SECTION 4
ENVIRONMENTAL CONSEQUENCES

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The Environmental Consequences Section forms the basis for the comparison of alternatives as stated in 40 Code of Federal Regulations (CFR) 1502.14. It includes discussions of direct and indirect effects and their significance. This Limited Scope Supplemental Environmental Impact Statement (LS SEIS) incorporates analyses made in the 2014 Limited Scope Supplemental Final Environmental Impact Statement (LS SFEIS) by reference. Specifically, this LS SEIS adopts the following analyses of the 2014 LS SFEIS:

- Analyses of the off-alignment alternatives and their elimination from further consideration.
- Selecting the No Corridor Preservation Alternative for the US 151/WIS 23 interchange.
- Eliminating the Transportation System Management Alternative from further consideration.
- Eliminating the Transit Alternative from further consideration.
- Eliminating the reconstruction of the existing 2-lane highway from further consideration.

The analyses and decision to adopt the elimination of these solutions can be reviewed at the following web link:
http://wisconsindot.gov/Pages/projects/by-region/ne/wis23exp/enviro.aspx

This Environmental Consequences Section differs from the Environmental Consequences Section in the 2014 LS SFEIS in that it:

- Does not include analyses of the previously dismissed alternatives.
- Includes analyses of the Passing Lane and Hybrid Alternatives.
- Updates information when more recent information is available.
- The demographic and income data have been updated from more recent data sources.

Yellow highlight signifies updates since the May 2018 Limited Scope Supplemental Draft Environmental Impact Statement (LS SDEIS). Minor changes to grammar, punctuation, and usage are not highlighted. Highlighting of a figure or table title signifies updated or new information.

4.1 INTRODUCTION

This section describes the beneficial and adverse social, economic, and environmental consequences of the No-Build Alternative, build alternatives, and corridor preservation associated with build alternatives. The section is divided into subsections. Sections 4.2 and 4.3 address commitments of resources and the relationship between uses of the environment and long-term productivity. Sections 4.4 and 4.5 address indirect and cumulative effects. Sections 4.6 and 4.7 provide a summary of the impacts in matrix form, and Section 4.7 contains factor sheets that provide more detail on individual impacts.

The Wisconsin Department of Natural Resources (WDNR), Wisconsin State Historical Society, United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), and United States Environmental Protection Agency (USEPA) were involved with the scoping process with the initial documents and have commented on this proposed project. Coordination with these agencies will continue. Coordination during this environmental document also involved the United States Coast Guard for the river crossings along the corridor.

A. Indirect and Cumulative Effects

The indirect and cumulative effects discussion in Sections 4.4 and 4.5 provides a summary of the indirect and cumulative effects of the Range of Alternatives Carried Forward for Detailed Study discussed in this document. Section 4.4 discusses indirect effects which occur later in time or removed in distance from the actual construction of the alternative. Section 4.5 provides a summary of the cumulative effects of the build alternatives under consideration. 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.

B. Environmental Cost Matrix

Table 4.6-1 summarizes the impacts associated with the No-Build, Passing Lane, Hybrid, and 4-lane On-alignment Alternatives. It also summarizes the resources, land types, residences, and businesses within the corridor preservation area for the Passing Lane, Hybrid, and 4-lane On-alignment Alternatives.

Wisconsin Department of Transportation (WisDOT) purchased right of way for the 4-lane On-alignment Alternative between 2010 and 2015 before the Record of Decision (ROD) was vacated by the US District Court, Eastern District of Wisconsin. About 38 percent of the acquisition was completed in Fond du Lac County, and 100 percent of the acquisition was completed in Sheboygan County. Much of the residential and farm relocations associated with the 4-lane On-alignment Alternative were purchased. Therefore, the table designates how much is needed based on the existing right of way prior to 2010, as well as how much has been purchased since 2010. In some instances, more land was purchased than was needed because not purchasing the land would leave an uneconomic remnant.[1] This land is considered excess right of way and is listed in Table 4.6-1 and 4.6-2.

Right of way previously purchased for the 4-lane On-alignment Alternative may not be needed for the Passing Lane or Hybrid Alternatives. However, it would be needed as part of the corridor preservation associated with Passing Lane or Hybrid Alternatives.

The WisDOT expenditure for right of way already acquired was not considered in the identification of the Preferred Alternative. The land could be resold to abutting landowners, but the cost of the buildings razed is irretrievable. Additionally, since no construction has taken place, impacts to natural and physical environmental resources within the already acquired right of way have not occurred nor has mitigation for potential impacts progressed beyond the conceptual evaluation stage other than the Section 6(f) land conversion and boundary update for the Northern Unit of the Kettle Moraine State Forest (KMSF-NU).

C. Environmental Evaluation Matrix

The matrix contained in Section 4.7 provides an overview of the effects of the No-Build, Passing Lane, Hybrid, and 4-lane On-alignment Alternatives as well as the corridor preservation associated with build 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 presented further in Section 4.7.

D. Detailed Factor Sheets

Following the Environmental Evaluation Matrix, detailed evaluation of the specific environmental factors is presented using individual factor sheets. Factor sheets are a more condensed method for documenting the results of the National Environmental Policy Act (NEPA) process. They are generally used by WisDOT and Federal Highway Administration (FHWA) in Environmental Assessments and Environmental Reports. Since the 2010 FEIS and 2014 LS FEIS used the factor sheet format, it has been retained in this LS SEIS, except for the format of Section 5 (Section 4(f) and 6(f)), which was revised.

[1] 42 USC 61 Section 4651 states "(9) If the acquisition of only a portion of a property would leave the owner with an uneconomic remnant, the head of the Federal agency concerned shall offer to acquire that remnant. For the purposes of this chapter, an uneconomic remnant is a parcel of real property in which the owner is left with an interest after the partial acquisition of the owner's property and which the head of the Federal agency concerned has determined has little or no value or utility to the owner."

4.2 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES

Prior right-of-way acquisition was based on the 4-Lane On-alignment Alternative selected as the Preferred Alternative in the 2014 LS SFEIS and prior to the ROD being vacated. This acquisition does not prevent the selection of the No-Build Alternative, nor is it considered in the evaluation of the build alternatives.

1. No-Build Alternative

The No-Build Alternative includes irretrievable money, time, and personal hardship related to the rate of personal injury and property damage crashes that are anticipated along the existing route. Funding for maintenance would also be committed to the project. The increases in cost, time, and frustration levels associated with the decreasing levels of service, for portions of the corridor, 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.

A substantial investment and conversion of private land to highway right of way has already occurred based on the approvals given in the 2014 LS SFEIS and prior to the ROD being vacated. The following bullets summarize resources that have been committed to the project that would no longer be needed if the No-Build Alternative was selected.

- 528[2] acres of right of way that was purchased would no longer be needed.
- 30 residential relocations have occurred, with 27 of the residences razed. These relocations would no longer be needed.
- 3 business relocations have occurred, with all of the business buildings razed. These relocations would no longer be needed.
- 17 farm relocations have occurred, with 16 of the farm operations having their buildings razed. These relocations would no longer be needed.

Right-of-way acquisition already completed and associated relocation impacts were not considered in the identification of the Preferred Alternative. The land could be resold to abutting landowners, but the impacts and disruption to those displaced from razed buildings is irretrievable. Additionally, since no construction has taken place, impacts to natural and physical environmental resources within the already acquired right of way have not occurred nor has mitigation for potential impacts progressed beyond the conceptual evaluation stage other than the Section 6(f) land conversion and boundary update for the KMSF-NU.

2. Build Alternatives

The build alternatives require irreversible commitments of resources. Right-of-way acquisition already completed and associated relocation impacts were not considered in the identification of the Preferred Alternative. The land could be resold to abutting landowners, but the impacts and disruption to those displaced from razed buildings is irretrievable. Additionally, since no construction has taken place, impacts to natural and physical environmental resources within the already acquired right of way have not occurred nor has mitigation for potential impacts progressed beyond the conceptual evaluation stage other than the Section 6(f) land conversion and boundary update for the KMSF-NU.

Land converted from private use to public use displaces local tax revenues. Economic resources that would be committed to the project include irretrievable federal and state funding for construction and maintenance. WIS 23 has been enumerated by state statute. According to the most recent report from WisDOT to the Transportation Projects Committee (TPC) dated August 2018, sufficient funding has been

[2] Actual surveyed amount is 530 acres between excess right of way and wetland mitigation. Value shown represents the approximate amount calculated using GIS parcel line files, not surveyed right of way lines.

designated to the WIS 23 project to allow commencement of construction in state fiscal year 2019 and completion in state fiscal year 2024. The report to the TPC assumes that total funding for the Majors Highway Program will continue at fiscal year 2017 levels, though WisDOT cannot predict what the exact level of support for the Majors program will be in future biennial budgets. In the 2017 Wisconsin Budget, Wisconsin Act 59, Section 9145(2i), the legislature allocated construction contract let savings of up to $19.4 million from other projects to be used for initial construction activities associated with WIS 23 in the 2017 to 2019 biennium.

The 2017 Wisconsin Act 59 approved the 2017 to 2019 Biennial Transportation Budget. Figure 4.2-1 illustrates the revenue sources for the $6.17 billion biennial transportation budget for 2017-2019.

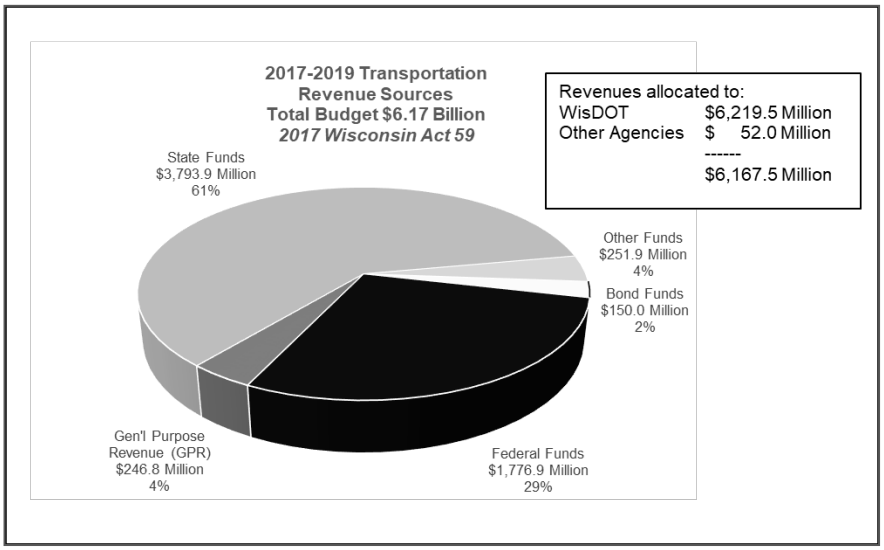


Figure 4.2-1 2017-19 Wisconsin Transportation Revenue Sources

Figure 4.2-2 illustrates the budgeted expenditures for the biennial period. The $63.1 to $114.4 million remaining total project costs for the WIS 23 build alternatives make up 0.9 to 1.7 percent of the total transportation budget and 2.1 to 3.7 percent of the portion of the budget allocated toward state highway improvements. Funds spent on a WIS 23 build alternative would not be available for other highway improvements and/or local program street improvements.

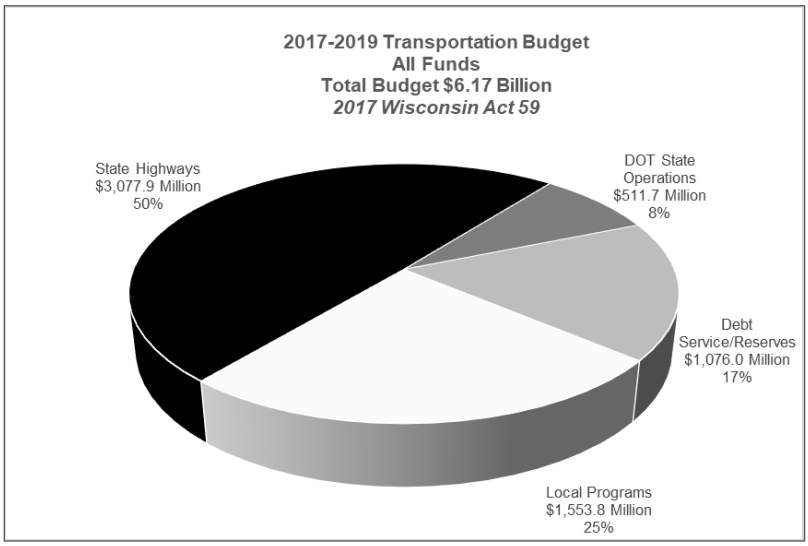


Figure 4.2-2 2017-19 Wisconsin Transportation Expenditures

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 would include improved safety, greater facility capacity, and travel time savings.

3. Corridor Preservation

Corridor preservation is associated with each build alternative. If corridor preservation associated with any of the build alternatives is not selected, there would be irretrievable commitment of resources, money, and time for relocations and razing buildings that took place before the 2014 ROD was vacated. There would be no irretrievable commitment of resources, money, or time for the land that was acquired before the 2014 ROD was vacated since the land could be sold back. If corridor preservation associated with the Passing Lane Alternative or the Hybrid Alternative is selected, there would be some irretrievable commitments since relocations completed for the 4-lane On-alignment Alternative would not be needed. Not including corridor preservation as part of the Passing Lane or Hybrid Alternatives could influence future transportation options by not preserving opportunities that are presently available. This could result in less than optimal future transportation solutions and/or result in potentially substantial cost increases to optimize the system.

Corridor preservation seeks to preserve right of way for transportation improvements that are likely to be needed in the future. This commitment, however, is neither irreversible nor irretrievable. Future circumstances could remove these preservation measures, and protected land could have all restrictions removed. If implemented, improvements associated with corridor preservation will require irreversible commitments of resources. (See discussion for irreversible commitments of resources for Build Alternatives above.) In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

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

All alternatives involve 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 build alternatives may include commitment of public funds to build the facility, 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.

The alternatives considered do not have a precedent-setting nature for future projects. The alternatives 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 any of the alternatives considered in this document are not expected to solely stimulate substantial long-term indirect impacts but build alternatives could slightly accelerate the pace of indirect development. Potential indirect impacts related to development are described in Section 4.4.

The purpose of the improvement project is to provide additional highway capacity [i.e., to provide appropriate and effective Level of Service(LOS)] to serve existing and projected traffic volumes and

improve operational efficiency and safety for local and through traffic while avoiding or minimizing environmental effects. 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 a 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 generally consistent with adopted plans to accommodate development resulting from growth trends.
The alternatives considered in this LS SEIS will not preclude or direct future transportation options. If additional capacity was required beyond what is provided by this project, other modal alternatives or additional highway alternatives could still be pursued.

Corridor preservation is associated with each build alternative and will not preclude the limitation of future transportation options. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. Corridor preservation would preserve opportunities that could be lost without a preservation action. In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. Resources within the corridor preservation areas are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. If WisDOT receives a notice, they will either acquire the property or approve the construction to move forward. If approval is given and in the future WisDOT determines transportation improvements are needed within the preserved area, the property owner will be compensated as part of the normal WisDOT acquisition process. The statute also states that if notice is not given to WisDOT, compensation will not be made by WisDOT for structure improvements occurring within the corridor preservation area. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Long-term environmental impacts resulting from build alternatives include the creation of new environmental effects such as new structures, wetland losses, loss of upland habitat, 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.

Other than the impacts of maintenance projects, the No-Build Alternative avoids all the short-term and localized construction impacts. Safety and mobility could continue to deteriorate under the No-Build Alternative as capacity needs are not met for portions of the corridor. As traffic volumes increase in the future, the slower travel speeds and crash potential could remain, reducing the long-term productivity of the region.

4.4 INDIRECT EFFECTS

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).

The project team followed the six-step analysis method described in WisDOT's Guidance for Conducting an Indirect Effects Analysis (November 2014). These steps include the following:

A. Scope, Select Tools/Activities, and Determine the Study Area
B. Inventory the Study Area for Notable Features (and Trends)
C. Identify Impact Causing Activities of the Proposed Project Alternatives
D. Identify the Potentially Significant Indirect Effects
E. Analyze Indirect Effects, Describe their Significance for Project Alternatives, and Evaluate Assumptions
F. Assess Consequences and Identify Mitigation Strategies

The following paragraphs summarize the findings of these six steps. The complete indirect effects analysis in this document is organized around these steps.

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

In selecting the scope and tools, the study team referenced Appendix B in WisDOT's Guidance for Conducting an Indirect Effects Analysis. The study team used all of the methods referred to in this document. Trend analysis, expert panels, and the Delphi method[3] 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.

1. 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 indirect and cumulative effects (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.

[3] 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. 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[4] were most appropriate because these methods leveraged the use of existing information and knowledge.

This analysis builds on and supplements the indirect effects analysis performed for the 2014 LS SFEIS. Both efforts enlisted the input of an expert panel. The expert panel members were selected based on their professional areas of expertise and their local knowledge of the project study area. The 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. Once these exercises were completed, the panel members participated in a facilitated workshop to review and discuss resources, land use controls, impact causing activities, potential indirect effects, and the potential significance of the indirect effect. The study team then took this information and used it in its analysis of potential indirect effects caused by the project.

The following timeline summarizes the indirect effects analysis process for the 2014 LS SFEIS and this LS SEIS.

December 2011	Expert Panel reviews inventory report and completes survey and mapping exercise.
January 2012	Indirect effects workshop reviews resources, impact causing activities, and potential indirect effects.
Spring 2012	Draft indirect effects report submitted.
July 2013	Indirect effects analysis incorporated in 2013 LS SDEIS.
March 2014	Indirect effects analysis incorporated in 2014 LS SFEIS.
September 2017	Expert Panel completes new and updated survey and mapping exercise.
October 2017	Indirect effects workshop reviews resources, re-evaluates impact causing activities, and re-evaluates potential indirect effects.
December 2017	Draft indirect effects report submitted.
May 2018	Indirect effects analysis incorporated in 2018 LS SDEIS.
October 2018	Indirect effects analysis incorporated in this LS SFEIS.

The initial expert panel activities associated with the 2014 LS SFEIS only reviewed the No-Build Alternative and the Preferred Alternative, which at the time was the 4-lane On-alignment Alternative. The expert panel activities in 2017 evaluated the No-Build Alternative, the Passing Lane Alternative, and the 4-lane On-alignment Alternative. Questions were also presented to the panel regarding improvements associated with corridor preservation. The Hybrid Alternative was not specifically discussed because the study team felt that indirect effects of the Hybrid Alternative could be reasonably inferred from the responses to the Passing Lane and 4-lane On-alignment Alternatives. The No-Build Alternative, Passing

[4] 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.

Lane Alternative, and 4-lane On-alignment Alternative represent a full spectrum of alternatives that can be reasonably implemented.

The discussion format enabled the identification of possible impacts. Representatives from all government divisions within the ICE study area were invited. Representatives from the following agencies and communities participated in the October 2017 survey and/or panel:

- Town of Greenbush
- Town of Forest
- Town of Marshfield
- Town of Empire
- Village of Glenbeulah
- Elkhart Lake Chamber of Commerce
- City of Plymouth
- City of Fond du Lac
- Sheboygan County Planning Department
- Fond du Lac County Planning Department
- Fond du Lac Metropolitan Planning Organization
- Envision Greater Fond du Lac
- East Central Wisconsin Regional Planning Commission
- Bay-Lake Regional Planning Commission
- WDNR Wildlife Management, Eastern Fond du Lac and Sheboygan counties
- Ice Age Trail (IAT) (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

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

3. Determine Indirect Effects (and Cumulative Effects) Study Area

The study team interacted with staff planners and resource experts from Fond du Lac County, Sheboygan County, and East Central Wisconsin Regional Planning Commission to determine the likely range of influence from the WIS 23 project. The planners and experts used the criteria specified in Section 4.4.A.1. These land use and resource experts 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 first expert panel workshop held in January 2012 where it was confirmed that the study area boundary was appropriate. The same study area boundaries were used with the 2017 indirect effects analysis.
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 commuter shed 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. The route options on the south side of WIS 23 are US 45 which runs to the southeast from the western end of the WIS 23 corridor, WIS 67 which runs east and west at the eastern end of the WIS 23 corridor, and County B which connects US 45 and WIS 67 just south of town boundaries. 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 County WH (formerly 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 County WH 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.

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 the WIS 23 proposed improvements on environmental justice populations, the study team determined that the study area boundaries were logical and appropriate.

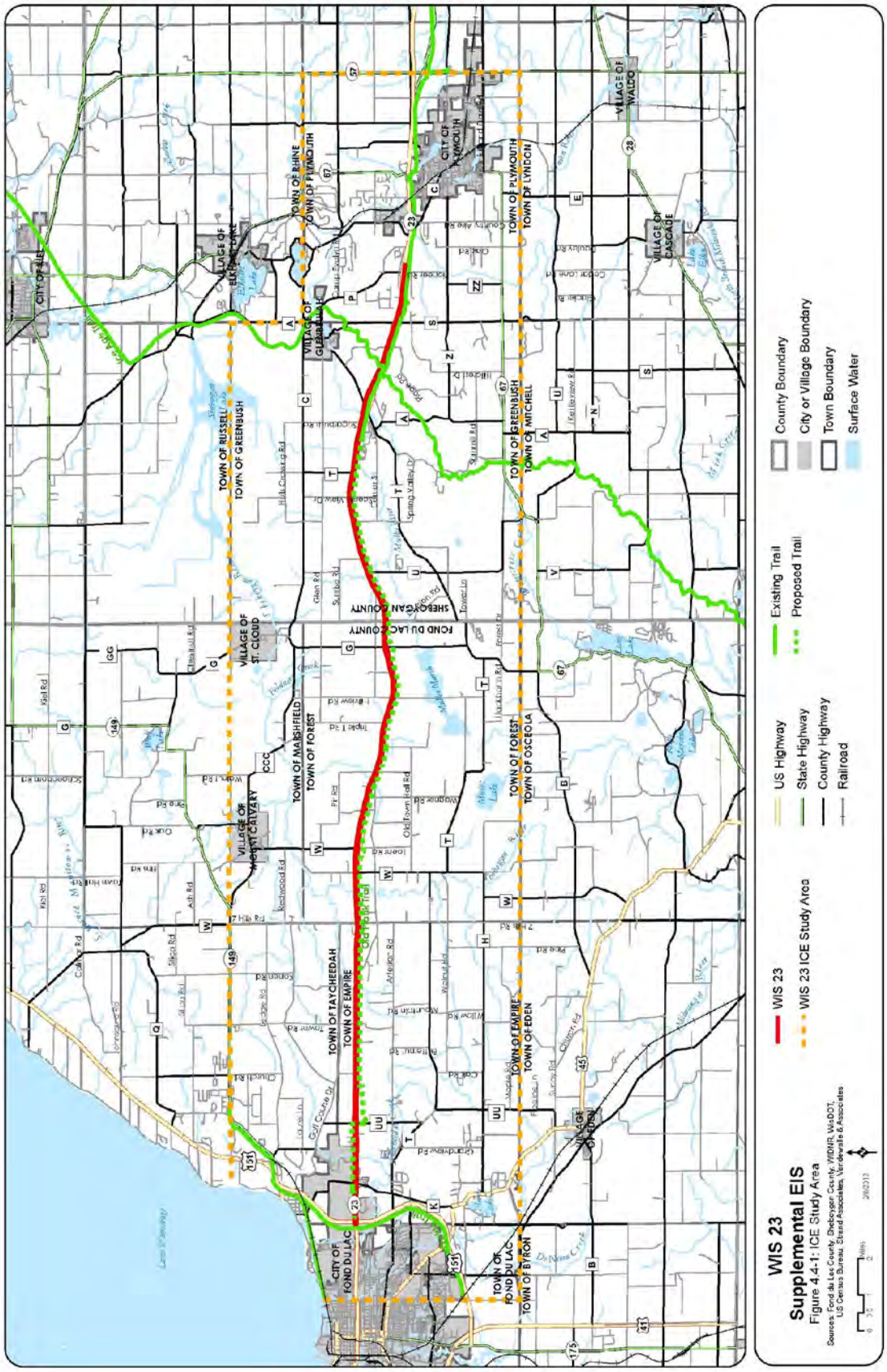


Figure 4.4-1 ICE Study Area

B. Inventory the Study Area for Notable Features (and Trends)

1. Demographics

Figures 4.4-2 through 4.4-5 show census tracts and blocks in the ICE study area communities with dots depicting the prevalence of minority, Hispanic, low-income, and elderly (over 65 years old) residents. The figures illustrate the following:

a. 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. They are also located at special facilities within the corridor area. Larger concentrations also reside at:

- The Taycheedah Correctional Institution
- The Kettle Moraine Correctional Institution
- St Lawrence Seminary High School

b. There are a small number of Hispanic and Latino populations randomly dispersed along the corridor, with slightly greater concentrations at the west end of the study area in the city of Fond du Lac and west of the WIS 23 proposed improvements.

c. There are a small number of people below poverty level that are randomly dispersed along the corridor, with slightly greater concentration at the east end of the study area. This population is concentrated beyond the WIS 23 proposed improvements.

d. Elderly populations are randomly distributed through the study area, with slightly greater concentrations in the cities of Fond du Lac and Plymouth and the villages of Mt. Calvary and St. Cloud, both in the town of Marshfield.

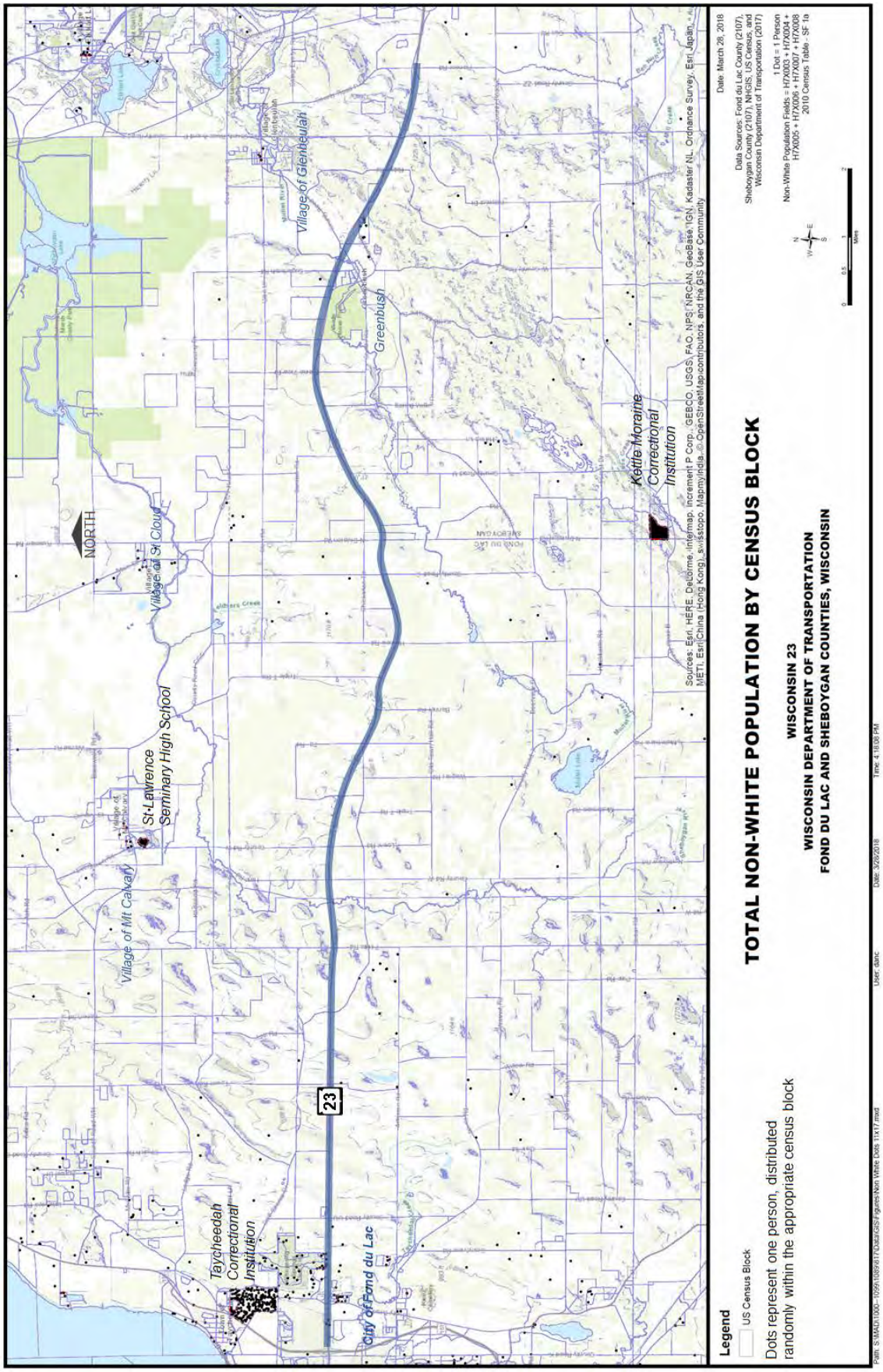


Figure 4.4-2 Non-white Population by Census Block

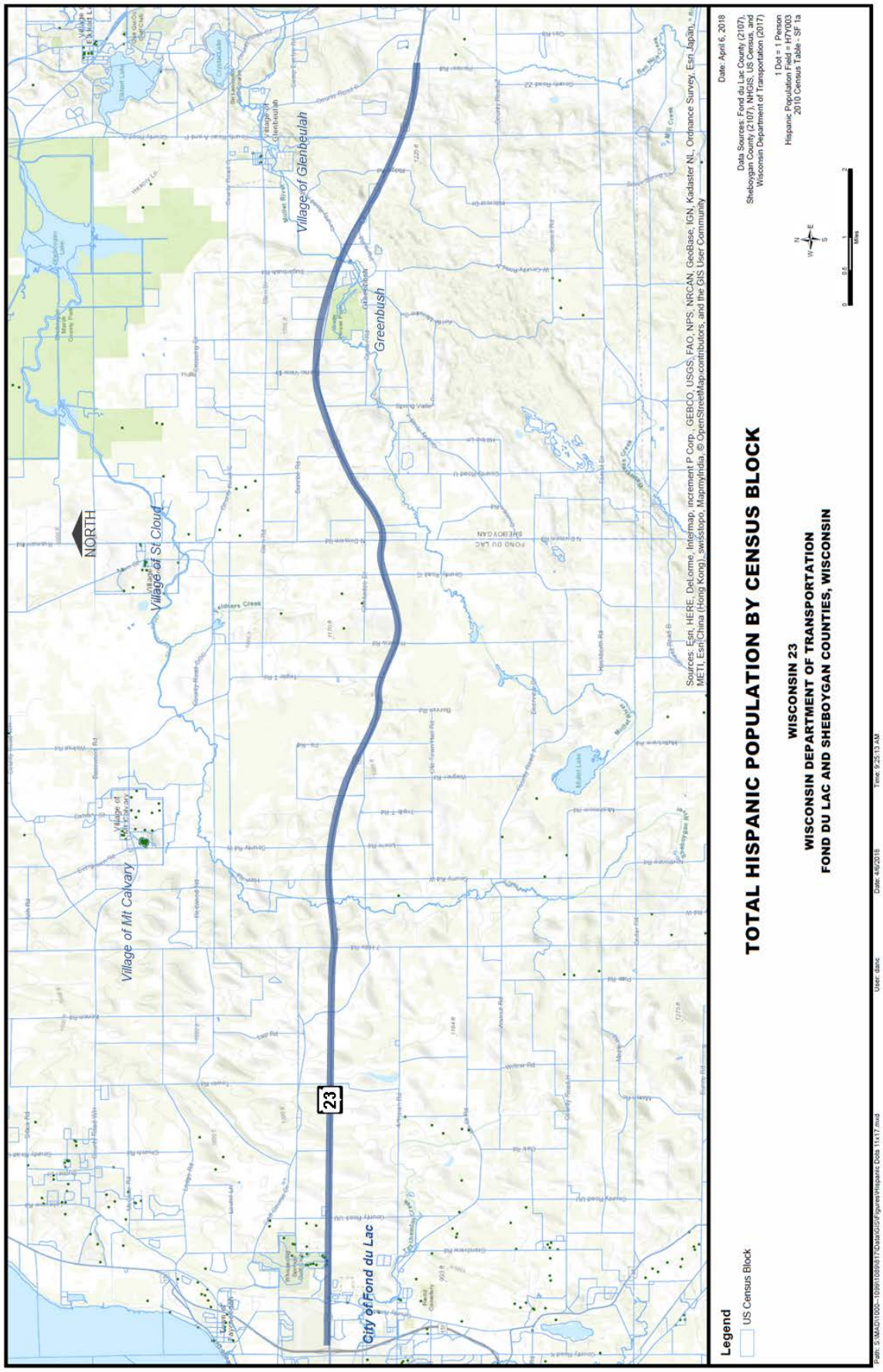


Figure 4.4-3 Hispanic Population by Census Block

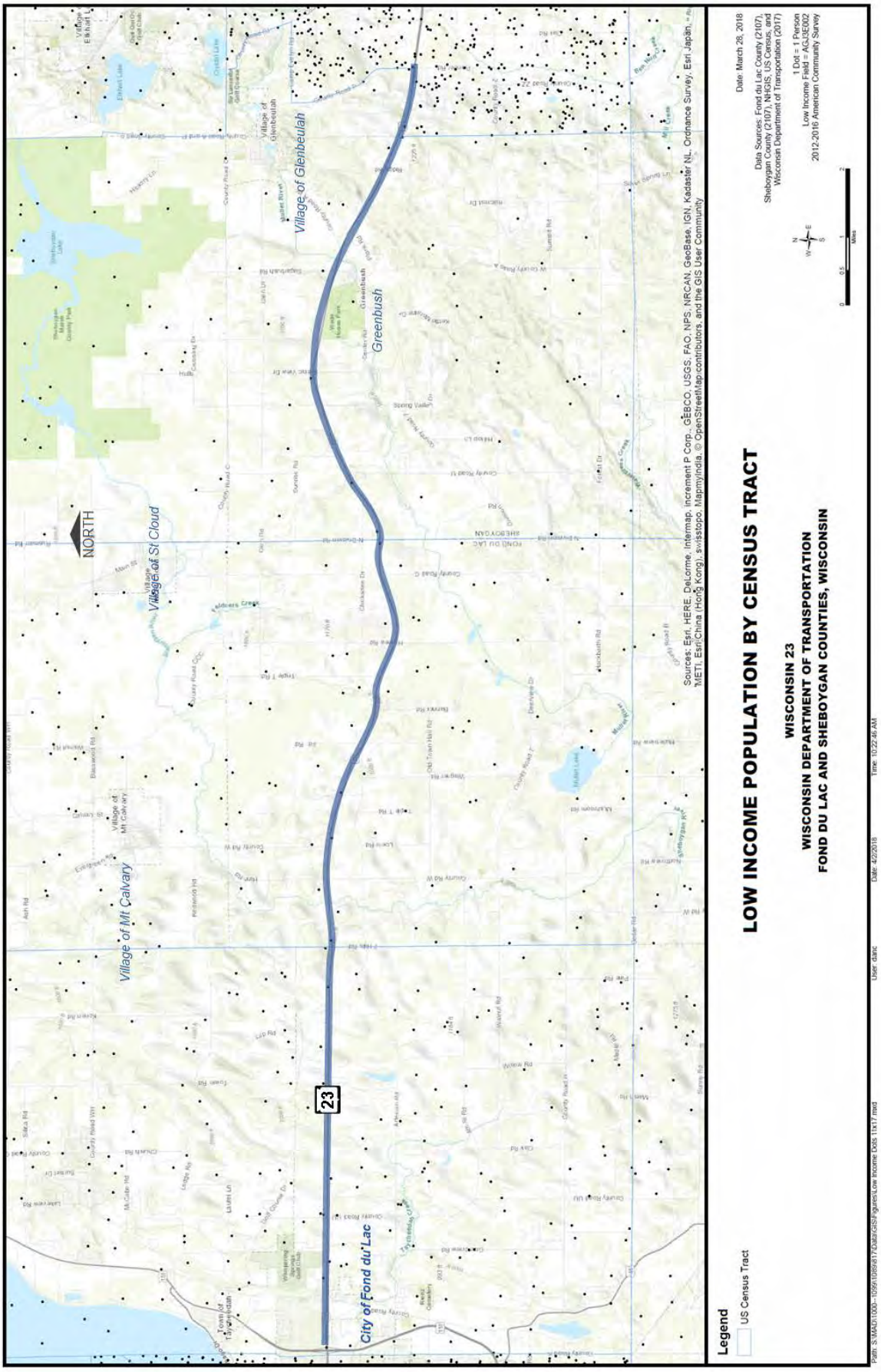


Figure 4.4-4 Low-Income Population by Census Tract

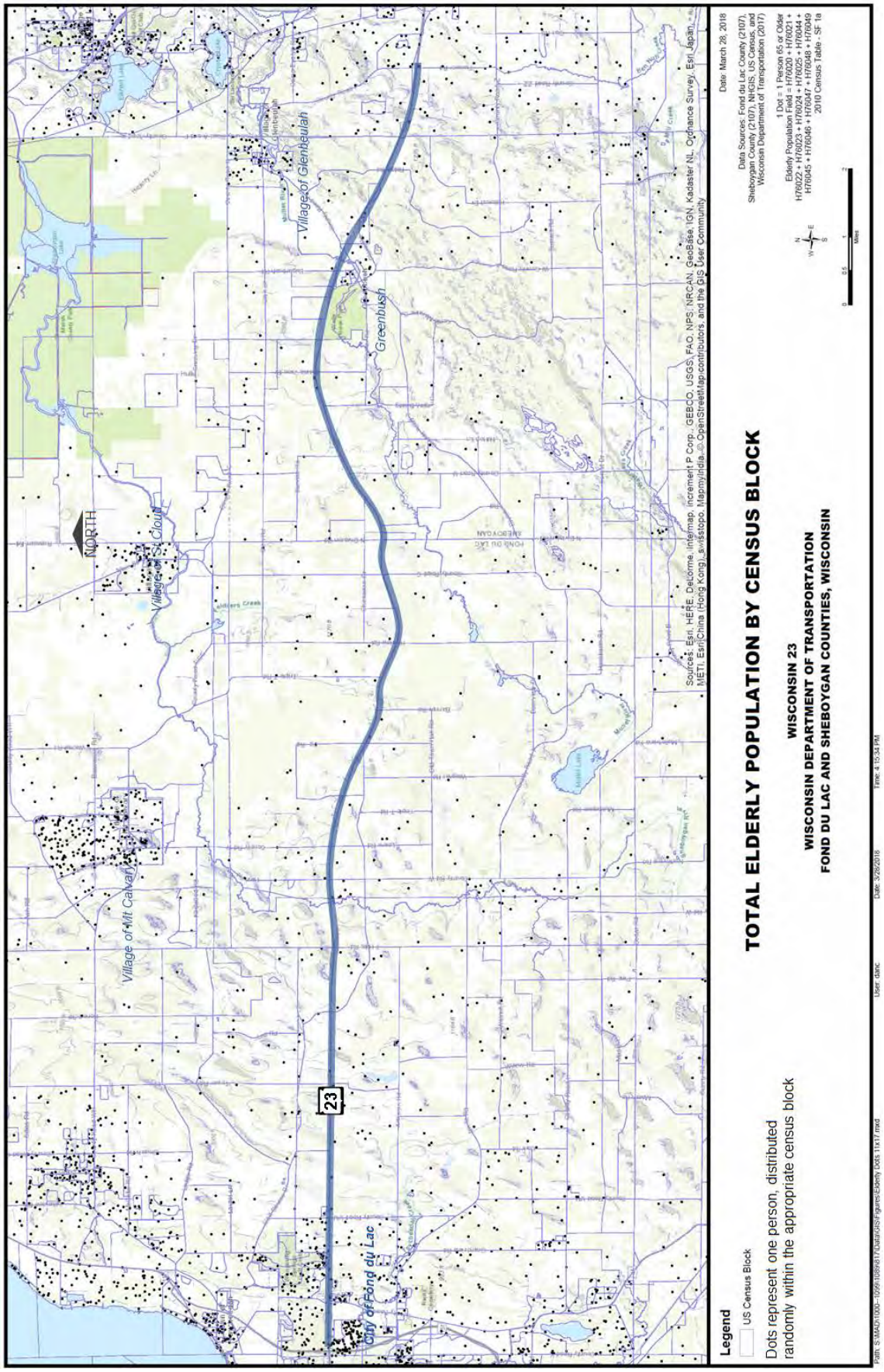


Figure 4.4-5 Elderly Population by Census Block

2. Population and Housing Trends

Table 4.4-1 shows the population trends and projections for study area communities as well as Fond du Lac and Sheboygan counties. As indicated below, the population has generally been increasing in the study area since 1990 and is projected to continue to gradually increase through 2030. Half of the noted jurisdictions, such as the village of Mt. Calvary and town of Greenbush, are predicted to have a population decline between 2030 and 2040.

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

Population Trends					Population Forecast	
	County	1990	2000	2010	Forecast 2030	Forecast 2040
Town of Taycheedah	Fond du Lac	3,383	3,666	4,205	5,085	5,305
Town of Plymouth	Sheboygan	2,911	3,115	3,195	3,555	3,560
Town of Empire	Fond du Lac	2,485	2,620	2,797	3,105	3,130
Town of Greenbush	Sheboygan	1,849	2,773	2,565	2,705	2,630
Town of Fond du Lac	Fond du Lac	2,308	2,027	3,015	4,185	4,455
Town of Forest	Fond du Lac	1,094	1,108	1,080	1,020	950
Town of Marshfield	Fond du Lac	1,130	1,118	1,138	1,175	1,140
Village of Mt. Calvary	Fond du Lac	558	956	762	540	495
Village of St. Cloud	Fond du Lac	594	497	477	445	410
Village of Glenbeulah	Sheboygan	386	378	463	540	560
City of Fond du Lac	Fond du Lac	37,757	42,203	43,021	46,300	45,920
City of Plymouth	Sheboygan	6,769	7,781	8,445	9,630	9,785
Study Area Total		61,224	68,242	71,163	78,285	78,340
Fond du Lac County		90,083	97,296	101,633	110,590	110,250
Sheboygan County		103,877	112,646	115,507	126,160	125,160

Sources: U.S. Census Bureau, 2010; Wisconsin Department of Administration 2013 Estimates, http://www.doa.wi.gov/Divisions/Intergovernmental-Relations/Demographic-Services-Center/Wisconsin-Population-Projections/

Table 4.4-2 lists 2010 housing characteristics in the study area, including average household size, number of housing units and vacancy rates for the year, and median home value estimates. In terms of home values, housing is more affordable in the city of Fond du Lac and villages of St. Cloud and Glenbeulah compared to other communities in the study area. Home values in the towns of Taycheedah, Plymouth, Empire, and Fond du Lac are higher than Sheboygan and Fond du Lac Counties and neighboring cities and villages.

Table 4.4-3 lists the 2017 household projections. As indicated, the study area is expected to see increases in the number of households, primarily in the cities of Fond du Lac and Plymouth. The villages of Mt. Calvary and St. Cloud and the towns of Marshfield, Greenbush, and Forest are projected to have a decrease in the number of households by 2040.

Table 4.4-2 Housing Units and Average Household Size 2010

	Average Household Size	Total Housing Units	Occupied Housing Units	Home Owner Vacancy Rate	Median Value Owner Occupied Housing
Town of Taycheedah	2.62	1,755	1,602	1.6%	$228,800
Town of Plymouth	2.64	1,229	1,152	1.4%	$211,600
Town of Empire	2.64	991	957	0.0%	$227,600
Town of Greenbush	2.70	594	568	1.5%	$196,000
Town of Fond du Lac	2.58	1,239	1,167	2.5%	$218,200
Town of Forest	2.67	436	404	1.6%	$174,000
Town of Marshfield	2.51	497	422	1.1%	$176,500
Village of Mt. Calvary	2.59	197	183	0.0%	$136,400
Village of St. Cloud	2.29	216	208	2.7%	$129,500
Village of Glenbeulah	2.39	204	194	3.0%	$131,300
City of Fond du Lac	2.28	19,181	17,942	2.4%	$122,900
City of Plymouth	2.26	4,039	3,710	2.3%	$149,700
Fond du Lac County	2.41	43,451	40,484	1.1%	$143,000
Sheboygan County	2.42	50,766	46,390	2.2%	$151,100
Source: U.S. Census 2010					

Table 4.4-3 Household Projections, 2030, 2040

	Household Projection 2030	Household Projection 2040
Town of Taycheedah	2,077	2,215
Town of Plymouth	1,361	1,387
Town of Empire	1,260	1,299
Town of Greenbush	618	558
Town of Fond du Lac	1,737	1,890
Town of Forest	409	390
Town of Marshfield	465	456
Village of Mt. Calvary	149	130
Village of St. Cloud	208	196
Village of Glenbeulah	241	256
City of Fond du Lac	20,645	20,773
City of Plymouth	4,499	4,683
Study Area Total	33,669	34,233
Fond du Lac County	47,419	48,076
Sheboygan County	53,857	54,620
Wisconsin Department of Administration, 2015-2030 Housing Projections, 2010 (extrapolated to 2040) Wisconsin Department of Administration, 2010-2040 Housing Projections, September 2017		

3. Land Use Plans

Many 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 August 2017 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.

The town of Taycheedah's land use 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 Mt. 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 area (possible future interchange associated with corridor preservation) 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 intended to improve traffic safety and efficiency. It includes the WIS 23 project, the designation of US 41 as a federal interstate highway (I-41), 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 study area.

In regard to the WIS 23 project specifically, 8 of the 14 governments state that the WIS 23 project is incorporated in their planning document. The 4-lane expansion is explicitly mentioned in the Bay-Lake Regional Planning Commission, East Central Wisconsin Regional Planning Commission, and their associated MPO's plans. Other government entities considered the 4-lane expansion when planning land use adjacent to the WIS 23 corridor. While the 4-lane expansion was considered in local government plans, these plans do not affect the number of households and employment used in the Northeast Region Travel Demand Model (NERTDM) used in traffic forecasting for the area. These plans do affect where growth in households and employment are located within these models.

a. General Development Pattern

In general, adopted comprehensive plans indicate that future development will primarily occur in undeveloped areas 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 commercial development at the south end of the town of Taycheedah, near County UU.
- Residential development in the town of Forest on the north side of WIS 23, east of Triple T.
- Scattered and dispersed residential development east of County G, proximate to the KMSF-NU.
- Residential development in Greenbush at the intersection of County A and WIS 23, east of the Wade House Historic Site.
- Commercial development along the WIS 23 frontage in the town of Plymouth, west of the city of Plymouth.

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

As indicated in adopted comprehensive plans, 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 towns of Greenbush and Empire. Sheboygan County indicated possible scattered residential development proximate to the KMSF-NU. County farmland preservation zoning restricts the minimum lot sizes to between 10 to 35 acres.

c. Commercial Development

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 development 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.

d. Industrial Development

Very little industrial development is planned to occur near the WIS 23 corridor. The city of Plymouth has identified industrial growth areas on the south side of the city in the study area and additional areas outside (east of) the study area.

e. Rural Character

Development trends are likely to continue if study area communities follow their adopted long range comprehensive plans which account for and are designed to accommodate modest 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.

4. Income and Employment

Table 4.4-4 shows income and employment trends in the study area. In 2012-2016, median household income ranged from $47,079 to $99,097. The town of Empire had the highest median household income compared to other study area communities. Alternatively, the median household income for the cities of Fond du Lac and Plymouth was about $9,300 and $6,800 less than Fond du Lac and Sheboygan counties, respectively. The percentage of families below the poverty level was highest in the cities of Fond du Lac and Plymouth. Communities with low percentages of families in poverty include the town of Empire and the villages of Glenbeulah and Mt. Calvary. The percentage of the population in the labor force for each community is also shown in Table 4.4-4. Study area communities were generally comparable to the overall percentage for Fond du Lac and Sheboygan counties, with the town of Forest and village of Mt. Calvary having the highest percentage of population in the labor force compared to other study area communities.

Table 4.4-4 Income and Employment Trends

	2012-2016 Median Household Income	2012-2016 Percent of Families below Poverty Level	2012-2016 Percent of Population in Labor Force
Town of Taycheedah	$80,278	3.1%	70.5%
Town of Plymouth	$77,778	5.7%	66.7%
Town of Empire	$99,097	0.7%	69.6%
Town of Greenbush	$78,821	2.6%	37.7%
Town of Fond du Lac	$79,129	1.9%	70.7%
Town of Forest	$70,795	1.4%	74.9%
Town of Marshfield	$77,969	1.9%	58.9%
Village of Mt. Calvary	$66,250	1.5%	72.4%
Village of St. Cloud	$60,341	4.6%	70.8%
Village of Glenbeulah	$57,750	0.7%	71.7%
City of Fond du Lac	$47,079	9.1%	63.9%
City of Plymouth	$47,565	10.4%	69.5%
Fond du Lac County	$56,376	6.0%	67.2%
Sheboygan County	$54,392	6.3%	68.3%

Source: 2012-2016 American Community Survey United States Census Data, Table DP-03, Selected Economic Characteristics (County Subdivision and Place within State).

5. Commuting Patterns

U.S. Census “place of work” data provides an indication of how the WIS 23 corridor is used for worker commuting. Tables 4.4-5 through 4.4-8 list the volume of commuters between counties based on the 2000 Census and from the 2009 to 2013 American Community Survey (which is the most current information available in county format). In 2013, 36,365 workers (65 percent) remained in Fond du Lac County to work. In 2013, 48,746 workers (78 percent) remained in Sheboygan County to work. These percentages are about 1 to 6 percent lower than the 2000 percentages for workers remaining in their respective counties. Dodge County was the top workplace destination for Fond du Lac County workers who work outside of their county of residence. Ozaukee County was the top workplace destination for Sheboygan County workers who work outside of their county of residence.

Table 4.4-5 Top Workplace Destinations for Fond du Lac County Residents

County	2000 Workers	2009-2013 Workers
Fond du Lac County	36,585	36,365
Dodge County	4,401	4,465
Winnebago County	2,721	3,599
Washington County	2,057	2,042
Sheboygan County	980	1,274
Green Lake County	755	638

Source: US Census, 2000
Source: US Census, American Community Survey 2009-2013, Table 1. Residence County to Workplace County Commuting Flows.

Table 4.4-6 Top Counties of Residence for Fond du Lac County Workers

County	2000 Workers	2009-2013 Workers
Fond du Lac County	36,585	36,365
Winnebago County	2,544	2,839
Dodge County	1,852	1,957
Green Lake County	1,803	1,682
Washington County	541	836
Sheboygan County	530	628

Source: US Census, 2000
Source: US Census, American Community Survey 2009-2013, Table 1. Residence County to Workplace County Commuting Flows.

Table 4.4-7 Top Workplace Destinations for Sheboygan County Residents

County	2000 Workers	2009-2013 Workers
Sheboygan County	51,484	48,746
Ozaukee County	1,931	2,517
Manitowoc County	1,199	1,507
Milwaukee County	1,198	1,542
Washington County	705	832
Fond du Lac County	530	628

Source: US Census, 2000
Source: US Census, American Community Survey 2009-2013, Table 1. Residence County to Workplace County Commuting Flows.

Table 4.4-8 Top Counties of Residence for Sheboygan County Workers

County	2000 Workers	2009-2013 Workers
Sheboygan County	51,484	48,746
Manitowoc County	3,676	3,769
Fond du Lac County	980	1,274
Ozaukee County	896	1,257
Calumet County	632	770
Milwaukee County	365	680

Source: US Census, 2000
Source: US Census, American Community Survey 2009-2013, Table 1. Residence County to Workplace County Commuting Flows.

6. Agriculture

Fond du Lac and Sheboygan counties have 262,142 acres and 155,878 acres of cropland, respectively. According to the United States Department of Agriculture (USDA) 2012 Census of Agriculture[5] and University of Wisconsin (UW) Extension, agriculture accounts for $412 million in sales in Fond du Lac County. The 2006 Agricultural Impact Statement (AIS) for the WIS 23 project and 2010 update for the project published by the Department of Agriculture, Trade, and Consumer Protection (DATCP) stated that an estimated 17 percent of all economic activity in the county is related to agriculture. DATCP was provided with the remaining agricultural impacts associated with alternatives being considered in March 2018 and determined that an additional addendum would not be needed. 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. For total acres, Fond du Lac County ranked 17th among Wisconsin counties in corn for grain, 4th in corn for silage, 13th in soybean for bean, and 1st in wheat for grain. Dairy is the largest sector within county agriculture. For Sheboygan County, the USDA 2012 Census of Agriculture and UW Extension estimates that agriculture accounts for $242 million in sales. The 2006 AIS and 2010 AIS update for the project states that Sheboygan County is more urbanized than Fond du Lac County, but still remains a very important agricultural county. The report estimated that 21 percent of all economic activity in Sheboygan County is agriculturally related. For total acres, Sheboygan County ranked 18th among Wisconsin counties in corn for silage, 23rd in soybeans, and 4th in wheat for grain. Dairy is the largest sector within county agriculture, with a large portion being postprocessing such as cheese products.

Table 4.4-9 lists the agricultural trends taken from subsequent Census of Agriculture reports. The table shows the following trends:

- The number of farms is decreasing in both Fond du Lac and Sheboygan counties.
- The amount of land in farms and total cropland is decreasing for both counties.
- The average size of farms is increasing for both counties.

Table 4.4-9 Census of Agriculture Data

	2002 Fond du Lac County	2007 Fond du Lac County	2012 Fond du Lac County	2002 Sheboygan County	2007 Sheboygan County	2012 Sheboygan County
Number of Farms	1,634	1,643	1,399	1,116	1,059	986
Land in Farms (acres)	344,286	335,745	315,553	195,248	191,719	190,155
Average Farm Size (acres)	211	204	226	175	181	193
Total Cropland (acres)	292,255	279,922	262,142	166,592	157,607	155,878

Source: USDA 2002, 2007 and 2012 Census of Agriculture - County Data, Table 8. (accessed website on 10/26/2017 at https://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_County_Level/Wisconsin/)

During the October 2017 expert panel workshop, participants indicated the following trends are occurring in the study corridor:

- Dairy is the predominant agricultural practice in the corridor.
- Dairy operations are becoming larger. To support larger herds, dairy farmers are purchasing and renting more land to support the larger operations.

[5] Census of Agriculture are performed at 5-year intervals. Results for the 2017 Census of Agriculture were not available for the writing of this document.

- The demand for land to support dairy operations has led to the increase of hobby farms (farms 40 acres or less). Dairy farmers could rent the available acreage of a farm, but do not have use for the buildings and residence. This allows the residence and out-buildings to be used or sold to a non-full-time farmer, while renting or selling the remaining acres to area dairy farmers.
- This transition is aided by aging farmers nearing retirement. Often, they do not have someone to take over the operation, and acres are rented to larger scale area farms.

Because the demand for tillable land is high, many farmers with farm land on both sides of WIS 23 could drive distances of up to 8 miles or greater with agricultural equipment. These farmers, though managing land on both sides of WIS 23, generally keep animals on one side or the other.

The effects of trucks hauling dairy products and agricultural equipment used on both sides of WIS 23 increase the amount of truck and slow-moving traffic on WIS 23.

The study team and expert panel anticipate that current agricultural trends are likely to continue. 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.

7. Wetlands

According to WDNR aerial photography (1978 to 1979), 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 publicly owned) is located about 2 miles north of WIS 23 in the project area. 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. Wetlands have strong protections under federal and state law.

8. 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 flows into the Sheboygan River).

There are three river crossings of WIS 23 within the project limits: the Sheboygan River, a tributary to the Sheboygan River, and the Mullet River.

The 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. Areas of Concern are geographic areas that are severely degraded, often because of water contamination from chemicals such as Polychlorinated Biphenyls (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. In addition, as stated in *The Niagara Escarpment, Inventory Findings*

1999-2001 and Consideration for Management,[6] the Escarpment area is sensitive to groundwater contamination because of the limited soil cover over bedrock.

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 Lake Michigan and Lake 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 Department of Natural Resources owns 752 acres. The remainder of the marsh is privately owned.

Mullet Creek State Wildlife Area is located 1 mile south of the WIS 23 corridor and is a 2,217acre property located in east central Fond du Lac County. Mullet Lake is located about 0.05 miles southwest of the Mullet Creek State Wildlife Area. The lake and swamp complex are the headwaters of the Mullet River in the priority watershed of the Sheboygan River.

9. Uplands

Much of the woodlands and upland habitat in the ICE study area is located within the KMSF-NU. 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[7]. 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 1999-2001 and Consideration for Management*,[6] the escarpment's ecosystems have been threatened by development. The escarpment ridge is located just east of Fond du Lac in an area planned by the city of Fond du Lac for future residential development. The town of Empire is currently purchasing conservation easements in the escarpment area. In the future, there could be residential development pressure that may impact woodlands and ecological resources in the vicinity of the Niagara Escarpment.

10. Threatened and Endangered Species

Within the WIS 23 corridor area, there are four plant and animal species federally listed as either threatened or an experimental population and 19 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. Two state threatened species and one state endangered species are considered potentially affected based on WDNR project coordination. The state endangered species includes the rainbow shell mussel. State threatened species include the slippershell mussel and ellipse mussel. More information is contained in Section 4.7.

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 4.4-10 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

[6] 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.
[7] The Niagara Escarpment is the steep face of a 1,000-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 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. (Source: A Look at The Ledge (accessed website on at 10/26/17 http://dnr.wi.gov/wnrmag/2010/10/ledge.htm)

species in both Fond du Lac and Sheboygan counties in comparison to the project study area and occurrences within the four townships that the project traverses.

The towns of Greenbush and Plymouth, in Sheboygan County, 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 KMSF-NU in Sheboygan County. Fond du Lac County has 25 reported threatened and endangered species occurrences and Sheboygan County has reported 31 occurrences. Cumulatively both counties have 47 rare species (not including duplicates).

Table 4.4-10 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 (Fond du Lac County)	15N	18E	1	--	--	1	1
Forest (Fond du Lac County)	15N	19E	--	1	1	2	1
Taycheedah (Fond du Lac County)	16N	18E	--	1	--	1	1
Marshfield (Fond du Lac County)	16N	19E	--	--	1	1	--
Greenbush (Sheboygan County)	15N	20E	--	5	3	8	1
Plymouth (Sheboygan County)	15N	21E	3	3	2	8	--
Total Occurrence Summary for all WIS 23 Towns (not including duplicates)	**2**	**4**	**3**	**7**	**4**	**14**	**1**
Occurrences Summary for Fond du Lac County	T13N to T17N	R14E to R19E	5	14	6	25	3
Occurrences Summary for Sheboygan County	T13N to T16N	R20E to R22E	16	11	4	31	2
Occurrence Summary for both WIS 23 Project Counties (Fond du Lac and Sheboygan) (not including duplicates)	**5**	**9**	**20**	**20**	**7**	**47**	**3**

Threatened and Endangered Species Data obtained from WDNR on-line Natural Heritage Inventory (NHI 10/31/17) 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.

11. Historic and Archaeological Resources

Within the broader ICE study area, there are numerous historic resources. Wisconsin's Architecture and Historic Inventory (AHI) is a searchable database 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 4,140 listings for Fond du Lac County and 2,718 listings for Sheboygan County.[8]

Directly within the WIS 23 corridor, there are 19 potential historic sites. Effects to all these resources were avoided except for those discussed below. Historic resources potentially affected by the WIS 23 build alternatives are two historic and one archaeological resources eligible for or on the NRHP. The

[8] Wisconsin Architecture and History Inventory (AHI); Wisconsin Historical Society; https://www.wisconsinhistory.org/Records/Article/CS2834, Accessed July 13, 2018.

St. Mary's Springs Academy is on the east end of Fond du Lac and has two contributing buildings that were 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 Wade House Historic Site is a museum and historical site near the KMSF-NU and is run by the State Historical Society. It is a living history portrayal of a restored stagecoach inn built around 1850. Within the property but located one-quarter mile from WIS 23, there are three structures on the 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. See Section 4.7 for information regarding impacts to this site.

12. Air Quality

The proposed WIS 23 project is located in the Lake Michigan Intrastate Air Quality Control Region. 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 4.4-11 lists the standards for the different air pollutants and whether they are a primary or secondary standard.

Table 4.4 11 National Ambient Air Quality Standards

Pollutant	Primary / Secondary	Averaging Time	Level
Carbon Monoxide (CO)	primary	8 hours	9 ppm
		1 hour	35 ppm
Lead (Pb)	primary and secondary	Rolling 3 month average	0.15 µg/m^3 (1)
Nitrogen Dioxide (NO2)	primary	1 hour	100 ppb
	primary and secondary	1 year	53 ppb (2)
Ozone (O3)	primary and secondary	8 hours	0.070 ppm (3)
Particle Pollution (PM $_{2.5}$)	primary	1 year	12.0 µg/m^3
	secondary	1 year	15.0 µg/m^3
	primary and secondary	24 hours	35 µg/m^3
Particle Pollution (PM $_{10}$)	primary and secondary	24 hours	150 µg/m^3
Sulfur Dioxide (SO2)	primary	1 hour	75 ppb (4)
	secondary	3 hours	0.5 ppm

Source: USEPA NAAQS Table (accessed website on 8/7/2018 at https://www.epa.gov/criteria-air-pollutants/naaqs-table)
(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.
(2) The level of the annual NO2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.
(4) The previous SO2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (a) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, (b) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

The 4-lane On-alignment Alternative (the Preferred Alternative from the 2014 LS SFEIS) was discussed in the approved Regional Transportation Plan (RTP) and was included in the assessment of conformity of the Year 2045 Sheboygan Area Transportation Plan (SATP). The project is outside the Sheboygan Metropolitan Planning Area, so it is not included in the MPO Transportation Improvement Program (TIP).

The proposed WIS 23 project is 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).

On May 21, 2012, USEPA designated Sheboygan County a marginal nonattainment area for ground level ozone under the 2008 eight-hour standard for that pollutant. The USEPA has determined that the Sheboygan, Wisconsin area (Sheboygan County) failed to attain the 2008 ozone NAAQS by the applicable attainment date of July 20, 2016, and that this area is not eligible for an extension of the attainment date. USEPA reclassified this area as “moderate” nonattainment for the 2008 ozone NAAQS.

Per the Clean Air Act, states recommend designations to the USEPA following promulgation of a new NAAQS. In September 2016, Governor Walker recommended that the entire state of Wisconsin be designated as attainment of the 2015 ozone standard. On November 6, 2017 USEPA finalized “round 1” of its initial area designations for the 2015 standard. In April 2017, WDNR provided supplemental information to USEPA in support of the governor’s recommendation. In February 2018, WDNR submitted additional comments to USEPA in response to USEPA’s intended nonattainment area designations.

On May 1, 2018 USEPA notified the state of its final designations for nonattainment of the 2015 ozone NAAQS. For Sheboygan County, the final moderate nonattainment area, (the final rule was published in the Federal Register on June 4, 2018 and became effective 60 days later on August 3, 2018) is:

> Inclusive and east of the following roadways going from the northern county boundary to the southern county boundary: Highway 43, Wilson Lima Road, Minderhaud Road, County Road KK/Town Line Road, N 10th Street, County Road A S/Center Avenue, Gibbons Road, Hoftiezer Road, Highway 32, Palmer Road/Smies Road/Palmer Road, Amsterdam Road/County Road RR, Termaat Road.

The portion of proposed WIS 23 in Sheboygan County is not located in the 2015 Ozone NAAQS nonattainment area. The 2008 standard has not been revoked; therefore, control measures and transportation conformity is still required for the whole county under that standard.

13. Trails

There are three trails within the project corridor. The Old Plank Road Trail is a 17-mile paved trail that accommodates bicyclists, runners, walkers, mopeds, snowmobiles, cross country skiing, and horseback riders. The Trail parallels WIS 23 from Sheboygan west to the KMSF-NU. The Ice Age Trail (IAT) is about a 1,000-mile footpath winding through Wisconsin that follows the moraine of the Wisconsin Glacier. It travels through the KMSF-NU and crosses WIS 23 near Julie Court. The State Equestrian Trail also travels through the KMSF-NU and crosses WIS 23 at the same location.

14. Environmental Justice (EJ) Populations

EJ populations encompass minority and low-income populations and are described in Section 3. Minority and low-income populations are located at the ends of the ICE study in the cities of Plymouth and Fond du Lac. 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.

15. Other Protected Classes

FHWA’s Title VI program includes EJ and other protected classes. In addition to minority and low-income populations, the program covers:

- Race, color, or National Origin (Civil Rights Act)
- Limited English Proficiency (EO 13166)
- Disabilities (American Disabilities Act)
- Age (Age Discrimination Act)
- Sex (Civil Rights Act)

Limited census data is available for some of these groups. A few census tracts in the ICE study area have a greater proportion of elderly individuals (age 65 and older) when compared to county averages including the cities of Fond du Lac and Plymouth and the villages of Mt. Calvary and St. Cloud in the town of Marshfield. These concentrations are likely to remain because they are closer to urban areas and the associated services and housing associated with urban areas.

C. Impact-Causing Activities of the Project Alternatives

The expert panel discussed impact-causing activities of the three alternatives under discussion, the No-Build, Passing Lane, and 4-lane On-alignment Alternatives. These represent a broad spectrum of alternatives and aided effective discussion on the differences between the alternatives. The study team then assembled the responses from these alternatives to understand potential indirect effects for the Hybrid Alternative, which is a combination of the 4-lane On-alignment Alternative (County UU to County G) and Passing Lane Alternative (County G to County P).

The following paragraphs describe direct impacts that may lead to indirect impacts as identified by the study team and the expert panel.

1. No-Build Alternative

   - Access to and across WIS 23 is difficult from the side roads.
   - Continued aggressive passing maneuvers from pent up passing demand; particularly affects agricultural equipment traveling on WIS 23.
   - Continued avoidance of WIS 23 in favor of local roads that are perceived as less congested and/or safer.

2. Passing Lane Alternative

   - Access to and across WIS 23 is easier at County K. Depending on the suboption selected, intersections could have refuge to ease side road turning maneuvers.
   - Access is modified/restricted on 4 of the 42 intersections.
   - Some passing demand is addressed through added passing lanes.
   - Provision of the Old Plank Road Trail extension.
   - Compared to the No-Build Alternative, projected 2040 WIS 23 traffic volumes on the west end of the corridor are 3 to 7 percent lower. From County UU to County P the projected volumes are 2 to 3 percent greater.
   - Direct impacts of 79 acres of right-of-way acquisition (some of which has been purchased).
   - 18 residential and farm relocations, all of which have already occurred.

3. Hybrid Alternative (inferred from panel responses)

   - Access to and across WIS 23 is easier at the County K jughandle intersection and the County UU and County G interchanges. Intersections west of County G have median refuge to ease side road turning maneuvers. Higher volume intersections east of County G could have median refuges depending on the suboption selected.

- Access is modified by installing restricted crossing U-turn intersections (RCUT) at Tower Road, 7 Hills Road, and County W.
- Most passing demand is satisfied by the 4-lane expansion and additional passing lanes.
- Provision of the Old Plank Road Trail extension.
- Projected 2040 WIS 23 traffic volumes are 9 to 37 percent greater than the No-Build Alternative.
- Direct impacts of 321 acres of right-of-way acquisition (some of which has been purchased).
- 45 residential, business, and farm relocations, of which 43 have already occurred.

4. 4-lane On-alignment Alternative (Preferred Alternative)

- Access to and across WIS 23 is easier at the County K jughandle intersection and the County UU and County G interchanges. Intersections throughout have median refuge to ease side road turning maneuvers.
- Access is modified by installing RCUTs at Tower Road, 7 Hills Road, County W, County U, County T, Sugarbush Road, County A, and County S.
- All passing demand is satisfied by the 4-lane expansion.
- Provision of the Old Plank Road Trail extension.
- Projected 2040 WIS 23 traffic volumes are 21 to 48 percent greater than the No-Build Alternative.
- Direct impacts of 410 acres of right-of-way acquisition (some of which has been purchased).
- 52 residential, business, and farm relocations, of which 50 have already occurred.

5. Potential Improvements if Construction of the Corridor Preservation Measures Occur (part of Preferred Alternative)

- In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. Resources within the corridor preservation areas are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. The statute also states that if notice is not given to WisDOT, compensation will not be made by WisDOT for structure improvements occurring within the corridor preservation area. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. If future improvements associated with corridor preservation are implemented, potential impact-causing activities might include:
    - Access to and across WIS 23 could be easier at the County W and County A interchanges.
    - Access to WIS 23 would be removed at the Tower Road, 7 Hills Road, Scenic View Drive, and Sugarbush Road grade separations (overpasses).
    - Access to WIS 23 would be removed through cul-de-sacs at Poplar Road, Hinn Road, and Plank Road.

The improved travel times, mobility, and safety would also increase daily travel volumes in the corridor. Figure 4.4-6 illustrates the difference in 2040 traffic volumes the corridor would experience between the No-Build, Passing Lane, Hybrid, and 4-lane On-alignment Alternatives. The build alternatives, particularly those that add lanes, attract more traffic to the WIS 23 corridor from other local routes as shown in the traffic forecasting documentation included in Appendix B.

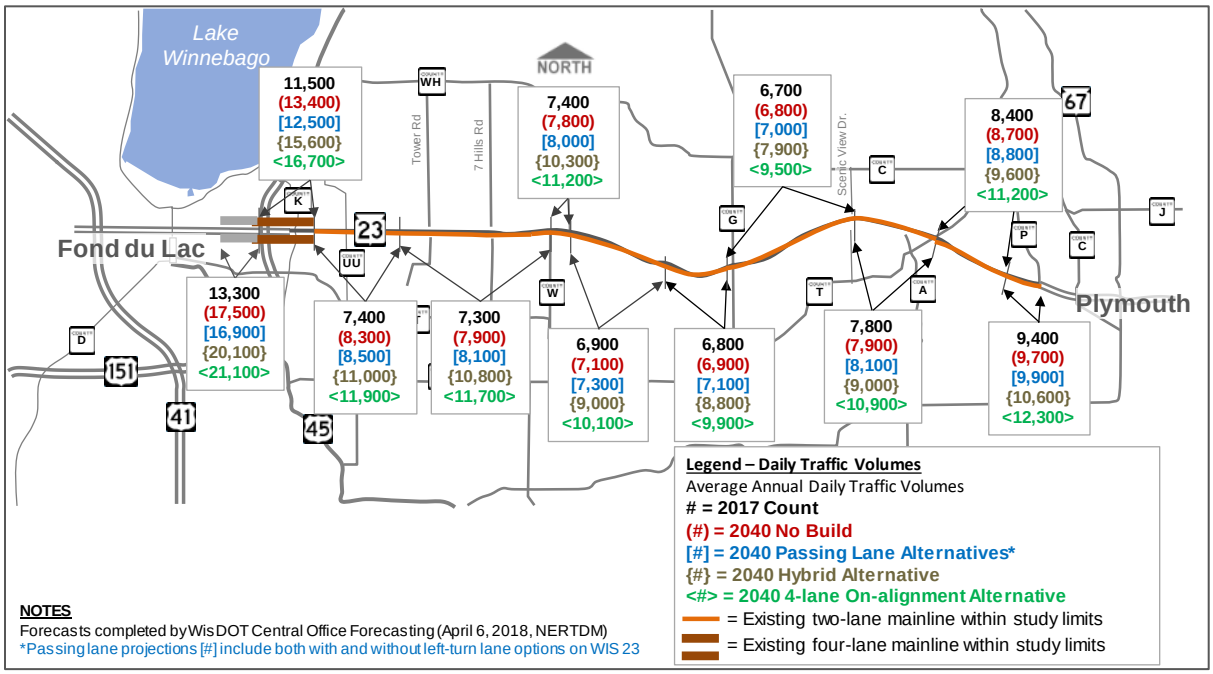


Figure 4.4-6 2040 Traffic Forecast Volumes for Alternatives

D. Identify Potentially Significant Indirect Effects

The alternatives under consideration in this document may have a variety of indirect effects. Indirect effects most likely to occur and enabled by these alternatives include:

- Changes in residential and commercial development patterns due to capacity and access changes.
- Changes in traffic routing and volumes on roadways in the study corridor.
- Changes in farming management practices.

They could occur on both a broad scale and a localized (intersection level) scale.

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

The following paragraphs summarize the indirect effects likely to be incurred by the alternatives under consideration. They include the responses gathered at both the 2012 and 2017 expert panel workshops.

1. No-Build Alternative

a. Development

1) General Development Pattern

Expert panelists stated 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. Panelists further indicated that the amount of available land planned for development in comprehensive plans is adequate to accommodate future development. Areas where panelists identified potential development that may occur under the No-Build Alternative beyond that designated in adopted comprehensive plans are depicted on Figures 4.4-3 and 4.4-4.

2) Residential Development

Expert panelists stated that the location of future residential development will generally occur in locations planned by study area communities.

Expert panelists identified areas where residential development may occur under the No-Build Alternative in Figures 4.4-7 and 4.4-8. Panelists indicated that scattered, nonfarm residential construction has occurred over the past couple of decades, and 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. More recently adopted farmland preservation plans and zoning regulations will likely slow this trend. However, areas not protected by conservation or farmland preservation zoning may be at risk for future residential development.

3) Commercial Development

Expert panelists indicated that the location of future commercial development will generally occur in locations planned by study area communities.

Some panelists identified a few areas of potential future small-scale highway-oriented commercial development that are not planned by the local communities. These are located primarily at county highway intersections with WIS 23, as well as an area of possible future commercial development on the southeast side of Fond du Lac where future residential development is now planned by the city.

4) Industrial Development

Members of the expert panel associated with economic growth organizations indicated that because WIS 23 is a 2-lane corridor, marketing efforts with industry tend to focus industry to planned and existing business parks with more direct access to 4-lane highways. Expert panelists indicated that industrial development will likely occur in areas planned for industrial development under the No-Build Alternative, which is currently away from the WIS 23 corridor.

5) Rural Character

The No-Build Alternative is not expected to significantly alter the existing character of the study area communities, as development trends are likely to generally continue.

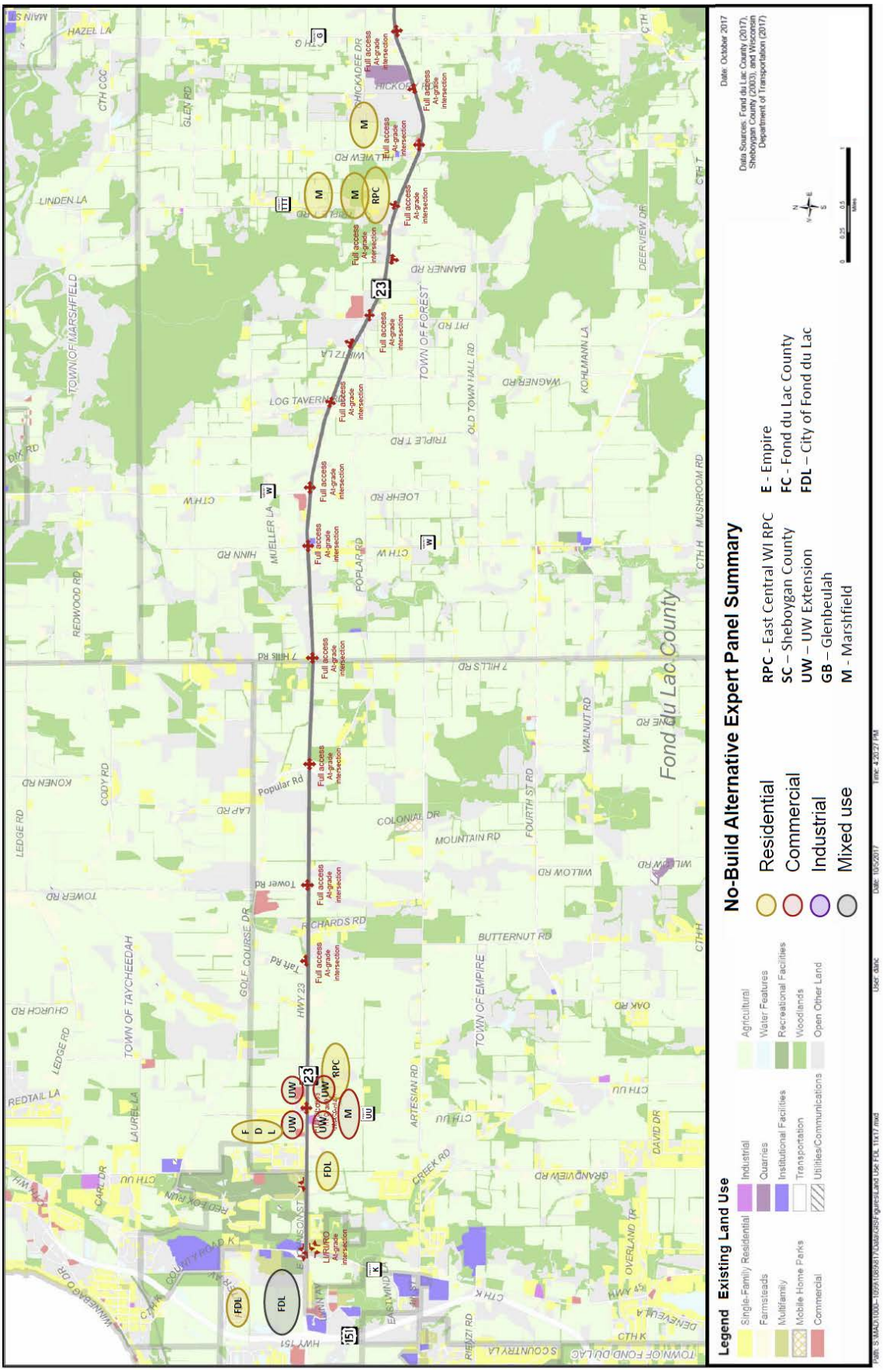


Figure 4.4-7 No-Build Alternative Expert Panel Summary

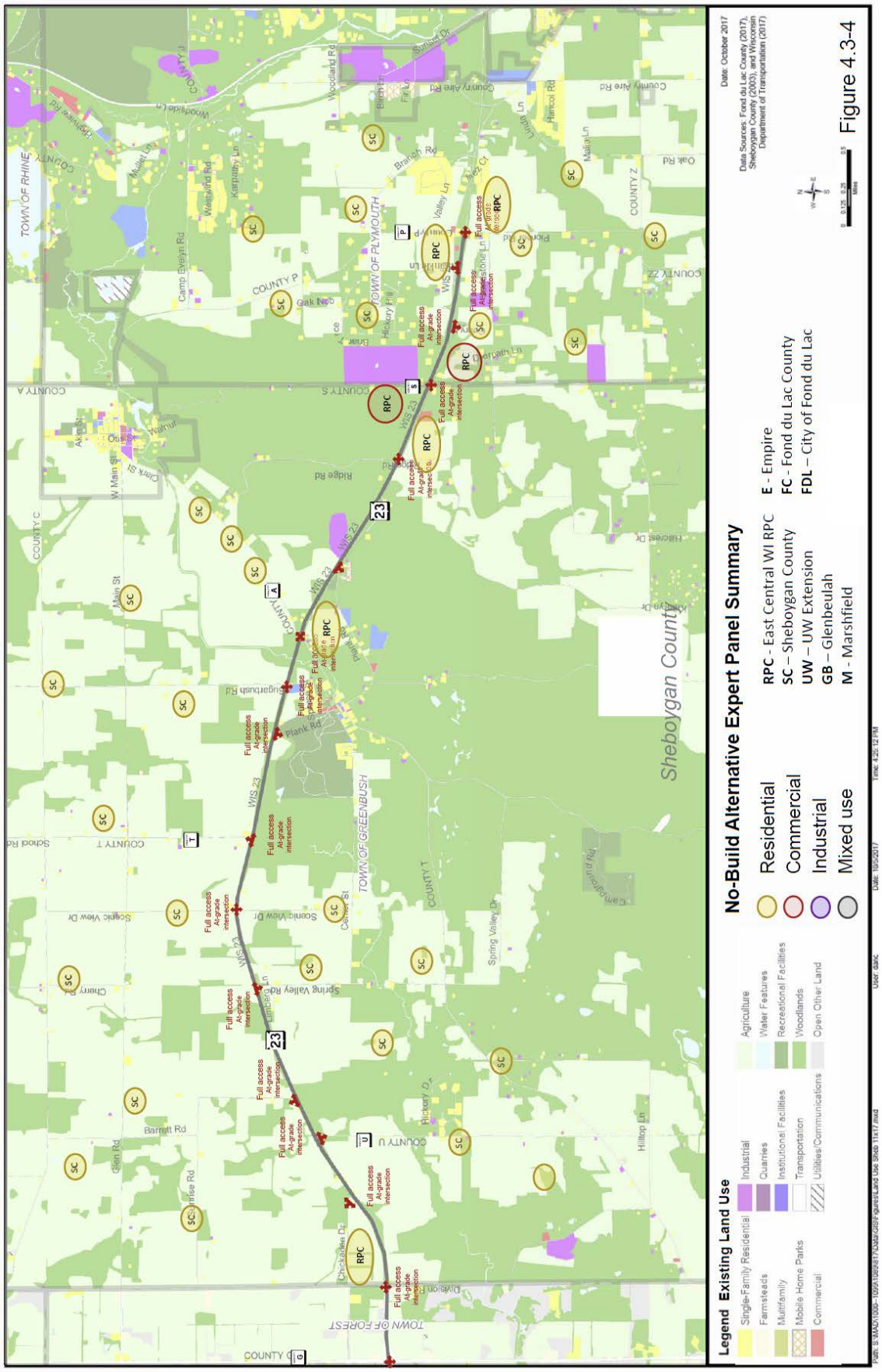


Figure 4.4-8 No-Build Alternative Expert Panel Summary

b. Agriculture

Panelists indicated that farmland could likely be lost in the towns adjacent to urban areas (i.e., Taycheedah, Plymouth, and Empire), which may experience development pressure.
The expert panel indicated that the decision to sell farmland is often more related to personal circumstances in the farmer's life. Who the land is sold to and how it is used is difficult to predict. As noted previously, panelists indicated that sometimes the acreage is used to support larger farm operations, while the residence and outbuildings become part of a hobby farm.

c. Wetlands

Expert panelists indicated there would be no impact to wetland areas under the No-Build Alternative.

d. Water Quality

Panelists indicated that under the No-Build Alternative, impacts to surface water quality and groundwater recharge areas are not anticipated beyond what is associated with planned development in city and village growth areas and current trends in rural residential land development.

e. Upland Habitat

Panel members indicated there will be no impact to woodlands under the No-Build Alternative because of new development. Such development, particularly limited rural residential, could occur in woodlands or alter woodland and wildlife habitat areas. The impact will mainly be because rural residential development occurs in areas planned and zoned for rural residential development. Impacts include habitat fragmentation and reduction of the natural aesthetic caused by residences and woodland clearing on the face or top of the escarpment.

f. Threatened and Endangered Species

Expert panelists indicated the No-Build Alternative would have no impact on threatened and endangered species.

g. Historic and Archaeological Resources

Panelists indicated access to the St. Mary's Springs Academy has become more problematic under the No-Build Alternative because of the recently installed left-in/right-in/right-out access restrictions at the County K intersection. Existing access to the Wade House Historic Site via WIS 23 currently poses traffic safety issues. It was anticipated by the expert panel that the Wade House Historic Site, functioning as an educational, living historic site, could be negatively impacted by growing traffic congestion and safety issues under the No-Build Alternative because of the difficulty accessing the site.

The No-Build Alternative would not require the area that was occupied by the Sippel Archaeological Site. Data recovery for the Sippel Archaeological Site has already occurred. Known archaeological resources are protected from disturbance by state and federal regulations.

h. Air Quality

Motor vehicles contribute several pollutants listed in the NAAQS. These include the following:

1) Nitrogen oxides react with ammonia, moisture, and other compounds to form nitric acid vapor and related particles. These compounds can affect lung tissue.
2) 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.

3) 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 4.7. With the No-Build Alternative, average daily traffic volumes on WIS 23 will increase from 1 to 32 percent by the year 2040. 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, USEPA designated Sheboygan County a marginal nonattainment area for ground level ozone under the 2008 eight-hour standard for that pollutant. The 2008 standard has not been revoked; therefore, control measures and transportation conformity is still required for the whole county under that standard. Such emissions could affect 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. Over 3 quarters of the expert panel members indicated the No-Build Alternative would have no impact on air quality.

i. Trails

Panelists indicated that the No-Build Alternative would have no impact on area trails. The existing at-grade IAT/State Equestrian Trail crossing of WIS 23 would remain, and that crossing is difficult. Also, the proposed extension of the Old Plank Road Trail would not occur with the No-Build Alternative, maintaining the lack of trail connectivity.

j. Environmental Justice Populations

The study team determined that there would be no indirect impacts to minority and low-income populations.

k. Elderly Populations

The study team considered impacts to elderly populations. The study team determined the elderly populations may be more adversely affected by increased congestion and decreased safety. Elderly populations are randomly distributed through the study area, with slightly greater concentrations in the cities of Fond du Lac and Plymouth and the villages of Mt. Calvary and St. Cloud, both in the town of Marshfield. Elderly populations may need to travel to the urban areas at the ends of the study area for services.

2. Passing Lane Alternative

a. Development

1) General Development Pattern

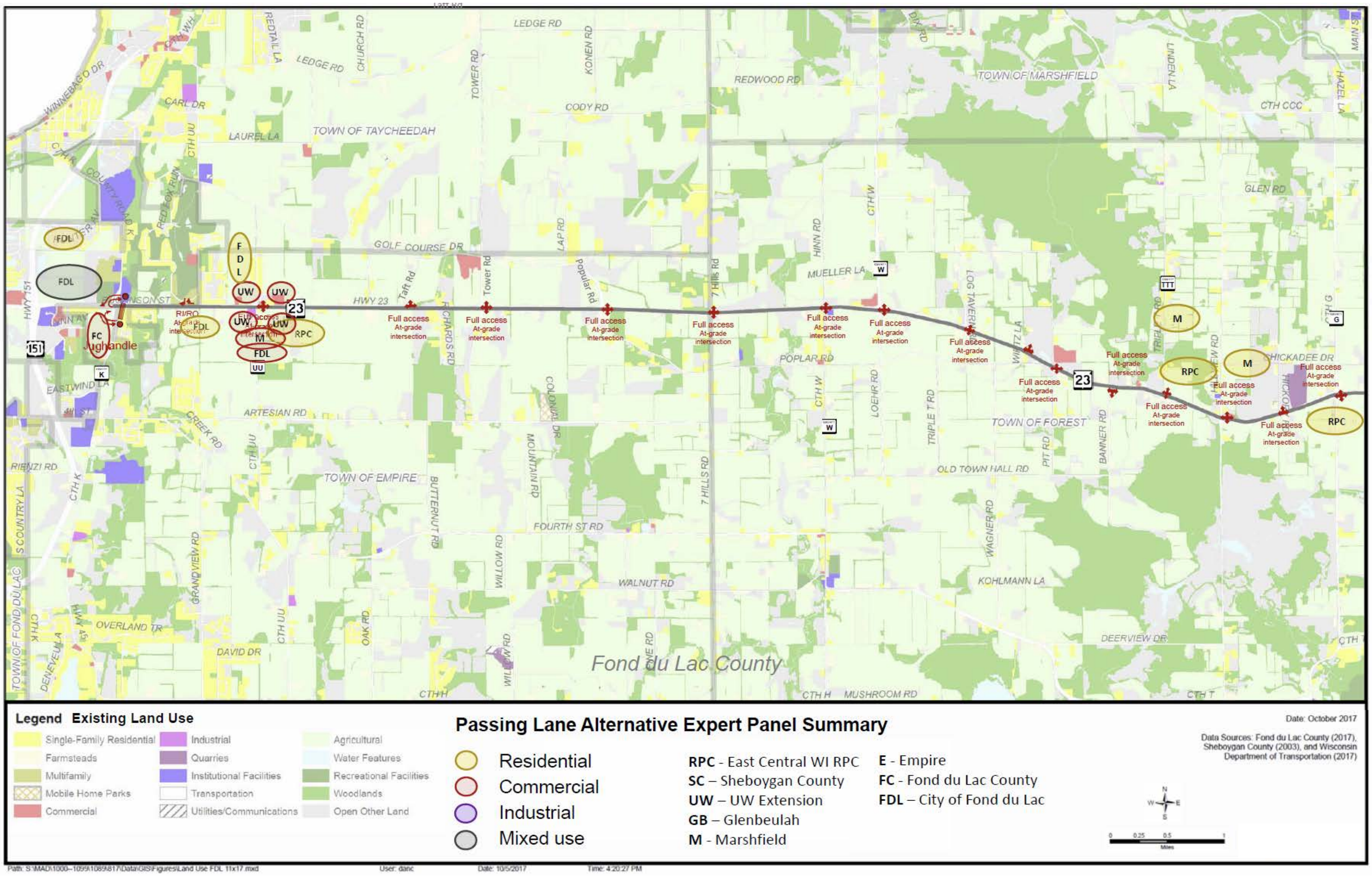
Expert panelists indicated that under the Passing Lane Alternative, future land development within the WIS 23 study area will most likely occur in the locations planned for in the adopted comprehensive plans. Panelists further indicated that the amount of land planned for development in comprehensive plans is adequate to accommodate future growth needs. Areas where panelists identified potential development that may occur under the Passing Lane Alternative beyond that designated in adopted comprehensive plans are depicted on Figures 4.4-9 and 4.4-10.

2) Residential Development

Expert panelists indicated that the pace of residential development will generally occur at the same pace as with the No-Build Alternative. Individual comments indicated that other factors, such as the economy and buyer preferences are more likely to influence the pace of residential development.

Expert panelist indicated that residential development with the Passing Lane Alternative is likely to occur at the same dispersion/concentration as with the No-Build Alternative. The panelists further indicated that residential development with the Passing Lane Alternative is likely to occur at a similar density as with the No-Build Alternative. Expert panelists identified areas where residential development may occur under the Passing Lane Alternative in Figures 4.4-9 and -10.

Figure 4.4-9 Passing Lane Alternative Expert Panel Summary



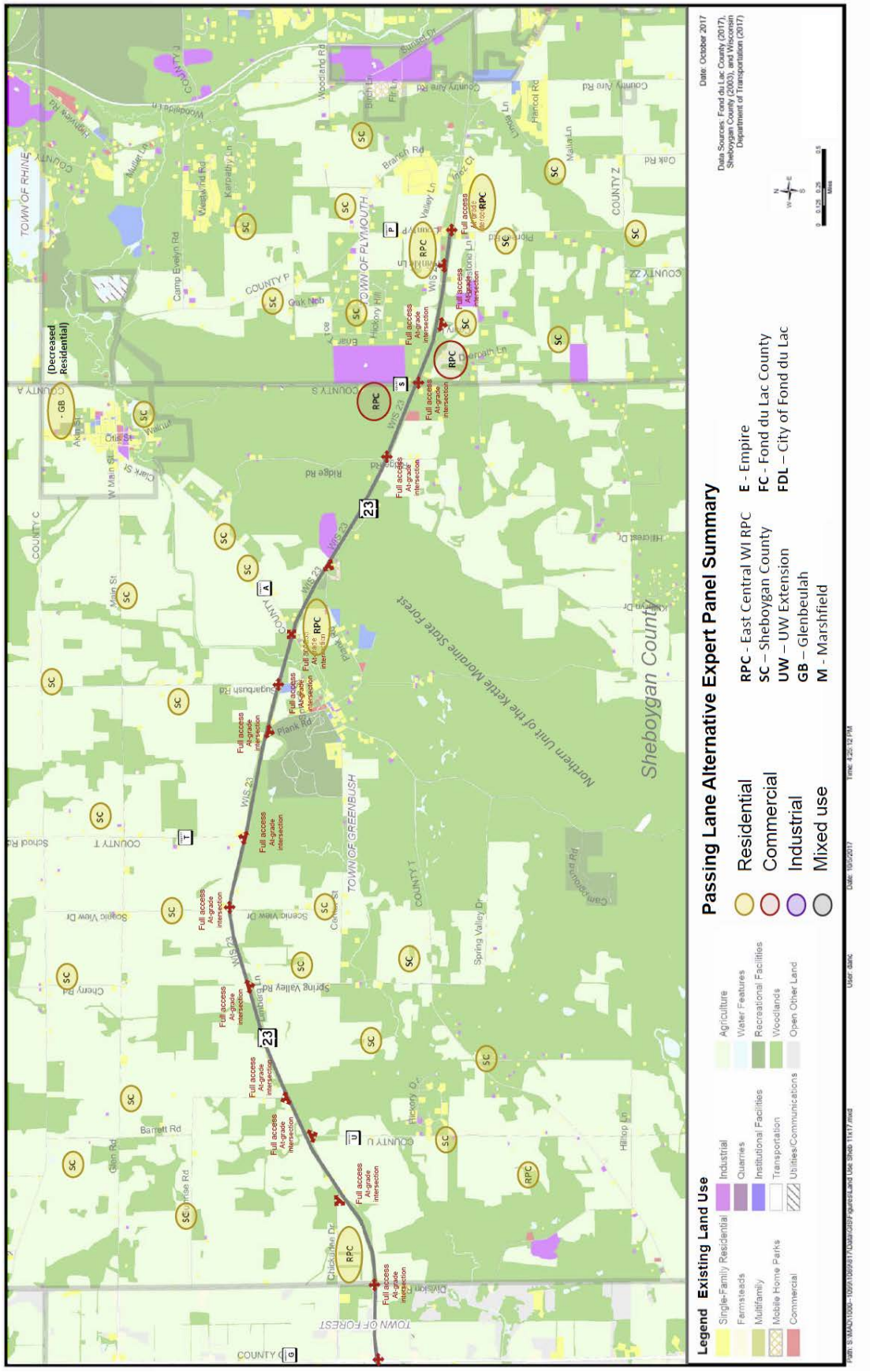


Figure 4.4-10 Passing Lane Alternative Expert Panel Summary

3) Commercial Development

Expert panelists indicated that the location of future commercial development will generally occur in locations planned by study area communities. Some panelists identified a few areas of potential future small-scale highway-oriented commercial development that are *not* planned by the local communities, primarily at county highway intersections with WIS 23 (see Figures 4.4-9 and 4.4-10).

4) Industrial Development

Panelists indicated that the pace and scale of industrial development with the Passing Lane Alternative is likely to be similar to the pace and scale of industrial development with the No-Build Alternative.

5) Rural Character

The majority of expert panelists indicated there would be no change in the rural character of the corridor when compared with the No-Build Alternative. Some indicated that shortened commute times could influence development, which could degrade the rural character.

b. Agriculture

Expert panelists were divided about how much farmland would be under production with the Passing Lane Alternative. About half said there would be less land under production, and the other half said that there would be about the same amount of land under production as with the No-Build Alternative. Some panelists indicated that some farms have already stopped producing because of the land purchased by the state in association with the 2014 LS SFEIS. (Note that 17 of the 18 farm relocations associated with the 2014 decision have already occurred.) About half of the panelists felt the Passing Lane Alternative would have a negative impact on farmland, with the other half indicating no impacts or positive impacts.

c. Wetlands

With the Passing Lane Alternative, half the expert panelists indicated that there would be no impact to wetland areas while the other half indicated there would be a negative impact to wetland areas. Where wetland areas will be lost by this alternative, compensatory mitigation is required. The study team believes there would be limited indirect effects to wetlands because there would be limited exurban residential and commercial development with the Passing Lane Alternative.

d. Water Quality

Panelists indicated that with the Passing Lane Alternative, no impacts to surface water and groundwater recharge areas are anticipated beyond that associated with planned development in city and village growth areas.

e. Upland Habitat

Most expert panel members indicated that like the No-Build Alternative, there will be no impact to woodlands with the Passing Lane Alternative. However, a quarter of the panel indicated there would be a negative impact. The study team believes impact patterns would be similar to those discussed under the No-Build Alternative with impacts mainly resulting from changed rural residential development in areas planned and zoned for rural residential development.

The study team believes there would likely be minimal additional impact to glacial features under the Passing Lane Alternative when compared to the No-Build Alternative. This is because the Passing Lane Alternative only provides limited improvements to the amount of mobility enhancements.

f. Threatened and Endangered Species

Like the No-Build Alternative, most panelists indicated the Passing Lane Alternative will not impact threatened and endangered species.

g. Historic and Archaeological Resources

Historic resources in the area include St. Mary's Springs Academy, the Wade House Historic Site, and the Sippel archaeological site. Expert panelists indicated that the Passing Lane Alternative's impact to these resources would be the same as with the No-Build Alternative. The study team adds that access to St. Mary's Springs will be improved and fully restored with the proposed jughandle intersection.

h. Air Quality

Air pollutants are discussed in Section 4.7. With the Passing Lane Alternative, average daily traffic volumes on WIS 23 is projected to increase from 4 to 27 percent by the year 2040. 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. Increased vehicle volumes may result in additional emissions.

Similar to the No-Build Alternative, about three quarters of the expert panel indicated the Passing Lane Alternative would have no impact on air quality. A few respondents indicated that the anticipated small reduction in congestion could modestly improve emissions.

i. Trails

The Old Plank Road Trail is a 17-mile multiuse trail that parallels WIS 23 from Sheboygan to Greenbush, linking with the IAT in the KMSF-NU. Other trails in the study area include the IAT, the State Equestrian Trail, and a snowmobile trail crossing WIS 23 between Plank Road and County S. The Passing Lane Alternative would construct the Old Plank Road Trail extension and provide a grade separated crossing of WIS 23 at the KMSF-NU for the IAT and State Equestrian Trail.

All responding expert panelists indicated that the Passing Lane Alternative would have anywhere from no impact to a very positive impact on trails. Positive impacts include the grade separated IAT/State Equestrian Trail crossing on WIS 23. Also, the proposed extension of the Old Plank Road Trail west to Fond du Lac would be constructed, which panelists representing local governments indicated was something their constituents desired.

j. Environmental Justice (EJ) Populations

The study team determined that there would be no indirect impacts to minority and low-income populations.

k. Elderly Populations

The panel did not discuss impacts to other protected populations, but the study team considered impacts to elderly populations. The study team determined the elderly populations may be more adversely affected, compared to other build alternatives, by the limited gaps and lack of refuges on the Passing Lane Alternative. Elderly populations are randomly distributed through the study area, with slightly greater concentrations in the cities of Fond du Lac and Plymouth and the villages of Mt. Calvary and St. Cloud, both in the town of Marshfield. Elderly populations may need to travel to the urban areas at the ends of the study area for services.

3. 4-lane On-alignment Alternative (Preferred Alternative)

a. Development

1) General Development Pattern

Expert panelists indicated that future land development within the study area will generally follow adopted comprehensive plans. The panel members indicated where they thought development would occur as part of the mapping exercise as illustrated in Figures 4.4-11 and -12.

The study team believes that in general, development at the western and eastern ends of the corridor will be less affected by the 4-lane On-alignment Alternative because development in the cities of Fond du Lac and Plymouth respond more to the provision of urban utilities and services. With the mapping exercise, panelists indicated the following development patterns could occur with the 4-lane On-alignment Alternative:

- Higher levels of residential, commercial, and mixed-use development at the east end of Fond du Lac, near County UU.
- Residential, commercial, and mixed-use development near the County G interchange.
- Scattered and dispersed residential development east of County G, proximate to the KMSF-NU.
- Commercial and residential development in Greenbush at the intersection of County A and WIS 23.
- Residential development west of the city of Plymouth.
- Commercial development along the WIS 23 frontage road in the town of Plymouth, west of the city of Plymouth.

The study team believes 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 A could be offset by access reductions at Sugarbush Road.

Panelists generally felt that development would occur at a faster pace with the 4-lane On-alignment Alternative than with the No-Build or Passing Lane Alternatives. The panelists also generally felt that development with the 4-lane On-alignment Alternative would be more concentrated. This alternative also reduces the number of access points which has the strong tendency to focus additional development near remaining access points.

The study team believes regional growth trends have been and are likely to continue to be modest. The 4-lane On-alignment Alternative is not a new highway facility but rather a modification of a long-existing highway.

2) Residential Development

Expert panelists indicated that residential development would occur at the same or faster pace when compared with the No-Build Alternative. Some panel members stated that outside factors, such as the economy and buyer preferences, will have a greater effect on the pace of residential development than a 4-lane highway. A couple of panelists indicated that residing near a 4-lane WIS 23 corridor could make the corridor more attractive to live for people commuting to the Milwaukee metropolitan area. According to the most recent place of work survey, about 2.7 percent of Sheboygan County workers commute to Milwaukee County. An even smaller percentage of Fond du Lac County workers make that commute. The study team believes the

shortened travel time of about 3 minutes for Fond du Lac commuters to I-43 and traveler comfort related to capacity and safety improvements may lead to slight increases in the amount of residential development 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 in Figures 4.4-11 and 4.4-12.

Panelists indicated that residential development would either be at the same dispersion/concentration as the No-Build Alternative, or more concentrated than the No-Build Alternative. Similar responses were given by the panel regarding density, with the 4-lane On-alignment Alternative having the same or denser development patterns. Reasoning panelists cited for the projected dispersion/concentration pattern included the 4-lane On-alignment's focusing of access to interchanges along with the modifying or reduction of other side road access.

3) Commercial Development

Expert panel members indicated that commercial development will occur at the same or at a faster pace with the 4-lane On-alignment Alternative than with the No-Build Alternative. They indicated that commercial development is likely to continue to be focused in planned commercial areas with the 4-lane On-alignment Alternative, but unplanned highway-oriented commercial development may also occur at proposed interchange locations because of increased capacity and a focusing of access at proposed interchanges. This is illustrated in the mapping exercise, summarized in Figures 4.4-11 and -12, where panelist show commercial development locating near the County UU and County G interchanges, as well as the County A and County S RCUT intersections. Perceived ease of access was one factor cited in the location of commercial development at these nodes.

Most panelists felt that commercial development will occur on a larger scale with the 4-lane On-alignment Alternative than with the No-Build Alternative.

Panelists associated with groups that foster economic development indicated that it has been difficult to attract business and industry to the east side of Fond du Lac because it is not served by a 4-lane corridor. There are other area business parks that have more direct access to a 4-lane roadway. These panelists felt that expanding WIS 23 to a 4-lane highway might prompt changes in zoning and land use plans that would favor larger business and industry. Some panelists also indicated that with a 4-lane facility, new economic development initiatives, such as marketing campaigns, creation of tax incremental financing districts, and new business parks and shopping centers could emerge.

4) Industrial Development

Expert panelist responses to industrial development with the 4-lane On-alignment Alternative were similar to those for commercial development. Most panelists felt that the pace of industrial development would either be the same as, or faster than the pace of industrial development that would occur with the No-Build Alternative. The panelist from Fond du Lac noted that the area just east of Fond du Lac is not planned for industrial development within their comprehensive plans. The panelist also indicated that the scale of industry with the 4-lane On-alignment is likely to be the same, or larger than what would occur with the No-Build Alternative.

As mentioned under commercial development, panelists associated with groups that foster economic development indicated that it has been difficult to attract business and industry to the east side of Fond du Lac because it is not served by a 4-lane corridor. These panelists felt that expanding WIS 23 to a 4-lane highway might prompt changes in zoning and land use plans that

would favor larger business and industry. Some panelists also indicated that with a 4-lane facility, new economic development initiatives, such as marketing campaigns, creation of tax incremental financing districts, and new business parks and shopping centers could emerge.

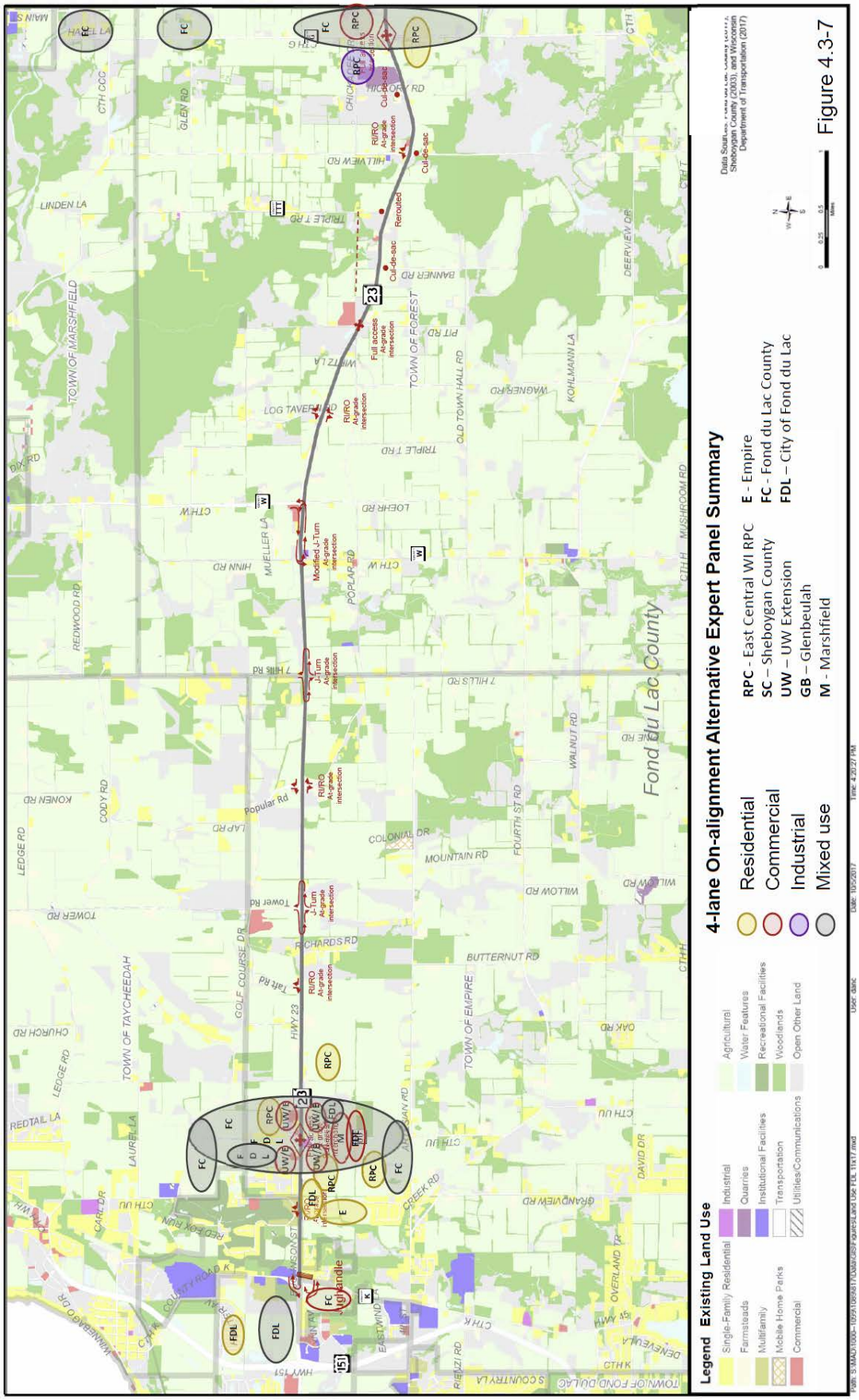


Figure 4.4-11 4-lane On-alignment Alternative Expert Panel Summary

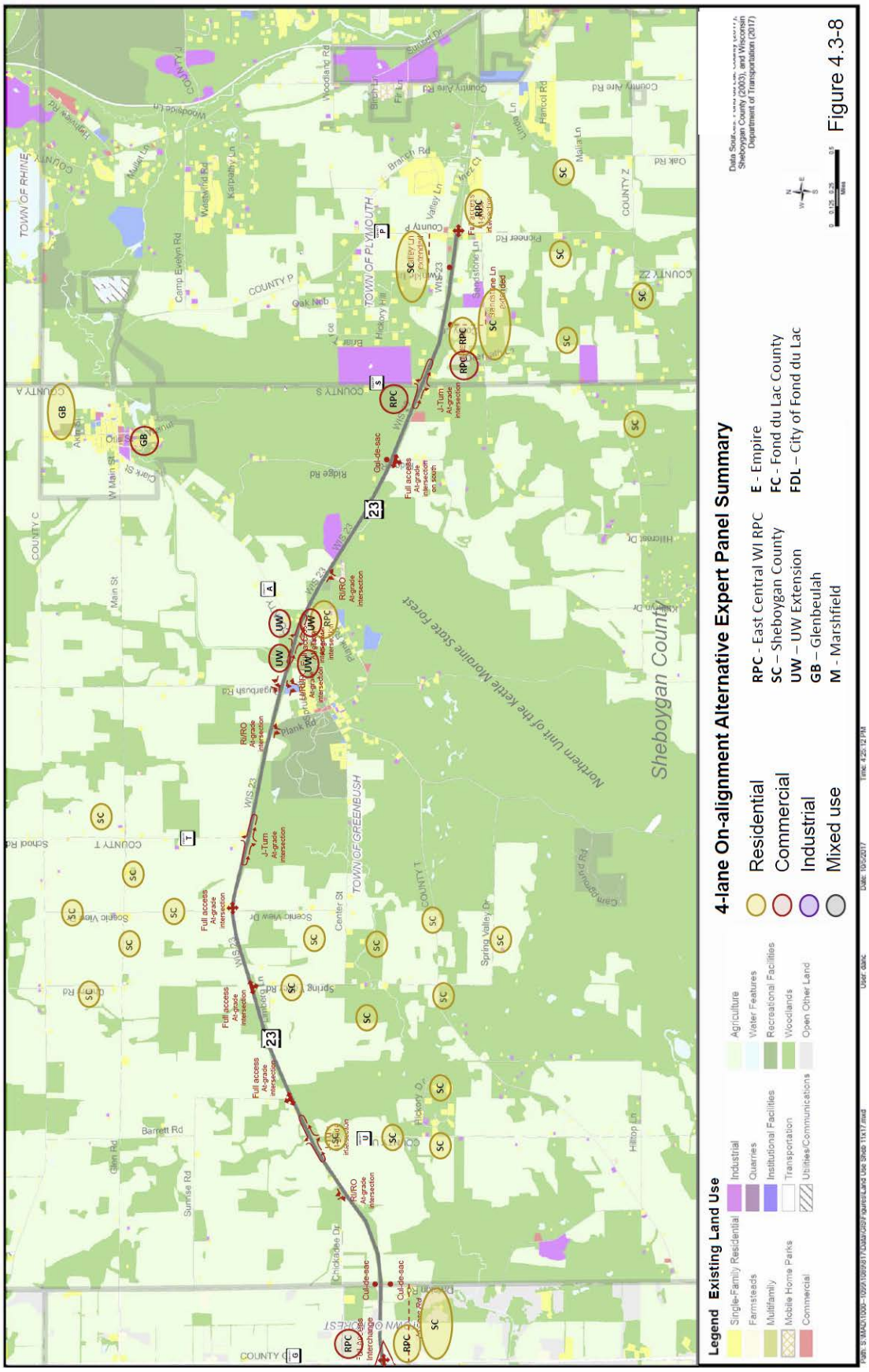


Figure 4.4-12 4-lane On-alignment Alternative Expert Panel Summary

5) Rural Character

Most expert panelists indicated that the 4-lane On-alignment Alternative is likely to have no impact on the rural character of the corridor. About one third of the panelists stated that it would have a negative impact, Individual responses cited the potential for more residential construction, creating a more suburban feel. Some panelists suggested that easier access/decreased commute times provided by a 4-lane WIS 23 may increase demand for "country-living." The increased development could negatively affect rural character in such areas.

Another individual response cited there would be more exposure and ability to attract business, also diminishing the rural character of the corridor. The study team concludes this increased exposure, rural interchanges, and small-scale highway-oriented commercial development may have a slight impact on rural character, as local zoning ordinances do not contain provisions which protect community character.

Rural character will ultimately be dependent upon local government regulation and the quality of development and siting decisions. Previous workshop panelists indicated that a 4-lane WIS 23 would not increase the number of billboards in the study area because of lack of demand for off-site advertising. Adopting regulations that prevent billboards would be a more certain way of avoiding this adverse impact on rural character.

b. Agricultural

Most expert panelists indicated that the 4-lane On-alignment Alternative would have a negative effect on farmland. They further indicated that there would be less farmland under production with the 4-lane On-alignment Alternative than with the No-Build Alternative. Direct effects of the alternative approved with the 2014 LS SFEIS and prior to the ROD being vacated have already led to the relocation of 17 farm operations, decreasing the amount of farmland under production. One panel member indicated that most of the farm impacts have already occurred.

Panelists felt that the size of the operations would continue at the same scale with the 4-lane On-alignment Alternative as with the No-Build Alternative. They also felt that there probably would be limited influence on crop type.

Some active farmers on the expert panel stated that travel will be difficult for farm equipment associated with the left turns and RCUTs which are part of the 4-lane On-alignment Alternative. Under existing conditions, slow moving agricultural equipment travels on the shoulder, and then takes a full lane before turning left or right onto a side road. With the 4-lane On-alignment Alternative, this equipment must take a lane, then move to the left lane, then move to the left-turn lane before making a U-turn. So, while the 4-lane On-alignment Alternative provides room for passenger vehicles to pass slow moving farm equipment, it also makes it more difficult for slow moving farm vehicles to access side roads. When asked if they thought the increased difficulty would stop or discourage farmers from working land on or just off WIS 23, panel members indicated it would not. Panelists further stated that the demand for acreage is very high, and available acreage would be farmed by someone. Increased difficulty in accessing farmland will influence individual decisions on what farm parcels to rent or buy. Over time, farmers may consolidate the acreages they farm to one side of WIS 23 or the other.

One panelist from DATCP indicated that increased development pressure may change expectation of area farmers about the long-term viability of farming, leading to lower investments for farm improvements. Farmers may anticipate difficulty in obtaining land for expansion due to urban development and increasing land values. Farm operators may shift more from owners to renters who have less stake in the long-term integrity of the farmland. The same panelist

indicated that development pressure can affect crop types. Over decades, dairy and cash grains may shift more to vegetable and specialty crop groups in urbanizing areas.

c. Wetlands

With the 4-lane On-alignment Alternative, about one third of the expert panelists indicated that there would be no impact to wetland areas while the other two thirds indicated there would be a negative impact to wetland areas. Where wetland areas will be lost by this alternative, compensatory mitigation is required.

The study team believes that the amount of wetland area lost to future development would be modestly greater under the 4-lane On-alignment Alternative compared to the No-Build Alternative because of slight increases in the amount of new development. Increased pace of development could be attracted to open areas that contain wetland, yet wetlands are protected from development by state and federal regulations. 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. Ultimately, the level of impact will vary based on development type, local regulations, mitigation activities, and future conservation efforts.

d. Water Quality

Expert panelists indicated that there would be minimal difference in surface and subsurface water quality impacts with the 4-lane On-alignment Alternative compared to the No-Build Alternative. The study team believes increased stormwater runoff from the highway and land development 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. The degree of these impacts would likely be slightly higher compared to the No-Build Alternative.

e. Upland Habitat

Like the other alternatives, most expert panel members felt the 4-lane On-alignment Alternative would have no impact to woodlands. About one third of the panel members said that this alternative would have a negative impact. Most of the individual comments from the panel members cited direct impacts of right-of-way acquisition as one reason for the negative effect. The extent to which the 4-lane On-alignment Alternative encourages a faster pace of development also could have a negative effect on woodlands. This could further impact the Escarpment, unique glacial features, and other resource areas of ecological importance.

f. Threatened and Endangered Species

One panelist expressed more uncertainty about the 4-lane On-alignment Alternative's potential impact on threatened and endangered species. About 40 percent had no opinion, about 40 percent indicated no impact, and about 20 percent indicated a negative impact. This Alternative could reduce habitat as a result of slightly increased pace and amount of development. More discussion on effects to threatened and endangered species is presented in the Cumulative Effects Section 4.5.

g. Historic and Archaeological Resources

All panelists felt that the 4-lane On-alignment Alternative would have no more impact to historic and archeological resources than the No-Build Alternative. This is in exception to the direct effects described in Section 4.7 and Section 5. The study team adds that access to St. Mary's Springs will be improved and fully restored with the proposed jughandle intersection.

The study team believes it is difficult to determine the 4-lane On-alignment 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.

h. Air Quality

Similar to the No-Build and Passing Lane Alternatives, about three quarters of the expert panel members indicated the 4-Lane On-alignment Alternative would have no impact on air quality. Panel members representing metropolitan planning organizations indicated that this alternative would improve air quality due to reduced congestion and higher travel speeds.

The 4-lane On-alignment Alternative will have higher traffic volumes and higher travel speeds. The projected 2040 daily traffic volumes are 45 and 34 percent higher (weighted average) in Fond du Lac and Sheboygan Counties respectively, than what would occur with the No-Build Alternative. In 2016 WIS 23 daily traffic made up about 1.7 percent of the vehicle miles traveled (VMT) in Fond du Lac County and 2.0 percent of the VMT in Sheboygan County.[9] The 4-Lane On-alignment Alternative has more VMT than the No-Build Alternative in the year 2040. This could cause WIS 23's contribution of VMT to grow to 3.2 percent in Fond du Lac County, and 2.8 percent in Sheboygan County. 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.

USEPA designated Sheboygan County a marginal nonattainment area for ground level ozone under the 2008 eight-hour standard for that pollutant. The 2008 standard has not been revoked; therefore, control measures and transportation conformity is still required for the whole county under that standard. Additional ozone resulting from emissions associated with the 4-lane On-alignment Alternative could affect 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.

i. Trails

Expert panelists indicated that the extension of the Old Plank Road Trail from Plymouth to Fond du Lac will also be a positive impact of the 4-lane On-alignment Alternative. As proposed under this 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.

j. Environmental Justice (EJ) Populations

The study team determined that there would be no indirect impacts to minority and low-income populations.

k. Elderly Populations

The study team considered impacts to elderly populations. A variety of access restrictions are included in this Alternative that may make access somewhat less convenient and trips slightly longer for the concentrations of elderly population. Elderly populations are randomly distributed through the study area, with slightly greater concentrations in the cities of Fond du Lac and Plymouth and the villages of Mt. Calvary and St. Cloud, both in the town of Marshfield. Elderly populations may need to travel to the urban areas at the ends of the study area for services. The access restriction impacts may be offset by reduced highway congestion and safer conditions under this Alternative.

[9] 2016 VMT Data from http://wisconsindot.gov/Pages/projects/data-plan/veh-miles/default.aspx

4. Hybrid Alternative

In order to focus responses and leverage the time available to interact with the expert panel, the Hybrid Alternative was not presented to the panel for review. The study team applied the responses from the Passing Lane Alternative and the 4-lane On-alignment Alternative to obtain a reasonable estimation of indirect effects for the Hybrid Alternative. It is likely that the indirect effects from the Hybrid Alternative will lie between the extremes of the Passing Lane Alternative and the 4-lane On-alignment Alternative.

The following paragraphs briefly describe these effects.

a. Development

1) General Development Pattern

Future land development within the study area will generally follow adopted comprehensive plans. Planned development locations at the western and eastern ends of the corridor will be less impacted with the Hybrid Alternative because development in the cities of Fond du Lac and Plymouth respond to the provision of urban utilities and services.
Because the Hybrid Alternative constructs a 4-lane highway on the western Fond du Lac County portion of the corridor, it is likely that this part of the corridor may experience similar development effects as the 4-lane On-alignment Alternative, while the Sheboygan County portion may experience development effects similar to the Passing Lane Alternative. These include:

- Higher levels of residential, commercial, and mixed-use development at the east end of Fond du Lac, near County UU.
- Residential, commercial, and mixed-use development near the County G interchange.
- Scattered and dispersed residential development east of County G, proximate to the KMSF-NU.

2) Residential Development

Residential development is likely to occur at the same or faster pace when compared with the No-Build Alternative. Smaller communities within the study area, particularly in Fond du Lac County, may experience modest increases in the pace and amount of residential growth as a result of improved access to major employment centers.

Residential development is likely to be at a similar dispersion/concentration as the No-Build Alternative. Similar responses were given by the panel regarding density, with the 4-lane segment having the same or denser development patterns.

3) Commercial Development

With the Hybrid Alternative, commercial development may occur at the same or at a faster pace in the Fond du Lac portion of the corridor than it would with the No-Build Alternative. Unplanned highway-oriented commercial development may also occur at the County UU and County G interchanges.

Panelists associated with groups that foster economic development indicated that it has been difficult to attract business and industry to the east side of Fond du Lac because it is not served by a 4-lane corridor. The Hybrid Alternative may not fully address this concern because it does not provide a 4-lane facility to I-43. Therefore, the Hybrid Alternative may not provide as much of an economic attraction for larger business or industry as the 4-lane On-alignment Alternative.

4) Industrial Development

With the Hybrid Alternative, the pace of industrial development would either be the same as, or faster than the pace of industrial development with the No-Build Alternative. Panelist from the city of Fond du Lac noted that the WIS 23 corridor is not planned for industrial development within their comprehensive plans.

As mentioned, panelists associated with groups that foster economic development indicated that it has been difficult to attract business and industry to the east side of Fond du Lac because it is not served by a 4-lane corridor. The Hybrid Alternative may not fully address this concern because it does not provide a 4-lane facility to I-43. Therefore, compared to the 4-lane On-alignment Alternative, the Hybrid Alternative may not provide as much of an economic attraction for larger business or industry.

5) Rural Character

The Hybrid Alternative may diminish the rural character of the corridor in the Fond du Lac County segment, in that it expands the highway and may attract highway oriented commercial development to the County UU and County G interchanges. The Sheboygan County portion of the corridor is likely to remain unchanged. Rural character will ultimately be dependent upon local government regulation and the quality of development and siting decisions.

b. Agricultural

With the Hybrid Alternative there would be less farmland under production than with the No-Build Alternative. Direct effects of the alternative approved with the 2014 LS SFEIS and prior to the ROD being vacated have already led to the relocation 17 farm operations, which will decrease the amount of farmland under production. Most of the farm impacts have already occurred.

One concern voiced by active farmers on the expert panel regarded difficulty for farm equipment negotiating the left turns at RCUTs. (See the previous discussion of the 4-lane On-alignment Alternative and farm equipment in this section.) This same difficulty will exist with the Hybrid Alternative in Fond du Lac County, where two RCUTs will be installed. The increased difficulty reportedly will not stop farmers from working land on or just off WIS 23 because the demand for acreage is high. Over time, Fond du Lac County farmers may consolidate the acreages they farm to one side of WIS 23 or the other.

c. Wetlands

Where wetland areas will be lost by this alternative, compensatory mitigation is required.
The Study team believes that the amount of wetland areas lost to future development would be modestly higher under the Hybrid Alternative compared to the No-Build Alternative because of slight increases in the amount of new development. 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. Ultimately, the level of impact will vary based on development type, local regulations, mitigation activities, and future conservation efforts.

d. Water Quality
There would be minimal difference in surface and subsurface water quality with the Hybrid Alternative when compared with the No-Build Alternative. Increased stormwater runoff from the highway and land development 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. The degree of these impacts with the Hybrid Alternative would likely be slightly higher compared to the No-Build Alternative.

f. Upland Habitat

The extent to which the Hybrid Alternative encourages a faster pace of development on County K and County UU, also could have a negative effect on Escarpment area woodlands. This could further impact the Escarpment, unique glacial features, and other resources areas of ecological importance.

The study team believes there could be slightly increased impacts to prominent glacial features under the Hybrid Alternative because of lack of protection and slightly increased amounts of new development compared to the No-Build Alternative.

g. Threatened and Endangered Species

The Hybrid Alternative would have limited impact to threatened and endangered species when compared to the No-Build Alternative. This alternative could reduce habitat as a result of slightly increased pace and amount of development. More discussion on effects to threatened and endangered species is presented in the cumulative effects section.

h. Historic and Archaeological Resources

Similar to the other alternatives, the Hybrid Alternative would have no additional impact to historic and archeological resources when compared to the No-Build Alternative. The study team adds that access to St. Mary's Springs will be improved and fully restored with the proposed jughandle intersection.

i. Air Quality

The Hybrid Alternative will have higher traffic volumes and higher travel speeds. The projected 2040 daily traffic volumes are 32 and 13 percent higher (weighted average) in Fond du Lac and Sheboygan counties respectively, than with the No-Build Alternative. In 2016 WIS 23 daily traffic made up about 1.7 percent of the VMT in Fond du Lac County and 2.0 percent of the VMT in Sheboygan County.[10] The Hybrid Alternative would have more VMT than the No-Build Alternative in the year 2040. This could cause WIS 23's contribution of VMT to grow to 2.9 percent in Fond du Lac County, and 2.3 percent in Sheboygan County. 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.

j. Trails

Expert panelists indicated that the extension of the Old Plank Road Trail from Plymouth to Fond du Lac will be a positive impact of the Hybrid Alternative. As proposed under this 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.

k. Environmental Justice (EJ) Populations

The study team determined that there would be no indirect impacts to minority and low-income populations.

l. Elderly Populations

The study team considered impacts to elderly populations. The Hybrid Alternative includes some access restrictions and also limited gaps and lack of refuges in passing lane sections. These changes may make access somewhat less convenient and trips slightly longer for the elderly

[10] 2016 VMT data from http://wisconsindot.gov/Pages/projects/data-plan/veh-miles/default.aspx

populations. Elderly populations are randomly distributed through the study area, with slightly greater concentrations in the cities of Fond du Lac and Plymouth and the villages of Mt. Calvary and St. Cloud, both in the town of Marshfield. Elderly populations may need to travel to the urban areas at the ends of the study area for services. The impacts may be offset by reduced highway congestion and safer conditions under this alternative.

5. Corridor Preservation (Part of the Preferred Alternative)

Expert panel members were asked how potential future improvements[11] associated with corridor preservation would influence development rates and area resources. Additional environmental documentation to evaluates a range of alternatives and associated impacts and costs would need to be completed prior to advancing any potential improvements related to corridor preservation. The improvements considered include:

- Grade separation (overpass) at Tower Road.
- Cul-de-sacs at Poplar Road.
- Grade separation (overpass) at 7 Hills Road.
- Cul-de-sac at County W south and Hinn Road.
- Rerouting of County W south to County W north.
- Diamond interchange at County W north intersection.
- Grade separation (overpass) at Scenic View Drive.
- Cul-de-sac at Plank Road.
- Grade separation (overpass) at Sugarbush Road.
- Diamond interchange at County A.

Expert panelists were evenly split in their opinion on how these improvements would affect the amount of development, with about one third saying less development, one third saying the same amount of development, and one third saying more development. About one half the panelists stated the amount of farmland under production would be less if the improvements associated with corridor preservation were implemented, while the other panelists felt there would be the same amount of farmland under production.

F. Assess Consequences and Identify Mitigation Activities

The indirect effects analysis indicates the predominant consequence of indirect effects from any of the build alternatives 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. This varies from limited increases with the Passing Lane Alternative to greater increases with the 4-lane On-alignment Alternative. Since most of the sensitive resources in the 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 impact 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)).[12]

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.

[11] Preservation does not always mean that future improvements are reasonably foreseeable. Additional environmental evaluation would be required before advancing any potential improvements within preserved areas
[12] http://www.environment.fhwa.dot.gov/projdev/qaimpact.asp accessed on June 2013

"*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 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, 23 CFR 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 Section 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 alternatives being brought forward for detailed evaluation. The selection of an on-alignment alternative 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). On-alignment alternatives have 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. Even with a 4-lane facility, an on-alignment alternative would have about one 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 on-alignment alternatives 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.

(2) Features Incorporated into Alternatives to Offset Negative Effects

WisDOT seeks to incorporate design components and features into the analyzed alternatives that minimize the adverse effects of the potential project. Many of these components address direct effects, but they also have regional influence. All build alternatives being evaluated include 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. Several of the alternatives being considered in this document incorporate access management, which is detailed in Section 2.

c. Mitigation Measures

Mitigation for direct effects includes wetland mitigation, the provision of a grade-separated crossing for the IAT/State Equestrian Trail, the replacement of forest land to the KMSF-NU, 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 require updates 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 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 possible 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 can be 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. These impacts may be minimized through local and county stormwater ordinances and BMPs. BMPs will be administered both in the design of the roadway and during

construction. WisDOT will implement typical stormwater management techniques to minimize adverse effects and enhance beneficial effects as outlined in TRANS 401.106 and the WDNR Wisconsin Pollution Discharge Elimination System (WPDES) Transportation Construction General Permit (TCGP) for stormwater. The strategy includes preparation of a written plan that outlines the BMPs to be implemented.

e. Monitoring and Evaluation of Indirect Effects

Section 6 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) and 6(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 USEPA and USACE, also have the authority to monitor impacts to natural resources such as floodplains, wetlands, and water quality.

4.5 CUMULATIVE EFFECTS

Cumulative effects are defined as "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."[13] Figure 4.5-1 illustrates how project effects combine with other actions unrelated to the highway project to produce a cumulative effect.

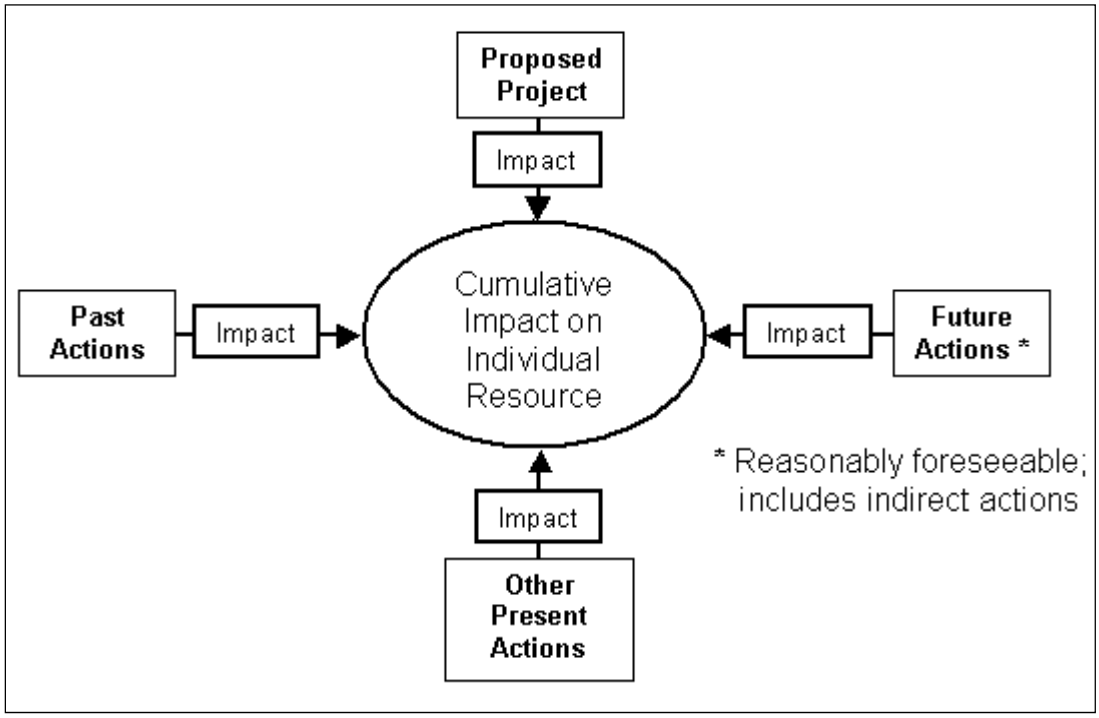


Figure 4.5-1 Cumulative Impacts (FHWA Environmental Review Toolkit)

The project team performed an assessment of the potential cumulative effects associated with Passing Lane, Hybrid, and 4-lane On-alignment Alternatives, and the corridor preservation associated with build alternatives. The analysis considered the effects of these alternatives when combined with activities that have occurred upon a resource in the 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 2014 LS SFEIS. More recently available information was included, updated direct impacts were referenced, opinions of the 2017 expert panel were incorporated, and trends were referenced to suggest the significance of the impact.

A. Methodology

The CEQ'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 (Steps 1-4)

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).

[13] 40 CFR 1508.7-Cumulative Impact; https://www.gpo.gov/fdsys/pkg/CFR-2012-title40-vol34/pdf/CFR-2012-title40-vol34-sec1508-7.pdf, accessed July 13, 2018.

4. Identify other actions affecting the natural, historic, cultural resources, ecosystems and human communities of concern.

Describing the affected environment (Steps 5-7)

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.

Determining the environmental consequences (Steps 8-11)

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

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

1. Issues Associated with the Alternatives and Corridor Preservation Under Consideration

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 a Cumulative Effects Analysis (2007) as well as a determination by the study team that they were relevant to the analysis. Information from the inventory was considered in the preparation of the cumulative effects analysis. This analysis addresses the following resources, which have been identified as being directly and/or indirectly impacted.

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

2. Geographic Scope

The study area for this cumulative effects analysis encompasses the same area used for the indirect effects analysis (see Figure 4.4-1). The study team interacted with staff planners from Fond du Lac County, Sheboygan County, and East Central Wisconsin Regional Planning Commission to

determine the likely range of influence from the WIS 23 corridor. Beyond the 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 it is readily available (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 15 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 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 completed in the last 15 years. The US 151 bypass of Fond du Lac located at the west end of the corridor (construction from 2005 to 2008) and WIS 23 Coary Lane to County O/OJ (construction from 2003 to 2005) located on the east end of the corridor. The Fond du Lac bypass project east of I-41 and the WIS 23 project east of Coary Lane lie within the cumulative effects analysis 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 activities of other entities have affected the study area. Local land use policies and decisions have led to the conversion of farmland and woodlands to scattered residential and nonresidential development over the past decades. While the majority of the 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 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. Table 4.4-9 compares farm data from the 2002, 2007, and 2012 Census of Agriculture. The table shows that:

- In 2012 there were 15 percent fewer farms in Fond du Lac County than in 2002.
- In 2012 there were 12 percent fewer farms in Sheboygan County than in 2002.
- From 2002 to 2012 the average farm size has increased by 7 and 10 percent in Fond du Lac and Sheboygan counties, respectively.
- From 2002 to 2012 the amount of cropland in production has decreased by 10 and 7 percent in Fond du Lac and Sheboygan counties, respectively.

Incremental development in the study area has also impacted natural resources, particularly the Niagara Escarpment, which is located in the study area (the escarpment brow extends

north/south along the eastern periphery of the city of Fond du Lac), and the KMSF-NU,[14] 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 second largest operating wind farm in Wisconsin behind the Glacier Hills Wind Energy Center in Columbia County.[15]

(1) Road Projects

There have been several highway projects in or near the project corridor in the last 15 years. The following list summarizes them.

(a) WIS 23 Expansion–Coary Lane to County O/OJ–2004-2005

This project expanded 3.3 miles of WIS 23 on the north side of the city of Plymouth from a 2- to 4-lane expressway.

(b) Fond du Lac Bypass–County D to County K–2005-2008

This project constructed a 9-mile, 4-lane expressway around the city of Fond du Lac.

(c) US 151 Fond du Lac Bypass Improvements–County T, County V, DuCharme Parkway–2017

This project constructed an interchange at US 151 and County V, an overpass at County T over US 151, and intersection improvements at DuCharme Parkway.

(d) US 41 Interstate Conversion Study

WisDOT recently completed the conversion of US 41 to interstate designation from Milwaukee to Green Bay. The conversion has been completed with no additional right of way required.

b. Present and Future Actions

(1) Highways

As of August 2017, the following WisDOT studies were being conducted or were near completion in the vicinity of the project study area:

(a) US 151 Fond du Lac Bypass Corridor Preservation

This study was completed in 2013 and preserved right of way needed to convert the US 151 bypass from an expressway to a freeway facility (a future action). The improvements included access modification on the bypass as well as new service and system interchanges on I-41.

[14] KMSF-NU 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 KMSF-NU is part of the Ice Age National Scientific Reserve established in 1964 to project glacial landforms and landscapes in Wisconsin. The Wade House Historic Site, situated in Greenbush at the entrance of the KMSF-NU, once served as an inn and stopping point for stage coaches traveling on the Fond du Lac-Sheboygan Plank Road. Source: Kettle Moraine State Forest (Northern Unit) (accessed website on 10/27/2017 at http://www.fdlco.wi.gov/departments/departments-n-z/parks-trails/state-federal-recreational-areas/kettle-moraine-state-forest-northern-unit)

[15] Source: Wisconsin Wind Farms–Blue Sky Green Field Wind Energy Center (accessed website on 10/26/17 at http://www.renewwisconsin.org/wiwindinfoOLD.net/projects/blueskygrfield.html)

(b) WIS 23 Corridor Preservation Study (County P to WIS 32)
This study considered alternatives to preserve right of way for future freeway conversion of a 10-mile section of the WIS 23 corridor between County P and WIS 32. It included frontage roads, overpasses, and interchanges necessary for freeway conversion. WisDOT recently decided not to officially map improvements considered with the study.

Table 4.5-1 lists the cumulative effects impacts of past, presently planned, and planned future transportation WisDOT projects within the study area.

Table 4.5-1 Past, Present, and Future Roadway Impacts

Project (Actual or Planned Construction)	WIS 23 Expansion Coary Lane to County O/OJ (2004-05)	Fond du Lac Bypass (2005-08)	US 151 Fond du Lac Bypass (County T, V, DuCharme Improv) (2017)	Fond du Lac Bypass Corridor Preservation (2035?)[1]	WIS 23 Fond du Lac to Plymouth† (2019-21)	WIS 23 Corridor Preservation† US 151 to County P (2040)[1]	Total
Agricultural Area to Right of Way (acres)	15	178	55.8	98.9	24-218	244-50	615.7
Wetlands Filled (acres)	4	4.2	2.5	27.4	29.9-51.8	24.1-2.2	92.4
Upland Habitat Affected (acres)	1	~ 15*	11.6	0.0	5-38	40-7	72.6
Total Area Converted to Right of Way (acres)	18	323	148.4	68.6	79-410	407-76	1044.0
Residential Relocations	2	2	1	3 to 5	12-30	21-3	41 to 43
Commercial Relocations	0	1	0	0	0-4	6-2	7
Farm Relocations	0	0	0	1	6-18	16-4	23
Agricultural Severances	0	19	0	0	1-5	6-2	26

*Area affected estimated by using aerial mapping
†Left value is for the Passing Lane Alternative and the right value is for the 4-lane On-alignment Alternative. Value for the Hybrid Alternative falls between the two values provided. The numbers represent what is impacted and does not represent what has already occurred.
[1]There are no impacts that occur due to corridor preservation. The values shown represent possible impacts that could occur with construction projects associated with corridor preservation when/if they occur. No projects are scheduled at this time. In the future, if WisDOT determines that transportation improvements associated with corridor preservation are needed, subsequent environmental documentation would be prepared to evaluate impacts and costs.

(2) 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 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 study area.

Agencies have planned for future land conservation through acquisition in the study area and beyond, in particular expansion of the KMSF-NU. Land prices affect agencies' ability to acquire additional land for conservation purposes. High commodity prices tend to raise the value of agricultural land. Agricultural commodity prices are currently lower than they have been in the last five years, leading to the first decrease in agricultural land values since 2015. In the WIS 23 corridor, the demand for tillable land is high to service dairy operations. Dairy operations are the predominant agricultural practice in the area. This demand for tillable land can raise land values or keep them steady. An increase in commodity prices, or demand for tillable land to support dairy, 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 of residential and nonresidential development that may occur as a result of the WIS 23 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 had slowed residential market demand until 2011. Since 2011 residential market demand has slowly increased. This is illustrated by residential building permits issued in Fond du Lac and Sheboygan counties (see Table 4.5-2).

Table 4.5-2 Annual Residential Building Permits, Estimates with Imputation

County	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Sheboygan	318	237	135	89	67	56	62	96	92	106	181	184
Fond du Lac	334	255	172	128	125	101	96	131	124	146	165	185

Source: US Census Building Permits Survey, Permits by County or Place,
(accessed website on September 9, 2018 at https://www.census.gov/construction/bps/)

The number of residential building permits in Sheboygan and Fond du Lac counties is considerably lower in 2016 than in 2006, however, market demand is increasing. Based on its demographic, land use, and economic development expertise, the study team believes the market demand for new development is likely to continue to increase, but not fully return to pre-recession trends as the economy continues to rebound.

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 study area has already been described in Section 3 and in the indirect effects analysis (Section 4.4). 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 2,218 and 1,574 jobs,[16] respectively. Fond du Lac County is a leading dairy producer ranking 2nd out of 72 counties in the state and 20th out of 3,079 counties in the nation in milk from cows dairy production.[16] Sheboygan County ranks 14th out of 72 counties in the state and 67th out of 3,079 counties in the nation in milk from cows dairy production.[17]

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,

[16] Source: 2012 Census of Agriculture–County Data, Table 7. Hired Farm Labor–Works and Payroll: 2012 (accessed website on 10/26/17 at https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_County_Level/Wisconsin/st55_2_007_007.pdf)

[17] Source: 2012 Census of Agriculture County Profile–Sheboygan County–Wisconsin (accessed website on 10/27/17 at https://www.agcensus.usda.gov/Publications/2012/Online_Resources/County_Profiles/Wisconsin/cp55117.pdf) and https://www.agcensus.usda.gov/Publications/2012/Online_Resources/County_Profiles/Wisconsin/cp55039.pdf

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 study area. Data from the USDA Census of Agriculture, 2012 and 2007 censuses (see Table 4.4-9) reveal that Fond du Lac and Sheboygan counties lost 6 percent and 1 percent of their farmland, respectively. Based on local land use plans, this trend is likely to continue. Population growth in the study area has historically been comparable to the state average. Local land use plans indicate a desire by all communities 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. This would reduce the residential development acreage and reduce the conversion of agricultural land.

b. Wetlands

Wetlands are scattered throughout the 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 study area are located on state-managed lands. Two wetland mitigation sites exist directly adjacent to improvements being considered. They include the Pit Road wetland mitigation site and the Wade House Wetland Enhancement and Mitigation Site. 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 study area.

The majority of historic and ongoing wetland losses in the 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 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 study area is a part, has been identified by the USEPA as a Great Lakes Area of Concern.[18] 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.[19]

Several trout streams are located in the 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.[20]

[18] http://dnr.wi.gov/topic/greatlakes/sheboygan.html
[19] Source: Sheboygan River Area of Concern (accessed website on 10/30/17 at http://dnr.wi.gov/topic/greatlakes/sheboygan.html)
[20] Source: Outstanding and Exceptional Resrouce Waters (accessed website on 10/30/17at http://dnr.wi.gov/topic/SurfaceWater/orwerw.html)

The western portion of the 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 Taycheedah Creek and is part of the Upper Wolf River drainage basin. It 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 developing area east of Fond du Lac on the west slope of the Niagara Escarpment.[21] 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).[22]

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 study area are predominantly in agricultural use. Much of the upland habitats are located in the KMSF-NU in Sheboygan County and along the Niagara Escarpment. Nearby natural areas include Mullet Marsh and Sheboygan Marsh.

(1) The KMSF-NU is located within the study area. 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 4.5-2 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, which will require purchase of private lands.

[21] Source: Lake Winnebago East Priority Watershed Project Plan (accessed website on 10/30/17 at http://dnr.wi.gov/topic/nonpoint/documents/9kep/expired/LakeWinnebagoEast.pdf)
[22] Wisconsin Department of Natural Resources in Cooperation with the Upper Fox River Basin Partnership Team and Sakeholders; The State of the Upper Fox River Basin; October 2001; WT-665-2001; https://dnr.wi.gov/topic/watersheds/documents/basins/upfox/upfox1.pdf

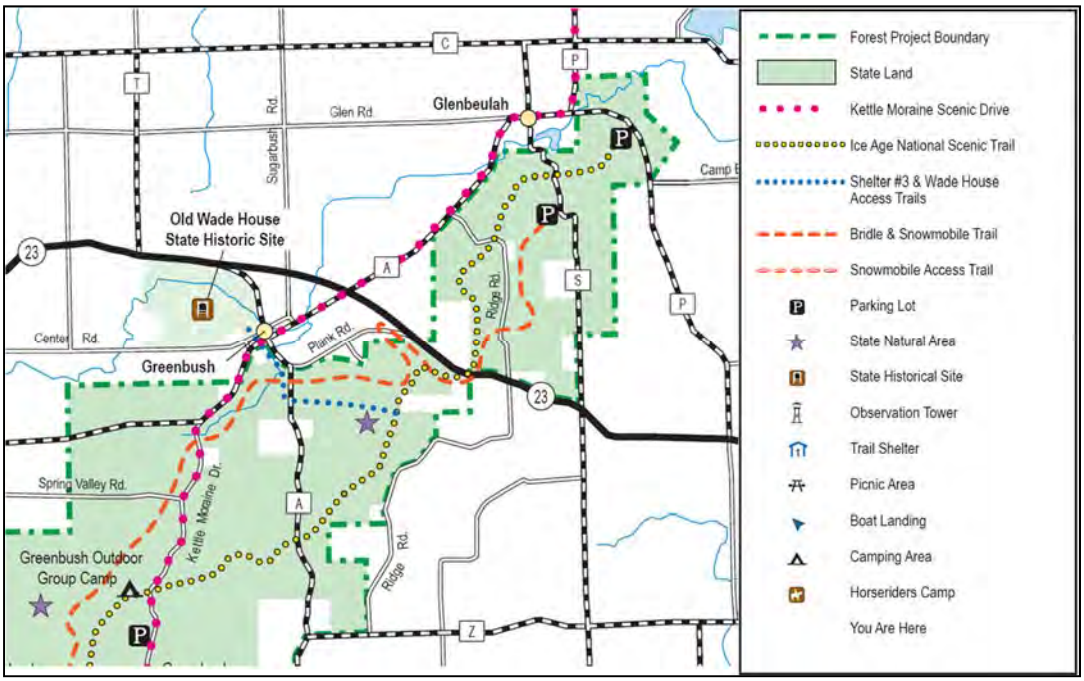


Figure 4.5-2 Northern Unit of the Kettle Moraine State Forest Boundaries

(2) The Niagara Escarpment (which is a long ridge, see Figure 4.5-3) which is located within the study area, is a statewide 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.

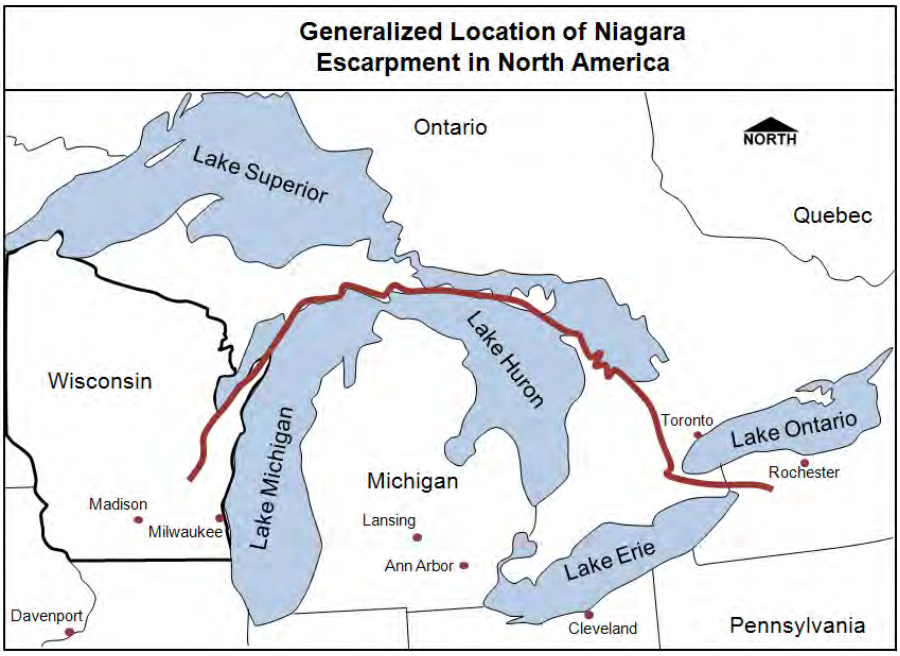


Figure 4.5-3 The Niagara Escarpment (shown in dark red line)

(3) Upland areas are within Sheboygan Marsh County Park and State Wildlife Area, located two 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 KMSF-NU. Abandoned farm fields in the upland areas are managed with prescribed burning and sharecropping as 425 acres of grassland (prairie) and 70 acres of crop fields.[23]

(4) Upland areas are within the Mullet Marsh, located one mile south of the project corridor. The 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 the 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 are the headwaters of the Mullet River in the priority watershed of the Sheboygan River.[24]

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 a 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 four federally listed threatened, endangered, or experimental populations and 47 total plant and animal species, not including duplicates, state listed as either threatened or endangered within Fond du Lac and Sheboygan counties. Two state threatened species and one state endangered species are considered potentially affected based on WDNR project coordination. Within the larger study 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 WIS 23 build alternatives 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.[25]

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 KMSF-NU. 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

[23] Source: Sheboygan Marsh Wildlife Area (accessed website on 10/30/17 at http://dnr.wi.gov/topic/lands/wildlifeareas/sheboygan.html)
[24] Source: Mullet Creek Wildlife Area (accessed website on 10/30/17 at http://dnr.wi.gov/topic/lands/wildlifeareas/mullet.html)
[25] Source: Mussels (accessed website on 10/30/17 at http://dnr.wi.gov/news/features/feature.asp?id=2&article=9)

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 was delisted as a state threatened species in 2014. 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 state threatened species in the project area. 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 study area. Wisconsin's AHI indicates that there are 4,140 historic listings for Fond du Lac County and 2,718 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 NRHP have not been performed for most of the resources listed within these databases. Directly within the WIS 23 corridor there are 19 potential historic architectural sites. Effects to historic architectural sites were avoided or determined to have no adverse effect.

The Wade House Historic Site 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 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. Data collection by WisDOT on this site was performed in 2014 in areas that could be affected by a WIS 23 improvement in accordance with the Section 106 MOA for this project.

g. Air Quality

Section 4.4 briefly describes the 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 NAAQS. On May 21, 2012, USEPA designated Sheboygan County a marginal nonattainment area for ground level ozone under the 2008 eight-hour standard for that pollutant. USEPA has determined that the Sheboygan, Wisconsin area (Sheboygan County) failed to attain the 2008 NAAQS by the applicable attainment date of July 20, 2016, and that this area is not eligible for an extension of the attainment date. USEPA reclassified this area as "moderate" nonattainment for the 2008 ozone NAAQS.

Per the Clean Air Act, states recommend designations to the USEPA following promulgation of a new NAAQS. In September 2016, Governor Walker recommended that the entire state of Wisconsin be designated as attainment of the 2015 ozone standard. On November 6, 2017 USEPA finalized "round 1" of its initial area designations for the 2015 standard. In April 2017, Wisconsin's Department of Natural Resources provided supplemental information to USEPA in support of the governor's recommendation. In February 2018, DNR submitted additional comments to USEPA in response to USEPA's intended nonattainment area designations. On May 1, 2018 USEPA notified the state of its final designations for nonattainment of the 2015 ozone NAAQS. For Sheboygan County, the final moderate nonattainment area, (the final rule

was published in the Federal Register on June 4, 2018 and became effective 60 days later on August 3, 2018) is:

> Inclusive and east of the following roadways going from the northern county boundary to the southern county boundary: Highway 43, Wilson Lima Road, Minderhaud Road, County Road KK/Town Line Road, N 10th Street, County Road A S/Center Avenue, Gibbons Road, Hoftiezer Road, Highway 32, Palmer Road/Smies Road/Palmer Road, Amsterdam Road/County Road RR, Termaat Road.

This WIS 23 project, in Sheboygan County, is not located in the 2015 Ozone NAAQS nonattainment area. The 2008 standard has not been revoked; therefore, control measures and transportation conformity are still required for the whole county under that standard.

h. Trails

The three trails in the study area vary in their purpose and character. The IAT 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 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 study area plan for the acquisition and development of new trails. Other agencies, such as the Niagara Escarpment Network, also work toward these goals. The IAT and State Equestrian Trail have an established at-grade crossing of WIS 23 that would likely continue in absence of other influences. The build alternatives evaluated in this document include a grade separation for this IAT/State Equestrian Trail crossing. The Old Plank Road Trail extends from Sheboygan to the KMSF-NU. The build alternatives evaluated in this document include an extension of the Old Plank Road Trail west to the Prairie Trail in Fond du Lac. In absence of a WIS 23 project, it is undetermined when this trail would be extended west. State, county, and club-maintained snowmobile trails run along WIS 23 from approximately County W North to Plymouth with additional crossings of WIS 23 near Whispering Springs Boulevard and County W South. The trails are intended for recreational use during the winter months.[26] Snowmobilers use both county and state trails and private snowmobile club trails on private land. Snowmobiling is allowed on the Old Plank Road Trail. Figure 4.5-4 shows their general location.

[26] Sources: Fond du lac County Snowmobile Association and Visiting Sheboygan County (accessed websites on 11/01/17 at http://www.fdlsnowmobileassn.com/ and http://www.visitsheboygancounty.com/wp-content/uploads/2012/04/Snowmobile-Area2pdf.pdf)

Figure 4.5-4 Snowmobile Trails in the Project Corridor

All-terrain vehicle (ATV) trails cross WIS 23 near Triple T and at Hillview Road. Trail use is allowed between December 15 and March 15. The trails are intended for recreational use.[27]

i. Environmental Justice (EJ) Populations

EJ populations are depicted on Figures 2.0-2 and 2.0-4 in Appendix E. Minority and low-income populations are located at the ends of the ICE study in the cities of Plymouth and Fond du Lac. EJ populations have a lower ability to respond to change and capacity to withstand stress related to income, education, and access to health care.

j. Other Protected Classes

A few census tracts including the cities of Fond du Lac and Plymouth and the villages of Mt. Calvary and St. Cloud in the town of Marshfield have a greater proportion of elderly individuals (age 65 and over) 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. Elderly populations have a lower ability to respond to change and capacity to withstand stress related to age, general health, and access to health care.

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

Table 4.5-3 summarizes stresses and factors that are affecting resources.

Table 4.5-3 Stresses Affecting Resources

Resource	Stresses and Factors Affecting Resource
Agricultural Land	Development and urbanization. Commodity prices. Demand for land to support larger dairy operations.
Wetlands	Development and urbanization. Urban and agricultural runoff. Point-source discharges. Runoff from roads.

[27] Source: Kettle Moraine ATV Association (accessed website on 11/01/17 at http://kmatva.com/trailinfo/detailedtrailmap.html)

Table 4.5-3 Stresses Affecting Resources

Resource	Stresses and Factors Affecting Resource
Water Quality	Development and urbanization. Urban and agricultural runoff. Stream channelization and erosion. Point-source discharges. Runoff from roads.
Upland Habitat	Development and urbanization. Demand for land to support dairy encourages land clearing for agriculture.
KMSF-NU	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. Development of wind farms increase fragmentation of natural resources.
Threatened and Endangered Species	Diminished water quality in streams and wetlands. Reduction in 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. Accessibility of transportation/transit resources. Economic conditions affect employment opportunities.
Air Quality	NOx and VOCs from industry and mobile sources create ozone

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 (USGS) data, WDNR data, and Wisconsin Department of Administration population reports and are generally described in Section 3, the indirect effects analysis, and this cumulative effects analysis.

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

The WIS 23 alternatives evaluated in this document will directly affect land uses and resources. Land that may be purchased for right of way will decrease the amount of cropland, upland habitat, and housing. (Note that much of the land needed for a 4-lane expansion has already been purchased based on the decision from the 2014 LS SFEIS and prior to the ROD being vacated). The WIS 23 build alternatives and implementation of improvements within preserved areas 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 study area. Where access has been restricted and focused by the construction of new interchanges (Hybrid and 4-lane On-alignment Alternatives), the project will also focus the location of development. Additional development in the study area may lead to a loss in agricultural land and further encroachment on and fragmentation of natural habitats such as wetlands and woodlands. Habitat loss may also threaten rare or sensitive species. Development will also generate additional stormwater runoff, which could impact water quality in the region and the previously identified rare species. Figure 4.5-5 schematically illustrates how the WIS 23 build alternatives along with other unrelated actions cumulatively affect resources.

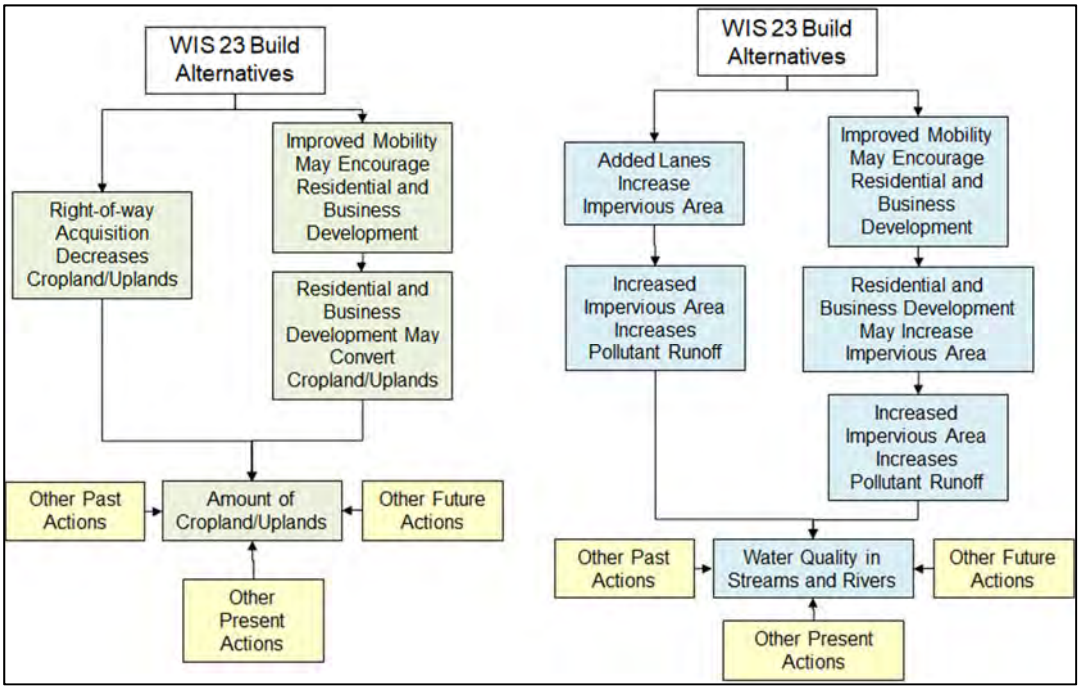


Figure 4.5-5 Examples of Cumulative Effects on Resources

Table 4.5-4 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 4.5-4 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.
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 construction 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 which migrates to the region.	Increased vehicle miles traveled on WIS 23 may increase vehicle emissions of VOCs and NOx, which are precursors to ground level ozone. Decreased congestion and higher travel speeds may decrease vehicle emissions.

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.

a. General Development Patterns

The study area has experienced modest change in land use patterns in the past two decades. The majority of the 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 villages 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 study area will most likely occur in the locations planned for development in adopted comprehensive plans. 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 Passing Lane Alternative, would have the effect of having development patterns similar to the No-Build Alternative. County K would have a jughandle intersection. Full access will remain for the majority of intersections. Cumulative effects are difficult to discern for access modifications.

Corridor preservation associated with Passing Lane Alternative would have the indirect effect of focusing development. It is likely that long term commercial investments would not occur at roadways where the access may be removed from WIS 23, this includes Tower Road, 7 Hills Road, Scenic View Road, and Sugarbush Road which would receive overpasses. It would probably also guide commercial development to intersections that would maintain full access to WIS 23, such as County UU, County W, County G and County A, all of which may receive interchanges. A cumulative effect of focusing access to certain side roads could increase travel and emergency response times. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

The Hybrid Alternative, has the indirect effect potential to concentrate development at intersections with access to WIS 23 and mildly accelerate the pace of future development in the Fond du Lac County portion of the corridor. County K, County UU, and County G would receive interchanges with the Hybrid Alternative, and County W, which would receive a RCUT. The potential to concentrate development and increase the pace of future development for the Hybrid Alternative is anticipated to be modest, and between the Passing Lane Alternative and the 4-lane On-alignment Alternative. A cumulative effect of focusing access to certain side roads could be increased travel and emergency response times.

Corridor preservation associated with Hybrid Alternative would not result in additional impacts to what is explained previously. It would probably have the indirect effect of focusing commercial development towards intersections that may eventually become interchanges, such as County W and County A. A cumulative effect, stemming from the focus of access to certain side roads could increase travel times and emergency response times. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

The 4-lane On-alignment Alternative (Preferred Alternative) has the potential indirect effect of concentrating development at access points and increasing the pace of future development in the study area. County K, County UU, County G, would have one jughandle intersection and 2 diamond interchanges, respectively. An additional eight intersections would have RCUTs.

Corridor preservation associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative) would not provide additional impacts to what is explained previously for the 4-lane On-alignment Alternative. It is likely that the corridor preservation would have the indirect effect of discouraging commercial development and investment at intersections that would lose their access to WIS 23. This would include Tower Road, 7 Hills Road, Scenic View Drive, and Sugar Bush Road which could have overpasses in the future. It would probably have the indirect effect of focusing commercial development towards intersections that would eventually become interchanges, such as County W and County A. A potential cumulative effect, stemming from the focus of access to certain side roads, could be increased travel times and emergency response times. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Long-term economic conditions and local government planning and zoning policies, combined with the varying access control elements of the different WIS 23 alternatives, would influence the location of development, which has a cumulative impact on changing development patterns. The panelists also stated other factors that cumulatively affect development patterns include long-term economic conditions and local policies and could be more influential than the build alternatives. 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 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 of 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 study area.

The construction of the Passing Lane, Hybrid, and 4-lane On-alignment Alternatives would directly require the acquisition of farmland, with acreages shown in Table 4.5-5. Also, expert panelists agreed that the 4-lane On-alignment Alternative could increase the pace of farmland conversion to other uses in areas planned for future development (an indirect effect). Other factors that will contribute to the cumulative loss of farmland include exurban residential development, commodity prices, and agricultural workforce. According to the 2012 US Agricultural Census, Fond du Lac and Sheboygan counties lost 21,756 acres of farmland between 2007 and 2012. Table 4.5-5 shows the amount of agricultural land required for the WIS 23 alternatives and improvements within preserved areas as a percentage of this loss for

comparison purposes. The WIS 23 alternatives reduction in farmland make up a very small percentage of the total farmland losses occurring from other reasons.

Table 4.5-5 Farmland Losses - WIS 23 Alternatives and Possible Improvements within Preserved Areas

	No-Build Alternative	Passing Lane Alternative	Corridor Preservation Improvements Associated with Passing Ln Alt	Hybrid Alternative	Corridor Preservation Improvements Associated with Hybrid Alternative	4-lane On-alignment Alternative	Corridor Preservation Improvements Associated with 4-lane On-alignment
Farmland needed (acres)	0	16	343	259	135	329	65
WIS 23 farmland needed as a percentage of ag land lost from 2007-2012 in Fond du Lac and Sheboygan counties[28]	0%	0.1%	1.7%	1.2%	0.6%	1.5%	0.3%
2012 US Agricultural Census							

The farmland impacts associated with the constructed US 151 Fond du Lac Bypass, the constructed WIS 23 project near Plymouth, the construction of US 151/County V and T improvements, and possible future improvements within the preserved US 151 corridor amount to about 348 acres. If they are included with the impact of acquiring up to 394 acres for any build alternative (and improvements within preserved areas if implemented), the total farmland acreage converted to highway right of way over an approximate 30-year period could be up to 742 acres.[29] In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. 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 and draining of wetlands elsewhere has occurred over time as a result of development and conversion to farmland. 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.
There may be cumulative impacts on wetland losses with WIS 23 impacts considered in this LS SEIS. According to WDNR records using aerial photography, there are about 109,600 acres of

[28] Farmland needed as a percentage of agriculture land lost from 2007-2012 is calculated by taking the acres of farmland needed and dividing by 21,756 (the acres of farmland lost between 2007 and 2012).
[29] 348 acres associated with previous and potential future projects, plus 394 acres associated with WIS 23 improvements and associated corridor preservation equals 742 acres.

wetlands in Fond du Lac and Sheboygan counties. Table 4.5-6 illustrates the wetland losses associated with each WIS 23 alternative and improvements within preserved areas if implemented, and their percentage of the total wetlands in Fond du Lac and Sheboygan counties.

Table 4.5-6 Wetland Losses–WIS 23 Alternatives and Possible Improvements within Preserved Areas

	No-Build Alternative	Passing Lane Alternative	Corridor Preservation Improvements Associated with Passing Ln Alt	Hybrid Alternative	Corridor Preservation Improvements Associated with Hybrid Alternative	4-lane On-alignment Alternative	Corridor Preservation Improvements Associated with 4-lane On-alignment
Wetland impacts (acres)[1]	0	29.9	24.1	45.9	8.1	51.8	2.2
WIS 23 wetland impacts as a percentage of wetlands in Fond du Lac and Sheboygan counties	0%	0.03%	0.02%	0.04%	<0.01%	0.05%	<0.01%

[1] Impact of wetlands inside and outside existing right of way.

Wetland impacts associated with the constructed US 151 Fond du Lac Bypass, the constructed WIS 23 project near Plymouth, the constructed US 151/County V and T improvements, and possible future improvements within the preserved US 151 corridor amount to about 38 acres. The 54 acres of wetland losses associated with any WIS 23 build alternative (and improvements associated with corridor preservation if implemented), when combined with previous and potential future losses, could be up to 92 acres over an approximate 30-year period.[30] In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. Wetlands filled by the WIS 23 alternatives, as well as all other past, present, and future highway projects, have been and will be mitigated at wetland mitigation sites near the corridor. WisDOT will pursue debiting at an existing wetland bank site if changes occur that prevent the implementation at sites near the corridor. With the wetland mitigation, the WIS 23 build alternatives would not have a cumulative effect on wetland acreage lost.

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 WIS 23 alternatives would include continued water quality effects created by salt and debris from the existing roadway and slightly increased impervious surfaces and cumulative loss of existing wetlands abutting WIS 23 from past roadway and trail development. Other factors that contribute to the cumulative impact on wetlands include exurban development and associated pavements, pollutant loadings from agriculture, as well as exotic species.

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,

[30] 38 acres associated with previous and potential future projects, plus 54 acres associated with WIS 23 improvements and associated corridor preservation implementation equals 92 acres.

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 in the region and increased development 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 87 additional acres[31] of impervious surface within the study area. The WIS 23 expansion near Plymouth added up to 16 additional acres[32] of impervious surface within the 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. Table 4.5-7 lists the increase in impervious surface for the WIS 23 alternatives and associated corridor preservation, with an increase of 183 impervious acres with any build alternative combined with improvements associated with corridor preservation if implemented. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Table 4.5-7 Increase in Impervious Surface–WIS 23 Alternatives and Possible Improvements within Preserved Areas

	No-Build Alternative	Passing Lane Alternative	Corridor Preservation Improvements Associated with Passing Ln Alt	Hybrid Alternative	Corridor Preservation Improvements Associated with Hybrid Alternative	4-lane On-alignment Alternative	Corridor Preservation Improvements Associated with 4-lane On-alignment
Added impervious surface (acres)	0	70	113	142	41	178	5

Increased stormwater runoff and land development under the WIS 23 build alternatives and improvements associated with corridor preservation, if implemented, may reduce the ability for groundwater recharge and may alter surface water levels, particularly after periods of heavy rain and/or snow melt. Over time, the increased development under the WIS 23 build alternatives may 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 is designated as a Section 303(d) water resource; it is located in the same watershed as the western portion of the WIS 23 corridor and may be at a higher risk for impacts.

One expert panel member 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 WIS 23 build alternatives because of increased impervious surface area and new development. Other contributors to the cumulative effect on surface water and groundwater quality in the study area include urban and agricultural land use practices and pollutant discharges associated with those uses summarized previously. The increased pace of residential development could also have a cumulative effect on surface and ground water quality.

[31] 9 miles x 2 directions x 40 feet
[32] 3.3 miles x 1 direction x 40 feet

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 KMSF-NU. WDNR plans include acquiring approximately 7,000 additional acres of land, conducting restoration activities, and improving 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 and planted about 20,000 trees on 20 acres of the KMSF-NU 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 Alternative's contribution to the cumulative impacts on woodlands is negligible because there would 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 KMSF-NU.

The Niagara Escarpment Report[33] 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 Alternative 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.

Table 4.5-8 lists the amount of woodlands/uplands needed with the WIS 23 alternatives and improvements associated with corridor preservation if implemented, 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 table also shows the percentage of woodlands of Fond du Lac and Sheboygan County woodlands each alternative would impact.

[33] Niagara Escarpment Legacy Project; Western New York Land Conservancy; http://wnylc.org/site/wp-content/uploads/2014/05/Report-Niagara-Escarpment-Legacy-Project-May-2014.pdf, May 2014.

Table 4.5-8 Woodland/Upland Losses–WIS 23 Alternatives and Possible Improvements within Preserved Areas

	No-Build Alternative	Passing Lane Alternative	Corridor Preservation Improvements Associated with Passing Ln Alt	Hybrid Alternative	Corridor Preservation Improvements Associated with Hybrid Alternative	4-lane On-alignment Alternative	Corridor Preservation Improvements Associated with 4-lane On-alignment
Woodland needed (acres)	0	5	40	9	36	38	7
WIS 23 woodland needed as a percentage of woodland in Fond du Lac and Sheboygan counties[34]	0%	<0.01%	0.02%	0.01%	0.02%	0.02%	<0.01%

Woodland impacts associated with the constructed US 151 Fond du Lac Bypass, the constructed WIS 23 project near Plymouth, the construction of US 151/County V and T improvements, and possible future improvements within the preserved US 151 corridor preservation improvements amount to about 28 acres. If included with the impacts of acquiring up to 45 acres for any build alternative (and improvements associated with corridor preservation if implemented), the total farmland acreage converted to highway right of way over an approximate 30-year period could be up to 73 acres. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Indirect development effects of WIS 23 build alternatives, which contribute to the cumulative impact on uplands, could occur in woodlands or alter woodland and wildlife habitat areas. Table 4.5-2 illustrates recent residential building permits issued for Fond du Lac and Sheboygan counties. 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, can impact upland habitat and spread rapidly along highway corridors, which is another possible impact of the WIS 23 build alternatives.

(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 due to modest amounts of new development. Therefore, the No-Build Alternative's contribution to the cumulative negative effects to glacial features will be minimal.
The WIS 23 build alternatives and implementation of improvements within preserved areas will increase the footprint of the WIS 23 corridor, which will add to the cumulative detrimental

[34] Woodlands needed as a percentage of woodlands is calculated by taking the acres of woodlands needed and dividing by 162,200 (the approximate number of woodland acres in Fond du Lac and Sheboygan counties).

effect on glacial features, particularly near the KMSF-NU. The WIS 23 build alternatives' potential to increase the pace of development, an indirect effect, could also contribute to the cumulative negative effect on glacial features. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

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 and wetland 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 Butler's garter snake and Blanding's turtle. 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 environments 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.

Table 4.5-9 Right-of-Way Acquisition–WIS 23 Alternatives and Possible Improvements within Preserved Areas

	No-Build Alternative	Passing Lane Alternative	Corridor Preservation Improvements Associated with Passing Ln Alt	Hybrid Alternative	Corridor Preservation Improvements Associated with Hybrid Alternative	4-lane On-alignment Alternative	Corridor Preservation Improvements Associated with 4-lane On-alignment
Right-of-way acquisition (acres)	0	79	407	321	165	410	76

The WIS 23 build alternatives 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. Table 4.5-9 lists the direct right of way needed for each WIS 23 alternative and improvements associated with corridor preservation if implemented. This could result in some loss of habitat. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

The purchase of new right of way for the WIS 23 build alternatives 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 for the WIS 23 build alternatives may also increase mortality rates.

g. Historic and Archaeological Resources

The No-Build Alternative will have no additional direct effects on archaeological or historical resources eligible for inclusion on the NRHP. Data recovery has already occurred for one archaeological site. Therefore, the No-Build Alternative will have limited contribution to cumulative adverse effects on cultural resources.[35]

As for direct effects of the WIS 23 build alternatives and the improvements associated with corridor preservation, if implemented, the alternatives will not affect St. Mary's Springs Academy (eligible for the NRHP) nor will it adversely affect the Wade House Historic Site. Data recovery has been performed at the Sippel Archaeological Site, which could be affected by some WIS 23 alternatives, in accordance with the Section 106 MOA. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

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 under the indirect effects section and includes 4,140 historic listings for Fond du Lac County and 2,718 historic listings for Sheboygan County on Wisconsin's Architecture and Historic Inventory. The direct effects of WIS 23 build alternatives, combined with possible redevelopment and development impacts could create a cumulative impact to historic resources. This impact is anticipated to be less than the direct effects of WIS 23 build alternatives. This characterization is based on a comparison of potential ground disturbing activities. The WIS 23 4-lane On-alignment Alternative will disturb approximately 410 acres of new right of way. If increased residential development occurring as an indirect effect of the 4-lane On-alignment 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 4-lane On-alignment Alternative.

[35] Note that data recovery for the Sippel Site has already occurred.

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 build alternatives on these emissions is complicated. Figure 4.5-6 shows generic emission graphs for VOCs, NOx, and CO emissions versus speed using the older Mobile 6.2 emissions model. The newer MOVEs (Motor Vehicle Emission Simulator) model produces similar results/trends. 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. VOC and CO emissions rates typically drop as speed increases (See Figure 4.5-7).[36] NOx emission rates increase at higher speeds. Emissions rates at all speeds have been falling over time as newer, more efficient vehicles enter the fleet.[37]

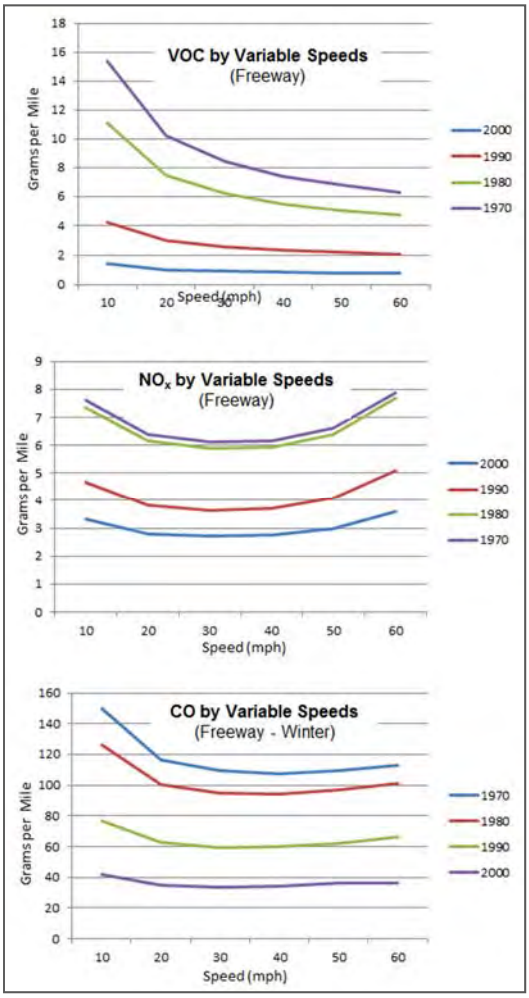


Figure 4.5-6 Generic Emission vs Speed
Source :US EPA. MOBILE 6.2 Model run 24 September 2003

The US 151 Fond du Lac bypass is a past highway project that provided a new 4-lane expressway on a new alignment. Traffic volumes on the bypass now range from 11,000 to 18,100 vehicles per day (vpd) at relatively high speeds.[38] Some of these trips represent travel that once occurred on US 151 as it traveled through central Fond du Lac at slower speeds. Some of this bypass traffic volume are new trips that would not have occurred without the bypass. The increase in VMT produced by the US 151 bypass would increase emissions in Fond du Lac County. The higher speeds on the bypass would lower overall emissions. As mentioned, Fond du Lac County is currently in attainment for NAAQS (see discussion later in this section).

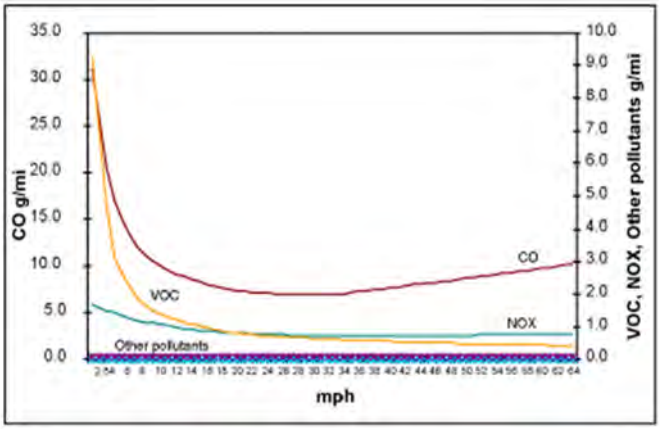


Figure 4.5-7 Emissions Factors by Speed for Light-Duty Vehicles and Trucks, 2006 (arterials)

The WIS 23 alternatives, including corridor preservation improvements, if implemented, will have varying traffic volumes on the highway, and consequently higher VMT. In the future, if WisDOT

[36] Source https://www.fhwa.dot.gov/environMent/air_quality/conformity/research/mpe_benefits/mpe02.cfm accessed website on 11/17/2017)
[37] Source: Transportation Air Quality Selected Facts and Figures - Vehicle Emissions (accessed website on 11/6/17 at https://www.fhwa.dot.gov/environment/air_quality/publications/fact_book/page17.cfm)
[38] Source: Wisconsin Department of Transportation (website accessed on 11/03/17 at https://trust.dot.state.wi.us/roadrunner/)

determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. Table 4.5-10 lists the weighted average 2040 average daily traffic associated with each build alternative compared to the 2040 average annual daily traffic volume for the No-Build Alternative.

Table 4.5-10 Projected 2040 Average Weighted Daily Traffic Volumes 2-lane Portion

	2017 Traffic Volume	2040 No-Build	2040 Passing Ln Alternative	2040 Hybrid Alternative	2040 4-lane On-alignment
Fond du Lac County Daily Traffic Volume	7,140	7,610	7,810	10,010	11,000
Sheboygan County Daily Traffic Volume	7,640	7,810	7,990	8,840	10,500
Total Weighted Daily Traffic Volume	7,360	7,700	7,890	9,480	10,780
Percentage weighted volume greater than 2040 No-Build Traffic Volume	NA	0%	2.5%	23.1%	40.0%

From 2017 to 2040, traffic volumes are projected to increase 5 percent (weighted average) with the No-Build Alternative. The No-Build Alternative's VMT increase, combined with increases in vehicle miles traveled throughout Fond du Lac and Sheboygan counties may lead to increases in exhaust pollutants. Some of these increases could be partially offset by technology advances. The projected 2040 daily summer traffic on the Sheboygan County portion of WIS 23 represents about 1.88 percent of the total estimated 2040 VMT in Sheboygan County[39] for a summer day.[40] The Passing Lane Alternative projected 2040 daily traffic volumes are 2.5 percent higher (weighted average) than what would occur with the No-Build Alternative. The projected 2040 daily summer traffic on the Sheboygan County portion of WIS 23 represents about 1.92 percent of the total vehicle miles traveled in Sheboygan County for a summer day. With the Passing Lane Alternative, WIS 23 has 0.04 percent more VMT contribution to the total county VMT than the No-Build Alternative. The emissions associated with these higher traffic volumes combine with other human activities such as manufacturing, offroad- vehicles, and other sources that emit VOCs and NOx and contribute to ground-level ozone levels in Sheboygan County.

The Hybrid Alternative projected 2040 daily traffic volumes are 23 percent higher (weighted average) than what would occur with the No-Build Alternative. The projected 2040 daily summer traffic on the Sheboygan County portion of WIS 23 represents about 2.12 percent of the total vehicle miles traveled in Sheboygan County for a summer day. With the Hybrid Alternative, WIS 23 has 0.25 percent more VMT contribution to the total county VMT. The emissions associated with these higher traffic volumes combine with other human activities such as manufacturing, offroad- vehicles, and other sources that emit VOCs and NOx contribute to ground-level ozone levels in Sheboygan County.

[39] 2040 County-wide VMT value for Sheboygan was interpolated. The 2016 VMT value is from WisDOT sources (http://wisconsindot.gov/Documents/projects/data-plan/veh-miles/vmt2016-c.pdf. Accessed April 18, 2018) and the 2045 VMT value is from Table 7.10 of the Sheboygan Area Transportation Plan, updated May 2015, referencing the "Without Plan" value. The daily VMT for Sheboygan County in 2016 was 3,032,072 vehicles per day (vpd) and the projected 2045 "Without Plan" value is 3,378,898 vpd. The 2040 VMT value for Sheboygan County is interpolated between 2016 and 2045 and equals 3,329,612 vpd.

[40] The comparisons made in this section are between the estimated 2040 VMT value developed from the traffic forecasts and the distance between County G and County P in Sheboygan County. The equation for the estimated 2040 VMT value for each alternative is: = Estimated 2040 $VMT_{Alternative}$ = 2040 weighted $AADT_{Alternative}$ x $Distance_{County\ G\ to\ County\ P}$. The estimated 2040 VMT is then divided by the 2040 Sheboygan County VMT to provide an indication of how the estimated 2040 VMT for each alternative relates to the Sheboygan County 2040 VMT. The build alternative proportions are then compared to the No-Build proportion to determine the additional VMT added by each build alternative (e.g. the No-Build Alternative proportion is 1.88 percent and the Hybrid Alternative proportion is 2.12 percent, therefore the Hybrid has approximately 0.25 percent more VMT contribution to the county-wide VMT). Fond du Lac County is in attainment and is therefore not included in these calculations.

The 4-lane On-alignment Alternative projected 2040 daily traffic volumes are 45 and 34 percent higher (weighted average) in Fond du Lac and Sheboygan counties respectively, than what would occur with the No-Build Alternative. The projected 2040 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 4-lane On-alignment Alternative, WIS 23 has 0.65 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.

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 Year 2045 Sheboygan Area Transportation Plan. The expansion of WIS 23 to 4 lanes is included in the conformity analysis. Other alternatives would also conform as the 4-lane On-alignment Alternative represents the worst-case scenario. 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.*[41]

[41] 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.5: Forecast Volatile Organic Compound Emissions from the Transportation System in Sheboygan County Under the *Year 2045 SATP/2015 – 2018 TIP* and the State Implementation Plan for Air Quality: 2015, 2025, 2035 and 2045 (On a Hot Summer Weekday) Using MOVES 2014

	Sheboygan County	
Year	State Implementation Plan (tons)*	Year 2045 SATP (tons)
2015	1.9720	1.6770
2025	1.9720	0.7423
2035	1.9720	0.4501
2045	1.9720	0.4337

*The State Implementation Plan budget for volatile organic compounds is 1.9720 tons for 2015.
Source: Wisconsin Department of Natural Resources, 2015; and Bay-Lake Regional Planning Commission, 2015.

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.*[42]

Table C.6: Forecast Nitrogen Oxide Emissions from the Transportation System in Sheboygan County Under the *Year 2045 SATP/2015 – 2018 TIP* and the State Implementation Plan for Air Quality: 2015, 2025, 2035 and 2045 (On a Hot Summer Weekday) Using MOVES 2014

	Sheboygan County	
Year	State Implementation Plan (tons)*	Year 2045 SATP (tons)
2015	4.4350	3.6967
2025	4.4350	1.3222
2035	4.4350	0.8568
2045	4.4350	0.9038

*The State Implementation Plan budget for nitrogen oxides is 4.4350 tons for 2015.
Source: Wisconsin Department of Natural Resources, 2015; and Bay-Lake Regional Planning Commission, 2015.

Therefore, while the WIS 23 build alternatives and improvements associated with corridor preservation, if implemented, are projected to produce more VMT, it represents a small proportion of the overall VMT for Sheboygan County (1.88 percent for the No-Build Alternative, 1.92 percent for the Passing Lane Alternative, 2.12 percent for the Hybrid Alternative, and 2.52 percent for the 4-lane On-alignment Alternative).[43] 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 four lanes.

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 through 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 delaying the extension of the Old Plank Road Trail west to Fond du Lac and delaying the construction of an underpass for safe passage across WIS 23 for the IAT, State Equestrian Trail, and snowmobiles. There would be no cumulative impact from the No-Build Alternative to trails. The current WIS 23 at-grade crossing of WIS 23 at the IAT and State

[42] 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."

Equestrian Trail on WIS 23 would remain. This alternative also would not extend the Old Plank Road Trail from the KMSF-NU to Fond du Lac.

The WIS 23 build alternatives contribution to cumulative impact to trails and nonmotorized travel is beneficial through the extension of the Old Plank Road Trail and the provision of a grade separated crossing of WIS 23 for the IAT/State Equestrian 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.

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 greatly affected because generally employment and social services are available in Fond du Lac and Plymouth where such population concentrations occur. There are no direct impacts to environmental justice populations under the WIS 23 build alternatives or improvements associated with corridor preservation alternatives, if implemented. Indirect impacts under the WIS 23 build alternatives may include access restrictions which are proposed along points in the corridor that may make access somewhat less convenient and trips slightly longer in the central part of the study area. However, such access restrictions are likely to be offset by reduced highway congestion and safer conditions under the WIS 23 build alternatives. Adverse effects on EJ populations are proportionate to those on the general population.

In terms of cumulative impacts, the improvements under the WIS 23 build alternatives will address safety problems currently found in the corridor. Other cumulative effects of the WIS 23 build alternatives will be modest and may include:

(1) 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 amount of these accommodations. 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 study area to reach new employment destinations.

(2) Need for safe, affordable housing in the vicinity of employment destinations. Similarly, as modest new employment-related growth occurs as a result of the WIS 23 build alternatives, 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 study area.

k. Elderly Populations

Elderly populations are randomly distributed through the study area, with slightly greater concentrations in the cities of Fond du Lac and Plymouth and the villages of Mt. Calvary and St. Cloud in the town of Marshfield. Elderly populations may need to travel to the urban areas at the ends of the study area for services.

In terms of cumulative impacts, the percentage of elderly populations is projected to increase in the coming decades based on data from the WDOA Demographic Services, State Population Projections 2010 to 2040, produced in 2013, based from 2010 US Census. 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 study area.

Indirect impacts under the WIS 23 build alternatives 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 study area. However, such access restrictions are likely to be offset by reduced highway congestion and safer conditions under the WIS 23 build alternatives. Adverse effects on populations are proportionate to those on the general population.

In terms of cumulative impacts, the improvements under the WIS 23 build alternatives and associated with corridor preservation, if implemented, 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.

Summary

In addition to the cumulative effects described in a. through j. above, cumulative adverse effects resulting from the WIS 23 build alternatives and corridor preservation improvements associated with them (if implemented) include the slight increase in the pace of development, which could affect farmlands and uplands, particularly those in the Niagara Escarpment.

The combination of access controls, intersection improvements, and interchanges associated with the WIS 23 build alternatives will likely have the result of focusing development near the interchanges and reducing scattered development throughout the remainder of the 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 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 build alternatives 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 build alternatives includes loss of farmland, loss of uplands, degradation of water quality, and a small degradation of air quality.

The indirect effects section of this LS SEIS excerpts FHWA's environmental toolkit that described FHWA's responsibility in the mitigation of indirect and cumulative effects.[44] 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.

[44] Source: 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 current range of on-alignment alternatives. The selection of on-alignment alternatives had the following effects:

(a) It reduced the quantity of direct impacts to farmland, wetlands, and uplands. (See Table 4.6-1. The range of on-alignment alternatives requires at least 23 percent less right of way and 42 percent fewer wetland impacts than the off-alignment alternatives.)[45] 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. The range of on-alignment alternatives requires at least 57 percent less farmland than 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). The range of on-alignment alternatives 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. The range of on-alignment alternatives would have about one third less pavement than 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 the range of on-alignment alternatives 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 indirect environmental impacts that would have been associated with this development.

(2) Alignment Refinements

The Passing Lane Alternative has limited alignment refinements because it is reconstructing the roadway in-place. Several alignment modifications were made for the Hybrid and 4-lane On-alignment Alternatives 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 Wade House Historic Site and south of the Pit Road wetland mitigation site. Both alignment shifts decreased wetland impacts, decreasing the cumulative effect of the alternative on area wetlands.

(3) WIS 23 Build Alternative Features

WisDOT seeks to incorporate design components and features into the WIS 23 build alternatives 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 build alternatives incorporate a 16-mile extension of the Old Plank Road Trail. This extension

[45] Based on the impacts presented in table 4.5-1 of the 2014 LS SFEIS- the same for farmland comparison.

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 project 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. Design refinements to the 4-lane On-alignment Alternative have reduced the amount of impact on some resources. Some impact categories have risen since the publishing of the 2014 LS SFEIS–mostly because of revised boundaries (wetlands) or property owner requests (residential relocations and/or acquiring uneconomic remnants).

(2) Construction Impact Minimization

WisDOT will seek to minimize construction impacts through the implementation of various measures that are described in Section 6. These measures reduce direct construction impacts, which consequently reduce the project's contribution on the cumulative impact on these resources. Measures to minimize impacts during construction 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 will implement typical stormwater management techniques to minimize adverse effects and enhance beneficial effects are outlined in TRANS 401.106 and the Wisconsin Pollution Discharge Elimination System (WPDES) Transportation Construction General Permit (TCGP) for stormwater. The strategy includes preparation of a written plan that outlines the BMPs to be implemented 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 4.7 C-7 details commitments being made to reduce impacts to rare species as coordinated with the WDNR.

(e) During construction, impacts to wetlands from erosion and sediment transport will be minimized or prevented by implementing erosion control BMPs 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 some of the indirect effects of a project. The WIS 23 alternatives have varying levels of access management, which will affect their overall contribution to a

cumulative effect on a resource. Access management and its effect on development were described in the indirect effects section. Of the current 42 full-access intersections,

- The Passing Lane Alternative incorporates four access changes which include a jughandle intersection and three right-in/right-out access restrictions.
- The Hybrid Alternative incorporates access changes which include 5 cul-de-sacs, 4 right-in/right-out access restrictions, 4 RCUT intersections, 1 jughandle intersection, and 2 interchanges.
- The 4-lane On-alignment Alternative (Preferred Alternative) incorporates access changes which include 7 cul-de-sacs, 14 right-in/right-out access restrictions, 9 RCUT intersections, 1 jughandle intersection, and 2 interchanges.
- Future improvements associated with corridor preservation for 4-lane On-alignment Alternative (Part of the Preferred Alternative), if implemented, would incorporate 4 cul-de-sac access restrictions, 4 overpasses, and 2 interchanges. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

While providing sufficient local access, the alternatives with greater access restriction will tend to direct development away from rural intersections with less access. At the same time, access will be directed toward intersections with improved 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 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 up to 51.8 acres of wetland impacts is being fulfilled through the establishment of two permittee-responsible wetland mitigation sites.

(b) The provision of a grade-separated crossing of WIS 23 for the IAT and State Equestrian Trail for the Passing Lane, Hybrid, and 4-lane On-alignment Alternatives.

(c) The replacement of 2.21 acres of land required from the KMSF-NU with 4.275 acres of land transferred to State Forest ownership (accomplished).

(d) The Phase III data recovery at the Sippel Archaeological Site to document the information from this archaeological resource. (accomplished - report submitted).

Mitigation will occur for other present and future highway projects. 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 environmental 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. 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 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 contains the commitments to mitigation and monitoring regarding effects of WIS 23 alternatives. 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) and 6(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 or state authority, such as the USEPA and USACE, also have the authority to monitor impacts to natural resources such as floodplains, wetlands, and water quality.

4.6 ENVIRONMENTAL COST MATRICES

The tables summarizing the impacts associated with the No-Build, Passing Lane, Hybrid, and 4-lane On-alignment Alternatives have been revised since the 2018 LS SDEIS. Changes within the tables include dividing the original Alternative Comparison Matrix into two tables for readability. Cost information has been reorganized to clarify the costs expended prior to and after vacating the 2014 ROD. Costs for all alternatives have been updated. Clarifications for land impacts have been made and these include defining the acreage purchased prior to vacating the 2014 ROD that was needed for right of way, and the acreage not needed for right of way. Finally, the Corridor Preservation Comparison table was clarified to include the acreage purchased prior to vacating the 2014 ROD and needed for Wis. Stat. § 84.295(10) mapping.

Table 4.6-1a and 4.6-1b summarize the impacts associated with the No-Build, Passing Lane, Hybrid, and 4-lane On-alignment Alternatives.

Table 4.6-1a summarizes project costs. Costs are shown in six categories for each alternative.

1. Costs expended prior to vacating the 2014 ROD.
2. Costs expended after vacating the 2014 ROD and through August 2018.
3. Total costs expended through August 2018 (sum of categories 1 and 2).
4. Costs remaining to complete design and construction of the alternative (in Fiscal Year (FY) 2019 dollars).
5. Total project costs in FY 2019 dollars (sum of categories 3 and 4 in FY 2019 dollars).
6. Total project costs in year of expenditure (YOE) dollars (sum of categories 3 and 4 in FY 2019 to 2023 dollars).

These categories are provided to show the design, real estate acquisition, utility relocation, and construction costs expended for the previously selected 4-lane On-alignment Alternative both before and after the 2014 ROD was vacated. After the 2014 ROD was vacated, WisDOT resurfaced WIS 23 in Fond du Lac County from 7 Hills Road to Division Road; the costs expended after vacating the 2014 ROD and through August 2018 include the resurfacing project cost. No-Build construction costs include active and programmed WIS 23 resurfacing projects in Fond du Lac County (US 151 to County UU) and Sheboygan County (Division Road to County P). The table also designates remaining costs to complete the improvements associated with each alternative in FY 2019 and YOE dollars. Costs have been updated from those presented in the May 2018 LS SDEIS to include recent design efforts, increases in real estate costs, decreases in utility costs, and increased construction costs to include delivery and construction contingencies.

Table 4.6-1b summarizes the land and relocation impacts are shown in four categories for each alternative:

1. Total amount needed.
2. Amount purchased or relocated prior to vacating the 2014 ROD and needed.
3. Amount of land or relocations still needed.
4. Amount purchased or relocated prior to vacating the 2014 ROD but not needed for the alternative (comprised of either excess right of way or wetland mitigation acres)

These categories are needed because WisDOT purchased right of way for the 4-lane On-alignment Alternative between 2010 and 2015, before the ROD was vacated by the US District Court, Eastern District of Wisconsin. About 38 percent of the acquisition is completed in Fond du Lac County, and 100 percent of the acquisition is completed in Sheboygan County. Much of the land, and corresponding residential and farm relocations associated with the 4-lane On-alignment Alternative were purchased. Therefore, the table designates how much is needed based on the existing right of

way prior to 2010, as well as how much has been purchased since 2010. In some instances, more land was purchased than was needed because not purchasing an entire parcel would leave an uneconomic remnant.[46] The land purchased but not needed for improvements is considered excess right of way (see Figures 2.9-1 through 2.9-44).

Describing impacts for the Passing Lane and Hybrid Alternatives is more complicated. Some of the right of way previously purchased for the 4-lane On-alignment Alternative is not required for the Passing Lane Alternative or the Hybrid Alternative. However, portions of that right of way will be part of the corridor preservation area associated with Passing Lane and Hybrid Alternatives. Figures 2.9-1 through 2.9-44 show the Passing Lane, Hybrid, and 4-lane On-alignment Alternatives superimposed on aerial photographs.

The WisDOT expenditures for right of way already acquired were not considered in the identification of the preferred alternative since they are a sunk cost.[47] This is because the land could be resold to abutting landowners, although the cost of the buildings razed is irretrievable. Additionally, since no construction has taken place, impacts to natural and physical environment resources within the already acquired right of way have not occurred nor has mitigation for potential impacts progressed beyond the conceptual evaluation stage other than the Section 6(f) land conversion and boundary update for the KMSF-NU.

Table 4.6-2 summarizes the resources, land types, residences, and businesses within the corridor preservation areas for the Passing Lane, Hybrid, and 4-lane On-alignment Alternatives. In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. Resources within the corridor preservation areas are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. The statute also states that if notice is not given to WisDOT, compensation will not be made by WisDOT for structure improvements occurring within the corridor preservation area. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

[46] 42 USC 61 Section 4651 states "(9) If the acquisition of only a portion of a property would leave the owner with an uneconomic remnant, the head of the Federal agency concerned shall offer to acquire that remnant. For the purposes of this chapter, an uneconomic remnant is a parcel of real property in which the owner is left with an interest after the partial acquisition of the owner's property and which the head of the Federal agency concerned has determined has little or no value or utility to the owner"

[47] A sunk cost is a cost that WisDOT has incurred, and which it can no longer recover, or has great difficulty recovering. See Appendix F, Section 6 for more detail on sunk costs.

Table 4.6-1a Alternative Comparison Matrix - Costs[48]

		UNIT	No-Build	Passing Lane Alternatives[1]	Hybrid Alternative	4-lane On-alignment Alternative
Road Length		Miles	19.1	19.1	19.1	19.1
COST						
Costs expended prior to vacating 2014 ROD	Design	Millions $	9.1			
	Real Estate	Millions $	19.1			
	Utility	Millions $	0.0			
	Construction	Millions $	1.7			
	Total	Millions $	**29.9**			
Costs expended after vacating 2014 ROD and through August 2018	Design	Millions $	2.5			
	Real Estate	Millions $	0.8			
	Utility	Millions $	0.4			
	Construction	Millions $	2.5			
	Total	Millions $	**6.2**			
Total costs expended through August 2018	Design	Millions $	11.6			
	Real Estate	Millions $	19.9			
	Utility	Millions $	0.4			
	Construction	Millions $	4.2			
	Total	Millions $	**36.1**			
Costs remaining (FY 2019 dollars)	Design	Millions $	0.3	6.3	4.1	2.8
	Real Estate	Millions $	0.0	1.6	5.6	5.6
	Utility	Millions $	0.0	3.0	4.6	4.6
	Construction	Millions $	3.8	52.2	85.7	101.4
	Total	Millions $	4.1[2]	63.1	100.0	114.4
Total Project Costs (FY 2019 dollars)		Millions $	**40.2**	**99.2**	**136.1**	**150.5**
Total Project Costs (Year of Expenditure)[3]		Millions $	**40.2**	**100.7**	**138.1**	**153.1**

[1] Passing Lane impacts are presented using the higher impact option: Passing Lane Alternative with Left-Turn Lanes.

[2] No-Build construction costs include active and programmed WIS 23 resurfacing projects in Fond du Lac County (US 151 to County UU) and Sheboygan County (Division Road to County P).

[3] "Year of Expenditure" is 2019-2023.

[48] Table 4.6-1a Alternative Comparison Matrix - Costs was not included in the May 2018 LS SDEIS.

Table 4.6-1b Alternative Comparison Matrix- Land, Relocations, and Other Impacts

	UNIT	No-Build	Passing Lane Alternatives[1]	Hybrid Alternative	4-lane On-alignment Alternative
Area Converted to Highway R/W for Alternative					
Cropland and Pasture needed for R/W	Acres	0	24	171	218
- Purchased prior to vacating 2014 ROD and needed for R/W	Acres	0	6	119	119
- Remaining to be purchased for needed R/W	Acres	0	18	99	99
- Purchased prior to vacating 2014 ROD but not needed for R/W (comprised of either excess R/W[4] or wetland mitigation acres)	Acres	318	312	199	199
Wetland Area needed for R/W	Acres	0	5	21	26
- Purchased prior to vacating 2014 ROD and needed for R/W	Acres	0	3	10	15
- Remaining to be purchased for needed R/W	Acres	0	2	11	11
- Purchased prior to vacating 2014 ROD but not needed for R/W (comprised of either excess R/W[4] or wetland mitigation acres)	Acres	30	27	20	15
Woodland/Upland Area to R/W	Acres	0	5	9	38
- Purchased prior to vacating 2014 ROD and needed for R/W	Acres	0	3	5	34
- Remaining to be purchased for needed R/W	Acres	0	2	4	4
- Purchased prior to vacating 2014 ROD but not needed for R/W (comprised of either excess R/W[4] or wetland mitigation acres)	Acres	44	41	39	10
Other Area needed for R/W[5]	Acres	0	45	120	128
- Purchased prior to vacating 2014 ROD and needed for R/W	Acres	0	9	41	49
- Remaining to be purchased for needed R/W	Acres	0	36	79	79
- Purchased prior to vacating 2014 ROD but not needed for R/W (comprised of either excess R/W[4] or wetland mitigation acres)	Acres	136	127	98	87
Total Area needed for Highway R/W	Acres	0	79	321	410
Total Area Already Purchased for Highway R/W[6]	Acres	528	528	528	528
Total Area Still Needed for Highway R/W	Acres	0	58	193	193
Excess R/W[4] and Wetland Mitigation					
Excess R/W purchased prior to vacating 2014 ROD and not required for Alternative	Acres	369	348	241	152
Wetland Mitigation	Acres	159	159	159	159
Relocations					
Total Residential Relocations needed	Number	0	12	28	30
- Residences relocated prior to vacating 2014 ROD	Number	30	30	30	30
- Residential Relocations where buildings were razed	Number	27	27	27	27
- Residential Relocations Still Needed	Number	0	0	0	0
Total Business Relocations Required (Not Including Farms)	Number	0	0	4	4
- Business relocated prior to vacating 2014 ROD	Number	3	3	3	3
- Business Relocations where buildings were razed	Number	3	3	3	3
- Business Relocations Still Needed	Number	0	0	1	1
Total Farm Relocations Required (One or more farm buildings)	Number	0	6	13	18
- Farms relocated prior to vacating 2014 ROD	Number	17	17	17	17
- Farm Relocations where buildings were razed	Number	16	16	16	16
- Farm Relocations Still Needed	Number	0	0	1	1
Farms Severed	Number	0	1	5	5
Other Impacts					
Eligible Historic Structures/Archeological Sites identified	Yes/No	Yes	Yes	Yes	Yes
Section 106 MOA Required	Yes/No	No	Yes	Yes	Yes
Section 4(f) Evaluation Required	Yes/No	No	Yes	Yes	Yes
Section 6(f) Land Conversion Required	Yes/No	No	No[7]	No[7]	Yes
Floodplain Encroachment	Yes/No	No	Yes	Yes	Yes
Total Wetlands to be Filled (includes wetlands in existing and new R/W)	Acres	0	29.9	45.9	51.8
Stream Crossings	Number	3	3	3	3
Threatened/Endangered Species	Yes/No	No	Yes	Yes	Yes
Noise Analysis Required	Yes/No	No	Yes	Yes	Yes
Receptors Impacted in the design year	Number	44	ND[8]	ND[8]	47
Contaminated Sites	Number	0	4	6	6

[4] Excess right of way is a result of parcels purchased because they have uneconomic remnants or are land-locked parcels. The purchase of right of way and excess right of way is consistent with normal procedures and is typical for this type of project.

[5] Other Area includes: Single- and Multi-Family Residential, Commercial, Industrial, Community, Institutional, Manufacturing, Mining, Retail Trade, Parks/Recreation, Undeveloped, and Transportation.

[6] Actual surveyed amount is 530 acres between excess right of way and wetland mitigation. Value shown represents the approximate amount calculated using GIS parcel line files, not surveyed right of way lines.

[7] While technically not required, the land conversion has already taken place. Correspondence with National Park Service indicates they expect the provisions of the 6(f) conversion agreement to be honored through the process.

[8] ND - Not Determined. The traffic noise analysis in the 2014 LS SFEIS modeled the 4-lane On-alignment Alternative and shows the worst case situation compared to the Passing Lane and Hybrid Alternatives. The Passing Lane and the Hybrid Alternatives (in Sheboygan County) would have a larger separation distance between the roadway traffic and the receptor and therefore the same or fewer receptors impacted in the design year.

Table 4.6-2 Corridor Preservation Comparison

	UNIT	Corridor Preservation associated with Passing Lane Alternatives [1]	Corridor Preservation associated with Hybrid Alternative [2]	Corridor Preservation associated with 4-lane On-alignment Alternative [3]
Land Types within Corridor Preservation Limits				
Cropland and Pasture	Acres	244	97	50
Wetland Area	Acres	22	6	1
Woodland/Upland Area	Acres	40	36	7
Other Area [4]	Acres	101	26	18
Total Land Required for Mapping/Corridor Preservation	Acres	**407**	**165**	**76**
Purchased prior to vacating 2014 ROD and needed for 84.295(10) Mapping	Acres	196	90	1
Area Still Needed for 84.295(10) Mapping	Acres	211	75	75
Excess R/W[5] and Wetland Mitigation				
Excess R/W purchased prior to vacating 2014 ROD and not required for Alternative	Acres	152		
Wetland Mitigation	Acres	159		
Potential Restriction of Property Improvement (Relocations)[6]				
Residences within Corridor Preservation Area	Number	21	5	3
Residences within Corridor Preservation Area relocated prior to vacating 2014 ROD	Number	18	2	0
Residential relocations where buildings were razed	Number	17	2	0
Businesses within Corridor Preservation Area	Number	6	2	2
Businesses within Corridor Preservation Area relocated prior to vacating 2014 ROD	Number	3	0	0
Business relocations where buildings were razed	Number	3	0	0
Farms within Corridor Preservation Area (One or more farm buildings)	Number	16	9	4
Farm Relocations completed prior to vacating 2014 ROD	Number	11	5	0
Farm Relocations where buildings were razed	Number	10	4	0
Other Impacts (if potential future improvements are implemented)				
Wetlands within Corridor Preservation Area (includes wetlands in existing and new R/W)	Acres	24.1	8.1	2.2

[1] Corridor Preservation consists of preserving the right of way needed to convert WIS 23 to a 4-lane facility. It also includes preserving right of way needed for future access modifications and improvements for possible future overpasses and interchanges.

[2] Corridor Preservation consists of preserving the right of way needed to convert WIS 23 to a 4-lane facility from County G to County P. It also includes preserving right of way needed for future access modifications and improvements for possible future overpasses and interchanges.

[3] Corridor Preservation consists of preserving right of way needed for future access modifications and improvements for possible future overpasses and interchanges.

[4] Other Area includes: Single- and Multi-Family Residential, Commercial, Industrial, Community, Institutional, Manufacturing, Mining, Retail Trade, Parks/Recreation, Undeveloped, and Transportation.

[5] Excess right of way is a result of parcels purchased because they have uneconomic remnants or are land-locked parcels. The purchase of right of way and excess right of way is consistent with normal procedures and is typical for this type of project.

[6] Right of way impacts have occurred on the project. These impacts were not to facilitate mapping, but for the construction of the previously identified selected alternative under the 2014 LS SFEIS and ROD.

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 2014 LS SFEIS due to design refinements and updated traffic data. It also provides a summary of impacts from the Passing Lane and Hybrid Alternatives as well as the corridor preservation associated with these alternatives.

Potential future impacts of corridor preservation are presented for informational purposes only. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Note: Previously completed land acquisition or relocations occurred as part of the decision in the 2014 LS SFEIS, before the ROD was vacated.

4.7 Environmental Evaluation Matrix

Environmental Factors	Adverse	Benefit	None	Factor Sheet Attached	Comments
A-1 General Economics Evaluation					**See Factor Sheet 4.7 A-1 for detailed evaluation.**
No-Build Alternative	☒	☒	☐	☒	A benefit of the No-Build Alternative would be that it includes no corridor preservation, leaving land unencumbered and maintaining property values and usages. Also, funds not spent on constructing a build alternative would be available for other projects potentially benefiting the area's economy. Typically, the No-Build Alternative would have the benefit of requiring no land from farm operations and resulting in no business relocations. But for this project, WisDOT has already relocated 3 businesses and 17 farm operations based on the decision in the 2014 LS SFEIS. Overall, the No-Build Alternative would have adverse economic effects. Without improvements, slow travel speeds and difficulty in accessing WIS 23 would hinder the transportation of goods between economic centers and adversely affect the travel conditions for commuters and consumers in the area. Economic and personal losses associated with injuries and property damage attributable to crashes would not be addressed. Currently, farm equipment has difficulty accessing field entrances, crossing WIS 23, and traveling on the highway in general. Without wider shoulders and other improvements, ease of travel and safety for farm equipment will not improve.
Passing Lane Alternative	☒	☒	☐	☒	The Passing Lane Alternative would provide some improvements to access and safety, provide additional passing opportunities, and a slight increase in travel speed. These improvements would provide some benefit for commuters and recreational travelers. Wider shoulders would also improve conditions for farm machinery and trucks traveling on WIS 23. Over time however, slow travel speeds will cause less efficient movement of goods between economic centers. This could result in less economic investment in corridor communities. Direct adverse effects from the Passing Lane Alternative include the right of way required from farm operations and farm relocations. The Passing Lane Alternative would require 6 farm operations.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					Based on the decision in the 2014 LS SFEIS, WisDOT relocated 3 businesses and 17 farm operations, and this included the 6 farm relocations needed. The Passing Lane Alternative requires the purchase of 24 acres of cropland/pasture, which will decrease the land base for approximately 48 farms. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 194 acres of cropland/pasture and this included 7 of the 24 acres of cropland/pasture needed.
Corridor Preservation Associated with Passing Lane Alternative	☒	☒	☐	☒	Corridor preservation would potentially limit the ability of farms or businesses to expand or develop in the preserved area. In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. Farms and businesses are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. There are multiple benefits to corridor preservation, see Section 2.1. For example, corridor preservation provides information useful to local property owners and governments as they make property acquisition and development approval decisions. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☒	☐	☒	The Hybrid Alternative has several economic advantages where 4-lane expansion is included, in Fond du Lac County. The advantages include: • Safety features (such as interchanges, access modifications, and roadway median) may decrease economic and personal losses associated with injuries and property damage attributable to crashes. • Higher and more reliable travel speeds decrease transportation costs of the delivery of goods and services between economic centers. • Wider shoulders and multiple lanes improve the interaction between WIS 23 traffic and farm equipment. In Sheboygan County, where there would be passing lanes rather than a 4-lane expansion, the advantages include: • Safety features such as dedicated left-turn lanes and right-turn bays at intersections provide a small decrease in economic and personal losses associated with injuries and property damage attributable to crashes. • Wider shoulders improve the interaction between WIS 23 traffic and farm equipment using the highway. The Hybrid Alternative would have the following economic disadvantages:

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					• Four businesses and 13 farm operations will need to be relocated. Three of these businesses and 12 of these farm operations have already been relocated based on the decision in the 2014 LS SFEIS. • An additional four farm operations have already been relocated based on the decision in the 2014 LS SFEIS. • The purchase of 171 acres of cropland/pasture will decrease the land base for approximately 66 farms. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 194 acres of cropland/pasture which included 72 of the 171 acres of cropland/pasture needed. • Funds used for construction are unavailable for other highway projects potentially benefiting the area's economy. • In Fond du Lac County, access modifications may increase indirection for some travelers and this may affect farmers that have field operations on both sides of WIS 23. • In Sheboygan County, the Hybrid Alternative does not provide some of the more effective safety features, such as interchanges, access modifications, and a divided roadway; economic and personal losses associated with injuries and property damage attributable to crashes are not fully addressed. • In Fond du Lac County, where there would be a 4-lane expansion, area farmers have noted it may be difficult to cross two lanes of traffic with farm trucks/equipment to make the left turn associated with RCUT intersection control.
Corridor Preservation Associated with Hybrid Alternative	☒	☒	☐	☒	Corridor preservation associated with the Hybrid Alternative would have the same adverse and beneficial effects as corridor preservation for the other build alternatives. See discussion under Corridor Preservation Associated with Passing Lane Alternative above.
4-lane On-alignment Alternative (Preferred Alternative)	☒	☒	☐	☒	The 4-lane On-alignment Alternative has several economic advantages, including: • Safety features such as interchanges, access modifications, and a divided roadway, may decrease economic and personal losses associated with injuries and property damage attributable to crashes. • Higher and more reliable travel speeds decrease transportation costs of the delivery of goods and services between economic centers. • Wider shoulders and multiple lanes improve the interaction between WIS 23 traffic and farm equipment using the highway. The 4-lane On-alignment Alternative would have the following economic disadvantages: • Four businesses and 18 farm operations will need to be relocated. Three of these businesses and 17 of these farm

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					operations have already been relocated based on the decision in the 2014 LS SFEIS. • The purchase of 218 acres of cropland/pasture from farm operations will decrease the land base for approximately 92 farms. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 194 acres of cropland/pasture which included 120 of the 218 acres of cropland/pasture needed. • Access modifications may increase indirection for some travelers and this may affect farmers that have field operations on both sides of WIS 23. • Funds used for construction are unavailable for other highway projects potentially benefiting the area's economy. • Area farmers have noted it may be difficult to cross two lanes of traffic with farm trucks/equipment to make the left turn associated with RCUT intersection control.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☒	☒	☐	☒	Corridor preservation associated with the 4-lane On-alignment Alternative would have the same adverse and beneficial effects as corridor preservation for the other build alternatives. See discussion under Corridor Preservation Associated with Passing Lane Alternative above.
A-2 Business Evaluation					**See Factor Sheet 4.7 A-2 for detailed evaluation.**
No-Build Alternative	☒	☒	☐	☒	Typically, the No-Build Alternative would have the benefit of requiring no land from farm operations and resulting in no business relocations. But for this project, WisDOT has already relocated 3 businesses and 17 farm operations based on the decision in the 2014 LS SFEIS. With no corridor preservation, the No-Build Alternative would also leave land unencumbered, maintaining property values, usages, and potential for property owners to make improvements on their land. Over time, slower travel speeds and the difficulty accessing WIS 23 associated with the No-Build Alternative could adversely affect businesses. Slower speeds on WIS 23 would result in less efficient movement of goods between economic centers. This could result in less economic investment in corridor communities.
Passing Lane Alternative	☒	☒	☐	☒	With the Passing Lane Alternative, there would be limited benefits from increased passing opportunities and intersection improvements, resulting in a somewhat safer facility. However, some platooning would still continue. This could result in less economic investment in corridor communities. Direct adverse effects from the Passing Lane Alternative include the right of way required from farm operations and farm relocations. The Passing Lane Alternative would require 6 farm operations. Based on the decision in the 2014 LS SFEIS, WisDOT relocated 3 businesses and 17 farm operations, and this included the 6 farm relocations needed.

4.7 Environmental Evaluation Matrix

Environmental Factors	Adverse	Benefit	None	Factor Sheet Attached	Comments
Corridor Preservation Associated with Passing Lane Alternative	☒	☒	☐	☒	In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. Farms and businesses are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. The preservation area includes 6 businesses, of which 3 have already been relocated based on the decision in the 2014 LS SFEIS. The preservation area includes 16 farm operations, of which 11 have already been relocated based on the decision in the 2014 LS SFEIS. There are multiple benefits to corridor preservation, see Section 2.1. For example, corridor preservation will reduce impacts to the property owners in the long term. Without corridor preservation, these property owners may invest in improvements that may later need to be removed or relocated for transportation improvements. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☒	☐	☒	Through the passing lane section of the Hybrid Alternative in Sheboygan County, over time, increased congestion 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. Through the 4-lane expansion section in Fond du Lac County, there could be an economic advantage through travel time savings and improved 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. Adverse effects from the Hybrid Alternative also include the right of way required from business and farm operations. Four businesses and 13 farm operations will need to be relocated. Three of these businesses and 12 of these farm operations have already been relocated based on the decision in the 2014 LS SFEIS. An additional four farm operations have already been relocated based on the decision in the 2014 LS SFEIS.
Corridor Preservation Associated with Hybrid Alternative	☒	☒	☐	☒	Corridor preservation associated with the Hybrid Alternative would have the same adverse and beneficial effects as corridor preservation for the other build alternatives. The preservation area includes 2 businesses and 9 farm operations, of which 5 farm operations have already been relocated based on the decision in the 2014 LS SFEIS. See discussion under Corridor Preservation Associated with Passing Lane Alternative above.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
4-lane On-alignment Alternative (Preferred Alternative)	☒	☒	☐	☒	The 4-lane On-alignment Alternative's capacity expansion from two lanes to four lanes would provide an economic advantage through travel time savings and improved 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. Adverse effects from the 4-lane On-alignment Alternative include the right of way required from business and farm operations. The 4-lane expansion would require 4 business relocations and 18 farm relocations of which 3 businesses and 17 farms have already been relocated based on the decision in the 2014 LS SFEIS.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☒	☐	☐	☒	Corridor preservation associated with the 4-lane On-alignment Alternative would have the same adverse and beneficial effects as corridor preservation for the other build alternatives. The preservation area includes 2 businesses and 4 farm operations, none of which have been acquired. See discussion under Corridor Preservation Associated with Passing Lane Alternative above.
A-3 Agriculture Evaluation					**See Factor Sheet 4.7 A-3 for detailed evaluation. The project's AIS is available upon request.**
No-Build Alternative	☒	☐	☐	☒	The No-Build Alternative would have adverse effects on agriculture along WIS 23. Currently, farm equipment has difficulty accessing field entrances, crossing WIS 23, and traveling on the highway in general. Without improvements, travel on WIS 23 will remain difficult for farm equipment. The continued lack of mobility and safety on WIS 23 for farm equipment and trucks could also influence individual farm decisions about investing in existing operations, renting and owning fields, or expanding operations. Typically, the No-Build Alternative would have the benefit of requiring no land from farm operations and resulting in no farm relocations. But for this project, WisDOT has already acquired 440 acres of land from farm operations, has acquired and relocated 17 farms, and has razed the buildings at 16 of those farms based on the decision in the 2014 LS SFEIS.
Passing Lane Alternative	☒	☒	☐	☒	The Passing Lane Alternative would have adverse effects on agriculture along WIS 23. Currently, farm equipment has difficulty accessing field entrances, crossing WIS 23, and traveling on the highway. Under the Passing Lane Alternative, travel on WIS 23 will continue to be difficult for farm equipment and trucks transporting goods and supporting agricultural operations. The Passing Lane Alternative would create wider shoulders that would better accommodate slow-moving farm equipment. Passing lanes would allow for safer passing opportunities. Left-turn lanes would also move farm equipment out of the travel lane at some intersections, improving safety. Access changes and intersection improvements, including left-turn lanes associated with the Passing Lane Alternative, would aid in access to farm operations. The Passing Lane Alternative would require land from a total of 48 farm operations. Acreages would vary depending on the farm location and frontage on WIS 23. One acre or less would be required from 37 farms, 1 to 5 acres would be required from 10 farms, and one farm would need more than 5 acres. For this

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					alternative, a total of 51 acres would be required from farm operations and converted to highway right of way, including 24 acres of cropland/pasture. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 440 acres of land from farm operations, which included 7 of the 24 cropland/pasture acres and 18 of the 51 total farm operation acres needed. If the Passing Lane Alternative was selected, 263 acres from farm operations can be sold as excess right of way. An additional 159 acres of land from farm operations will be used for wetland mitigation sites.
Corridor Preservation Associated with Passing Lane Alternative	☒	☒	☐	☒	Corridor preservation implemented under Wis. Stat. § 84.295(10) requires that property owners wishing to erect or alter a structure within the officially mapped right of way must give WisDOT a 60-day notice before beginning that construction. Corridor preservation would not impact any agricultural land. Approximately 343 acres of agricultural lands are within the corridor preservation limits associated with the Passing Lane Alternative. There are multiple benefits to corridor preservation, see Section 2.1. For example, corridor preservation will reduce impacts to the property owners in the long term. Without corridor preservation, these property owners may invest in improvements that may later need to be removed or relocated for transportation improvements. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☒	☐	☒	The Hybrid Alternative would have both beneficial and adverse effects on agriculture along WIS 23. Through the 4-lane expansion section in Fond du Lac County, the Hybrid Alternative would create a wider cross section that better accommodates slow-moving farm equipment. Median openings would also provide a refuge so that farm equipment can more easily cross WIS 23 in two stages (benefit). Connection roads and interchanges associated with the alternative would aid access to fields. But farmers along the corridor have also commented that it may be difficult for farm equipment to cross two lanes of traffic to make the left turn associated with RCUT intersections (adverse). Through the passing lane section of the Hybrid Alternative in Sheboygan County, travel with farm equipment would continue to have difficulty accessing field entrances, crossing the highway, and traveling adjacent to the highway (adverse). The passing lanes would provide more passing opportunities for motorists to pass farm equipment (benefit). The Hybrid Alternative would require land from a total of 66 farm operations. Acreages would vary depending on the farm location and frontage on WIS 23. One acre or less would be required from 25 farms, 1 to 5 acres would be required from 26 farms, and 15 farms would need more than 5 acres. For this alternative, a total of 259 acres would be required from farm operations and converted to highway right of way, including 171 acres of cropland/pasture. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 440 acres of land from farm operations, which included 72 of the

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					171 cropland/pasture acres and 107 of the 259 total farm operation acres needed. If the Hybrid Alternative was selected, 174 acres from farm operations can be sold as excess right of way. An additional 159 acres of land from farm operations will be used for wetland mitigation sites.
Corridor Preservation Associated with Hybrid Alternative	☒	☐	☐	☒	Corridor preservation associated with the Hybrid Alternative would have the same adverse and beneficial effects as corridor preservation for the other build alternatives. Approximately 135 acres of agricultural lands are within the corridor preservation limits associated with the Hybrid Alternative. See discussion under Corridor Preservation Associated with Passing Lane Alternative above.
4-lane On-alignment Alternative (Preferred Alternative)	☒	☒	☐	☒	The 4-lane On-alignment Alternative would create a wider cross section that better accommodates slow-moving farm equipment. The median would provide a refuge so that farm equipment can more easily cross WIS 23 in two stages (benefit). Connection roads and interchanges associated with the alternative would aid access to fields. But farmers along the corridor have also commented that it may be difficult for farm equipment to cross two lanes of traffic to make the left turn associated with RCUT intersections (adverse). The 4-lane On-alignment Alternative would require land from a total of 92 farm operations. Acreages would vary depending on the farm location and frontage on WIS 23. One acre or less would be required from 29 farms, 1 to 5 acres would be required from 46 farms, and 17 farms would need more than 5 acres. For this alternative, a total of 329 acres would be required from farm operations and converted to highway right of way, including 218 acres of crop land. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 440 acres of land from farm operations, which included 120 of the 218 cropland/pasture acres and 180 of the 329 total farm operation acres needed. If the 4-lane On-alignment Alternative was selected, 101 acres from farm operations can be sold as excess right of way. An additional 159 acres of land from farm operations will be used for wetland mitigation sites.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☒	☒	☐	☒	Corridor preservation associated with the 4-lane On-alignment Alternative would have the same adverse and beneficial effects as corridor preservation for the other build alternatives. Approximately 65 acres of agricultural lands are within the corridor preservation limits associated with the 4-lane On-alignment Alternative. See discussion under Corridor Preservation Associated with Passing Lane Alternative above.
B-1 Community or Residential Evaluation					**See Factor Sheet 4.7 B-1 for detailed evaluation.**
No-Build Alternative	☒	☒	☐	☒	The No-Build Alternative would have limited impacts on community and residential facilities. Without improvements, WIS 23 travel speeds would remain slow, access to and across WIS 23 would remain difficult, and safety would not be improved. Corridor preservation is not included with the No-Build Alternative and land would remain unencumbered. However, without corridor preservation, future transportation improvements could lead to greater residential and community impacts if transportation improvements are constructed.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
Passing Lane Alternative	☒	☒	☐	☒	The Passing Lane Alternative could improve WIS 23 safety by providing additional passing opportunities and left-turn lanes at some intersections. Access restrictions would be limited to two intersections, resulting in minor indirection to WIS 23 and some community facilities. Access treatments at intersections and left-turn lanes would improve connectivity across and to the WIS 23 highway (benefit). The extension of the Old Plank Road Trail would provide a continuous trail from Sheboygan to Fond du Lac, which would enhance nonmotorized access within the community. The Passing Lane Alternative would require residential right-of-way acquisition and the relocation of 12 households, all of which have been relocated based on the decision in the 2014 LS SFEIS. For this project, WisDOT has already acquired 30 residential relocations based on the decision in the 2014 LS SFEIS.
Corridor Preservation Associated with Passing Lane Alternative	☒	☒	☐	☒	In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. The preservation area includes 21 households, of which 18 have already been relocated based on the decision in the 2014 LS SFEIS. Community and residential properties are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. There are multiple benefits to corridor preservation, see Section 2.1. For example, corridor preservation provides information useful to local property owners and governments as they make property acquisition and development approval decisions. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☒	☐	☒	Through the 4-lane expansion section in Fond du Lac County, the Hybrid Alternative could improve WIS 23 safety. Access restrictions at some intersections would increase indirection to some community facilities. Connection roads and interchanges would provide connectivity to and across WIS 23 (benefit). Through the 2-lane section with passing lanes in Sheboygan County, travel on WIS 23 would be improved with the addition of passing opportunities and left-turn lanes at some intersections. Access treatments at intersections and left-turn lanes would improve connectivity across and to the WIS 23 highway (benefit). The extension of the Old Plank Road Trail would provide a continuous trail from Sheboygan to Fond du Lac, which would enhance nonmotorized access within and between communities (benefit). The Hybrid Alternative would require residential right-of-way acquisition and the relocation of 28 households, of which all 28 have been relocated based on the decision in the 2014 LS SFEIS. For this project, WisDOT has already acquired 30 residential relocations based on the decision in the 2014 LS SFEIS.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
Corridor Preservation Associated with Hybrid Alternative	☒	☒	☐	☒	Corridor preservation associated with the Hybrid Alternative would have the same adverse and beneficial effects as corridor preservation for the other build alternatives. The preservation area also includes five households, of which two have been relocated based on the decision in the 2014 LS SFEIS. See discussion under Corridor Preservation Associated with Passing Lane Alternative above.
4-lane On-alignment Alternative (Preferred Alternative)	☒	☒	☐	☒	The 4-lane On-alignment Alternative would improve travel speeds and could improve highway safety. Access restrictions at some intersections would increase indirection to some community facilities. Connection roads and interchanges would provide connectivity across and to the WIS 23 highway (benefit). The extension of the Old Plank Road Trail would provide a continuous trail from Sheboygan to Fond du Lac, which would enhance nonmotorized access within and between communities. The 4-lane On-alignment Alternative would require residential right-of-way acquisition and the relocation of 30 households, of which all 30 have been relocated based on the decision in the 2014 LS SFEIS.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☒	☒	☐	☒	Corridor preservation associated with the 4-lane On-alignment Alternative would have the same adverse and beneficial effects as corridor preservation for the other build alternatives. The preservation area also includes three households, none of which have been relocated. See discussion under Corridor Preservation Associated with Passing Lane Alternative above.
B-2 Indirect Effects					**Indirect effects are described in Section 4.4. Indirect effects are effects caused by the project that are later in time or farther removed in distance but are still reasonable and foreseeable.**
No-Build Alternative	☐	☐	☒	☐	The existing 2-lane highway may encourage residential and commercial development to occur at a modest pace, similar to what has occurred over the past two decades.
Passing Lane Alternative	☐	☐	☒	☐	The 2-lane highway associated with the Passing Lane Alternative may encourage residential and commercial development to occur at a modest pace, similar to what has occurred over the past two decades.
Corridor Preservation Associated with Passing Lane Alternative	☒	☒	☐	☐	Corridor preservation would potentially limit future improvements on land mapped for corridor preservation, that may influence business investment and development along the corridor. In Wis. Stat. §84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. This development is likely to be focused at intersections that will maintain their access to and across WIS 23 in the long term, such as the interchanges at County W and County A. Possible improvements are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. There are multiple benefits to corridor preservation, see Section 2.1. For example, corridor preservation provides information useful to local property owners and governments as they make property acquisition and development approval decisions. In the future, if WisDOT determines that transportation improvements are needed

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☒	☐	☐	The 4-lane highway section in Fond du Lac County associated with the Hybrid Alternative may slightly increase the pace of residential and commercial development near Fond du Lac. The alternative would also potentially focus development near interchanges and intersections that maintain their access to WIS 23, such as County UU and County G. The 2-lane section in Sheboygan County is likely to see more modest development, similar to what has been occurring.
Corridor Preservation Associated with Hybrid Alternative	☒	☒	☐	☐	Corridor preservation associated with the Hybrid Alternative would have the same adverse and beneficial effects as corridor preservation for the other build alternatives. See discussion under Corridor Preservation Associated with Passing Lane Alternative above.
4-lane On-alignment Alternative (Preferred Alternative)	☒	☒	☐	☐	The 4-lane On-alignment Alternative could increase the pace of residential and commercial development in the corridor. Members of economic development associations indicate direct access to a 4-lane facility is an important factor in attracting larger commercial development and industry. The alternative would also potentially focus development near interchanges and intersections that maintain their access to WIS 23, such as County UU and County G.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☒	☒	☐	☐	Corridor preservation associated with the 4-lane On-alignment Alternative would have the same adverse and beneficial effects as corridor preservation for the other build alternatives. See discussion under Corridor Preservation Associated with Passing Lane Alternative above.
B-3 Cumulative Effects					**Cumulative effects are described in Section 4.5. Cumulative effects are effects, that when combined with other past, present, and foreseeable future actions can combine to create a cumulative impact to the environment.**
No-Build Alternative	☐	☐	☒	☐	The No-Build Alternative would have no direct impacts, so it would not contribute to the cumulative adverse effect to farmlands, woodlands, and wetlands.
Passing Lane Alternative	☒	☐	☐	☐	The Passing Lane Alternative would require 24 acres of cropland/pasture and 5 acres of woodland. It also impacts 29.9 acres of wetlands within the existing and proposed right of way. The farmland acreage represents about 0.1 percent of the farmland lost between 2007 and 2012 in Fond du Lac and Sheboygan counties. The woodland and wetland acreages represent less than 0.1 percent of the existing woodland and wetlands in Fond du Lac and Sheboygan counties. See Section 4.5 for discussion.
Corridor Preservation Associated with Passing Lane Alternative	☒	☐	☐	☐	Corridor preservation would potentially limit the ability of land owners to expand or develop in the preserved area. In Wis. Stat. §84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. Land owners are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					beginning that construction. Approximately 244 acres of cropland/pasture and 40 acres of woodland are within the corridor preservation limits associated with the Passing Lane Alternative. There are also 24.1 acres of wetland within the corridor preservation area (within existing and proposed right of way). Improvements associated with corridor preservation, if implemented, would focus access to certain roads and could potentially increase travel and emergency response times. These improvements will also contribute to loss of farmlands, loss of uplands, degradation of water quality and a small degradation of air quality. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☐	☐	☐	The Hybrid Alternative would require 171 acres of cropland/pasture and 9 acres of woodland. It also impacts 45.9 acres of wetland within the existing and proposed right of way. The farmland acquisition represents 1.2 percent of the farmland lost between 2007 and 2012 in Fond du Lac and Sheboygan counties. The woodland and wetland losses represent less than 0.1 percent of the existing woodland and wetlands in Fond du Lac and Sheboygan counties. See Section 4.5 for discussion. Added vehicle miles traveled (VMT) from higher traffic volumes could proportionally increase motor vehicle emissions.
Corridor Preservation Associated with Hybrid Alternative	☒	☐	☐	☐	Corridor preservation associated with the Hybrid Alternative would have the same adverse effects as corridor preservation for other build alternatives. Approximately 97 acres of cropland/pasture and 36 acres of woodland are within the corridor preservation limits associated with the Hybrid Alternative. There are also 8.1 acres of wetland within the corridor preservation area (within existing and proposed right of way). See discussion under Corridor Preservation Associated with Passing Lane Alternative above.
4-lane On-alignment Alternative (Preferred Alternative)	☒	☐	☐	☐	The 4-lane On-alignment Alternative would require 218 acres of cropland/pasture and 38 acres of woodland. It also impacts 51.8 acres of wetlands within the existing and proposed right of way. The farmland acquisition represents about 1.5 percent of the farmland lost between 2007 and 2012 in Fond du Lac and Sheboygan counties. The woodland and wetland losses represent less than 0.1 percent of the woodland and wetlands in Fond du Lac and Sheboygan counties. See Section 4.5 for discussion. Added VMT from higher traffic volumes could proportionally increase motor vehicle emissions.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☒	☐	☐	☐	Corridor preservation associated with the Hybrid Alternative would have the same adverse effects as corridor preservation for other build alternatives. Approximately 50 acres of cropland/pasture and 7 acres of woodland. are within the corridor preservation limits associated with the 4-lane On-alignment Alternative. There are also 2.2 acres of wetlands within the corridor preservation (within existing and proposed right of way). See discussion under Corridor Preservation Associated with Passing Lane Alternative above.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
B-4 Environmental Justice Evaluation					**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. As depicted in Figure 3.3-2, concentrations of EJ populations are located at the east and west ends of the corridor around the cities of Fond du Lac and Plymouth. See Factor Sheet 4.7 B-4 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	Will not affect low income or minority populations.
Passing Lane Alternative	☐	☐	☒	☒	Disproportionately high and adverse impacts to minority and low-income populations are not anticipated for the build alternatives. In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. Corridor preservation areas are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. The statute also states that if notice is not given to WisDOT, compensation will not be made by WisDOT for structure improvements occurring within the corridor preservation area. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. Disproportionately high and adverse impacts to minority and low-income populations are not anticipated for corridor preservation associated with the build alternatives.
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	
Hybrid Alternative	☐	☐	☒	☒	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	
4-lane On-alignment Alternative (Preferred Alternative)	☐	☐	☒	☒	
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	
B-5 Historic Resources Evaluation					**A total of 19 sites were identified within the Area of Potential Effect (APE) with potential to be impacted by the alternatives analyzed. See Factor Sheet 4.7 B-5 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	There would be no adverse effects to historic resources.
Passing Lane Alternative	☐	☐	☒	☒	There would be no adverse effects to historic resources for the build alternatives or for corridor preservation associated with build alternatives. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	
Hybrid Alternative	☐	☐	☒	☒	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	
4-lane On-alignment Alternative (Preferred Alternative)	☐	☐	☒	☒	
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
B-6 Archaeological Sites Evaluation					**See Factor Sheet 4.7 B-6 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	No sites would be affected.
Passing Lane Alternative	☒	☐	☐	☒	For each of the build alternatives, four archaeological sites were identified as potentially affected and potentially eligible for the NRHP. After evaluation, one site was determined to be eligible for the NRHP (the Sippel Archaeological Site) and Phase III Data Recovery was completed. For corridor preservation associated with build alternatives, no sites would be affected. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	
Hybrid Alternative	☒	☐	☐	☒	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	
4-lane On-alignment Alternative (Preferred Alternative)	☒	☐	☐	☒	
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	
B-7 Tribal Issues					
No-Build Alternative	☐	☐	☒	☐	Letters about the project were sent to American Indian Tribes in 2002, 2007, and on October 19, 2017. The letters provided project information to the Tribes and asked if they would like to be a consulting party or if they have any concerns with the project. One response has been received from the October 19, 2017 coordination letter. The Forest County Potawatomi Community requested a copy of any related documentation. Coordination previous to this LS SEIS can be found in Appendix D of the 2004 DEIS and 2014 LS SFEIS. In 2002, two tribes responded to initial coordination on the project: the Menominee Indian Tribe of Wisconsin requested archaeological and historical surveys for the project and the Iowa Tribe of Oklahoma had no comment on the project. 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 and the Bad River Band of Lake Superior Tribe of Chippewa Indians requested review fees. The fees were not paid and no comments were received from the Tribe. No issues have been noted by any of the tribes.
Passing Lane Alternative	☐	☐	☒	☐	
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☐	
Hybrid Alternative	☐	☐	☒	☐	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☐	
4-lane On-alignment Alternative (Preferred Alternative)	☐	☐	☒	☐	
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☐	
B-8 Section 4(f) and 6(f) or Other Unique Area					**See Factor Sheet 4.7 B-8 and Section 5 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	The No-Build Alternative would not affect Section 4(f) or Section 6(f) resources or other Unique Areas.
Passing Lane Alternative	☒	☐	☐	☒	The following Section 4(f) properties are located in close proximity to the Passing Lane Alternative and may be impacted: • The **KMSF-NU** is a 4(f)/6(f) property, which incorporates the IAT and State Equestrian Trail and crosses the WIS 23

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					corridor. A Section 4(f) *de minimis* impact finding is included in Section 5.3. The *de minimis* effect finding combines the KMSF-NU with the IAT/Equestrian Trail because the resources are coincident. Section 6(f) replacement lands for the KMSF-NU have been acquired by WisDOT based on the decision in the 2014 LS SFEIS and were determined appropriate for Section 4(f) purposes. A Section 6(f) evaluation is included in Section 5.6. • The **Wade House Historic Site** (former Old Wade House State Park) is owned by the Wisconsin Historical Society (WHS). The property includes over 500 acres of land surrounding several historic structures on the NRHP. The nearest historic structure is 1/4 mile south of WIS 23. The 2010 FEIS and 2014 LS SFEIS included a Section 4(f) *de minimis* impact finding for the Old Wade House State Park based on a right-of-way impact to approximately 6 acres of park land for the Old Plank Road Trail extension. The 2014 LS SFEIS *de minimis* impact finding stated the project would have no adverse effect on the property's activities, features, and attributes that qualify the property for Section 4(f) protection. This finding, with additional information, is included in Section 5.4. The property received Land and Water Conservation Funds (LWCF) and is a Section 6(f) property. Based on WDNR's review of property title information, WIS 23 right of way is considered a pre-existing condition. As a result, WDNR cleared LWCF interests for the purpose of WIS 23 reconstruction and Section 6(f) replacement lands are not required. Refer to the July 19, 2018 letter from WDNR in Appendix C. • The **Sippel Archaeological Site** is eligible for the NRHP and would also be affected by the Passing Lane Alternative. This site qualifies for an exception to the requirement for Section 4(f) approval (23 CFR 774.13(b)). More information is provided in Section 5.5. • **St. Mary's Springs Academy**, eligible for the NRHP, is located in the northeast quadrant of the County K/WIS 23 intersection in Fond du Lac County. There is no Section 4(f) use of the St. Mary's Springs Academy property as WIS 23 improvements fall outside the historic boundary. No additional Section 4(f) evaluation is required. WisDOT has committed to move a non-contributing statue of a guardian angel and child for the owners in a letter dated May 31, 2013. All build alternatives considered in this document include the same jughandle intersection configuration for the County K/WIS 23 intersection adjacent to the property. There are several Unique Areas that are not Section 4(f) or 6(f) properties that would be affected by the Passing Lane Alternative. • The **Wetland Enhancement and Mitigation Site at the Wade House Historic Site** is directly adjacent to the Passing Lane Alternative because of the Old Plank Road Trail extension that is included with the alternative. The trail

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					extension would travel on the south side of WIS 23 at the north edge of the mitigation site. Impacts to the mitigation site were avoided by shifting the trail closer to WIS 23. • The **St. Mary's Springs Athletic Field** is a privately owned high school athletic field located in the northwest quadrant of the County K/WIS 23 intersection. The field is not considered a Section 4(f) property because it is privately owned (23 USC 138). All build alternatives include the same jughandle intersection configuration for the County K/WIS 23 intersection and the right of way required will impact the south portion of the athletic field. • The **Kettle Moraine Scenic Drive** is a 115-mile designated scenic route located on County A where it crosses WIS 23 within the project limits. The Passing Lane Alternative retains an at-grade, full access intersection. • There is a **Rustic Road** designation on County S extending 2.4 miles from WIS 23 north to the town of Glenbeulah. The Passing Lane Alternative retains a full-access at-grade intersection at County S. • There are several **Snowmobile Trails** along the WIS 23 project corridor. Snowmobilers use both county and state trails and private club trails on private lands. With the Passing Lane Alternative, trail continuity would be maintained. • There are no mapped **All-Terrain Vehicle (ATV) Trails** in Fond du Lac County or Sheboygan County. A winter-only ATV trail and snowmobile trail is located along the south side of WIS 23 from Banner Road to Triple T. This trail crosses WIS 23 just west of Triple T. Hillview Road is a year-round ATV road route and ATVs cross WIS 23 on this town of Forest Road. With the Passing Lane Alternative, trail continuity would be maintained.
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	Corridor preservation would not constitute a transportation use of Section 4(f) or Section 6(f) resources or other Unique Areas other than the Section 6(f) land conversion and boundary update. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☐	☐	☒	Refer to the discussion under the Passing Lane Alternative, as the effects are the same.
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	Corridor preservation would not constitute a transportation use of Section 4(f) or Section 6(f) resources or other Unique Areas other than the Section 6(f) land conversion and boundary update. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
4-lane On-alignment Alternative (Preferred Alternative)	☒	☐	☐	☒	Like the Passing Lane and Hybrid Alternatives, the following Section 4(f) properties are located in close proximity to the 4-lane On-alignment Alternative: KMSF-NU, IAT, Equestrian Trail, the Wade House Historic Site, the Sippel Archeological Site, and St. Mary's Springs Academy. Refer to the discussion under the Passing Lane Alternative to learn more about which properties require a Section 4(f) use or qualify for an exception. There are several Unique Areas that are not Section 4(f) or Section 6(f) resources that would be affected by the 4-lane On-alignment Alternative. • The **Wetland Enhancement and Mitigation Site at the Wade House Historic Site** (see discussion under the Passing Lane Alternative). • The **St. Mary's Springs Athletic Field** (see discussion under the Passing Lane Alternative). • The **Kettle Moraine Scenic Drive** is a 115-mile designated scenic route located on County A where it crosses WIS 23 within the project limits. This is not considered a Section 4(f) property. The 4-lane On-alignment Alternative installs a RCUT intersection at County A. • There is a **Rustic Road** designation on County S extending 2.4 miles from WIS 23 north to the town of Glenbeulah. This is not considered a Section 4(f) property. The 4-lane On-alignment Alternative installs a RCUT intersection at County S. • There are several **Snowmobile Trails** along the WIS 23 project corridor (see discussion under the Passing Lane Alternative). • There are no mapped **ATV Trails** along the project corridor (see discussion under the Passing Lane Alternative).
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	Corridor preservation would not constitute a transportation use of Section 4(f) or Section 6(f) resources or other Unique Areas other than the Section 6(f) land conversion and boundary update. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
B-9 Aesthetics Evaluation					**See Factor Sheet 4.7 B-9 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	There would be no adverse effects to aesthetics.
Passing Lane Alternative	☒	☒	☐	☒	The Passing Lane Alternative would increase the width of highway right of way to approximately 125 feet where passing lanes are added or where intersection improvements are constructed. The view of the roadway corridor may become more pronounced for residents adjacent to the current roadway. Users of the Old Plank Road Trail would have rural views to one side and views of WIS 23 to the other side. Where the trail is extended, the width of the transportation corridor would be wider, yet it would likely not reduce the visual quality for adjacent residents or travelers on WIS 23.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	Corridor preservation would not affect the visual quality of the area. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☒	☐	☒	In Sheboygan County the width of highway right of way would be the same as the Passing Lane Alternative. In Fond du Lac County the width of highway right of way would be the same as the 4-lane On-alignment Alternative. The increased highway width would change the view for travelers. The view of the roadway corridor could become more pronounced for residents adjacent to the current roadway. The grade-separated- roadways would have the side road profiles raised to cross over WIS 23. This may block views for both travelers on WIS 23 and residents located near the grade-separated crossings.
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	Corridor preservation would not affect the visual quality of the area. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
4-lane On-alignment Alternative (Preferred Alternative)	☒	☒	☐	☒	The 4-lane On-alignment Alternative would increase the width of highway right of way to approximately 250 feet. The view of the roadway corridor would become more pronounced for residents adjacent to the current roadway. The grade-separated- roadways would have the side road profile raised to cross over WIS 23. This may block views for both travelers on WIS 23 and residents located near the grade-separated crossings. Users of the Old Plank Road Trail would have rural views to one side and views of a 4-lane expanded highway to the other side. Where the trail is extended, the width of the transportation corridor would be expanded, yet it would likely not reduce the visual quality for adjacent residents or travelers on WIS 23.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	Corridor preservation would not affect the visual quality of the area. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
C-1 Wetlands Evaluation					**See Factor Sheet 4.7 C-1 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	The No-Build Alternative would not fill wetlands. WisDOT has already acquired 30 acres of wetlands based on the decision in the 2014 LS SFEIS. While land has been acquired, the No-Build Alternative is not expected to fill wetlands, change existing plant community types, nor proportions of managed or unmanaged right of way.
Passing Lane Alternative	☒	☐	☐	☒	The Passing Lane Alternative would affect about 111 wetland sites and would fill 29.9 acres of wetlands. A permit from the USACE under Section 404 of the Clean Water Act and compensatory wetland mitigation would be required. A water quality certification from the WDNR would also be necessary to comply with Section 401 of the Clean Water Act.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	Approximately 24.1 acres of wetlands are within corridor preservation limits associated with the Passing Lane Alternative. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☐	☐	☒	The Hybrid Alternative would affect about 115 wetland sites and would fill 45.9 acres of wetlands. A permit from the USACE under Section 404 of the Clean Water Act and compensatory wetland mitigation would be required. A water quality certification from the WDNR would also be necessary to comply with Section 401 of the Clean Water Act.
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	Approximately 8.1 acres of wetlands are within corridor preservation limits associated with the Hybrid Alternative. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
4-lane On-alignment Alternative (Preferred Alternative)	☒	☐	☐	☒	The 4-lane On-alignment Alternative would affect about 118 wetland sites and would fill 51.8 acres of wetlands. A permit from the USACE under Section 404 of the Clean Water Act and compensatory wetland mitigation would be required. A water quality certification from the WDNR would also be necessary to comply with Section 401 of the Clean Water Act.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	Approximately 2.2 acres of wetlands are within corridor preservation limits associated with the 4-lane On-alignment Alternative. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
C-2 Rivers, Streams and Floodplains Evaluation					**See Factor Sheet 4.7 C-2 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	There would be no adverse effects to rivers, streams, or floodplains.
Passing Lane Alternative	☒	☐	☐	☒	At the Sheboygan River crossing, the existing WIS 23 bridge would be retained, but a new bridge would be added for the Old Plank Road Trail. The backwater increase for a 100-year flood would be less than that of the Hybrid or 4-lane On-alignment Alternatives and should be contained within the highway right of way. At the crossing of the unnamed tributary of the Sheboygan River, a new, longer culvert would be constructed to accommodate a passing lane at this location. The new culvert would be sized to maintain the existing backwater conditions for the regional 100-year flood. At the Mullet River crossing, the existing 3-cell culvert would be extended about 25 feet to the north and about 25 feet to the south. The culvert extension would maintain the existing 100-year flood backwater elevation.

4.7 Environmental Evaluation Matrix

Environmental Factors	Adverse	Benefit	None	Factor Sheet Attached	Comments
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	There would be no adverse effects to rivers, streams, or floodplains. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☐	☐	☒	At the Sheboygan River crossing, a new bridge for travel lanes would be constructed north of the existing WIS 23 bridge. A new bridge would also be added for the Old Plank Road Trail. The combination of the three bridges at this location would cause a backwater increase for a 100-year flood. Modeling indicates this increase would be contained within the highway right of way and would not flood any adjacent property. At the crossing of the unnamed tributary of the Sheboygan River, grading for two additional lanes would be required and two new culverts would be constructed. The new culverts would be sized to maintain the existing backwater conditions for the regional 100-year flood. At the Mullet River crossing, the existing 3-cell culvert would be extended about 25 feet to the north and about 25 feet to the south. The culvert extension would be designed in accordance with NR 116 and NR 320 and would maintain the existing 100-year flood backwater elevation.
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	There would be no adverse effects to rivers, streams, or floodplains. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
4-lane On-alignment Alternative (Preferred Alternative)	☒	☐	☐	☒	At the Sheboygan River crossing, a new bridge for travel lanes would be constructed north of the existing WIS 23 bridge. A new bridge would also be added for the Old Plank Road Trail. The combination of the three bridges at this location would cause a backwater increase for a 100-year flood. Modeling indicates this increase would be contained within the highway right of way and would not flood any adjacent property. At the crossing of the unnamed tributary of the Sheboygan River, grading for two additional lanes would be required and two new culverts would be constructed. The new culverts would be sized to maintain the existing backwater conditions for the regional 100-year flood. At the Mullet River crossing, the 4-lane On-alignment Alternative would include constructing an embankment across the floodplain for the two new travel lanes and extending the culverts about 100 feet on the north side only. The culvert extension would be designed in accordance with NR 116 and NR 320 and would maintain the existing 100-year flood backwater elevation.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	There would be no adverse effects to rivers, streams, or floodplains. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
C-3 Lakes or Other Open Water Evaluation					
No-Build Alternative	☐	☐	☒	☐	There is no need for detailed evaluation. There are no lakes or open water resources directly affected by any of the alternatives considered.
Passing Lane Alternative	☐	☐	☒	☐	
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☐	
Hybrid Alternative	☐	☐	☒	☐	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☐	
4-lane On-alignment Alternative (Preferred Alternative)	☐	☐	☒	☐	
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☐	
C-4 Groundwater, Wells and Springs Evaluation					
No-Build Alternative	☐	☐	☒	☐	There is no need for detailed evaluation. Potable wells were abandoned as part of the relocations previously completed as part of the decision in the 2014 LS SFEIS. There are no other 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 and implementation of improvements associated with corridor preservation will result in increased 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. The stormwater could 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 and 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.
Passing Lane Alternative	☐	☐	☒	☐	
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☐	
Hybrid Alternative	☐	☐	☒	☐	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☐	
4-lane On-alignment Alternative (Preferred Alternative)	☐	☐	☒	☐	
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☐	

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
C-5 Upland Wildlife and Habitat Evaluation					**See Factor Sheet 4.7 C-5 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	A No-Build Alternative would typically require no upland conversion and would have no impacts. But for this project, WisDOT has already acquired 44 acres of upland/woodland based on the decision in the 2014 LS SFEIS. While land has been acquired, the No-Build Alternative is not expected to change existing plant community types nor proportions of managed nor unmanaged right of way.
Passing Lane Alternative	☒	☐	☐	☒	The Passing Lane Alternative requires the purchase of 5 acres of upland habitat. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 44 acres of upland habitat which included 3 of the 5 acres needed. Because the improvements are along the existing WIS 23 alignment, impacts would be along the edges of existing upland habitat areas bordering the highway. Most impacts would be near the Wade House Historic Site, the Mullet River, the Old Plank Road Trail, and the IAT/State Equestrian Trail.
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	Approximately 40 acres of uplands are within the corridor preservation limits associated with the Passing Lane Alternative. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☒	☐	☐	☒	The Hybrid Alternative requires the purchase of 9 acres of upland habitat. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 44 acres of upland habitat which included 5 of the 9 acres needed. Because the improvements are along the existing WIS 23 alignment, impacts would be along the edges of existing upland habitat areas bordering the highway. Most impacts would be near the Wade House Historic Site, the Mullet River, the Old Plank Road Trail, and the IAT/State Equestrian Trail.
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	Approximately 36 acres of uplands are within the corridor preservation limits associated with the Hybrid Alternative. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
4-lane On-alignment Alternative (Preferred Alternative)	☒	☐	☐	☒	The 4-lane On-alignment Alternative requires the purchase of 38 acres of upland habitat. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 44 acres of upland habitat which included 34 of the 38 acres needed. Because the expansion is along the existing WIS 23 alignment, impacts would typically be along the edges of existing upland habitat areas bordering the highway. Specific areas impacted by the 4-lane On-alignment Alternative would be at the Sheboygan and Mullet River culvert extensions, the Old Plank Road Trail connections, and the IAT/State Equestrian Trail grade separation structure.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	Approximately 7 acres of uplands are within the corridor preservation limits associated with the 4-lane On-alignment Alternative. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
C-6 Coastal Zone Evaluation					
No-Build Alternative	☐	☐	☒	☐	There is no need for detailed evaluation as this project's effects do not extend into or affect Coastal Zone Management Areas of Special Concern. The following graphic of the State of Wisconsin illustrates the Coastal Wetlands Project Study Area.[1] The greenshaded- areas are the Coastal Zone and the blue lines represent a 6-mile buffer from the coasts. 
Passing Lane Alternative	☐	☐	☒	☐	
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☐	
Hybrid Alternative	☐	☐	☒	☐	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☐	
4-lane On-alignment Alternative (Preferred Alternative)	☐	☐	☒	☐	
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☐	
C-7 Threatened, Endangered and Protected Resources Evaluation					**See Factor Sheet 4.7 C-7 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	Threatened, endangered, or special concern species within the corridor include four federally-protected species. A no effect determination was made for the Whooping crane, Pitcher's thistle, and Eastern prairie fringed orchid. Based on the United States Fish and Wildlife Service (USFWS) Section 7 consultation finding, under the final 4(d) rule, a determination of "may affect but will not result in a prohibited take" was made for the northern long-eared bat (NLEB). There are no known NLEB maternity roost trees within 150
Passing Lane Alternative	☒	☐	☐	☒	
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	
Hybrid Alternative	☒	☐	☐	☒	

[1] https://dnr.wi.gov/topic/wetlands/cw/map_2.asp. Accessed July 18, 2018.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	feet of the proposed project and no known hibernacula within 0.25 miles of the proposed project. Communication with the WDNR transportation liaison (November 21, 2017) indicated that a majority of the resources identified are not likely to be impacted. There is potential for impacts to a variety of native mussel species. WDNR has requested or recommends the following during coordination: • Plant survey for the threatened snow trillium, *Trillium nivale*. Survey was completed, and no snow trillium found. • Plant survey for forked aster, *Eurybia furcate*. • Special precautionary turtle protection measures for the Blanding's turtle (special concern) will be implemented. Protection measures will be the use of exclusion fencing during construction. • Efforts will be taken to avoid clearing within the Mullet River and wooded environment of the KMSF-NU during the nesting and breeding season to prevent disturbance to nests of state listed bird species. If clearing cannot be avoided during the time frame, WisDOT will work with WDNR to determine if additional minimization or mitigation measures are necessary. Species of concern include: o Red-shouldered hawk (*Buteo lineatus*)–Threatened o Cerulean warbler (*Dendroica cerulean*)–Threatened o Acadian flycatcher (*Empidonax virescens*)–Threatened o Hooded warbler (*Wilsonia citrina*)–Threatened • Three freshwater mussel species were identified by the WDNR. WDNR/WisDOT will conduct surveys 6 to 9 months before construction. Should freshwater mussel species be identified, WDNR/WisDOT staff will relocate species, as needed. o Slippershell mussel (*Alasmidonta viridis*)–Threatened o Ellipse mussel (*Venustaconcha ellipsiformis*)–Threatened o Rainbow shell mussel (*Villosa iris*)–Endangered
4-lane On-alignment Alternative (Preferred Alternative)	☒	☐	☐	☒	
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	
D-1 Air Quality Evaluation					**See Factor Sheet 4.7 D-1 for detailed evaluation.**
					The proposed WIS 23 project is located in the Lake Michigan Intrastate Air Quality Control Region. These air quality regions monitor NAAQS established by the USEPA under the authority of the Clean Air Act. 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 NAAQS. Sheboygan County currently demonstrates transportation

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					conformity using the "Motor Vehicle Emissions Budget (MVEB) Test" (40 CFR 93.119). WDNR submitted an early progress SIP with updated MVEBs for the Sheboygan County nonattainment area on January 16, 2015. On April 1, 2015, USEPA found the MVEBs for Wisconsin's 8-hour ozone nonattainment area were adequate for use in transportation conformity determinations (80 FR 17428). The FHWA's Updated Interim Guidance on Mobile Source Air Toxics (MSAT) (October 18, 2016) 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.
No-Build Alternative	☐	☐	☒	☒	The No-Build Alternative would not have direct effects on air quality.
Passing Lane Alternative	☐	☐	☒	☒	The estimated VMT for the Passing Lane Alternative is slightly higher than 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. This increase in VMT would lead to higher MSAT emissions along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The 2040 VMT is 2.5 percent greater than the No-Build Alternative. The addition of passing lanes will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, there may be localized areas where ambient concentrations of MSAT could be higher than the No-Build Alternative. The Passing Lane Alternative is exempt from carbon monoxide (CO) hot spot analysis because it meets the exception criteria formerly included in rescinded NR 411.04(2)(b) which are still used by WisDOT to determine an exemption to CO hot spot analyses.
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	Corridor preservation associated with the Passing Lane Alternative would have no effect on air quality. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Hybrid Alternative	☐	☐	☒	☒	The VMT estimated for the Hybrid Alternative is higher than the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The 2040 VMT is 23 percent greater than the No-Build Alternative. The additional passing lanes and travel lanes will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, there may be localized areas where ambient concentrations of MSAT could be higher than the No-Build Alternative.

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
					The Hybrid Alternative is exempt from CO hot spot analysis because it meets the exception criteria formerly included in rescinded NR 411.04(2)(b), which are still used by WisDOT to determine an exemption to CO hot spot analyses.
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	Corridor preservation associated with the Hybrid Alternative would have no effect on air quality. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
4-lane On-alignment Alternative (Preferred Alternative)	☐	☐	☒	☒	The VMT estimated for the 4-lane On-alignment Alternative is higher than the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The 2040 VMT is 40 percent greater than the No-Build Alternative. The additional travel lanes will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, there may be localized areas where ambient concentrations of MSAT could be higher than the No-Build Alternative. The 4-lane On-alignment Alternative is exempt from CO hot spot analysis because it meets the exception criteria formerly included in rescinded NR 411.04(2)(b) which are still used by WisDOT to determine an exemption to CO hot spot analyses. The 4-lane On-alignment Alternative was discussed in the approved RTP and was included in the assessment of conformity of the *Year 2045 SATP*. The project is outside the Sheboygan Metropolitan Planning Area, so it is not included in the MPO TIP.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	Corridor preservation associated with the 4-lane On-alignment Alternative would have no effect on air quality. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
D-2 Construction Stage Sound Quality Evaluation					
No-Build Alternative	☐	☐	☒	☒	No effects.
Passing Lane Alternative	☒	☐	☐	☒	For the build alternatives, 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. Corridor preservation associated with build alternatives would not have construction stage sound impacts. In the future, if WisDOT
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	
Hybrid Alternative	☒	☐	☐	☒	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
4-lane On-alignment Alternative (Preferred Alternative)	☒	☐	☐	☒	determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	
D-3 Traffic Noise Evaluation					**See Factor Sheet 4.7 D-3 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	The 2014 LS SFEIS modeled existing and future sound levels for the 4-lane On-alignment Alternative (referred to as the 4-lane, on-alignment expansion alternative in the 2014 LS SFEIS). The current traffic forecasts are less than those used for the 2014 noise modeling effort. All other input factors for the 4-lane On-alignment Alternative would remain the same. Additionally, the travel lanes would be located further away from receptors in portions of the Hybrid and Passing Lane Alternatives and at the same distance as the 4-lane On-alignment Alternative for other portions. In no case will travel lanes be closer for the Hybrid or Passing Lane Alternatives than those for the 4-lane On-alignment Alternative. This means that the 4-lane On-alignment Alternative noise analysis for the 2014 LS SFEIS is the worst-case scenario. The modeled sound levels from the 2014 LS SFEIS have been used for this LS SEIS. A letter summarizing the noise analysis results was sent to the local jurisdictions informing them of noise levels and asking them to consider the data in their land use plans. Corridor preservation associated with build alternatives would not have traffic noise impacts. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Passing Lane Alternative	☒	☐	☐	☒	
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	
Hybrid Alternative	☒	☐	☐	☒	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	
4-lane On-alignment Alternative (Preferred Alternative)	☒	☐	☐	☒	
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	
D-4 Hazardous Substances, Contamination and Asbestos Evaluation					**See Factor Sheet 4.7 D-4 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	There are no effects.
Passing Lane Alternative	☒	☒	☐	☒	The Phase 1 Hazardous Materials Assessment for the corridor identified 42 sites along WIS 23 alignment with potential for contamination. There are 15 aboveground storage tank (AST) sites, 11 spill sites, 3 Leaking Underground Storage Tank (LUST) sites, 3 junk sites, 3 vehicle repair sites, 1 vacant site, and 6 underground storage tank (UST) sites. Additional investigation has been completed at three of the six sites where investigation was recommended. The need for additional investigation would be evaluated during final design.
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	
Hybrid Alternative	☒	☒	☐	☒	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
4-lane On-alignment Alternative (Preferred Alternative)	☒	☒	☐	☒	WisDOT would seek to avoid the identified limits of contamination. If contamination cannot be avoided, WisDOT would work with concerned parties to ensure that the disposition of contaminated materials is resolved to the satisfaction of the WDNR, WisDOT Bureau of Technical Services, and the FHWA before proposed construction and before advertising the project for letting. Corridor preservation does not affect any potentially contaminated sites. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	
D-5 Storm Water Evaluation					**See Factor Sheet 4.7 D-5 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	There are no effects.
Passing Lane Alternative	☒	☐	☐	☒	As of March 2016, Wisconsin Act 307 removed the WisDOT exemption from obtaining a WPDES Permit and required WDNR to issue a TCGP on or before June 30, 2018 for WisDOT administered projects. The new TCGP is now in force. WisDOT will apply for coverage under the new TCGP prior to construction. Build alternatives would increase the amount of impervious area and increase peak flow discharges. Typical stormwater management techniques could be used when applying for the TCGP. Potential stormwater management measures to be considered would include vegetated grass strips or grass swales adjacent to the highway could remove about 65 percent of suspended sediments. Corridor preservation itself has no effect on storm water. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	
Hybrid Alternative	☒	☐	☐	☒	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	
4-lane On-alignment Alternative (Preferred Alternative)	☒	☐	☐	☒	
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	
D-6 Erosion Control Evaluation					**See Factor Sheet 4.7 D-6 for detailed evaluation.**
No-Build Alternative	☐	☐	☒	☒	The No-Build Alternative has no need for erosion control.
Passing Lane Alternative	☐	☒	☐	☒	The build alternatives would require erosion control. To protect the drainage areas, streams, and rivers and to control construction site runoff, 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. 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*
Corridor Preservation Associated with Passing Lane Alternative	☐	☐	☒	☒	
Hybrid Alternative	☐	☒	☐	☒	
Corridor Preservation Associated with Hybrid Alternative	☐	☐	☒	☒	
4-lane On-alignment Alternative (Preferred Alternative)	☐	☒	☐	☒	

4.7 Environmental Evaluation Matrix					
Environmental Factors	**Adverse**	**Benefit**	**None**	**Factor Sheet Attached**	**Comments**
Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)	☐	☐	☒	☒	*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 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. Corridor preservation has no need for erosion control. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

The following Factor Sheets are a more condensed method for documenting the direct effects from the NEPA process. Since the 2014 LS SFEIS used the Factor Sheet format, it has been retained in this LS SEIS. WisDOT has revised its Factor Sheet format, content, and order of discussion since the 2014 LS SFEIS. This revision has led to a slight rearrangement of information. The following list shows the Factor Sheet designation and topic in this LS SEIS.

LS SEIS Factor Sheet

- A-1 General Economics Evaluation
- A-2 Business Evaluation
- A-3 Agriculture Evaluation
- B-1 Community or Residential Evaluation
- B-4 Environmental Justice Evaluation
- B-5 Historic Resources Evaluation
- B-6 Archaeological Sites Evaluation
- B-8 Section 4(f) and 6(f) or Other unique Areas
- B-9 Aesthetics Evaluation
- C-1 Wetlands Evaluation
- C-2.1 Rivers, Streams and Floodplains Evaluation: Sheboygan River
- C-2.2 Rivers, Streams and Floodplains Evaluation: Unnamed Tributary
- C-2.3 Rivers, Streams and Floodplains Evaluation: Mullet River
- C-5 Upland Wildlife and Habitat Evaluation
- C-7 Threatened, Endangered and Protected Resources Evaluation
- D-1 Air Quality Evaluation
- D-2 Construction Stage Sound Quality Evaluation
- D-3 Traffic Noise Evaluation
- D-4 Hazardous Substance, Contamination and Asbestos Evaluation
- D-5 Stormwater Evaluation
- D-6 Erosion Control Evaluation

The General Economics Evaluation Factor Sheet has been augmented and updated, but there are no substantive changes from the 2014 LS SFEIS.

4.7 A-1 GENERAL ECONOMICS EVALUATION Factor Sheet A-1

Note: Previously completed land acquisition or relocations occurred as part of the decision in the 2014 LS SFEIS, before the ROD was vacated.

1. Briefly describe the existing economic characteristics of the area around the project:

The main economic centers in this area exist within the cities of Fond du Lac and Plymouth. A majority of land in the study area is used as nonirrigated cropland as indicated by the color light green on the land use maps shown in Figures 4.7 A-1.1 and 4.7 A-1.2.

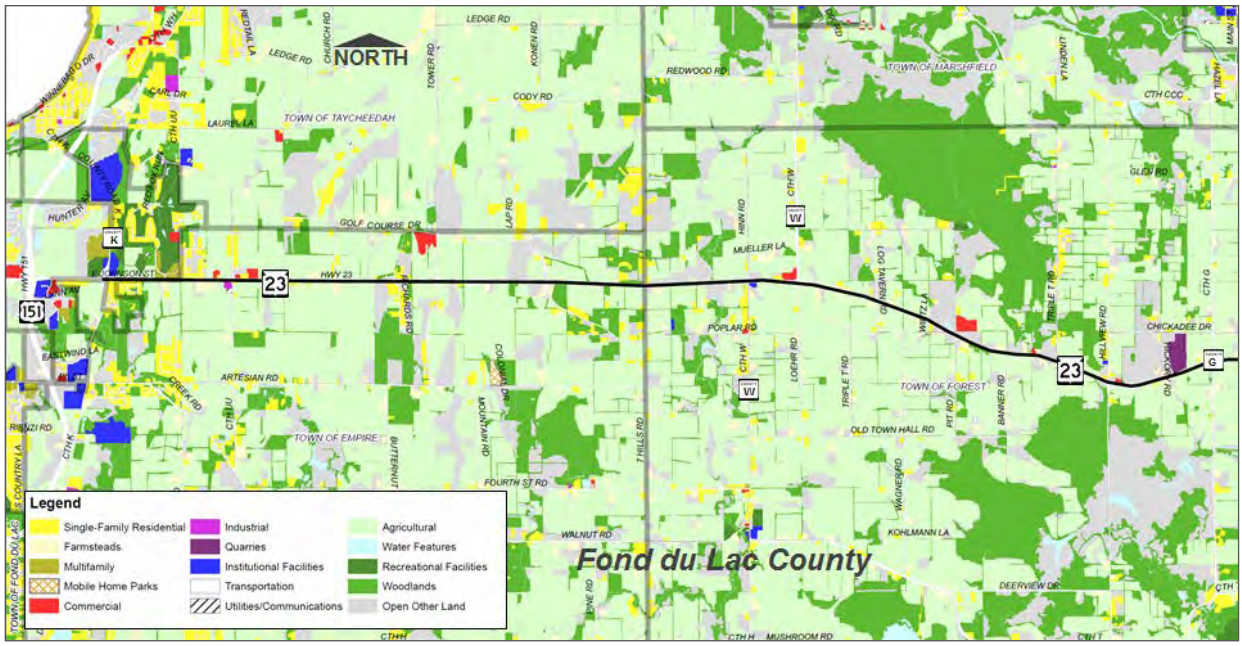


Figure 4.7 A-1.1 WIS 23 Existing Land Use–Fond du Lac County

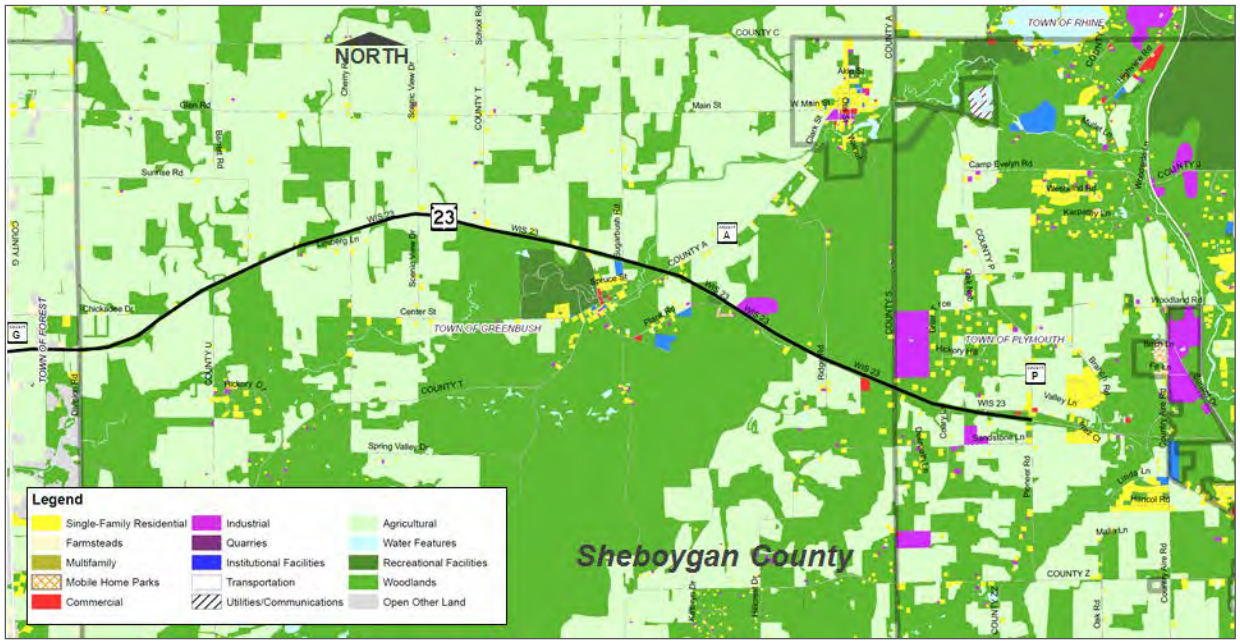
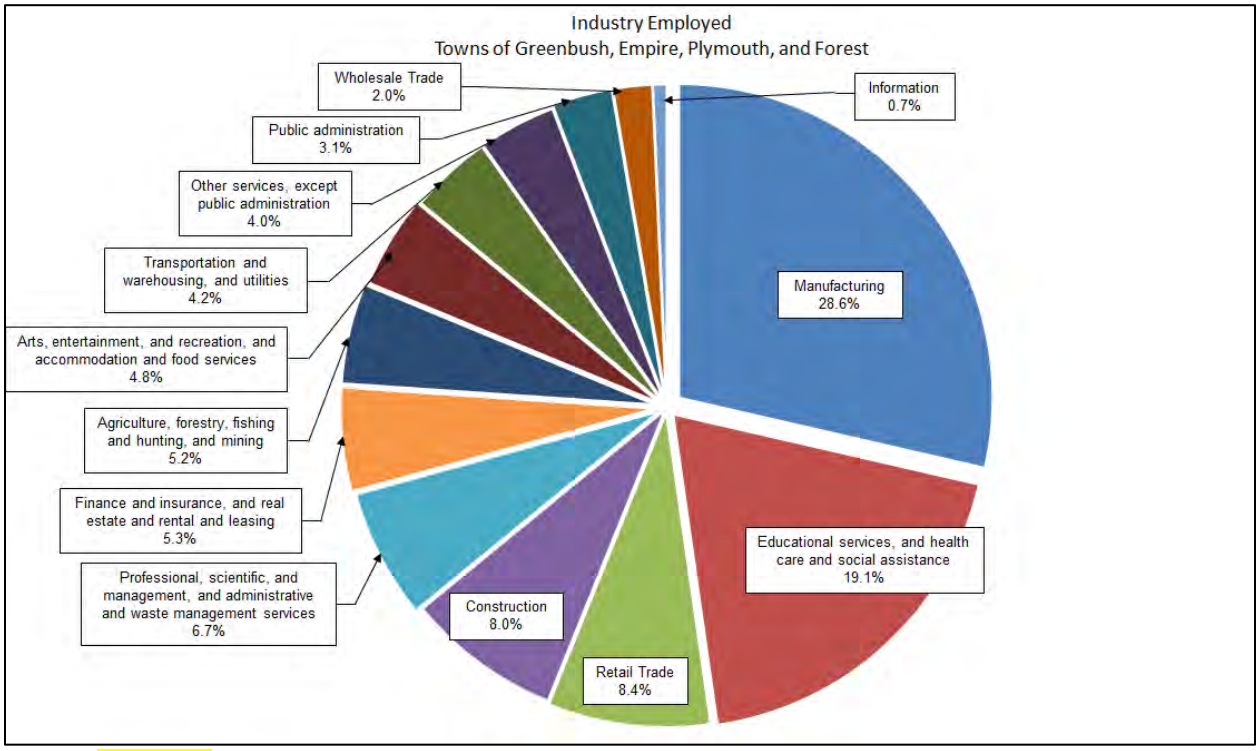


Figure 4.7 A-1.2 WIS 23 Existing Land Use–Sheboygan County

The following is a list of corridor businesses on WIS 23 prior to the 2014 LS SFEIS.

- Agriculture implement business
- Agriculture supply business
- Automotive repair business
- Automotive sales and service
- Automotive sales business
- Cash crop farm
- Concrete producer business
- Equestrian center
- Farm
- Gasoline station
- Golf course
- Gravel pit
- Gun Shop
- Livestock Sales Arena
- Machine shop and welding
- Medical and outpatient services
- Restaurant
- School
- Tavern
- Tractor sales and repair
- Trailer sales and service

According to the 2011-2015 American Community Survey United States Census Data, Table DP-03, Selected Economic Characteristics (County Subdivision), about 25 percent of the population in the towns of Fond du Lac, Greenbush, Empire, Plymouth, and Forest are employed in the manufacturing sector. The educational, health, and social services sector employs 21 percent of the population of the towns of Fond du Lac, Greenbush, Empire, Plymouth, and Forest. Figure 4.7 A-1.3 shows industry for the employed civilian population 16 years and older.



Source: 2012-2016 American Community Survey United States Census Data, Table DP-03, Selected Economic Characteristics (County Subdivision)

Figure 4.7 A-1.3 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:

No-Build Alternative

The No-Build Alternative has the following economic advantages:

- No additional businesses or farm operations will be relocated.
- Funds not spent on constructing a build alternative would be available for other projects or uses throughout the state, potentially benefiting that area's economy.
- No additional agricultural land will be purchased with this alternative, so the agricultural land base will not be decreased because of construction.

The No-Build Alternative would have the following economic disadvantages:

- Three businesses and 17 farm operations have been purchased and relocated. These purchases are not needed with the No-Build Alternative and the land associated with the relocations can be marketed as excess right of way.
- No cropland is needed, but 194 acres have already been purchased and can be sold as excess right of way.
- This alternative does not address highway safety. Therefore, economic and personal losses associated with injuries and property damage attributable to crashes are not addressed.
- Traffic operations are not improved with this alternative.
- This alternative does not improve travel speeds. The movement of freight and goods along the corridor would continue at slower and more unreliable speeds.

- Wider shoulders and additional lanes are not provided, so the effect of farm machinery on WIS 23 traffic, and WIS 23 traffic's effect on farm machinery, will not be improved.

Passing Lane Alternative

The Passing Lane Alternative has the following economic advantages:

- There is not a need to relocate additional businesses.
- The provision of safety features, such as dedicated left-turn lanes and right-turn bays at intersections, may provide a small decrease in economic and personal losses associated with injuries and property damage attributable to crashes.
- Slightly higher travel speeds (up to 1 mph) would modestly decrease transportation costs of the delivery of goods and services between economic centers.
- Wider shoulders would improve the interaction between WIS 23 traffic and farm equipment using the highway.

The Passing Lane Alternative would have the following economic disadvantages:

- Six farm operations would need to relocate; which have already been relocated.
- Three businesses and an additional 11 farm operations have already been relocated based on the decision in the 2014 LS SFEIS. These three businesses and these additional 11 farm operations did not need to be purchased for the Passing Lane Alternative and related property can be sold as excess right of way.
- The Passing Lane Alternative requires a total of 51 acres would be required from farm operations and converted to highway right of way, including 24 acres of crop land. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 194 acres of cropland/pasture and 440 acres of land from farm operations, which included 7 of the 24 cropland/pasture acres and 18 of the 51 total acres needed. If the Passing Lane Alternative was selected, 263 acres can be sold as excess right of way.
- This alternative does not provide some of the more effective safety features, such as interchanges, access modifications, and a divided roadway. Therefore, economic and personal losses associated with injuries and property damage attributable to crashes are not fully addressed.
- Funds used for the construction of the Passing Lane Alternative, once committed, are unavailable for other highway projects or uses throughout the state.

Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation would potentially limit the ability of businesses to expand or develop in the preserved area. In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. Resources within the corridor preservation areas are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. The statute also states that if notice is not given to WisDOT, compensation will not be made by WisDOT for structure improvements occurring within the corridor preservation area.

There are multiple benefits to corridor preservation, see Section 2.1. For example, corridor preservation provides information useful to local property owners and governments as they make property acquisition and development approval decisions. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Hybrid Alternative

The Hybrid Alternative has the following economic advantages:

- In Fond du Lac County:
  - Safety features, such as interchanges, access modifications, and roadway median, may decrease economic and personal losses associated with injuries and property damage attributable to crashes.
  - Higher and more reliable travel speeds may decrease transportation costs of the delivery of goods and services between economic centers.
  - Wider shoulders and multiple lanes will improve the interaction between WIS 23 traffic and farm equipment using the highway.
- In Sheboygan County:
  - The provision of safety features, such as dedicated left-turn lanes and right-turn bays at intersections, will provide a small decrease in economic and personal losses associated with injuries and property damage attributable to crashes.
  - Wider shoulders and passing lanes, where present, will improve the interaction between WIS 23 traffic and farm equipment using the highway.

The Hybrid Alternative would have the following economic disadvantages:

- Four businesses and 13 farm operations will need to be relocated. Three of these businesses and 12 of these farm operations have already been relocated based on the decision in the 2014 LS SFEIS.
- An additional four farm operations have already been relocated based on the decision in the 2014 LS SFEIS. These additional four farm operations did not need to be purchased for the Hybrid Alternative and related property can be sold as excess right of way.
- The Hybrid Alternative requires a total of 259 acres would be required from farm operations and converted to highway right of way, including 171 acres of crop land. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 194 acres of cropland/pasture and 440 acres of land from farm operations, which included 72 of the 171 cropland/pasture acres and 107 of the 259 total acres needed. If the Hybrid Alternative was selected, 174 acres can be sold as excess right of way.
- In Fond du Lac County:
  - 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.
  - Area farmers have noted it may be difficult to cross two lanes of traffic with farm trucks/equipment to make the left turn associated with RCUT intersection control.
- In Sheboygan County:
  - This alternative does not provide some of the more effective safety features, such as interchanges, access modifications, and a divided roadway. Therefore, economic and personal losses associated with injuries and property damage attributable to crashes are not fully addressed.
  - This alternative provides similar speeds compared to the No-Build Alternative in Sheboygan County (within about 1 mph for each direction of travel: eastbound is slightly worse, westbound is slightly better).
- Funds used for the construction of the Hybrid Alternative, once committed, are unavailable for other highway projects or uses throughout the state.

Corridor Preservation Associated with Hybrid Alternative

Corridor preservation associated with the Hybrid Alternative would have the same effects as corridor preservation for the other corridor preservation alternatives. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. See discussion above under Corridor Preservation Associated with Passing Lane Alternative.

4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane On-alignment Alternative has several economic advantages:

- Safety features, such as interchanges, access modifications, and a four-lane separated roadway may 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.
- Wider shoulders and multiple lanes will improve the interaction between WIS 23 traffic and farm equipment using the highway.

The 4-lane On-alignment Alternative would have the following economic disadvantages:

- Four businesses and 18 farm operations will need to be relocated. Three of these businesses and 17 of these farm operations have already been relocated based on the decision in the 2014 LS SFEIS.
- The 4-lane On-alignment Alternative requires a total of 329 acres would be required from farm operations and converted to highway right of way, including 218 acres of crop land. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 194 acres of cropland/pasture and 440 acres of land from farm operations, which included 120 of the 218 cropland/pasture acres and 180 of the 329 total acres needed. If the 4-lane On-alignment Alternative was selected, 101 acres can be sold as excess right of way.
- 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.
- Area farmers have noted it may be difficult to cross two lanes of traffic with farm equipment to make the left turn associated with RCUT intersection control.
- Funds used for the construction of the 4-lane On-alignment Alternative, once committed, are unavailable for other highway projects or uses throughout the state.

Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Corridor preservation associated with the 4-lane On-alignment Alternative would have the same effects as corridor preservation for the other corridor preservation alternatives. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. See discussion above under Corridor Preservation Associated with Passing Lane Alternative.

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 would the proposed action have on the potential for economic development in the project area?

☒ **The proposed project would have no effect on economic development.**

☐ **The proposed project would have an effect on economic development.**

Mobility, access, and safety issues may influence the potential for development and/or expansion of farm operations and factor into decisions farm operations make about remaining in the area or leaving it completely. This is described in further detail in the indirect effects and cumulative effects sections (Sections 4.4 and 4.5, respectively), the Agricultural Impacts Evaluation (Section 4.7 A-3), and the Community or Residential Impact Evaluation (Section 4.7 B-1).

The 4-lane On-alignment Alternative and Hybrid Alternative in Fond du Lac County would reconstruct WIS 23 to meet nearly all standards for Corridors 2030 Connector Routes and maintain the efficiency of moving goods and services between economic centers. An exception to standards would be required for each of the build alternatives because the proposed profile grade would not meet standards. The proposed interchange at County G would address the substandard horizontal sight distance along northbound County G for trucks turning left onto WIS 23. The Design Exceptions to Standards were approved (for the 4-lane On-alignment Alternative) because they are not anticipated to impact the safety or operations of the roadway and meeting the design standard would result in substation impacts to the environment and project costs. Justification of design exceptions is typical when building to full standards would result in only minor incremental benefits and the associated environmental impacts and costs would be substantial. Refer to Section 2 for more information on design exceptions.

The Passing Lane Alternative and Hybrid Alternative in Sheboygan County will also enhance efficiency of moving goods and services between economic centers, just to a lesser extent. 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, and to a lesser extent the Passing Lane Alternative and Hybrid Alternative in Sheboygan County, could adversely affect the local economy. Long-term impacts of the No-Build Alternative, the Passing Lane Alternative, and the Hybrid Alternative in Sheboygan County 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 2014 LS SFEIS.

4.7 A-2 BUSINESS EVALUATION Factor Sheet A-2

Note: Previously completed land acquisition or relocations occurred as part of the decision in the 2014 LS SFEIS, before the ROD was vacated.

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

☒ Yes - Appendix D contains a Conceptual Stage Relocation Plan updated in August 2018.
☐ No - (Explain) _____

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

A. 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.

The No-Build Alternative would not require additional business or farm relocations. WisDOT acquired three businesses and completed 17 farm relocations. The three businesses acquired are listed in Table 4.7 A-2.1.

Table 4.7 A-2.1 Businesses Previously Acquired

Type of Business Relocation*	Map Identifier (Figures 2.9-1 - 2.9-44)
Concrete products manufacturer	B14
Sign manufacturer	B21
Salvage yard	B46

*Businesses acquired as part of the decision in the 2014 LS SFEIS

B. Build Alternatives

The build alternatives would also require the relocation of 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. Each alternative would require relocation of one home as a result of an overhead utility line. Telephone and cable companies are also in the area and have both overhead and underground lines. A sanitary district has underground lines in a small portion of the western corridor. All utility relocations have occurred in Sheboygan County based on the decision in the 2014 LS SFEIS.

C. Passing Lane Alternative

The Passing Lane Alternative would require no additional business relocations or farm relocations. WisDOT has also already acquired all six of the farm relocations needed for the Passing Lane Alternative. Three businesses and an additional 11 farm operations have already been relocated based on the decision in the 2014 LS SFEIS. These three businesses and these additional 11 farm operations did not need to be purchased for the Passing Lane Alternative and related property can be sold as excess right of way.

D. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation would potentially limit the ability of businesses to expand or develop in the preserved area. In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and

right-of-way widths for future freeways or expressways. Resources within the corridor preservation areas are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. The statute also states that if notice is not given to WisDOT, compensation will not be made by WisDOT for structure improvements occurring within the corridor preservation area.

There are multiple benefits to corridor preservation, see Section 2.1. For example, corridor preservation will reduce impacts to the property owners in the long term. Without corridor preservation, these property owners may invest in improvements that may later need to be removed or relocated for transportation improvements. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

There are three businesses remaining in the corridor preservation area, three others have already been acquired based on the decision in the 2014 LS SFEIS. There are five farm operations remaining in the corridor preservation area, eleven others have already been acquired based on the decision in the 2014 LS SFEIS.

E. Hybrid Alternative

The Hybrid Alternative would require the relocating four businesses listed in Table 4.7 A-2.2 and 13 farm operations. WisDOT acquired three of the four needed businesses and 12 of the 13 needed farm operations based on the decision in the 2014 LS SFEIS. An additional four farm operations have already been relocated based on the decision in the 2014 LS SFEIS. These additional four farm operations did not need to be purchased for the Hybrid Alternative and related property can be sold as excess right of way.

F. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation associated with the Hybrid Alternative would have the same effects as corridor preservation for the other build alternatives. There are two businesses remaining in the corridor preservation area. There are four farm operations remaining in the corridor preservation area, five others have already been acquired based on the decision in the 2014 LS SFEIS. See discussion in question 2.D of this factor sheet.

G. 4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane On-alignment Alternative would require relocating the four businesses listed in Table 4.7 A-2.2 and 18 farm operations. WisDOT has already acquired and relocated three of the four businesses and 17 of the 18 farm operations.

Table 4.7 A-2.2 Hybrid and 4-lane On-alignment Alternatives: Business Relocations

Type of Business Relocation	Map Identifier (Figures 2.9-1 - 2.9-44)	Already Acquired based on the decision in the 2014 LS SFEIS?
Concrete products manufacturer	B14	Yes
Concrete products manufacturer (owner and tenant)	B15	No
Sign manufacturer	B21	Yes
Salvage yard	B46	Yes

H. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Corridor preservation associated with the 4-lane On-alignment Alternative would have the same effects as corridor preservation for the other build alternatives. There are two businesses remaining in the corridor preservation area. There are four farm operations remaining in the corridor preservation area. See discussion in question 2.D of this factor sheet.

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 motor vehicles with 22 to 26 percent of the daily traffic on the 2-lane section being trucks. Farm equipment also uses WIS 23 to access fields. Some transit service is available at the east and west ends of the corridor. Fond du Lac Area Transit extends from Fond du Lac to County K. JOBTRANS is a general public shared-ride taxi arrangement 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. In Sheboygan County, the County Elderly and Disabled Program is for customers living in the Sheboygan urban area and parts of rural Sheboygan County that are over the age of 60, or under the age of 60 with a qualifying disability. In Sheboygan County, there is also a Volunteer Driver Program that provides medical rides for individuals who are 60 years of age and over, and who have no other means of transportation. Most of the rides are provided within Sheboygan County, but rides to appointments out-of-county are also possible. Also, the Old Plank Road Trail, a multiuse trail, exists in the Sheboygan County portion of the corridor from County A east to Sheboygan. These alternate transportation modes represent a very small proportion of the east-west travel along WIS 23.

A. No-Build Alternative

Long-term impacts of the No-Build Alternative may include continued travel time costs for highway users including businesses because of slower travel speeds. Additionally, access onto and off the highway would remain difficult with increasing traffic volumes. It is not anticipated that this alternative would substantially alter modal choice.

B. Passing Lane Alternative

The addition of passing lanes would provide opportunity for motorists to pass slow-moving vehicles (example: farm equipment). While improving LOS, the addition of passing lanes will have a small effect on travel speed. This alternative could improve safety which could decrease economic and personal losses associated with injuries and property damage attributable to crashes. This alternative extends the Old Plank Road Trail 17 miles to connect with the Prairie Trail, improving accommodations for pedestrians and cyclists. It is not anticipated that this alternative would substantially alter modal choice.

C. Corridor Preservation Associated with Passing Lane Alternative

Improvements associated with corridor preservation would include expansion to four lanes and constructing interchanges and grade separations, and would not affect travel modes or modal choice. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

D. Hybrid Alternative

In Fond du Lac County the 4-lane expansion would decrease travel time and the intersection improvements could improve safety which could decrease economic and personal losses associated with injuries and property damage attributable to crashes. The Hybrid Alternative expands WIS 23 to 4-lanes in Fond du Lac County, which will decrease travel time and could decrease transportation costs of the delivery of goods and services between economic centers. In Sheboygan County, the addition of passing lanes would provide some additional opportunity for motorists to pass slow-moving vehicles such as farm equipment. The addition of passing lanes will have a small effect on travel speed. This alternative extends the Old Plank Road Trail 17 miles to connect with the Prairie Trail, improving accommodations for pedestrians and cyclists. It is not anticipated that this alternative would substantially alter modal choice.

E. Corridor Preservation Associated with Hybrid Alternative

Improvements associated with corridor preservation would include expanding the 2-lane segment to four lanes and constructing interchanges and grade separations, and would not affect travel modes or modal choice. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

F. 4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane On-alignment Alternative expands WIS 23 to 4-lanes, which will decrease travel time and could decrease transportation costs of the delivery of goods and services between economic centers. This alternative could improve safety which could decrease economic and personal losses associated with injuries and property damage attributable to crashes. This alternative would also allow for motorists to pass slow-moving vehicles such as farm equipment. This alternative extends the Old Plank Road Trail 17 miles to connect with the Prairie Trail, improving accommodations for pedestrians and cyclists. It is not anticipated that this alternative would substantially alter modal choice.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Improvements associated with corridor preservation would include constructing interchanges and grade separations, and would not affect travel modes or modal choice. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

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 build alternatives may change the conditions for a business that is dependent upon the transportation facility. Identify effects, including effects which may occur during construction.

A. No-Build Alternative

The No-Build Alternative would have continued travel speeds similar to existing conditions for WIS 23 motorists. Access from driveways and side roads, the ability to pass slow-moving vehicles, and access and travel for trucks and farm equipment will remain difficult as traffic volumes increase.

Some existing businesses have already been adversely affected. The No-Build Alternative would not require business or farm relocations, but WisDOT has already acquired three businesses and completed 17 farm relocations based on the decision in the 2014 LS SFEIS. The three businesses acquired are listed in Table 4.7 A-2.1.

B. Passing Lane Alternative

The addition of passing lanes would provide opportunity for motorists to pass slow-moving vehicles yet travel speeds will remain similar to existing conditions. The Passing Lane Alternative provides safety improvements at some intersections yet access to and from WIS 23 will remain difficult. Access out of driveways and side roads, and access and travel for trucks and farm equipment will remain difficult as traffic volumes increase.

Some existing businesses have already been adversely affected. The Passing Lane Alternative would require no business relocations and six farm relocations. WisDOT has already acquired the needed six farm relocations based on the decision in the 2014 LS SFEIS. Three businesses and an additional

11 farm operations have already been relocated based on the decision in the 2014 LS SFEIS. These three businesses and these additional 11 farm operations did not need to be purchased for the Passing Lane Alternative and related property can be sold as excess right of way.

C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation would potentially limit the ability of property owners to make property improvements in the preservation area. See discussion in question 2.D of this factor sheet for existing businesses in the preservation area.

D. Hybrid Alternative

The 4-lane expansion in Fond du Lac County with RCUT intersections and diamond interchanges at County UU and County G would increase travel speeds and could improve safety. Access into and out of highly used intersections would become easier. Access restrictions and modifications at intersections could increase indirection and travel for farmers that manage land on both sides of WIS 23.

In Sheboygan County, the addition of passing lanes would provide opportunity for motorists to pass slow-moving vehicles yet travel speeds will remain similar to existing conditions. In this section there would be safety improvements at intersections yet access to and from WIS 23 will remain difficult.

Some businesses would be adversely affected or already have been adversely affected. The Hybrid Alternative requires relocating four businesses and 13 farm operations. WisDOT has already acquired three of the four businesses (Table 4.7 A-2.2) and 12 of the 13 farms operations based on the decision in the 2014 LS SFEIS. An additional four farm operations have already been relocated based on the decision in the 2014 LS SFEIS. These additional four farm operations did not need to be purchased for the Hybrid Alternative and related property can be sold as excess right of way.

E. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation would potentially limit the ability of property owners to make property improvements in the preservation area. See discussion in question 2.F of this factor sheet for existing businesses in the preservation area.

F. 4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane expansion throughout the corridor with RCUT intersections and diamond interchanges at County UU and County G would increase travel speeds and could improve safety. Access into and out of highly used intersection would become easier. Access restrictions and modifications at intersections could increase indirection and travel for farmers that manage land on both sides of WIS 23.

Some economic development organizations in Fond du Lac have indicated that it is difficult to attract larger business and industry to WIS 23 because it is a 2-lane corridor; 4-lane expansion would address this issue. See further discussion in Section 4.4.

The 4-lane On-alignment Alternative requires the relocation of four businesses. Additionally, some businesses located on local roads would be subject to reduced access, such as right-in/right-out types of intersections, RCUT intersections, or other access treatments. These roads include businesses at County W north and Pit Road. Reduction in access may increase indirection for patrons of a service station at County W north. WisDOT has completed three of the four needed business relocations (Table 4.7 A-2.2) and 17 out of 18 needed farm operation relocations based on the decision in the 2014 LS SFEIS.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Corridor preservation would potentially limit the ability of property owners to make property improvements in the preservation area. See discussion in question 2.H of this factor sheet for existing businesses in the preservation area.

5. Describe both beneficial and adverse effects on:
The existing business area affected by the proposed action. Include any factors identified by business people that they feel are important or controversial.

A. 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 does not require business relocations. WisDOT acquired three businesses and 17 farm operation relocations based on the decision in the 2014 LS SFEIS.

B. Passing Lane Alternative

The addition of passing lanes would provide additional opportunity for motorists to pass slow-moving vehicles yet travel speeds will remain similar to existing conditions. The Passing Lane Alternative would provide safety improvements at intersections, but access to and across WIS 23 will remain difficult. The Passing Lane Alternative would not require any business relocations. The Passing Lane Alternative would require six farm operation relocations. WisDOT acquired three businesses relocations and 17 farm operations based on the decision in the 2014 LS SFEIS.

C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation would potentially limit the ability of businesses to expand or develop in the preserved area. See discussion in question 2.D of this factor sheet for existing businesses in the preservation area.

A proposed frontage road on the south side of WIS 23 east of County UU could affect a non-profit organization called Free S.P.I.R.I.T. The organization is committed to enriching the lives of children and adults with disabilities from Fond du Lac and the surrounding area through safe, therapeutic interaction with horses. This alternative could affect the organization's ability to maintain operations and expand. WisDOT is currently coordinating with the Free S.P.I.R.I.T. Riders' horse farm and will continue to coordinate with the group during final design and real estate negotiations to address their concerns.

D. Hybrid Alternative

The Hybrid Alternative would have an adverse effect on four businesses and 13 farm operations. relocated three businesses and 17 farm operations as part of the decision with the 2014 LS SFEIS. The four businesses required include:

- A salvage yard (already relocated based on the decision in the 2014 LS SFEIS).
- A concrete products manufacturer (already relocated based on the decision in the 2014 LS SFEIS).
- A sign manufacturer (already relocated based on the decision in the 2014 LS SFEIS).
- A concrete products manufacturer (owner and tenant).

Proposed access modifications could affect several businesses. The proposed RCUT intersection at the County W north intersection would create some indirection for access to a service station and a trailer repair shop.

A proposed frontage road on the south side of WIS 23 east of County UU could affect a non-profit organization called Free S.P.I.R.I.T. The organization is committed to enriching the lives of children and adults with disabilities from Fond du Lac and the surrounding area through safe, therapeutic interaction with horses. This alternative could affect the organization's ability to maintain operations and expand. WisDOT is currently coordinating with the Free S.P.I.R.I.T. Riders' horse farm and will continue to coordinate with the group during final design and real estate negotiations to address their concerns.

Beneficial effects include increased WIS 23 mobility, potentially improved safety, and safer access at interchanges and RCUT intersections.

E. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation would potentially limit the ability of businesses to expand or develop in the preserved area. See discussion in question 2.F of this factor sheet for existing businesses in the preservation area.

F. 4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane On-alignment Alternative would have an adverse effect on four businesses and 18 farm operations. WisDOT acquired three businesses relocations and 17 farm operations based on the decision in the 2014 LS SFEIS. The four businesses required include:

- A salvage yard (already relocated based on the decision in the 2014 LS SFEIS).
- A concrete products manufacturer (already relocated based on the decision in the 2014 LS SFEIS).
- A concrete products manufacturer (owner and tenant).
- A sign manufacturer (already relocated based on the decision in the 2014 LS SFEIS).

Proposed access modifications could affect several businesses. The proposed RCUT intersection at the County W north intersection would create some indirection for access to a service station and a trailer repair shop.

A proposed frontage road on the south side of WIS 23 east of County UU could affect a non-profit organization called Free S.P.I.R.I.T. The organization is committed to enriching the lives of children and adults with disabilities from Fond du Lac and the surrounding area through safe, therapeutic interaction with horses. This alternative could affect the organization's ability to maintain operations and expand. WisDOT is currently coordinating with the Free S.P.I.R.I.T. Riders' horse farm and will continue to coordinate with the group during final design and real estate negotiations to address their concerns.

Beneficial effects include increased WIS 23 mobility, potentially improved safety, and safer access at RCUT intersections and interchanges.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Corridor preservation would potentially limit the ability of businesses to expand or develop in the preserved area. See discussion in question 2.H of this factor sheet for existing businesses in the preservation area.

For additional business and other comments, see Section 7 for 2018 Public Hearing testimony.

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

A. No-Build Alternative

The No-Build Alternative does not address the continued difficult access to and from WIS 23 and places of employment. The No-Build Alternative does not require any business relocations, which could be considered a beneficial effect. WisDOT acquired three businesses relocations and 17 farm operations based on the decision in the 2014 LS SFEIS.

Disproportionately high and adverse effects to minority and low-income populations are not anticipated within the corridor. Difficult access onto WIS 23 may affect elderly populations that reside in the center of the corridor.

B. Passing Lane Alternative

The Passing Lane Alternative does not address the continued difficult access to and from WIS 23 and places of employment. The Passing Lane Alternative does not require any business relocations, which could be considered a beneficial effect. WisDOT has already acquired the needed six farm operation relocations based on the decision in the 2014 LS SFEIS. Three businesses and an additional 11 farm operations have already been relocated based on the decision in the 2014 LS SFEIS. These three businesses and these additional 11 farm operations did not need to be purchased for the Passing Lane Alternative and related property can be sold as excess right of way. Disproportionately high and adverse effects to minority and low-income populations are not anticipated within the corridor. Difficult access onto WIS 23 may affect elderly populations that reside in the center of the corridor.

C. Corridor Preservation Associated with Passing Lane Alternative

Employees from businesses within the corridor preservation areas are not impacted by the act of preservation. See discussion in question 2.D of this factor sheet for existing businesses in the preservation area.

D. Hybrid Alternative

The Hybrid Alternative eases access to and from WIS 23 west of County G. It does not address difficult access to and from WIS 23 east of County G. The Hybrid Alternative would require one additional business relocation which consists of a business owner and tenant. Employees from this establishment would be displaced with this alternative. WisDOT has already acquired the needed 13 farm relocations based on the decision in the 2014 LS SFEIS. An additional four farm operations have already been relocated based on the decision in the 2014 LS SFEIS. These additional four farm operations did not need to be purchased for the Hybrid Alternative and related property can be sold as excess right of way.

Disproportionately high and adverse effects to minority and low-income populations are not anticipated within the corridor. Difficult access onto WIS 23 may affect elderly populations that reside in the center of the corridor.

E. Corridor Preservation Associated with Hybrid Alternative

Employees from businesses within the corridor preservation areas are not impacted by the act of preservation. See discussion in question 2.F of this factor sheet for existing businesses in the preservation area.

F. 4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane On-alignment Alternative eases access to and from WIS 23. This alternative would require one additional business relocation which consists of a business owner and tenant. Employees from

this establishment would be displaced with this alternative. WisDOT has already acquired 17 of the needed farm relocations based on the decision in the 2014 LS SFEIS.
Disproportionately high and adverse effects to minority and low-income populations are not anticipated within the corridor.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Employees from businesses within the corridor preservation areas are not impacted by the act of preservation. See discussion in question 2.H of this factor sheet for existing businesses in the preservation area.

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

A high-quality transportation infrastructure can increase the competitiveness of a region for industry and business investment. 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 construction sector jobs for the 2- to 3-year construction period. It is difficult to predict business and industry investment after completion of the facility. See Table 4.7 A-2.3 for an estimate of possible jobs displaced for each alternative. Note that many of these jobs have already been displaced based on the decision in the 2014 LS SFEIS. Corridor preservation was not reviewed since job opportunities could be different if any planned improvements would occur. Subsequent environmental documentation will be completed at that time.

Table 4.7 A-2.3 Job Displacement for Build Alternatives

	Passing Lane Alternative	Hybrid Alternative	4-lane On-alignment Alternative
Retail businesses displaced	0	0	0
Retail jobs displaced	0	0	0
Service businesses displaced	0	0	0
Service jobs displaced (salvage yard)	0	0	0
Wholesale businesses displaced	0	1 (already acquired)	1 (already acquired)
Wholesale jobs displaced	0	4 (already displaced)	4 (already displaced)
Manufacturing businesses displaced	0	3 (2 already acquired)	3 (2 already acquired)
Manufacturing jobs displaced	0	12 (8 already displaced)	12 (8 already displaced)
Agricultural businesses displaced	6 (already acquired)	13 (12 already acquired)	18 (17 already acquired)
Agricultural jobs displaced	24 (already displaced)	52 (48 already displaced)	72 (68 already displaced)
Vacant businesses displaced	0	0	0
Total number of businesses displaced	6	17	22
Total number of jobs displaced	**24 (already displaced)**	**68 (60 already displaced)**	**88 (80 already displaced)**

Note: All businesses were estimated to have four jobs.
There is one manufacturing businesses (consisting of an owner and tenant) and one farm (consisting of a business and residence) that would still need to be relocated with the Hybrid Alternative or the 4-lane On-alignment Alternative.

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. Based on corridor demographics and early right-of-way acquisition activities, the displaced businesses did not have a high percentage of elderly, disabled, low-income or minority employees. It is anticipated that created businesses would also not 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)

☐ Newspaper listing(s)

☒ Multiple Listing Service (MLS)

☒ Other - Identify: Real estate negotiations that occurred after the 2014 Record of Decision.

10. Describe the business relocation potential in the community:

A. Availability of Business Buildings in the Community

The August 2018 CSRP (Appendix D) shows there are local commercial real estate listings in Fond du Lac and Sheboygan counties for potential displacements.
It is not anticipated to be difficult identifying rural or urban development sites that may involve a large portion of undeveloped land. There should be sufficient methods and land to relocate the concrete manufacturing site and the farm business.

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 available and comparable business buildings for the one business relocation (owner and tenant) and one farm relocation (farm business and farm residence) needed for the Hybrid Alternative and 4-lane On-alignment Alternative are described below. There are no additional businesses or farm relocations needed for the Passing Lane Alternative. WisDOT acquired three businesses relocations and 17 farm operations based on the decision in the 2014 LS SFEIS.

The concrete manufacturing plant has specialized equipment and large vacant or graveled land needs. There are approximately eleven suitable properties for sale and approximately six business tenant locations available for the concrete plant replacement location. There are approximately ten farm business listings of suitable size to accommodate the impacted farm business operation. Most listings are located on the west side of the corridor near the city of Fond du Lac or on the east side of the corridor in Sheboygan County near the city of Plymouth. There are a few listings in the rural portion of the corridor.

The tenant business relocation for the concrete plant may need to consider tenant arrangements or a parcel acquisition and rezoning to secure replacement sites in the rural portion of the corridor. Properties with similar-zoned or previously used quarry or stone/gravel producing properties were reviewed since the business relocation is a concrete manufacturing facility. There are twenty-five past producers/previous pit locations in the study area (sixteen in Fond du Lac County and nine in Sheboygan County). There are twenty-six active quarries and gravel pits in the study area (eighteen in Fond du Lac County and eight in Sheboygan County). Gravel pits have similar zoning or contain

special-use conditioned land suitable for leasing to a commercial/industrial aggregate or concrete production. These properties could be evaluated as replacement properties.

See Appendix D, Conceptual Stage Relocation Plan, for more information.

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 and have been 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 any of the build alternatives. Most business establishments would be able to use a standard commercial building. Businesses being relocated, depending on the alternative, that have special spatial needs and would require appropriate zoning include the following:

- A concrete products plant.
- A salvage yard (already relocated based on the decision in the 2014 LS SFEIS).

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 RCUT intersections, left-turn lanes, and/or interchanges.

The Agriculture Evaluation Factor Sheet summarizes impacts to farms and agricultural operations. It has been updated to reflect the property and relocations that have already occurred.

DATCP has been provided with the remaining agricultural impacts associated with alternatives being considered and determined that an Agricultural Impact Statement addenda is not needed.

4.7 A-3 AGRICULTURE EVALUATION Factor Sheet A-3

Note: Previously completed land acquisition or relocations occurred as part of the decision in the 2014 LS SFEIS, before the ROD was vacated.

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

Figures 4.7 A-1.1 and A.1-2 (in Section 4.7 A-1) show the adjacent land use of the alternatives under consideration. Tables 4.7 A-3.1 through 4.7 A-3.4 compare the agricultural acreage for each alternative.

	No-Build Alternative	Passing Lane Alternative	Hybrid Alternative	4-lane On-alignment Alternative
Required cropland and pasture (acres)	0	24	171	218
(amount of needed cropland already acquired)	*0*	*7*	*72*	*120*
*(excess cropland already acquired)**	*194*	*187*	*122*	*74*
Required woodland/upland (acres)	0	3	6	24
Required wetlands (acres)	0	5	18	24
Other required: miscellaneous lands (acres)	0	19	63	63
Total required from farm operations (acres)	0	51	259	329
(amount of this total already acquired)	*0*	*18*	*107*	*180*
*(excess right of way from farm operations acquired) **	*281*	*263*	*174*	*101*
(amount from farm operations for wetland mitigation)	*159*	*159*	*159*	*159*

Acreages are fee right-of-way acquisition. No permanent easement is required and temporary easement is not included.
*The Uniform Relocation Act requires that agencies offer to purchase landlocked parcels and uneconomic remnants which may not be directly needed for highway construction. Excess right-of-way acquired does not include the properties acquired for wetland mitigation.

Table 4.7 A-3.1 Type of Agricultural Land Acquired

	Corridor Preservation Associated with Passing Lane Alternative	Corridor Preservation Associated with Hybrid Alternative	Corridor Preservation Associated with 4-lane On-alignment Alternative
Cropland and pasture in preservation area (acres)	244	97	50
(amount of cropland in preservation already acquired)	*113*	*48*	*0*
*(excess cropland already acquired)**	*74*	*74*	*74*
Woodland/upland in preservation area (acres)	25	22	4
Wetlands in preservation area (acres)	20	7	1
Other miscellaneous lands in preservation area (acres)	54	10	10
Total Property from farm operations in preservation area (acres)	343	135	65
*(amount of this total already acquired)**	*162*	*70*	*0*
(excess land from farm operations acquired) *	*101*	*101*	*101*
(amount from farm operations for wetland mitigation)	*159*	*159*	*159*

*The Uniform Relocation Act requires that agencies offer to purchase landlocked parcels and uneconomic remnants which may not be directly needed for highway construction. Excess right-of-way acquired does not include the properties acquired for wetland mitigation.

Table 4.7 A-3.2 Farm Property within Corridor Preservation Area

2. Indicate number of farm operations from which land would be required:

Total Number of Farm Operations from Which:	No-Build Alternative	Passing Lane Alternative	Hybrid Alternative	4-lane On-alignment Alternative
Land would be required	0	48	66	92
1 acre or less would be required	0	37	25	29
More than 1 acre but less than 5 acres would be required	0	10	26	46
More than 5 acres would be required	0	1	15	17

Table 4.7 A-3.3 Number of Farm Operations

Total Number of Farm Operations from Which:	Corridor Preservation Associated with Passing Lane Alternative	Corridor Preservation Associated with Hybrid Alternative	Corridor Preservation Associated with 4-lane On-alignment Alternative
Land lies within corridor preservation area	95	55	22
1 acre or less lies within corridor preservation area	32	25	12
More than 1 acre but less than 5 acres lies within corridor preservation area	41	21	5
More than 5 acres lies within corridor preservation area	22	9	5

Table 4.7 A-3.4 Number of Farm Operations within Corridor Preservation Area

Utility relocations associated with the project may have a small effect on farm operations. It is anticipated the majority of these relocations will occur within or directly adjacent to the proposed right of way. Corridor preservation would potentially limit the ability of farm operations to expand or develop in the preserved area. In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. Resources within the corridor preservation areas are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. The statute also states that if notice is not given to WisDOT, compensation will not be made by WisDOT for structure improvements occurring within the corridor preservation area. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. Ninety-five, 55, and 22 farms have land that lie in preservation areas for the Passing Lane, Hybrid and 4-lane On-alignment Alternatives, respectively.

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. June 8, 2018. The site assessment is still valid. The areas impacted are about the same.

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.

DATCP completed an AIS (October 17, 2006). DATCP produced addenda to the AIS in 2010 that are available upon request. DATCP was provided with the remaining agricultural impacts associated with alternatives being considered in March 2018 and determined that an additional addendum would not be needed.

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

☒ 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 AIS 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:

A. No-Build Alternative

The No-Build Alternative would not typically result in the loss of farmland. But for this project, WisDOT has already acquired 440 acres of land from farm operations based on the decision in the 2014 LS SFEIS.

B. Passing Lane Alternative

The Passing Lane Alternative would require land from a total of 48 farm operations. Acreages would vary depending on the farm location and frontage on WIS 23. One acre or less would be required from 37 farms, 1 to 5 acres would be required from 10 farms, and one farm would need more than 5 acres. For this alternative, a total of 51 acres would be required from farm operations and converted to

highway right of way, including 24 acres of cropland/pasture. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 194 acres of cropland/pasture and 440 acres of land from farm operations, which included 7 of the 24 cropland/pasture acres and 18 of the 51 total farm operation acres needed. If the Passing Lane Alternative was selected, 263 acres can be sold as excess right of way.

C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation would potentially restrict property owner's ability to make improvements in corridor preservation areas, totaling about 343 acres of land. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 440 acres of land from farm operations, which included 162 of the 343 acres. Improvements associated with corridor preservation for the passing lane alternative would require an additional 181 acres of farm land.

Corridor preservation would potentially limit the ability of farm operations to expand or develop in the preserved area. In Wis. Stat. § 84.295(10), WisDOT is given the authority to establish locations and right-of-way widths for future freeways or expressways. Resources within the corridor preservation areas are not impacted by the act of preservation, except that property owners wishing to erect or alter a structure within that mapped right of way must give WisDOT a 60-day notice before beginning that construction. The statute also states that if notice is not given to WisDOT, compensation will not be made by WisDOT for structure improvements occurring within the corridor preservation area.

There are multiple benefits to corridor preservation, see Section 2.1. For example, corridor preservation will reduce impacts to the property owners in the long term. Without corridor preservation, these property owners may invest in improvements that may later need to be removed or relocated for transportation improvements. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

D. Hybrid Alternative

The Hybrid Alternative would require land from a total of 66 farm operations. Acreages would vary depending on the farm location and frontage on WIS 23. One acre or less would be required from 25 farms, 1 to 5 acres would be required from 26 farms, and 15 farms would need more than 5 acres. For this alternative, a total of 259 acres would be required from farm operations and converted to highway right of way, including 171 acres of cropland/pasture. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 194 acres of cropland/pasture and 440 acres of land from farm operations, which included 72 of the 171 cropland/pasture acres and 107 of the 259 total farm operation acres needed. If the Hybrid Alternative was selected, 174 acres can be sold as excess right of way.

E. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation would potentially restrict property owner's ability to make improvements in corridor preservation areas, totaling about 135 acres of land. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 440 acres of land from farm operations, which included 70 of the 135 acres. Improvements associated with corridor preservation for the hybrid alternative require an additional 65 acres of farm land. See discussion in question 7.C of this factor sheet for corridor preservation.

F. 4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane On-alignment Alternative would require land from a total of 92 farm operations. Acreages would vary depending on the farm location and frontage on WIS 23. One acre or less would be required from 29 farms, 1 to 5 acres would be required from 46 farms, and 17 farms would need more than 5 acres. For this alternative, a total of 329 acres would be required from farm operations and converted to highway right of way, including 218 acres of crop land. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 194 acres of cropland/pasture and 440 acres of land from farm operations, which

included 120 of the 218 cropland/pasture acres and 180 of the 329 total farm operation acres needed. If the 4-lane On-alignment Alternative was selected, 101 acres can be sold as excess right of way.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Corridor preservation would potentially restrict property owner's ability to make improvements in corridor preservation areas, totaling about 65 acres of land. Based on the decision in the 2014 LS SFEIS, WisDOT acquired 440 acres of land from farm operations, which included none of the 65 acres. Improvements associated with corridor preservation for the 4-lane On-alignment alternative would require an additional 65 acres of farm land. See discussion in question 7.C of this factor sheet for corridor preservation.

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

A. No-Build Alternative

The No-Build Alternative would not directly change farm access.

B. Passing Lane Alternative

As a result of the Passing Lane Alternative, some relocation of driveways and field entrances could occur and some farm operations would have field access points and driveways modified to right-in/right-out (RI/RO) movements only. The intersection access listing is contained in Table 2.6-1.

C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation does not affect any access to farm operations. Improvements associated with corridor preservation will include expansion to a 4-lane divided highway, which would affect farm operations by modifying most field access and driveways to RI/RO. Numerous side road intersections throughout the corridor would have their access modified to cul-de-sacs, RI/RO, RCUT, overpasses, or interchanges, which affects field access to farmers who farm on both sides of the road. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

D. Hybrid Alternative

With the Hybrid Alternative, in the area of 4-lane expansion in Fond du Lac County, most farm operations would have field access points and driveways modified to RI/RO only. Median breaks would be intermittently spaced to allow U-turns for access to properties and access to both directions of travel. Special median break siting consideration will be given in areas where farmers own land on both sides of the roadway. Side road access would be modified, with numerous intersections in Fond du Lac County having RI/RO access restrictions, cul-de-sacs, or RCUT intersections installed. The intersection access listing is contained in Table 2.6-1.

Discussions with farmers on the corridor indicated that maneuvering through a RCUT intersection may be difficult with farm equipment. Under existing conditions, slow moving agricultural equipment travels on the shoulder, and then takes a full lane before turning left or right onto a side road. With the 4-lane expansion in Fond du Lac County, this farm equipment must take a lane, then move to the left lane, then move to the left-turn lane before making a U-turn. See Figure 2.4-4 for an illustration of the RCUT concept.

Through the passing lane section in Sheboygan County, some relocation of driveways and field entrances could occur and some farm operations would have field access points and driveways modified to RI/RO only.

E. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation does not affect any access to farm operations. Improvements associated with corridor preservation will include expanding the 2-lane segment in Sheboygan County to a 4-lane divided highway, which would affect farm operations by modifying most field access and driveways to RI/RO. Numerous side road intersections throughout the corridor would have their access modified to cul-de-sacs, RI/RO, RCUT, overpasses, or interchanges which affects field access to farmers who farm on both sides of the road. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

F. 4-lane On-alignment Alternative (Preferred Alternative)

WisDOT would work with owners of farm operations to combine and eliminate access points along WIS 23. For the 4-lane On-alignment Alternative, most farm operations would have field access points and driveways modified to RI/RO only. Median breaks would be intermittently spaced to allow U-turns for access to properties and access to both directions of travel. Special median break siting consideration will be given in areas where farmers own land on both sides of the roadway.

The 4-lane On-alignment Alternative would also modify side road access to WIS 23, which affects field access to farmers who manage lands on both sides of the highway. Numerous side road intersections would have their access modified to cul-de-sacs, RI/RO, RCUT, overpasses, or interchanges. The intersection access listing is contained in Table 2.6-1.

As mentioned, some corridor farmers have expressed reservations regarding RCUT intersections and farm equipment. See the discussion under the Hybrid Alternative above.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Corridor preservation does not affect any access to farm operations. Improvements associated with corridor preservation include constructing interchanges and overpasses at side roads. This would affect farmers who farm on both sides of the road. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

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.” Table 4.7 A-3.5 provides estimates of farm severances. Corridor preservation will not directly sever properties.

	No-Build Alternative	Passing Lane Alternative	Hybrid Alternative	4-lane On-alignment Alternative
Total Number of Farm Operations to be severed:	0	1	5	5

Table 4.7 A-3.5 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 2010 AIS identifies parcels where one or more buildings are likely to be acquired. Many of these have already been acquired based on the decision in the 2014 LS SFEIS.

A. No-Build Alternative

The No-Build Alternative would not typically result in the relocation of farm operations. But for this project, WisDOT has already acquired and relocated 17 farms and razed the buildings at 16 of those farms based on the decision in the 2014 LS SFEIS.

B. Passing Lane Alternative

The Passing Lane Alternative would affect farm buildings at six farm operations. WisDOT has already acquired and relocated 17 farms and razed the buildings at 16 of those farms based on the decision in the 2014 LS SFEIS, including all 6 of the farms affected by the Passing Lane Alternative.

C. Corridor Preservation Associated with Passing Lane Alternative

There were 16 farm operations in the preservation area associated with the Passing Lane Alternative. WisDOT has already relocated 11 of those farms based on the decision in the 2014 LS SFEIS. Therefore, corridor preservation improvements associated with the Passing Lane Alternative would affect the remaining five farm operations if implemented. Owners of the five farm operations wishing to make improvements in preserved areas would be required to give WisDOT a 60-day notice before beginning that construction. See discussion in question 7.C of this factor sheet for more information.

D. Hybrid Alternative

The Hybrid Alternative would affect farm buildings at 13 farm operations. WisDOT has already acquired and relocated 17 farms and razed the buildings at 16 of those farms based on the decision in the 2014 LS SFEIS, including the 12 of the 13 farms affected by the Hybrid Alternative. One additional farm relocation is required with this alternative.

E. Corridor Preservation Associated with Hybrid Alternative

There were nine farm operations in the preservation area associated with the Hybrid Alternative. WisDOT has already relocated five of those farms based on the decision in the 2014 LS SFEIS and. Therefore, corridor preservation improvements associated with the Hybrid Alternative would affect the remaining four farm operations if implemented. Owners of the four farm operations wishing to make improvements in preserved areas would be required to give WisDOT a 60-day notice before beginning that construction. See discussion in question 7.C of this factor sheet for more information.

F. 4-lane On-alignment Alternative (Preferred Alternative)

This alternative would affect farm buildings at 18 farm operations. WisDOT has already acquired and relocated 17 of the farms and razed the buildings at 16 farms based on the decision in the 2014 LS SFEIS. One additional farm relocation is required with this alternative.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

There were four farm operations in the preservation area associated with the 4-lane On-alignment Alternative. WisDOT has not relocated any of those farms based on the decision in the 2014 LS SFEIS. Therefore, corridor preservation improvements associated with the 4-lane On-alignment Alternative would affect four farm operations if implemented. Owners of the four farm operations wishing to make

improvements in preserved areas would be required to give WisDOT a 60-day notice before beginning that construction. See discussion in question 7.C of this factor sheet for more information.

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.
A cattle pass exists on the corridor east of Pit Road; however, the cattle pass is no longer being used and would be removed with any of the build alternatives.
☐ 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. 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. Indirect development pressures, likely focused near interchanges and connection roads, could affect farm operations and influence continued farm operation of lands. Farmland conversion will need to follow local government land use plans. The 4-lane On-alignment Alternative and the Hybrid Alternative may slightly increase the pace of development in the study area. Taken together, the effect of the WIS 23 project and other actions would be the incremental loss of agricultural land in the study area, particularly surrounding the cities of Fond du Lac and Plymouth.

The indirect and cumulative effects analysis, contained in Sections 4.4, 4.5, and Appendix E, describes potential indirect effects to land use changes resulting from the build alternatives.

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

A. No-Build Alternative

The No-Build Alternative would have adverse effects on agriculture along WIS 23. Crossing WIS 23, entering and exiting traffic, and aggressive passing by motorists is making travel on WIS 23 difficult for farm equipment. The high traffic volumes and travel speeds on WIS 23 combined with the passing of farm equipment on the highway would continue to pose a hazard to the farm equipment and motorists. Without improvements, travel on WIS 23 will continue to be difficult for farm equipment and trucks transporting goods and supporting agricultural operations. This difficulty could influence individual farm decisions about investing in existing operations, renting and owning fields, or expanding operations.

B. Passing Lane Alternative

Where the Passing Lane Alternative adds passing lanes or improves intersections, transportation of farm equipment along or across WIS 23 would become less difficult. Where left-turn lanes are added, farm machinery would be able to cross one lane of traffic from one direction and wait in the intersection 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. The wider shoulders included in this alternative would better accommodate farm machinery outside the paved travel lanes.

C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation would potentially restrict property owner's ability to make improvements. There would not be immediate project effects. The future access modifications that are associated with the corridor preservation may influence individual farm decisions about investing in existing operations, renting and owning fields, or expanding operations. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, a subsequent environmental documentation would be prepared to evaluate a range of alternatives, impacts, and costs.

D. Hybrid Alternative

Through the 4-lane expansion section in Fond du Lac County, the existing highway would be easier to navigate with farm equipment, improving transportation of farm equipment along or across WIS 23. Medians would be wide enough to accommodate some types of farm equipment. Farm machinery would 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. The wider shoulders included in this alternative would better accommodate farm machinery outside the paved travel lanes.

Access to many farm operations would be RI/RO only, with cross access provided at median breaks. This would cause some indirection associated with field access points.

Farm operators have expressed concerns over severed fields. Some have also stated maneuvering through RCUT intersections may be difficult with farm equipment. Under existing conditions, slow moving agricultural equipment travels on the shoulder, and then takes a full lane before turning left or right onto a side road. With a RCUT intersection, this equipment must take a lane, then move to the left lane, then move to the left-turn lane before making a U-turn. RCUT intersections are proposed within the 4-lane expansion section at four locations (Tower Road North, 7 Hills Road, County W North, and County W South).

Through the passing lane section in Sheboygan County, transportation of farm equipment along or across WIS 23 would become less difficult where the passing lanes or improved intersections are added. Where left turn lanes are added, farm machinery would be able to cross one lane of traffic from one direction and wait in the intersection for a gap in traffic from the other direction. Wider shoulders can better accommodate farm machinery outside the paved travel lanes.
The ease of travel on WIS 23, combined with access modifications, could influence individual farm decisions about investing in existing operations, renting and owning fields, and expanding operations.

E. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation would potentially restrict property owner's ability to make improvements. There would not be immediate project effects. The future access modifications that are associated with the corridor preservation may influence individual farm decisions about investing in existing operations, renting and owning fields, or expanding operations. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, a subsequent environmental documentation would be prepared to evaluate a range of alternatives, impacts, and costs.

F. 4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane On-alignment Alternative would make travel on WIS 23 easier for farm equipment. Medians would be wide enough to accommodate some types of farm equipment. Farm machinery would 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. The wider shoulders included in this alternative would better accommodate farm machinery outside the paved travel lanes.

Access to many farm operations would be RI/RO only, with cross access provided at median breaks. This would cause some indirection associated with field access points.

Farm operators have expressed concerns over severed fields. Some have also stated maneuvering through RCUT intersections may be difficult with farm equipment. Under existing conditions, slow moving agricultural equipment travels on the shoulder, and then takes a full lane before turning left or right onto a side road. With a RCUT intersection, this equipment must take a lane, then move to the left lane, then move to the left-turn lane before making a U-turn. RCUT intersections are proposed within the 4-lane expansion section at nine locations (Tower Road North, 7 Hills Road, County W North, County W South, County U, County T, Sugarbush Road, County A, and County S).

The ease of travel on WIS 23, combined with access modifications, could influence individual farm decisions about investing in existing operations, renting and owning fields, and expanding operations.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Corridor preservation would potentially restrict property owner's ability to make improvements. There would not be immediate project effects. The future access modifications that are associated with the corridor preservation may influence individual farm decisions about investing in existing operations, renting and owning fields, or expanding operations. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, a subsequent environmental documentation would be prepared to evaluate a range of alternatives, impacts, and costs.

For additional comments by farmers and others, see Section 7 for Public Hearing testimony.

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 and silage for dairy operations. These crops are harvested using farm machinery and do not use migrant labor.

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 addendum. Commitments regarding these recommendations can be found in Section 6.14.

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 2014 LS SFEIS.

4.7 B-1 COMMUNITY OR RESIDENTIAL EVALUATION Factor Sheet B-1

Note: Previously completed land acquisition or relocations occurred as part of the decision in the 2014 LS SFEIS, before the ROD was vacated.

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

Figure 4.7 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 4.7 B-1.1.

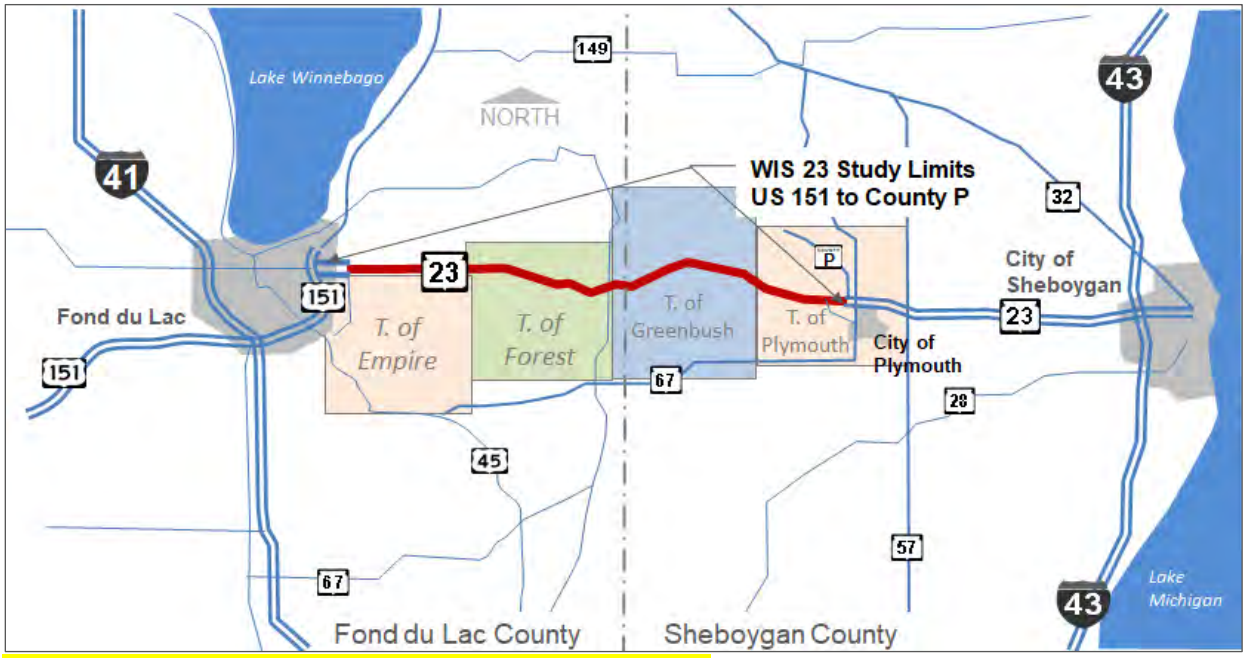


Figure 4.7 B-1.1 WIS 23 Local Government Jurisdictions

Table 4.7 B-1.1 Demographic Characteristics

City of Fond du Lac Population 43,021

Demographic Characteristics

Census	% of Population
Owner-occupied housing	58.2
Median Age (years)	36.9 years
Public Transportation Commuters	0.5
Automobile Commuters (Alone)	81.4
Non-white population	9.4
Persons below poverty level (percent)	12.4

Town of Empire Population 2,797

Demographic Characteristics

Census	% of Population
Owner-occupied housing	98.3
Median Age (years)	46.7 years
Public Transportation Commuters	0.0
Automobile Commuters (Alone)	86.8
Non-white population	2.2
Persons below poverty level (percent)	2.0

Town of Forest Population 1,080

Demographic Characteristics

Census	% of Population
Owner-occupied housing	88.7
Median Age (years)	43.4 years
Public Transportation Commuters	0.0
Automobile Commuters (Alone)	73.9
Non-white population	1.6
Persons below poverty level (percent)	4.3

Town of Greenbush Population 2,565

Demographic Characteristics

Census	% of Population
Owner-occupied housing	90.5
Median Age (years)	37.1 years
Public Transportation Commuters	0.5
Automobile Commuters (Alone)	82.8
Non-white population	23.5
Persons below poverty level (percent)	2.5

Town of Plymouth Population 3,195

Demographic Characteristics

Census	% of Population
Owner-occupied housing	94.8
Median Age (years)	47.7 years
Public Transportation Commuters	0.0
Automobile Commuters (Alone)	83.8
Non-white population	1.6
Persons below poverty level (percent)	6.3

City of Plymouth	Population 8,445

Demographic Characteristics

Census	% of Population
Owner-occupied housing	58.1
Median Age (years)	43.2 years
Public Transportation Commuters	0.0
Automobile Commuters (Alone)	86.3
Non-white population	3.8
Persons below poverty level (percent)	8.5

Sources: 2010 Census Summary File 1, DP-1, Profile of General Population and Housing Characteristics: 2010; 2012-2016 American Community Survey 5-Year Estimates, DP05, ACS Demographic and Housing Estimates; 2012-2016 American Community Survey 5-Year Estimates, B25008, Total Population in Occupied Housing Units by Tenure, 2012-2016 American Community Survey 5-Year Estimates, DP03, Selected Economic Characteristics

A. No-Build Alternative

The community and neighborhoods along WIS 23 would not be affected by the No-Build Alternative.

B. Passing Lane Alternative

With the Passing Lane Alternative, two residential groupings would be affected by access changes to WIS 23. The Mary Hill Park Drive development, consisting of about 20 single-family residences, would have its WIS 23 access routed through the County K jughandle intersection with some indirection. In the Whispering Springs Drive development, about three single-family residences and nine multifamily residences would have a new, RI/RO entrance west of their current WIS 23 entrance. WisDOT held multiple meetings with residents and representative officials. The town of Empire passed a resolution (2007-2-1) in support of the proposed design for the Whispering Springs Drive development access roads. These access changes can be seen in Figure 4.7 B-1.2.

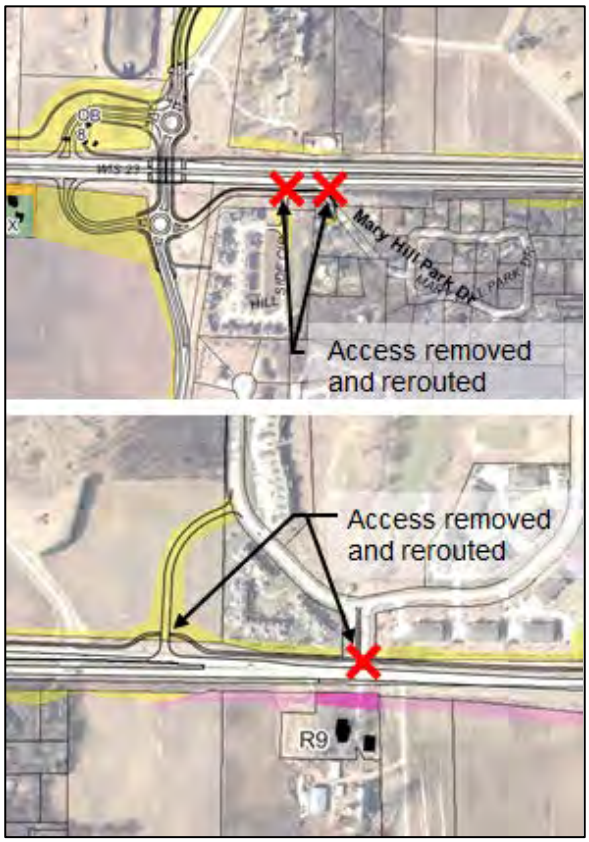


Figure 4.7 B-1.2 Access Changes, Passing Lane Alternative

Roundabouts are shown at the County K jughandle intersection due to their larger footprint, representing the greatest impacts. Determination of intersection type will be done during final design.

C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation associated with the Passing Lane Alternative would preserve land for a future 4-lane highway expansion along the entire project corridor, including preservation for potential future interchanges, grade separated crossings, and cul-de-sacs. The preservation could directly affect neighborhoods or communities by discouraging development and improvements within the land being preserved for future highway improvements. If planned projects associated with the corridor preservation are implemented, residential groupings along the corridor would be affected by access modifications. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

D. Hybrid Alternative

The Hybrid Alternative would have access changes to WIS 23 that affect residential groupings along the corridor. The Mary Hill Park Drive development, consisting of about 20 single-family residences, would have its WIS 23 access routed through the County K jughandle intersection with some indirection. In the Whispering Springs Drive development, about three single-family residences and nine multifamily residences would have a new, RI/RO entrance west of the current WIS 23 entrance. Hilltop Drive, about 37 single-family residences, would have access removed from WIS 23 and a local road constructed for access to Whispering Springs Drive. WisDOT held multiple meetings with residents and representative officials. The town of Empire passed a resolution (2007-2-1) in support of the proposed design for the Whispering Springs Drive development access roads. These access changes can be seen in Figure 4.7 B-1.3. Access changes also occur at the County UU interchange, Banner Road, Log Tavern Road, Hickory Road, and County G interchange.

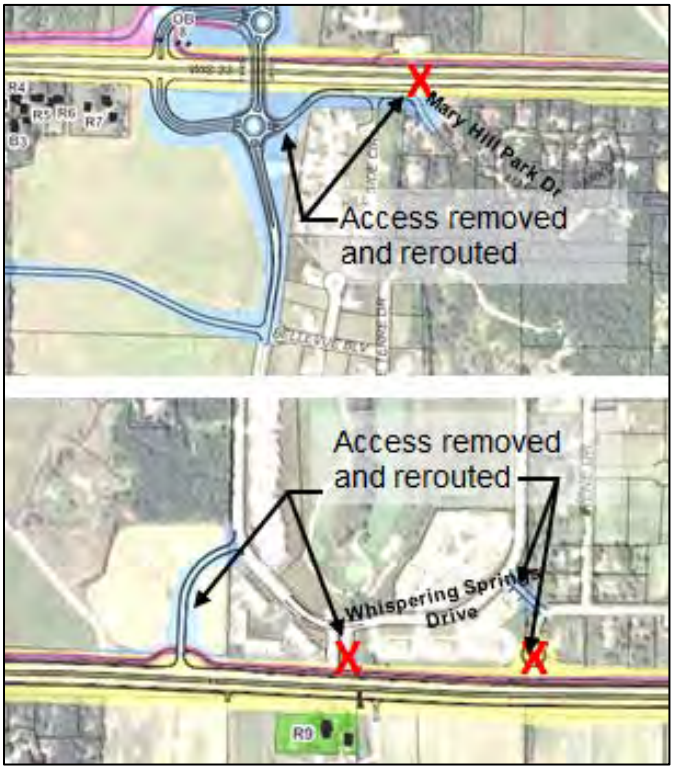


Figure 4.7 B-1.3 Access Changes, Hybrid Alternative

Roundabouts are shown at the County K jughandle intersection due to their larger footprint, representing the greatest impacts. Determination of intersection type will be done during final design.

E. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation associated with the Hybrid Alternative would include preservation of land for the possible future 4-lane highway expansion in Sheboygan County, from County G to County P. The corridor preservation would also include preserving land for possible future interchanges, grade separated crossings, and cul-de-sacs through the entire corridor. The preservation could directly affect neighborhoods or communities by discouraging development and improvements within the land being preserved for future highway improvements. If planned projects associated with corridor preservation are implemented, residential groupings along the corridor would be affected by access modifications. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

F. 4-lane On-alignment Alternative (Preferred Alternative)

With the 4-lane On-alignment Alternative, residential groupings along the corridor would be affected by access changes to WIS 23. The Mary Hill Park Drive development consisting of about 20 single-family residences would have its WIS 23 access routed through the County K jughandle intersection with some indirection. In the Whispering Springs Drive development, about three single-family residences and nine multifamily residences would have a new, RI/RO entrance west of the current WIS 23 entrance. Hilltop Drive would have access removed from WIS 23 and a local road constructed for access to Whispering Springs Drive. WisDOT held multiple meetings with residents and representative officials. The town of Empire passed a resolution (2007-2-1) in support of the proposed design for the Whispering Springs Drive development access roads. Access to WIS 23 from Branch Road would be removed and residents on Branch Road would be rerouted to Inez Court for access to WIS 23. These access changes can be seen in Figure 4.7 B-1.4. Access changes also occur at the County UU interchange, Banner Road, Log Tavern Road, Hickory Road, County G interchange, Division Road, Julie Lane, Ridge Road, and Twinkle Lane.

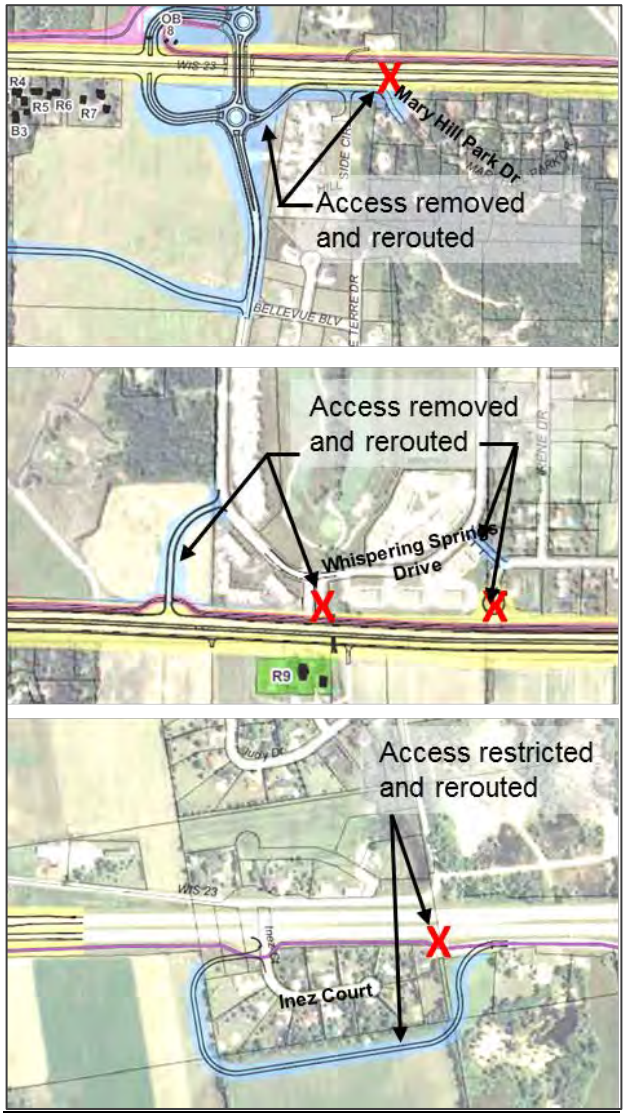


Figure 4.7 B-1.4 Access Changes, 4-lane On-alignment Alternative

Roundabouts are shown at the County K jughandle intersection due to their larger footprint, representing the greatest impacts. Determination of intersection type will be done during final design.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Corridor preservation associated with the 4-lane On-alignment Alternative would include preservation of right of way needed for additional transportation improvements, which are described further in Section 2.5. If proposed improvements associated with the corridor preservation are implemented, two subdivisions along the corridor would require access modifications. Also, the residents located on County W south could be directed on a new roadway to the proposed interchange at County W north. The subdivision residents south of County A, including all residents on Plank Road, could be routed to County A for access to WIS 23. Plank Road could have its access removed from both WIS 23 connections, and Sugarbush Road could become a grade separation. This corridor preservation could affect the manufactured home community located on Plank Circle. The manufactured home community, consisting of 18 residences, currently has direct access to WIS 23 via Plank Road. If proposed improvements associated with corridor preservation are constructed, the manufactured home community's accesses to WIS 23 would be rerouted to County A. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent

environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Figure 4.7 B-1.5 illustrates possible access changes around County A included in the corridor preservation associated with the 4-lane On-alignment Alternative.

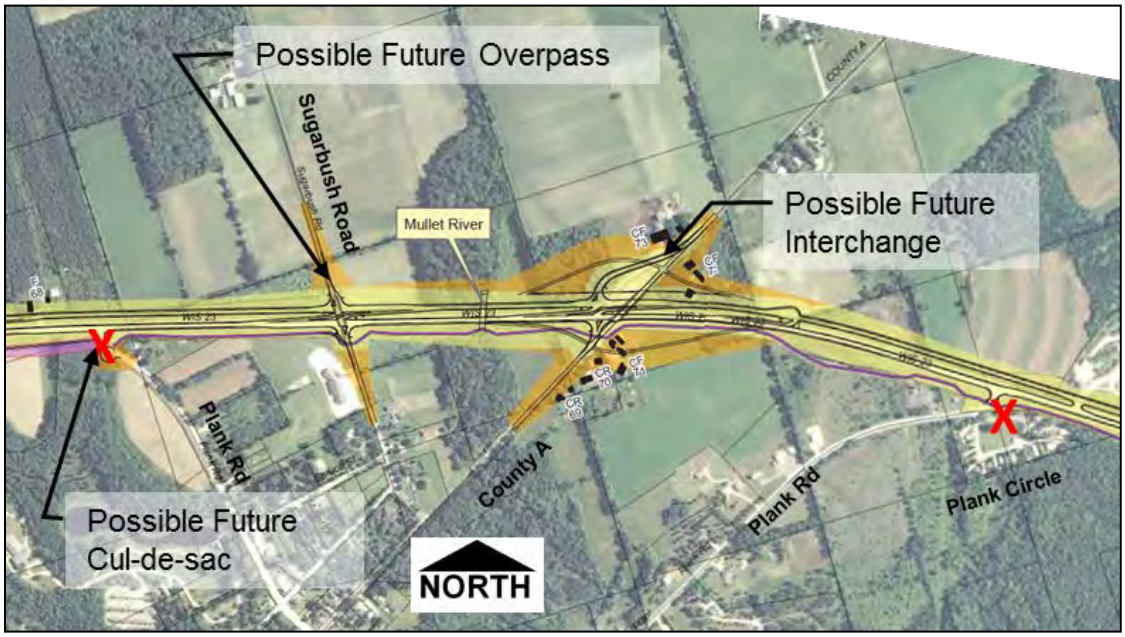


Figure 4.7 B-1.5 Corridor Preservation, Possible Access Changes–County A

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 a motor vehicle, with about 22 to 26 percent of the daily traffic being trucks in the 2-lane section of WIS 23. Farm equipment also uses WIS 23 to access farms and farm fields.

The Old Plank Road Trail currently runs from the city of Sheboygan west approximately 17 miles to the town of Greenbush. The Old Plank Road Trail was one of the first trails in the nation to share right of way with a 4-lane divided highway with the first sections of the trail built in the late 1970's and more recent sections added in the early 2000's. The trail is shared by a variety of users including cyclists, walkers, joggers, mopeds, equestrians and snowmobilers.

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 Academy from areas west 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, also offers a transportation alternative for those citizens who are unable to use regular transit service. The paratransit service is called HANDI-VAN. 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. The service is 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.

In Sheboygan County, the County Elderly and Disabled Program is for customers living in the Sheboygan urban area and parts of rural Sheboygan County that are over the age of 60 or are under the age of 60

with a qualifying disability. Both services are provided by Metro Connection, a division of Shoreline Metro. Metro Connection provides door-to-door will-call service to those who are using the county's program. In Sheboygan County, the Volunteer Driver Program provides medical rides for individuals who are 60 years of age and over, and who have no other means of transportation. Most of the rides are provided within Sheboygan County, but rides to appointments out-of-county are also possible.

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:

A. No-Build Alternative

The No-Build Alternative would not change the existing modes or function of transportation. Not providing passing opportunities could lead to increased driver frustration and unsafe driving as motorists attempt to pass slower moving traffic. Not extending Old Plank Trail would limit the ability of cyclists and pedestrian to travel between the eastern trail limit at Plank Road and the city of Fond du Lac. Not addressing the operational needs of the corridor would result in increased difficulty crossing and entering the highway. Providing no corridor preservation would not affect transportation modes, but could limit future transportation options. Without corridor preservation, if transportation improvements are needed in the future, the implementation of grade separations, connection roads, and interchanges would be more difficult and some connections may not be feasible.

B. Passing Lane Alternative

The addition of passing lanes would not substantially affect mode share of transportation or their function within the community. The Passing Lane Alternative includes the extension of the Old Plank Road Trail, creating better access and accommodations for non-motorized travel. The IAT/State Equestrian trail crossing of WIS 23 would be grade separated, which would ease access across WIS 23 for trail users.

C. Corridor Preservation Associated with Passing Lane Alternative

Proposed improvements associated with corridor preservation would not substantially change travel modes or their function within the community. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

D. Hybrid Alternative

The Hybrid Alternative would provide a 4-lane divided highway from US 151 to County G and a 2-lane roadway with passing lanes from County G to County P. The addition of passing lanes would not substantially affect existing modes of transportation or their function within the community. The 4-lane expansion would include a jughandle intersection at County K and interchanges at County UU and County G. The expansion to 4-lanes is anticipated to slightly increase the number of motor vehicles using the corridor. The Hybrid Alternative includes extension of the Old Plank Road Trail, creating better access and accommodations for non-motorized travel modes. The IAT/State Equestrian trail crossing of WIS 23 would be grade separated, which would ease access across WIS 23 for trail users.

E. Corridor Preservation Associated with Hybrid Alternative

Proposed improvements associated with corridor preservation would not substantially change travel modes or their function within the community. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

F. 4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane On-alignment Alternative would provide a 4-lane divided highway on the existing alignment for the full length of the project. It includes a proposed roundabout at Wisconsin American Drive, a jughandle intersection at County K, and diamond interchanges at County UU and County G.

Expansion to 4-lanes is anticipated to increase the number of motor vehicles using the corridor. This alternative also includes extension of the Old Plank Road Trail, creating better access and accommodations for non-motorized travel modes. The IAT/State Equestrian trail crossing of WIS 23 would also be grade separated, which would ease access across WIS 23 for trail users.

G. Corridor Preservation Associated with 4-lane On-Alignment Alternative (Part of the Preferred Alternative)

Proposed improvements associated with corridor preservation would not substantially change travel modes or their function within the community. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

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

Transportation improvements can facilitate direct, indirect, and cumulative effects. A more thorough discussion of indirect effects is contained in Section 4.4, and of cumulative effects in Section 4.5.

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

During construction, access to all properties for emergency and other public services providers will be maintained. Construction-related delays and slower construction zone travel speeds would be expected. Post-construction changes for the alternatives are described in the following paragraphs:

A. No-Build Alternative

There would be no effects to emergency or other public services.

B. Passing Lane Alternative

Post-construction, service routes would not change substantially with the Passing Lane Alternative. Access changes would require greater travel distances on local roads by emergency responders at some locations. This travel would occur on local roadways that may have different maintenance policies than the WIS 23 roadway.
The Mary Hill Park Drive development, consisting of about 20 single-family residences, would have its WIS 23 access routed through the County K jughandle intersection with some indirection. Access changes at the Whispering Springs Drive development would affect three single-family residences and nine multifamily residences that would receive services at a new, RI/RO entrance west of their current WIS 23 entrance. These access changes can be seen in Figure 4.7 B-1.2.

C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation would not affect access to or across WIS 23. If implemented, the proposed improvements associated with corridor preservation would remove access from WIS 23 and install connection roads, grade separations, and interchanges. This would require greater travel distances on local roads by emergency responders at some locations. The indirection could be one to four miles. The additional travel would also occur on local roadways that may have different maintenance policies than WIS 23. Emergency response routes were a factor in determining the possible future locations of interchanges and grade separations. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. Refer to Section 2.6 for details on local road access changes that are planned.

D. Hybrid Alternative

For the Hybrid Alternative, there will be some effect on emergency and other public services after construction. Emergency service routes will remain similar on WIS 23, with improvements, but local road intersections that have their access removed from WIS 23 could have one to three miles added

to response routes, depending on the location. This travel would occur on local roadways that may have different maintenance policies than the WIS 23 roadway.

The Mary Hill Park Drive development, consisting of about 20 single-family residences, would have its WIS 23 access routed through the County K jughandle intersection with some indirection. Access changes at the Whispering Springs Drive development would affect three single-family residences and nine multifamily residences that would receive services at a new, RI/RO entrance west of their current WIS 23 entrance. Mountable curb will be installed for emergency services to the Whispering Spring Drive development. Hilltop Drive would have access removed from WIS 23 and a local road constructed for access to Whispering Springs Drive. These access changes can be seen in Figure 4.7 B-1.3.

Access treatments such as RCUT and RI/RO intersections will increase indirection for emergency response providers. The four RCUT intersections proposed with the Hybrid Alternative 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.

E. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation associated with the Hybrid Alternative would include preservation of land for a possible future 4-lane highway expansion in Sheboygan County, from County G to County P. Corridor preservation would not affect access to or across WIS 23. If implemented, the proposed improvements associated with the corridor preservation would remove access from WIS 23 and install connection roads, grade separations, and interchanges. This would require greater travel distances on local roads by emergency responders at some locations. The indirection could be one to four 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 possible future locations of interchanges and grade separations. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. Refer to Section 2.6 for details on local road access changes that are planned.

F. 4-lane On-alignment Alternative (Preferred Alternative)

There will be some effect on emergency and other public services after construction for the 4-lane On-alignment Alternative. Emergency service routes will remain similar on WIS 23 with improvements. Local road intersections that have their access removed from WIS 23 could add up to one to three miles to response routes, depending on the location. Also, this travel would occur on local roadways that may have different maintenance policies than the WIS 23 roadway.

The Mary Hill Park Drive development, consisting of about 20 single-family residences, would have its WIS 23 access routed through the County K jughandle intersection with some indirection. Access changes at the Whispering Springs Drive development would affect three single-family residences and nine multifamily residences that would receive services at a new, RI/RO entrance west of their current WIS 23 entrance. Mountable curb will be installed for emergency services to the Whispering Spring Drive development. Hilltop Drive would have access removed from WIS 23 and a local road constructed for access to Whispering Springs Drive. Access to WIS 23 from Branch Road would be removed and the service route to residents on Branch Road would be via Inez Court and a new local road. These access changes can be seen in Figure 4.7 B-1.4.

Access treatments such as RCUT and RI/RO intersections will also increase indirection for emergency response providers. The nine RCUT intersections with the 4-lane On-alignment Alternative 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.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (part of the Preferred Alternative)

Corridor preservation would not affect access to or across WIS 23. If implemented, the proposed improvements associated with the corridor preservation would remove access from WIS 23 and install connection roads, grade separations, and interchanges. This would require greater travel distances on local roads by emergency responders at some locations. The indirection could be one to four 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 possible future locations of interchanges and grade separations. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. Refer to Section 2.6 for details on local road access changes that are planned.

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.:

A. No-Build Alternative

There would be no physical access changes with the No-Build Alternative.

B. Passing Lane Alternative

The Passing Lane Alternative would have few effects on residential, commercial, and farm properties. The changes would vary based on the access treatments incorporated at each intersection. Properties on the existing alignment would likely have the physical characteristics of their driveways modified (steeper or flatter) to match the new finished grade. Where passing lanes are proposed, most properties could have their access reduced to RI/RO. Residents would need to travel to the nearest intersection to make left turns. See Table 2.6-1 for proposed access treatments to side roads.

C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation associated with the Passing Lane Alternative would not affect access. If the proposed improvements associated with the corridor preservation are implemented, they would remove access from WIS 23. If this occurs, many properties will have their access relocated to side roads or access roads. Some median breaks may still be provided for driveways with RI/RO access. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. See Table 2.6-1 for proposed access treatments to side roads.

D. Hybrid Alternative

The Hybrid Alternative would have greater effects than the Passing Lane Alternative on residential, commercial, and farm properties, primarily through the 4-lane expansion section in Fond du Lac County. The changes would vary based on the access treatments incorporated at each intersection. Properties on the existing alignment would likely have the physical characteristics of their driveways modified (steeper or flatter) to match the new finished grade. Where 4-lane expansion is proposed, most properties would have their access reduced to RI/RO. Residents would need to travel to the nearest intersection or median break to make left turns. See Table 2.6-1 for proposed access treatments to side roads.

E. Corridor Preservation Associated with Hybrid Alternative

The effects would be the same as the corridor preservation associated with the Passing Lane Alternative. Refer to the discussion under Corridor Preservation associated with Passing Lane

Alternative and Table 2.6-1. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

F. 4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane On-alignment Alternative would have the greatest effect on residential, commercial, and farm properties. The changes would vary based on the access treatments incorporated at each intersection. Properties on the existing alignment would likely have the physical characteristics of their driveways modified (steeper or flatter) to match the new finished grade. Throughout the 4-lane expansion section, some properties would have their access removed from WIS 23. When this occurs, properties will have their access relocated to side roads or access roads. Some median breaks may still be provided for driveways with RI/RO access.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

The effects would be the same as the corridor preservation associated with the Passing Lane Alternative. Refer to the discussion under Corridor Preservation associated with Passing Lane Alternative and Table 2.6-1. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

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:

A. No-Build Alternative

There would be no effects with the No-Build Alternative.

B. Passing Lane Alternative

The County K jughandle intersection would be part of the Passing Lane Alternative and the other build alternatives and would affect St. Mary's Springs Academy. St. Mary's Springs Academy is a private, pre-kindergarten through 12th grade school located along County K, north of WIS 23. The campus would have its access on County K changed and the school's baseball diamond at the northwest quadrant of the WIS 23 and County K intersection would be removed; these impacts would be mitigated. One of the campus's existing full driveways on County K would be restricted to RI/RO and a second drive would be restricted to RI/RO and left-in movements. The facility is privately owned. There are properties within the campus that have been determined eligible for NRHP and are eligible for Section 4(f) protection; however, there is no Section 4(f) use of those eligible properties (see Section 4.7 B-5 and Section 5 for further discussion). The school does host community fund raising events, extra-curricular clubs and activities, drama and musical productions, and athletic events that are attended by the community.

The Passing Lane Alternative would also include extension of the Old Plank Road Trail from the town of Greenbush to the Prairie Trail in the city of Fond du Lac. The trail extension would create better access and accommodations for non-motorized travel (see Figures 2.9-1 through 2.9-16).

C. Corridor Preservation Associated with Passing Lane Alternative

Improvements associated with corridor preservation include expansion to a 4-lane divided highway throughout the corridor and construction of interchanges and overpasses. These proposed improvements may affect local circulation.

There are multiple benefits to corridor preservation, see Section 2.1. For example, corridor preservation provides information useful to local property owners and governments as they make property acquisition and development approval decisions. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental

documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

D. Hybrid Alternative

The effects would be the same as for the Passing Lane Alternative. Refer to the discussion under the Passing Lane Alternative and see Figures 2.9-17 through 2.9-30.

E. Corridor Preservation Associated with Hybrid Alternative

The effects would be the same as corridor preservation associated with the Passing Lane Alternative. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

F. 4-lane On-alignment Alternative (Preferred Alternative)

The effects would be the same as for the Passing Lane and Hybrid Alternatives. Refer to the discussion under the Passing Lane Alternative and see Figures 2.9-31 through 2.9-44.

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

The effects would be the same as corridor preservation associated with the Passing Lane and Hybrid Alternatives. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

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

Farmland preservation is important to the project 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 each build alternative. Figure 4.7 B-1.6 shows the location of the proposed Old Plank Road Trail extension.

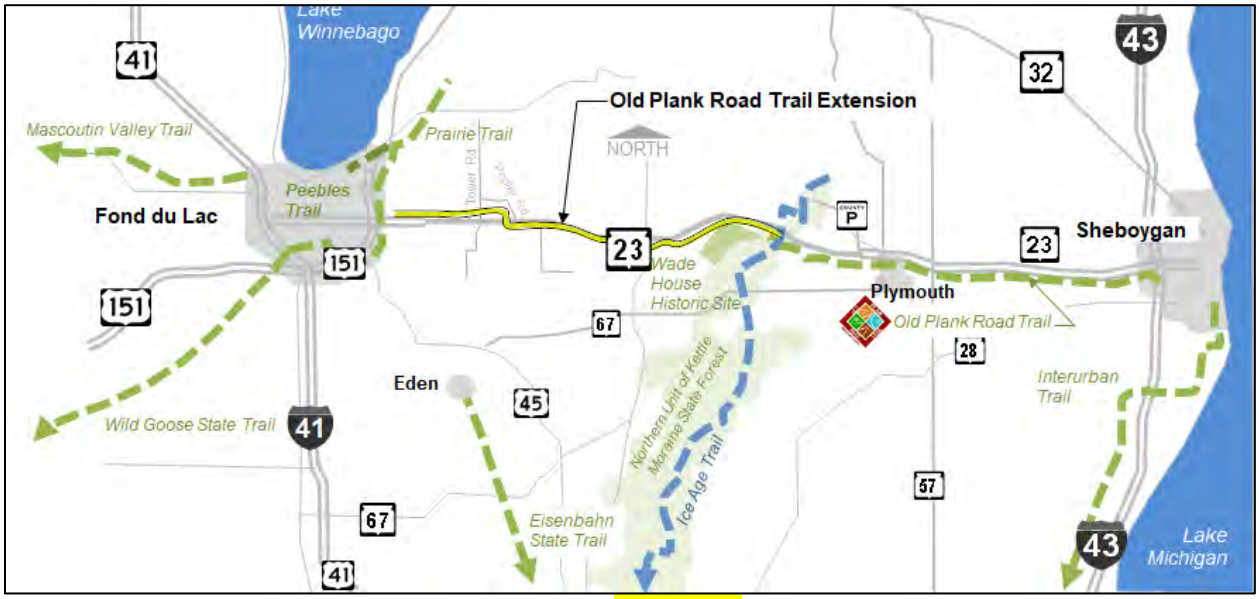


Figure 4.7 B-1.6 Proposed Old Plank Road Trail Extension

The Mary Hill Park Drive development consisting of about 20 single-family residences would have its WIS 23 access routed through the County K jughandle intersection with some indirection. Residents have expressed concerns over the access to this subdivision. For comments on this area see Section 7. In the Whispering Springs development, about three single-family residences and nine multifamily residences would have a new, RI/RO entrance west of the current WIS 23 entrance. In the Hilltop Drive development, about 37 single-family residences would have access through Whispering Springs Drive. Existing Whispering Springs Drive and Hilltop Drive would have access removed from WIS 23 and a local road constructed. WisDOT held multiple meetings with residents and representative officials. The town of Empire passed a resolution (2007-2-1) in support of the proposed design for the Whispering Springs Drive development access roads. Residents have expressed concerns over the access to this subdivision. They also expressed concerns over the additional time required for emergency services to access the development. Mountable curb will be installed to accommodate access by emergency services to the Whispering Spring Drive development. For comments on this area see Section 7.

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

The proposed Old Plank Road Trail extension is supported by the adjacent communities and many residents. 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:

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

Table 4.7 B-1.2 and 4.7 B-1.3 shows the estimated residential relocations with and without improvements associated with corridor preservation implemented. An updated CSRP (August 2018) is attached in Appendix D. One of the residential relocations listed in the following table is a result of a utility tower relocation rather than the road expansion itself.

	No-Build Alternative	Passing Lane Alternative	Hybrid Alternative	4-lane On-alignment Alternative
Residential Relocations Required	0	12	28	30
Residential Relocations Completed	30	30	30	30

Based on review of county GIS zoning maps, no residential relocations are located in areas zoned multi-family residential.
There is one farm relocation that is further detailed in the CSRP as a farm business and farm residence. This relocation is considered a farm relocation in this LS SEIS.

Table 4.7 B-1.2 Residential Building Relocations

	Corridor Preservation Associated with Passing Lane Alternative	Corridor Preservation Associated with Hybrid Alternative	Corridor Preservation Associated with 4-lane On-alignment Alternative
Residential buildings within corridor preservation area	21	5	3
Residential buildings within corridor preservation area that have already been relocated	18	2	0

Based on review of county GIS zoning maps, no residential relocations are located in areas zoned multi-family residential.

Table 4.7 B-1.3 Residential Buildings within Corridor Preservation Area

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

A. No-Build Alternative

There are no relocations for the No-Build Alternative; however, WisDOT has acquired and relocated 30 residences based on the decision in the 2014 LS SFEIS.

B. Passing Lane Alternative

Total Number of Households Required–12
Total Number of Households Already Acquired by WisDOT–12, based on the decision in the 2014 LS SFEIS.

The number of relocated households by type and price range of dwelling for the Passing Lane Alternative are shown in Table 4.7 B-1.4.

Number of Single Family Dwelling.	Price Range
0	Less than $49,999
1	$50,000 to $99,999
7	$100,000 to $149,999
0	$150,000 to $199,999
4	$200,000 to $249,999
0	Over $250,000

Table 4.7 B-1.4 Passing Lane Alternative Relocation Types

C. Corridor Preservation Associated with Passing Lane Alternative

Total Number of Households within corridor preservation area–21

Total Number of Households Already Acquired by WisDOT–18 based on the decision in the 2014 LS SFEIS. Three households remain in the corridor preservation area. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

The number of households within the corridor preservation area by type and price range of dwelling are shown in Table 4.7 B-1.5.

Number of Single Family Dwelling.	Price Range
0	Less than $49,999
0	$50,000 to $99,999
2	$100,000 to $149,999
10	$150,000 to $199,999
3	$200,000 to $249,999
6	Over $250,000

Table 4.7 B-1.5 Corridor Preservation Associated with Passing Lane Alternative Future Relocation Types

D. Hybrid Alternative

Total Number of Households Required–28

Total Number of Households Already Acquired by WisDOT–28 based on the decision in the 2014 LS SFEIS.

The number of relocated households by type and price range of dwelling for the Hybrid Alternative are shown in Table 4.7 B-1.6.

Number of Single Family Dwelling.	Price Range
0	Less than $49,999
1	$50,000 to $99,999
9	$100,000 to $149,999
8	$150,000 to $199,999
4	$200,000 to $249,999
6	Over $250,000

Table 4.7 B-1.6 Hybrid Alternative Relocation Types

E. Corridor Preservation Associated with Hybrid Alternative

Total Number of Households within corridor preservation area–5

Total Number of Households Already Acquired by WisDOT–2 based on the decision in the 2014 LS SFEIS. Three households remain in the corridor preservation area. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent

environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

The number of households within the corridor preservation area by type and price range of dwelling are shown in Table 4.7 B-1.7.

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

Table 4.7 B-1.7 Corridor Preservation Associated with Hybrid Alternative Future Relocation Types

F. 4-lane On-alignment Alternative (Preferred Alternative)

Total Number of Households Required–30

Total Number of Households Already Acquired by WisDOT–30 based on the decision in the 2014 LS FEIS.

The number of relocated households by type and price range of dwelling for the 4-lane On-alignment Alternative are shown in Table 4.7 B-1.8.

Number of Single Family Dwelling.	Price Range
0	Less than $49,999
1	$50,000 to $99,999
9	$100,000 to $149,999
8	$150,000 to $199,999
6	$200,000 to $249,999
6	Over $250,000

Table 4.7 B-1.8 4-lane On-alignment Alternative Relocation Types

G. Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Total Number of Households within corridor preservation area–3

Total Number of Households Already Acquired by WisDOT–0

Three households remain in the corridor preservation area. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

The number of households within the corridor preservation area by type and price range of dwelling are shown in Table 4.7 B-1.9.

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

Table 4.7 B-1.9 Corridor Preservation Associated with 4-lane On-alignment Alternative Future Relocation Types

12. Describe the relocation potential in the community:

The August 2018 CSRP update states the real estate market is active with a sufficient number of transactions. The potential number of relocations caused by this project will not cause undue hardship to the local real estate market. Recent residential property sales and current inventory/listings (Market Trends) are described below.

1. There were approximately 11 rural parcels over 10 acres that were sold between 2017 and July 2018 in Fond du Lac and Sheboygan counties. These properties were sold between $250,000 and $600,000.
2. There were approximately 16 listings in July 2018 for rural parcels over 10 acres in Fond du Lac and Sheboygan counties with price ranges of $250,000 to $600,000.

Market trends and real estate listings indicate that residential or farm-residential housing is available. Most available listings were within the urban fringe near the city of Fond du Lac and within the urban fringe near the city of Plymouth. There were fewer, but still sufficient listings in the rural portion of the corridor.

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 that are Elderly, disabled, low income, minority, and households of large families.

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 have been and will continue to 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.

Information for the Environmental Justice Factor Sheet has been augmented and updated, but there are no substantive changes from the 2014 LS SFEIS.

4.7 B-4 ENVIRONMENTAL JUSTICE EVALUATION Factor Sheet B-4

1. Identify and give a brief description of the populations covered under Executive Order 12898 (EO 12898). Include the relative size of the populations and their pertinent demographic characteristics: (Check all that apply.)

Information on the low income, elderly, and disabled demographics of the following population groups is not available.

Population Groups	Low Income	Elderly	Disabled
☒ Black (having origins in any of the black racial groups of Africa) Describe: Town of Empire–0.6% Town of Forest–0.1% Town of Greenbush–13.8% Town of Plymouth–0.1% Wisconsin–6.3%	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
☒ Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race) Describe: Town of Empire–1.5% Town of Forest–0.9% Town of Greenbush–5.4% Town of Plymouth–0.8% Wisconsin–5.9%	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
☒ Asian American (origins in any of the original peoples of the Far East, SE Asia, the Indian subcontinent, or the Pacific Islands) Describe: Town of Empire–0.6% Town of Forest–0.2% Town of Greenbush–0.0% Town of Plymouth–0.4% Wisconsin–2.3%	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
☒ American Indian and Alaska Native (having origins in any of the original people of North American and who maintains cultural identification through tribal affiliation or community recognition) Describe: Town of Empire–0.1% Town of Forest–0.2% Town of Greenbush–2.7% Town of Plymouth–0.1% Wisconsin–1.0%	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

Source: U.S. Census Bureau, 2010 and 2012-2016 ACS 5-Year Estimates, Table B03002, ACS Demographic and Housing Estimates (County Subdivision). The ACS data was used for town of Greenbush because of error in 2010 census.

☒ White and any combination of the above. Yes ☐ Yes ☐ Yes ☐
Describe: No ☐ No ☐ No ☐

65 Years or Older: Town of Empire–14.0%
65 Years or Older: Town of Forest–15.6%
65 Years or Older: Town of Greenbush–7.7%
65 Years or Older: Town of Plymouth–21.4%
65 Years or Older: Wisconsin–15.2%

Source: U.S. Census Bureau, 2012-2016 ACS.

☒ Non-minority low-income population Yes ☐ Yes ☐
Describe: No ☐ No ☐

Percent of Individuals Below Poverty: Town of Empire–2.0%
Percent of Individuals Below Poverty: Town of Forest–4.3%
Percent of Individuals Below Poverty: Town of Greenbush–2.5%
Percent of Individuals Below Poverty: Town of Plymouth–6.3%
Percent of Individuals Below Poverty: Wisconsin–12.7%

Source: U.S. Census Bureau, 2012-2016 ACS.

2. How was information on the proposed action communicated to populations covered by Executive Order 12898. Check all that apply:

☒ Advertisements ☐ Brochures
☒ Newsletters ☐ Notices
☐ Utility Bill Inserts ☐ E-mails
☐ Public Service Announcements ☒ Direct Mailings
☐ Key Persons ☐ Other, identify _____

3. How was input from populations covered by EO 12898 obtained? Check all that apply:

☐ Mailed Surveys ☐ Targeted Small Group Information Meetings
☐ Door-to-door interviews ☐ Targeted Workshop/conferences
☒ Focus Group Research ☒ Public Meetings
☒ Public Hearings ☐ Key Person Interviews
☐ Other, identify _____

4. Indicate any special accommodations made to encourage participation from populations covered by EO 12898. Check all that apply:

☒ Interpreters (if requested) ☐ Listening Aids
☒ Accessibility for Elderly & Disabled ☐ Transportation Provided
☐ Child Care Provided ☒ Sign Language (if requested)
☐ Other, _____

5. If there is a project advisory committee, identify and describe committee members from populations covered by EO 12898

☒ None identified
☐ Yes–Check all that apply and describe below:
- ☐ Black
- ☐ Hispanic
- ☐ Asian-American
- ☐ American Indian or Alaska Native
- ☐ White and any combination of the above
- ☐ Non-minority low-income

Describe: _____

6. As a result of public involvement and inter-agency coordination, identify and describe issues of concern or controversy to populations covered by EO 12898:

A. Economic Development and Business

☒ No issues of concern or controversy identified.

☐ Yes–Issues of concern or controversy identified.

1. List effects on businesses and populations covered by EO 12898:
   - ☒ None identified. Information on specific businesses along the corridor that are displaced/created are not known, but are anticipated to mimic the demographics of the corridor.
   - ☐ Yes.
     List and discuss–_____
2. List other effects.
   - ☒ None identified.
   - ☐ Yes
     List and discuss– _____

B. Agriculture

☒ No issues of concern or controversy identified. Information on specific Agricultural businesses along the corridor are not known, but are anticipated to mimic the demographics of the corridor.

☐ Yes–Issues of concern or controversy identified.

1. List effects on agricultural operations owned by members of populations covered by EO 12898.
   - ☐ None identified.
   - ☐ Yes
     List and discuss–_____
2. List effects on agricultural operations which employ members of populations covered by EO 12898, including migrant workers
   - ☐ None identified.
   - ☐ Yes
     List and discuss–_____
3. List other effects on members of populations covered by EO 12898:
   - ☐ None identified.
   - ☐ Yes
     List and discuss–_____

C. Community/Residential

☒ No issues of concern or controversy identified. Information on specific residences along the corridor are not known, but are anticipated to mimic the demographics of the corridor.

☐ Yes–Issues of concern or controversy identified.

List and discuss–_____

1. List relocation effects on households covered by EO 12898:
   - ☐ None identified.
   - ☐ Yes
     List and discuss–_____
2. List other effects on members of populations covered by EO 12898.
   - ☐ None identified.
   - ☐ Yes
     List and discuss– _____

D. Other
☒ No issues of concern or controversy identified.
☐ Issues of concern or controversy identified.
List and discuss–_____

For additional comments, see Section 7 for Public Hearing testimony.

7. Indicate whether effects on populations covered by EO 12898 are beneficial or adverse:

A. Beneficial effects.

☒ Describe effects on populations and discuss whether they are direct, indirect or cumulative. Include a discussion of any measures to enhance beneficial effects. Describe methods used to determine beneficial effects resulting from the proposed project. (If only beneficial effects, process is complete.)

No-Build Alternative
The No-Build Alternative will not affect low-income and minority populations.

Passing Lane Alternative
The Passing Lane Alternative will benefit low-income and minority populations by improving safety and providing additional passing opportunities on WIS 23. The extension of the Old Plank Road Trail would benefit minority and low-income populations by improving accommodations for non-motorized travel.

Corridor Preservation Associated with Passing Lane Alternative
Improvements associated with corridor preservation include expansion to a 4-lane divided highway throughout the corridor and construction of interchanges and overpasses. The benefits of the improved facility include safety, mobility and travel speed on WIS 23 for minority and low-income populations. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Hybrid Alternative
The Hybrid Alternative will benefit minority populations by improving safety, mobility and travel speed on WIS 23. The extension of the Old Plank Road Trail would benefit minority and low-income populations by improving accommodations for non-motorized travel.

Corridor Preservation Associated with Hybrid Alternative
Improvements associated with corridor preservation include expansion to a 4-lane divided highway in Sheboygan County and constructing interchanges and overpasses. The benefits of the improved facility include safety, mobility and travel speed on WIS 23 for minority and low-income populations. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

4-lane On-alignment Alternative (Preferred Alternative)
The 4-lane On-alignment Alternative will benefit minority and low-income populations by improving safety, mobility and travel speed on WIS 23. The extension of the Old Plank Road Trail would also benefit minority and low-income populations by improving accommodations for non-motorized travel.

Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)
Improvements associated with corridor preservation include constructing interchanges and overpasses. The same benefits of the 4-lane On-alignment Alternative would apply. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

B. Adverse effect.

☒ 1. Adverse Effects are proportional or disproportionately low. Identified adverse effects are proportionate or disproportionately low to those experienced by the general population.

Describe effects on populations and discuss whether they are direct, indirect or cumulative. Describe methods used to determine adverse effects resulting from the proposed project. Include a discussion of any measures to avoid, minimize, or mitigate adverse effects. (If only beneficial or proportional or disproportionately low effects, process is complete.)

No-Build Alternative
The No-Build Alternative will not affect minority or low-income populations. It may have a minor adverse effect on populations residing in the middle of the corridor, as access to and across WIS 23 will remain difficult.

Build Alternatives
For the build alternatives, it is anticipated that right-of-way acquisition will occur proportionate to the demographic profile of the towns within the WIS 23 corridor. Much of the right of way and relocations have already occurred based on the decision in the 2014 LS SFEIS and before the ROD was vacated.

Passing Lane Alternative
For the Passing Lane Alternative, disproportionately high and adverse impacts to low-income and minority populations are not anticipated. The Passing Lane Alternative may have a minor adverse effect on populations residing in the middle of the corridor, as access to and across WIS 23 will remain difficult.

Corridor Preservation Associated with Passing Lane Alternative
For corridor preservation, disproportionately high and adverse impacts to low-income and minority populations are not anticipated. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Hybrid Alternative
For the Hybrid Alternative, disproportionately high and adverse impacts to low-income and minority and populations are not anticipated. The 2-lane section in Sheboygan County may have an adverse effect on populations that reside in the middle of the corridor, as access to and across WIS 23 will remain difficult.

Corridor Preservation associated with the Hybrid Alternative
For corridor preservation, disproportionately high and adverse impacts to low-income and minority populations are not anticipated. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

4-lane On-alignment Alternative (Preferred Alternative)
For the 4-lane On-alignment Alternative, disproportionately high and adverse impacts to low-income and minority populations are not anticipated.

Corridor Preservation associated with the 4-lane On-alignment Alternative (Part of the Preferred Alternative)
For corridor preservation, disproportionately high and adverse impacts to low-income and minority populations are not anticipated. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

☐ 2. Adverse Effects are disproportionately high. A disproportionately high and adverse effect means an adverse effect that:
a.) is predominately borne by populations covered by EO 12898; or
b.) will be suffered by populations covered by EO 12898 and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by population not covered by EO 12898.

8. Will the alternative be carried through final design even with disproportionately high and adverse effects on populations covered by EO 12898?

A. ☐ No, the alternative will not be carried out because of disproportionately high and adverse effects on populations covered by EO 12898.

1. ☐ Another alternative with less severe effects on populations covered by EO 12898 can meet the purpose and need of the proposed alternative and is practicable.

2. ☐ Other.
Describe. _____

B. ☐ Yes, the alternative will be carried out with the mitigation of disproportionately high and adverse effects on populations covered by EO 12898.

1. ☐ All disproportionate effects will be mitigated by the following measures.
List and discuss measures:

2. ☐ The alternative will be carried through final design without fully mitigating disproportionately high and adverse effects. A substantial need for the alternative exists based on the overall public interest. Alternatives that would have less adverse effects on populations covered by EO 12898 have either:

a) ☐ Adverse social, economic, environmental, or human health impacts that are more severe.
b) ☐ Would involve increased costs of an extraordinary magnitude.

None of the alternatives considered have disproportionately high and adverse effects on populations covered by EO 12898.

Information for the Historic Resources Evaluation Factor Sheet has been augmented and updated, but there are no substantive changes from the 2014 LS SFEIS.

The architectural resource survey was updated in 2017.

4.7 B-5 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 4.7 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. In 2017, a review of the APE was conducted and no additional historic resources eligible for the NRHP were identified.

Table 4.7 B-5.1 Summary of Historic Sites

Site Name	Location	May be Eligible for the NRHP	Adverse Effect	Significance of the structure and/or buildings.	Does Section 4(f) Use apply?
St. Mary's Springs Academy Complex	255 CTH K	Yes	No	Historically and architecturally	No
Queen Anne House	W7710 Spruce St.	Yes	No	Historic	No
Wade House, Robinson Hurling Sawmill, Charles Robinson House	Wade House Historic Site	Yes, Buildings listed on NRHP	No	Historic	No
Tower Road House	N6001 Tower Rd	No	Not applicable	Historic	No
Italianate House	W4182 WIS 23	No	Not applicable	Historic	No
St. Paul's Church	W2090 WIS 23	No	Not applicable	Historic	No
Greek Revival House	W1985 WIS 23	No	Not applicable	Historic	No
Foursquare House	W1982 WIS 23	No	Not applicable	Historic	No
Colonial House	W1398 WIS 23	No	Not applicable	Historic	No
Foursquare House	W151 WIS 23	No	Not applicable	Historic	No
Foursquare House	W9204 WIS 23	No	Not applicable	Historic	No
Queen Anne House	W8830 WIS 23	No	Not applicable	Historic	No
Former Elder Grove School	N6411 CTH G	No	Not applicable	Historic	No
Queen Anne House	W8255 WIS 23	No	Not applicable	Historic	No
Log Cabin	W7432 Plank Rd	No	Not applicable	Historic	No
Queen Anne House	N6660 W CTH A	No	Not applicable	Historic	No
Foursquare House	W1518 CTH TTT	No	Not applicable	Historic	No
Gable Ell House	W1769 Poplar Rd	No	Not applicable	Historic	No
Greek Revival House	W2889 Poplar Rd	No	Not applicable	Historic	No

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 as the other potentially eligible properties in or adjacent to the project area are either not eligible for the NRHP or will not be impacted by one of the build alternatives.

In 2017, another architectural review was performed to determine if there are structures within the corridor that are now 50 years old or more that did not fit into this category during the original architectural survey. The survey determined that no additional structures are eligible for the NRHP. Other properties in or

adjacent to the project area have either been determined to be not eligible for the NRHP or will not be impacted by the alternatives under consideration in this document.

The St. Mary's Springs Academy site was determined to be eligible for the NRHP under Criterion C (Architecture) based on a survey performed in 2002. The 2010 FEIS identified an adverse effect on the St. Mary's Springs Academy and a DOE, Section 106 Finding of Effect, and a Memorandum of Agreement (MOA) were prepared. The MOA was signed by St. Mary's Springs Academy, State Historic Preservation Office (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 Academy 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 4.7 B-5.2 summarizes the changes in the St. Mary's Spring Academy from 2002 to 2012.

Table 4.7 B-5.2 Changes in Contributing Factors to St. Mary's Springs Academy

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

In 2011 St. Mary's Springs Academy requested modifications to the County K roadway alignment (jughandle intersection at County K is included in all build alternatives) that moved the roadway farther from the school site.[2]

The revision in the location of the historic boundary resulted in the WIS 23 project not adversely impacting the new historic boundary.

A revised MOA was submitted to SHPO on January 7, 2013. SHPO signed the revised MOA on March 19, 2013. Figure 4.7 B-5.1 illustrates the revised County K alignment, the revised historic boundary

[2] As a safety measure, a right-in/right-out/left-in intersection modification was installed on WIS 23/County K in 2016. All build alternatives will provide a jughandle intersection that will restore full access to the intersection.

for St. Mary's Springs Academy, and the area of right of way that needs to be purchased from St. Mary's Springs Academy for any of the build alternatives. Appendix D of the 2014 LS SFEIS contains the revised MOA signed in 2013.

To address schedule changes, the MOA was revised again (Amendment #2), signed by SHPO in 2018, and included in Section 4.7 B-6. A more detailed discussion of the reduction of the historic boundary is provided in Section 5.

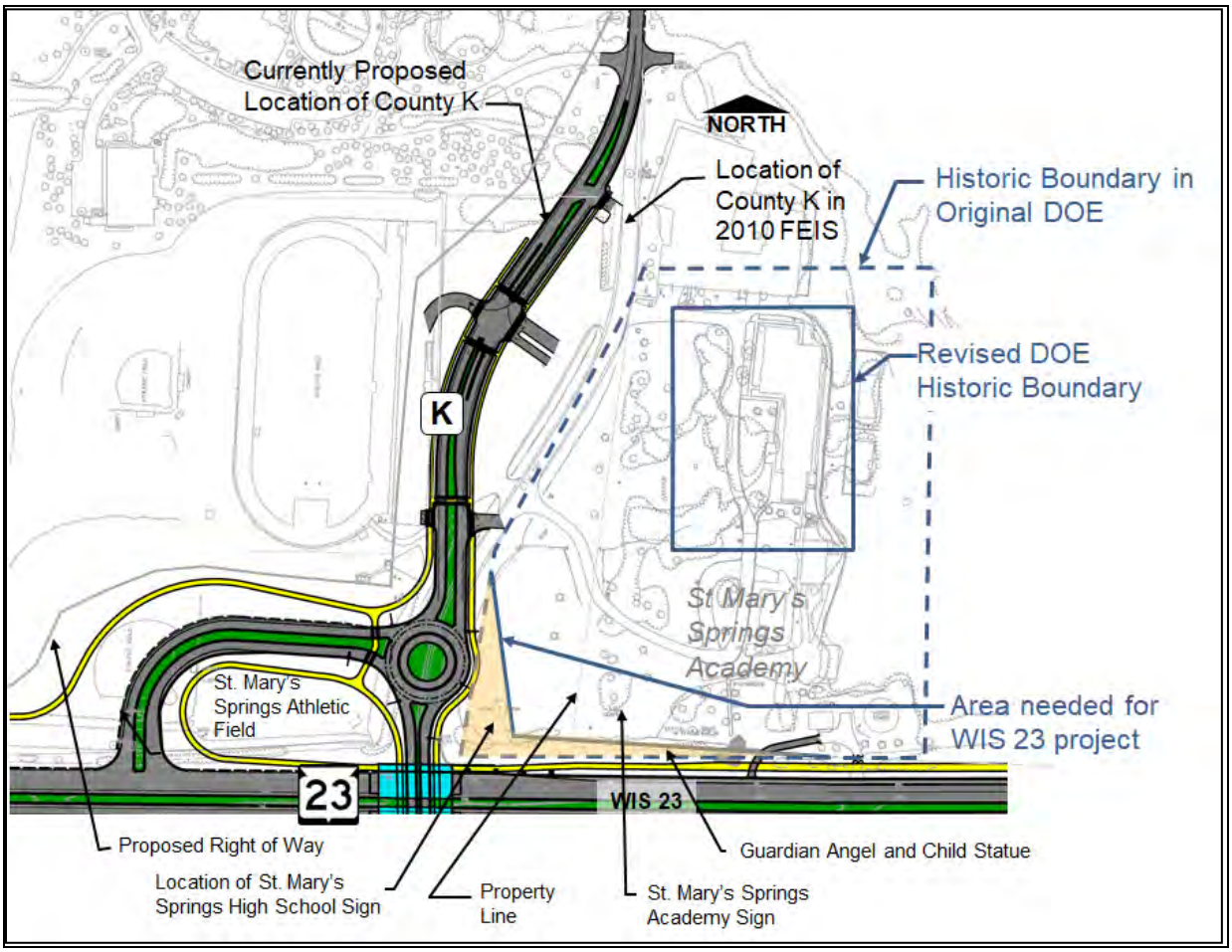


Figure 4.7 B-5.1 St. Mary's Springs at WIS 23/County K Intersection (all build alternatives)

A roundabout is shown in Figure 4.7 B-5.1 to illustrate the largest intersection footprint, representing the greatest impacts. Determination of intersection type will be done during final design.

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 4.7 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:

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 4.7 B-5.1 of the revised 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 Academy. 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 its commitment to relocate the Guardian Angel with Child Statue. See the MOA Amendment #2 (Figure 4.7 B-6.2) in Section 4.7 B-6.

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: Because of revisions in the historic boundary prior to the 2014 LS SFEIS, there is no longer a Section 4(f) use of the property.
- ☐ Yes – Complete Factor Sheet B-8, Section 4(f) and 6(f) or other Unique Areas.

Information for the Archaeological Sites Evaluation Factor Sheet has been augmented and updated, but there are no substantive changes from the 2014 LS SFEIS.

The archeological survey was updated in 2017.

4.7 B-6 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:

Table 4.7 B-6.1 Native American Parties Contacted

Parties Contacted	Date Contacted	Comments Received		
		No	Yes	Check if Attached
Bad River Band of Lake Superior Chippewa	June 10, 2002 October 26, 2007 August 2013 October 19, 2017 May 23, 2018		X	☐ See Appendix D of 2014 LS SFEIS.
Forest County Potawatomi Community of Wisconsin	June 10, 2002 October 26, 2007 October 19, 2017 May 23, 2018		X	☒ See Appendix C of this document.
Fond du Lac Band of Lake Superior Chippewa	October 19, 2017 May 23, 2018	X		☐
Ho-Chunk Nation	June 10, 2002 October 26, 2007 October 19, 2017 May 23, 2018	X		☐
Lac de Flambeau Band of Lake Superior Indians of Wisconsin	June 10, 2002 October 26, 2007 October 19, 2017 May 23, 2018	X		☐
Lac Vieux Desert band of Lake Superior Chippewa Indians	October 19, 2017 May 23, 2018	X		☐
LacCourte Oreilles Band of Lake Superior Chippewa Indians of Wisconsin	June 10, 2002 October 26, 2007 October 19, 2017 May 23, 2018	X		☐
Menominee Indian Tribe of Wisconsin	June 10, 2002 October 26, 2007 October 19, 2017 May 23, 2018		X	☐ See Appendix D of 2004 DEIS.
* Mohican Nation, Stockbridge Munsee Community of Wisconsin	June 10, 2002 October 26, 2007 August 2013		X	☐ See Appendix D of 2014 LS SFEIS.
*Oneida Tribe of Indians of Wisconsin	June 10, 2002 October 26, 2007	X		☐

Table 4.7 B-6.1 Native American Parties Contacted

Parties Contacted	Date Contacted	Comments Received		
		No	Yes	Check if Attached
St. Croix Chippewa Indians of Wisconsin	June 10, 2002 October 26, 2007 October 19, 2017 May 23, 2018	X		☐
* Iowa Tribe of Oklahoma	June 10, 2002		X	☐ See Appendix D of 2004 DEIS.
Prairie Band Potowatomi Nation	June 10, 2002 October 26, 2007 October 19, 2017 May 23, 2018	X		☐
Prairie Island Indian Community	October 19, 2017 May 23, 2018	X		☐
Sac & Fox Nation of Oklahoma	June 10, 2002 October 26, 2007 October 19, 2017 May 23, 2018	X		☐
Sokaogon Chippewa (Mole Lake) Community of Wisconsin Chippewa Indians of Wisconsin	June 10, 2002 October 19, 2017 May 23, 2018	X		☐
Red Cliff Band of Lake Superior	June 10, 2002 October 19, 2017 May 23, 2018	X		☐
Sac & Fox Nation of Missouri	October 26, 2007 October 19, 2017 May 23, 2018	X		☐
Sac & Fox Nation of the Mississippi in Iowa	October 26, 2007 October 19, 2017 May 23, 2018	X		☐
Bureau of Indian Affairs, Bloomington, MN	June 10, 2002 October 26, 2007 October 19, 2017 May 23, 2018	X		☐
Great Lakes Inter-Tribal Council	May 23, 2018	X		☐

* Tribe is no longer listed as having interest in projects located in Fond du lac or Sheboygan counties.

As shown in Table 4.7 B-6.1, five responses from tribes have been received throughout the study. Two responses were received from the Forest County Potawatomi Community. The first followed the October 19, 2017 coordination and was a request for copies of any related documentation. The second response followed the requested transmittal of the updated archaeological report and the May 23, 2018 release of the 2018 LS SDEIS. Their response noted there would be no impact on any cultural resources of concern to the Tribe and offered a finding of no historic properties affected. See Appendix C of this document for these responses.

In 2002, two tribes responded to initial coordination on the project: the Menominee Indian Tribe of Wisconsin requested archaeological and historical surveys for the project and the Iowa Tribe of Oklahoma had no comment on the project. See Appendix D of the 2004 DEIS for these letters. 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 and the Bad River Band of Lake Superior

Tribe of Chippewa Indians requested review fees. See Appendix D of the 2014 LS SFEIS for these letters.

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:

Table 4.7 B-6.2 Archaeological Sites WIS 23

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
47 FD-473	Gruber	Historic Euro-American	No	Yes
47 FD-474	District 2 School	Historic Euro-American	No	Yes
47 FD-475	Reitz	Historic Euro-American	No	Yes
47 FD-476	Log Tavern	Historic Euro-American	No	Yes
47 FD-477	Bowe	Historic Euro-American	No	Yes
47 FD-478	Poch	Historic Euro-American	No	Yes
47 FD-479	Mary Hill	Historic Euro-American Pre-contact Native American	No	Yes
47 FD-480	Meyer Point	Prehistoric Native American	No	Yes
47 FD-481	Koepke	Historic Euro-American	No	Yes
47 FD-483	Birschbach Point	Prehistoric Native American	No	Yes
47 FD-497	Storm Front (not identified in the 2017 review)	Pre-contact Native American	No	Yes
47 FD-509	Pine Acres (not identified in the 2017 review)	Historic Euro-American	No	Yes
47 FD-522	St. Agnes	Prehistoric Native American	No	Yes
47 SB-198	Foster	Prehistoric Native American	No	Yes
47 SB-381	Limberg (not identified in the 2017 review)	Historic Euro-American	Yes	Yes
47 SB-383	Thistle Flake (not identified in the 2017 review)	Pre-contact Native American	No	Yes
47 SB-385	Mullet River North	Pre-contact Native American	No	Yes
47 SB-386	Mullet River South	Pre-contact Native American	No	Yes
47 SB-387	China Bowl	Historic Euro-American	No	Yes
47 SB-388	Big Bolt	Historic Euro-American	No	Yes
47 SB-391	Demunk Point	Prehistoric Native American	No	Yes
47 SB-393	Davies Bridge	Historic Euro-American	No	Yes
47 SB0394	Sippel	Historic Euro-American	**Yes**	**No**
47 SB-389	Ernst Point	Prehistoric Native American	No	Yes
47 SB0440	Jens Family Trust	Prehistoric Native American	No	Yes
47 FD0245 /BFD0197	Tower Road Burial	Pre-contact Native American Burial/Cemetery	No (Monitoring required during construction)	Yes
47 FD0017 BFD0150	Academy Hill Mound	Pre-contact Native American Burial/Cemetery	No (Monitoring required during construction)	Yes

In fall of 2017 WisDOT performed a review of the previous Phase 1 archeological surveys for the corridor that compiled the results of previous efforts. Of the 23 archaeological and cemetery/burial sites that were identified within the final project alignment by previous studies, 20 are not eligible, two are burial sites that will require archaeological monitoring during construction, and one is eligible for the NRHP (the Sippel Site). Archaeological data recovery at the NRHP eligible site 47SB0394 (the Sippel Site) has been

completed. A Data Recovery Plan outlines the excavation, analysis, commitments, and reporting of the site. Archaeological monitoring would be recommended if a build alternative is selected near two burial sites (47FD0245/BFD0197, 47FD0017/BFD0150). One archaeological site (47SB0440) was identified in 2015 near the study corridor. Further evaluations in the fall of 2017 determined that site 47SB0440 does not extend into the currently defined APE.

A. No-Build Alternative

No additional sites will be affected. Data recovery has already occurred for the Sippel Site.

B. Passing Lane Alternative

Only one site eligible for the NRHP is potentially affected, the Sippel Site. Data recovery has already occurred for the Sippel Site.

C. Corridor Preservation Associated with Passing Lane Alternative

There are no potentially eligible sites within the preservation area.

D. Hybrid Alternative

Only one site eligible for the NRHP is potentially affected, the Sippel Site. Data recovery has already occurred for the Sippel Site.

E. Corridor Preservation Associated with Hybrid Alternative

There are no potentially eligible sites within preservation area.

F. 4-lane On-alignment Alternative (Preferred Alternative)

Only one site eligible for the NRHP is potentially affected, the Sippel Site. Data recovery has already occurred for the Sippel Site.

G. Corridor Preservation Associated with 4-Lane On-Alignment Alternative (Part of the Preferred Alternative)

There are no potentially eligible sites within preservation area.

Phase II Archaeological Reports were completed for the four sites listed in Table 4.7 B-6.3 and an Archaeology Report has been prepared by the WHS, Museum Archaeology Program. 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:

Table 4.7 B-6.3 Phase II Survey Findings

Site #	Site Name	Site Determined Eligible for or already listed in the NRHP? Y/N	Site Avoided? Y/N
47 SB-381	Limberg	No	Yes (outside the APE)
47 SB-385	Mullet River North	No	No
47 SB-386	Mullet River South	No	No
47 SB-394	Sippel	Yes	No

The Sippel Site (47 SB-394) was the only site that could not be avoided by the build alternatives.

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 build alternatives.

While there are no known catalogued burial sites, there are two uncatalogued burial sites, Academy Hill Mound (47 FD0017/BFD0150) and the Tower Road Burials (47 FD0245/BFD0197). There was no evidence of the sites in the area of potential effect. A professional archaeologist will monitor construction-related activities within the recorded boundaries.

☐ 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 (47FD-497) 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.

There are two uncatalogued burial sites, Academy Hill Mound (47 FD0017/BFD0150) and the Tower Road Burials (47 FD0245/BFD0197). There was no evidence of the sites in the area of potential effect. A professional archaeologist will monitor construction-related activities within the recorded boundaries.

7. Identify effects on those sites not avoided in question #4:

Site # 47 SB0394 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:
All build alternatives will require use of the Sippel Site. At this location, it is not possible to alter the alignments 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) indicate 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 Sippel Site will be impacted by the Passing Lane Alternative, Hybrid Alternative, and 4-lane On-alignment Alternative. These impacts are shown in Figure 4.7 B-6.1. 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 now complete. A Data Recovery Plan outlines the excavation, analysis, commitments, and reporting of the site.

Data recovery occurred between September 29 and October 24, 2014. A January 2018 archaeological studies status assessment for WIS 23 indicated the field investigations associated with the data recovery efforts at the Sippel Site have been completed.

In addition to the stipulations in the MOA, the Stockbridge Munsee Tribe and Forest County Potawatomi Community of Wisconsin Tribe (prior to the 2014 LS SFEIS) requested notification if a Native American cultural site is uncovered. Table 4.7 B-6.1 at the beginning of this Factor Sheet lists American Indian Tribe correspondence received after the 2014 LS SFEIS.

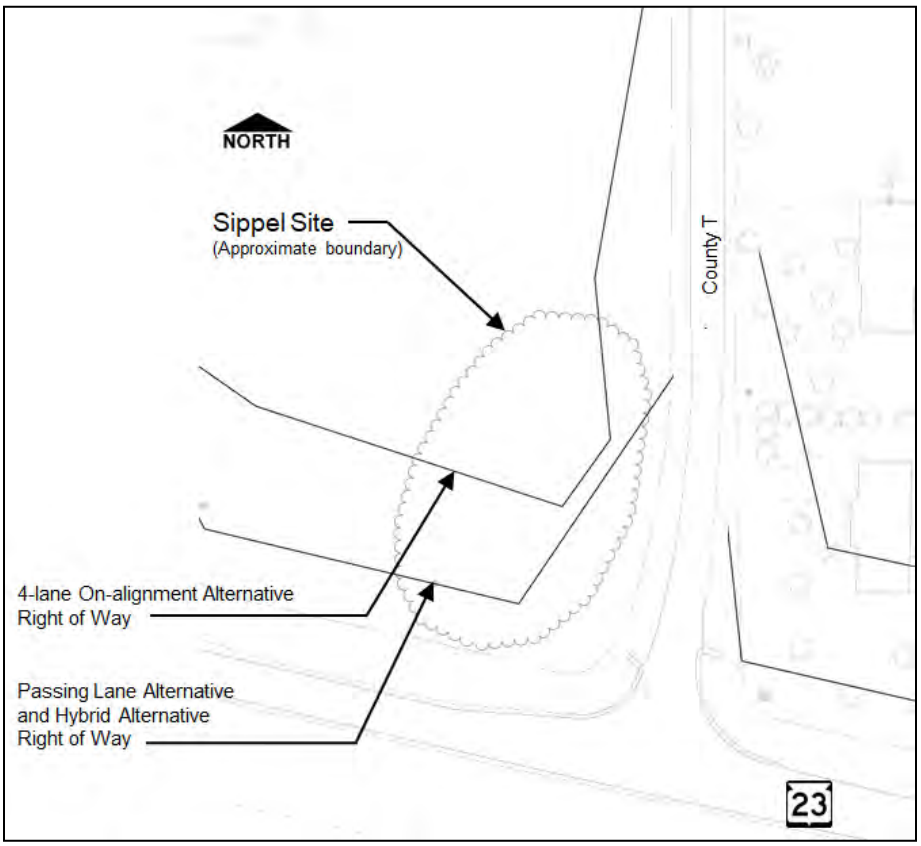


Figure 4.7 B-6.1 Sippel Site Impacts

8. Has a Memorandum of Agreement been signed?

☐ No – Pending:
Explain - _____

☒ Yes, attached:
Signatories and dates of signature:

☐ ACHP	_____
☒ FHWA	May 31, 2018
☒ Wisconsin Historical Society	April 24, 2018
☐ American Indian Tribes	_____
☒ WisDOT	May 31, 2018
☒ Other: St. Mary's Springs Academy	June 6, 2018

Commitments:

☒ Data Recovery: Data Recovery has been completed.

☒ 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 Site. Because of site modifications on the St. Mary's Springs Academy site and revisions to the historic boundary, the 2010 MOA no longer applies to the St. Mary's Springs site. The revised MOA (Amendment #1 signed in 2013 and Amendment #2 signed in 2018) removes stipulations for the St. Mary's Springs site and is shown in Figure 4.7 B-6.2 on the following pages. In a separate letter, WisDOT has maintained their commitment to relocate the Guardian Angel with Child Statute on the St Mary's Springs property. The following bullets list the provisions and commitments in the MOA that pertain to the Sippel Site.

- The Sippel (47SB394) archaeological site is located entirely within the Area of Potential Effects (APE) and cannot be avoided through project redesign. The WisDOT has implemented the field component of 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). Data recovery field efforts occurred in September and October of 2014.
- 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 this MOA are reviewed with and understood by the responsible party(ies). Responsible parties also include sub-contractors.
- 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-CR, who will notify all signatories of this 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).
- 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.
- 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.
- 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.
- The PIC shall incorporate into the Plan: a mechanism(s) to display the public interpretation and include locations for the public interpretation.
    1. Potential mechanisms for public interpretation may include signage, portable/temporary public or museum type displays, handouts and Internet-based materials.
    2. Potential locations for public interpretive displays may include the WHS Wade House Historic Site, other public buildings, or historical centers.
- The mechanism for the public interpretation will be chosen within one (1) year after the execution of this amended MOA. The public interpretation plan will be completed within one (1) year after the mechanism(s) of interpretation is selected.
- WisDOT will ensure all appropriate records and materials resulting from the archaeological investigations are curated in accordance with the Secretary of Interior Guidelines, 36 CFR 79.
- On or before January 1 of each year until the terms of this agreement have been fulfilled, FHWA or its agent shall prepare and provide an annual report to the SHPO, consulting tribes addressing the stipulations in this MOA.
- WisDOT will ensure that an interim report of findings will be submitted to the SHPO annually, until completion of the data recovery, which consists of field and laboratory work.
- The archaeologist will provide WisDOT a draft technical report for review by June 29, 2018. All reports will be in compliance with contemporary professional standards and with the Department of Interior's Format Standards for Final Reports of Data Recovery Programs (47 FR 5377-79). Precise locational data may be provided only in a separate appendix if it appears that its release could jeopardize the security of the archaeological site(s).
- WisDOT shall ensure that all archaeological and architecture/history work conducted pursuant to this agreement is carried out by or under the supervision of a person or persons meeting at a minimum the Secretary of the Interior's Professional Qualifications Standards. These guidelines include field research, analysis, report preparation and curation.
- WisDOT will ensure that all archaeological efforts pertaining to human remains are carried out by or under the supervision of a person or persons meeting qualifications stipulated in Wis. Stat. §157.70.
- WisDOT will ensure that information resulting from the archaeological monitor and data recovery is provided to the State Archaeologist in a form acceptable for inclusion in the WHS Historic Preservation - Public History Division database.

Amended Memorandum of Agreement (MOA) Amendment #2 (dated April 2018)
Superseded Amended MOA document executed June 2013 (dated February 2013)
And original Section 106 MOA 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 (MOA) in June-July 2009 (signed on June 2009 and July 2009, respectively) and Amendment #1 to the Memorandum of Agreement was executed in June 2013;

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 stipulations pertaining to St. Mary's Springs Academy were previously deleted by Amendment 1 as they no longer apply due to the revised historic property boundary; 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

Figure 4.7 B-6.2 2018 MOA Amendment #2[3]

[3] Figure 4.7 B-6.2 2018 MOA Amendment #2 was not included in the May 2018 LS SDEIS.

Amended Memorandum of Agreement (MOA) Amendment #2 (dated April 2018)
Superseded Amended MOA document executed June 2013 (dated February 2013)
And original Section 106 MOA dated February 2009
Project ID 1440-13/15-00 (STH 23)
Fond du Lac and Sheboygan Counties, Wisconsin

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

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

Whereas, delay in project schedule require revision to timeframes called out in the Amended Memorandum of Agreement.

Now, therefore, the above-mentioned Amended Memorandum of Agreement of June 2013 is amended by updating its stipulations with the following.

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 has implemented the field component of 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). Data recovery field efforts occurred in September and October of 2014.

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-

Figure 4.7 B-6.2 2018 MOA Amendment #2

Amended Memorandum of Agreement (MOA) Amendment #2 (dated April 2018)
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Project ID 1440-13/15-00 (STH 23)
Fond du Lac and Sheboygan Counties, Wisconsin

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 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. Three copies of monitoring report will be submitted to BTS-Cultural Resources as soon as ground disturbing activities have concluded. Two copies will be forwarded to SHPO.

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. Three copies of survey report will be submitted to BTS-Cultural Resources as soon as survey is complete. Two copies will be forwarded to SHPO.
   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.

Figure 4.7 B-6.2 2018 MOA Amendment #2

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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

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.

Figure 4.7 B-6.2 2018 MOA Amendment #2

Amended Memorandum of Agreement (MOA) Amendment #2 (dated April 2018)
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P5. The mechanism for the public interpretation will be chosen within one (1) year after the execution of this amended MOA. The public interpretation plan will be completed within one (1) year after the mechanism(s) of interpretation is selected.

IV. Curation

C1. WisDOT will ensure all appropriate records and materials resulting from the archaeological investigations are curated in accordance with the Secretary of Interior Guidelines, 36 CFR 79.

V. Administrative Conditions

A. Reports on Implementation – 36 CFR 800.6

R1. On or before January 1 of each year until the terms of this agreement have been fulfilled, FHWA or its agent shall prepare and provide an annual report to the SHPO, consulting tribes addressing the stipulations in this MOA.

R2. WisDOT will ensure that an interim report of findings will be submitted to the SHPO annually, until completion of the data recovery, which consists of field and laboratory work.

R3. The archaeologist will provide WisDOT a draft technical report for review by June 29, 2018. All reports will be in compliance with contemporary professional standards and with the Department of Interior's Format Standards for Final Reports of Data Recovery Programs (47 FR 5377-79). Precise locational data may be provided only in a separate appendix if it appears that its release could jeopardize the security of the archaeological site(s).

B. Professional Qualifications

Q1. WisDOT shall ensure that all archaeological and architecture/history work conducted pursuant to this agreement is carried out by or under the supervision of a person or persons meeting at a minimum the Secretary of the Interior's Professional Qualifications Standards. These guidelines include field research, analysis, report preparation and curation.

Q2. WisDOT will ensure that all archaeological efforts pertaining to human remains are carried out by or under the supervision of a person or persons meeting qualifications stipulated in Wis. Stat. §157.70.

C. ASI Updates

D1. WisDOT will ensure that information resulting from the archaeological monitor and data recovery is provided to the State Archaeologist in a form acceptable for inclusion in the WHS Historic Preservation - Public History Division database.

Figure 4.7 B-6.2 2018 MOA Amendment #2

Amended Memorandum of Agreement (MOA) Amendment #2 (dated April 2018)
Superseded Amended MOA document executed June 2013 (dated February 2013)
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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 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 ten (10) years of execution of this amended MOA, 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.

Figure 4.7 B-6.2 2018 MOA Amendment #2

Amended Memorandum of Agreement (MOA) Amendment #2 (dated January 2018)
Superseded Amended MOA document executed June 2013 (dated February 2013)
And original Section 106 MOA 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: 5-31-18

Bethaney Bacher-Gresock, Environmental Protection Specialist for Michael Davies, P.E. FHWA Wisconsin Division Administrator

Wisconsin State Historic Preservation Office

By: [redacted] Date: 4/24/18

Jim Draeger, Wisconsin State Historic Preservation Officer

Invited Signatories:

Wisconsin Department of Transportation

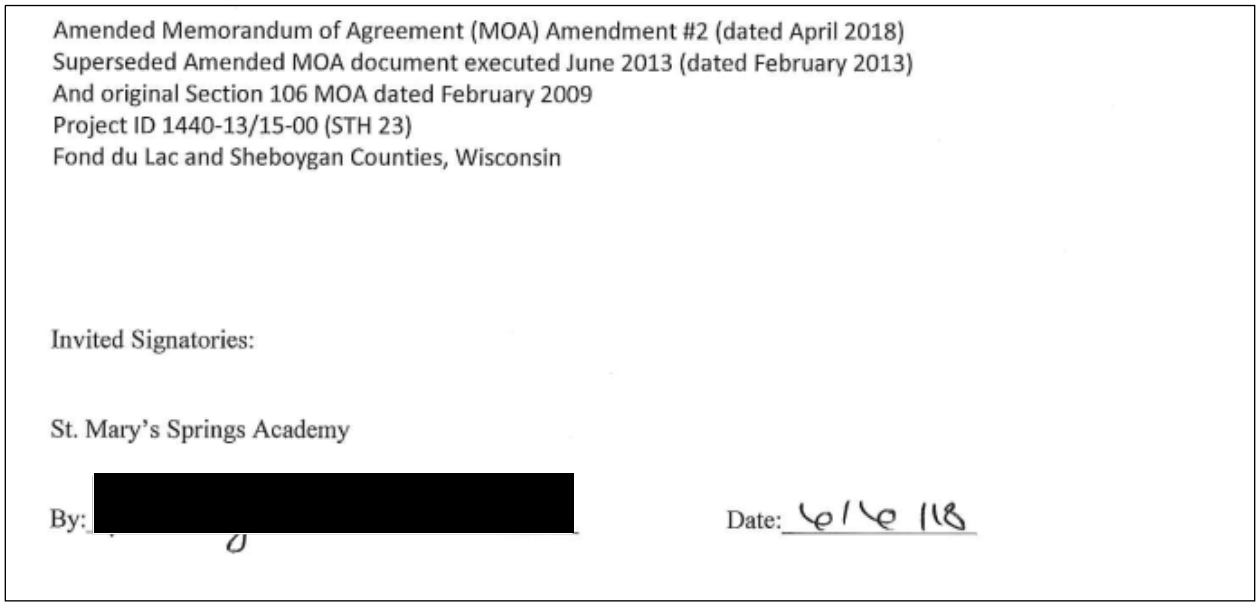
By: [redacted] Date: 5-31-18

Wisconsin Department of Transportation Historic Preservation Officer

St. Mary's Springs Academy

By:_____ Date:_____

Figure 4.7 B-6.2 2018 MOA Amendment #2



Amended Memorandum of Agreement (MOA) Amendment #2 (dated April 2018)
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And original Section 106 MOA dated February 2009
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Fond du Lac and Sheboygan Counties, Wisconsin

Invited Signatories:

St. Mary's Springs Academy

By: [redacted] Date: 6/16/18

Figure 4.7 B-6.2 2018 MOA Amendment #2

06-0864/FD/SB

SHPO

MAR 2 9 2018

SECTION 106 REVIEW ARCHAEOLOGICAL/HISTORICAL INFORMATION

Wisconsin Department of Transportation
DT1635 6/2014

For instructions, see FDM Chapter 26.

I. PROJECT INFORMATION

☒ Amended Submittal *(include new information only)*

Project ID	Highway – Street	County
1440-13/15-00	WIS 23	Fond du Lac/Sheboygan
Project Termini		**Region – Office**
US 151 to CTH P		Northeast
Regional Project Engineer – Project Manager		**(Area Code) Telephone Number**
Bryan Lipke		(920) 492-5703
Consultant Project Engineer – Project Manager		**(Area Code) Telephone Number**
Tom Lynch		(608) 251-4843
Archaeological Consultant		**(Area Code) Telephone Number**
Commonwealth Heritage Group		(414) 446-4121
Architecture/History Consultant		**(Area Code) Telephone Number**
Commonwealth Heritage Group		(414) 446-4121
Date of Need		**SHSW Number**
		14-0615
Return a Signed Copy of This Form to		

II. PROJECT DESCRIPTION

Project Length	Land to be Acquired: Fee Simple	Land to be Acquired: Easement
19.7 miles	410 acres	minimal acres

Distance as measured from existing centerline	Existing	Proposed	Other Factors	Existing	Proposed
Right-of-Way Width US 151 to CTH K CTH K to CTH UU CTH UU TO CTH P	Varies 66' to 100'	Varies 170' 200'	Terrace Width	NA	NA
Shoulder	6'	6' to 10'	Sidewalk Width	NA	NA
Slope Intercept	From CL 30' to 50'	From CL 80' to 100'	Number of Lanes	2	4
Edge of Pavement	From CL 12'	From CL 72'	Grade Separated Crossing including Ice Age Trail Crossing	0	12
Back of Curb Line	NA	NA	Vision Triangle acres	NA	NA
Realignment	NA	NA	Temporary Bypass acres	NA	NA
Other – List:			Stream Channel Change	☐ Yes	☒ No
Attach Map(s) that Depict "Maximum" Impacts.	☐ Yes	☐ No	Tree Topping and/or Grubbing	☐ Yes	☒ No

Brief Narrative Project Description: Include all ground disturbing activities. For archaeology, include plan view map indicating the maximum area of ground disturbance and/or new right-of-way, whichever is greater. Include all temporary, limited and permanent easements. For amendments (e.g. design refinements, scope changes, etc) description should only include new/added project actions and materials.

Amendment: The APE and ground disturbing activities are the same as stated in the previous Section 106 form (9/18/2007 updated 2010) and the 3/19/2013 Amended Memorandum of Agreement. Due to the time delay, this amendment resurveyed structures within the APE and updated previously surveyed structures as appropriate. No additional properties were identified to survey. This amendment also includes a review of the Wisconsin Preservation Data Base to identify possible newly recorded resources within the APE. The amendment includes investigations for one site (47SB0440) not previously investigated. This site does not extend into the area of potential disturbance or the APE.

☐ Add continuation sheet, if needed.

Figure 4.7 B-6.3 Section 106 Form[4]

[4] Figure 4.7 B-6.3 Section 106 Form was not included in the May 2018 LS SDEIS.

SECTION 106 REVIEW ARCHAEOLOGICAL/HISTORICAL INFORMATION *(continued)*

Wisconsin Department of Transportation DT1635

III. CONSULTATION

How has notification of the project been provided to:

Property Owners	Historical Societies/Organizations	Native American Tribes
☒ Public Information Meeting Notice	☐ Public Information Meeting Notice	☒ Public Info. Mtg. Notice
☐ Letter - Required for Archaeology	☐ Letter	☒ Letter
☐ Telephone Call	☐ Telephone Call	☐ Telephone Call
☐ Other:	☐ Other:	☐ Other:

Attach one copy of the base letter, list of addresses and comments received. For history include telephone memos as appropriate.

IV. AREA OF POTENTIAL EFFECTS – APE

ARCHAEOLOGY: Area of potential effect for archaeology is the existing and proposed ROW, temporary and permanent easements. Agricultural practices do not constitute a ground disturbance exemption.

HISTORY: Describe the area of potential effects for buildings/structures.

The APE is the same as previous Section 106 form signed on 9/18/2007.

V. PHASE I – ARCHAEOLOGICAL OR RECONNAISSANCE HISTORY SURVEY NEEDED

ARCHAEOLOGY	HISTORY
☐ Archaeological survey **is needed**	☒ Architecture/History survey **is needed**
☒ Archaeological survey **is not needed**	☐ Architecture/History survey **is not needed**
☐ Screening list (date)	☐ Screening list (date)
☐ Burial site in project area, Wis. Stat. 157.70 applies	☐ No structures or buildings of any kind within APE
☒ Letter Report	☐ Non-Survey History Documentation attached

VI. SURVEY COMPLETED

ARCHAEOLOGY	HISTORY
☐ **NO** archaeological sites(s) identified – ASFR attached	☐ **NO** buildings/structures identified – Report attached
☐ **NO** potentially eligible site(s) in project area – ~~Phase I Report attached~~	☐ Potentially eligible buildings/structures identified in the APE – Report attached
☐ Potentially eligible site(s) identified-Phase I Report attached	☐ Avoided through redesign
☐ Avoided through redesign	☒ Previously listed/eligible property identified in the APE – Report attached
☐ Phase II conducted – go to VII (Evaluation)	
☐ Phase I Report – Cemetery/cataloged burial documentation	

VII. DETERMINATION OF ELIGIBILITY (EVALUATION) COMPLETED

☐ No arch site(s) eligible for NRHP – Phase II Report attached	☐ No buildings/structure(s) eligible for NRHP – DOE attached
☐ Arch site(s) eligible for NRHP – Phase II Report attached	☐ Building/structure(s) eligible for NRHP – DOE attached
☐ Site(s) eligible for NRHP – DOE attached	

VIII. COMMITMENTS/SPECIAL PROVISIONS – must be included with special provisions language

☒ Per Wis. Stat. 157.70 obtain burial authorization from WHS one year prior to construction.

47FO245/BFO-0197 and 47FO17/BFO-0150

IX. PROJECT DECISION

☐ No historic properties (historical or archaeological) in the APE.

☐ No historic properties (historical or archaeological) affected. *

☐ Historic properties (historical and/or archaeological) may be affected by project;

☒ Go to Step 4: Assess affects and begin consultation on affects.

☐ Documentation for Determination of No Adverse Effects is included with this form. WisDOT has concluded that this project will have No Adverse Effect on historic properties. Signature by SHPO below indicates SHPO concurrence in the DNAE and concludes the Section 106 Review process for this project.

X. SIGNATURES

X [redacted] 01/22/18
(Regional Project Manager Signature) (Date – m/d/yy)

X [redacted] 3/28/18
(WisDOT Historic Preservation Officer Signature) (Date – m/d/yy)

X [redacted]
(State Preservation Officer Signature) (Date – m/d/yy)
April 20 2018

X [redacted] 12/20/17
(Consultant Project Manager Signature) (Date – m/d/yy)

Figure 4.7 B-6.3 Section 106 Form

Definitions of Section 4(f) and Section 6(f) properties and other unique areas are added as an introduction to this factor sheet to provide background for the reader. Summary information regarding the specific Section 4(f) and 6(f) resources and other unique areas is provided in this factor sheet. Section 4(f) and 6(f) evaluations with more detailed information are in Section 5.

- The Taycheedah Creek Wetland Mitigation Site, located in the southwest corner of the existing US 151 and WIS 23 interchange, is not discussed in this document. As noted in Section 2.1-A, this LS SEIS adopts the 2014 LS SFEIS decision to select the No Corridor Preservation Alternative for the US 151/WIS 23 interchange. As a result of the No Corridor Preservation selection, none of the current project alternatives impact the US 151/WIS 23 interchange or the Taycheedah Creek Wetland Mitigation Site. Discussion about the site is incorporated by reference (2014 LS SFEIS).
- At the St. Mary's Springs Academy site, the 2014 LS SFEIS noted there was no longer a Section 4(f) use of the property. That status has not changed. All of the build alternatives are the same in the vicinity of the property. The site is briefly summarized in Section 4.7B-5 and the full discussion is incorporated by reference (2014 LS SFEIS).
- The 2014 LS SFEIS included a Section 4(f) *de minimis* finding for the Old Wade House State Park. The property is no longer a state park, is now owned by the Wisconsin Historical Society, and is called the Wade House Historic Site.
- Additional unique areas including a scenic drive, a rustic road, and two types of trails are added to this factor sheet.

4.7 B-8 SECTION 4(f) AND 6(f) OR OTHER UNIQUE AREAS Factor Sheet B-8

Section 4(f), 6(f) and other Unique Areas

Section 4(f) refers to the original section within the U.S. Department of Transportation (USDOT) Act of 1966 which established the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. The law, now codified in 49 USC 303 and 23 USC 138, is implemented by the FHWA through the regulation 23 CFR 774. Section 4(f) properties include publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed, or eligible for listing, on the NRHP.

Section 4(f) applies to projects that receive funding from or require approval by an agency of the USDOT. Before approving a project that uses Section 4(f) property, FHWA must either (1) determine that the impacts are *de minimis* (see below), or (2) undertake a Section 4(f) Evaluation. If the Section 4(f) Evaluation identifies a feasible and prudent alternative that completely avoids Section 4(f) properties, it must be selected. If there is no feasible and prudent alternative that avoids all Section 4(f) properties, FHWA has some discretion in selecting the alternative that causes the least overall harm. FHWA must also find that all possible planning to minimize harm to the Section 4(f) property has occurred.

For publicly owned public parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that will not adversely affect the activities, features, or attributes of the property. For historic sites, a *de minimis* impact means that FHWA has determined (in accordance with 36 CFR Part 800) that either no historic property is affected by the project or that the project will have "no adverse effect" on the historic property. A *de minimis* impact determination does not require analysis to determine if avoidance alternatives are feasible and prudent, but consideration of avoidance, minimization, mitigation or enhancement measures should occur.

The FHWA is ultimately responsible for making all decisions related to Section 4(f) compliance. Section 6(f) of the Land and Water Conservation Fund Act (16 USC 4601) requires that the conversion of lands or facilities acquired with Land and Water Conservation Fund monies [previously LAWCON, now Land and Water Conservation Fund (LWCF)] to uses associated with highway improvements be

coordinated with the US Department of Interior. When properties with LWCF funding are needed for highway improvements, typically replacement land conversions are required. The National Park Service (NPS), a bureau of the US Department of Interior, is responsible for approval of LWCF monies and land conversion requests.

Other unique areas along WIS 23 are properties with unique ownership or property uses, properties where WisDOT has made a commitment of some type or are scenic routes or recreational trails.

1. Property Names

Table 4.7 B-8.1 lists 14 resources or properties[5] within the WIS 23 corridor that are unique and may have special protections. Four of these properties have a Section 4(f) use. Some Section 4(f) resources are coincident with other Section 4(f) resources. Coordination with WDNR resulted in identification of two properties considered Section 6(f) properties. The general property locations and more detailed site figures are provided in this factor sheet and in the Section 4(f) and 6(f) Evaluations in Section 5.

Table 4.7 B-8.1 Unique Properties

Property Name and Location	Description/Comments	Section 4(f) and 6(f) Applicability
Northern Unit of the Kettle Moraine State Forest *Near Greenbush, between County A and County S*	The northern unit contains approximately 30,000 acres of forestlands. Outdoor recreation is the primary use. Owned and administered by WDNR. LCWF was used for property purchase.	A Section 4(f) *de minimis* impact finding is included in Section 5.3. This effect finding combines the KMSF-NU with the IAT/Equestrian Trail because the resources are coincident. A Section 6(f) evaluation is included as Section 5.6.
Ice Age Trail *Within KMSF-NU*	Designated a National Scenic Trail and is Wisconsin's only State Scenic Trail. The trail is administered by the NPS in cooperation with the WDNR and the Ice Age Park and Trail Foundation. The trail crosses WIS 23 near Julie Road within the KMSF-NU Management Area.	A Section 4(f) *de minimis* impact finding is included in Section 5.3. This effect finding combines the IAT with the KMSF-NU and the State Equestrian Trail because the resources are coincident.
State Equestrian Trail *Adjacent to IAT*	The bridle trail winds through the forest (39.5 miles). It is owned and maintained by WDNR. The trail crosses WIS 23 near Julie Road within the KMSF-NU Management Area.	A Section 4(f) *de minimis* impact finding is included in Section 5.3. This effect finding combines the State Equestrian Trail with the KMSF-NU and the IAT because the resources are coincident.
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 IAT in the KMSF-NU.	Not considered a Section 4(f) resource according 23 CFR 774.13(f) which 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.

[5] Changes to the chart from the 2014 LS SFEIS include removal of the Taycheedah Wetland Mitigation Site because it is no longer in the project limits, and the addition of the last four resources in the table based on comments made at the 2017 indirect and cumulative effects workshop and following the 2017 public involvement meeting.

Table 4.7 B-8.1 Unique Properties

Property Name and Location	Description/Comments	Section 4(f) and 6(f) Applicability
Wade House Historic Site *Town of Greenbush*	The former Old Wade House State Park property discussed in the 2014 LS SFEIS is no longer a state park. It is now owned by the WHS and is now called Wade House Historic Site. The property includes over 500 acres of land surrounding several historic structures on the NRHP. The nearest historic structure is 1/4 mile south of WIS 23. A section of the Old Plank Road Trail extension will pass through the north end of the property. A new visitor center/carriage museum adjacent to WIS 23 opened in 2013.	A Section 4(f) finding of *de minimis* impact on parks, recreation areas, and wildlife and waterfowl refuges and a finding of *de minimis* impact on historic property is included in Section 5.4. The property also received Land and Water Conservation Fund (LWCF) funds and the WDNR cleared interests for the purpose of WIS 23 reconstruction. Section 6(f) replacement lands are not required.
Wetland Enhancement and Mitigation Site at Wade House *Town of Greenbush*	During the Robinson Hurling Dam restoration project, on the north end of the former Old Wade House State Park (no longer a park), the WHS constructed a wetland mitigation and enhancement site south of WIS 23. Coordination with state (WHS/WDNR) and federal agencies (USACE) has not identified covenants or permit conditions placed on existing mitigation lands.	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). A discussion of the unique property is provided in this factor sheet.
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.	Because of revisions in the historic boundary prior to the 2014 LS SFEIS, there is no longer a Section 4(f) use of the property. The property is noted but has no stipulations in the amended MOA signed by SHPO on April 24, 2018. WisDOT committed to move a statue for the owners in a letter dated May 31, 2013 and included in Section 5 of the 2014 LS SFEIS.
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.
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 Sippel Site is discussed in Section 5.5. 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) status when the resource has minimal value for preservation in place and the SHPO does not object to this finding.
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).

Table 4.7 B-8.1 Unique Properties

Property Name and Location	Description/Comments	Section 4(f) and 6(f) Applicability
Kettle Moraine Scenic Drive	The Kettle Moraine Scenic Drive extends 115 miles from Elkhart Lake in Sheboygan County to Whitewater Lake in southeastern Walworth County. This scenic route generally follows county and local roads and is on County A where it crosses WIS 23 in the town of Greenbush.	The route is not considered a Section 4(f) property because the scenic route designation is not intended to create a park or recreation area within the meaning of Section 4(f) according to FHWA's Section 4(f) Policy Paper, Question 22 (July 20, 2012).
Rustic Road R63 (County S)	This Rustic Road extends 2.4 miles on County S from WIS 23 north to the town of Glenbeulah.	The road is not considered a Section 4(f) property because the Rustic Road designation is not intended to create a park or recreation area within the meaning of Section 4(f). FHWA's Section 4(f) Policy Paper Question 22 (July 20, 2012).
Snowmobile Trails	There are several snowmobile trails along the WIS 23 project corridor with 2 mapped trail crossings in Fond du Lac County and 2 mapped crossings in Sheboygan County. Snowmobilers use both county and state trails and private snowmobile club trails on private land. Snowmobiling is allowed on the Old Plank Road Trail.	The snowmobile trails are not considered a Section 4(f) resource according to 23 CFR 774.13(f) which 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,"* The continuity of the trails will be maintained. In addition, Section 4(f) does not apply to trails on privately owned lands unless there is a public easement allowing the public to use the trail and the easement can be interpreted as public ownership for Section 4(f) purposes. FHWA's Section 4(f) Policy Paper Question 15D (July 20, 2012).
All-Terrain Vehicle (ATV) Trails	There are no known mapped ATV trails along the project corridor. A local ATV club identified a winter-only ATV/snowmobile trail crossing of WIS 23 just west of Triple T Road. The club also indicated Hillview Road is an ATV road route, with ATV crossing of WIS 23 on Hillview Road. Both of these crossings are in the town of Forest.	The ATV trails are not considered a Section 4(f) resource according 23 CFR 774.13(f) which 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."* The continuity of the trails will be maintained. In addition, Section 4(f) does not apply to trails on privately owned lands unless there is a public easement allowing the public to use the trail and the easement can be interpreted as public ownership for Section 4(f) purposes. FHWA's Section 4(f) Policy Paper Question 15D (July 20, 2012).

2. Location

Figure 4.7 B-8.1 is a map that schematically illustrates locations of the resources listed in Table 4.7 B-8.1. Figure 4.7 B-8.2 illustrates the various snowmobile and ATV trails in more detail.

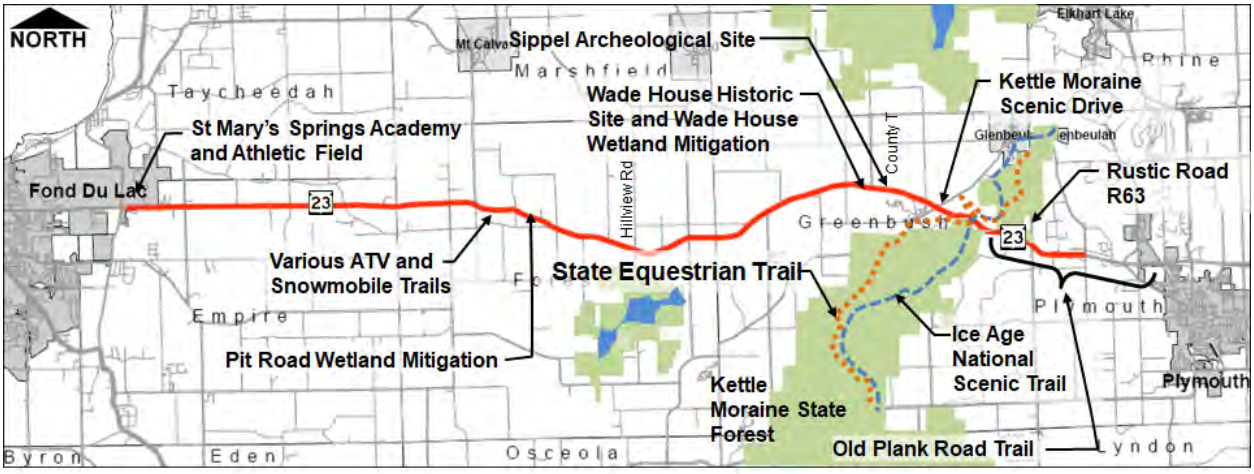

Figure 4.7 B-8.1 Unique Area Locations

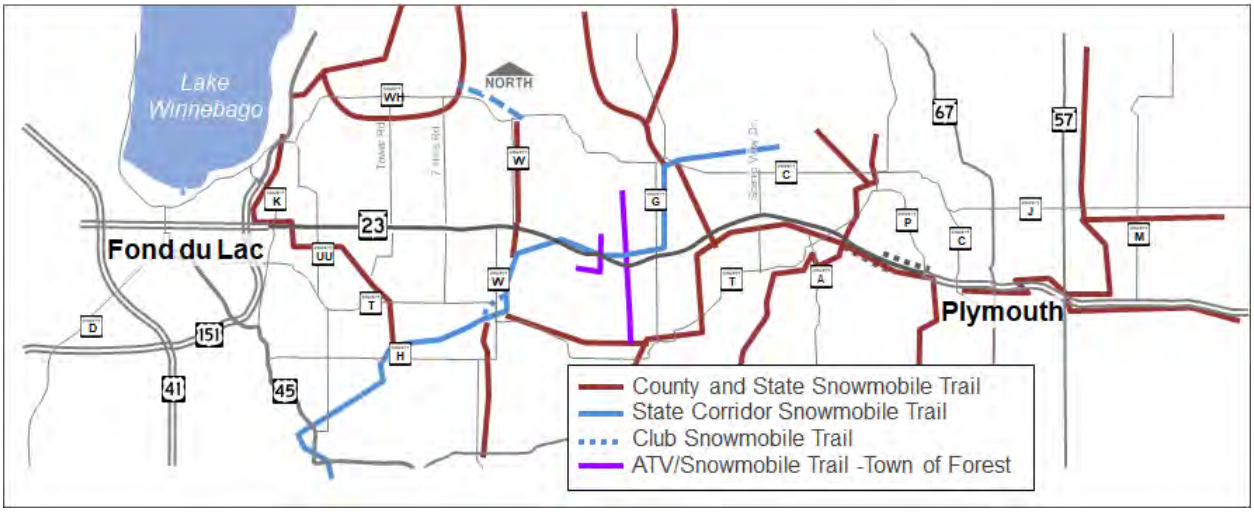

Figure 4.7 B-8.2 Snowmobile and ATV Trail Locations

3. Ownership or Administration: See Table 4.7 B-8.1.

4. Type of Resource:

- ☒ Public Park.
  KMSF-NU, State Equestrian Trail
- ☒ Recreational lands.
  Old Plank Road Trail, St. Mary's Springs Athletic Field
- ☒ 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).
  Wade House Historic Site, St. Mary's Springs Academy, Sippel Archaeological Site
- ☒ Other–Identify:
  Wetland Mitigation Sites including Wade House Wetland Enhancement and Mitigation Site, Pit Road Wetland Mitigation Site. Kettle Moraine Scenic Drive, Rustic Road R63, Snowmobile Trails, and ATV Trails.

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 minimis* effect finding.
- ☐ Interstate Highway System Exemption.
- ☒ Other–Explain:
  See Section 5 and Table 4.7 B-8.1 for Section 4(f) information on each site.

☒ 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. Two Section 4(f) *De Minimis* Findings are provided in Section 5, one for the Wade House Historic Site and one for the KMSF-NU/IAT/State Equestrian Trail.

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). – The KMSF-NU, and Wade House Historic Site – See Section 5.
- ☐ 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 KMSF-NU, the IAT, and the State Equestrian Trail are discussed in Section 5.3.
- The Wade House Historic Site is discussed in Section 5.4.
- The St. Mary's Springs Academy is discussed in Section 4.7 B-5.
- The Sippel Archaeological Site is discussed in Section 5.5.

The following paragraphs describe unique properties that are not Section 4(f) properties.

A. Wetland Mitigation Site

The Wetland Mitigation Site on the Wade House Historic Site (Figure 4.7 B-8.3) was created during the Herrling Sawmill and Dam restoration project in the late 1990s. The USACE issued a permit, 1996-04005, allowing for wetland mitigation and enhancement south of WIS 23. As part of each of the WIS 23 alternatives, the Old Plank Road Trail extension would be placed south of WIS 23 at the north edge of the Wade House Wetland Enhancement and Mitigation Site. Impacts to the upland areas of the mitigation site were minimized by shifting the trail closer to WIS 23. The Wade House managers are aware of this

impact. In 2012 the Wade House constructed a Visitors Center north of the main building area near the future Old Plank Road Trail. No impacts are anticipated to the Wade House Visitor Center and Wade House managers view the trail as a benefit. Coordination with the WHS, WDNR, and USACE did not identify covenants or permit conditions placed on existing wetland mitigation lands.

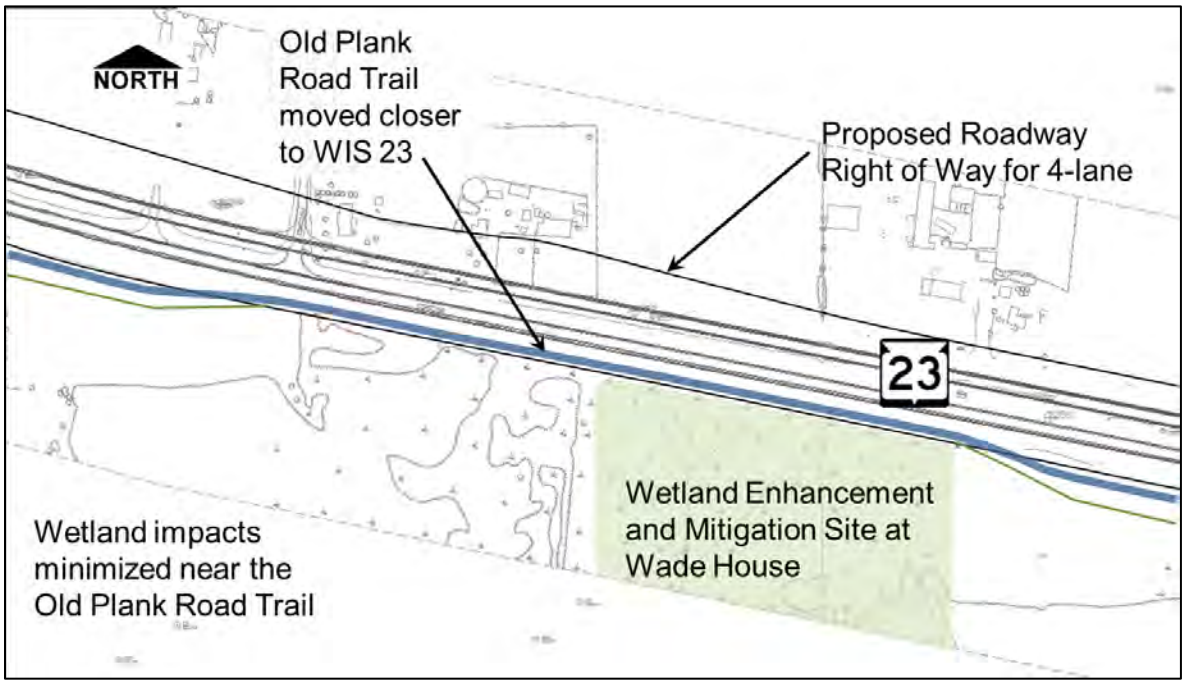

Figure 4.7 B-8.3 Wade House Wetland Enhancement and Mitigation Site

B. Old Plank Road Trail

The Old Plank Road Trail is an existing 17-mile multiuse trail that accommodates bicyclists, runners, walkers, in-line skaters, horseback riders, moped users, Nordic skiers, and snowmobile riders. The multiuse trail is owned and maintained by Sheboygan County and has a 10-foot wide asphalt surface. The trail parallels WIS 23 from the city of Plymouth to the town of Greenbush, linking with the IAT in the KMSF-NU. This trail was built on existing highway right of way and therefore there is no Section 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 4.7 B-8.1. Starting at the east end of the project, the trail will be extended to the west and connected with the Prairie Trail in the city of Fond du Lac. The trail will be located along the south side of WIS 23 from Plank Road 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. All of the build alternatives include maintaining trail continuity and the extension of the Old Plank Road Trail.

C. Pit Road Wetland Mitigation Site

This 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 in Fond du Lac County. 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 not a Section 4(f) or 6(f) resource. None of the build alternatives impact the site as shown on Figures 4.7 B-8.4 and 4.7 B-8.5.

Figure 4.7 B-8.4 Pit Road Site–4-lane On-alignment and Hybrid Alternatives

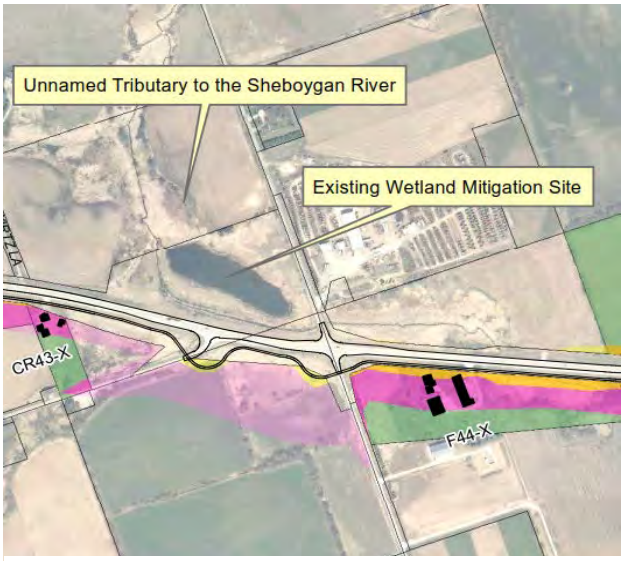

Figure 4.7 B-8.5 Pit Road Site–Passing Lane Alternative

D. Kettle Moraine Scenic Drive

The Kettle Moraine Scenic Drive is a 115-mile designated scenic route that traverses six Wisconsin counties in southeastern Wisconsin and links the two units of the Kettle Moraine State Forest (Figure 4.7 B-8.6). The route traverses through scenic and historic areas with the northern end near Elkhart Lake in northern Sheboygan County and the southern end at Whitewater Lake in southeastern Walworth County. The Kettle Moraine Scenic Drive generally follows county and local roads. It is located on County A where it crosses WIS 23 within the project limits in the town of Greenbush. The route is not considered a Section 4(f) property because the scenic route designation is not intended to create a park or recreation area within the meaning of Section 4(f) according to FHWA's Section 4(f) Policy Paper, Question 22 (July 20, 2012). All of the build alternatives retain access to County A (Kettle Moraine Scenic Drive). The Passing Lane and Hybrid Alternatives retain an at-grade, full access intersection. The 4-lane On-alignment Alternative installs a RCUT type of intersection. County A (Kettle Moraine Scenic Drive) in each alternative is shown in the figures at the end of Section 2.

Figure 4.7 B-8.6 Kettle Moraine Scenic Drive

E. Rustic Road

There is a Rustic Road on a portion of County S in Sheboygan County. WisDOT created the Rustic Roads program over 40 years ago to provide hikers, bicyclists and motorists an opportunity to leisurely travel through the state's scenic countryside. Today, there are 120 designated Rustic Roads spanning more than 724 miles through 59 counties. The Rustic Road designation on County S extends 2.4 miles from WIS 23 north to the town of Glenbeulah. The scenic road is a county highway, owned and maintained by Sheboygan County, and has both paved and gravel portions. The Rustic Road rests on the

remains of glacial sand and stone with the northern portion running through the KMSF-NU on steep Kettle Moraine hills and curves. The route ends at the limits of the historic town of Glenbeulah. This road is not considered a Section 4(f) property because the Rustic Road designation is not intended to create a park or recreation area within the meaning of Section 4(f) according to FHWA's Section 4(f) Policy Paper, Question 22 (July 20, 2012). Rustic Road R63 is shown on Figure 4.7 B-8.7. The Passing Lane and Hybrid Alternatives retain a full-access at-grade intersection at County S. The 4-lane On-alignment Alternative installs a RCUT type of intersection. County S in each alternative is shown in the figures at the end of Section 2.

F. Snowmobile Trails

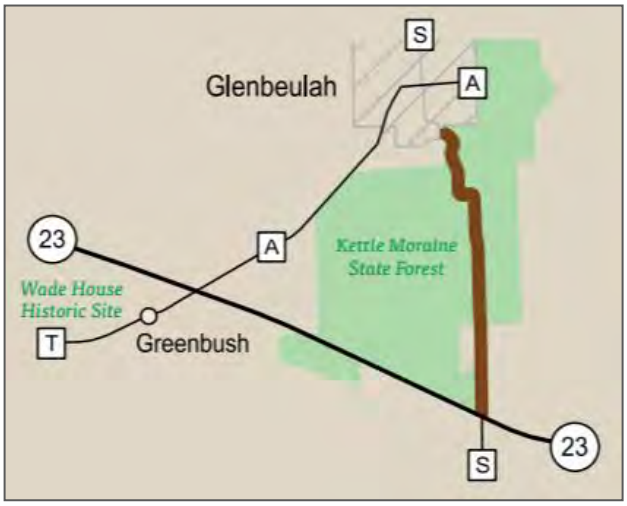

Figure 4.7 B-8.7 Rustic Road County S
(courtesy of WisDOT)

There are several snowmobile trails along the WIS 23 project corridor. Snowmobilers use both county and state trails and private club trails on private lands. The location of snowmobile trails on private lands and their WIS 23 crossings may change some from year to year depending on the snowmobile clubs' ability to gain access. Within the project limits, the better known, mapped state and county trails cross WIS 23 at two locations in Fond du Lac County (just east of County W North and at Pit Road) and at two locations in Sheboygan County (at Scenic Road and at Plank Road). A winter-only ATV/snowmobile trail crossing in the town of Forest was also reported to cross WIS 23 just west of Triple T Road. Snowmobiling is also allowed on the Old Plank Road Trail. The snowmobile trails are not considered a Section 4(f) resource according to the exception in 23 CFR 774.13(f). In addition, Section 4(f) does not apply to trails on privately owned lands according to FHWA's Section 4(f) Policy Paper Question 15D (July 20, 2012). The snowmobile trails are shown on Figure 4.7 B-8.8. For each of the build alternatives, snowmobile trail continuity will be maintained. Establishing new crossings or maintaining existing crossings will be evaluated by WisDOT and local governments during final design. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

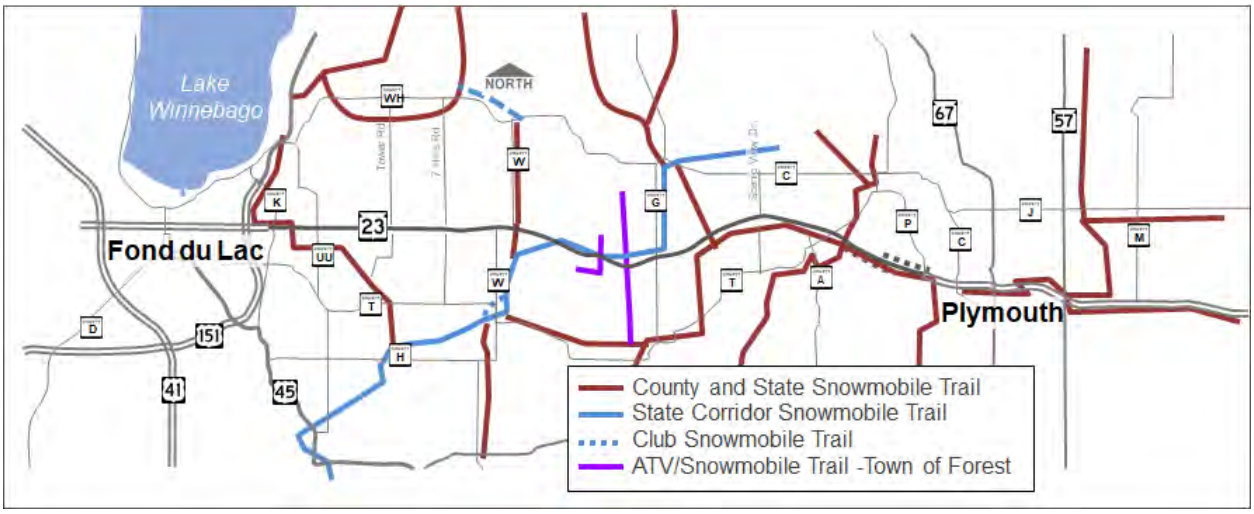

Figure 4.7 B-8.8 Snowmobile Trails in the Project Corridor

G. ATV Trails

There are no mapped ATV Trails in Fond du Lac County or Sheboygan County. A winter-only ATV trail and snowmobile trail is located along the south side of WIS 23 from Banner Road to Triple T Road. This trail crosses WIS 23 just west of Triple T Road. Hillview Road is a year-round ATV road route and ATVs cross WIS 23 on this town of Forest road. The ATV trails are not considered a Section 4(f) resource according to the exception in 23 CFR 774.13(f). In addition, Section 4(f) does not apply to trails on privately owned lands according to FHWA's Section 4(f) Policy Paper Question 15D (July 20, 2012). For each of the build alternatives, ATV trail continuity will be maintained. Establishing new crossings or maintaining existing crossings will be evaluated by WisDOT and local governments during final design. In the future, if WisDOT determines that transportation improvements are needed within preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

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.
The description of effects on or uses of the unique areas that are not Section 4(f) properties is provided under the previous question 7.

b. Discuss the following alternatives and describe whether they are feasible and prudent and why:

Section 4(f) properties are discussed in Section 5. Feasible and prudent alternatives are not required with Section 4(f) *de minimis* impacts.

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.

The KMSF-NU had approximately 2.21 acres of land acquired for highway right of way. These 2.21 acres were acquired in three sections along the north side of WIS 23. As part of the Section 6(f) conversion request, WisDOT has purchased a 4.275-acre triangle of replacement land and transferred it to the state forest (WDNR) February 18, 2016. The land will be used to install a grade-separated trail crossing under WIS 23 to offset effects to the IAT and the State Equestrian Trail. The underpass and added forestland will provide a safer trail crossing of WIS 23 and provide more direct trail routing.

Wetland impacts, when encountered, will be restored at appropriate ratios (see Section 4.7 C-1). 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 Section 4.7 B-5 and 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.

Information for the Aesthetics Evaluation Factor Sheet has been augmented and updated, but there are no substantive changes from the 2014 LS SFEIS.

4.7 B-9 AESTHETICS EVALUATION Factor Sheet B-9

1. Landscape Characteristics:

a. Identify and briefly describe the visual character of the landscape:

WIS 23 in 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 1.3 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 5.0 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, 7.9 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 KMSF-NU. The KMSF-NU and surrounding areas are made up of heavily forested ridges, conical hills, and flat outwash plains, mostly composed of sand and gravel. From the KMSF-NU, WIS 23 follows a fairly steep grade toward County P, 4.8 miles, as the KMSF-NU 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 <u>view of</u> the improved transportation facility:

<u>All Build Alternatives</u>

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, patrons of Holy Family Catholic Church, and patrons of Grace Christian Church 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.

Visitors of the Wade House Historic Site and KMSF-NU trail users may have views of the improved WIS 23 facility, depending on where they are located within the property.

<u>All Corridor Preservation associated with the Build Alternatives</u>

Improvements associated with corridor preservation feature a 4-lane divided highway throughout the corridor and added interchanges and overpasses. The interchanges and overpasses would raise roadways and may increase the number of viewers who can see WIS 23, particularly the grade-separated crossings. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

b. Identify and discuss users of the transportation facility who will have a view from the facility:

The primary viewers from WIS 23 would 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 would have additional viewing opportunities from the Old Plank Road Trail.

3. Effects:

a. Describe whether and how the project would affect the visual character of the landscape:

No-Build Alternative

There would be no change of visual character.

Passing Lane Alternative

The Passing Lane Alternative would increase the width of the right of way at locations where new passing lanes are proposed and at intersections where right and left turn lanes would be added or enhanced. This would require clearing vegetation and trees, creating a broader corridor without vegetation at these locations. The view of the roadway corridor would become more pronounced at locations where passing lanes are added and intersection turning movement enhancements are made. Some features, such as drumlins or wetlands, would require grading.

The Old Plank Road Trail does not currently exist along the entire corridor. Trail users would have country views to one side and views of a 2-lane highway to the other side. The trail would increase the width of the transportation corridor, yet it probably would not greatly reduce the visual quality for adjacent residents.

Corridor Preservation Associated with Passing Lane Alternative

Improvements associated with corridor preservation would include expanding to a 4-lane divided highway throughout the corridor and constructing interchanges and overpasses. The width of the highway would increase, requiring clearing vegetation and trees. Interchanges and overpasses would raise the roadway, which could block rural views for both WIS 23 users and residents located near the grade-separated crossings. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Hybrid Alternative

The Hybrid Alternative would increase the width of the highway right of way similar to the Passing Lane Alternative in Sheboygan County and similar to the 4-lane On-alignment Alternative in Fond du Lac County. This would require clearing vegetation and trees, creating a broader corridor without vegetation at these locations. The view of the roadway corridor would become more pronounced in Fond du Lac County with the 4-lane expansion, and in Sheboygan County at locations where passing lanes are added. Some features, such as drumlins or wetlands, would require grading and expose cuts. Interchanges at County UU and County G would alter the highway landscape and additional land would be required to raise roadways and create ramps. This could block rural views for both travelers on the highway and residents located near the grade-separated crossings.

The Old Plank Road Trail does not currently exist along the entire corridor. Trail users would have country views to one side and views of a 2-lane highway in Sheboygan County and a 4-lane expanded highway in Fond du Lac County to the other side. The trail would increase the width of the transportation corridor, yet it probably would not greatly reduce the visual quality for adjacent residents.

Corridor Preservation Associated with Hybrid Alternative

Improvements associated with corridor preservation would include expanding the 2-lane segment in Sheboygan County to a 4-lane divided highway, thereby widening the highway footprint and requiring vegetation and trees to be cleared. Interchanges and overpasses would raise the roadway, which could block the rural views for both WIS 23 users and residents located near the grade-separated crossings. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

4-lane On-alignment Alternative (Preferred Alternative)

The 4-lane On-alignment Alternative would increase the width of highway right of way by approximately 125 feet. This would require clearing vegetation and trees, creating a broader corridor without vegetation. The view of the roadway corridor would become more pronounced for residents adjacent to the current roadway. Some features such as drumlins or wetlands would require grading and expose cuts. Interchanges at County UU and County G would alter the highway landscape and additional land would be required to raise roadways and create ramps. This could block rural views for both travelers on the highway and residents located near the grade-separated crossings.

The Old Plank Road Trail does not currently exist along the entire corridor. Trail users would have country 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 greatly reduce the visual quality for adjacent residents.

Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Improvements associated with corridor preservation would include constructing interchanges and overpasses which would raise the roadway and could block the rural view of WIS 23 users and residents located near the grade-separated crossings. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

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.

Passing Lane Alternative

This alternative would follow the existing roadway. The property viewers of the improved facility would remain the same, with some viewers being closer to the added passing lanes and expanded intersections. Some residences directly adjacent to the roadway have already been relocated based on the decision in the 2014 LS SFEIS and before the ROD was vacated. Travelers on WIS 23 would view a similar landscape, yet the roadway corridor would be broader at some locations, with some alteration to adjacent topography at those locations. The added passing lanes and expanded intersections would increase the highway footprint, but property viewers would remain the same, with some viewers being closer to the additional lanes.

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 would see a roadway corridor on one side of the trail and existing topography on the other side of the trail.

Corridor Preservation Associated with Passing Lane Alternative

Improvements associated with corridor preservation would bring WIS 23 closer to some viewers and may block the view of residents and businesses located near new overpasses and interchanges. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Hybrid Alternative

This alternative would follow the existing roadway. The property viewers of the improved facility would remain the same, with some viewers being closer to the added passing lanes and expanded intersections in Sheboygan County and closer to additional lanes in Fond du Lac County. Travelers on WIS 23 would view a similar landscape, yet the roadway corridor would be broader at some locations, with some alteration to adjacent topography. The added passing lanes and expanded intersections in Sheboygan County and the 4-lane expansion, overpasses, and interchanges in Fond du Lac County would increase the highway footprint. Some viewers would be closer to the additional lanes. Residents and businesses near an overpass could have their view blocked by that facility.

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 would see a roadway corridor on one side of the trail and existing topography on the other side of the trail.

Corridor Preservation Associated with Hybrid Alternative

Improvements associated with corridor preservation would bring WIS 23 closer to some viewers and may block the view of residents and businesses located near new overpasses and interchanges. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

4-lane On-alignment Alternative (Preferred Alternative)

This alternative would follow the existing roadway. The property viewers of the improved facility would remain the same, with some viewers being closer to the additional lanes. The overall visual impact would be that of a broader corridor. Travelers on WIS 23 would view a similar landscape, yet the roadway corridor would be broader with some alteration to adjacent topography. The 4-lane expansion, overpasses, and interchanges would increase the highway footprint. Some viewers would be closer to the additional lanes. As mentioned, residents and businesses near an overpass could have their view blocked by that facility.

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 Road Trail would see a roadway corridor on one side of the trail and existing topography on the other side of the trail.

Corridor Preservation Associated with 4-lane On-alignment Alternative (Part of the Preferred Alternative)

Improvements associated with corridor preservation may block the view of residents and businesses located near new overpasses and interchanges. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

4. Mitigation:

a. Have aesthetic commitments been made?

☒ No
☐ Yes - Discuss:

No-Build Alternative

There would be no mitigation necessary.

All Build Alternatives

Highway design features will blend existing landscape, planting, and natural vegetation of the cut and fill slopes. WisDOT will preserve the existing vegetation as much as possible. To the extent possible, new plantings would be of grasses, wildflowers, shrub species, and native wetland plant species in disturbed wetlands and mitigation sites.

All Corridor Preservation associated with the Build Alternatives

Corridor preservation would have no effect on aesthetics. No mitigation measures are necessary at this time. In the future, if WisDOT determines that transportation improvements are needed within these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.