4.6 C-1.4

S:\MAD\1000--1099\1089\165\Graphics\GIS\Report Figures\Wetlands 3 of 5 11x17.mxd

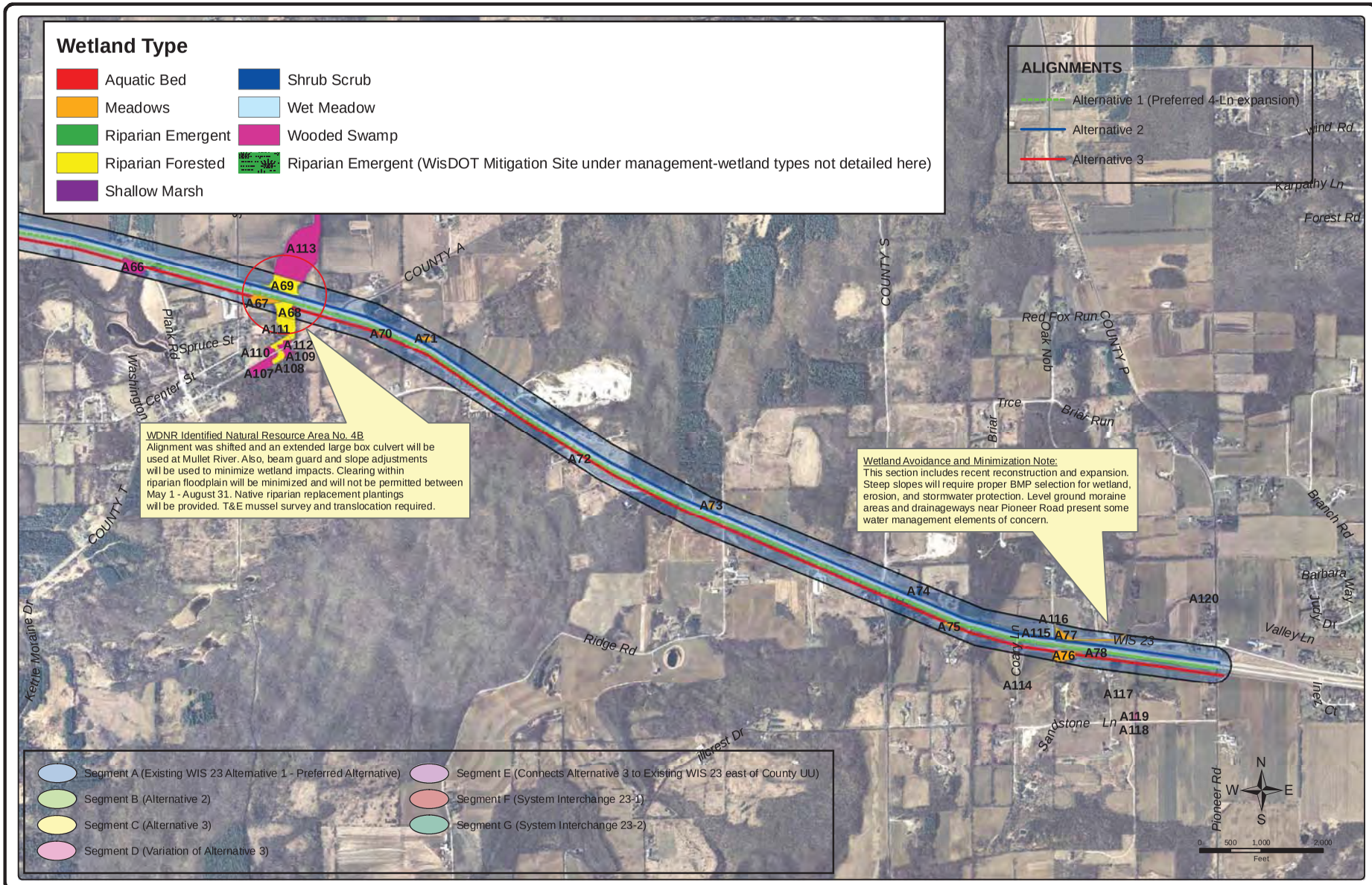


PROJECT ID 1440-13-00
WIS 23 WETLAND TYPES

WISCONSIN DEPARTMENT OF TRANSPORTATION
FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

FIGURE 4.6 C-1.5

S:\MAD\1000--1099\1089\165\Graphics\GIS\Report Figures\Wetlands 4 of 5 11x17.mxd

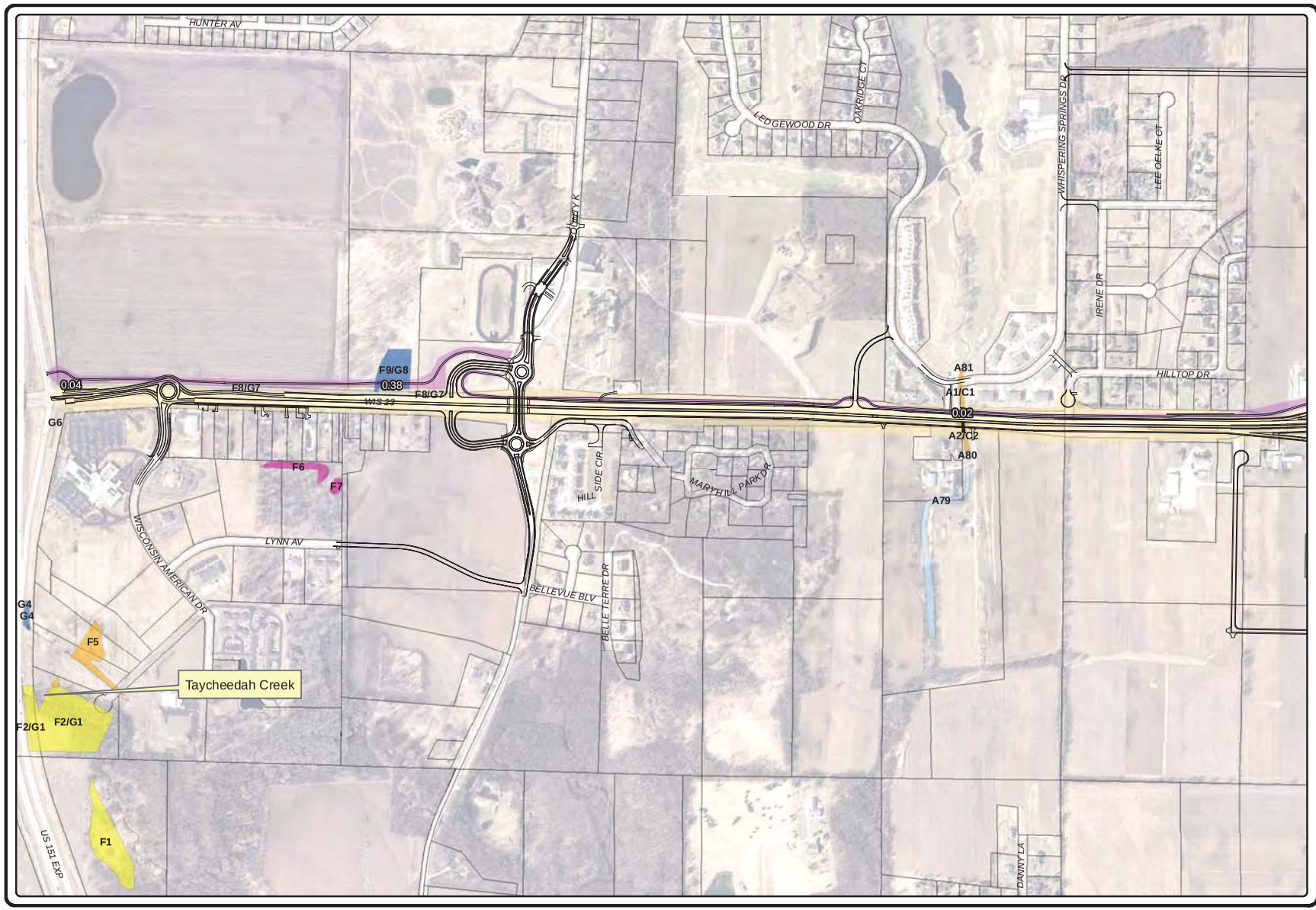


PROJECT ID 1440-13-00
WIS 23 WETLAND TYPES

WISCONSIN DEPARTMENT OF TRANSPORTATION
FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

FIGURE 4.6 C-1.6

S:\MAD\1000--1099\1089\165\Graphics\GIS\Report Figures\Wetlands 5 of 5 11x17.mxd



Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp

PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.7

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd

Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp

PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

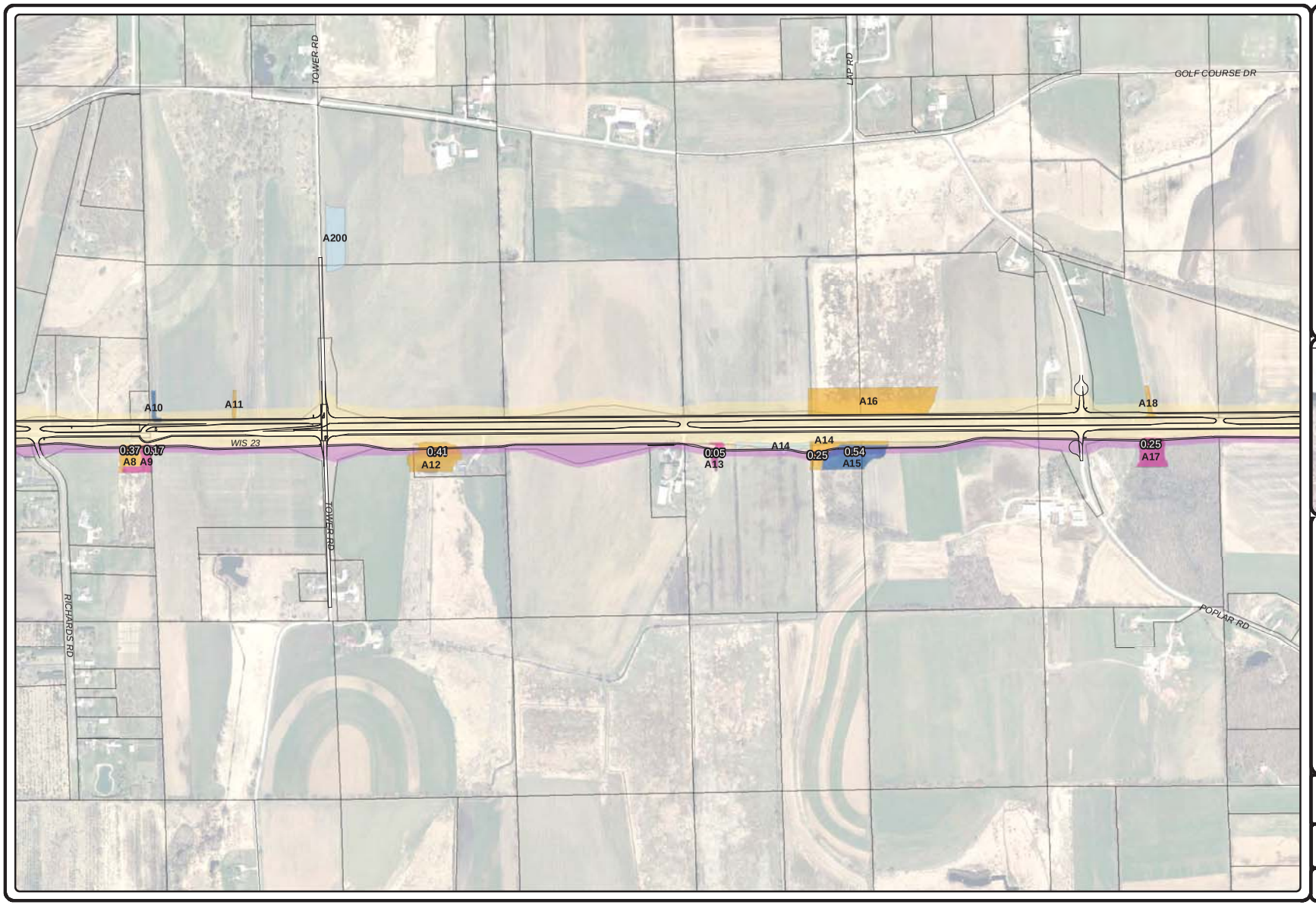
WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.8

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd



Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp

PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

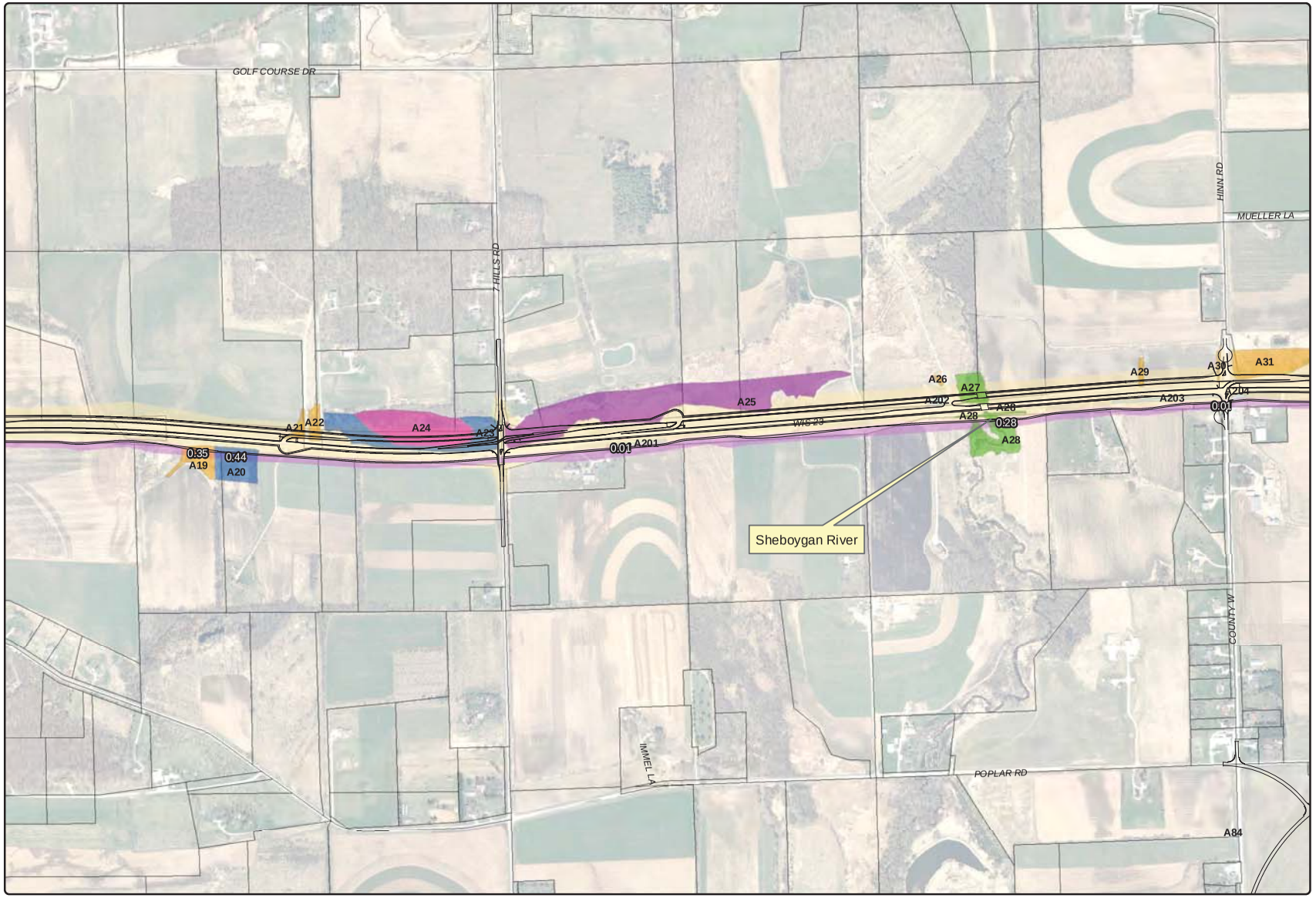
WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.9

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd



Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp

PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.10

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd

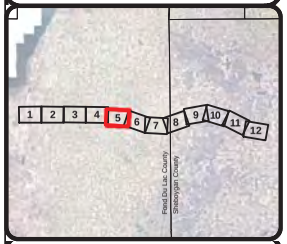
Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp



PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

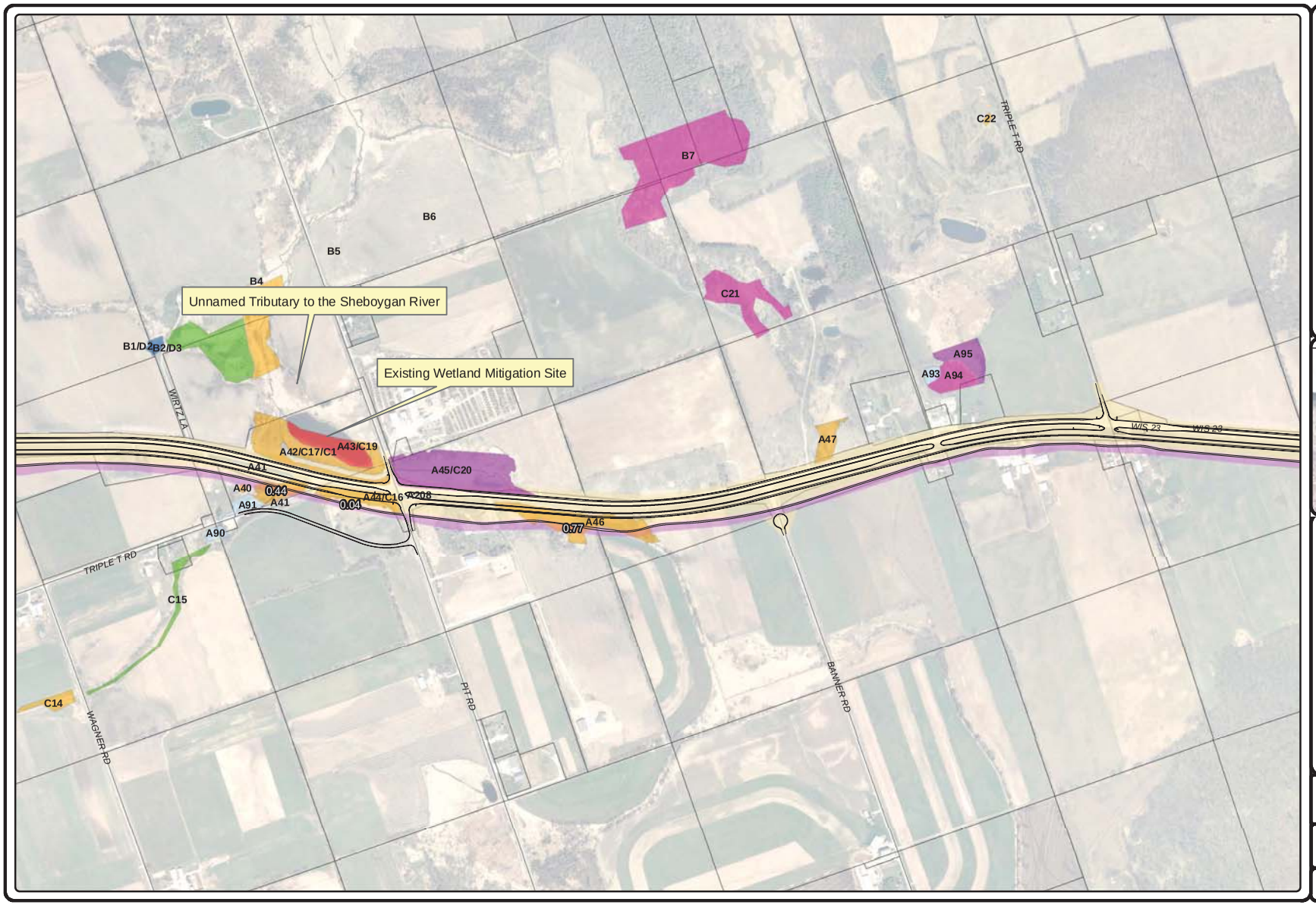
WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.11

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd



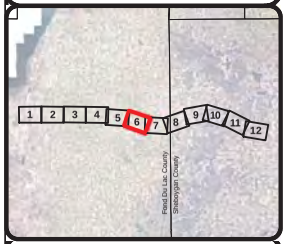
Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp



PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

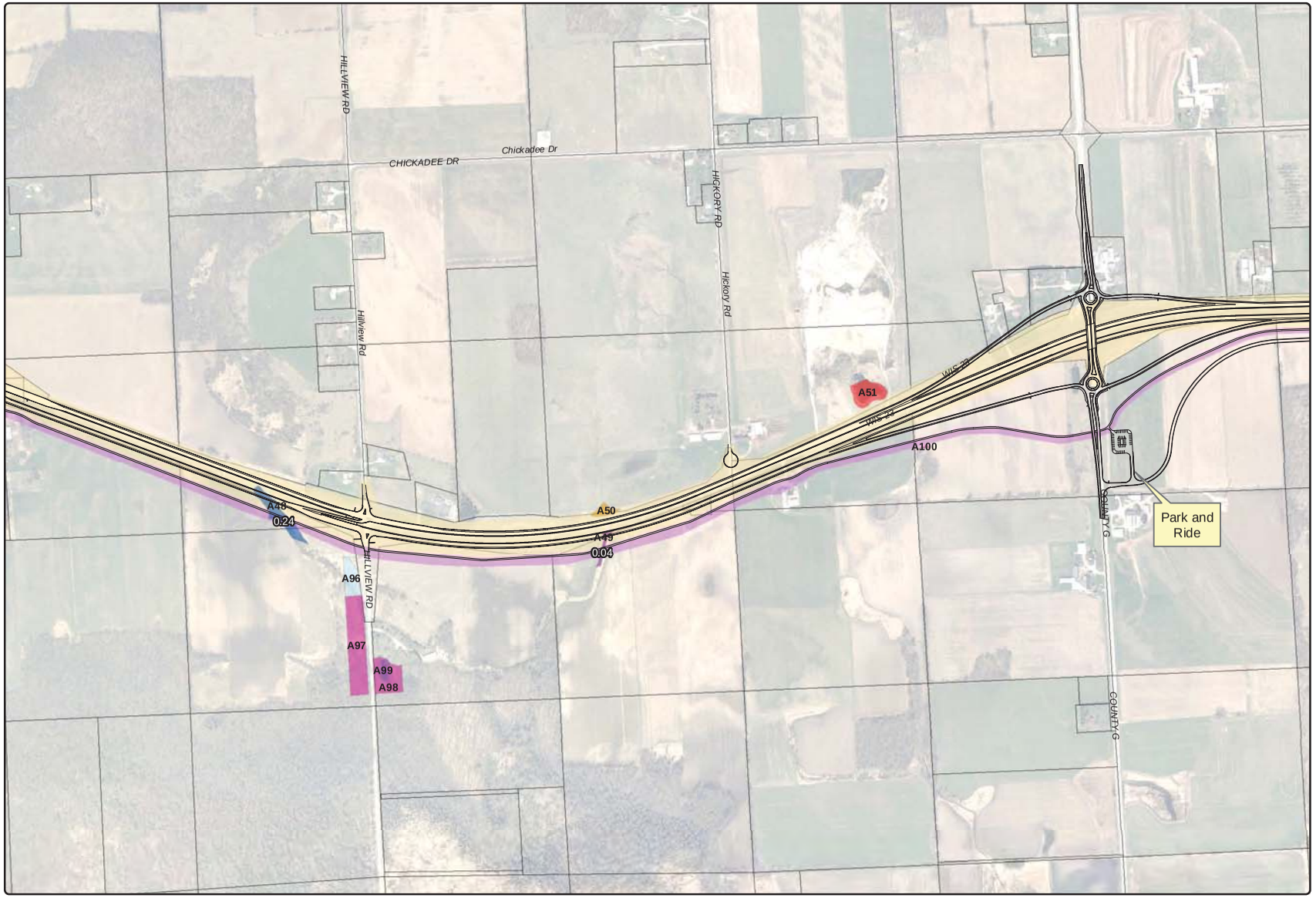
WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.12

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd



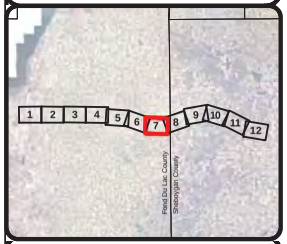
Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp



PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

N

0 175 350 700
Feet

Figure 4.6 C-1.13

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd

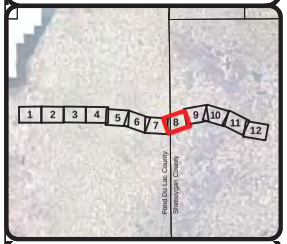
Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp



PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.14

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd

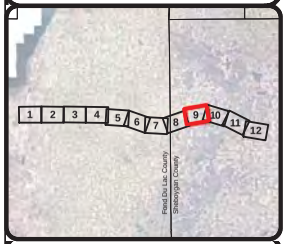
Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp



PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

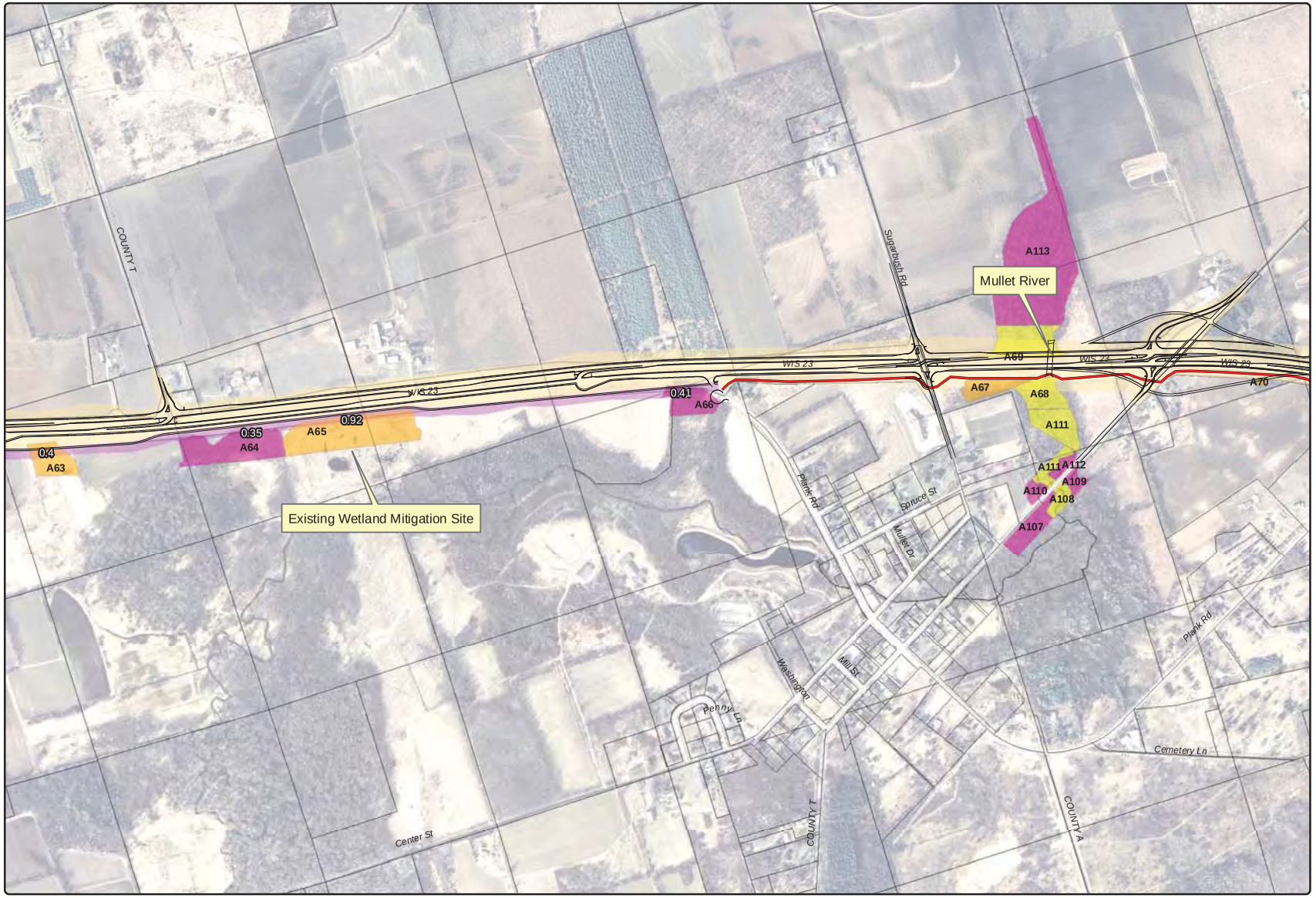
WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.15

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd



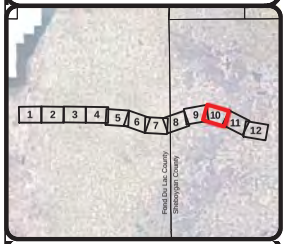
Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp



PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

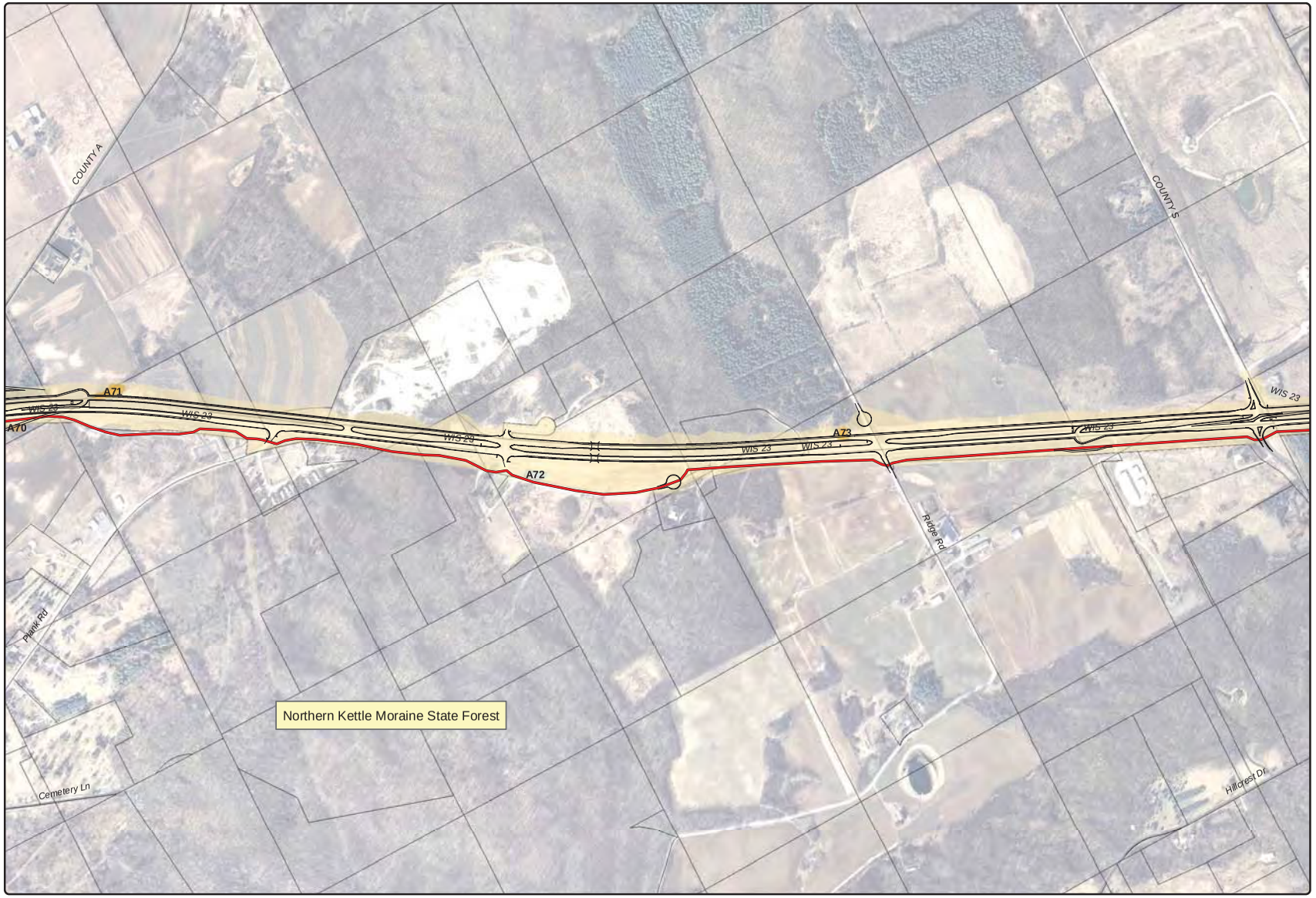
WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.16

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd



Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp

PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

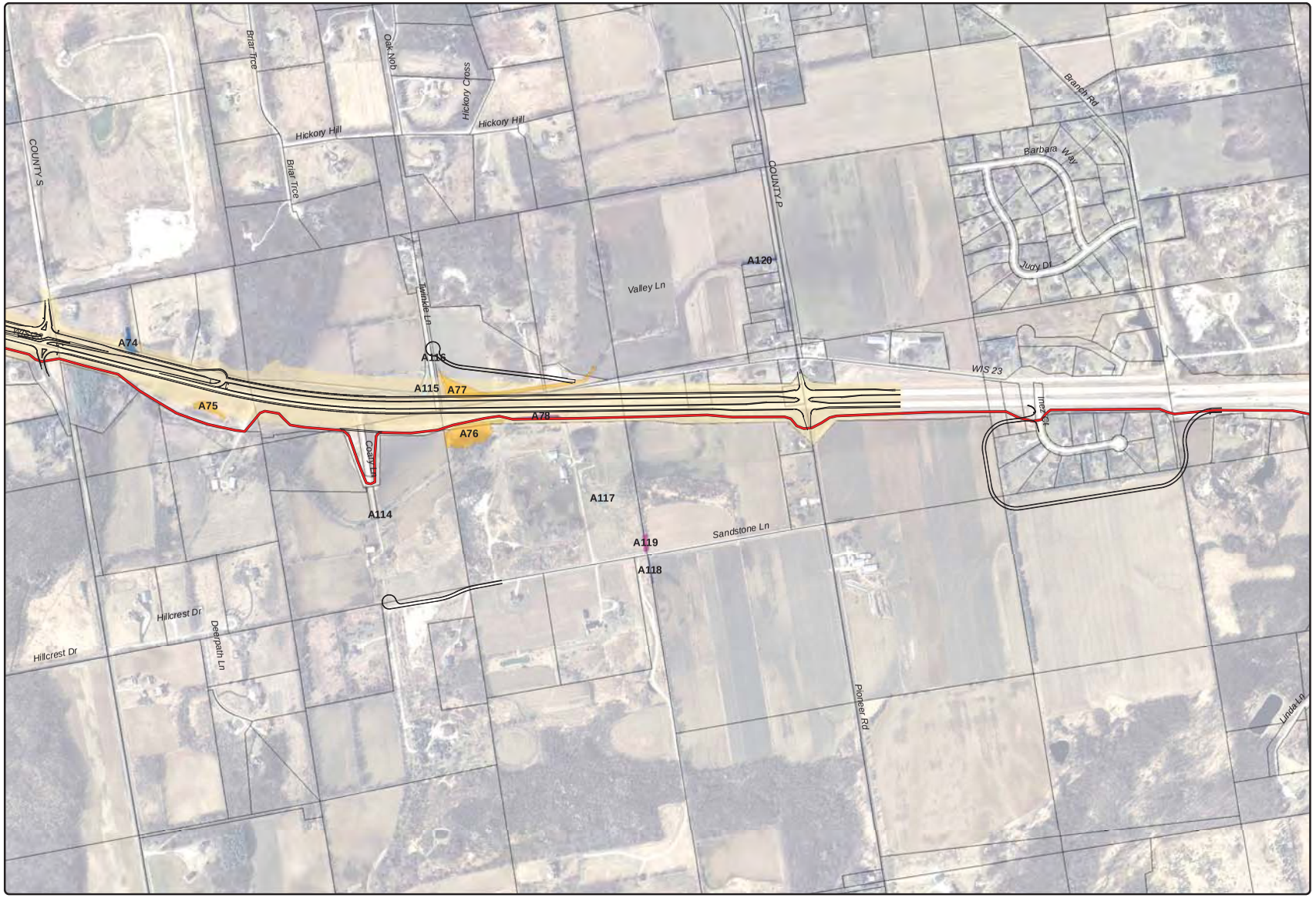
WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.17

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd



Legend

WIS 23 OLD PLANK TRAIL WETLAND IMPACTS

- R/W Needed for Build Alternative Old Plank Trail
- R/W Needed for Stage 1 4-Lane Expansion
- Existing Old Plank Trail

Wetland Type

- Aquatic Bed
- Meadows
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp

PROJECT ID 1440-13/15-00
WISCONSIN STATE HIGHWAY 23

FOND DU LAC TO PLYMOUTH

WISCONSIN DEPARTMENT OF TRANSPORTATION

FOND DU LAC AND SHEBOYGAN COUNTIES, WISCONSIN

0 175 350 700
Feet

Figure 4.6 C-1.18

S:\MAD\1000--1099\1089\165\Graphics\GIS\Map Book\HWY 23 Map Book Wetlands 102113 11x17.mxd

The Rivers, Streams, and Floodplains Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

RIVERS, STREAMS AND FLOODPLAINS EVALUATION

Factor Sheet C-2

1. Stream Name: Sheboygan River

2. Stream Type: (Indicate Trout Stream Class, if known)

- ☐ Unknown
- ☒ Warm water
- ☐ Cold water
  - If trout stream, identify trout stream classification: _____
- ☐ Wild and Scenic River

3. Size of Upstream Watershed Area: (Square miles or acres)

Approximately 14,580 acres

4. Stream flow characteristics:

- ☒ Permanent Flow (year-round)
- ☐ Temporary Flow (dry part of year)

5. Stream Characteristics:

A. Substrate:

1. ☒ Sand
2. ☒ Silt
3. ☐ Clay
4. ☒ Cobbles
5. ☒ Other-describe: **Gravel**

B. Average Water Depth: 0.5 to 1.5 feet

C. Vegetation in Stream

- ☐ Absent
- ☒ Present - If known describe: Unknown at this time

Figure 4.6 C-2.1 Sheboygan River Crossings

D. Identify Aquatic Species Present:

Northern pike, bullheads, carp, forage fish. Upstream stretches are brook trout waters. Freshwater mussels identified in 2003 survey at this road crossing included cylindrical papershell, creek heel splitter, and the state threatened slippershell mussel (Alasmidonta Viridus). Based on WDNR threatened and endangered species coordination, there is the possibility that additional mussels could be located in the watershed or project area. The WDNR specialists indicate this could include ellipse mussel (Venustaconta Viridus) and endangered rainbow shell mussel (Villosa Iris).

E. If water quality data is available, include this information:

General Stream water quality: Good in headwaters, fair to poor in lower reaches, very poor in lower 14 miles of the Sheboygan River (near Lake Michigan) because of PCB contamination. The river segment on the WIS 23 project is not listed as impaired. Greatest threats to stream water quality include contaminated sediments; habitat modification; agricultural runoff; municipal point sources; industrial point sources; urban runoff; construction site erosion; and dams.

F. Is this river or stream on the WDNR's "Impaired Waters" list?
☒ No
☐ Yes - List: _____

6. If bridge or box culvert replacement, are migratory bird nests present?
☐ Not Applicable
☒ None identified
☐ Yes – Identify Bird Species present
Estimated number of nests is:

7. Is a U. S. Fish & Wildlife Depredation Permit required to remove swallow nests?
☐ Not Applicable
☒ Yes (7 as of February 2004)
☐ No - Describe mitigation measures:
The construction project contract documents will contain avoidance language in the Special Provisions.

8. Describe land adjacent to stream*:*

The north side of WIS 23 includes a successional wooded floodplain vegetation corridor 50 to 100 feet wide with croplands to the northeast and conservation lands, including a tree farm, to the northwest. Much of these idle lands are in a mapped floodplain both north and south of the WIS 23 river crossing. The south side of WIS 23 is open with wetlands and a utility line that has cleared trees.

For the Preferred Build Alternative (Alternative 1) and Alternative 2, the adjacent land can be characterized as floodplain containing wetlands, wet meadow, mowed and idle pasture, and active agricultural lands.

For Alternative 3, the adjacent land can be characterized as floodplain containing a pond and wetlands described as fairly intact sedge meadow as well as degraded wet meadow. The upland area adjacent to the sedge meadow is half-forested and half-planted in native prairie vegetation.

9. Identify upstream or downstream dischargers or receivers (if any) within 0.8 kilometers (1/2 mile) of the project site:
None.

10. Describe proposed work in, over, or adjacent to stream. Indicate whether the work is within the 100-year floodplain and whether it is a crossing or a longitudinal encroachment:

[Note: Coast Guard must be notified when Section 10 waters are affected by a proposal. Also see Wetland Evaluation, Factor Sheet C-1, Question 8.]

Wisconsin's administrative rule NR 116 governs floodplain management in Wisconsin. It generally does not allow construction within a floodplain that increases flood levels for the regional 100-year flood by more than 0.01 feet. The 100-year flood has a 1 percent chance of being equaled or exceeded during any given year. It can also be termed the "1 percent" flood since this relates the event to an annual time period instead of a 100-year time period. A backwater is the level of a stream or river, upstream of a bridge or culvert. NR 116 regulates the raising of the backwater by more than 0.01 feet during the regional 100-year flood. Culverts and bridges must be sized wide enough so that water flow is unimpeded through the structure. If backwater is raised, coordination must occur with floodplain zoning authorities and property owners must be compensated.

For the Preferred Build Alternative (Alternative 1) and Alternative 2, a new bridge would be constructed adjacent to the existing bridge over the Sheboygan River. The existing bridge would remain. An expanded encroachment would travel across the floodplain. Existing channel conditions would be maintained. The Old Plank Road Trail would require its own separate bridge.

Alternative 3 would require the construction of two bridges spanning the width of the river, also with minimal impact to the waterway. The encroachment would travel across the floodplain and existing channel conditions would be maintained.

11. Discuss the effects of any backwater which would be created by the proposed action. Indicate whether the proposed activities would be in compliance with NR 116 by creating 0.01 ft. backwater or less:

At this location a new single span bridge is proposed for the Sheboygan River crossing for the extra set of lanes. A new bridge would be constructed over this river to carry the extension of the Old Plank Road Trail. The combination of the three bridges at this location (eastbound, westbound, and the Old Plank Road Trail) will cause an increase of 1 foot of backwater for a 100-year flood to occur between the westbound and eastbound WIS 23 bridges. Modeling indicated this increase would be contained to the highway right of way and should not flood any adjacent property. The backwater immediately downstream of the westbound structure for a 100-year flood increases by approximately 0.05 feet. Between the eastbound WIS 23 and Old Plank Road Trail structures, the backwater increase for a 100-year flood is between 0.07 feet to 0.26 feet. This backwater increase should be contained on the highway right of way between the roadway and the trail. Upstream of the Old Plank Road Trail structure, the backwater increase for a 100-year flood is approximately a maximum of 0.23 feet immediately upstream of the structure and then dissipates to normal existing levels approximately 0.7 mile upstream. Since the added lanes primarily match the existing profile of the existing WIS 23 roadway, a similar profile is desired for the new lanes to avoid reconstruction of the existing WIS 23 bridge. Different profile alternatives were considered, such as raising both bridge profiles, but effects to backwater were negligible and structure costs increased significantly so they were dismissed. Raising the profile also made it more difficult to construct a single span bridge.

12. Describe and provide the results of coordination with any floodplain zoning authority:

WisDOT is in the process of coordinating with the appropriate zoning coordination (Fond du Lac County)

13. Would the proposal or any changes in the design flood, or backwater cause any of the following impacts?

- ☒ No impacts would occur.
- ☐ Significant interruption or termination of emergency vehicle service or a community's only evacuation route.
- ☐ Significant flooding with a potential for property loss and a hazard to life.
- ☐ Significant impacts on natural floodplain values such as flood storage, fish or wildlife habitat, open space, aesthetics, etc.

Because all of the increase in backwater effects will occur on WisDOT right of way, no impacts will occur to private property. The backwater effects will not disrupt transportation on WIS 23 or other roadways.

14. Discuss existing or planned floodplain use and briefly summarize the project's effects on that use:

The embankment for bridge structures will fill a portion of the floodplain. As mentioned in question 13, the floodplain will rise within WisDOT right of way. Impacts outside of WIS 23 right of way are anticipated to be negligible.

15. Discuss probable direct impacts to water quality within the floodplain, both during and after construction. Include the probable effects on plants, animals, and fish inhabiting or dependent upon the stream:

Marsh excavation and replacement fill will likely be placed in floodplain wetlands for approach work for any bridge structure. General grading will also occur within the floodplain for the construction of these structures. Erosion control practices will be implemented during construction to minimize sediments entering waterways. Adverse impacts to water quality will be minimized during and after construction using bank stabilization materials and erosion control devices approved within WisDOT's Product Acceptability List (PAL).

Preferred Build Alternative (Alternative 1) and Alternative 2

Postconstruction impacts would be the same as the existing river crossing. These alternatives will have modest impacts to plant and animal loss because the floodplain wetlands are fairly monotypic and the animals using these wetlands will have similar habitat to move to.

To minimize potential impacts to rare freshwater mussels, the WDNR would be surveying and translocating mussels from the construction area prior to construction. Since a narrow riparian corridor borders the stream to the north and open grass lands exist to the south, the area does not provide as much habitat or plant and wildlife refuge as other waterways near the Kettle Moraine State Forest.

Alternative 3

This alternative would create new runoff to the floodplain and wetland areas. Alternative 3 will have a negative impact to plants and animals within the floodplain as the floodplain wetland contains highly diverse vegetation for many animal species. There are few sedge meadows for animal species to relocate to; therefore, the impact here would be much greater than the Preferred Build Alternative or Alternative 2. Fish impacts would be minimal.

16. Are measures proposed to enhance beneficial effects?

☐ No
☒ Yes. Describe: _____

As mentioned, a single span bridge will be used for both the new WIS 23 bridge as well as the Old Plank Road Trail river crossing.

The Rivers, Streams, and Floodplains Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

RIVERS, STREAMS AND FLOODPLAINS EVALUATION — Factor Sheet C-2

1. Stream Name: Unnamed tributary of the Sheboygan River

2. Stream Type: (Indicate Trout Stream Class, if known)
- ☐ Unknown
- ☒ Warm water
- ☐ Cold water
  If trout stream, identify trout stream classification:
  _____
- ☐ Wild and Scenic River

3. Size of Upstream Watershed Area: (Square miles or acres)
Approximately 1,445 acres

4. Stream flow characteristics:
- ☒ Permanent Flow (year-round)
- ☐ Temporary Flow (dry part of year)

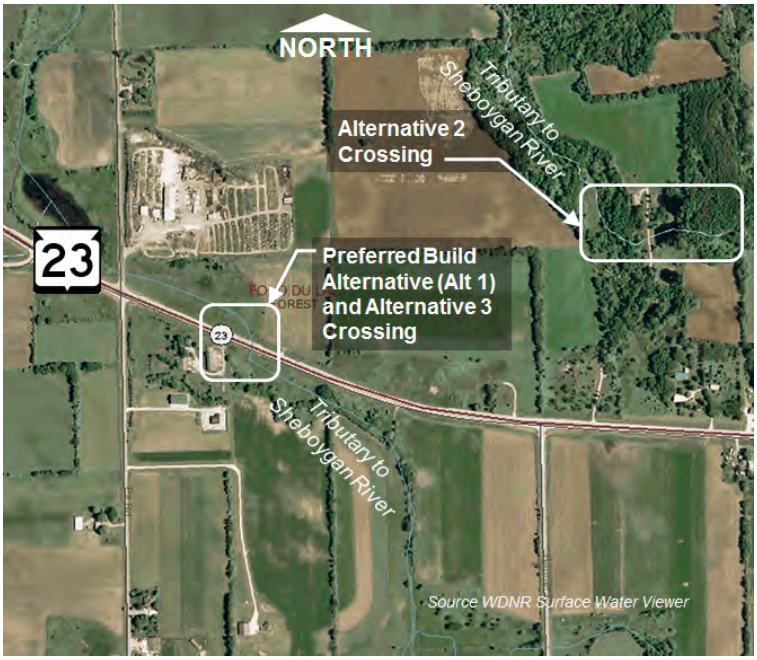


Figure 4.6 C-2.2 Unnamed Tributary to Sheboygan River

5. Stream Characteristics:

A. Substrate:
1. ☒ Sand
2. ☒ Silt
3. ☐ Clay
4. ☐ Cobbles
5. ☐ Other-describe:

B. Average Water Depth: 6 to 12 inches

C. Vegetation in Stream
- ☐ Absent
- ☒ Present - If known describe: Duckweed and algae with rice cutgrass and reed canary grass.

D. Identify Aquatic Species Present:
Warm water forage fish.

E. If water quality data is available, include this information:
The headwaters of this tributary originate just south of WIS 23. General water quality in the Sheboygan River Watershed is good in headwaters, fair to poor in lower reaches, very poor in the lower 14 miles of the Sheboygan River because of PCB contamination. This tributary is distant to the part of the Sheboygan River that is listed as impaired. General threats to stream water quality include contaminated sediments; habitat modification; agricultural runoff; and construction site erosion.

F. Is this river or stream on the WDNR's "Impaired Waters" list?
- ☒ No
- ☐ Yes - List: _____

6. If bridge or box culvert replacement, are migratory bird nests present?

- ☐ Not Applicable
- ☒ None identified
- ☐ Yes – Identify Bird Species present
  Estimated number of nests is:

7. Is a U. S. Fish & Wildlife Depredation Permit required to remove swallow nests?

- ☒ Not Applicable
- ☐ Yes
- ☐ No - Describe mitigation measures:

8. Describe land adjacent to stream*:*

For Alternative 2, which at this location is north of the existing WIS 23 roadway, adjacent land uses include a shallow marsh. The waterway feeds the cedar swamp to the north and intersects the swamp.

For the Preferred Build Alternative (Alternative 1) and Alternative 3, adjacent land uses include wet meadow, cropland and lightly wooded ditches. The WisDOT Pit Road Wetland Mitigation Site exists northwest of WIS 23 and Pit Road. The wetland area appears to receive flow of the tributary as waters head north.

9. Identify upstream or downstream dischargers or receivers (if any) within 0.8 kilometers (1/2 mile) of the project site:

As noted above, the WisDOT Pit Road Wetland Mitigation Site is a receiver of water conveyed with the tributary.

10. Describe proposed work in, over, or adjacent to stream. Indicate whether the work is within the 100-year floodplain and whether it is a crossing or a longitudinal encroachment: [Note: Coast Guard must be notified when Section 10 waters are affected by a proposal. Also see Wetland Evaluation, Factor Sheet C-1, Question 8.]

According to FEMA maps, no 100-year floodplain exists in the location of this tributary.

For Alternative 2, the work would include new grading of 4 lanes crossing the tributary and the installation of appropriate culvert pipes for the new roadways.

For the Preferred Build Alternative (Alternative 1) and Alternative 3, the work would include grading for 2 additional lanes with the installation of two new culverts.

11. Discuss the effects of any backwater which would be created by the proposed action. Indicate whether the proposed activities would be in compliance with NR 116 by creating 0.01 ft. backwater or less:

Wisconsin's administrative rule NR 116 governs floodplain management in Wisconsin. It generally does not allow construction within a floodplain that increases flood levels for the regional 100-year flood by more than 0.01 feet. The 100-year flood has a 1 percent chance of being equaled or exceeded during any given year. It can also be termed the "1 percent "flood since this relates the event to an annual time period instead of a 100-year time period. A backwater is the level of a stream or river, upstream of a bridge or culvert. NR 116 regulates the raising of the backwater by more than 0.01 feet during the regional 100-year flood. Culverts and bridges must be sized wide enough so that water flow is unimpeded through the structure. If the backwater flood elevation is raised, coordination must occur with floodplain zoning authorities and property owners must be compensated.

For the Preferred Build Alternative (Alternative 1) and Alternative 3, backwater level would not change from the existing condition. The new culverts for the additional lanes have been designed to accommodate the regional 100-year flood. Currently one 36-inch pipe carries the flow of this tributary; the cattle pass which exists west of the pipe is not designed for drainage. The cattle pass is not being used, so it will be removed with this project. Normal culvert pipe sizing indicated two 54-inch pipes

would adequately carry the flow of this tributary. The size increase was necessary to accommodate the increased length of the culvert as a result of the additional lanes.

For Alternative 2, new culverts would need be constructed that would span the full 4 lanes. These culverts would be designed large enough so that they would accommodate the regional 100-year flood with increasing flood levels or backwater by more than 0.01 feet.

12. Describe and provide the results of coordination with any floodplain zoning authority:

Since this culvert is not in a floodplain, no coordination has occurred with any floodplain zoning authority.

13. Would the proposal or any changes in the design flood, or backwater cause any of the following impacts?

☒ No impacts would occur for the Preferred Build Alternative (Alternative 1) or Alternative 3.
☐ Significant interruption or termination of emergency vehicle service or a community's only evacuation route.
☐ Significant flooding with a potential for property loss and a hazard to life.
☒ Significant impacts on natural floodplain values such as flood storage, fish or wildlife habitat, for Alternative 2 which would construct a 4-lane off-alignment roadway through the floodplain.

14. Discuss existing or planned floodplain use and briefly summarize the project's effects on that use:

For the Preferred Build Alternative (Alternative 1) and Alternative 3, the embankment associated with the new lanes will not fill a floodplain because according to FEMA maps no floodplain exists.

For Alternative 2, impacts are likely to be minimal and a hydrology and hydraulics study would be performed to be sure the potential impacts are in compliance with NR 116.

Note that a WisDOT-constructed wetland mitigation site exists northwest of the WIS 23-Pit Road intersection and one function of the area is floodplain storage and wetland habitat replacement.

15. Discuss probable direct impacts to water quality within the floodplain, both during and after construction. Include the probable effects on plants, animals, and fish inhabiting or dependent upon the stream:

According to FEMA maps, there is no floodplain in this area. The tributary will have a longer culvert to flow through, adversely affecting some aquatic life. General grading would occur near the stream bank for the installation of these pipes. Erosion control practices would be implemented during construction to minimize sediments entering waterways. Adverse impacts to water quality could include sedimentation and increased chlorides from winter maintenance. Adverse impacts to water quality would be minimized during and after construction using bank stabilization materials and erosion control devices approved within WisDOT's PAL. Postconstruction impacts would be similar to the existing channel crossing for the Preferred Build Alternative and Alternative 3. Alternative 2 would create new runoff to the area, downstream from the existing highway.

16. Are measures proposed to enhance beneficial effects?

☒ No
☐ Yes. Describe: _____

The Rivers, Streams, and Floodplains Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

RIVERS, STREAMS AND FLOODPLAINS EVALUATION

Factor Sheet C-2

1. Stream Name: Mullet River

2. Stream Type: (Indicate Trout Stream Class, if known)

☐ Unknown
☒ Warm water
☒ Cold water

If trout stream, identify trout stream classification:
The middle of the river, from the city of Plymouth to the village of Glenbeulah, has an increase in spring flow that lowers stream water temperatures and is classified as a Cold Water Community stream (trout). Upstream of Glenbeulah and downstream of WIS 67 near the city of Plymouth, the Mullet River is classified as a Warm Water Sport Fish Community stream. The Mullet River is unique in that it flows from the warm water headwaters into a cold water segment.

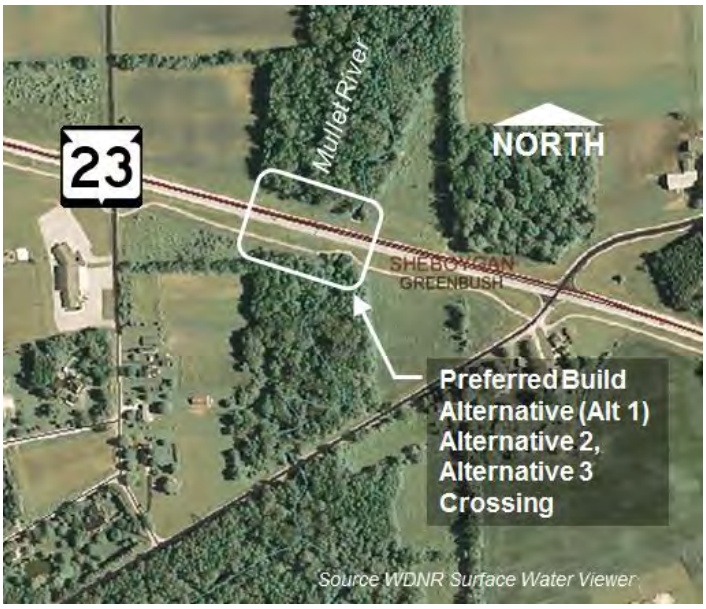


Figure 4.6 C-2.3 Mullet River

☐ Wild and Scenic River

3. Size of Upstream Watershed Area: (Square miles or acres)
Approximately 20,940 acres

4. Stream flow characteristics:

☒ Permanent Flow (year-round)
☐ Temporary Flow (dry part of year)

5. Stream Characteristics:

A. Substrate:

1. ☒ Sand
2. ☒ Silt
3. ☐ Clay
4. ☒ Cobbles
5. ☒ Other-describe: **Gravel**

B. Average Water Depth: 1 to 3 feet

C. Vegetation in Stream

☐ Absent
☒ Present - If known describe: Limited emergent vegetation boarded by shrubs and wetland forbs.

D. Identify Aquatic Species Present:

Warm water sport fish as well as some warm and cold water forage fish. Species include creek chubs and minnows, suckers, sunfish, bass, bullhead, northern pike and rainbow trout. Freshwater mussels were identified in a wading survey performed in 2000. They included both the ellipse (Venustaconcha Ellipsiformis) and slippershell (Alasmidonta Viridis) state threatened species. Additional common or rare mussels may also be found.

E. If water quality data is available, include this information:
This segment of the Mullet River starts at Otter Pond near Glenbeulah and terminates at Mullet Lake. The segment runs through the Kettle Moraine State Forest Northern Unit, the Mullet Creek State Wildlife Area, and the Old Wade State Park. Water quality conditions are good, but there are fewer springs in this reach. This segment of the Mullet River also has areas of altered flow resulting from channelization and impoundments.

F. Is this river or stream on the WDNR's "Impaired Waters" list?
☒ No
☐ Yes - List: _____

6. If bridge or box culvert replacement, are migratory bird nests present?
☐ Not Applicable
☒ None identified
☐ Yes – Identify Bird Species present
Estimated number of nests is:

7. Is a U. S. Fish & Wildlife Depredation Permit required to remove swallow nests?
☒ Not Applicable
☐ Yes
☐ No - Describe mitigation measures:

8. Describe land adjacent to stream*:*

Waterway and adjacent upland areas produce broods of mallards, teal, and wood ducks and litters of beaver and muskrat.

All Build Alternatives
Land adjacent to the river for all the Build Alternatives, including the Preferred Build Alternative, includes floodplain-containing wetlands described as wet meadow and mowed right of way. Areas north of WIS 23 include forested lowlands and upland hardwood trees of moderate and large size. Areas south of WIS 23 are similarly wooded and include the existing Old Plank Road Trail crossing that was specially designed to minimize disturbance to wetlands and forested lands of the town of Greenbush's property.

9. Identify upstream or downstream dischargers or receivers (if any) within 0.8 kilometers (1/2 mile) of the project site:

The Old Wade House has a mill pond on the Mullet River west and southwest of this crossing.

10. Describe proposed work in, over, or adjacent to stream. Indicate whether the work is within the 100-year floodplain and whether it is a crossing or a longitudinal encroachment: [Note: Coast Guard must be notified when Section 10 waters are affected by a proposal. Also see Wetland Evaluation, Factor Sheet C-1, Question 8.]

Wisconsin's administrative rule NR 116 governs floodplain management in Wisconsin. It generally does not allow construction within a floodplain that increases flood levels for the regional 100-year flood by more than 0.01 feet. The 100-year flood has a 1 percent chance of being equaled or exceeded during any given year. It can also be termed the "1 percent" flood since this relates the event to an annual time period instead of a 100-year time period. A backwater is the level of a stream or river, upstream of a bridge or culvert. NR 116 regulates the raising of the backwater by more than 0.01 feet during the regional 100-year flood. Culverts and bridges must be sized wide enough so that water flow is unimpeded through the structure. If the backwater flood elevation is raised, coordination must occur with floodplain zoning authorities and property owners must be compensated.

All Build Alternatives cross the river at the same location and would cross the 100-year floodplain. For each alternative, the work would include a culvert extension adjacent to the existing Mullet River culvert. The existing culvert would remain. The work would include constructing an embankment across the floodplain for the 2 new travel lanes. Existing channel conditions would be maintained. Tree clearing restrictions during the nesting period would apply to minimize potential impacts to rare woodland species. Additionally, freshwater mussel surveys and translocation may be necessary.

The Preferred Alternative will extend the existing three cell box culvert. The three cells are each 12 feet wide by 8 feet high inside dimensions and the extension will be about 100 feet long. Because the extension is matching the existing structure, the bottom is planned to be at the same elevation as the existing box culvert. The existing Mullet River box culvert has approximately 0.5 to 1 feet of streambed material at the inlet and outlet of the box culvert. By matching the existing box culvert dimensions it is anticipated that stream bed material will move into the extension and over time create a natural bottom. Hydraulic modeling indicates that there will be no increase in backwater by the Preferred Alternative's culvert extension.

11. Discuss the effects of any backwater which would be created by the proposed action. Indicate whether the proposed activities would be in compliance with NR 116 by creating 0.01 ft. backwater or less:

Culvert design will address backwater impacts. The culvert is being designed in compliance with NR 116 and NR 320 and would be designed to pass the regional (100-year) flood. A hydraulic analysis for the Mullet River box culvert extension indicates that there will be no increase in backwater levels.

12. Describe and provide the results of coordination with any floodplain zoning authority:

Mapped floodplains border the project. Hydraulic modeling indicates that there will be no increase in backwater levels with the 100 year flood event.

13. Would the proposal or any changes in the design flood, or backwater cause any of the following impacts?

- ☒ No impacts would occur.
- ☐ Significant interruption or termination of emergency vehicle service or a community's only evacuation route.
- ☐ Significant flooding with a potential for property loss and a hazard to life.
- ☐ Significant impacts on natural floodplain values such as flood storage, fish or wildlife habitat, open space, aesthetics, etc.

Impacts would be the same for each alternative. No change to design flood evaluation would occur.

14. Discuss existing or planned floodplain use and briefly summarize the project's effects on that use:

The existing floodplain consists of wooded swamp and agricultural fields and local plans continue those land uses. The floodplain use would remain for the most part in the same condition as before construction. Some clearing and grubbing and loss of forested riparian habitat would occur. The project would have minimal to moderate effect on the floodplain, with some grading up to the floodplain for the structure extension and additional lanes.

15. Discuss probable direct impacts to water quality within the floodplain, both during and after construction. Include the probable effects on plants, animals, and fish inhabiting or dependent upon the stream:

A portion of the floodplain will be filled to support the additional lanes. Also, extension of the culvert will require excavation. Marsh excavation and replacement fill would be placed in floodplain wetlands for approach work for the culvert. General grading would also occur within the floodplain for the construction of these structures. This will require clearing of the wooded vegetation near the culvert extension. Long term effects to water quality could include increased sedimentation and chlorides from winter maintenance activities. Additionally, the longer culvert could adversely affect some aquatic life. Erosion control practices would be implemented during construction to minimize sediments entering waterways. Adverse impacts to water quality would be minimized during and after construction using bank stabilization materials and erosion control devices approved within WisDOT's PAL.

Postconstruction impacts would be similar to what exists with the current river crossing. Each alternative minimizes impacts to plant and animal loss in the floodplain. Animals using these wetlands would have similar habitat remaining after the project. To minimize potential impacts to rare freshwater mussels, the WDNR would survey and translocate mussels from the construction area prior to construction.

16. Are measures proposed to enhance beneficial effects?

☒ No
☐ Yes. Describe: _____

The Rivers, Streams, and Floodplains Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

RIVERS, STREAMS AND FLOODPLAINS EVALUATION — Factor Sheet C-2

1. Stream Name: Taycheedah Creek

2. Stream Type: (Indicate Trout Stream Class, if known)

- ☐ Unknown
- ☒ Warm water
- ☐ Cold water
  - If trout stream, identify trout stream classification:
  - _____
- ☐ Wild and Scenic River

3. Size of Upstream Watershed Area: (Square miles or acres)
Approximately 16,345 acres

4. Stream flow characteristics:

- ☒ Permanent Flow (year-round)
- ☐ Temporary Flow (dry part of year)

Figure 4.6 C-2.4 Taycheedah Creek

5. Stream Characteristics:

A. Substrate:

1. ☐ Sand
2. ☒ Silt
3. ☒ Clay
4. ☐ Cobbles
5. ☐ Other-describe:

B. Average Water Depth: About 1 foot. Floodplain width is about 1,165 feet at the roadway crossing.

C. Vegetation in Stream

- ☐ Absent
- ☒ Present - If known describe: Varies from open water to partially emergent wetland vegetation in the areas of US 151 and WIS 23 Taycheedah Creek wetland mitigation site.

D. Identify Aquatic Species Present:
Species include, warm water rough and forage fish such as minnows, sunfish, bass, suckers, and carp. Also some Lake Winnebago game fish such as bass and northern pike may be present in the system during high flow/high water years.

E. If water quality data is available, include this information:
Unknown

F. Is this river or stream on the WDNR's "Impaired Waters" list?

- ☒ No
- ☐ Yes - List: _____

6. If bridge or box culvert replacement, are migratory bird nests present?

- ☐ Not Applicable
- ☒ None identified
- ☐ Yes – Identify Bird Species present
  - Estimated number of nests is:

Figure 4.6 C-2.4

7. Is a U. S. Fish & Wildlife Depredation Permit required to remove swallow nests?

☐ Not Applicable
☐ Yes
☒ No - Describe mitigation measures:

If improvements associated with the Option 23-1 Corridor Preservation were implemented, the improvement would be reevaluated in a NEPA document and mitigation measures would be implemented. Swallow nests would be reviewed before final design. If nests were found, a depredation permit would be obtained. The need for a permit may be avoided by removing all inactive nests prior to May 15 and installing acceptable netting under the existing superstructure. The netting should be maintained until August 20 or until the existing superstructure is completely removed.

8. Describe land adjacent to stream*:*

Areas east of US 151 contain riparian and open woodlands and reverting agricultural lands. Business park development is also active beyond the stream and floodplain to the north. Areas to the west include idle floodplain lands, urban development, WisDOT wetland mitigation lands, and a multiuse trail. Waterway and adjacent upland areas produce broods of mallards, teal, wood ducks, and litters of beaver and muskrat. The floodplain-containing wetlands are described as wet meadow, riparian emergent, and forested emergent creek banks.

A WisDOT wetland mitigation site borders Taycheedah Creek to the west of US 151. The site contains three irregularly shaped basins that provide wildlife habitat, pike rearing waterways, and channels connected to the creek. Additional restored habitat includes wet meadow and wet mesic prairie.

9. Identify upstream or downstream dischargers or receivers (if any) within 0.8 kilometers (1/2 mile) of the project site:

WisDOT Taycheedah Creek wetland mitigation area as noted above.

10. Describe proposed work in, over, or adjacent to stream. Indicate whether the work is within the 100-year floodplain and whether it is a crossing or a longitudinal encroachment: [Note: Coast Guard must be notified when Section 10 waters are affected by a proposal. Also see Wetland Evaluation, Factor Sheet C-1, Question 8.]

Since the Preferred Corridor Preservation option is no corridor preservation, there is no proposed work. Both US 151/WIS 23 Interchange Corridor Preservation Options would have covered the same portion of the river. The Corridor Preservation in itself would have no impacts to the creek. If implemented, each interchange would include two new bridges and replacement of two existing bridges. The bridges would also cross a proposed road. If implemented, these improvements would be evaluated in a NEPA document.

11. Discuss the effects of any backwater which would be created by the proposed action. Indicate whether the proposed activities would be in compliance with NR 116 by creating 0.01 ft. backwater or less:

Bridge design would address backwater impacts. Bridges and culverts would be designed in compliance with NR 116 and NR 320 and would be designed to pass the regional 100-year flood. Appropriate sizing and placement of structures would be incorporated into the project design to minimize potential hindering of animal and reptile movements along the corridor's waterways.

12. Describe and provide the results of coordination with any floodplain zoning authority:

Mapped floodplains border the project. No zoning coordination has been completed separate from the public involvement completed to date because no construction improvements are being proposed for this area.

Figure 4.6 C-2.4

13. Would the proposal or any changes in the design flood, or backwater cause any of the following impacts?

- ☒ No impacts would occur.
- ☐ Significant interruption or termination of emergency vehicle service or a community's only evacuation route.
- ☐ Significant flooding with a potential for property loss and a hazard to life.
- ☐ Significant impacts on natural floodplain values such as flood storage, fish or wildlife habitat, open space, aesthetics, etc.

Impacts would be similar for each system interchange associated with each Corridor Preservation Option. No changes to flood plain evaluation would occur.

14. Discuss existing or planned floodplain use and briefly summarize the project's effects on that use:

The existing floodplain of Taycheedah Creek is extensive and would be impacted if improvements associated with the corridor preservation options were implemented. Floodplain and passive recreational lands cover much of the floodplain as well as some fringe areas of existing urban development. Floodplain areas remaining after construction would retain some existing conditions and functions. Option 23-1 Corridor Preservation has the largest footprint within the wooded floodplains east of US 151. Option 23-2 Corridor Preservation improvements, if implemented, would require bridging to avoid floodplains, wetlands, and the WisDOT wetland mitigation site west of US 151. Since the Preferred Corridor Preservation option is no corridor preservation, no effects will occur to this floodplain.

15. Discuss probable direct impacts to water quality within the floodplain, both during and after construction. Include the probable effects on plants, animals, and fish inhabiting or dependent upon the stream:

The corridor preservation options, in themselves, would have no impact on the floodplain. If improvements associated with the corridor preservation options were implemented, marsh excavation and replacement fill would likely be placed in floodplain wetlands. General grading would also occur within the floodplain for the construction of these structures. Postconstruction impacts would be the same as the existing river crossing. Each alternative would have impacts to plant and animal life in the floodplain wetlands and riparian habitat. A warm water fishery construction season limitation would likely apply to this stream. Water quality impacts could include sedimentation and increased chlorides. Since the Preferred Corridor Preservation Option is no corridor preservation, no impacts will occur.

16. Are measures proposed to enhance beneficial effects?

- ☐ No
- ☒ Yes. Describe: _____

If improvements were implemented, structure design for the transportation improvements associated with the Corridor Preservation Options would consider existing conditions and items of concern during final design. If constructed, the structures could reduce fill quantities to avoid impacts to the WisDOT wetland mitigation site. Considerations can include use of longer structures that span more of the floodplain, and steeper side slopes that decrease the footprint in the floodplain.

Figure 4.6 C-2.4

The Upland Wildlife and Habitat Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

UPLAND WILDLIFE AND HABITAT EVALUATION **Factor Sheet C-5**

1. Proposed Work in Upland Areas:

A. Describe the nature of proposed work in the upland habitat area (e.g., grading, clearing, grubbing, etc.):

The 4-lane expansion of the Preferred Build Alternative (Alternative 1), Alternative 2, and Alternative 3 includes constructing additional lanes that would require land from adjacent agricultural fields and woodlots. All three alternatives would also acquire land from the Northern Unit of the Kettle Moraine State Forest and construct an underpass for the Ice Age Trail and State Equestrian Trail. These activities would require clearing of trees and grading uplands. Grading work would include flattening of slopes and ditching.

No-Build Alternative — This alternative requires no upland conversion and has no impacts.

All Build Alternatives — All alternatives travel through agricultural fields, vacant uplands, and small woodlots. All build alternatives also travel through the Northern Unit of the Kettle Moraine State Forest in Sheboygan County. This section of the alternatives have upland habitat bordering extensive forested blocks or corridor of substantial habitat. Work would include clearing and grubbing upland areas and the placement of fill for the additional set of lanes.

Alternatives 2 and 3 — These alternatives run through Section 10 in the Town of Forest. This forested area within the corridor limits would need to be fully cleared and filled for the new road bed.

Preferred Build Alternative

The Preferred Build Alternative would require 47.9 acres of upland habitat. The 4-lane expansion (Alternative 1) requires 38.4 acres of upland including about 2.21 acres required from the Kettle Moraine State Forest. The connection roads and interchanges require about 2.2 acres of upland and the Old Plank Road Trail requires 7.3 acres of upland. This area would be cleared and grubbed so fill could be placed for the additional set of lanes. These values are lower than those listed in the 2010 FEIS due to minimization efforts during design.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

No effects. The WIS 23 No Corridor Preservation Alternative would leave land unencumbered from development restrictions.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation Alternative would preserve for future transportation improvements 8.5 acres of upland habitat. Initially this land would be undisturbed. If in the future improvements associated with the corridor preservation were constructed, this land would be cleared and fill would be placed for the new road embankments.

US 151/WIS 23 Connection

Preferred No Corridor Preservation

No effects. The Preferred US 151/WIS 23 No Corridor Preservation Alternative would leave land unencumbered from development restrictions.

Option 23-1 and Option 23-2 Corridor Preservation

Option 23-1 Corridor Preservation would preserve 5.9 acres of uplands for future transportation improvements. Option 23-2 Corridor Preservation would preserve 0.1 acres of uplands for future transportation improvements. If improvements associated with these preservation areas were constructed, the areas would be cleared for grading of improvements.

2. Vegetation/Habitat:

A. Give a brief description of the upland habitat area. Include prominent plant community(ies) at the project site (list vegetation with a brief description of each community type if more than one present).

No-Build Alternative

This alternative requires no upland conversion and has no impacts to plant communities.

All Build Alternatives

The majority of the plant communities being altered are the same for all Build Alternatives including the Preferred Build Alternative. The alternatives run through agricultural fields, idle fields, and small woodlots. All build alternatives also travel through the Northern Unit of the Kettle Moraine State Forest. Wildflowers, native and introduced grasses, sumac, maple, oak, and birch are found in the forest. Disturbances would be limited to the edges of habitat areas. In field reviews, the WDNR identified 7 different high quality habitat areas, Natural Resource Areas, and submitted comments regarding them to WisDOT. These WDNR identified Natural Resource Areas[17] are shown in Figures 4.6 C-1.2 to C-1.6.

Alternatives 2 and 3

These alternatives run predominantly through farmland but also through cedar woodlands and cover plant life such as alfalfa/brome/timothy or big bluestem, Indian grass, and switch grass. Various project identified habitat areas or natural resource areas are described and shown in Figures 4.6 C-1.2 to C-1.6.

Preferred Build Alternative

The Preferred Build Alternative would cover plant communities described in the Build Alternatives. Because the Preferred Build Alternative travels along the existing roadway alignment, disturbances would be limited to the edges of habitat areas. WDNR located Natural Resource Areas are mainly avoided with this alternative. An exception to this is Natural Resource Area No. 3, a river crossing which has more wetland and threatened and endangered mussel species than upland habitat.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

This alternative requires no upland conversion and has no impacts to plant communities.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation Alternative contains areas with similar plant communities to those described in the Build Alternatives, except they are localized to side-road crossings.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

This preferred alternative requires no upland conversion and has no impacts to plant communities.

[17] The term "Natural Resource Area" is used solely as an identifier within this document and does not connote any special designations or protections.

Option 23-1 and Option 23-2 Corridor Preservation

US 151/WIS 23 Interchange Corridor Preservation Options (23-1 and 23-2) contain areas described under the Build Alternatives. Option 23-2 also travels adjacent to and over the Taycheedah Creek wetland mitigation site and associated uplands.

B. Would the project result in changes in the vegetative cover of the roadside?

No-Build Alternative

This alternative requires no upland conversion and has no impacts to plant communities.

All Build Alternatives

The majority of the plant communities that would be altered along existing WIS 23 already have some level of disturbance. Disturbances would be limited to the edges of habitat areas. All of the build alternatives would alter fields, woodlands, and WDNR identified Natural Resource Areas. The off-alignment portions of Alternatives 2 and 3 would greatly change the local vegetative cover. However emphases on native species replanting's could help address this issue.

Utility relocations associated with the project may affect some upland habitat. It is anticipated that the majority of these relocations would occur within or directly adjacent to the proposed right of way and are associated primarily with pole relocations and conduit placement. These impacts are reasonably represented by the effects described in this section.

Alternatives 2 and 3

These alternatives run predominantly through farmland but also through cedar woodlands and cover plant life such as alfalfa/brome/timothy or big bluestem, Indian grass, and switch grass. On off-alignment areas the alternatives would clear the habitat area for a corridor width of 200 to 300 feet and place embankment for the new roadbed. Slopes would be seeded with native grasses. When these Alternatives are following the existing WIS 23 alignment, including through the Kettle Moraine State Forest, they would clear a swath of 100 to 150 feet. This would remove wildflowers, various grasses and sumac. Through the area within the forest, maple, oak, and birch would also be affected.

Preferred Build Alternative

The Preferred Build Alternative would clear one side of the existing WIS 23 roadway for a swath of 100 to 150 feet. Wildflowers, various grasses, and sumac would be cleared. Grass and plant species in the right of way would be based on similarities to adjacent habitat types. Slopes of the new embankment would be planted with native grasses. Where the alternative runs through the Kettle Moraine State Forest, some clearing of maple, oak, and birch would occur.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

This alternative requires no upland conversion and would not affect vegetative cover.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation Alternative would not affect vegetative cover.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

This preferred alternative requires no upland conversion and would not change vegetative cover.

Option 23-1 and Option 23-2 Corridor Preservation

US 151/WIS 23 Interchange Corridor Preservation Options (23-1 and 23-2) requires no upland conversion and would not change vegetative cover.

3. Wildlife:

A. Identify and describe any observed or expected wildlife associations with the plant community(ies) listed in question #1:

No-Build Alternative

This alternative requires no upland conversion and has no impacts to wildlife associations.

All Build Alternatives

The seven different WDNR-identified Natural Resource Areas within the project (See Figures 4.6 C-1.2 to C-1.6) and the Kettle Moraine State Forest environment provide excellent wildlife habitat for whitetail deer, hawks, turkeys, raccoons, squirrels, and possums.

Alternatives 2 and 3

These alternatives impact 2 to 5 of the 7 WDNR-identified Natural Resource Areas. One of the WDNR-identified Natural Resource Areas, Section 10 in the Town of Forest, provides excellent wildlife habitat for turkey and deer. Additionally, this area is one of the only ruffed grouse habitat areas in Fond du Lac County. The WDNR recommended that an endangered resource survey be conducted if either of these alternatives were selected. A private Lands Wildlife Biologist has a wild pheasant restoration project in parts of Fond du Lac and Sheboygan Counties, including the south half of Sections 11 and 12 in the town of Forest. The critical wild pheasant habitat areas are preserving nesting cover.

Preferred Build Alternative

The Preferred Build Alternative would have similar wildlife associations as described in the Build Alternatives. Based on proximity to existing roadways, extensive wildlife habitat associations and communities are limited.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

This alternative requires no upland conversion and has no impacts to wildlife associations.

Preferred WIS 23 Corridor Preservation

Areas within the Preferred WIS 23 Corridor Preservation Alternative would have similar wildlife associations as described within the Build Alternatives.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

This preferred alternative requires no upland conversion and has no impacts to wildlife associations.

Option 23-1 and Option 23-2 Corridor Preservation

Areas within US 151/WIS 23 Corridor Preservation Options (23-1 and 23-2) would have similar wildlife associations as described within the Build Alternatives.

B. Identify and describe any known wildlife or bird use areas or movement corridors that would be severed or affected by the proposed action:

As with WDNR- identified Natural Resource Areas, other upland areas containing habitat 150-200 feet wide have the opportunity to provide food, shelter, cover, water, and movement corridors. The two primary areas of concern for the Preferred Build Alternative would be the wildlife corridor of the Sheboygan and Mullet Rivers and areas where extensive road fill already direct or redirect wildlife crossings. The Kettle Moraine State Forest area is an existing wildlife corridor that is also already severed by the existing WIS 23 roadway. Additional lanes would make this crossing wider. The underpass for the Ice Age Trail and State Equestrian Trail would provide a safe wildlife crossing location. Measures such as fencing will be considered in the design of the underpass to encourage wildlife use of the crossing.

Alternatives 2 and 3 would sever the town of Forest Section 10 upland area as well as between 2 to 5 of the WDNR-identified Natural Resource Areas.

C. Discuss other direct impacts on wildlife and estimate significance:

The area adjacent to the cedar wetlands on Alternative 2 has a wild pheasant restoration project which could be affected by Alternative 2. Pheasant populations in this area are subject to continued suitable overwintering habitat and nesting habitat protection. Populations may be very cyclical. If populations have declined or if birds have dispersed, then habitat loss could be considered an important impact.

All Build Alternatives could affect nesting habitat of blue-winged teal, mallards, ring-necked pheasants and sandhill cranes. Because these species are prevalent, most of these impacts could be considered modest and not significant. Species would relocate their nesting areas to adjacent habitat.

Although the potential direct impacts to wildlife could increase with any Build Alternative, the Preferred Build Alternative is on-alignment and has the opportunity to minimize direct impacts.

D. Identify and discuss any probable indirect impacts on wildlife in the area expected due to the project:

Currently the State does not own all the land within the proposed forest boundary. Sometimes road improvements can encourage residential development, which can influence the ability of the state to purchase lands within the park boundary. However, with the reduced access associated with the Preferred Build Alternative, the potential for increased development within the proposed park boundary is probably reduced.

An indirect impact to wildlife that may occur is increased wildlife mortality because of increased vehicle-wildlife collisions. This impact may be realized once the width of the highway corridor is increased, and as anticipated, the traffic volumes increase.

E. Describe measures to avoid and/or minimize adverse effects or to enhance beneficial effects:

Efforts to minimize adverse effects for upland habitat corridor in the Kettle Moraine State Forest area would include adhering to WDNR specific recommendations regarding environmental protection, providing an underpass for the Ice Age Trail and State Equestrian Trail. WisDOT would continue working with WDNR and the USFWS to design the crossing, as well as suitable fencing and native vegetation plantings. The design characteristics of the underpass would seek to encourage wildlife crossings. The possible use of fencing along the highway would help funnel wildlife to the crossing, possibly improving wildlife crossing conditions compared to the existing conditions.

Throughout the design process, upland forest habitat would be avoided where possible to limit impacts and minimize loses. Disturbed vegetation would be replaced with suitable WisDOT native grasses and native trees and shrubs. In areas that could be considered environmental corridors, clearing would be minimized to limit impacts to native communities and large forest areas.

Lowland and upland habitat exists and would be impacted at the Mullet River crossing and near the Kettle Moraine forest lands. To minimize potential impacts to breeding areas or populations of rare, woodland birds, the project designers can work with WDNR staff to limit clearing and grubbing in these areas. Restrictions on clearing or tree removal during the nesting period would preclude nesting or disturbance to a nest after if has become active.

The Threatened and Endangered Species Evaluation Factor Sheet is a new factor sheet that was not yet available when the 2010 FEIS was released. This factor sheet collects threatened and endangered species that was present in other portions of the document and relocates it to one place. The Threatened and Endangered Species information has been augmented as a result of updated information from winter of 2012 coordination with the WDNR.

THREATENED AND ENDANGERED SPECIES EVALUATION

Factor Sheet C-7

1. Are there any known threatened or endangered species in the vicinity of the project?

☐ None identified

☒ Yes - Identify the species and indicate its status on Federal or State lists:

Threatened, endangered, or special concern species are identified in Table 4.6 C-7.1 (following pages) and represent the single federally protected species and 20 state protected species in the project vicinity.

The singular federally-listed species is the federally-endangered Whooping Crane (Grus americana) This species depends on large, open wetland ecosystems to eat, roost, and make their nests. No known nesting or migrational sites are known for the corridor. A migratory nonessential experimental population (NEP) is listed by the United States Fish and Wildlife Service (USFWS) for Fond du Lac and many other counties in Wisconsin. Since this species distribution is not restricted to Wisconsin and because of the extent of the mid-western experimental population expansion project of the USFWS, the species is not extensively tracked by the WDNR within the Natural Heritage Inventory (NHI).

The state protected species designations include 5 state endangered species, 12 threatened species, and 3 state special concern species.

Table 4.6 C-7.1 Rare Species within WIS 23 Townships

Group Name	Species Common Name	Species Scientific Name	Federal Status	State Status	Potentially Affected by Project
END = Endangered, THR = Threatened, SC= Special Concern N=No, Y=Yes, ND = Not Determined					
Plant	Forked Aster	Aster furcatus	-	THR	N
Plant	Yellow Gentian	Gentiana alba	-	THR†	N
Plant	Snow Trillium	Trillium nivale	-	THR	Y
Plant	Marsh Valerian	Valeriana sitchensis ssp. ulginosa	-	THR	N
Plant	Many Headed Sedge	Carex sychnocephala	-	SC	N
Plant	Yellow Evening Primrose	Calylophus serrulatus	-	SC	N
Mussel	Slippershell Mussel	Alasmidonta viridis	-	THR	Y
Mussel	Ellipse Mussel	Venustaconcha ellipsiformis	-	THR	Y
Mussel	Rainbow Shell Mussel	Villosa iris	-	END	Y
Bird	Red Shouldered Hawk	Buteo lineatus	-	THR	Y
Bird	Cerulean Warbler	Dendroica cerulea	-	THR	Y
Bird	Acadian Flycatcher	Empidomax virescens	-	THR	Y
Bird	Hooded Warbler	Wilsonia citrina	-	THR	Y
Bird	Whooping Crane	Grus americana	*NEP	-	N
Bird	American Bittern	Botaurus lentiginosus	-	SC/M	N
Snail	Midwest Pleistocene Vertigo Snail	Vertigo hubrichti**	-	END**	N-ND
Snake	Butlers garter snake	Thamnophis butleri	-	THR†	N
Snake	Eastern Ribbon Snake	Thamnophis sauritus	-	END	N

Table 4.6 C-7.1 Rare Species within WIS 23 Townships					
Group Name	Species Common Name	Species Scientific Name	Federal Status	State Status	Potentially Affected by Project
END = Endangered, THR = Threatened, SC= Special Concern N=No, Y=Yes, ND = Not Determined					
Turtle	Blandings Turtle	Emydoidea blandingii	-	THR†	Y
Fish	Striped Shiner	Luxilus chrysocephalus	-	END	N
Butterfly	Swamp Metalmark	Calephelis muticum	-	END	N
*Experimental population, nonessential (NEP) **WDNR addition though initially distant T16N, R18E † currently under evaluation for removal from Threatened List as of May 2012					

2. Explain How a Species Is or Is Not Affected by the Action:

☒ Species Not Affected:

Communication with the WDNR indicates that the WDNR has no current concern, as of December 12, 2012, for 10 of the 20 state-listed species and the federally-listed species occurring in the WIS 23 corridor vicinity. Table 4.6 C-7.2 lists species that are considered to be unaffected by the project or not of concern, and the reason why.

Table 4.6 C-7.2 Unaffected Species					
Species Type	Species Common Name	Species Scientific Name	State or Fed. Listed	Level of Protection	Reason Not Affected or Not of Concern
END = Endangered, THR = Threatened, SC= Special Concern NHI = Natural Heritage Inventory					
Plant	Forked Aster	Aster furcatus	State	THR	Variable habitat with some dolomite or calcareous soil affinity. No NHI occurrences on-alignment. No identified habitat on-alignment.
Plant	Marsh Valerian	Valeriana sitchensis ssp. ulginosa	State	THR	Occurs in calcareous, coniferous swamps. Wet to mesic, peaty, calcareous soils. No NHI occurrences on-alignment. No identified habitat on-alignment.
Plant	Many Headed Sedge	Carex sychnocephala	State	SC	Muddy, sandy, marly, and peaty shorelines of lakes and ponds. Wet, sandy, peaty, calcareous soils. No NHI occurrences on-alignment. No identified habitat on-alignment.
Plant	Yellow Evening Primrose	Calylophus serrulatus	State	SC	Found mostly on steep bluff prairies along the Mississippi and lower St. Croix Rivers; cedar glades and, occasionally, in moist prairies. No identified habitat on-alignment.
Plant	Yellow Gentian	Gentiana alba	State	THR	May exist in ditches and drainages in the corridor. Population stable, Tolerant of disturbance, may be delisted.
Bird	Whooping Crane	Grus americana	Federal	* Non-essential population	Experimental population, no nesting in corridor.
Bird	American Bittern	botaurus lentiginosus	State	SC/M	Avian species. No critical habitat of preference on-alignment.
Butterfly	Swamp Metalmark	Celephelis muticum	State	END	No known fens or swamps impacted. No known habitat or host plants identified in project proximity.
Fish	Striped Shiner	Luxilus chrysocephalus	State	END	Aquatic species with no known local occurrences.

Table 4.6 C-7.2 Unaffected Species					
Species Type	**Species Common Name**	**Species Scientific Name**	**State or Fed. Listed**	**Level of Protection**	**Reason Not Affected or Not of Concern**
END = Endangered, THR = Threatened, SC= Special Concern NHI = Natural Heritage Inventory					
Snake	Butlers Garter Snake	Thamnophis butleri	State	THR	Corridor specific investigation. No populations detected. Population stable, may be delisted.
Snake	Eastern Ribbon Snake	Thamnophis sauritus	State	END	Semi-aquatic snake primarily found in bog relics and associated vegetation near or south of the Tension Zone. Corridor specific investigation. No populations detected.

☒ Species Affected:

WisDOT and the WDNR, and WisDOT consultants have conducted numerous field investigations of the WIS 23 project corridor since the project was initiated in the early 2000s. Currently the WDNR has provided comments for the Preferred Build Alternative regarding the ten rare (threatened, endangered, and special concern species) likely to be affected that are shown in Table 4.6 C-7.3. Recommendations are summarized in the January 2013 WDNR agency coordination record located in Appendix D.

Table 4.6 C-7.3 Affected Species				
Type	**Species Common Name**	**Species Scientific Name**	**State or Fed. Listed**	**Level of Protection**
END = Endangered, THR = Threatened, SC= Special Concern				
Plant	Snow Trillium	Trillium nivale	State	THR
Snail	Midwest Pleistocene Vertigo upland snail	Vertigo hurichti	State	END
Turtle	Blandings Turtle	Emydoidea blandingii	State	THR
Mussel	Rainbow shell Mussel	Villosa iris	State	END
Mussel	Slippershell mussel	Alasmidonta viridis	State	THR
Mussel	Ellipse mussel	Venustaconcha ellipsiformis	State	THR
Bird	Cerulean warbler	Dendroica cerulean	State	THR
Bird	Acadian flycatcher	Empidomax virescens	State	THR
Bird	Hooded warbler	Wilsonia citrine	State	THR
Bird	Red shouldered hawk	Buteo lineatus	State	THR

There are no known federally threatened or endangered species being impacted by the proposed project. Whooping Cranes are listed as a experimental record/note for the Sheboygan County portion of the project. The USFWS nomenclature does not consider this an actual threatened and endangered species occurrence. It is rather a notation of a migratory area of Whooping Cranes.

3. Describe Coordination:

U.S. Fish & Wildlife Service:

☒ Has Section 7 coordination been completed?

☐ No

☒ Yes Describe mitigation required to protect the federally listed endangered species:

USFWS coordination has been completed on March 8, 2010. Neither the most recent threatened and endangered species data investigation nor individual

USFWS coordination has identified federally listed species of concern. No further investigation is required for the non-essential experimental population designation (NEP) for Whooping Crane for this the central portion of Wisconsin.

WDNR

☒ Has coordination with DNR been completed?

☐ No

☒ Yes - December 13, 2012 and April 18, 2013 (See Appendix D)

Describe mitigation required to protect the state-listed species:

A. Rare Plants:
To date no specific locations of individual plants nor populations of rare plants have been identified for the Preferred Build Alternative. December 2012 Natural Heritage Inventory reviews and coordination with WDNR indicates that some species have occurrences on the project corridor or within similar habitat types nearby. Based on WDNR coordination to date the WDNR has requested that plant surveys be conducted for the snow trillium (Trillium nivale)

B. Rare Animals:
a. Reptiles and Amphibians: Since environmental documentation was initiated there have been changes to the categorization of two rare species. Both of these species have either management techniques that are suitable and easily employable on transportation projects. The following paragraphs summarize WDNR comments for these species. It is noted that based on recent WDNR rare and endangered species coordination, the Butler's garter snake and the Blandings turtle may be delisted from the WDNR threatened species listings. Should revisions occur to NR 27 the recommendations for these species may be reduced accordingly.

i. Butler's Garter Snake (Thamnophis butleri) - Threatened - requires no further investigation. Butler's garter snake was initially investigated through a field survey in 2005. These past investigations for Butler's garter snake indicate that neither a population of the snake nor special habitat management is needed for this species in the project area. Statewide the Butler's garter snake populations are stable and the species may be delisted.

ii. Blandings Turtle (Emydoidea blandingii) - Threatened - requires construction period protection measures. Blanding's turtle has been a common species of record or one in-need-of-mitigation for numerous years on numerous projects. Because of the more widely distributed Blandings turtle, the WDNR has requested special turtle protection measures, including exclusion fencing, be used to help protect this species.

b. Freshwater Mussels: Freshwater mussel investigations were completed previously by WDNR staff at the Sheboygan River crossing of the current alignment in Section 7 of the town of Forest and in the Mullet River in Section 10/11 of the town of Greenbush. Three rare freshwater mussel species were identified in a Sheboygan River investigation adjacent to the existing crossing and two of the three were identified at the Mullet River. WDNR will conduct wading surveys 6-9 months before construction to determine which if any of the three state-listed mussel species occur in the respective streams. Should freshwater mussel species be identified from WDNR mussel surveys, WisDOT will arrange with WDNR staff to translocate necessary species upstream.

i. Slippershell Mussel (Alasmidonta viridis) - Threatened
ii. Ellipse Mussel (Venustaconcha ellipsiformis) - Threatened
iii. Rainbow Shell Mussel (Villosa iris) - Endangered

c. Local Nesting Migratory Bird Species - Non-state and non-federally listed, but nesting migratory bird species are required to be protected or nests avoided. Site clearing and demolition for bridge and culvert construction will need to be scheduled to avoid migratory bird species nesting and brooding seasons - both for cavity nesting species that may occupy bridge or culvert structures and threatened or endangered woodland nesting species of neotropical migrants (see below). Work on existing structures and in floodplain forests shall be restricted during nesting period to minimize impacts on these species.

d. Rare State-Listed Woodland Nesting Species - WDNR recommends that WisDOT specifications state that Clearing and Grubbing operations within the Mullet River and wooded environs of the Kettle Moraine areas will be avoided during nesting season to avoid disturbance to rare woodland nesting bird species. These species are state-listed, but have additional protections from take or disturbance during the nesting and breeding season. These restrictions allow construction at all times provided that tree removals are completed outside of this construction window limitation. If these restrictive clearing measures are not possible, WisDOT or the contractor may consider initiating incidental take arrangements 6-9 months prior to construction. Species that these limitations apply:
    i. Red Shouldered Hawk (Buteo lineatus) - Threatened
    ii. Cerulean Warbler (Dendroica cerulean) - Threatened
    iii. Acadian Flycatcher (Empidomax virescens) - Threatened
    iv. Hooded Warbler (Wilsonia citrine) - Threatened

The Air Quality Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated. Updates include the following:

- The current nonattainment status of ozone for Sheboygan County.
- Wisconsin Administrative Code NR 411 which governs non-point source carbon monoxide has been repealed.
- The Mobile Source Air Toxics discussion.

AIR QUALITY EVALUATION **Factor Sheet D-1**

1. Ozone:

A. Is the project located in a county which is designated non-attainment or maintenance for ozone?

☐ **No**

■ **Yes – If Yes, one of the following boxes must be checked:**

■ This project is included in the approved Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) endorsed by the region's Metropolitan Planning Organization (MPO). The TIP was found to conform by the Federal Highway Administration and the Federal Transit Administration.

The proposed WIS 23 project is located in the Lake Michigan Intrastate Air Quality Control Region. Fond du Lac County is presently in attainment of all National Ambient Air Quality Standards (NAAQS). Sheboygan County was designated nonattainment for the 2008 Ozone Standard on April 30, 2012 (Federal Register / Vol. 77, No. 98 / Monday, May 21, 2012 Sheboygan County is also designated nonattainment for the 1997 Ozone standard, but that standard will be revoked effective July 20, 2013.

Although, the majority of the project is located outside of the Sheboygan MPO's boundaries, through interagency consultation (October 31, 2005), it was agreed this project would be included in the Assessment of Conformity of the Year 2035 Sheboygan Area Transportation Plan (SATP) and the 2007-2010 Sheboygan Metropolitan Planning Area Transportation Improvement Program (TIP). A positive conformity determination was issued by the Federal Highway Administration and the Federal Transit Administration on December 19, 2006 SATP. The TIP has since been updated for the years 2013 to 2016 and the WIS 23 project is included in the conformity analysis with a conformity finding date of February 27, 2013.

Provide RTP Name, TIP name, MPO name, TIP number and conformity finding date(s):

RTP Name:
Update to the Year 2035 Sheboygan Area Transportation Plan (SATP)

TIP Name:
Sheboygan Metropolitan Planning Area Transportation Improvement Program Calendar Years 2013-2016

MPO Name:
Sheboygan MPO

TIP ID Number:
No number since not in the MPO planning area

Conformity Finding Date(s):
February 27, 2013

☒ This project is located outside of a Metropolitan Planning Organization's boundaries and has received a positive conformity determination per the rural conformity section of the WisDOT/WDNR Memorandum of Agreement regarding determination of conformity. Provide conformity finding date. Completed as part of Sheboygan SATP - February 27, 2013

☐ This project is located outside of a Metropolitan Planning Organization's boundaries and is exempt from conformity requirements per 40 CFR 93.126

☐ This project has been determined to be Not Regionally Significant

☐ Other, describe:

2. Carbon Monoxide:

A. Is this project exempt from air quality analysis under the repealed Wisconsin Administrative Code – NR 411?

☐ No – NR 411 exemptions do not apply.
☒ Yes – NR 411 exemption(s) apply – Identify exemption(s) and explain why project is exempt.

Wisconsin Administrative Code NR 411 used to govern indirect sources of carbon monoxide by establishing a permitting process for highway and parking facilities. Proposed highway projects needed to qualify for an exemption, or model the proposed carbon monoxide emissions and obtain a permit. Wisconsin Act 121 repealed the provisions of Wisconsin Administrative Code NR 411. WisDOT still uses the provisions of NR 411 in NEPA documentation to evaluate air quality impacts of a proposed action.

B. Was an air quality analysis required?

☒ No
☐ Yes – Identify the air quality modeling technique or program used to perform the analysis.
Complete the Maximum Projected Carbon Monoxide (CO) Concentrations Table to illustrate the results:

The WIS 23 expansion associated with the Preferred Build Alternative would have been exempt from indirect source permit requirements under NR 411 because it meets the following exceptions detailed under NR 411.04(2)(b):

- A portion of the modified highway is located in Sheboygan County (a metropolitan county) and the increase in peak-hour volume is less than 1200 motor vehicles per hour for all segments.
- The remaining portion of the modified highway located in Fond du Lac County (a nonmetropolitan county) and the increase in peak-hour volume is less than 1800 motor vehicles per hour for all segments.
- Where there is a shift in intersection approach legs:
  - Roadway edge shifted toward any potential receptor location is 12 or more feet.
  - The highway segment has no more than 2 approach lanes.
  - Any potential receptor is located more than 25 feet from the nearest proposed roadway edge.
  - The peak-hour volume on each approach is less than 1800 motor vehicles per hour for all segments.

C. If an air quality analysis was performed, will a construction permit be required to address air quality before the project may proceed?

☐ No
  ☐ Letter of concurrence from WDNR Bureau of Air Management requested. (See attached request letter – Exhibit)
  ☐ Letter of concurrence received from WDNR Bureau of Air Management. (See attached Exhibit)
☐ Yes – Indicate:
Date Permit Requested OR Date of Permit

Air quality analysis was not required or performed. See answer to Question B.

3. Mobile Source Air Toxics (MSAT)
Discuss the potential MSAT effects of this project.

Mobile source air toxics are compounds emitted from highway vehicles and nonroad equipment that are known or suspected to cause cancer or other serious health and environmental effects.

The USEPA is the lead federal agency with responsibility for determining the health effects of MSAT and how to best protect human health and the environment from those effects. The USEPA has issued two rules that control MSAT from motor vehicles (66 FR 17229, March 29, 2001 and 72 FR 8427, February 26, 2007). These rules include the following mobile source

control programs: reformulated gasoline, national low emission vehicle standards, Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, heavy duty engine and vehicle standards, and on-highway diesel fuel sulfur control requirements. These controls will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines.

The FHWA's Interim Guidance on MSAT (December 6, 2012) presents a tiered approach to analyzing MSAT in NEPA documents. Using that guidance, the proposed WIS 23 project is considered to have low potential MSAT effects, requiring a qualitative analysis. Examples of the types of projects considered to have low potential MSAT effects include minor widening projects, new interchanges, or projects where design year traffic is projected to be less than 140,000 to 150,000 AADT.

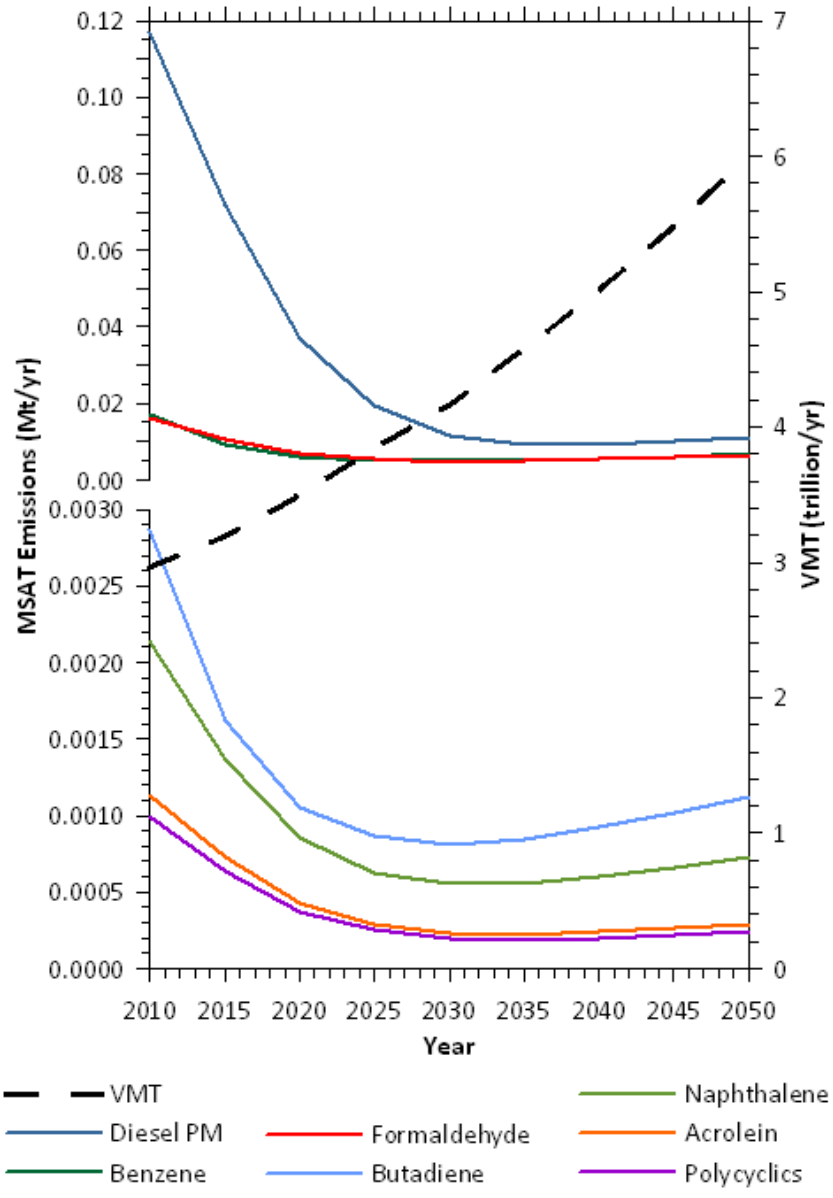
Evaluating the environmental and health impacts from MSAT on a proposed highway project involves several key elements including emissions modeling, dispersion modeling to estimate ambient concentrations resulting from the estimated emissions, exposure modeling to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each model has technical shortcomings or relies on uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

It is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from MSAT, it can give a basis for identifying and comparing the potential differences among MSAT emissions—if any—from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA titled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at:

www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm

Qualitative Assessment

Based on an FHWA analysis using EPA's MOVES2010b (Motor Vehicle Emission Simulator computer model), as shown in Figure 4.6 D-1.1, even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period. Figure D.1-1 shows the National MSAT trends for vehicles operating on our nation's roadways.



http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/aqintguidmem.cfm 1/2013

Figure D-1.1 National MSAT Emission Trends 1999–2050 For Vehicles Operating on Roadways Using USEPA's MOVES2010b Model

The Health Effects Institute (HEI) has undertaken efforts to research near-roadway MSAT hot spots and the health implications of mobile source pollutants and has reviewed much of the research and studies done to date. HEI is an independent research organization that provides impartial and relevant science on the effects of air pollution on health. The group is funded by the USEPA (50 percent) and the worldwide motor vehicle industry (50 percent).

In *Special Report 16-Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects* (available at www.healtheffect.org), HEI analyzed MSAT asking the following questions:

1. To what extent are motor vehicles a significant source of exposure?
2. Does it affect human health?
3. Does it affect human health at environmental concentrations?

In its conclusions, HEI found that exposure to many MSAT comes from sources other than motor vehicles. In addition, for many of the MSAT reviewed, HEI concluded there is insufficient data for an assessment of ambient exposures on human health.

A recent National Cooperative Highway Research Program (NCHRP) report, *Analyzing, Documenting, and Communicating the Impacts of Mobile Source Air Toxics in the NEPA Process* (NCHRP 25-25 Task 18, March 2007), analyzed how changes in traffic volumes would relate to changes in contracting cancer from benzene, one of USEPA's seven MSATs. The study suggests for highway projects that result in an incremental change in traffic volumes of 125,000 vpd, a corresponding incremental 1 in 1 million risk of contracting cancer from benzene exposure could be expected. For the WIS 23 project alternatives, the maximum traffic volume change between 2012 and 2035 is 4,800, or about one-twenty sixth of the 125,000 increment. This suggests that if the NCHRP conclusions are correct, the project would have impacts of far less than 1 in 1 million. The 1 in 1 million level is considered to represent negligible risk by both USEPA and the risk assessment community at large. An FHWA assessment of the NCHRP report also indicates the analysis behind the benzene risk conclusions may be pessimistic since practically all benefits of the USEPA's Tier 2 light-duty vehicle emissions standards, additional volatile organic compound (VOC) reductions from motor vehicles (USEPA's 2007 MSAT rulemaking), and a 38 percent reduction in the benzene content of gasoline were not incorporated.

For each alternative in this LS SFEIS/ROD, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. Refer to Figure 2.6-7 This increase in VMT would lead to higher MSAT emissions for the Preferred Build Alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES2010b model, emissions of all of the priority MSAT decrease as speed increases. Because the estimated VMT under each of the Alternatives is similar, varying by 17 percent (weighted average), it is expected there would be minimal appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes associated with the Preferred Build Alternative will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under the Preferred Build Alternative than the No-Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the side of the highway were the new highway lanes are being constructed. However, the magnitude and the duration of these potential increases compared to the No-Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the Preferred Build Alternative could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower on the side of the WIS 23 roadway that does not have the new lanes constructed because traffic will shift away from these lanes onto the new lanes. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be substantially lower than today.

4. Other Air Quality Issues?

Greenhouse gas emissions are also a concern in Northeastern Wisconsin. While there are no accepted quantitative tools to estimate greenhouse gases at the project level, vehicles using WIS 23 can be expected to contribute to greenhouse gas emissions within the region. A 2007 WisDOT report, *Transportation and Global Warming: Defining the Connection and the Solution*[18] noted that greenhouse gas emissions in Wisconsin grew by 26 percent in the last decade, compared to 20 percent across the United States. The Governor's Task Force on Global Warming conducted another study in Wisconsin, which noted that the transportation sector accounts for approximately 24 percent of greenhouse gas emissions in Wisconsin, ranking second behind the energy sector at 35 percent.[19]

Currently, the major way to reduce emissions of greenhouse gases from transportation is to reduce the amount of fuel consumed, which can be accomplished by reducing congestion (more efficient driving conditions), reducing driving, and using more fuel efficient vehicles. Some of the policy recommendations from the Governor's Task Force on Global Warming Report include reducing emissions through improved vehicle technology, using low carbon fuels, and reducing VMT through land use planning and implementing public transit.[20]

Managing and reducing greenhouse gases requires the continued use of appropriate land use and zoning policies that reduce travel demand within individual communities and south central Wisconsin. A recent study published by the Urban Land Institute indicates that the continuing growth of VMT may offset emissions reduction gained through technological improvements in vehicles and fuels.[21] The study points to the importance of reducing VMT by managing growth and land use patterns. Several studies on the relationship between land use and vehicle trips found that where diverse land use, accessible destinations, and interconnected streets exist, households drive 33 percent less compared to households in low-density developments.

WisDOT will continue to participate in statewide initiatives to reduce greenhouse gases, monitor the development of additional findings, and minimize impacts of projects to the greatest extent practicable. Increased amounts of greenhouse gases in the atmosphere can have impacts on the environmental and human health across the planet. Examples of these impacts include rising sea levels, causing erosion of beaches and shorelines, destruction of aquatic plant and animal habitat, floods of coastal cities, and disruption of ocean current flows; a warming trend over much of the planet, broadening the range for many insect-borne diseases; and chronic stress of coral reefs. The possible impacts of global warming to Wisconsin include warmer and drier weather; decreases in the water levels of the Great Lakes, inland lakes, and streams; increases in water temperature (lowering water quality and favoring warm water aquatic species); changes in ecosystem and forest composition; increases in droughts and floods (impacting crop productivity); and reduction of snow and ice cover (lessening recreational opportunities).[22]

Carbon dioxide is not currently a regulated gas under the National Air Quality Standards, and therefore no quantitative analysis is required. Vehicle fuel consumption is an approximate indicator of carbon dioxide emissions, and is directly related to vehicle miles traveled. The WIS 23 Preferred Build Alternative is projected to have about 16 percent more vehicles miles traveled than the No Build Alternative, and 6 to 11 percent more miles traveled than the Passing Lane Alternatives in the 2035 forecast year. With the travel speeds projected for these alternatives in the 2035 design year, it is anticipated that each alternative's carbon dioxide emissions would be roughly proportional to the difference in VMT associated with each alternative.

See Section 4.4, Indirect and Cumulative Effects, for further discussion of WIS 23 air quality impacts.

[18] CTC and Associates, 2007
[19] World Resources Institute, 2007
[20] WDNR, 2008
[21] Ewing, et al., 2007
[22] Public Service Commission of Wisconsin and WDNR, 2004

The Construction Stage Sound Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

CONSTRUCTION STAGE SOUND QUALITY EVALUATION

Factor Sheet D-2

1. Identify and describe residences, schools, libraries, or other noise sensitive areas near the proposed action and which will be in use during construction of the proposed action. Include the number of persons potentially affected:

No-Build Alternative

No effects since no construction will occur.

Alternative 2

Noise from the construction of Alternative 2 would have similar impacts to those of Preferred Build Alternative (Alternative 1). The difference would be primarily between County W and County U where the alignment is shifted off the existing alignment to the south. Where the alignment is shifted, fewer construction noise impacts to residential areas are anticipated.

Alternative 3

Noise from the construction of Alternative 3 would have similar impacts to those of Preferred Build Alternative (Alternative 1). The difference would be primarily between County UU and County G where the alignment is shifted south of the existing alignment. Where the alignment is shifted, fewer construction noise impacts to residential areas are anticipated.

Preferred Build Alternative

Noise from the construction of the Preferred Build Alternative (Alternative 1) would impact scattered residential, commercial, and industrial areas. Residential development is sparsely scattered throughout the study area with most concentrated along existing WIS 23. Concentrated residential development exists in the community of Greenbush and the western portion of the study area near the city of Fond du Lac. St. Mary's Springs Academy also exists on the west portion of the corridor. Individual residences are intermixed with farm residences throughout the project study area. Commercial and industrial development is sparsely scattered along WIS 23.

Noise from the construction of the connection roads and interchanges will be similar to the impacts for the 4-lane expansion associated with the Preferred Build Alternative, except that it will be localized to the specific intersections being improved.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

There are no effects since no construction will occur.

Preferred WIS 23 Corridor Preservation

The Preferred WIS 23 Corridor Preservation would not create construction noise impacts. If future transportation improvements associated with the Preferred WIS 23 Corridor Preservation implemented, construction noise impacts would be similar to the impacts for the connection roads and interchanges. Intersection areas that would experience construction noise impacts include Tower Road, 7 Hills Road, County W, Hillview Road, Scenic View Drive, Sugarbush Road, County A, and County P.

US 151/WIS 23 Interchange

Preferred No Corridor Preservation

There are no effects since no construction will occur.

Option 23-1 and Option 23-2 Corridor Preservation

The US 151/WIS 23 Interchange Corridor Preservation would not create any construction noise. Noise from the construction of the system interchanges associated with Option 23-1 and Option 23-2 Corridor Preservation would impact scattered residential and commercial areas. Construction of Option 23-1 would affect residential and commercial areas primarily north of County T and east of US 151. Option 23-2 Corridor Preservation would affect residential development primarily west of US 151 and south of East Johnson. Construction of Option 23-2 would also affect commercial and retail uses in the northwest quadrant of the interchange.

Table 4.6 D-2.1 estimates how many residents and public facilities are within 1,000 feet of the roadway and could be affected by construction noise of the Build Alternatives. An average of 2.5 residents per household was assumed. Public facilities within the table include parks, trails, schools, churches, and public buildings. Near Fond du Lac, public buildings include a medical facility and shopping center. The Old Wade House State Park, St. Mary's Springs Academy, the Kettle Moraine State Forest, the Ice Age Trail/State Equestrian Trail, and the Old Plank Road Trail would be impacted equally by each of the Build alternatives. The number of residents for Alternatives 1 and 2 is similar, but about 25 percent less for Alternative 3.

Option/Alternative	Approximate Number of Residents Within 1,000 feet	Approximate Number of Public Facilities Within 1,000 feet
Preferred Build Alternative (4-lane expansion - Alt. 1)	423	8
Alternative 2	403	8
Alternative 3	310	7

Table 4.6 D-2.1 Estimate of Persons Within 1,000 feet of Roadway

2. Describe the types of construction equipment to be used on the project. Discuss the expected severity of noise levels including the frequency and duration of any anticipated high noise levels:

Construction of the Preferred Build Alternative would require the use of earth-moving equipment, materials handling equipment, stationary equipment, and impact equipment.

The noise generated by construction equipment will vary greatly depending on equipment type/model/make, duration of operation, and specific type of work effort. However, typical noise levels may occur in the 67 to 107 dBA range at a distance of 50 feet (15.2 meters).

Table 4.6 D-2.2 shows typical noise levels for a variety of construction equipment. Adverse effects related to construction noise are anticipated to be of a localized, temporary, and transient nature.

Equipment Powered by Internal Combustion Engines	Range Of Sound Levels (dBA) at 15 m (50 ft)
Earth Moving	
Compactors (Rollers)	72-75
Front Loaders	72-85
Backhoes	77-94
Tractors	76-97
Scrapers, Graders	80-94
Pavers	86-89
Trucks	54-95
Materials Handling	
Concrete Mixers	75-87
Concrete Pumps	81-84
Cranes (Movable)	76-86
Cranes (Derrick)	86-89
Stationary	
Pumps	67-72
Generators	72-82
Compressors	75-87
IMPACT EQUIPMENT	
Pneumatic Wrenches	82-89
Jack Hammers & Rock Drills	81-97
Impact Pile Drivers (Peaks)	95-105
OTHER	
Vibrator	69-81
Saws	72-83

Source: Figure 2-36, Report to the President and Congress on Noise, prepared by the U.S. EPA, February, 1972.

Table 4.6 D-2.2 Construction Equipment Sound Levels

3. Describe the construction stage noise abatement measures to minimize identified adverse noise effects. Check all that apply:

☒ WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply. Generally, no construction will occur before 6 A.M. or after 10 P.M. without written permission from the project engineer. All equipment will have mufflers in good working order.

☐ WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply with the exception that the hours of operation requiring the engineer's written approval for operations will be changed to _____ P.M. until _____A.M.

☐ WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply with the exception that the hours of operation requiring the engineer's written approval for operations will be changed to _____ P.M. until _____A.M.

☐ Special construction stage noise abatement measures will be required. Describe:

TRAFFIC NOISE EVALUATION

Factor Sheet D-3

1. Need for Noise Analysis:

A. Is the proposed action considered a Type I project? (A Type I project is defined as a project that involves construction of a roadway on new location or the physical alteration of an existing highway which substantially changes either the horizontal or vertical alignment or increases the number of through-traffic lanes).

☐ No – Complete only Construction Stage Sound Quality Impact Evaluation.

☒ Yes – Complete Construction Stage Sound Quality Impact Evaluation and the rest of this sheet.

2. Traffic Data:

A. Indicate whether traffic volumes for sound prediction are different from the Design Hourly Volume (DHV) on Environmental Evaluation of Facilities Development Action, Traffic Summary Basic Sheet:

☒ No

☐ Yes – Indicate volumes and explain why they were used:

Automobiles	Veh/hr
Trucks	Veh/hr
Or Percentage (T)	

B. Identify and describe the noise analysis technique or program used to identify existing and future sound levels: (See receptor location map as Receptor Maps Figures 4.6 D-3.1 to D-3.16).

In the 2004 DEIS, the Stamina Computer Noise Program was used to develop noise contours. These noise contours were used to evaluate noise impacts for the on-alignment (Alternative 1) and off-alignment (Alternatives 2 and 3) corridors. With the selection of the Preferred Build Alternative, a more detailed and updated analysis was performed for the on-alignment receptors using the TNM 2.5 computer software. The analysis remodeled the existing and future noise levels for the 4-lane expansion of the Preferred Build Alternative from County K to County P. The system interchanges associated with Option 23-1 and Option 23-2 Corridor Preservation Alternatives were also modeled. See the Noise Analysis–Receptors Maps Figures 4.6 D-3.1 to D-3.16 for locations of receptors along the Preferred Build Alternative.

Criteria used to define traffic noise impacts are determined by WisDOT's noise policy which is contained in Chapter 23 of the Facilities Development Manual. Traffic noise impacts occur when the predicted equivalent sound levels approach or exceed the noise level criteria (NLC) established for a type of land use or when predicted sound levels substantially exceed existing levels. WisDOT has determined "approach" to be defined as 1 dBA less than the NLC. WisDOT has determined "substantial increase" to be 15 dBA or more than existing levels. Noise impacts for the various alternatives are compared based on the number of receptors that approach or exceed the activity category and/or experience a substantial increase.

C. Identify sensitive receptors, e.g., schools, libraries, hospitals, residences, etc. potentially affected by traffic sound: (See attached receptor location map – Figures 4.6 D-3.1 to D-3.16).

Sensitive receptors include residences, St. Mary's Springs Academy, St. Paul's Church and School, the Old Wade House State Park, the Northern Unit of the Kettle Moraine State Forest, the Ice Age Trail, the State Equestrian Trail, and the Old Plank Road Trail. These receptors are considered Land Use Categories B and C under WisDOT's noise policy and are subject to an exterior NLC of 67 dBA.

D. If this proposal is implemented will future sound levels produce a noise impact?

☐ No

☒ Yes - The impact will occur because:

☒ The Noise Abatement Criteria (NAC) is approached (1 dBA less than the NAC) or exceeded.

☒ Existing sound levels will increase by 15 dBA or more.

Preferred Build Alternative, 4-lane expansion (Alternative 1), compared to other 4-lane expansion alternatives:

Table 4.6 D-3.1 Summary Receptors Exceeding NAC

	WIS 23 (4-Lane Expansion)			
Distance from receptor to highway:	**No-Build**	**Preferred Alternative 1**	**Alternative 2***	**Alternative 3***
Households currently approaching or exceeding NLC: (≥66 dBA)	29	29	27	21
Households that will be affected in the design year: (≥66 dBA or increase of 15 dBA or more)	44	47	54	47
Net increase in households affected:	15	18	27	26

* From noise contours developed from Stamina for the 2004 DEIS.

System Interchanges Associated with Corridor Preservation Option 23-1 and Option 23-2, compared to No-Build Alternative:

Table 4.6 D-3.2 Summary Receptors Exceeding NAC, Corridor Preservation

	Corridor Preservation Measures and US 151/WIS 23 System Interchange		
Distance from receptor to highway:	**Preferred No Preservation**	**23-1 Preservation**	**23-2 Preservation**
Households currently approaching or exceeding NLC: (≥66 dBA)	0	0	0
Households that will be affected in the design year: (≥66 dBA or increase of 15 dBA or more)	9	2	2
Net increase in households affected:	9	2	2

E. Will traffic noise abatement measures be implemented?

☐ Not applicable – Traffic noise impacts will not occur.

☒ No – Traffic noise abatement is not reasonable or feasible (explain why). In areas currently undeveloped, local units of government shall be notified of predicted sound levels for land use planning purposes. **A COPY OF THIS WRITTEN NOTIFICATION SHALL BE INCLUDED WITH THE FINAL ENVIRONMENTAL DOCUMENT.**

☐ Yes – Traffic noise abatement has been determined to be feasible and reasonable. Describe any traffic noise abatement measures which are proposed to be implemented. Explain how it will be determined whether or not those measures will be implemented:

For a noise barrier to be reasonable, the total cost may not exceed $30,000 per benefited receptor and meet the following criteria according to WisDOT's Facility Development Manual Chapter 23 (April 2013):

- A minimum of 1 receptor or common use area achieves the department's noise reduction design goal of 9 decibels.
- The noise barrier reduces noise levels by a minimum of 8 decibels for each benefiting receptor used in the cost calculation.

- For purposes of reasonableness determination;
  - Each individual residence benefited is counted as one benefited receptor.
  - Each dwelling unit benefited in a multi-family dwelling is counted as one benefited receptor.
  - Each dwelling unit in the multi-family complex eligible to use the benefited common use area is counted as one benefited receptor.
  - Each discrete parcel benefited in Land Use Categories A, C, D and E is counted as one benefited receptor, except Section 4(f) properties as identified in Land Use Category C, will be evaluated on a case-by-case basis to determine the location of equivalent receptors on the discrete parcel that will each count as one benefited receptor.

The noise analysis for the Preferred Build Alternative from County K to County P evaluated the reasonableness of noise walls. The updated modeling and noise wall evaluation found that noise barriers are not reasonable for the section of WIS 23 from County K to County UU.

Noise barriers were modeled on the north side of STH 23, west and east of Ledgewood Drive, in the areas of Receptors 16 and 18.

In the area of Receptor 16, a noise barrier was found to be not feasible from a construction standpoint. A noise barrier greater than 50' in height would be needed to achieve the desired noise reduction.

In the area of Receptor 18, a noise barrier was found to be feasible from a construction standpoint, but not reasonable from a cost per receptor standpoint. A 31.5' wall, 635' in length would achieve the desired noise reduction. The estimated cost for this barrier would be approximately $60,000 per benefitted receptor.

A copy of the written notification sent to local governments was provided as Appendix O of the 2010 FEIS. A subsequent notification was provided on June 27, 2013 and is included in Appendix D of this LS SFEIS/ROD.

Table 4.6 D-3.3
Preferred Build Alternative (Alternative 1) County K–County UU

			Sound Level L_{eq}[23] (dBA)			Impact Evaluation		
Receptor Location or Site Identification (See attached map)	Distance from C/L of Near Lane to Receptor in feet (ft.)	Number of Families (Households) Typical of this Receptor Site	Noise Abatement Criteria[24] (NAC)	Future Sound Level	Existing Sound Level	Difference in Future and Existing Sound Levels (Col. e minus Col. f)	Difference in Future Sound Levels and Noise Abatement Criteria (Col. e minus Col. d)	Impact[25] or No Impact
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	475	business	72	53	52	1	-19	N
3	125	3	67	68	64	4	1	I
4	130	4	67	69	65	4	2	I
5	120	4	67	69	66	3	2	I
7	155	4	67	63	62	1	-4	N
8	275	2	67	60	58	2	-7	N
10	905	school	67	52	50	2	-15	N
11	525	school	67	56	54	2	-11	N
13	130	3	67	69	67	2	2	I

[23] Use whole numbers only.
[24] Insert the actual Noise Abatement Criteria from Wisconsin Administrative Code, Chapter Trans. 405.04, Table 1.
[25] An impact occurs when future sound levels exceed existing sound levels by 15 dB or more, **or**, future sound levels approach or exceed the Noise Abatement Criteria ("approach" is defined as 1 dB less than the Noise Abatement Criteria, therefore an impact occurs when Column (h) is –1 db or greater). I = Impact, N = No Impact.

			Sound Level L_{eq}[23] (dBA)			Impact Evaluation		
Receptor Location or Site Identification (See attached map)	Distance from C/L of Near Lane to Receptor in feet (ft.)	Number of Families (Households) Typical of this Receptor Site	Noise Abatement Criteria[24] (NAC)	Future Sound Level	Existing Sound Level	Difference in Future and Existing Sound Levels (Col. e minus Col. f)	Difference in Future Sound Levels and Noise Abatement Criteria (Col. e minus Col. d)	Impact[25] or No Impact
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
14	160	2	67	68	65	3	1	I
15	135	2	67	69	67	2	2	I
16	120	5	67	69	65	4	2	I
17	125	1	67	69	64	5	2	I
18	135	6	67	69	67	2	2	I
19	195	1	67	64	64	0	-3	N
20	255	4	67	62	62	0	-5	N
21	145	1	67	69	65	4	2	I
22	265	3	67	62	62	0	-5	N
24	140	business	72	68	63	5	-4	N
25	125	1	67	69	63	6	2	I
26	100	3	67	70	67	3	3	I
28	130	3	67	68	66	2	1	I
30	95	1	67	70	64	6	3	I
31	240	1	67	61	61	0	-6	N
33	245	1	67	61	61	0	-6	N
34	480	2	67	56	53	3	-11	N
35	210	1	67	61	60	1	-6	N
36	150	1	67	65	64	1	-2	N
37	325	1	67	58	57	1	-9	N
39	230	1	67	62	60	2	-5	N
40	120	1	67	67	65	2	0	I
41	265	1	67	61	57	4	-6	N
42	255	1	67	62	60	2	-5	N
43	345	1	67	58	57	1	-9	N
44	90	1	67	70	68	2	3	I
45	130	2	67	67	65	2	0	I
46	80	1	67	70	69	1	3	I
48	205	1	67	62	62	0	-5	N
49	425	1	67	57	56	1	-10	N
50	160	1	67	65	64	1	-2	N
51	465	1	67	55	54	1	-12	N
52	125	1	67	67	66	1	0	I
53	132	1	67	65	66	-1	-2	N
54	100	1	67	68	67	1	1	I
55	100	1	67	65	67	-2	-2	N
56	150	2	67	64	61	3	-3	N
57	225	1	67	61	61	0	-6	N
58	225	1	67	61	61	0	-6	N
59	325	1	67	58	57	1	-9	N
60	460	1	67	55	55	0	-12	N
61	220	1	67	62	58	4	-5	N
62	150	1	67	65	65	0	-2	N
63	350	1	67	58	55	3	-9	N
64	165	1	67	64	60	4	-3	N
65	135	2	67	65	66	-1	-2	N
66	245	1	67	60	57	3	-7	N
67	335	4	67	58	57	1	-9	N
68	330	1	67	58	58	0	-9	N
69	310	1	67	59	59	0	-8	N
70	145	1	67	65	61	4	-2	N
71	215	1	67	63	62	1	-4	N

			Sound Level L_{eq}[23] (dBA)			Impact Evaluation		
Receptor Location or Site Identification (See attached map) (a)	Distance from C/L of Near Lane to Receptor in feet (ft.) (b)	Number of Families (Households) Typical of this Receptor Site (c)	Noise Abatement Criteria[24] (NAC) (d)	Future Sound Level (e)	Existing Sound Level (f)	Difference in Future and Existing Sound Levels (Col. e minus Col. f) (g)	Difference in Future Sound Levels and Noise Abatement Criteria (Col. e minus Col. d) (h)	Impact[25] or No Impact (i)
72	195	1	67	62	62	0	-5	N
73	240	1	67	61	59	2	-6	N
74	305	1	67	60	58	2	-7	N
76	245	1	67	60	61	-1	-7	N
77	120	1	67	67	62	5	0	I
78	190	1	67	62	59	3	-5	N
79	145	1	67	65	61	4	-2	N

Table 4.6 D-3.4
Alternative 2* County W–County G

			Sound Level L_{eq}[22] (dBA)			Impact Evaluation		
Receptor Location or Site Identification (See attached map) (a)	Distance from C/L of Near Lane to Receptor in feet (ft.) (b)	Number of Families (Households) Typical of this Receptor Site (c)	Noise Abatement Criteria[23] (NAC) (d)	Future Sound Level (e)	Existing Sound Level (f)	Difference in Future and Existing Sound Levels (Col. e minus Col. f) (g)	Difference in Future Sound Levels and Noise Abatement Criteria (Col. e minus Col. d) (h)	Impact[24] or No Impact (i)
					From readings	Worst case scenario		
50 feet	50	1	67	75	46–52	29	8	I
100 feet	100	2	67	70	46–52	24	3	I
200 feet	200	1	67	65	46–52	19	-2	I
300 feet	300	3	67	63	46–52	17	-4	I
400 feet	400	5	67	61	46–52	15	-6	I
500 feet	500	2	67	59	46–52	13	-8	NI
600 feet	600	1	67	58	46–52	12	-9	NI
700 feet	700	2	67	56	46–52	10	-11	NI
1000 feet	1000	2	67	53	46–52	7	-14	NI

* From noise contours developed from Stamina for the 2004 DEIS.

Note: All other roadway sections same as Alternative 1

Table 4.6 D-3.5
Alternative 3* County UU–County W

			Sound Level L_{eq} [22] (dBA)			Impact Evaluation		
Receptor Location or Site Identification (See attached map) (a)	Distance from C/L of Near Lane to Receptor in feet (ft.) (b)	Number of Families (Households) Typical of this Receptor Site (c)	Noise Abatement Criteria [23] (NAC) (d)	Future Sound Level (e)	Existing Sound Level (f)	Difference in Future and Existing Sound Levels (Col. e minus Col. f) (g)	Difference in Future Sound Levels and Noise Abatement Criteria (Col. e minus Col. d) (h)	Impact[24] or No Impact (i)
					From reading	**Worst case scenario**		
50 feet	50	2	67	74	53–56	21	7	I
100 feet	100	2	67	70	53–56	17	3	I
200 feet	200	1	67	65	53–56	12	-2	NI
300 feet	300	1	67	62	53–56	9	-5	NI
400 feet	400	4	67	60	53–56	7	-7	NI
500 feet	500	4	67	59	53–56	6	-8	NI
600 feet	600	2	67	57	53–56	4	-10	NI
700 feet	700	3	67	56	53–56	3	-11	NI
1000 feet	1000	3	67	53	53–56	0	-14	NI

* From noise contours developed from Stamina for the 2004 DEIS.

Table 4.6 D-3.6
Alternative 3* County W–County G

			Sound Level L_{eq} [22] (dBA)			Impact Evaluation		
Receptor Location or Site Identification (See attached map) (a)	Distance from C/L of Near Lane to Receptor in feet (ft.) (b)	Number of Families (Households) Typical of this Receptor Site (c)	Noise Abatement Criteria [23] (NAC) (d)	Future Sound Level (e)	Existing Sound Level (f)	Difference in Future and Existing Sound Levels (Col. e minus Col. f) (g)	Difference in Future Sound Levels and Noise Abatement Criteria (Col. e minus Col. d) (h)	Impact[24] or No Impact (i)
					From reading	**Worst case scenario**		
50 feet	50	2	67	75	46–52	29	8	I
100 feet	100	1	67	70	46–52	24	3	I
200 feet	200	1	67	65	46–52	19	-2	I
300 feet	300	2	67	63	46–52	17	-4	I
400 feet	400	3	67	61	46–52	15	-6	I
500 feet	500	2	67	59	46–52	13	-8	NI
600 feet	600	3	67	58	46–52	12	-9	NI
700 feet	700	2	67	56	46–52	10	-11	NI
1000 feet	1000	4	67	53	46–52	7	-14	NI

* From noise contours developed from Stamina for the 2004 DEIS.

Table 4.6 D-3.7
NO CORRIDOR PRESERVATION (SAME LETTERING AS OPTION 23-2 CORRIDOR PRESERVATION)

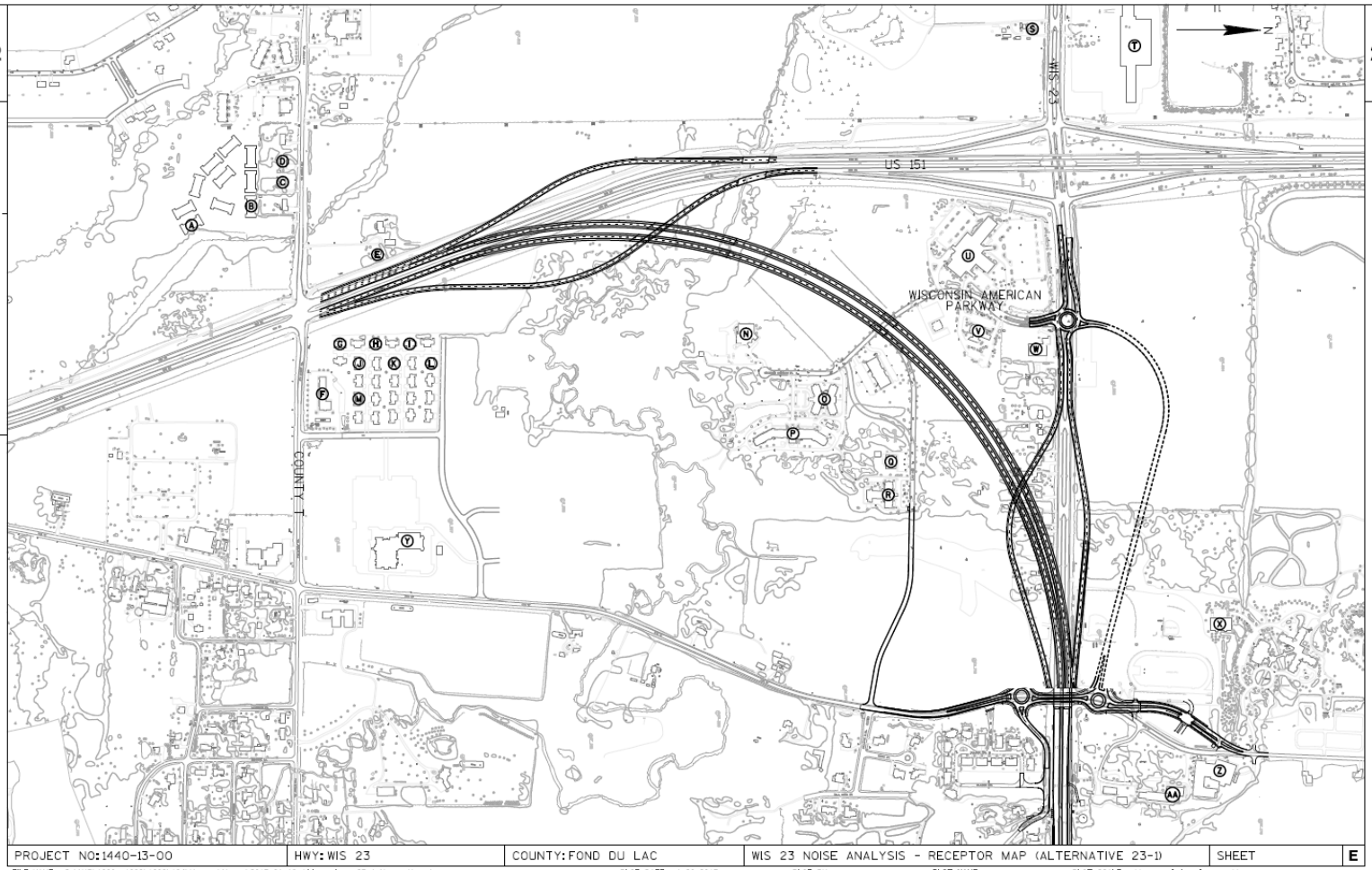
			Sound Level L_{eq} [22] (dBA)			Impact Evaluation		
Receptor Location or Site Identification (See attached map) (a)	Distance from C/L of Near Lane to Receptor in feet (ft.) (b)	Number of Families (Households) Typical of this Receptor Site (c)	Noise Abatement Criteria [23] (NAC) (d)	Future Sound Level (e)	Existing Sound Level (f)	Difference in Future and Existing Sound Levels (Col. e minus Col. f) (g)	Difference in Future Sound Levels and Noise Abatement Criteria (Col. e minus Col. d) (h)	Impact[24] or No Impact (i)
A	756	16	67	54	51	3	-13	N
B	317 (4th Street)	16	67	57	53	4	-10	N
C	97 (4th Street)	1	67	64	59	5	-3	N
D	105 (4th Street)	1	67	64	59	5	-3	N
E	109	1	67	67	63	4	0	I
F	133 (4th Street)	Business	72	66	60	6	-6	N
G	198	2	67	64	60	4	-3	N
H	260	2	67	60	57	3	-7	N
I	324	2	67	59	55	4	-8	N
J	340	2	67	60	56	4	-7	N
K	415	2	67	58	54	4	-9	N
L	470	2	67	56	53	3	-11	N
M	577	2	67	59	54	5	-8	N
N	396	Business	72	52	49	3	-20	N
O	466 (WIS 23)	Business	72	58	55	3	-14	N
P	102 (WIS 23)	1	67	66	65	1	-1	I
Q	427 (WIS 23)	Business	72	60	58	2	-12	N
R	84 (WIS 23)	Business	72	70	68	2	-2	N
S	124 (WIS 23)	3	67	66	64	2	-1	I
T	124 (WIS 23)	3	67	66	64	2	-1	I
U	814	Business	72	58	52	6	-14	N
V	96 (CTH K)	School	67	68	64	4	1	I
W	417 (CTH K)	School	67	59	55	4	-8	N
X	179 (CTH K)	Church	67	53	51	2	-14	N

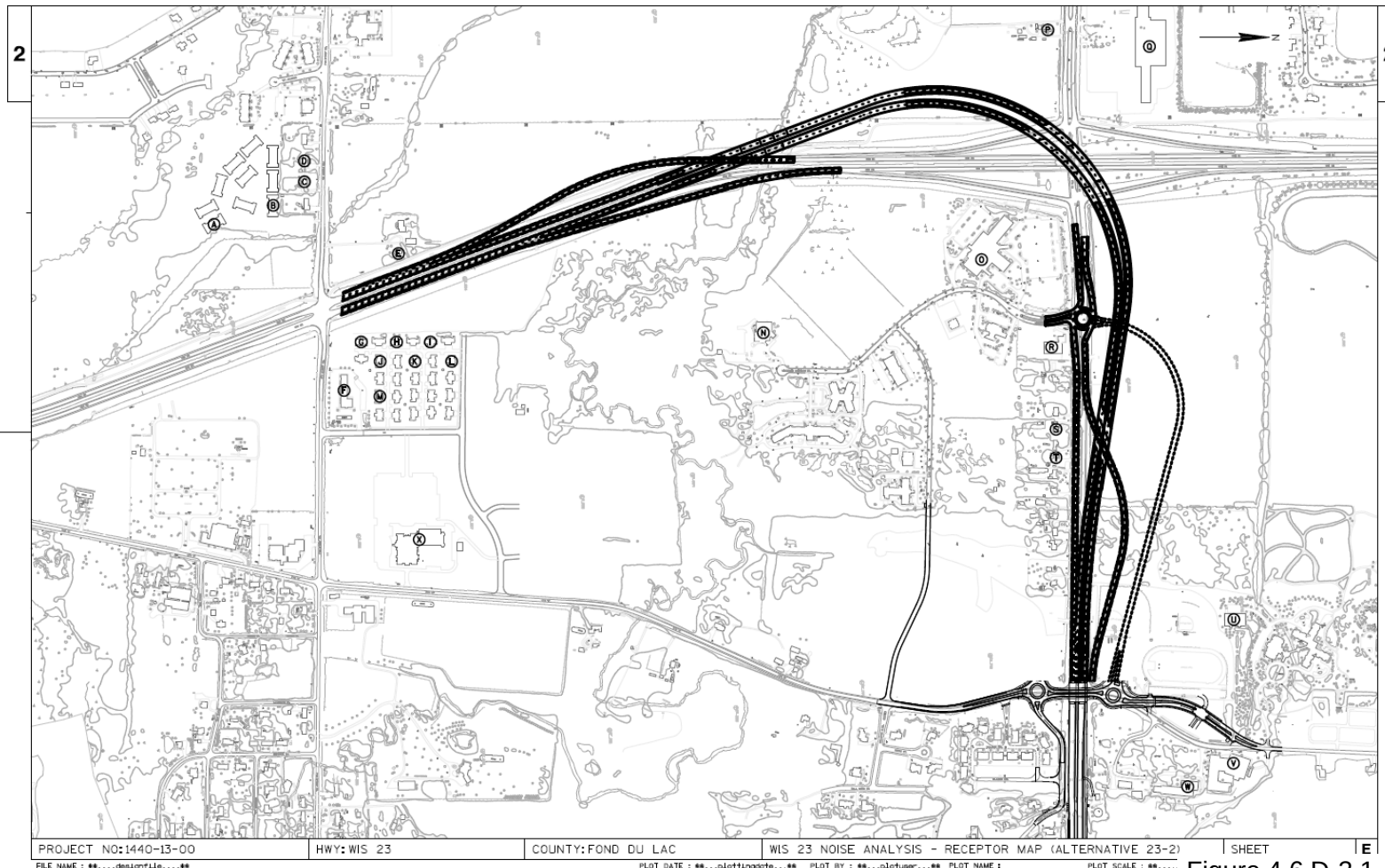
Table 4.6 D-3.8
OPTION 23-1 CORRIDOR PRESERVATION

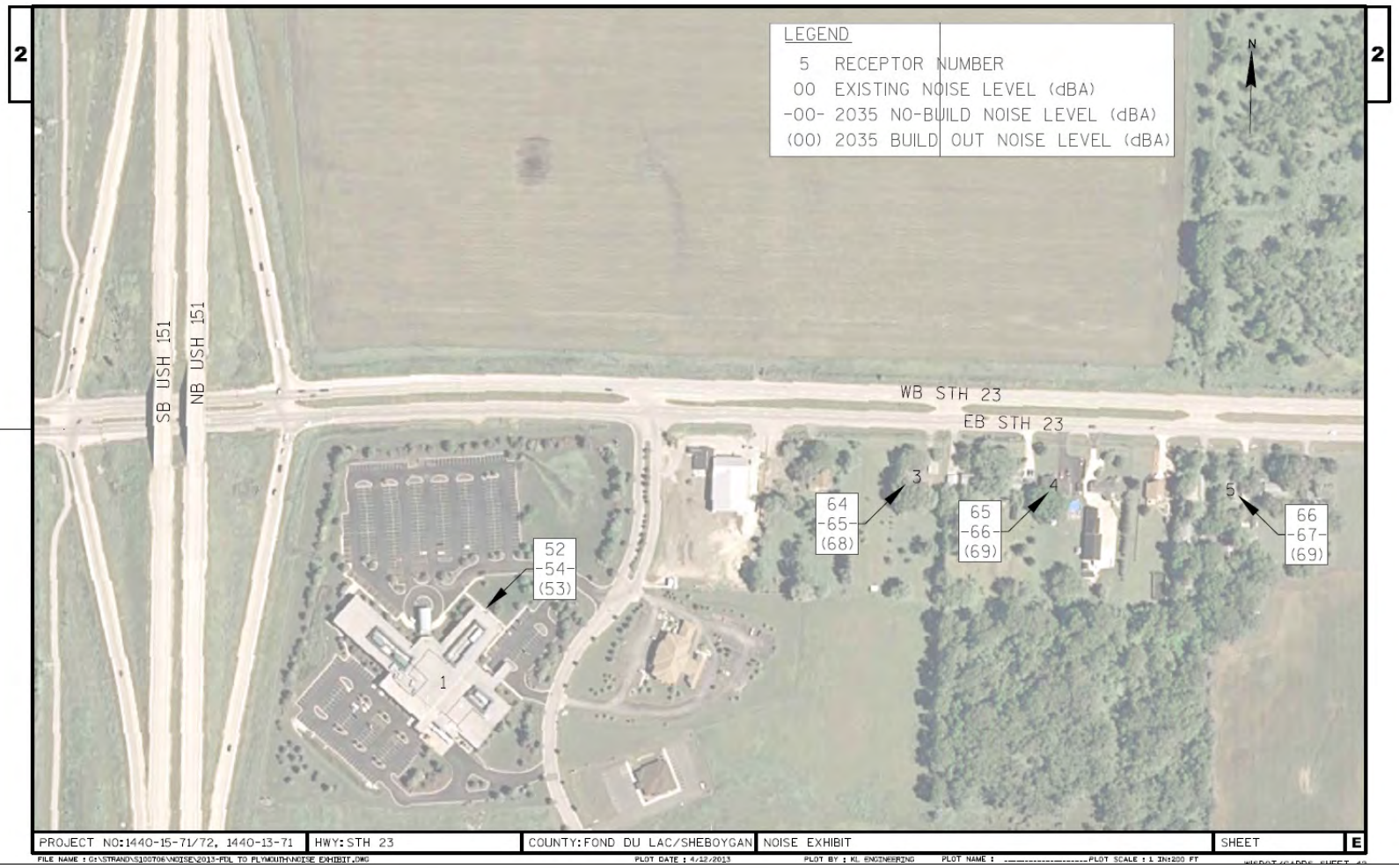
			Sound Level L_{eq} [22] (dBA)			Impact Evaluation		
Receptor Location or Site Identification (See attached map) (a)	Distance from C/L of Near Lane to Receptor in feet (ft.) (b)	Number of Families (Households) Typical of this Receptor Site (c)	Noise Abatement Criteria [23] (NAC) (d)	Future Sound Level (e)	Existing Sound Level (f)	Difference in Future and Existing Sound Levels (Col. e minus Col. f) (g)	Difference in Future Sound Levels and Noise Abatement Criteria (Col. e minus Col. d) (h)	Impact[24] or No Impact (i)
A	756	16	67	54	51	3	-13	N
B	317 (4th Street)	16	67	56	53	3	-11	N
C	97 (4th Street)	1	67	62	59	3	-5	N
D	105 (4th Street)	1	67	62	59	3	-5	N
E	109	1	67	66	63	3	-1	I
F	133 (4th Street)	Business	72	61	60	1	-11	N
G	198	2	67	63	60	3	-4	N
H	260	2	67	61	57	4	-6	N
I	324	2	67	60	55	5	-7	N
J	340	2	67	59	56	3	-8	N
K	415	2	67	57	54	3	-10	N
L	470	2	67	56	53	3	-11	N
M	577	2	67	56	54	2	-11	N
N	396	Business	72	53	49	4	-19	N
O	488	Business	72	52	48	4	-20	N
P	813	Business	72	50	47	3	-22	N
Q	556	Business	72	53	49	4	-19	N
R	700	Business	72	52	49	3	-20	N
S	102 (WIS 23)	1	67	66	65	1	-1	I
T	427 (WIS 23)	Business	72	60	58	2	-12	N
U	533	Business	72	57	55	2	-15	N
V	260	Business	72	59	53	6	-13	N
W	91 (WIS 23)	Business	72	69	68	1	-13	N
X	909 (WIS 23)	Business	72	54	52	2	-18	N
Y	179 (CTH K)	Church	67	53	51	2	-14	N
Z	96 (CTH K)	School	67	63	64	-1	-4	N
AA	417 (CTH K)	School	67	57	55	2	-10	N

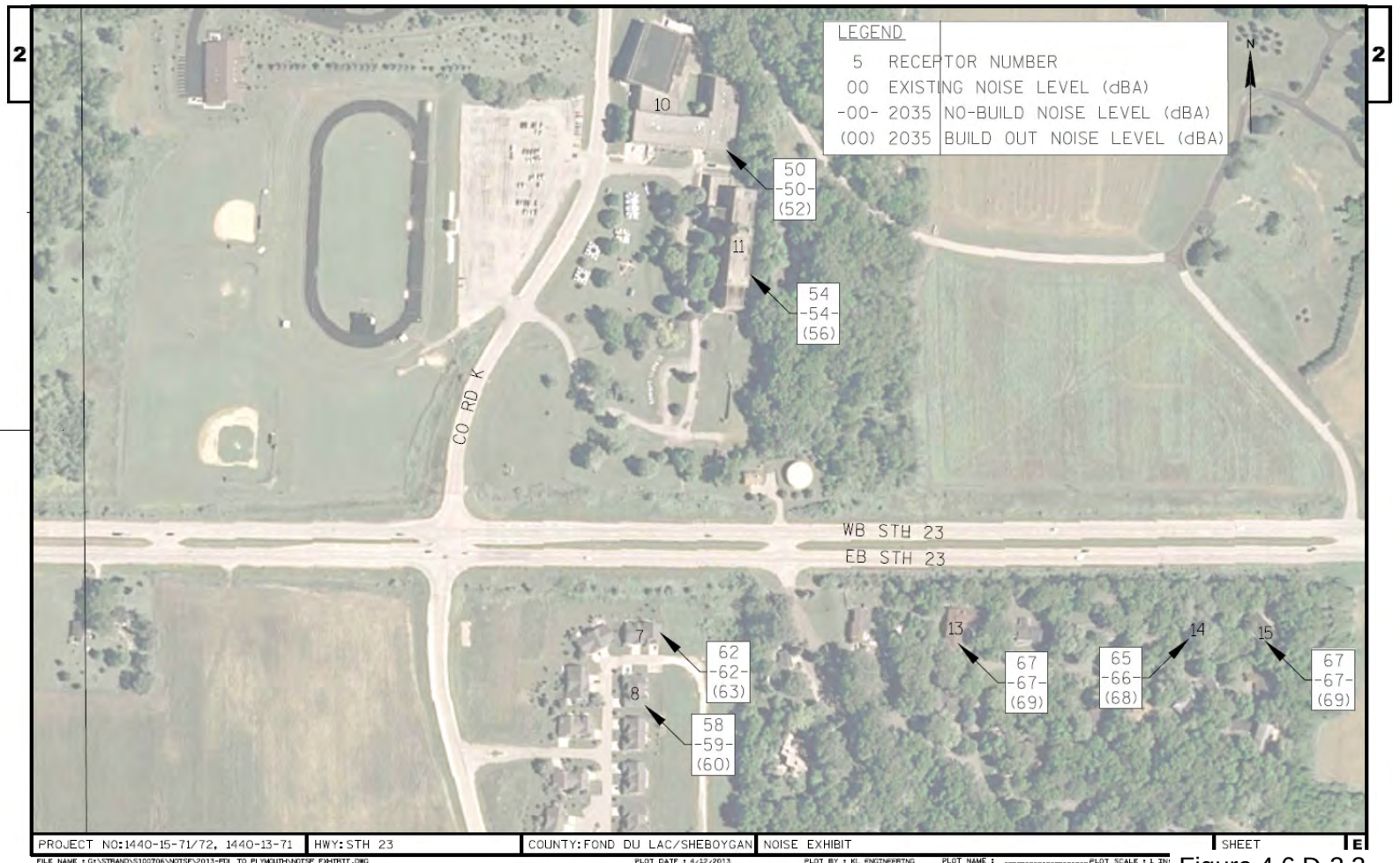
Table 4.6 D-3.9
OPTION 23-2 CORRIDOR PRESERVATION

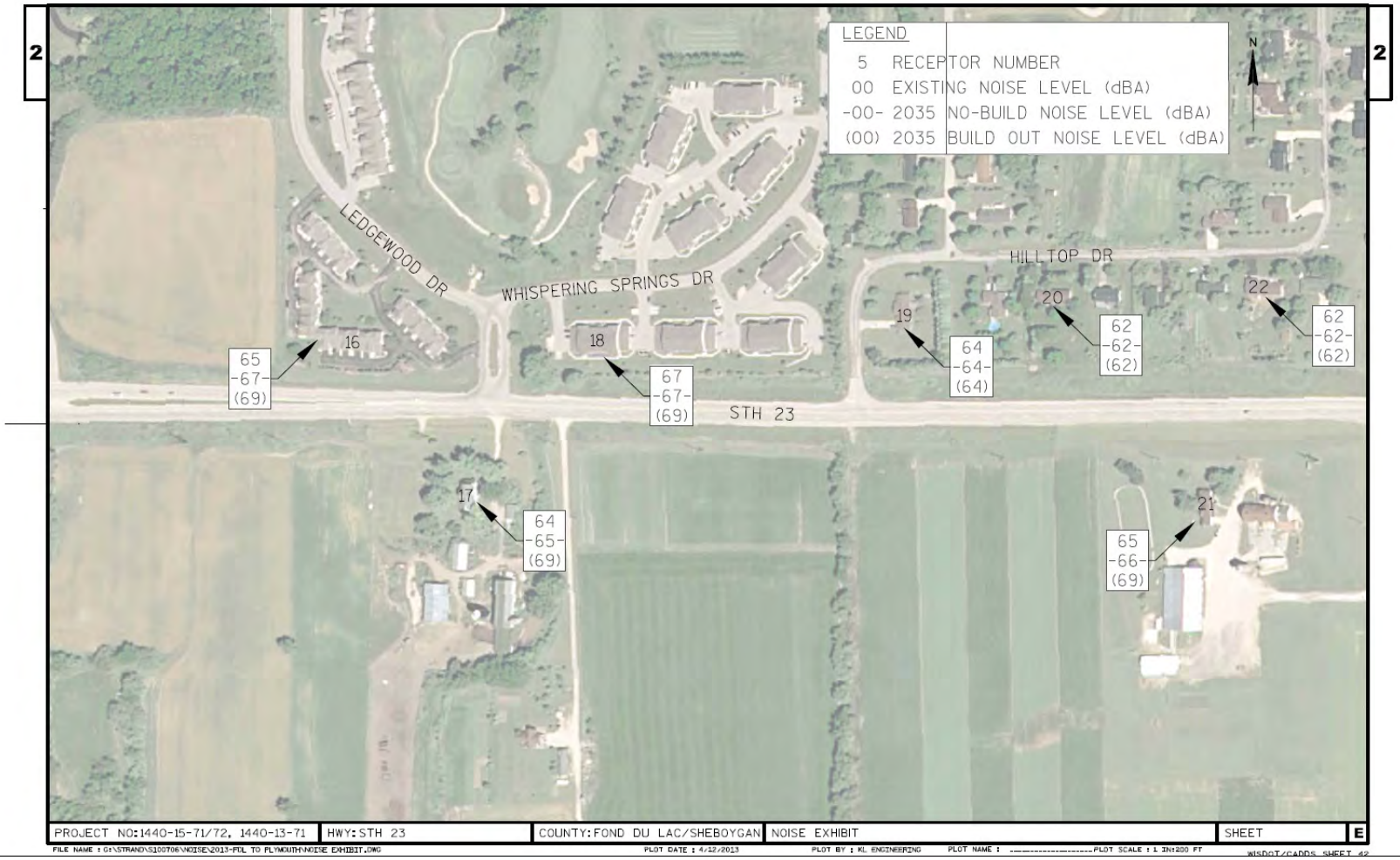
			Sound Level L_{eq} [22] (dBA)			Impact Evaluation		
Receptor Location or Site Identification (See attached map) (a)	Distance from C/L of Near Lane to Receptor in feet (ft.) (b)	Number of Families (Households) Typical of this Receptor Site (c)	Noise Abatement Criteria [23] (NAC) (d)	Future Sound Level (e)	Existing Sound Level (f)	Difference in Future and Existing Sound Levels (Col. e minus Col. f) (g)	Difference in Future Sound Levels and Noise Abatement Criteria (Col. e minus Col. d) (h)	Impact[24] or No Impact (i)
A	756	16	67	54	51	3	-13	N
B	317 (4th Street)	16	67	56	53	3	-11	N
C	97 (4th Street)	1	67	62	59	3	-5	N
D	105 (4th Street)	1	67	62	59	3	-5	N
E	109	1	67	67	63	4	0	I
F	133 (4th Street)	Business	72	61	60	1	-11	N
G	204	2	67	63	60	3	-4	N
H	292	2	67	61	57	4	-6	N
I	379	2	67	59	55	4	-8	N
J	367	2	67	59	56	3	-8	N
K	456	2	67	57	54	3	-10	N
L	544	2	67	56	53	3	-11	N
M	382 (4th Street)	2	67	56	54	2	-11	N
N	972	Business	72	52	49	3	-20	N
O	466 (WIS 23)	Business	72	58	55	3	-14	N
P	102 (WIS 23)	1	67	67	65	2	0	I
Q	427 (WIS 23)	Business	72	60	58	2	-12	N
R	84 (WIS 23)	Business	72	70	68	2	-2	N
S	124 (WIS 23)	3	67	63	64	-1	-4	N
T	124 (WIS 23)	3	67	62	64	-2	-5	N
U	814	Business	72	55	52	3	-17	N
V	96 (CTH K)	School	67	65	64	1	-2	N
W	417 (CTH K)	School	67	57	55	2	-10	N
X	179 (CTH K)	Church	67	53	51	2	-14	N

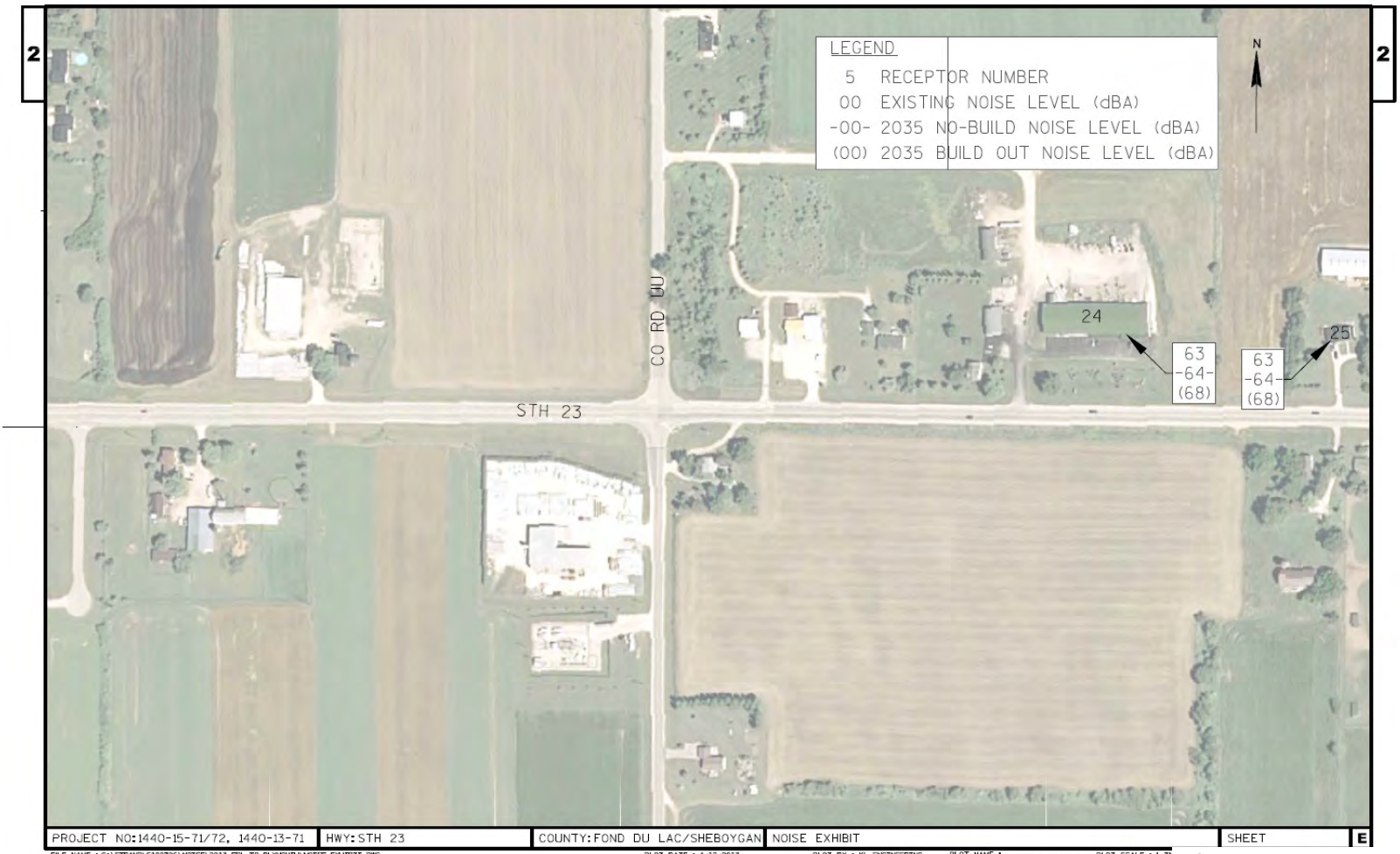

US 151
STH 23
WISCONSIN AMERICAN PARKWAY
COUNTY T
PROJECT NO:1440-13-00
HWY: WIS 23
COUNTY: FOND DU LAC
WIS 23 NOISE ANALYSIS - RECEPTOR MAP (ALTERNATIVE 23-1)
SHEET
E
FILE NAME : S:\MAD\1000--1099\1089\184\Micros\Noise\2013-01-18 Alternative 23-1 Noise Map.dgn
PLOT DATE : 1/28/2013
PLOT BY : _username_
PLOT NAME :
PLOT SCALE : **.....plotscale.....**
WISDOT/CADDS SHEET 42

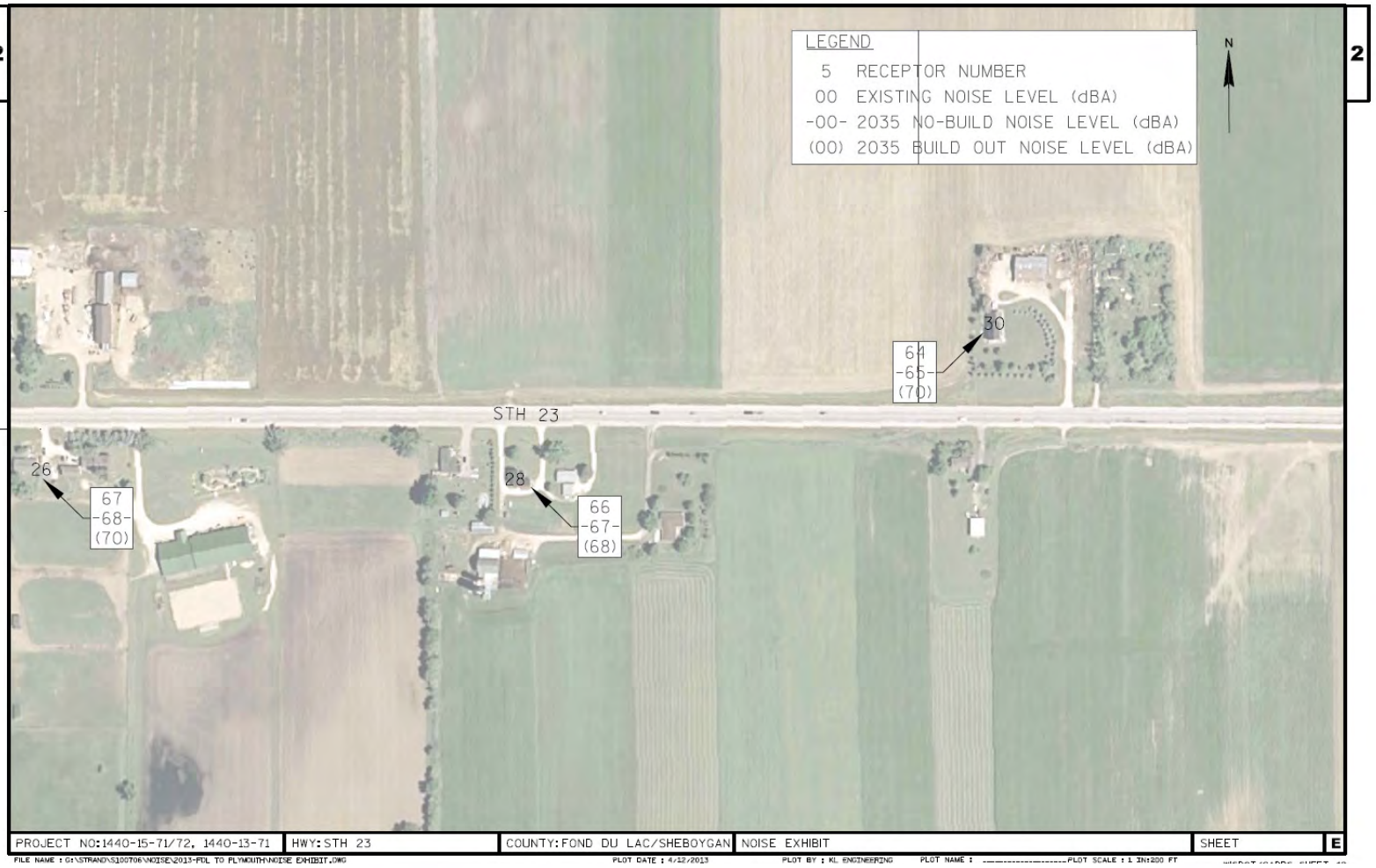

PROJECT NO:1440-13-00
HWY: WIS 23
COUNTY: FOND DU LAC
WIS 23 NOISE ANALYSIS - RECEPTOR MAP (ALTERNATIVE 23-2)
SHEET
E
FILE NAME : **....designfile....**
PLOT DATE : **...plottingdate...**
PLOT BY : **...plotuser...**
PLOT NAME :
PLOT SCALE : **.....


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
SB USH 151
NB USH 151
WB STH 23
EB STH 23
1
52
-54-
(53)
3
64
-65-
(68)
4
65
-66-
(69)
5
66
-67-
(69)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY: STH 23
COUNTY: FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
10
50
-50-
(52)
11
54
-54-
(56)
CO RD K
WB STH 23
EB STH 23
7
62
-62-
(63)
8
58
-59-
(60)
13
67
-67-
(69)
14
65
-66-
(68)
15
67
-67-
(69)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY: STH 23
COUNTY: FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
LEDGEWOOD DR
WHISPERING SPRINGS DR
HILLTOP DR
STH 23
16
65
-67-
(69)
18
67
-67-
(69)
19
64
-64-
(64)
20
62
-62-
(62)
22
62
-62-
(62)
17
64
-65-
(69)
21
65
-66-
(69)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E

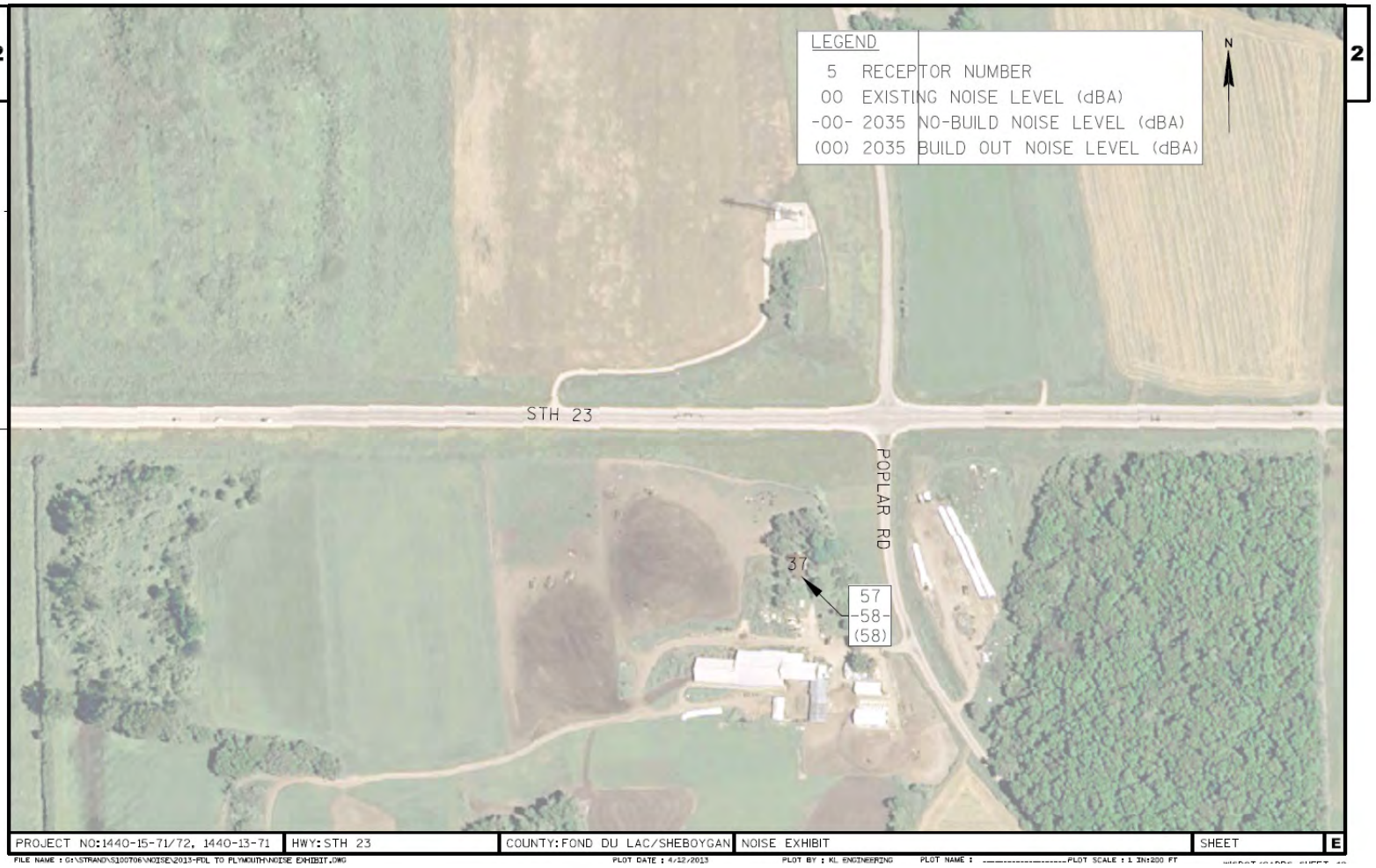

LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
CO RD UU
STH 23
24
63
-64-
(68)
25
63
-64-
(68)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
STH 23
26
67
-68-
(70)
28
66
-67-
(68)
30
64
-65-
(70)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
TAFT RD
STH 23
31
61
-62-
(61)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
34
53
-54-
(56)
TOWER RD
STH 23
RICHARDS RD
33
61
-62-
(61)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
STH 23
35
60
-61-
(61)
36
64
-65-
(65)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
STH 23
POPLAR RD
37
57
-58-
(58)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E
FILE NAME : G:\STRAND\S100706\NOISE\2013-FDL TO PLYMOUTH-NOISE EXHIBIT.DWG
PLOT DATE : 4/12/2013
PLOT BY : KL ENGINEERING
PLOT NAME :
PLOT SCALE : 1 IN=200 FT


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
STH 23
39
60
-60-
(62)
HINN RD
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E
FILE NAME : G:\STRAND\S100706\NOISE\2013-FDL TO PLYMOUTH-NOISE EXHIBIT.DWG
PLOT DATE : 4/12/2013
PLOT BY : KL ENGINEERING
PLOT NAME :
PLOT SCALE : 1 IN:


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
STH 23
LOEHR RD
HINN RD
40
65
-65-
(67)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY: STH 23
COUNTY: FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
STH 23
60
-60-
(62)
42
41
57
-58-
(61)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY: STH 23
COUNTY: FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E

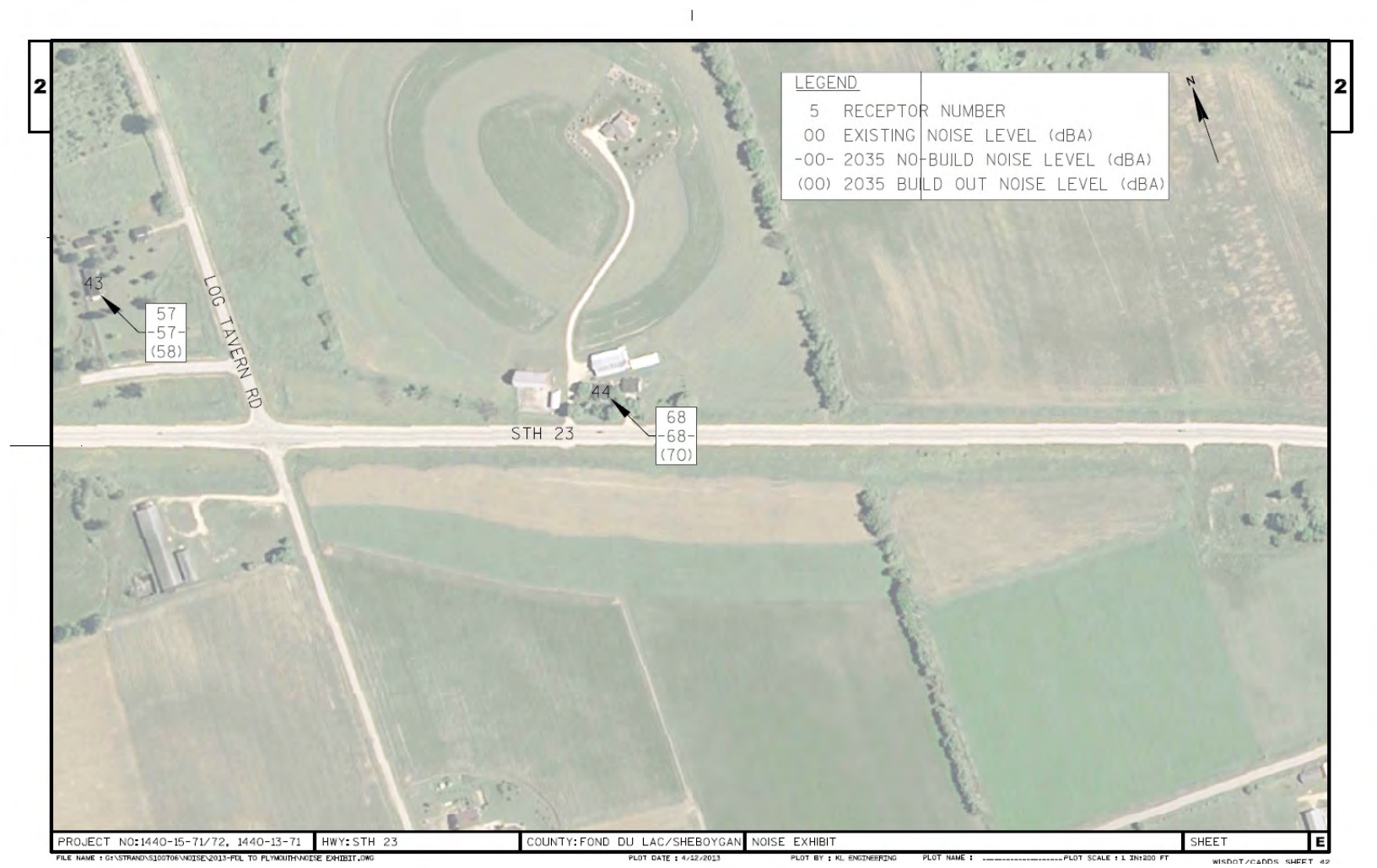


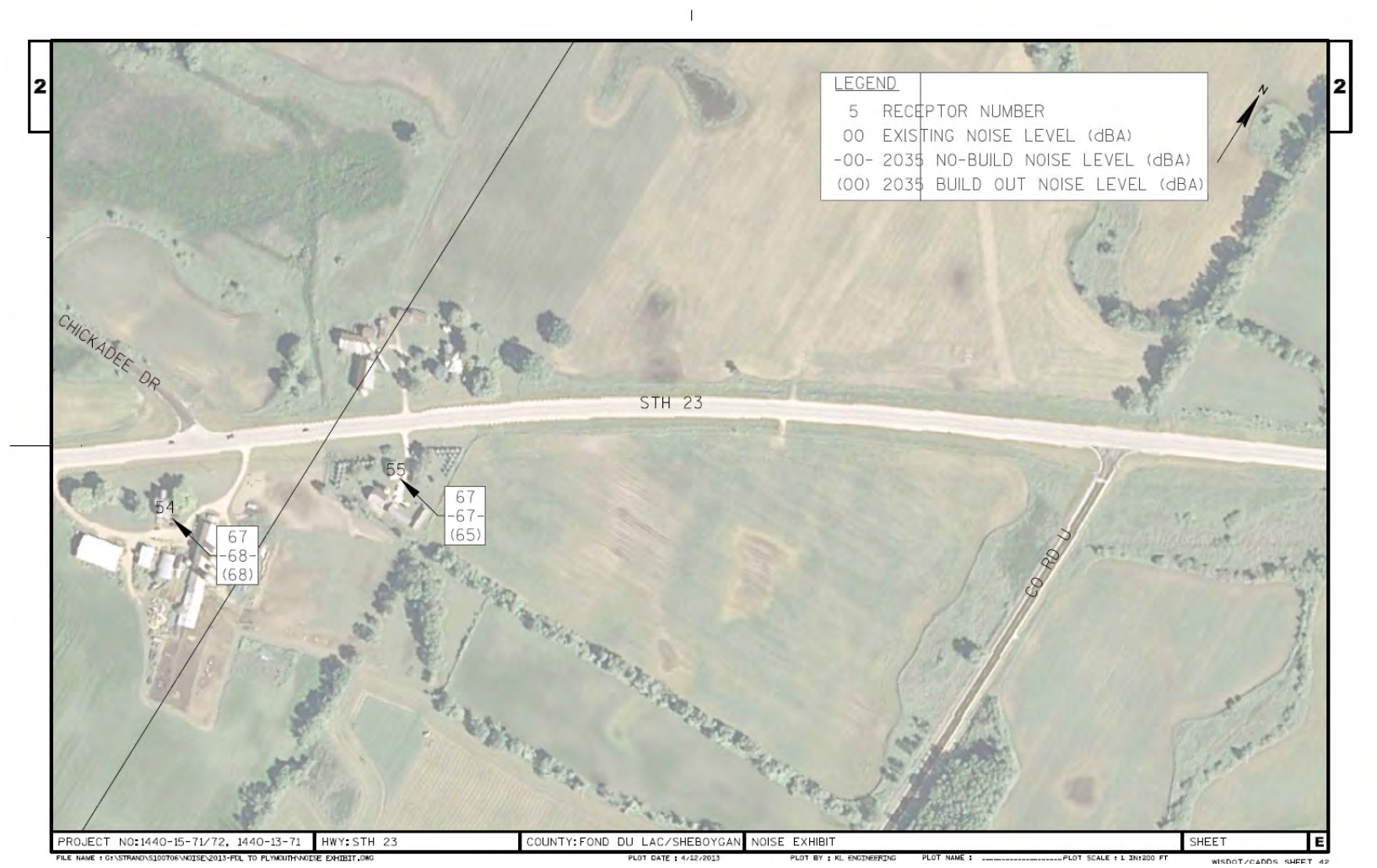
Figure 4.6 D-3.8

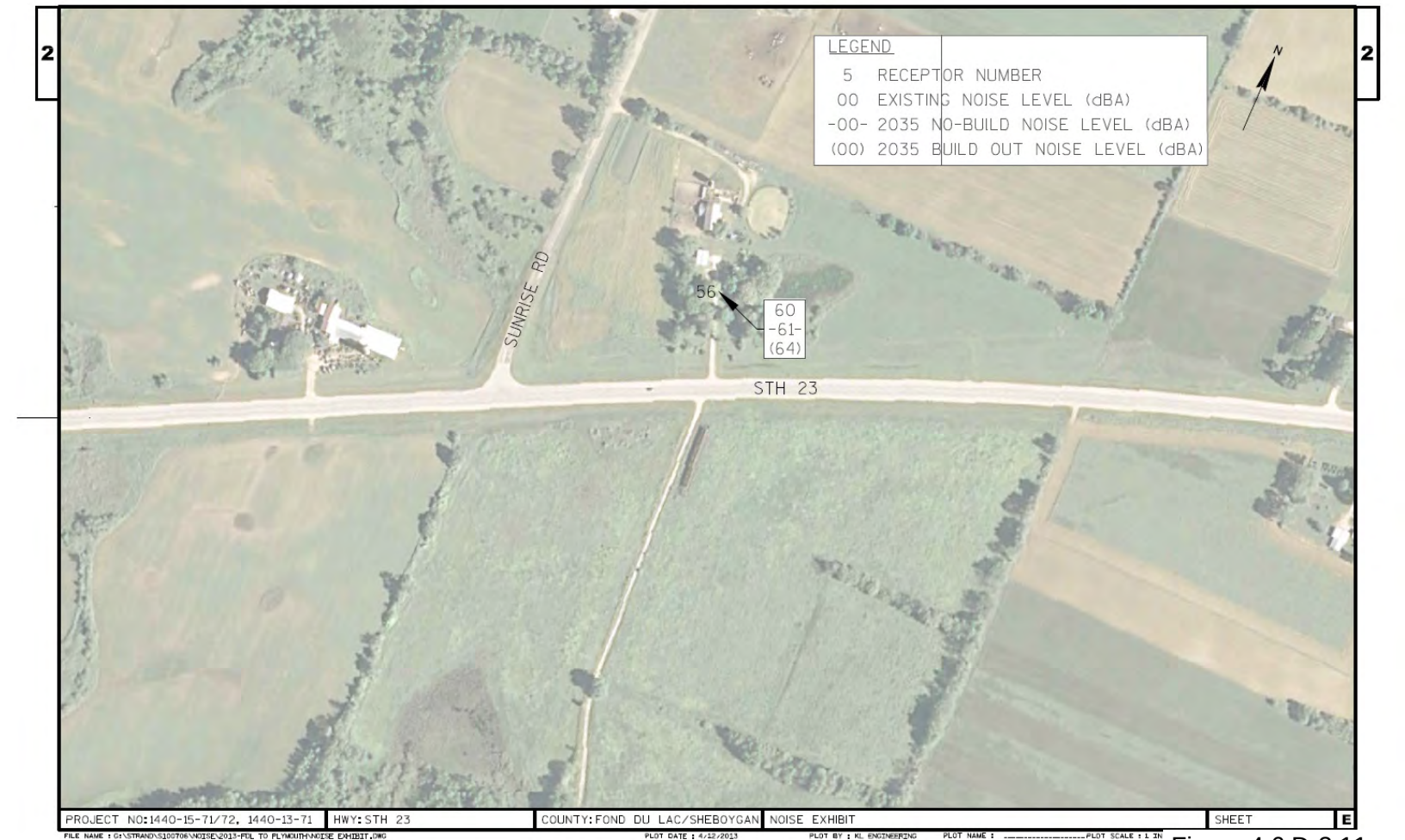

LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
CO RD TTT
STH 23
69
-69-
(70)
46
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E
FILE NAME : G:\STRAND\S100706\NOISE\2013-FDL TO PLYMOUTH\NOISE EXHIBIT.DWG
PLOT DATE : 4/12/2013
PLOT BY : KL ENGINEERING
PLOT SCALE : 1 IN=200 FT
WISDOT/CADDS SHEET 42

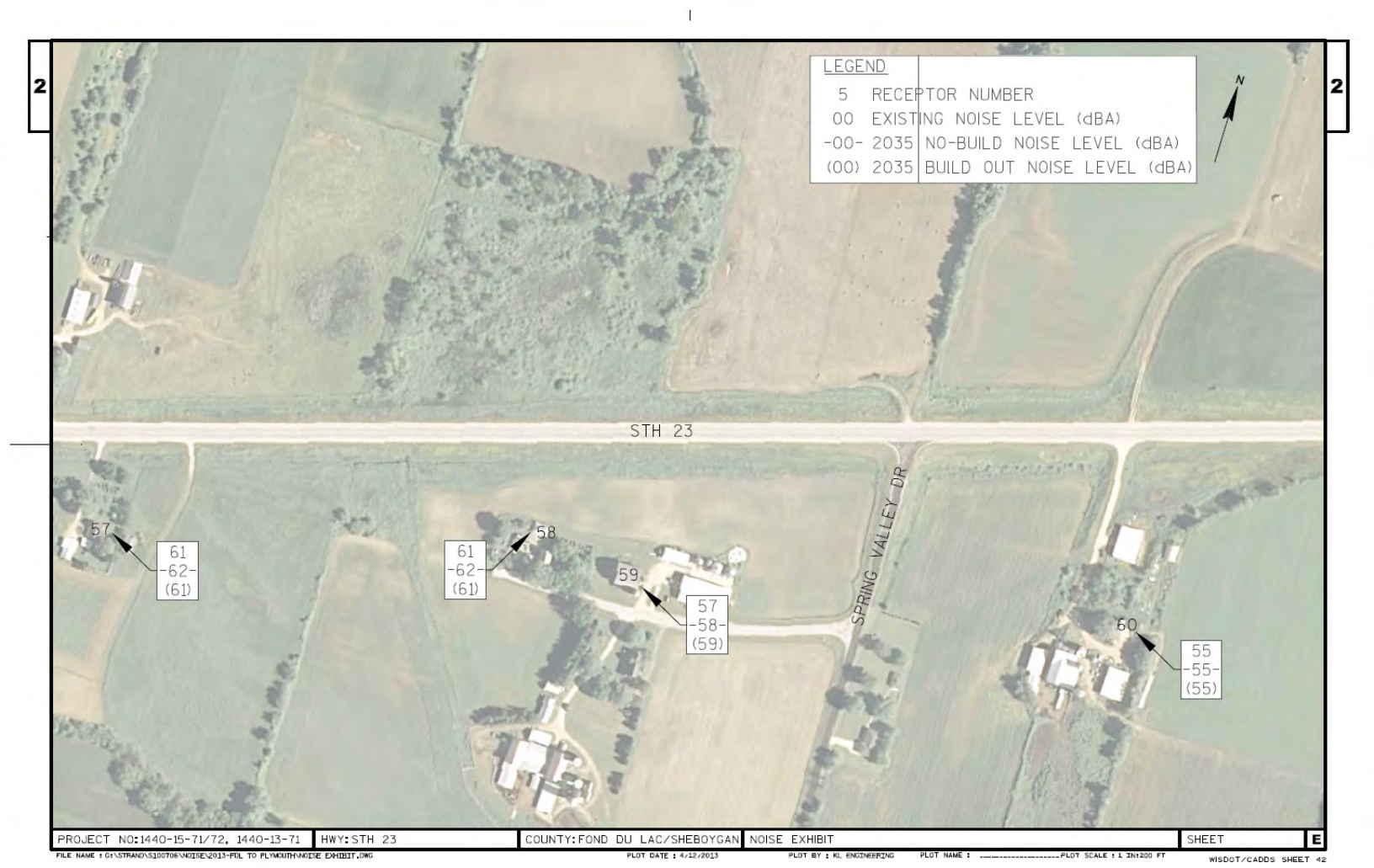

LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
56
-56-
(57)
49
48
62
-63-
(62)
HILLVIEW RD
50
64
-65-
(65)
STH 23
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E
FILE NAME : G:\STRAND\S100706\NOISE\2013-FDL TO PLYMOUTH\NOISE EXHIBIT.DWG
PLOT DATE : 4/12/2013
PLOT BY : KL ENGINEERING
PLOT SCALE : 1 IN


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
54
-54-
(55)
51
HICKORY RD
STH 23
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E
FILE NAME : G:\STRAND\S100706\NOISE\2013-FDL TO PLYMOUTH\NOISE EXHIBIT.DWG
PLOT DATE : 4/12/2013
PLOT BY : KL ENGINEERING
PLOT NAME :
PLOT SCALE : 1 IN=200 FT
WISDOT/CADDS SHEET 42

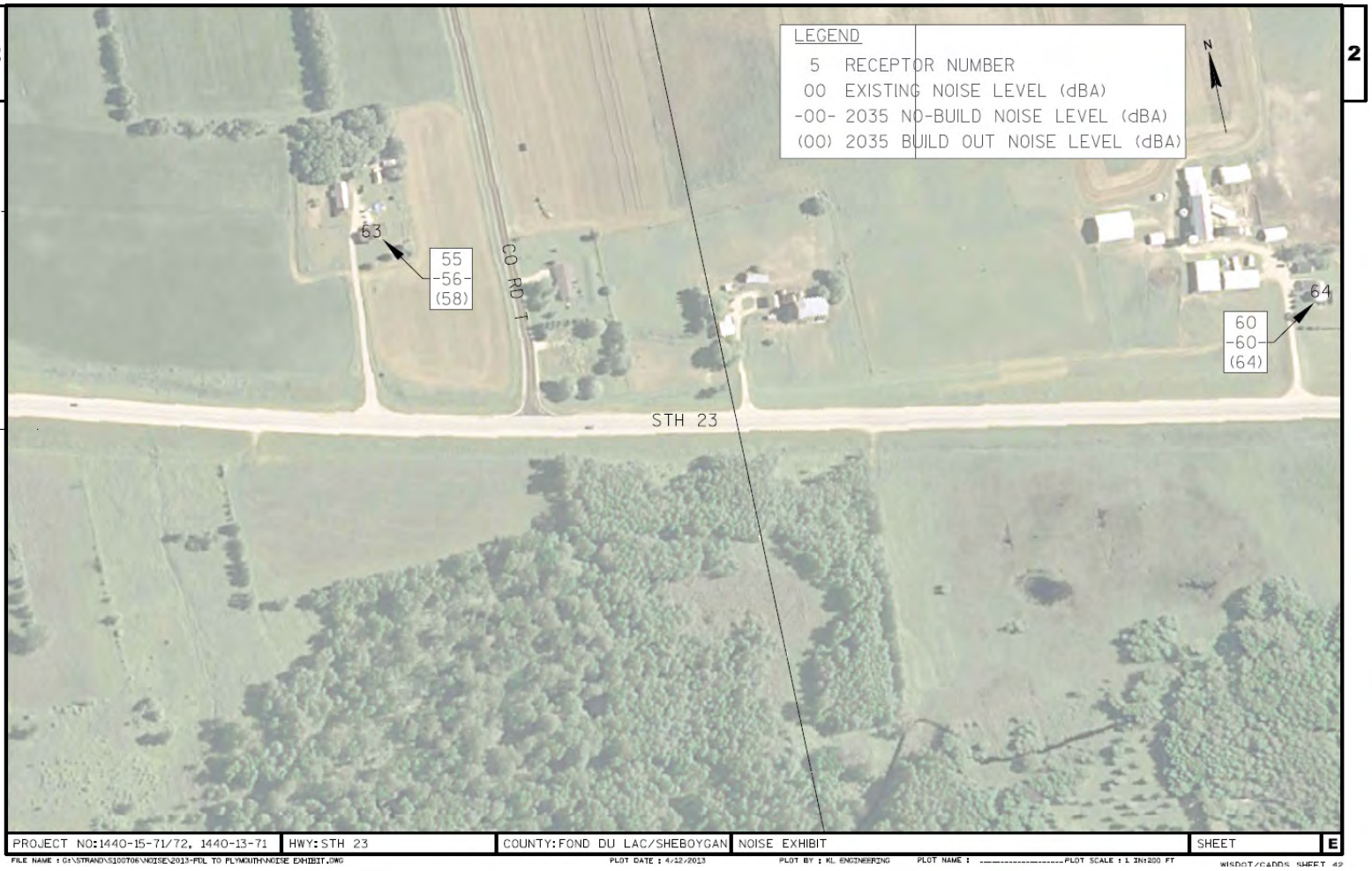

LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
66
-66-
(65)
53
52
66
-66-
(67)
STH 23
CO RD G
DIVISION RD
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E
FILE NAME : G:\STRAND\S100706\NOISE\2013-FDL TO PLYMOUTH\NOISE EXHIBIT.DWG
PLOT DATE : 4/12/2013
PLOT BY : KL ENGINEERING
PLOT NAME :
PLOT SCALE : 1 IN


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
CHICKADEE DR
STH 23
CO RD U
54
55
67
-68-
(68)
67
-67-
(65)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
SUNRISE RD
STH 23
56
60
-61-
(64)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E

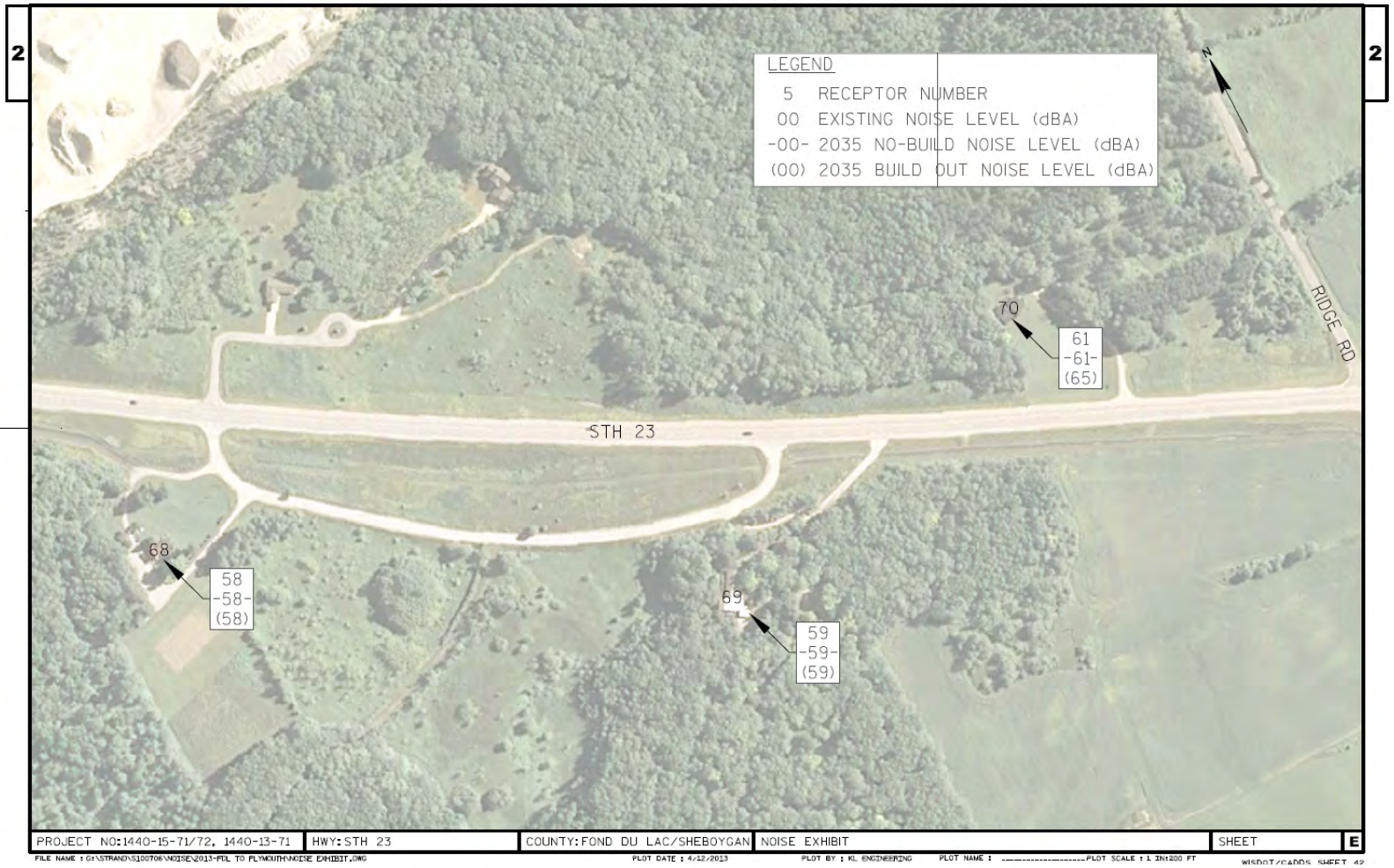

LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
STH 23
SPRING VALLEY DR
57
61
-62-
(61)
58
61
-62-
(61)
59
57
-58-
(59)
60
55
-55-
(55)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY: STH 23
COUNTY: FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E
FILE NAME : G:\STRAND\S100706\NOISE\2013-FDL TO PLYMOUTH\NOISE EXHIBIT.DWG
PLOT DATE : 4/12/2013
PLOT BY : KL ENGINEERING
PLOT NAME :
PLOT SCALE : 1 IN=200 FT
WISDOT/CADDS SHEET 42


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
61
58
-59-
(62)
STH 23
SCENIC VIEW DR
62
65
-66-
(65)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY: STH 23
COUNTY: FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E
FILE NAME : G:\STRAND\S100706\NOISE\2013-FDL TO PLYMOUTH\NOISE EXHIBIT.DWG
PLOT DATE : 4/12/2013
PLOT BY : KL ENGINEERING
PLOT NAME :
PLOT SCALE : 1 IN


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
63
55
-56-
(58)
CO RD T
64
60
-60-
(64)
STH 23
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E
FILE NAME : G:\STRAND\S100706\NOISE\2013-FDL TO PLYMOUTH\NOISE EXHIBIT.DWG
PLOT DATE : 4/12/2013
PLOT BY : KL ENGINEERING
PLOT NAME :
PLOT SCALE : 1 IN=200 FT
WISDOT/CADDS SHEET 42


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
STH 23
65
66
-66-
(65)
PLANK RD
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E
FILE NAME : G:\STRAND\S100706\NOISE\2013-FDL TO PLYMOUTH\NOISE EXHIBIT.DWG
PLOT DATE : 4/12/2013
PLOT BY : KL ENGINEERING
PLOT NAME :
PLOT SCALE : 1 IN

Figure 4.6 D-3.14


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
RIDGE RD
STH 23
70
61
-61-
(65)
68
58
-58-
(58)
69
59
-59-
(59)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY: STH 23
COUNTY: FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
CO RD S
STH 23
71
62
-62-
(63)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY: STH 23
COUNTY: FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
73
59
-59-
(61)
TWINKLE LN
STH 23
72
62
-62-
(62)
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E


LEGEND
5 RECEPTOR NUMBER
00 EXISTING NOISE LEVEL (dBA)
-00- 2035 NO-BUILD NOISE LEVEL (dBA)
(00) 2035 BUILD OUT NOISE LEVEL (dBA)
N
59
-60-
(62)
78
79
VALLEY LN
77
62
-63-
(67)
61
-62-
(65)
WB STH 23
EB STH 23
74
58
-59-
(60)
76
61
-61-
(60)
PIONEER RD
PROJECT NO:1440-15-71/72, 1440-13-71
HWY:STH 23
COUNTY:FOND DU LAC/SHEBOYGAN
NOISE EXHIBIT
SHEET
E

The Hazardous Substances or Contamination Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated based on right of way acquisition data or completion of Phase 2 investigations. There are no substantive changes from the 2010 FEIS.

HAZARDOUS SUBSTANCES OR CONTAMINATION EVALUATION Factor Sheet D-4

1. Briefly describe the results of the Phase 1 Hazardous Materials Assessment for this alternative. Do not use property identifiers (owner name, address or business name):

No-Build Alternative — There would be no affected parcels with hazardous substances or USTs.

Alternative 2 — There are 12 aboveground storage tank (AST) sites, 2 leaking underground storage tank (LUST) sites, and 2 underground storage tank (UST) sites along the Alternative 2 corridor.

Alternative 3 — There are 6 AST sites and 1 LUST site along the Alternative 3 corridor.

Preferred Build Alternative (Alternative 1)

An updated assessment indicates 27 sites along the existing roadway alignment. There are 13 AST sites (one is a AST/Junk site), 3 LUST/UST sites, 3 Junk sites, 3 vehicle repair sites, 1 vacant site, and 4 UST sites along the Preferred Build Alternative.

Corridor Preservation Alternatives

WIS 23 Corridor

No Corridor Preservation

There are no affected parcels with hazardous substances or USTs.

Preferred WIS 23 Corridor Preservation

There is 1 LUST site and 1 UST site in areas within the Preferred WIS 23 Corridor Preservation.

US 151/WIS 23 Connection

Preferred No Corridor Preservation

There would be no affected parcels with hazardous substances or USTs.

Option 23-1 and Option 23-2 Corridor Preservation

There are no additional sites with hazardous substances or USTs.

Table 4.6 D-4.1 Possibly Contaminated Sites

Site Reference #	Land Use of Concern (Past or Present)	Contaminants of Concern	Phase 1 Recommendations	Phase 2 Recommended? Y/N
1	LUST/UST	Petroleum	NFA	N
2	AST	Petroleum	NFA	N
3	AST	Petroleum	NFA	N
4	AST/Junk	Petroleum	NFA	N
5	UST	Petroleum	Phase 2	Y
6	Drums/Junk	Petroleum	Phase 1	N
7	Possible UST	Petroleum	Phase 1	N
8	Auto Sales & Repair	Petroleum	NFA	N
9	AST	Petroleum	NFA	N
10	AST	Petroleum	NFA	N
11	LUST/UST	Petroleum	NFA	N

Table 4.6 D-4.1 Possibly Contaminated Sites				
Site Reference #	**Land Use of Concern (Past or Present)**	**Contaminants of Concern**	**Phase 1 Recommendations**	**Phase 2 Recommended?**
12	Junk	Petroleum	Phase 1 or 2	Y
13	Junk/Old Tractors	Petroleum	NFA	N
14	AST	Petroleum	NFA	N
15	AST	Petroleum	NFA	N
16	UST	Petroleum	Phase 2	Y
17	Vehicle Repair	Petroleum	NFA	N
18	UST	Petroleum	Phase 1	N
19	AST	Petroleum	NFA	N
20	AST	Petroleum	NFA	N
21	Auto Sales & Repair	Petroleum	Phase 1	Y
22	Vacant	Petroleum	Phase 1	Y
23	AST	Petroleum	NFA	N
24	AST	Petroleum	NFA	N
25	AST	Petroleum	NFA	N
26	AST	Petroleum	NFA	N
27	Lust/UST	Petroleum	NFA	N

Attach additional sheets, if necessary
Additional comments: _____

The updated Hazardous Materials report indicates that along the Preferred Build Alternative (Alternative 1), there are 27 sites with potential for some type of contamination.

2. Were any parcels not included in the Phase 1 assessment?

☒ No
☐ Yes - How many:
Why were they not reviewed?

3. Have Phase 2 or 2.5 Assessments been completed? Discuss the results:

Table 4.6 D-4.2 Recommended Phase 2/2.5					
Site Reference #	**Phase 2/2.5 Recommendations**	**Remediation Recommended?**		**Is WisDOT a Responsible Party?**	
		Yes	No	Yes	No
5	Phase 2 needs to be completed.				
12	Phase 2 completed	X			X
16	Phase 2 needs to be completed if corridor preservation improvements are implemented				
21	Phase 2 completed		X		
22	Phase 2 completed		X		

The results of the investigations are discussed in question 4 below.

4. Describe the results of any additional investigations performed by WisDOT or others: (Include the number of sites investigated, the level of investigation and results for each site)

Site 5 has been fully purchased by WisDOT. The need for a Phase 2 investigation will be evaluated during final design.

A Phase 2 was performed on Site 12. Contamination was discovered and an BRRTS case was opened. WisDOT is not the Responsible Party. The property is a total acquisition and WisDOT purchased the property in highway easement. The Responsible Party does not have the ability to proceed with the investigation; WisDOT will complete the remaining items necessary for site closure at the time of construction.

Site 16 is in the corridor preservation area and a Phase 2 is not needed for implementation of the Preferred Build Alternative. A Phase 2 investigation will be performed when and if improvements associated with corridor preservation are implemented.

5. Describe proposed action to avoid hazardous materials contamination:

Impacts to the highway project will be minimized by avoiding contaminated sites to the extent possible. Where avoidance is not possible, the remediation measures employed will depend on the extent, magnitude, and type of contamination impacting the roadway. WisDOT Northeast Region will work with all concerned parties to the satisfaction of the WDNR, WisDOT BTS, and FHWA.

6. Describe the remediation and waste management practices to be included in the design for areas where contamination cannot be avoided (e.g., waste handling plan, remediation of contamination, design changes to minimize disturbances):

If contamination cannot be avoided, investigation of contaminated sites and the management of any excavated contaminated material will be completed in accordance with the FDM and the NR 700 Series of Wisconsin Administrative Codes. The management of excavated contaminated materials on transportation projects typically involves reuse of the materials on the project, disposal of the materials in a landfill, or treatment of the materials at a biopile site. If the contaminated material is classified as a solid waste, activities related to the management of excavated contaminated material will also follow the NR 500 Series of Wisconsin Administrative Codes. If the contaminated material is classified as a hazardous waste, activities related to the management of excavated contaminated material will follow the NR 600 Series of Wisconsin Administrative Codes rather than the NR 500 Series. WisDOT will work with all concerned parties to the satisfaction of the WDNR, WisDOT BTS, and the FHWA before acquisition of any questionable site and before advertising the project for letting. A waste handling plan would be completed for these parcels during a more detailed design phase.

7. List any parcels with known contamination, proposed for acquisition:

Currently there is no known contamination on the portions of property that are proposed for acquisition. Contamination was suspected on Parcels 5, 12, 16, 21, and 22. WisDOT has and will consider potentially contaminated soils in the acquisition process and in the development of plans and specifications for the project. WisDOT will continue to work with concerned to the satisfaction of the Wisconsin DNR, WisDOT BTS, and FHWA before acquisition of a contaminated site and before advertising the project for letting.

8. Bridge Projects Only: Has the structure been inspected for the presence of asbestos containing materials (ACMs)?

☒ No - Explain - Inspections will occur during the design phase of the project.
☐ Yes:

Were regulated ACMs identified?
☐ No
☐ Yes:
State the standard language to be incorporated in the special provisions of the project:

The Stormwater Evaluation Factor Sheet has been updated to the format currently used by WisDOT. Some information has been augmented and updated, but there are no substantive changes from the 2010 FEIS.

STORMWATER EVALUATION

Factor Sheet D-5

1. Indicate whether the affected area may cause a discharge or will discharge to the waters of the state (Trans 401.03).
Special consideration should be given to areas that are sensitive to water quality degradation. Provide specific recommendations on the level of protection needed.

☐ No water special natural resources are affected by the alternative.
☒ Yes - Water special natural resources exist in the project area.
- ☒ River/stream
- ☒ Wetland
- ☐ Lake
- ☒ Endangered species habitat
- ☐ Other – Describe

_____

2. Indicate whether circumstances exist in the project vicinity that require additional or special consideration, such as an increase in peak flow, total suspended solids (TSS) or water volume.

☐ No additional or special circumstances are present.
☒ Yes - Additional or special circumstances exist. Indicate all that are present.

☒ Areas of groundwater discharge	☐ Areas of groundwater recharge
☐ Stream relocations	☐ Overland flow/runoff
☐ Long or steep cut or fill slopes	☐ High velocity flows
☐ Cold water stream	☐ Impaired waterway
☐ Large quantity flows	☐ Exceptional/outstanding resource waters
☐ Increased backwater	

☐ Other - Describe any unique, innovative, or atypical stormwater management measures to be used to manage additional or special circumstances.

There are natural springs found in WDNR-identified Natural Area Nos. 4 and 5 (wetlands). Alternatives 2 and 3 impact these areas and are shown on Figures 4.6 C-1.1 to C-1.5.

3. Describe the overall stormwater management strategy to minimize adverse and enhance beneficial effects.

Typical stormwater management techniques to minimize adverse effects and enhance beneficial effects are outlined in TRANS 401.106. The strategy typically includes preparation of a written plan that outlines the BMPs to be implemented. Typical BMPs might include the following:

- Limit disturbance of natural drainage features and vegetation.
- Prior to land disturbance, prepare and implement an approved erosion and sediment control plan.
- Protect areas that provide important water quality benefits and/or that are susceptible to erosion and sediment loss.
- Reduce direct discharge of stormwater into streams and wetlands by directing it through filter strips or vegetated swales.
- Reduce runoff velocities by using weirs or other barriers to dissipate high velocities.

The Preferred Alternative requires a review of stormwater facilities and the implementation of stormwater treatments. Because of this, the existing condition that does not have stormwater treatment should be improved.

4. Indicate how the stormwater management plan will be compatible with fulfilling Trans 401 requirements.

A plan will be determined during design of the Preferred Build Alternative and will follow Wisconsin Administrative Code TRANS 401 and the WisDOT/WDNR Cooperative Agreement.

5. Identify the stormwater management measures to be utilized.

To be determined during design of the Preferred Build Alternative and measures will comply with Wisconsin Administrative Code TRANS 401 postconstruction standards.

- ☒ Swale treatment (parallel to flow) Trans 401.106(10)
- ☐ Vegetated filter strips (perpendicular to flow)
- ☐ Constructed storm water wetlands
- ☐ Buffer areas – Trans 401.106(6)
- ☐ In-line storm sewer treatment, such as catch basins, non-mechanical treatment systems.
- ☐ Detention/retention basins – Trans 401.106(6)(3)
- ☐ Distancing outfalls from waterway edge
- ☐ Infiltration – Trans 401.106(5)
- ☐ Other -Describe - _____

6. Indicate whether any Drainage District may be affected by the project.

- ☒ No - None identified
- ☐ Yes

Has initial coordination with a drainage board been completed?

- ☐ No - Explain _____
- ☐ Yes - Discuss results _____

7. Indicate whether the project is within WisDOT's Phase I or Phase II stormwater management areas.

Note: See Procedure 20-30-1, Figure 1, Attachment A4, the Cooperative Agreement between WisDOT and WisDNR. Contact Regional Stormwater/erosion Control Engineer if assistance in needed to complete the following:

- ☐ No - The project is outside of WisDOT's stormwater management area.
- ☒ Yes -The project affects one of the following and is regulated by a WPDES stormwater discharge permit, issued by the WisDNR:
  - ☐ A WisDOT storm sewer system, located within a municipality with a population greater than 100,000.
  - ☐ A WisDOT storm sewer system located within the area of a notified owner of a municipal separate storm sewer system.
  - ☒ An urbanized area, as defined by the U.S. Census Bureau, NR216.02(3). - Fond du Lac urbanized area, and city of Plymouth urban cluster.
  - ☐ A municipal separate storm sewer system serving a population less than 10,000.

8 Has the effect on downstream properties been considered?

- ☒ No
- ☐ Yes - Coordination is in process.

9. Are there any property acquisitions required for storm water management purposes?

- ☒ No
- ☐ Yes - Complete the following:
  - ☐ Safety measures, such as fencing are <u>not</u> needed for potential conflicts with existing and expected surrounding land use.
  - ☐ Safety measures <u>are</u> needed for potential conflicts with existing and expected surrounding land use. Describe:

It is anticipated that all stormwater management measures will be implemented within the proposed right of way.

The Erosion Control Evaluation Factor Sheet was not provided in the 2010 FEIS. This factor sheet contains much of the information that was provided in the Environmental Evaluation Matrix.

EROSION CONTROL EVALUATION

Factor Sheet D-6

1. Give a brief description of existing and proposed slopes in the project area, both perpendicular and longitudinal to the project. Include both existing and proposed slope length, percent slope and soil types.

East of the County UU the existing roadway profile slopes are mostly rolling and range from 0 to 4 percent. West of County UU, as WIS 23 travels up the Niagara Escarpment, roadway slope profiles are up to a mile long and increase to 4 to 6.8 percent. Proposed slopes associated with the Preferred Alternative are generally similar to existing slopes.

Perpendicular to the roadway existing slopes beyond the shoulders generally are between 4:1 (1 foot of rise to every 4 feet of horizontal) and 3:1. The proposed slopes beyond the should will be 6:1 within the 34-foot clearzone, and 4:1 to 3:1 beyond that.

2. Indicate all natural resources to be affected by the proposal that are sensitive to erosion, sedimentation, or waters of the state quality degradation and provide specific recommendations on the level of protection needed.

☐ No - there are no sensitive resources affected by the proposal.
☒ Yes - Sensitive resources exist in or adjacent to the area affected by the project.

- ☒ River/stream
- ☐ Lake
- ☒ Wetland
- ☒ Endangered species habitat
- ☐ Other - Describe _____

3. Are there circumstances requiring additional or special consideration?

☐ No - Additional or special circumstances are not present.
☒ Yes - Additional or special circumstances exist. Indicate all that are present.

- ☒ Areas of groundwater discharge
- ☐ Overland flow/runoff
- ☐ Long or steep cut or fill slopes - as WIS 23 travels up the Niagara Escarpment
- ☐ Areas of groundwater recharge (fractured bedrock, wetlands, streams)
- ☐ Other - Describe any unique or atypical erosion control measures to be used to manage additional or special circumstances_____

4. Describe overall erosion control strategy to minimize adverse effects and/or enhance beneficial effects.

To protect the drainage areas, streams, and rivers and to control construction site runoff, all Build Alternative construction documents would include detailed sedimentation and erosion control measures. The use of silt fences, turbidity barriers, sedimentation ponds, cofferdams, and the timely mulching and seeding or sodding of roadway slopes and other exposed areas will reduce runoff and siltation for all the build alternatives. An erosion control implementation plan would be prepared by the contractor and approved by WisDOT before the construction begins.

During construction, erosion and sedimentation into adjacent surface waters would be minimized through the application of WisDOT's Standard Specifications for Highway and Structure Construction. Timely mulching and seeding or sodding of roadway slopes and other exposed areas would provide long-term erosion control. During construction, techniques such as silt fences, turbidity barriers, bale dikes, temporary interceptor ditches, ditch checks, ditch liners, and sediment ponds would be used where possible to minimize erosion. The use of a silt screen below the water level during construction operations in drainage areas might also be used to reduce off-site siltation. Unstable materials would be disposed of in upland areas, not in wetlands or waterways.

Precautions will be taken at the Sheboygan River and Mullet River Creek crossings to preclude erosion and stream siltation. Crossing work will be coordinated with the WDNR to protect fish habitat and water quality. Impacts to water quality will be minimized through the implementation of erosion control measures according to the ECIP included in the construction contract, the Standard Specifications, and project special provisions. In addition, construction near surface waterways will be avoided during periods of high snowmelt or rains. Erosion control devices will be installed before erosion-prone construction activities begin, the devices will be maintained and repaired, as needed, throughout the life of the contract, and areas will be promptly restored to grass or permanent cover.

5. Erosion control measures reached consensus with the appropriate authorities as indicated below:

- ☒ WisDNR
- ☐ County Land Conservation Department
- ☐ American Indian Tribe
- ☐ US Army Corps of Engineers

All erosion control measures (i.e., the Erosion Control Plan) will be coordinated through the WisDOT-WisDNR liaison process and TRANS 401. In addition, TRANS 401 requires the contractor to prepare an Erosion Control Implementation Plan (ECIP), which identifies timing and staging of the project's erosion control measures. The ECIP shall be submitted to the WisDNR and to WisDOT 14 days prior to the preconstruction conference (Trans401.08(1)) and must be approved by WisDOT before implementation.

6. **Identify the temporary and permanent erosion control measures to be utilized on the project. Consult the FDM, Chapter 10, and the Products Acceptability List (PAL).**

- ☒ Minimize the amount of land exposed at one time
- ☒ Temporary seeding
- ☒ Silt fence
- ☒ Ditch checks
- ☐ Erosion or turf reinforcement mat
- ☐ Ditch or slope sodding
- ☐ Soil stabilizer
- ☒ Inlet protection
- ☐ Turbidity barriers
- ☐ Temporary settling basin
- ☐ Mulching
- ☐ Other - Describe _____
- ☐ Detention basin
- ☒ Vegetative swales
- ☐ Pave haul roads
- ☐ Dust abatement
- ☒ Rip rap
- ☐ Buffer strips
- ☐ Dewatering – Describe method
- ☐ Silt screen
- ☐ Temporary diversion channel
- ☐ Permanent seeding

THIS PAGE INTENTIONALLY LEFT BLANK