

A new wetland determination was completed in 2017. Some information has been augmented and updated, but there are no substantive changes from the 2014 LS SFEIS.

One site previously discussed, 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 2.1A, this LS SEIS adopts the 2014 LS SFEIS decision to select the No Corridor Preservation alternative for the US 151/WIS 23 Connection. The corridor preservation alternatives at that location looked at converting the existing diamond interchange into a system interchange with free-flowing ramps connecting the US 151 expressway with the WIS 23 highway. As a result of the No Corridor Preservation selection, none of the current project alternatives impact the US 151/WIS 23 interchange or this specific site. The discussion about the Taycheedah Creek Wetland Mitigation Site is incorporated by reference (2014 LS SFEIS).

#### 4.7 C-1 WETLANDS EVALUATION

#### Factor Sheet C-1

##### 1. Describe Wetlands:

WisDOT and WDNR staff mapped wetland sites along the existing corridor. The field inventory used a Global Positioning System (GPS) to electronically collect wetland boundaries within the corridor being considered. The boundaries provide greater understanding of the location and type of wetlands than the WDNR Wetland Inventory Mapping. Table 4.7 C-1.1 describes the various types of the wetlands that would be impacted by the alternatives being considered and the wetland acreage for each alternative and type of wetland. Figures 4.7 C-1.2 to 4.7 C-1.6 show the location and type of wetland based on the field review.

During initial field reviews, the WDNR identified several Natural Resource Areas it considered to have high habitat value. The WDNR considered these areas as substantial resource areas involving a combination of habitats or areas of concern regarding potential environmental degradation from the project. (See memo dated March 6, 2003, in Appendix D of the 2010 FEIS.) These WDNR identified Natural Resource Areas are shown in Figures 4.7 C-1.2 to C-1.13 and referenced in Table 4.7 C-1.1. These field reviews allowed for the evaluation of locations of wetlands and their general quality and identification of special habitats in need of avoidance and minimization. The wetland determination was updated in 2017.

In Fond du Lac County, high quality wetlands occur in the following areas:

A. At the Sheboygan River area crossing WIS 23	Riparian emergent wet meadow
B. North of WIS 23 between Pit Road and Triple T Road	Mixed hardwood and cedar swamp
C. South of WIS 23 adjacent to Hillview Road	Mullet Creek Wildlife Area, mixed hardwoods and emergent wet meadow
D. South of WIS 23 near Division Road	Shrub swamp

In Sheboygan County, many of the higher quality wetlands are located south of WIS 23 in the following areas:

D. South of WIS 23 near Division Road	Shrub swamp
E. West of Spring Valley Drive	Meadows and shallow marsh
F. Wade House Historic Site	Meadows and wooded swamp
G. Mullet River	Riparian forest and wooded swamp

Figure 4.7 C-1.1 schematically illustrates the location of these sites with the letter designations listed above.

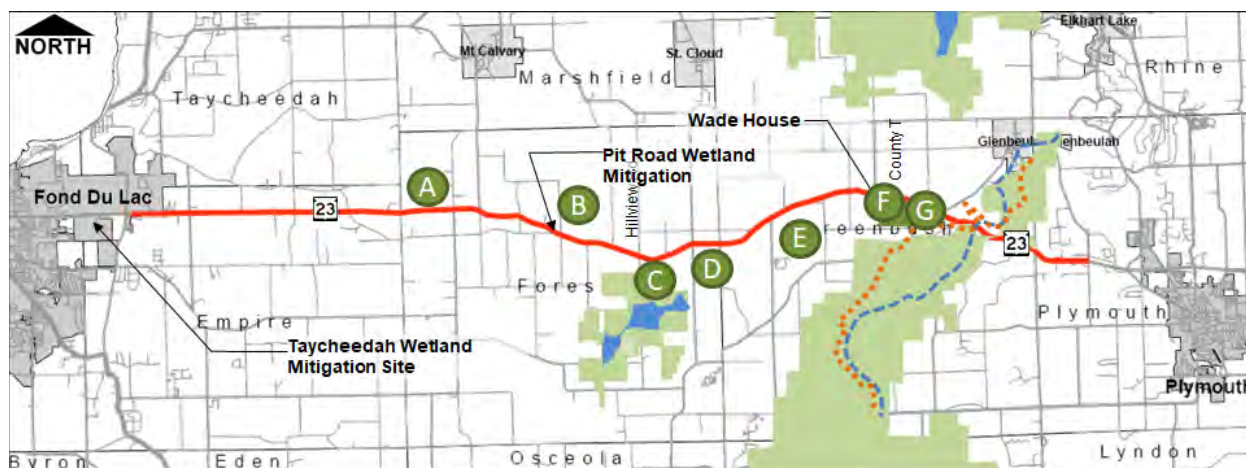


Figure 4.7 C-1.1 High Quality Wetland Sites

There are two existing wetland mitigation sites adjacent to the WIS 23 corridor, the WisDOT/County Pit Road Wetland Mitigation Site and the Wade House Wetland Enhancement and Mitigation Site (see Section 4.7 B-8.7.A and C for more information).

Table 4.7 C-1.1 shows the impacts for the alternatives being evaluated. The acreages have been updated based on the most recent right of way for the build alternatives and the recent wetland determination performed in 2017.

Table 4.7 C-1.1 Wetland Impacts (acres) by Type and Alternative

	<i>Aquatic Bed</i>	<i>Wet Meadow</i>	<i>Wet Meadow (degraded)</i>	<i>Riparian Palustrine Emergent</i>	<i>Riparian Palustrine Forested</i>	<i>Shallow Marsh</i>	<i>Shrub Scrub</i>	<i>Wooded Swamp</i>			WDNR Identified Natural Resource Areas Affected
	AB	M	M(D)	RPE	RPF	SM	SS	WS	Total Impact	Exempt Wetlands <sup>6</sup>	
<b>Passing Lane Alternative</b>											
No. of Wetlands Impacted	0	38	42	2	2	12	9	6	111	37	#1, #2, #3, #3A, #3B, #4A, and #4B
Impacted Acreage	0.0	11.7	6.9	0.5	1.5	3.6	3.6	2.1	29.9	6.7	
<b>Corridor Preservation Associated with Passing Lane Alternative</b>											
No. of Wetlands within corridor preservation area	0	34	6	2	1	7	8	8	66	1	#1, #2, #3, #3A, #3B, #4A, and #4B
Acreage within corridor preservation area	0.0	12.1	1.2	0.8	1.2	5.3	2.3	1.2	24.1	0.2	
<b>Hybrid Alternative</b>											
No. of Wetlands Impacted	0	40	42	2	2	12	10	7	115	37	#1, #2, #3, #3A, #3B, #4A, and #4B
Impacted Acreage	0.0	20.7	7.7	1.2	1.5	6.5	5.5	2.8	45.9	6.6	

<sup>6</sup> Some wetlands along the corridor (included in the total wetlands) are Exempt (non jurisdictional). They are wetlands typically located in the roadway ditches.

	<i>Aquatic Bed</i>	<i>Wet Meadow</i>	<i>Wet Meadow (degraded)</i>	<i>Riparian Palustrine Emergent</i>	<i>Riparian Palustrine Forested</i>	<i>Shallow Marsh</i>	<i>Shrub Scrub</i>	<i>Wooded Swamp</i>			WDNR Identified Natural Resource Areas Affected
	AB	M	M(D)	RPE	RPF	SM	SS	WS	Total Impact	Exempt Wetlands <sup>6</sup>	
<b>Corridor Preservation Associated with Hybrid Alternative</b>											
No. of Wetlands within corridor preservation area	0	14	3	0	1	3	2	5	28	2	#1, #3A, #3B, #4A, and #4B
Acreage within corridor preservation area	0.0	3.1	0.5	0.0	1.2	2.4	0.4	0.5	8.1	0.3	

<b>4-lane On-alignment Alternative</b>											
No. of Wetlands Impacted	0	41	42	2	2	13	11	7	118	37	#1, #2, #3, #3A, #3B, #4A, and #4B
Impacted Acreage	0.0	23.1	7.9	1.2	1.7	8.9	5.9	3.1	51.8	6.6	

<b>Corridor Preservation Associated with 4-lane On-alignment Alternative</b>											
No. of Wetlands within corridor preservation area	0	5	2	0	1	1	0	2	11	2	#1 and #4B
Acreage within corridor preservation area	0.0	0.7	0.3	0.0	1.0	<0.1	0.0	0.2	2.2	0.3	

**2. Are any impacted wetlands considered “wetlands of special status” per WisDOT Wetland Mitigation Banking Technical Guideline, page 10?**

- No
- Yes:
  - Advanced Identification Program (ADID) Wetlands
  - Other – Describe:

Wetlands of special status are those that are unique to their locality, are ecologically unique, or a resource agency has placed a nationwide emphasis on its protection. For Wisconsin, these would include bottomland hardwoods. Wetlands of special status also include those that have federal or state threatened and endangered species, lands where public or private funds have been used to restore, protect, or manage a wetland, or the wetland is on a listing of historic/archeological sites. For the WIS 23 project, these wetlands of special status include:

- The two wetland mitigation areas are the Pit Road Wetland Mitigation Site and the Wade House Wetland Enhancement and Mitigation Site. These areas are labeled as wetland numbers 52 and 100/101 respectively on Figures 4.7 C-1.2 to 4.7 C-1.13.
- The Sheboygan River crossing (Mussel relocations, if needed, could occur the year prior to construction).
- The Mullet River culvert extension (Mussel relocations, if needed, could occur the year prior to construction).

**3. Describe proposed work in the wetland(s), e.g., excavation, fill, marsh disposal, other:****A. No-Build Alternative**

This alternative requires no wetland conversion and has no impacts.

**B. Build Alternatives**

All build alternatives would impact wetland areas through a combination of excavation and fill along the 19.1-mile project. WisDOT design would comply with wetland mitigation sequencing. Wetland impacts would first be avoided then minimized. Wetland areas unable to be avoided or minimized would require appropriate wetland mitigation. In addition to loss of wetland acreage, the project would also affect wetland function and value(s). Table 4.7 C-1.2 summarizes the estimated acres of wetlands within the build alternative corridors that would potentially be filled for construction. Table 4.7 C-1.3 shows the wetland impacts by location and is tied to the wetland numbers designated in Figures 4.7 C-1.2 to C-1.13.

The Wade House Wetland Enhancement and Mitigation Site is managed by the WHS. The mitigation site was created in the late 1990s when restoration and wetland enhancement work was done. At this location, the additional travel lanes (for the 4-lane On-alignment Alternative) are located on the north side of WIS 23 and the Old Plank Road Trail was shifted closer to WIS 23 (for all of the alternatives) to avoid effects to this mitigation site. This site is located on the northern boundary of the Wade House Historic Site.

The Pit Road Wetland Mitigation Site north of WIS 23 at Pit Road was created to offset wetland losses from previous WIS 23 highway projects. WisDOT constructed this 3.6-acre site to mitigate 2.48 acres of wetland losses for WIS 23 between Fond du Lac and Sheboygan around 1990. At this location, the additional travel lanes (for Hybrid Alternative and 4-lane On-alignment Alternative) and the Old Plank Road Trail would travel along the south side of WIS 23 and all WIS 23 alternatives would avoid impacts to this mitigation site.

**C. Corridor Preservation Associated with the Build Alternatives**

Corridor preservation does not affect any wetlands. Corridor preservation associated with the build alternatives would potentially restrict property owner's ability to make improvements in corridor preservation areas with wetlands. Planned improvements associated with these corridor preservation areas, if implemented, could impact wetlands. 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. Passing Lane Alternative**

The Passing Lane Alternative impacts 111 individual wetlands. Wetlands that would potentially be filled total about 29.9 acres with avoidance and minimization techniques employed. These impacts include riparian wetland impacts of 0.45 acres (wetland numbers 32 and 33) and 1.5 acres (wetland numbers 105 and 106) contiguous to the Sheboygan and Mullet Rivers, respectively.

**E. Hybrid Alternative**

The Hybrid Alternative impacts 115 individual wetlands. Wetlands that would potentially be filled total about 45.9 acres with avoidance and minimization techniques employed. These impacts include riparian wetland impacts of 1.2 acres (wetland numbers 32 and 33) and 1.5 acres (wetland numbers 105 and 106) contiguous to the Sheboygan and Mullet Rivers, respectively.

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

The 4-lane On-alignment Alternative impacts 118 individual wetlands. Wetlands that would potentially be filled total about 51.8 acres with avoidance and minimization techniques employed. These impacts include riparian wetland impacts of 1.2 acres (wetland numbers 32 and 33) and 1.74 acres (wetland numbers 105 and 106) contiguous to the Sheboygan and Mullet Rivers, respectively.

Table 4.7 C-1.2 summarizes wetland impacts for each build alternative and Table 4.7 C-1.3 summarizes the corridor preservation areas containing wetlands. Table 4.7 C-1.4 provides a more detailed list of impacts by the locations shown in Figures 4.7 C-1.2 to 4.7 C-1.13.

**Table 4.7 C-1.2 Summary of Wetland Impacts**

Wetlands Affected	Estimated Acres Filled for Construction
Passing Lane Alternative	29.9
Hybrid Alternative	45.9
4-lane On-alignment Alternative	51.8

**Table 4.7 C-1.3 Corridor Preservation Areas Containing Wetlands**

Wetland Acres with Potential Restrictions*	Estimated Acres
Corridor Preservation Associated with Passing Lane Alternative	24.1
Corridor Preservation Associated with Hybrid Alternative	8.1
Corridor Preservation Associated with 4-lane On-alignment Alternative	2.2

\*Corridor preservation does not result in an effect to the wetlands but would potentially restrict property owner's ability to make improvements. Wetlands would be reevaluated as part of the preparation of subsequent environmental documentation before any improvements associated with corridor preservation occurred.

**Table 4.7 C-1.4 List of Wetland Impacts**

Wetland Number	Wetland Type	Wetland Impacts					
		Passing Lane Alternative	Corridor Preservation Associated with Passing Lane Alternative, if constructed	Hybrid Alternative	Corridor Preservation Associated with Hybrid Alternative, if constructed	4-lane On-alignment Alternative	Corridor Preservation Associated with 4-lane On-alignment Alternative, if constructed
RPF–Riparian Palustrine Forested. RPE–Riparian Palustrine Emergent, M(D)–Wet Meadow (degraded), M–Wet Meadow, SM–Shallow Marsh, AB–Aquatic Bed, SS–Scrub Shrub, WS–Wooded Swamp							
1	SS	0.68	0.00	0.68	0.00	0.68	0.00
2	M	0.59	0.00	0.59	0.00	0.59	0.00
3	WS	0.00	0.00	0.00	0.00	0.00	0.00
4	SM	0.23	0.00	0.23	0.00	0.23	0.00
5	M	0.10	0.03	0.13	0.00	0.13	0.00
6	M	0.00	0.57	0.57	0.00	0.57	0.00
7	SM	0.05	0.09	0.14	0.00	0.14	0.00
8	SS	0.00	0.19	0.19	0.00	0.19	0.00
9	M	0.27	0.45	0.72	0.00	0.72	0.00
10	SS	0.02	0.10	0.12	0.00	0.12	0.00
11	M	0.13	0.27	0.40	0.00	0.40	0.00
12	M	0.09	0.16	0.25	0.00	0.25	0.00
13	WS	0.03	0.07	0.10	0.00	0.10	0.00
14	M	0.02	0.02	0.04	0.00	0.04	0.00
15	M	0.00	0.03	0.00	0.03	0.00	0.03

Table 4.7 C-1.4 List of Wetland Impacts

Wetland Number	Wetland Type	Wetland Impacts					
		Passing Lane Alternative	Corridor Preservation Associated with Passing Lane Alternative, if constructed	Hybrid Alternative	Corridor Preservation Associated with Hybrid Alternative, if constructed	4-lane On-alignment Alternative	Corridor Preservation Associated with 4-lane On-alignment Alternative, if constructed
RPF–Riparian Palustrine Forested. RPE–Riparian Palustrine Emergent, M(D)–Wet Meadow (degraded), M–Wet Meadow, SM–Shallow Marsh, AB–Aquatic Bed, SS–Scrub Shrub, WS–Wooded Swamp							
16	M(D)	0.04	0.15	0.19	0.00	0.19	0.00
17	M(D)	0.06	0.09	0.15	0.00	0.15	0.00
18	WS	0.00	0.15	0.15	0.00	0.15	0.00
19	M	0.29	2.05	2.34	0.00	2.34	0.00
20	M	1.03	0.25	1.28	0.00	1.28	0.00
21	SS	0.24	0.44	0.68	0.00	0.68	0.00
22	M	0.01	0.05	0.06	0.00	0.06	0.00
23	WS	0.10	0.17	0.27	0.00	0.27	0.00
24	M(D)	0.11	0.42	0.53	0.00	0.53	0.00
25	M	0.15	0.27	0.42	0.00	0.42	0.00
26	SS	0.33	0.34	0.67	0.00	0.67	0.00
27	SS	1.82	0.34	2.16	0.00	2.16	0.00
28	WS	1.49	0.51	1.82	0.18	1.82	0.18
29	SM	1.29	2.57	3.86	0.00	3.86	0.00
30	M	0.00	0.00	0.00	0.00	0.00	0.00
31	M	0.00	0.00	0.00	0.00	0.00	0.00
32	RPE	0.15	0.51	0.66	0.00	0.66	0.00
33	RPE	0.30	0.24	0.54	0.00	0.54	0.00
34	M	0.02	0.09	0.11	0.00	0.11	0.00
35	M(D)	0.02	0.15	0.17	0.00	0.17	0.00
36	M	0.01	0.05	0.06	0.00	0.06	0.00
37	M	0.22	1.01	1.09	0.14	1.09	0.14
38	WS	0.00	0.00	0.00	0.00	0.00	0.00
39	M	0.00	0.13	0.00	0.13	0.00	0.13
40	SM	0.06	0.01	0.05	0.02	0.05	0.02
41	SM	0.13	0.00	0.13	0.00	0.13	0.00
42	M	0.01	0.32	0.01	0.32	0.01	0.32
43	M	0.12	0.04	0.16	0.00	0.16	0.00
44	M	0.31	0.60	0.91	0.00	0.91	0.00
45	M	0.09	0.00	0.09	0.00	0.09	0.00
46	M	0.11	0.00	0.11	0.00	0.11	0.00
47	M	0.00	0.00	0.00	0.00	0.00	0.00
48	M	0.00	0.03	0.03	0.00	0.03	0.00
49	M	0.00	0.00	0.00	0.00	0.00	0.00
50	M	0.66	0.65	1.31	0.00	1.31	0.00
51	M	0.92	0.00	0.92	0.00	0.92	0.00
52	AB	0.00	0.00	0.00	0.00	0.00	0.00
53	M	1.10	0.24	1.34	0.00	1.34	0.00
54	SM	0.00	0.00	0.00	0.00	0.00	0.00
55	SM	0.58	0.00	0.58	0.00	0.58	0.00
56	M	0.84	2.01	2.85	0.00	2.85	0.00
57	M	0.05	0.00	0.05	0.00	0.05	0.00



Table 4.7 C-1.4 List of Wetland Impacts

Wetland Number	Wetland Type	Wetland Impacts					
		Passing Lane Alternative	Corridor Preservation Associated with Passing Lane Alternative, if constructed	Hybrid Alternative	Corridor Preservation Associated with Hybrid Alternative, if constructed	4-lane On-alignment Alternative	Corridor Preservation Associated with 4-lane On-alignment Alternative, if constructed
59	M	0.00	0.00	0.00	0.00	0.00	0.00
60	WS	0.00	0.00	0.00	0.00	0.00	0.00
61	SM	0.00	0.00	0.00	0.00	0.00	0.00
62	M(D)	0.00	0.00	0.00	0.00	0.00	0.00
63	SS	0.16	0.50	0.66	0.00	0.66	0.00
64	M	0.00	0.00	0.00	0.00	0.00	0.00
65	WS	0.00	0.00	0.00	0.00	0.00	0.00
66	SM	0.00	0.00	0.00	0.00	0.00	0.00
67	M	0.06	0.09	0.15	0.00	0.15	0.00
68	SM	0.07	0.07	0.14	0.00	0.14	0.00
69	SM	0.02	0.12	0.14	0.00	0.14	0.00
70	AB	0.00	0.00	0.00	0.00	0.00	0.00
71	M	0.09	0.21	0.30	0.00	0.30	0.00
72	M(D)	0.00	0.00	0.00	0.00	0.00	0.00
73	M	0.00	0.00	0.00	0.00	0.00	0.00
74	M	0.00	0.00	0.00	0.00	0.00	0.00
75	WS	0.00	0.00	0.00	0.00	0.00	0.00
76	M	0.00	0.00	0.00	0.00	0.00	0.00
77	WS	0.00	0.00	0.00	0.00	0.00	0.00
78	WS	0.00	0.00	0.00	0.00	0.00	0.00
79	M	0.00	0.00	0.00	0.00	0.00	0.00
80	SM	0.05	0.00	0.05	0.00	0.05	0.00
81	SS	0.12	0.00	0.12	0.00	0.12	0.00
82	SM	0.00	0.00	0.00	0.00	0.00	0.00
83	SS	0.00	0.16	0.00	0.16	0.16	0.00
84	SM	0.00	0.14	0.00	0.14	0.14	0.00
85	M	0.10	0.41	0.10	0.41	0.51	0.00
86	M	0.05	0.00	0.05	0.00	0.05	0.00
87	M(D)	0.05	0.21	0.05	0.21	0.26	0.00
88	M	0.08	0.13	0.08	0.13	0.21	0.00
89	SS	0.16	0.21	0.16	0.21	0.37	0.00
90	M	0.51	0.45	0.51	0.45	0.96	0.00
91	SS	0.00	0.00	0.00	0.00	0.00	0.00
92	M	0.01	0.00	0.01	0.00	0.01	0.00
93	M	0.00	0.22	0.00	0.22	0.22	0.00
94	SM	0.11	0.00	0.11	0.00	0.11	0.00
95	SM	0.89	2.27	0.89	2.27	3.16	0.00
96	M	0.90	0.21	0.90	0.21	1.11	0.00
97	SS	0.06	0.00	0.06	0.00	0.06	0.00
98	M	0.00	0.00	0.00	0.00	0.00	0.00
99	M	0.06	0.04	0.06	0.04	0.10	0.00
100	WS	0.24	0.03	0.24	0.03	0.27	0.00

Table 4.7 C-1.4 List of Wetland Impacts

Wetland Number	Wetland Type	Wetland Impacts					
		Passing Lane Alternative	Corridor Preservation Associated with Passing Lane Alternative, if constructed	Hybrid Alternative	Corridor Preservation Associated with Hybrid Alternative, if constructed	4-lane On-alignment Alternative	Corridor Preservation Associated with 4-lane On-alignment Alternative, if constructed
RPF–Riparian Palustrine Forested. RPE–Riparian Palustrine Emergent, M(D)–Wet Meadow (degraded), M–Wet Meadow, SM–Shallow Marsh, AB–Aquatic Bed, SS–Scrub Shrub, WS–Wooded Swamp							
101	M	0.64	0.29	0.64	0.29	0.93	0.00
102	WS	0.18	0.23	0.18	0.23	0.41	0.00
103	M	1.10	0.00	1.10	0.00	1.10	0.00
104	WS	0.00	0.00	0.00	0.00	0.00	0.00
105	RPF	0.68	1.20	0.68	1.20	0.92	0.96
106	RPF	0.82	0.00	0.82	0.00	0.82	0.00
107	WS	0.00	0.00	0.00	0.00	0.00	0.00
108	WS	0.00	0.01	0.00	0.01	0.00	0.01
109	M	0.00	0.07	0.00	0.07	0.00	0.07
110	M	0.02	0.13	0.02	0.13	0.15	0.00
111	WS	0.02	0.04	0.02	0.04	0.06	0.00
112	M	0.36	0.00	0.36	0.00	0.36	0.00
113	M	0.00	0.00	0.00	0.00	0.00	0.00
114	M	0.38	0.52	0.38	0.52	0.90	0.00
115	M	0.20	0.00	0.20	0.00	0.20	0.00
116	SM	0.14	0.00	0.14	0.00	0.14	0.00
117	M	0.00	0.00	0.00	0.00	0.00	0.00
118	WS	0.00	0.00	0.00	0.00	0.00	0.00
119	SS	0.00	0.00	0.00	0.00	0.00	0.00
120	SS	0.00	0.00	0.00	0.00	0.00	0.00
N1	M(D)	0.75	0.00	0.75	0.00	0.75	0.00
N2	M(D)	0.57	0.00	0.57	0.00	0.57	0.00
N3	M(D)	0.30	0.00	0.30	0.00	0.30	0.00
N4	M(D)	0.11	0.00	0.11	0.00	0.11	0.00
N5	M(D)	0.04	0.00	0.04	0.00	0.04	0.00
N6	M(D)	0.08	0.00	0.08	0.00	0.08	0.00
N7	M(D)	0.10	0.00	0.10	0.00	0.10	0.00
N8	M(D)	0.02	0.00	0.02	0.00	0.02	0.00
N9	M(D)	0.47	0.00	0.47	0.00	0.47	0.00
N10	M(D)	0.20	0.00	0.20	0.00	0.20	0.00
N11	M(D)	0.08	0.00	0.08	0.00	0.08	0.00
N12	M(D)	0.50	0.00	0.50	0.00	0.50	0.00
N13	M(D)	0.18	0.00	0.18	0.00	0.18	0.00
N14	M(D)	0.02	0.00	0.02	0.00	0.02	0.00
N15	M(D)	0.55	0.00	0.55	0.00	0.55	0.00
N16	M(D)	0.07	0.00	0.07	0.00	0.07	0.00
N17	M(D)	0.51	0.00	0.47	0.04	0.47	0.04
N18	M(D)	0.06	0.00	0.06	0.00	0.06	0.00
N19	M(D)	0.06	0.23	0.04	0.25	0.04	0.25
N20	M(D)	0.22	0.00	0.22	0.00	0.22	0.00
N21	M(D)	0.13	0.00	0.13	0.00	0.13	0.00
N22	M(D)	0.07	0.00	0.07	0.00	0.07	0.00



Table 4.7 C-1.4 List of Wetland Impacts

Wetland Number	Wetland Type	Wetland Impacts					
		Passing Lane Alternative	Corridor Preservation Associated with Passing Lane Alternative, if constructed	Hybrid Alternative	Corridor Preservation Associated with Hybrid Alternative, if constructed	4-lane On-alignment Alternative	Corridor Preservation Associated with 4-lane On-alignment Alternative, if constructed
N23	M(D)	0.02	0.00	0.02	0.00	0.02	0.00
N24	M(D)	0.10	0.00	0.10	0.00	0.10	0.00
N25	M(D)	0.12	0.00	0.12	0.00	0.12	0.00
N26	M(D)	0.04	0.00	0.04	0.00	0.04	0.00
N27	M(D)	0.05	0.00	0.05	0.00	0.05	0.00
N28	M(D)	0.00	0.00	0.00	0.00	0.00	0.00
N29	M(D)	0.15	0.00	0.15	0.00	0.15	0.00
N30	M(D)	0.06	0.00	0.06	0.00	0.06	0.00
N31	M(D)	0.01	0.00	0.01	0.00	0.01	0.00
N32	M(D)	0.34	0.00	0.34	0.00	0.34	0.00
N33	M(D)	0.03	0.00	0.03	0.00	0.03	0.00
N34	M(D)	0.11	0.00	0.11	0.00	0.11	0.00
N35	M(D)	0.01	0.00	0.01	0.00	0.01	0.00
N36	M(D)	0.06	0.00	0.06	0.00	0.06	0.00
N37	M(D)	0.04	0.00	0.04	0.00	0.04	0.00
N38	M(D)	0.43	0.00	0.43	0.00	0.43	0.00

'N' Numbered wetlands: Wetlands located in the roadway ditches are not typically considered jurisdictional.

**4. List any observed or expected waterfowl and wildlife inhabiting or dependent upon the wetland: (List should include both permanent, migratory and seasonal residents).**

A. No-Build Alternative

This alternative has no effects because it requires no wetland conversion and has no impacts to inhabiting wildlife.

B. Passing Lane Alternative

Adjacent to the existing roadway, waterways, wetlands, and adjacent upland areas produce broods of mallards, teal, wood ducks, beaver, muskrat and other wetland-dependent large and small mammals and reptiles. Various state-listed rare woodland bird species such as the red-shouldered hawk, acadian flycatcher, cerulean warbler and hooded warbler (a no effect determination was made for the project for these state-listed species) may use the lowlands in the Mullet Creek Wildlife Area, south of the existing highway near Hillview Road or the riparian corridor and woodlands adjacent to the Mullet River east of Greenbush. The Passing Lane Alternative does not bisect existing wetlands but generally creates additional longitudinal filling of wetlands.

C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation does not affect any wetlands. Corridor preservation associated with the Passing Lane Alternative would potentially affect property owner's ability to make improvements in areas containing wetlands and wildlife. Wildlife expected in the corridor preservation area include the species listed for the 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 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.

E. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation does not affect any wetlands. Corridor preservation associated with the Hybrid Alternative would potentially affect property owner's ability to make improvements in areas containing wetlands and wildlife. Wildlife expected in the corridor preservation area include the species listed for the Passing Lane Alternative. Approximately 8.1 acres of wetlands are within corridor preservation limits. 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 Alternative and Hybrid Alternative. Refer to the discussion under the Passing Lane Alternative.

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

Corridor preservation does not affect any wetlands. Corridor preservation associated with the 4-lane On-alignment Alternative would potentially affect property owner's ability to make improvements in areas containing wetlands and wildlife. Wildlife expected in the corridor preservation area include the species listed for the Passing Lane Alternative. Approximately 2.2 acres of wetlands are within corridor preservation limits. 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.

5. **Federal Highway Administration (FHWA) Wetland Policy:**

Not Applicable - Explain

Individual Wetland Finding Required - Summarize why there are no practicable alternatives to the use of the wetland.

Avoiding wetland areas is a key factor in the selection of the alternatives. The Hybrid Alternative and 4-lane On-alignment Alternative have more impacts than the Passing Lane Alternative; however, all alternatives follow the existing roadway to minimize and avoid impact to wetlands. Avoidance of wetlands was considered with the placement of the additional lanes for the Hybrid Alternative and 4-lane On-alignment Alternative. Both the Pit Road and Wade House wetland mitigation sites were avoided by switching the placement of the new lanes to the opposite side of the road. Wetland impacts would be further minimized through design efforts and appropriate mitigation would be provided. See Section 6.8 for a wetland mitigation summary.

Statewide Wetland Finding: **NOTE: All three boxes below must be checked for the Statewide Wetland Finding to apply.**

Project is either a bridge replacement or other reconstruction within 0.3 mile of the existing location.

The project requires the use of 7.4 acres or less of wetlands.

- The project has been coordinated with the DNR and there have been no significant concerns expressed over the proposed use of the wetlands.

**6. Erosion control or storm water management practices which would be used to protect the wetland are indicated on form: (Check all that apply)**

- Factor Sheet D-6, Erosion Control Impact Evaluation  
 Factor Sheet D-5, Stormwater Impact Evaluation  
 Neither Factor Sheet - Briefly describe measures to be used

**7. U.S. Army Corps of Engineers (USACE) Jurisdiction - Section 404 Permit (Clean Water Act):**

- Not Applicable – No fill to be placed in wetlands or wetlands are not under USACE jurisdiction.  
 Applicable - Fill would be placed in wetlands under the jurisdiction of the USACE

Indicate area of wetlands filled: Approximately 29.9 acres of wetlands with the Passing Lane Alternative, 45.9 acres of wetlands with the Hybrid Alternative, and 51.8 acres of wetlands with the 4-lane On-alignment Alternative would be filled. No wetlands would be filled with corridor preservation unless associated improvements were 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. See Table 4.7 C-1.4 for a listing of wetlands filled by each alternative that was investigated.

Type of 404 permit anticipated:

- Individual Section 404 Permit required.  
 General Permit (GP) or Letter Of Permission (LOP) required to satisfy Section 404 Compliance.  
 Indicate which GP or LOP is required:

- Non-Reporting GP  
 Provisional GP  
 Provisional LOP  
 Programmatic GP

Expiration date of 404 Permit, if known \_\_\_\_\_

**8. Wisconsin Department of Natural Resources Coordination - Section 401 Water Quality Certification**

- DNR has provided concurrence on the project wetland determination. Received on: October 2017  
 Other- Explain  
 Wetland locations were field-determination by WisDOT staff and WDNR reviewers using Global Positioning System (GPS) technology.

**9. Section 10 Waters (Rivers and Harbors Act). For navigable waters of the United States (Section 10) indicate which 404 permit is required:**

- No Section 10 Waters.

Indicate whether Pre-Construction Notification (PCN) to the U.S. Army Corps of Engineers (USACE) is:

- Not applicable.  
 Required: Submitted on: \_\_\_\_\_ (Date)

Status of PCN

USACE has made the following determination on: \_\_\_\_\_ (Date)

USACE is in the process of review, anticipated date of determination is: \_\_\_\_\_ (Date)

**10. Wetland Avoidance and Impact Minimization:** [Note: Required before compensation is acceptable]

## A. Wetland Avoidance:

1. Describe methods used to avoid the use of wetlands, such as using a lower level of improvement or placing the roadway on new location, etc.:

Avoidance of wetlands occurred in the placement of the additional lanes that would be constructed (Hybrid Alternative and 4-lane On-alignment Alternative). Generally, the additional two lanes were placed where the least amount of wetland impacts would occur. This included:

- Placing the additional lanes on the north side of the existing highway and keeping the Old Plank Road Trail tight to the highway near the Wade House Wetland **Enhancement and Mitigation Site** to minimize impacts to this wetland mitigation site.
- Placing the additional lanes on the south side of the existing highway near Pit Road to avoid impacts to the Pit Road Wetland Mitigation Site.

2. Indicate the total area of wetlands avoided:

Altering the placement of lanes is estimated to avoid 3 to 5 additional acres at specific wetland mitigation areas.

## B. Minimize the amount of wetlands affected:

1. Describe methods used to minimize the use of wetlands, such as an increasing of side slopes or use of retaining walls, equalizer pipes, upland disposal of hydric soils, etc.:

Specific wetland minimization efforts could include:

- Steepened slopes near Pit Road.
- Steepened slopes on WIS 23 between Poplar Road and Hinn Road.
- Alignment modifications and shifts to the north at County U and east of Scenic View Drive.
- Steepened slopes near the Mullet River crossing.

Further minimization measures could be considered during final design.

2. Indicate the total area of wetlands saved through minimization:

It is estimated that an additional 3 to 5 acres of wetlands could be saved based on increases in side slopes.

**11. Compensation for Unavoidable Wetland Loss:**

In 2008, EPA and USACE, through joint rulemaking, expanded the Section 401 (b) (1) of the Clean Water Act to include more comprehensive standards for compensatory mitigation. The preferred hierarchy for compensatory mitigation includes bank site, in-lieu fee, and permittee responsible. Purchased properties provided the ability to provide on-site mitigation.

WisDOT is planning on-site mitigation to compensate for the impacts associated with the WIS 23 construction at two sites in Fond du Lac County. The first planned site is in the Mullet River watershed. The first property is owned by WisDOT and has approximately 50 acres that could be used for mitigation. This site would be mostly wetland creation.

A second property has been acquired in the town of Empire. About 70 acres were acquired and mitigation could focus on wetland restoration. This second site is in the Sheboygan River watershed. About

10 acres of the site is currently wetlands where a preservation credit may be pursued. The other acreage were previously wetlands that have been ditched and drained. With these acres restoration credit could be pursued.

It is anticipated that the first property could provide about 50.8 acres of wet meadow and the second property could provide about 10 acres of wooded swamp, 5.6 acres of wet meadow, 9.5 acres of shallow marsh, and upland buffer credit. WisDOT believes this may be fully sufficient for mitigation needs. If it is not, additional mitigation needs will be debited to a bank site.

If changes occur that prevent the implementation of these plans, WisDOT would pursue debiting to an existing bank site.

**12. If on-site compensation is not possible, explain why and describe how a search for an off-site compensation site was conducted:**

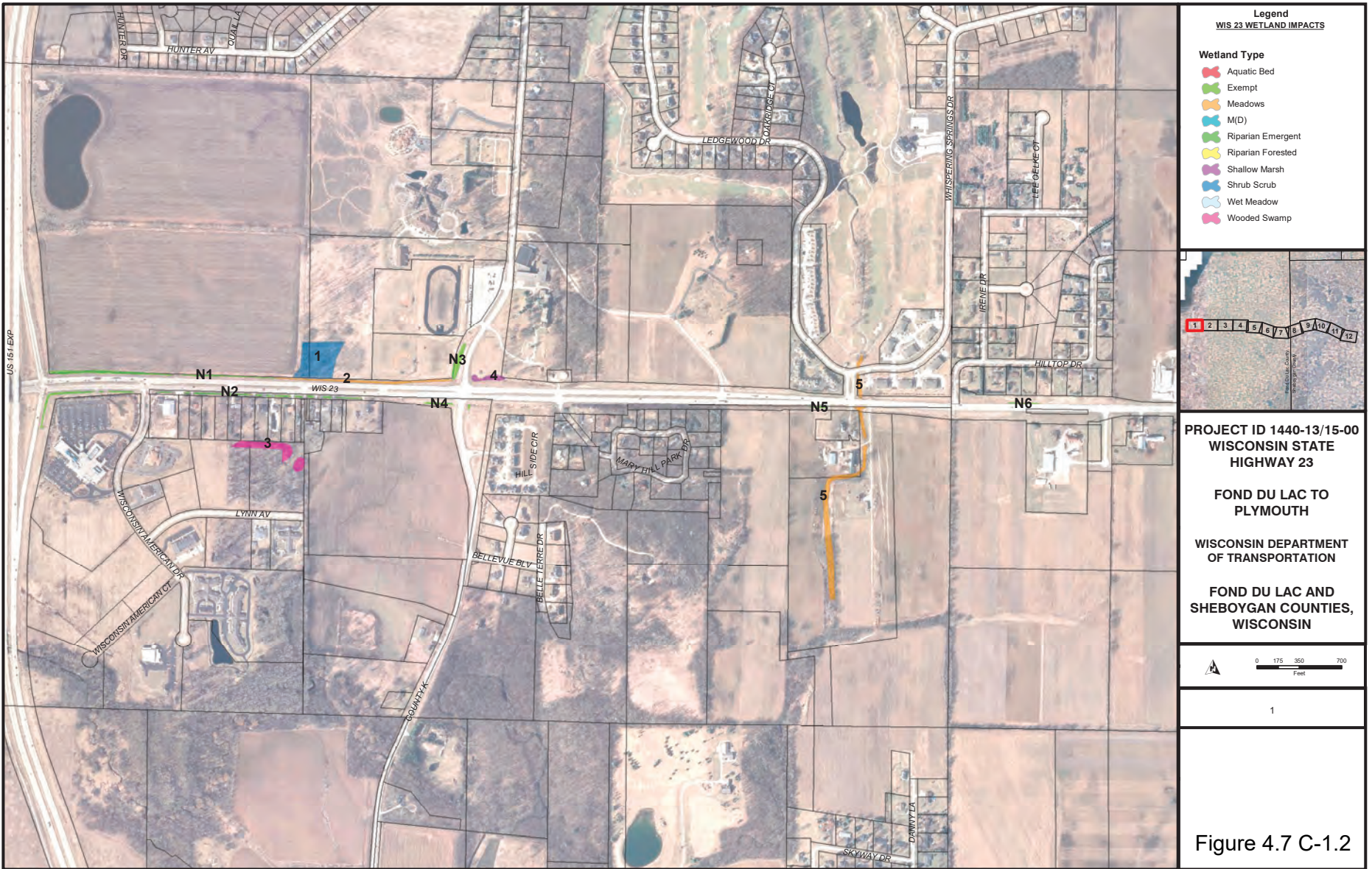
On-site mitigation of highway wetland impacts is a priority of WisDOT. Currently it is not anticipated an off-site mitigation site would be required. If on-site plans are not able to be implemented, WisDOT would pursue debiting to an existing bank site.

**13. Summarize the coordination with other agencies regarding the compensation for unavoidable wetland losses: Attach appropriate correspondence:**

WisDOT and WDNR staff have jointly identified impacted wetlands and potential wetland mitigation sites in the vicinity of the highway project as the corridor field reviews were being conducted.

The final wetland mitigation plan would be developed during final design with input from WDNR and USACE staff. WisDOT reviewed the proposed mitigation sites with WDNR and USACE in August and November 2012. The 404 permit from the USACE and the water quality criteria from WDNR reference the use of these sites to mitigate for project impacts.





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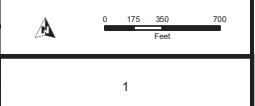
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- Exempt
- Meadows
- M(D)
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp

**PROJECT ID 1440-13/15-00**  
**WISCONSIN STATE**  
**HIGHWAY 23**

**FOND DU LAC TO**  
**PLYMOUTH**

**WISCONSIN DEPARTMENT**  
**OF TRANSPORTATION**

**FOND DU LAC AND**  
**SHEBOYGAN COUNTIES,**  
**WISCONSIN**



**Figure 4.7 C.1-3**

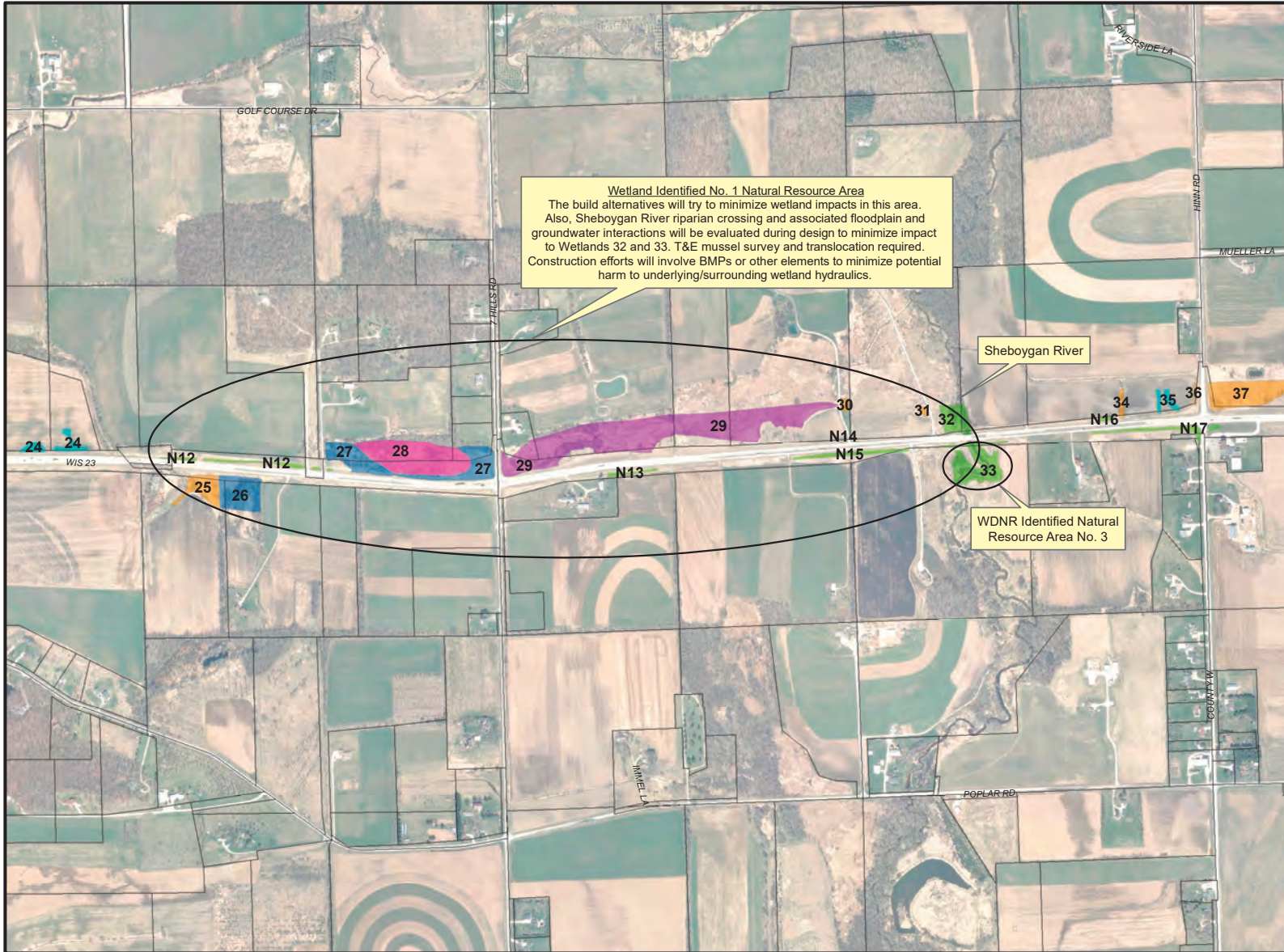




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<p><b>PROJECT ID 1440-13/15-00</b> <b>WISCONSIN STATE</b> <b>HIGHWAY 23</b></p> <p><b>FOND DU LAC TO</b> <b>PLYMOUTH</b></p> <p><b>WISCONSIN DEPARTMENT</b> <b>OF TRANSPORTATION</b></p> <p><b>FOND DU LAC AND</b> <b>SHEBOYGAN COUNTIES,</b> <b>WISCONSIN</b></p>	
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<p>Figure 4.7 C.1-4</p>	





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- Wetland Type**
- Aquatic Bed
  - Exempt
  - Meadows
  - M(D)
  - Riparian Emergent
  - Riparian Forested
  - Shallow Marsh
  - Shrub Scrub
  - Wet Meadow
  - Wooded Swamp



**PROJECT ID 1440-13/15-00**  
**WISCONSIN STATE**  
**HIGHWAY 23**  
**FOND DU LAC TO**  
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**WISCONSIN DEPARTMENT**  
**OF TRANSPORTATION**  
**FOND DU LAC AND**  
**SHEBOYGAN COUNTIES,**  
**WISCONSIN**



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Figure 4.7 C.1-5





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**Wetland Type**

- Aquatic Bed
- Exempt
- Meadows
- M(D)
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
- Wet Meadow
- Wooded Swamp



**PROJECT ID 1440-13/15-00**  
**WISCONSIN STATE**  
**HIGHWAY 23**

**FOND DU LAC TO**  
**PLYMOUTH**

**WISCONSIN DEPARTMENT**  
**OF TRANSPORTATION**

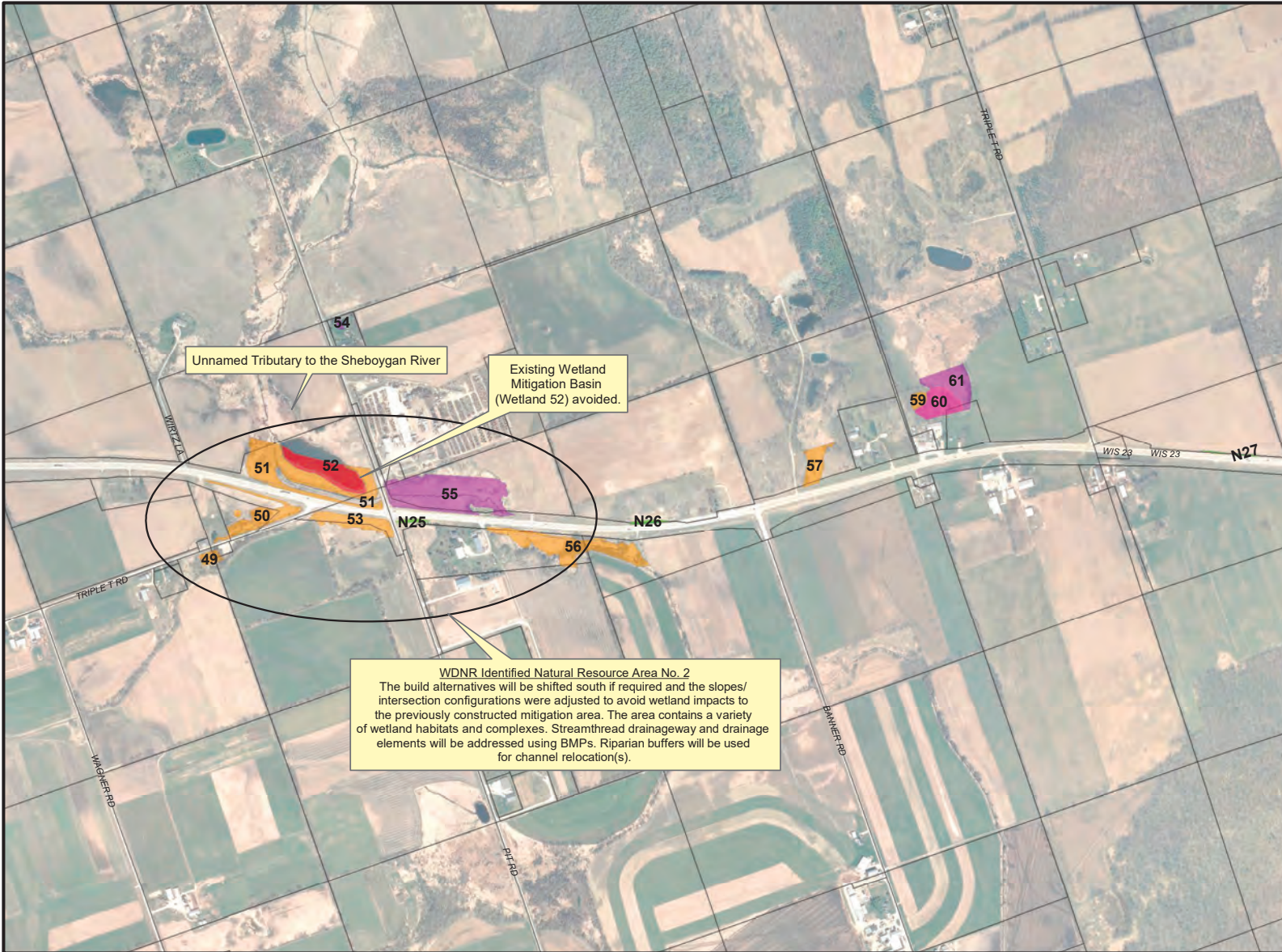
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**SHEBOYGAN COUNTIES,**  
**WISCONSIN**



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Figure 4.7 C.1-6





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- Wetland Type**
- Aquatic Bed
  - Exempt
  - Meadows
  - M(D)
  - Riparian Emergent
  - Riparian Forested
  - Shallow Marsh
  - Shrub Scrub
  - Wet Meadow
  - Wooded Swamp



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**OF TRANSPORTATION**  
**FOND DU LAC AND**  
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**WISCONSIN**



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Figure 4.7 C.1-7



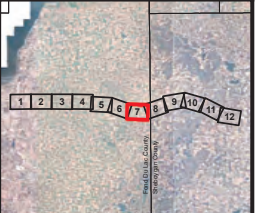


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**Wetland Type**

- Aquatic Bed
- Exempt
- Meadows
- M(D)
- Riparian Emergent
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**WISCONSIN DEPARTMENT**  
**OF TRANSPORTATION**

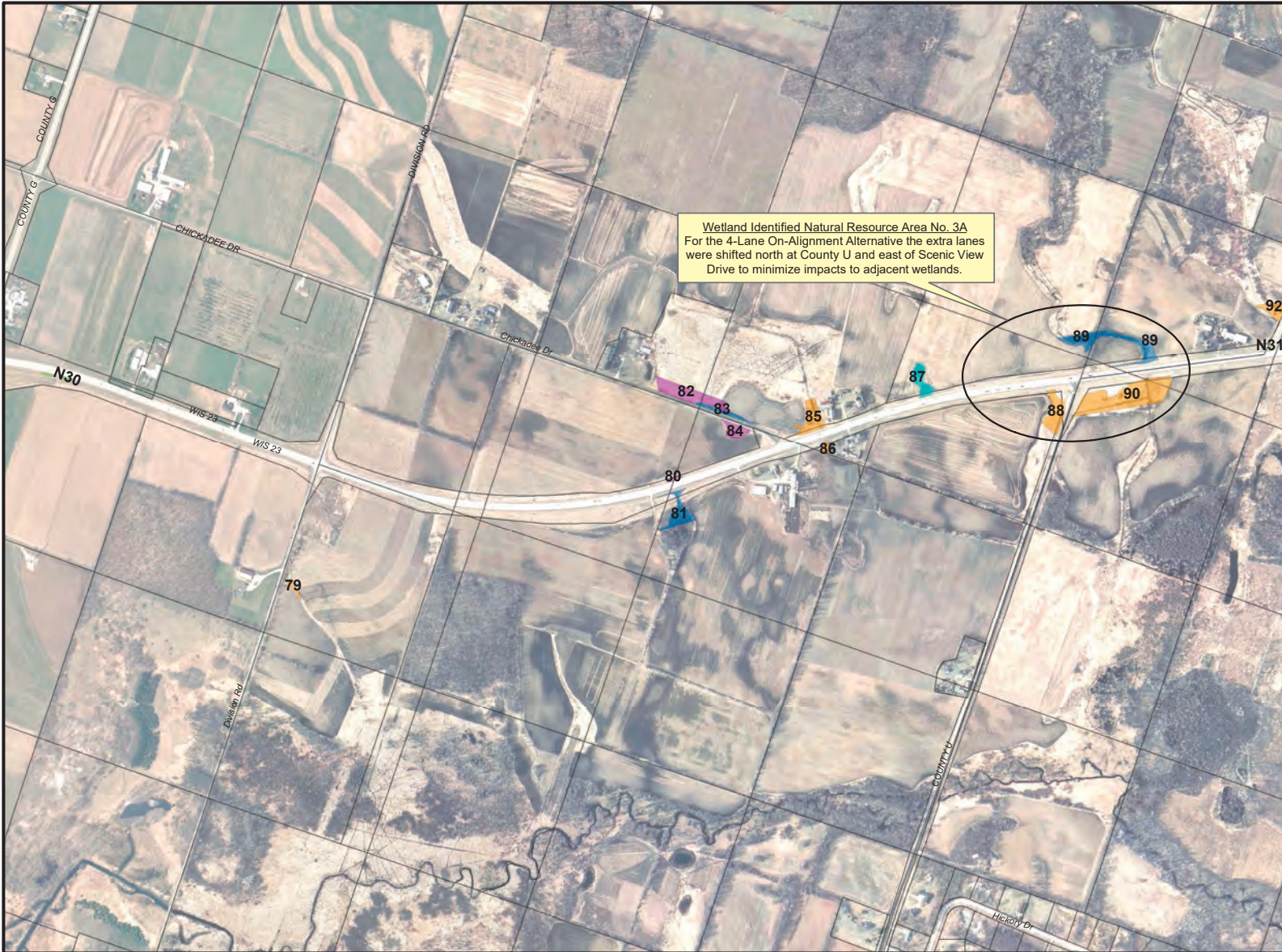
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**SHEBOYGAN COUNTIES,**  
**WISCONSIN**



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**Figure 4.7 C.1-8**





Wetland Identified Natural Resource Area No. 3A  
 For the 4-Lane On-Alignment Alternative the extra lanes were shifted north at County U and east of Scenic View Drive to minimize impacts to adjacent wetlands.

**Legend**  
**WIS 23 WETLAND IMPACTS**

**Wetland Type**

- Aquatic Bed
- Exempt
- Meadows
- M(D)
- Riparian Emergent
- Riparian Forested
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- Wooded Swamp



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**Figure 4.7 C.1-9**





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WIS 23 WETLAND IMPACTS

**Wetland Type**

- Aquatic Bed
- Exempt
- Meadows
- M(D)
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
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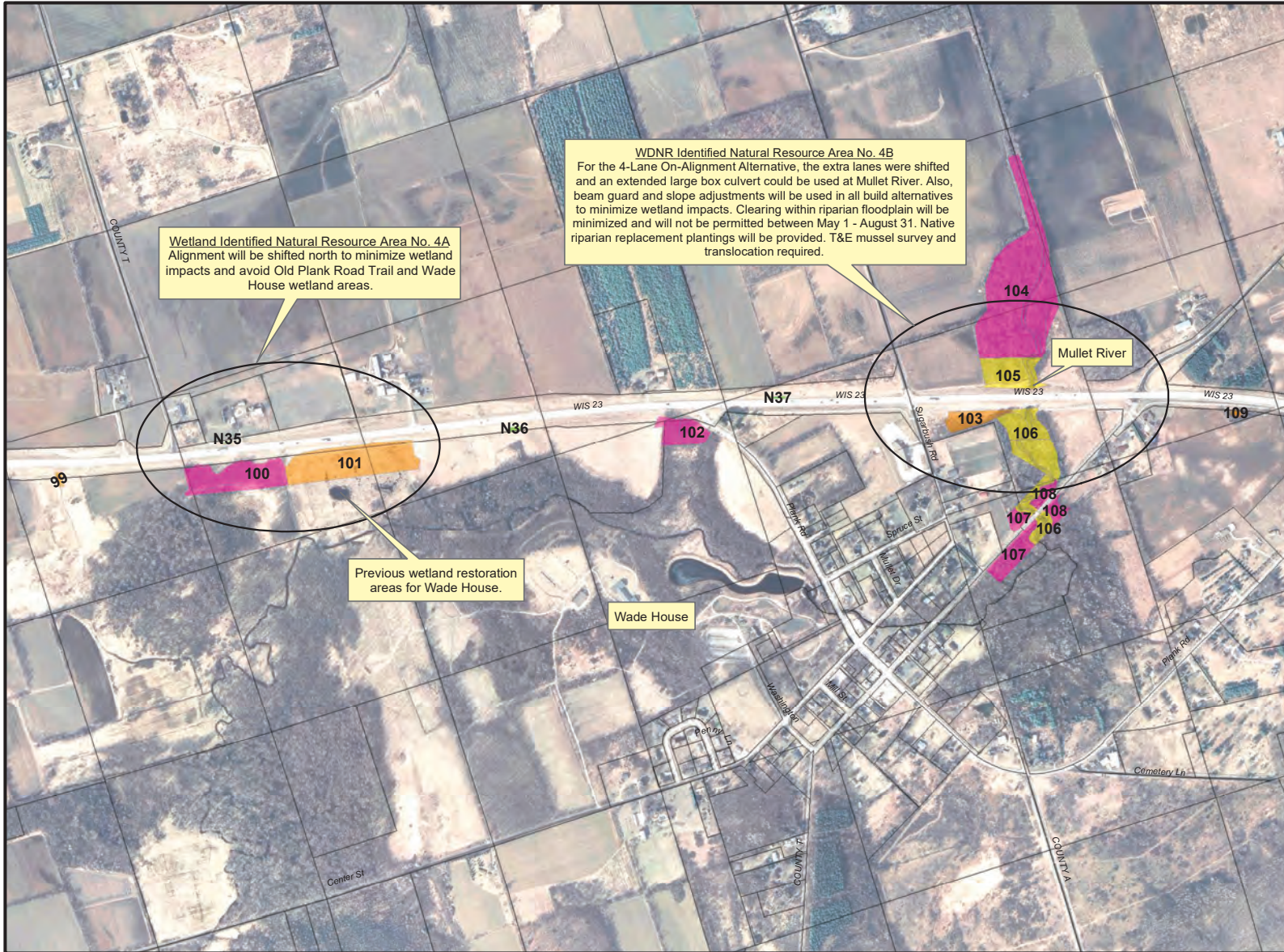
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Figure 4.7 C.1-10





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**Wetland Type**

- Aquatic Bed
- Exempt
- Meadows
- M(D)
- Riparian Emergent
- Riparian Forested
- Shallow Marsh
- Shrub Scrub
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**Figure 4.7 C.1-11**





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WIS 23 WETLAND IMPACTS

- Wetland Type**
- Aquatic Bed
  - Exempt
  - Meadows
  - M(D)
  - Riparian Emergent
  - Riparian Forested
  - Shallow Marsh
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Figure 4.7 C.1-12





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Information for the Rivers, Streams and Floodplains Evaluation Factor Sheet–Sheboygan River has been augmented and updated.

One creek previously discussed, Taycheedah Creek, 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 Taycheedah Creek. The discussion about Taycheedah Creek is incorporated by reference (2014 LS SFEIS).

#### 4.7 C-2.1 RIVERS, STREAMS AND FLOODPLAINS EVALUATION

Factor Sheet C-2

1. **Stream Name:** Sheboygan River
2. **Stream Type: (Indicate Trout Stream Class, if known)**
  - Unknown
  - Warm water
  - Cold water
  - If trout stream, identify trout stream classification: \_\_\_\_\_
  - Wild and Scenic River
3. **Size of Upstream Watershed Area: (Square miles or acres)**  
Approximately 14,580 acres
4. **Stream flow characteristics:**
  - Permanent Flow (year-round)
  - Temporary Flow (dry part of year)
5. **Stream Characteristics:**
  - A. Substrate:
    1.  Sand
    2.  Silt
    3.  Clay
    4.  Cobbles
    5.  Other-describe: Gravel
  - B. Average Water Depth: 0.5 to 1.5 feet
  - C. Vegetation in Stream
    - Absent
    - Present - If known describe:  
Unknown at this time
  - D. Identify Aquatic Species Present:



Figure 4.7 C-2.1 Sheboygan River Crossings

Northern pike (*Esox lucius*), bullheads (*Ictalurus melas*, *Ictalurus nebulosus*, *Ictalurus natalis*), carp (*Cyprinus carpio*), and forage fish. Upstream stretches are brook trout waters. Freshwater mussels identified in 2003 survey at this road crossing included cylindrical papershell (*Antodontoides ferussacianus*), creek heel splitter (*Lasmigona compressa*), and the state threatened slippershell mussel (*Alasmidonta viridis*). Based on WDNR threatened and endangered species coordination, there is the possibility that additional mussels could be located in the watershed or project area. The WDNR specialists indicate this could include ellipse mussel (*Venustaconcha ellipsiformis*) and endangered rainbow shell mussel (*Villosa iris*).

E. If water quality data is available, include this information:

General Stream water quality: Good in headwaters, fair to poor in lower reaches, very poor in lower 14 miles of the Sheboygan River (near Lake Michigan) because of PCB contamination. The river segment on the WIS 23 project is not listed as impaired. Greatest threats to stream water quality include contaminated sediments, habitat modification, agricultural runoff, municipal point sources, industrial point sources, urban runoff, construction site erosion, and dams.

F. Is this river or stream on the WDNR's "Impaired Waters" list?

- No  
 Yes - List: \_\_\_\_\_

**6. If bridge or box culvert replacement, are migratory bird nests present?**

- Not Applicable  
 None identified  
 Yes – Identify Bird Species present  
 Estimated number of nests is: 7 as of February 2004

**7. Is a U. S. Fish & Wildlife Depredation Permit required to remove swallow nests?**

- Not Applicable  
 Yes  
 No - Describe mitigation measures:  
 If a permit is needed for the project it will be obtained during final design. The construction project contract documents could contain avoidance language in the Special Provisions.

**8. Describe land adjacent to stream:**

The north side of WIS 23 includes a successional wooded floodplain vegetation corridor 50 to 100 feet wide with croplands to the northeast and conservation lands; it includes a tree farm to the northwest. Much of these idle lands are in a mapped floodplain both north and south of the WIS 23 river crossing. The south side of WIS 23 is open with wetlands and a utility line that has cleared trees. The adjacent land can be characterized as floodplain containing wetlands, wet meadow, mowed and idle pasture, and active agricultural lands.

**9. Identify upstream or downstream dischargers or receivers (if any) within 0.8 kilometers (1/2 mile) of the project site:**

None.

**10. Describe proposed work in, over, or adjacent to stream. Indicate whether the work is within the 100-year floodplain and whether it is a crossing or a longitudinal encroachment:**

[Note: Coast Guard must be notified when Section 10 waters are affected by a proposal. Also see Wetland Evaluation, Factor Sheet C-1, Question 8.]

Wisconsin's administrative rule NR 116 and 23 CFR 650 Subpart A governs floodplain management in Wisconsin. It generally does not allow construction within a floodplain that increases flood levels for the regional 100-year flood by more than 0.01 feet. The 100-year flood has a 1 percent chance of being equaled or exceeded during any given year. It can also be termed the "1 percent" flood since this relates the event to an annual time period instead of a 100-year time period. A backwater is the level of a stream or river, upstream of a bridge or culvert. NR 116 regulates the raising of the backwater by more than 0.01 feet during the regional 100-year flood. Culverts and bridges must be sized wide enough so that water flow is unimpeded through the structure. If backwater **flood elevation** is raised, coordination must occur with floodplain zoning authorities and property owners must be compensated.

The No-Build Alternative **and the corridor preservation associated with the build alternatives** would not affect this crossing and the existing bridge would remain. **In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent**

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

With the Passing Lane Alternative, the existing bridge would remain. Existing channel conditions would be maintained. The Old Plank Road Trail would require its own separate bridge.

With the Hybrid Alternative and the 4-lane On-alignment Alternative (Preferred Alternative), a new bridge would be constructed adjacent to, and north of, the existing bridge over the Sheboygan River for the additional travel lanes. The Old Plank Road Trail would require its own separate bridge south of the existing bridge. The existing bridge would remain. An expanded encroachment would travel across the floodplain. Existing channel conditions would be maintained.

**11. Discuss the effects of any backwater which would be created by the proposed action. Indicate whether the proposed activities would be in compliance with NR 116 by creating 0.01 ft. backwater or less:**

For the No-Build Alternative, and corridor preservation associated with the build alternatives, the existing bridge would have no effect on backwater. In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. For the Passing Lane Alternative, the existing bridge would remain and a new separate bridge would be constructed for the Old Plank Road Trail. The span length for the new separate bridge for the Old Plank Road Trail would be sized to limit the backwater in a 100-year flood.

For the Hybrid Alternative and 4-lane On-alignment Alternative (Preferred Alternative), a new single span bridge is proposed over the Sheboygan River for the additional travel lanes. A new bridge would also be constructed over this river to carry the extension of the Old Plank Road Trail. The combination of the three bridges at this location for the Hybrid Alternative and 4-lane On-alignment Alternative, (eastbound WIS 23, westbound WIS 23, and the Old Plank Road Trail) would cause an increase of 1 foot of backwater for a 100-year flood to occur between the westbound and eastbound WIS 23 bridges. Modeling indicated this increase would be contained to the highway right of way and should not flood any adjacent property. The backwater of the westbound WIS 23 structure for a 100-year flood increases by approximately 0.05 feet. Between the eastbound WIS 23 and Old Plank Road Trail structures, the backwater increase for a 100-year flood is between 0.07 feet to 0.26 feet. This backwater increase should be contained on the highway right of way between the roadway and the trail. Upstream of the Old Plank Road Trail structure, the backwater increase for a 100-year flood is approximately 0.23 feet immediately upstream of the structure and then dissipates to normal existing levels approximately 0.7 mile upstream. Since the added lanes primarily match the existing profile of the existing roadway, a similar profile is desired for the new lanes to avoid reconstruction of the existing WIS 23 bridge. Different profile alternatives were considered, such as raising both bridge profiles, but effects to backwater were negligible and structure costs increased substantially so the different profile alternatives were dismissed. Raising the profile also made constructing a single span bridge more difficult.

**12. Describe and provide the results of coordination with any floodplain zoning authority:**

WisDOT has been and will continue to coordinate with the appropriate zoning coordinator throughout the project (Fond du Lac County).

**13. Would the proposal or any changes in the design flood, or backwater cause any of the following impacts?**

- No impacts would occur.
- Significant interruption or termination of emergency vehicle service or a community's only evacuation route.
- Significant flooding with a potential for property loss and a hazard to life.
- Significant impacts on natural floodplain values such as flood storage, fish or wildlife habitat, open space, aesthetics, etc.

No impacts would occur because the increase in backwater effects would mostly occur on WisDOT right of way and would not disrupt transportation on WIS 23 or other roadways.

**14. Discuss existing or planned floodplain use and briefly summarize the project's effects on that use:**

No additional use of the floodplain would occur with the No-Build Alternative or corridor preservation associated with the build alternatives. In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs. With the Passing Lane Alternative, the embankment for the new Old Plank Road Trail bridge would fill a portion of the floodplain. As mentioned in question 13, the floodplain would rise within WisDOT right of way. Impacts outside of WIS 23 right of way are anticipated to be negligible with this alternative. With the Hybrid Alternative and 4-lane On-alignment Alternative (Preferred Alternative) the embankment for new bridge structures would fill a portion of the floodplain. As mentioned in question 13, the floodplain would rise within WisDOT right of way. Impacts outside of WIS 23 right of way are anticipated to be negligible with these alternatives.

**15. Discuss probable direct impacts to water quality within the floodplain, both during and after construction. Include the probable effects on plants, animals, and fish inhabiting or dependent upon the stream:**

Marsh excavation and replacement fill would likely be placed in floodplain wetlands for approach work for any bridge structure. General grading would also occur within the floodplain for the construction of these structures, regardless of the build alternative. Erosion control practices would be implemented during construction to minimize sediments entering waterways. Adverse impacts to water quality could include sedimentation and increased chlorides from winter maintenance. Adverse impacts to water quality would be minimized during and after construction using bank stabilization materials and erosion control devices approved within WisDOT's Product Acceptability List.

A. No-Build Alternative

With the No-Build Alternative and corridor preservation associated with the build alternatives, there would be no direct impacts to water quality or plants, animals, and fish inhabiting the area. In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

B. Passing Lane Alternative

Post-construction impacts would be minimal over the existing river crossing since the existing bridge would remain. The Old Plank Road Trail would construct a bridge; however, this would have modest impacts to plant and animal loss because of the small footprint, and that the floodplain wetlands are fairly monotypic. The animals using these wetlands have similar adjacent habitat.

To minimize potential impacts to rare freshwater mussels, the WDNR would survey and potentially relocate mussels from the construction area prior to construction. Because a narrow riparian corridor borders the stream to the north and open grass lands exist to the south, the area does not provide as much habitat or plant and wildlife refuge as other waterways near the KMSF-NU.

C. Hybrid Alternative and 4-lane On-alignment Alternative (Preferred Alternative)

Post-construction impacts would be the same over the existing river crossing since the existing bridge would remain. There would be impacts with the installation of a new single span bridge for the additional travel lanes. A new bridge would also be constructed over this river to carry the extension of the Old Plank Road Trail. These bridges would have some modest impacts to plants and animals.



Yet the floodplain wetlands are fairly monotypic and the animals using these wetlands would have similar adjacent habitat.

To minimize potential impacts to rare freshwater mussels, the WDNR would survey and potentially relocate mussels from the construction area prior to construction. Because a narrow riparian corridor borders the stream to the north and open grass lands exist to the south, the area does not provide as much habitat or plant and wildlife refuge as other waterways near the KMSF-NU.

**16. Are measures proposed to enhance beneficial effects?**

- No  
 Yes. Describe: \_\_\_\_\_

No additional measures are needed for the No-Build Alternative or corridor preservation associated with the build alternatives. In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

For the Passing Lane Alternative, the existing single span bridge would remain and a new single span bridge for the Old Plank Road Trail would be constructed.

For the Hybrid Alternative and 4-lane On-alignment Alternative (Preferred Alternative), the existing single span bridge would remain and two new single span bridges for westbound WIS 23 and the Old Plank Road Trail would be constructed.

Providing single span bridges will enhance the beneficial effects as compared to the potential maintenance activities associated with the No-Build Alternative and the culverts or extended culverts associated with the Passing Lane Alternative.

Information for the Rivers, Streams and Floodplains Evaluation Factor Sheet–Unnamed tributary of the Sheboygan River has been augmented and updated.

## 4.7 C-2.2 RIVERS, STREAMS AND FLOODPLAINS EVALUATION

Factor Sheet C-2

1. **Stream Name:** Unnamed tributary of the Sheboygan River

2. **Stream Type: (Indicate Trout Stream Class, if known)**

- Unknown  
 Warm water  
 Cold water

If trout stream, identify trout stream classification:

Wild and Scenic River

3. **Size of Upstream Watershed Area: (Square miles or acres)**

Approximately 1,445 acres

4. **Stream flow characteristics:**

- Permanent Flow (year-round)  
 Temporary Flow (dry part of year)

5. **Stream Characteristics:**

A. Substrate:

1.  Sand  
 2.  Silt  
 3.  Clay  
 4.  Cobbles  
 5.  Other-describe:

B. Average Water Depth: 6 to 12 inches

C. Vegetation in Stream

- Absent  
 Present - If known describe: Duckweed and algae with rice cutgrass and reed canary grass.

D. Identify Aquatic Species Present:

Warm water forage fish.

E. If water quality data is available, include this information:

The headwaters of this tributary originate just south of WIS 23. General water quality in the Sheboygan River Watershed is good in headwaters, fair to poor in lower reaches, very poor in the lower 14 miles of the Sheboygan River because of PCB contamination. This tributary is distant to the part of the Sheboygan River that is listed as impaired. General threats to stream water quality include contaminated sediments, habitat modification, agricultural runoff, and construction site erosion.

F. Is this river or stream on the WDNR's "Impaired Waters" list?

- No  
 Yes - List: \_\_\_\_\_

6. **If bridge or box culvert replacement, are migratory bird nests present?**

- Not Applicable  
 None identified  
 Yes – Identify Bird Species present  
 Estimated number of nests is:



Figure 4.7 C-2.2 Unnamed Tributary to Sheboygan River

**7. Is a U. S. Fish & Wildlife Depredation Permit required to remove swallow nests?**

- Not Applicable  
 Yes  
 No - Describe mitigation measures:

**8. Describe land adjacent to stream:**

The adjacent land uses include wet meadow, cropland, and lightly wooded ditches. The WisDOT Pit Road Wetland Mitigation Site is near the northwest quadrant of WIS 23 and Pit Road. The wetland area appears to receive flow from this tributary.

**9. Identify upstream or downstream dischargers or receivers (if any) within 0.8 kilometers (1/2 mile) of the project site:**

The WisDOT Pit Road Wetland Mitigation Site is a receiver of water conveyed with the tributary.

**10. Describe proposed work in, over, or adjacent to stream. Indicate whether the work is within the 100-year floodplain and whether it is a crossing or a longitudinal encroachment:**

[Note: Coast Guard must be notified when Section 10 waters are affected by a proposal. Also see Wetland Evaluation, Factor Sheet C-1, Question 8.]

Wisconsin's administrative rule NR 116 and 23 CFR 650 Subpart A governs floodplain management in Wisconsin. It generally does not allow construction within a floodplain that increases flood levels for the regional 100-year flood by more than 0.01 feet. The 100-year flood has a 1 percent chance of being equaled or exceeded during any given year. It can also be termed the "1 percent" flood since this relates the event to an annual time period instead of a 100-year time period. A backwater is the level of a stream or river, upstream of a bridge or culvert. NR 116 regulates the raising of the backwater by more than 0.01 feet during the regional 100-year flood. Culverts and bridges must be sized wide enough so that water flow is unimpeded through the structure. If the backwater flood elevation is raised, coordination must occur with floodplain zoning authorities and property owners must be compensated.

According to FEMA maps, no 100-year floodplain exists in the location of this tributary.

The No-Build Alternative and the corridor preservation associated with the build alternatives would not affect this crossing and the existing culvert would remain. In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

For the Passing Lane Alternative, the work would include construction of a new culvert at the existing location. The new culvert would be longer than the existing culvert due to the construction of an eastbound WIS 23 passing lane and the extension of the Old Plank Trail at this location. Existing channel conditions would be maintained.

For the Hybrid Alternative and 4-lane On-alignment Alternative (Preferred Alternative), the work would include grading for two additional lanes with the installation of two new culverts. Existing channel conditions would be maintained.

**11. Discuss the effects of any backwater which would be created by the proposed action. Indicate whether the proposed activities would be in compliance with NR 116 by creating 0.01 ft. backwater or less:**

For the No-Build Alternative, and corridor preservation associated with the build alternatives, the existing culvert would remain and the backwater for a 100-year flood would remain the same. In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

For the Passing Lane Alternative, a new culvert would be constructed at the existing location, where a 36-inch pipe currently carries the flow of this tributary. The new pipe size for this alternative would be evaluated to accommodate the increased pipe length while maintaining the existing backwater conditions for the regional 100-year flood. A cattle pass exists west of the pipe; however, the cattle pass is not designed for drainage. The cattle pass is no longer being used and would be removed with this alternative.

For the Hybrid Alternative and the 4-lane On-alignment Alternative (Preferred Alternative) the two new culverts (one crossing eastbound WIS 23 and one crossing westbound WIS 23) would be designed to accommodate the regional 100-year flood. Normal culvert pipe sizing indicated two 54-inch pipes would adequately carry the flow of this tributary without increasing the backwater for the 100-year flood. The size increase was necessary to accommodate the increased length of the culvert as a result of the additional lanes. A cattle pass exists west of the pipe; however, the cattle pass is not designed for drainage. The cattle pass is no longer being used and would be removed with this alternative.

**12. Describe and provide the results of coordination with any floodplain zoning authority:**

Because this culvert is not in a floodplain, no coordination has occurred with any floodplain zoning authority.

**13. Would the proposal or any changes in the design flood, or backwater cause any of the following impacts?**

- No impacts would occur.
- Significant interruption or termination of emergency vehicle service or a community's only evacuation route.
- Significant flooding with a potential for property loss and a hazard to life.
- Significant impacts on natural floodplain values such as flood storage, fish or wildlife habitat, through the floodplain.

**14. Discuss existing or planned floodplain use and briefly summarize the project's effects on that use:**

According to FEMA maps no floodplain exists at this location.

The WisDOT Pit Road Wetland Mitigation Site exists northwest of the WIS 23 Pit Road intersection and one function of the area is floodplain storage and wetland habitat replacement.

**15. Discuss probable direct impacts to water quality within the floodplain, both during and after construction. Include the probable effects on plants, animals, and fish inhabiting or dependent upon the stream:**

According to FEMA maps, there is no floodplain in this area.

With the No-Build Alternative and corridor preservation associated with the build alternatives, there would be no direct impacts to water quality or plants, animals, and fish inhabiting the area. In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

For the Passing Lane Alternative, the tributary would have a longer culvert to flow through, adversely affecting some aquatic life. For the Hybrid Alternative and the 4-lane On-alignment Alternative (Preferred Alternative), the tributary would have two culvert pipes to flow through, adversely affecting some aquatic life.

General grading would occur on all build alternatives near the stream bank for the installation of the pipe(s). Erosion control practices would be implemented during construction to minimize sediments entering waterways. Adverse impacts to water quality could include sedimentation and increased chlorides from winter maintenance. Adverse impacts to water quality would be minimized during and after construction using bank stabilization materials and erosion control devices approved within WisDOT's Product Acceptability List.

16. Are measures proposed to enhance beneficial effects?

No

Yes. Describe: \_\_\_\_\_



Information for the Rivers, Streams and Floodplains Evaluation Factor Sheet–Mullet River has been augmented and updated, but there are no substantive changes from the 2014 LS SFEIS.

## 4.7 C-2.3 RIVERS, STREAMS AND FLOODPLAINS EVALUATION

Factor Sheet C-2

1. **Stream Name:** Mullet River
2. **Stream Type: (Indicate Trout Stream Class, if known)**
  - Unknown
  - Warm water
  - Cold water

If trout stream, identify trout stream classification:

The water quality of the Mullet River is considered good from its headwaters to the city of Plymouth.

The central segment of the river, from the city of Plymouth to the village of Glenbeulah, has an increased spring flow and is classified as a Cold Water Community stream. Upstream of

Glenbeulah and downstream of WIS 67 near the city of Plymouth, the Mullet River is classified as a Warm Water Sport Fish Community stream. The Mullet River is unique in that it flows from the warm water headwaters into a cold water segment. The river segment that crosses WIS 23 and flows through the KMSF-NU, the Mullet Creek State Wildlife Area, and the Wade House Historic Site, is located within the warm water segment.

Wild and Scenic River

3. **Size of Upstream Watershed Area: (Square miles or acres)**

Approximately 20,940 acres

4. **Stream flow characteristics:**

Permanent Flow (year-round)  
 Temporary Flow (dry part of year)

5. **Stream Characteristics:**

A. Substrate:

1.  Sand
2.  Silt
3.  Clay
4.  Cobbles
5.  Other-describe: Gravel

B. Average Water Depth: 1 to 3 feet

C. Vegetation in Stream

- Absent  
 Present - If known describe: Limited emergent vegetation boarded by shrubs and wetland forbs.

D. Identify Aquatic Species Present:

Warm water sport fish as well as some warm and cold water forage fish. Species include creek chubs and minnows, suckers, sunfish, bass, bullhead, northern pike, and rainbow trout. Freshwater mussels were identified in a wading survey performed in 2000. They included both the ellipse (*Venustaconcha*



Figure 4.7 C-2.3 Mullet River

*ellipsiformis*) and slippershell (*Alasmidonta viridis*) state threatened species. Additional common or rare mussels may also be found.

E. If water quality data is available, include this information:

This segment of the Mullet River starts at Otter Pond near the town of Glenbeulah and terminates at Mullet Lake. The segment runs through the KMSF-NU, the Mullet Creek State Wildlife Area, and the Wade House Historic Site. Water quality conditions are good, but there are fewer springs in this reach. This segment of the Mullet River also has areas of altered flow resulting from channelization and impoundments.

F. Is this river or stream on the WDNR's "Impaired Waters" list?

- No  
 Yes - List: \_\_\_\_\_

**6. If bridge or box culvert replacement, are migratory bird nests present?**

- Not Applicable  
 None identified  
 Yes – Identify Bird Species present  
 Estimated number of nests is:

**7. Is a U. S. Fish & Wildlife Depredation Permit required to remove swallow nests?**

- Not Applicable  
 Yes  
 No - Describe mitigation measures:

**8. Describe land adjacent to stream:**

Land adjacent to the river includes floodplain-containing wetlands described as wet meadow and mowed right of way. Areas north of WIS 23 include forested lowlands and upland hardwood trees of moderate and large size. Areas south of WIS 23 are similarly wooded and include the existing Old Plank Road Trail crossing that was specially designed to minimize disturbance to wetlands and forested lands of the town of Greenbush's right of way.

**9. Identify upstream or downstream dischargers or receivers (if any) within 0.8 kilometers (1/2 mile) of the project site:**

The Wade House Historic Site has a mill pond on the Mullet River west and southwest of this crossing.

**10. Describe proposed work in, over, or adjacent to stream. Indicate whether the work is within the 100-year floodplain and whether it is a crossing or a longitudinal encroachment:**

[Note: Coast Guard must be notified when Section 10 waters are affected by a proposal. Also see Wetland Evaluation, Factor Sheet C-1, Question 8.]

Wisconsin's administrative rule NR 116 and 23 CFR 650 Subpart A governs floodplain management in Wisconsin. It generally does not allow construction within a floodplain that increases flood levels for the regional 100-year flood by more than 0.01 feet. The 100-year flood has a 1 percent chance of being equaled or exceeded during any given year. It can also be termed the "1 percent" flood since this relates the event to an annual time period instead of a 100-year time period. A backwater is the level of a stream or river, upstream of a bridge or culvert. NR 116 regulates the raising of the backwater by more than 0.01 feet during the regional 100-year flood. Culverts and bridges must be sized wide enough so that water flow is unimpeded through the structure. If the backwater flood elevation is raised, coordination must occur with floodplain zoning authorities and property owners must be compensated.

The No-Build Alternative and the corridor preservation associated with the build alternatives would not affect this crossing and the existing culvert would remain. In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent



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

All build alternatives cross the Mullet River at the same location and would cross the 100-year floodplain. For each alternative, the work would include a culvert extension adjacent to the existing Mullet River culvert. The culvert has three cells and the inside dimensions of each are 12 feet wide by 8 feet high. The existing culvert would remain.

For the Passing Lane Alternative and the Hybrid Alternative, the work would require a culvert extension to the north and south sides of WIS 23 to accommodate the roadway expansion for the left turn lanes at the County A intersection, located to the southeast and for the extension of the Old Plank Road Trail. The existing culverts would be extended about 25 feet to the north and south.

For the 4-lane On-alignment Alternative (Preferred Alternative), the work would include constructing an embankment across the floodplain for the two new travel lanes and the Old Plank Road Trail extension. This would require extending the culvert about 100 feet on the north side only.

For all build alternatives, existing channel conditions would be maintained. Because the extensions for all alternatives are matching the existing structure, the bottom is planned to be at the same elevation as the existing box culvert. The existing Mullet River box culvert has approximately 0.5 to 1 foot of streambed material at the inlet and outlet of the box culvert. By matching the existing box culvert dimensions, it is anticipated that stream bed material would move into the extension and over time create a natural bottom. Hydraulic modeling indicates that there would be no increase in backwater by the culvert extension.

**11. Discuss the effects of any backwater which would be created by the proposed action. Indicate whether the proposed activities would be in compliance with NR 116 by creating 0.01 ft. backwater or less:**

For the No-Build Alternative, and corridor preservation associated with the build alternatives, the existing culvert would remain and the backwater for a 100-year flood would remain the same. In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

For all build alternatives, the culvert would be designed in compliance with NR 116 and NR 320 and would be designed to maintain the existing 100-year flood backwater. A hydraulic analysis for the Mullet River box culvert extension indicates that there would be no increase in backwater levels for any alternative.

**12. Describe and provide the results of coordination with any floodplain zoning authority:**

Mapped floodplains border the project at the Mullet River. Hydraulic modeling indicates that there would be no change to backwater levels with the 100-year flood event for any alternative. WisDOT will carry out coordination, as necessary, with the local floodplain authority.

**13. Would the proposal or any changes in the design flood, or backwater cause any of the following impacts?**

- No impacts would occur.
- Significant interruption or termination of emergency vehicle service or a community's only evacuation route.
- Significant flooding with a potential for property loss and a hazard to life.
- Significant impacts on natural floodplain values such as flood storage, fish or wildlife habitat, open space, aesthetics, etc.

Impacts would be the same for each alternative. No change to design flood evaluation would occur.

**14. Discuss existing or planned floodplain use and briefly summarize the project's effects on that use:**

The existing floodplain consists of wooded swamp and agricultural fields and local plans continue those land uses.

No additional use of the floodplain would occur with the No-Build Alternative.

For all build alternatives, the floodplain use would remain for the most part in the same condition as before construction. Some clearing and grubbing and loss of forested riparian habitat would occur. The project would have minimal to moderate effect on the floodplain, with some grading up to the floodplain for the structure extension. All build alternatives would also have minimal to moderate effects on the floodplain for the roadway expansion or additional lanes.

**15. Discuss probable direct impacts to water quality within the floodplain, both during and after construction. Include the probable effects on plants, animals, and fish inhabiting or dependent upon the stream:**

With the No-Build Alternative and corridor preservation associated with the build alternatives, there would be no direct impacts to water quality or plants, animals, and fish inhabiting the area. In the future, if WisDOT determines that transportation improvements are needed within the preserved areas at this crossing, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

For all build alternatives, a portion of the floodplain would be filled to support the roadway expansion or additional lanes. The extension of the culvert would require excavation. Marsh excavation and replacement fill would be placed in floodplain wetlands for approach work for the culvert. General grading would occur near the stream bank for the installation of the pipe(s). Erosion control practices would be implemented during construction to minimize sediments entering waterways. Adverse impacts to water quality could include sedimentation and increased chlorides from winter maintenance. Adverse impacts to water quality would be minimized during and after construction using bank stabilization materials and erosion control devices approved within WisDOT's Product Acceptability List.

Post-construction impacts would be the same as the existing river crossing. These alternatives would have modest impacts to plant and animal loss because the floodplain wetlands are fairly monotypic and the animals using these wetlands would have similar habitat to move to.

To minimize potential impacts to rare freshwater mussels, the WDNR would survey and potentially relocate mussels from the construction area prior to construction.

**16. Are measures proposed to enhance beneficial effects?**

- No  
 Yes. Describe: \_\_\_\_\_

The Upland Wildlife and Habitat Evaluation Factor Sheet discusses impacts to wooded and other upland resources. There are no substantive changes from the 2014 LS SFEIS.

#### 4.7 C-5 UPLAND WILDLIFE AND HABITAT EVALUATION

#### Factor Sheet C-5

##### 1. Proposed Work in Upland Areas:

Describe the nature of proposed work in the upland habitat area (grading, clearing, grubbing, etc.):

###### A. No-Build Alternative

This alternative requires no upland conversion and has no impacts. The No-Build Alternative would not change existing plant community types nor proportions of managed nor unmanaged right of way.

###### B. Passing Lane Alternative

The Passing Lane Alternative work would consist of clearing and grubbing and constructing embankment for the added passing lanes, possible left-turn lanes, and Old Plank Road Trail extension. The construction of passing lanes would convert approximately five acres of relatively minor upland habitat to right of way adjacent to WIS 23.

###### C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation would not impact any uplands. 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 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 work would include clearing and grubbing and constructing embankment for the 4-lane expansion as well as interchanges in Fond du Lac County, the passing lanes for the 2-lane highway in Sheboygan County, and the extension of the Old Plank Road Trail in both counties. There would be nine acres of upland impacts with this alternative.

###### E. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation would not impact any uplands. 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 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 work in upland areas would consist of clearing and grubbing and constructing embankment for the 4-lane expansion, interchanges, and extension of the Old Plank Trail. A total of 38 acres of upland habitat would be converted to right of way with this alternative.

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

Corridor preservation would not impact any uplands. 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 these preserved areas, subsequent environmental documentation would be prepared to evaluate a range of alternatives and associated impacts and costs.

Table 4.7 C-5.1 summarizes upland habitat impacts for each build alternative.

**Table 4.7 C-5.1 Summary of Upland Impacts**

Uplands Affected	Estimated Right of Way Acres Impacted by Construction
Passing Lane Alternative	5
Hybrid Alternative	9
4-lane On-alignment Alternative	38

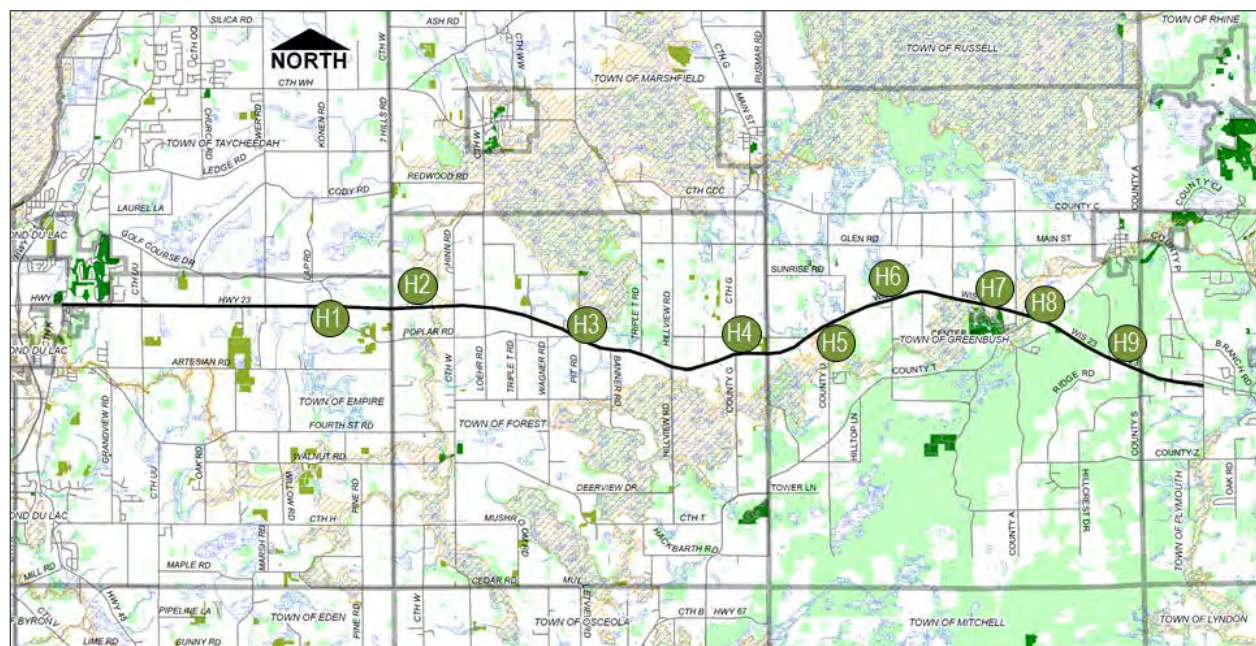
**2. Vegetation/Habitat:**

Give a brief description of the upland habitat area. Include prominent plant community(ies) at the project site (list vegetation with a brief description of each community type if more than one present).

Identified upland habitat areas on the WIS 23 project are partially based on the County resource mapping and are shown in Figure 4.7 C-5.1, with project area identified resources labeled as H1 to H9.

Descriptions of each habitat area follow the figure.

- **Forested blocks of upland and mixed floodplain/lowland woods.** These are 10 to 80-acre areas along the project with substantial forested blocks occurring in the KMSF-NU in Sheboygan County.
- **Shrub lands and transitional shrub/tree corridors of habitat.** These areas are extensive on the project and include areas at property boundaries, field edges, adjacent riparian areas, and also includes some idle or non-farmable areas.
- **Managed, idle, and abandoned fields** in steeper areas of right of way or field borders. These areas include brushy fence lines, and also border some wetlands, woodlands, and non-farm areas.
- **Mesic flood prone meadows and woodlands on the periphery of creek meanders and floodplains,** including such areas as the Sheboygan and Mullet Rivers and the Wade House Historic Site.
- **Upland buffers** of agronomic plant species, including right of way, unmanaged suburban residential lots and volunteer/native/set-aside lands adjacent to woods, croplands, or roads.



**Figure 4.7 C-5.1 Project Area Upland Wildlife Habitat Resources**



The habitat areas shown in Figure 4.7 C-5.1 are summarized as follows:

H1–Northeast of Poplar and WIS 23	Large forested block of upland and wetland resources.
H2–7 Hills Road and East to County W	7 Hills Road and Sheboygan River at WDNR (No. 3) and Project (No. 1) identified Natural Resource Area.
H3–Pit Road and Triple T	WDNR Identified Natural Resource Area No. 2.
H4–Northwest of Division Road and WIS 23	County mapped forested block (planted conifers and successional area).
H5–County U Environs	Natural Resource Area No. 3A.
H6–West of Spring Valley Drive	Natural Resource Area No. 3B.
H7–West Plank Road and Wade House Historic Site	Wade House Historic Site Environs and Natural Resource Area No. 4A.
H8–East Plank Road and Mullet River Area	WDNR Identified Natural Resource Area No. 4B at Mullet River.
H9–Forested Blocks and Trail System	KMSF-NU and Old Plank Road Trail environments.

The majority of the plant communities being altered are the same for all build alternatives and the communities adjoin managed right of way. The alternatives run through agricultural fields, idle fields, small woodlots, and upland areas adjacent to various areas not capable of being farmed or grazed. Such areas include borders or streams, steep lands, and other irregular property boundaries not suitable for agricultural production. About 35 to 40 percent of the corridor contains upland soils with Map Symbol Class C (6 to 12 percent slope), D (12 to 20 percent slope) and E (12 to 30 percent) slopes. Steep non-managed areas can contain wooded resources such as maple, oak, hickory, elm, basswood, birch and other forest or forest edge species. Other species or community areas may contain wildflowers, native and introduced grasses, shrub lands of sumac, honeysuckle and successional woods. Project disturbances may be limited to the edges of habitat areas in some areas whereas some intersections or alignments that place all four lanes north or south of the current centerline would impact more habitat. In field reviews, the WDNR identified seven different high-quality habitat areas noted as Natural Resource Areas. The WDNR submitted comments regarding these areas to WisDOT. These WDNR identified Natural Resource Areas<sup>7</sup> are shown in Figures 4.7 C-1.2 to 4.7 C-1.13.

WDNR located Natural Resource Areas are mainly avoided because the build alternatives each travel along the existing roadway alignment. Selection of an on-alignment alternative avoids five of the seven Natural Resource Areas. With on-alignment concept plans, disturbances would be limited to the edges of habitat areas. An exception to this is Natural Resource Area No. 3, the Mullet River crossing which has more wetland and threatened and endangered mussel species than upland habitat. The upland habitat is limited to narrow areas adjacent to the stream meanders and other idle floodplain/flood prone areas.

<sup>7</sup> The term "Natural Resource Area" is used solely as an identifier within this document and does not connote any special designations or protections.

Would the project result in changes in the vegetative cover of the roadside?

A. No-Build Alternative

This alternative requires no upland conversion and there would be no changes to the predominate vegetation of the roadside.

B. Passing Lane Alternative

The addition of passing lanes would result in relatively minor changes to roadside cover. Most of the impacts would border areas at the Wade House Historic Site, Mullet River, and near the IAT/State Equestrian Trail. Vegetative changes would include the clearing, grading, and reseeding of the roadside with typical grass species where passing lanes are constructed. The alternative results in the loss of a mixture of habitats discussed previously.

C. Corridor Preservation Associated with Passing Lane Alternative

Corridor preservation would not change the vegetative cover. 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

Vegetative roadside changes with the Hybrid Alternative would result from conversion of right of way to vegetation plantings. WisDOT would plant standard seed mixes in areas of the current alignment and also:

- (1) near urban sections/intersections or rural developments;
- (2) in areas that do not represent or border companion native habitat;
- (3) or areas that present difficulty with native vegetation planting or management.

Where appropriate, the WisDOT revegetation would use native seed mixtures contained in the WisDOT Standard Specification to enhance roadside wildlife habitat value. Seeding arrangements would be the responsibility of WisDOT with guidance as appropriate from the WDNR.

E. Corridor Preservation Associated with Hybrid Alternative

Corridor preservation would not change the vegetative cover. 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 there would be vegetation changes to impacted roadside areas. WisDOT would plant standard seed mixes in areas of the current alignment and also:

- (1) near urban sections/intersections or rural developments;
- (2) in areas that do not represent or border companion native habitat;
- (3) or areas that present difficulty with native vegetation planting or management.

Where appropriate, WISDOT vegetation would consider use of native seed mixtures contained in the WisDOT Standard Specification to enhance roadside wildlife habitat value. Seeding arrangements would be the responsibility of WisDOT with guidance as appropriate from the WDNR.

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

Corridor preservation would not change the vegetative cover. 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.

3. **Wildlife:**

A. Identify and describe any observed or expected wildlife associations with the plant community(ies) listed in question No. 1:

Large and small wildlife benefit from the diversity and complexity of upland (and complementing wetland) habitats that exist along the entire project. Common and abundant species include White-tailed deer, coyote, raccoon, striped skunk, turkey, squirrel, song birds, birds of prey, and grouse are common in forest and forest-edge habitats. Additional small animals, opossums, aquatic mammals, turtles, migratory waterfowl, and a variety of species are present in upland buffers in the corridor areas of the project.

Current species with specific habitat concerns or detailed review needs are contained in the Threatened and Endangered Species Section of the document.

B. Identify and describe any known wildlife or bird use areas or movement corridors that would be severed or affected by the proposed action:

As with WDNR identified Natural Resource Areas, other upland areas containing habitat or buffers as narrow as 150-200 feet wide have the opportunity to provide food, shelter, cover, water, and movement corridors. The two primary areas of concern for the build alternatives would be the wildlife corridor of the Sheboygan and Mullet Rivers and areas where extensive road fill already direct or redirect wildlife crossings.

The KMSF-NU area is an existing wildlife corridor that is also already severed by the existing WIS 23 roadway. The 4-lane On-alignment Alternative would make this crossing wider and impact wildlife movement. The IAT/State Equestrian Trail underpass could provide a suitable wildlife crossing location for the build alternatives. The crossing is designed to be 20 feet wide with over 10 feet next to the trail crossing. See Figure 4.7 C-5.2 for a cross section of this underpass.

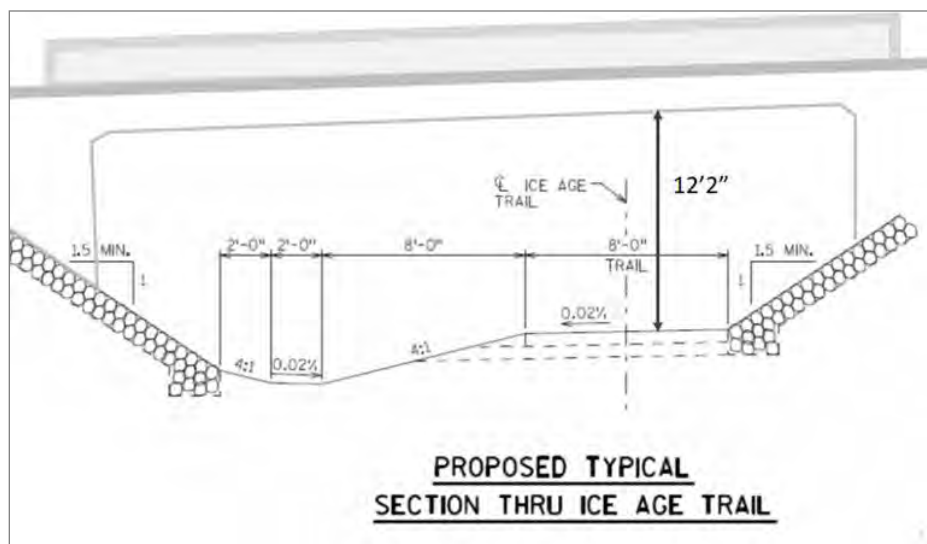


Figure 4.7 C-5.2 Ice Age Trail Underpass



C. Discuss other direct impacts on wildlife and estimate significance:

All build alternatives could temporarily affect nesting or foraging areas of locally nesting upland or woodland nesting bird species as well as the field nesting habitats of blue-winged teal, mallards, ring-necked pheasants, sandhill cranes (or other migratory species). WDNR records and coordination did not identify any upland habitat nesting species of concern (nor listings of threatened or endangered species with solely upland preferences). Because of the commonality of the species and the prevalence of remaining upland habitat on the corridor, most of these impacts could be considered modest and not significant. Species would relocate their foraging or nesting areas to adjacent habitat.

For corridor preservation associated with the build alternatives, if in the future 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. Identify and discuss any probable indirect impacts on wildlife in the area expected due to the project:

On the far east end of the project, the WDNR does not currently own all the land within the proposed forest boundary of the KMSF-NU. The boundary contains large forested blocks, other upland meadows and shrub land. In this area unacquired land could continue to be threatened by development as a direct or indirect result of this project. There are already small residential parcels in the hillsides at the west end of project. Sometimes road improvements can encourage residential development, which could influence the ability of the WDNR to purchase remaining lands within the park boundary.

Other than potentially increased development, an indirect impact to wildlife that may occur is increased wildlife mortality because of increased vehicle-wildlife collisions. This impact may be realized once the traffic volumes increase, as anticipated. However, attention to fencing, culvert, and bridge options at the natural resource areas or potential trail crossing areas may minimize potential wildlife losses (See Figures 4.7 C-1.2 to 4.7 C-1.13).

E. Describe measures to avoid and/or minimize adverse effects or to enhance beneficial effects:

For all build alternatives, efforts to minimize adverse effects to the upland habitat corridor in the KMSF-NU area includes adhering to WDNR specific recommendations regarding environmental protection and providing an underpass for the IAT and State Equestrian Trail. Through the evaluation and potential design process, WisDOT will continue working with WDNR and the USFWS to design the crossing with habitat elements, crossing needs, suitable fencing or exclusion plans, and native vegetation plantings. The design characteristics of the underpass would seek to manage suitable park user and wildlife crossings. The use of fencing along the highway could help funnel wildlife to the crossing, possibly improving wildlife crossing conditions compared to the existing conditions. Throughout the design process, upland forest habitat will be avoided where possible to limit impacts and minimize losses. Disturbed vegetation will be replaced with suitable WisDOT native grasses and landscaping plants. In areas that could be considered environmental corridors, clearing would be minimized to limit impacts to native communities and large forest areas.

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.

Project planners and designers will continue to solicit and receive guidance from the WDNR and USFWS on rare species that may be impacted by upland habitat conversions. An October 2017

analysis of state and federal species, specifically the rusty patched bumble bee and the northern long-eared bat, indicated that no roosting or nesting colonies of these species exist in the project area. However, potential native upland vegetation establishment and management on the project could be used to provide beneficial habitat for these species as well as other species having special pollinator habitat requirements.

For corridor preservation associated with the build alternatives, if in the future 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 Threatened and Endangered Species Evaluation Factor Sheet has been updated to the format currently used by WisDOT. All species information has been updated, but there are no substantive changes from the 2014 LS SFEIS except for the addition of the northern long-eared bat (NLEB). The NLEB was added as threatened under the Endangered Species Act on April 2, 2015.

#### 4.7 C-7 THREATENED, ENDANGERED AND PROTECTED RESOURCES EVALUATION

##### Factor Sheet C-7

#### Federal Resources

1. Complete the following table using the Official Species List from USFWS.

Date of Official Species List: October 18, 2017

Document all species identified on Official Species List, including proposed species.

An effect determination of "may affect, but will not result in a prohibited take" was made for the NLEB.

There are no other known federally threatened or endangered species being impacted by the proposed project. The Whooping Crane is listed as a bib-essential, experimental population (NEP) for the Sheboygan County portion of the project. The USFWS nomenclature does not consider this a threatened and endangered species occurrence. It is rather a notation of a migratory area of Whooping Cranes.

Species Common Name	Species Scientific Name	Federal Status	Effect Determination	Justification/ Explanation
Whooping crane	<i>Grus americana</i>	NEP	N	Experimental population, no nesting in corridor.
Pitcher's thistle	<i>Cirsium pitcher</i>	THR	N	No habitat (sand dunes) in the project proximity.
Eastern prairie fringed orchid	<i>Plantanthera leucophaea</i>	THR	N	No known habitat identified in project proximity.
Northern long-eared bat	<i>Myotis septentrionalis</i>	THR	May Affect, but will not result in a prohibited take	Activity would not remove a known roost tree or any other tree within 150 feet of a known maternity roost tree from June 1- July 21. Activity is not within 0.25 miles of known hibernacula.

The federally listed species are the whooping crane (*Grus americana*), pitcher's thistle (*Cirsium pitcher*), the eastern prairie fringed orchid (*Plantanthera leucophaea*), and the NLEB (*Myotis septentrionalis*). The whooping crane depends on large, open wetland ecosystems to eat, roost, and make their nests. No known nesting or migration sites were identified near the corridor. Since this species distribution is not restricted to Wisconsin and because of the extent of the mid-western experimental population expansion project of the USFWS, the species is not extensively tracked by the WDNR within the NHI. The pitcher's thistle is found in open sand dunes and low open beach ridges of the Great Lakes' shores. The eastern prairie fringed orchid is found in a wide variety of habitats, from mesic prairie to wetlands such as sedge meadows, marsh edges, even bogs. The NLEB is found in caves and mines, swarming in surrounding wooded areas in autumn. During late spring and summer, the NLEB roosts and forages in upland forests.

2. Is there designated or proposed critical habitat in the vicinity of the project?

No

Yes—Describe critical habitat, proximity to project, and potential impacts to the critical habitat.

3. Has Section 7 consultation with USFWS been completed?

No—Explain:

Yes—Describe consultation efforts and conclusions:

USFWS coordination was completed on July 28, 2010. Subsequently, WisDOT used the streamlined consultation framework under the final 4(d) rule for the NLEB to document that the project will not



result in a prohibited take for the NLEB and will not have an effect for any other federally listed species. This consultation packet was submitted to USFWS on October 4, 2017. Neither the most recent threatened and endangered species data investigation nor individual USFWS coordination has identified federally listed species of concern.

4. Are Avoidance, minimization or compensatory mitigation measures required?

- No  
 Yes—Describe. Include commitments on Basic Sheet 8, Environmental Commitments.

#### State Resources

1. Are threatened or endangered species known to occur in the vicinity of the project?

- None identified  
 Yes—Complete the following table and include the date of the most recent NHI review by WDNR.

Date of NHI database review: April 19, 2018

WisDOT and the WDNR, and WisDOT consultants have conducted numerous field investigations of the WIS 23 project corridor since the project was initiated in the early 2000s. None of the plant species identified in the NHI review were observed during wetland determination that took place during summer/fall 2017. For this LS SEIS the WDNR has provided comments for the alternatives regarding the rare species (threatened, endangered, and special concern) likely to be affected.

**Table 4.7 C-7-1 Threatened and Endangered Species**

Species Common Name	Species Scientific Name	State Status	Effect Determination	Justification/ Explanation
END = Endangered, THR = Threatened, SC = Special Concern, N = No, Y = Yes				
Forked aster	<i>Eurybia furcata</i>	THR	N	Variable habitat with some dolomite or calcareous soil affinity. No NHI occurrences on-alignment. No identified habitat on-alignment. Plant surveys will be completed for this species before construction.
Snow trillium	<i>Trillium nivale</i>	THR	N	See information in Section 3 and question 3 below.
Marsh valerian	<i>Valeriana uliginosa</i>	THR	N	Occurs in calcareous, coniferous swamps. Wet to mesic, peaty, calcareous soils. No NHI occurrences on-alignment. No identified habitat on-alignment.
Many headed sedge	<i>Carex sychnocephala</i>	SC	N	Muddy, sandy, marly, and peaty shorelines of lakes and ponds. Wet, sandy, peaty, calcareous soils. No NHI occurrences on-alignment. No identified habitat on-alignment.
Yellow evening primrose	<i>Oenothera serrulata</i>	SC	N	Found mostly on steep bluff prairies along the Mississippi and lower St. Croix Rivers; cedar glades and, occasionally, in moist prairies. No identified habitat on-alignment.
Slippershell mussel	<i>Alasmidonta viridis</i>	THR	Y	See information in Question 3 below.
Ellipse mussel	<i>Venustaconcha ellipsiformis</i>	THR	Y	See information in Question 3 below.
Rainbow shell mussel	<i>Villosa iris</i>	END	Y	See information in Question 3 below.

**Table 4.7 C-7-1 Threatened and Endangered Species**

Species Common Name	Species Scientific Name	State Status	Effect Determination	Justification/ Explanation
Red-shouldered hawk	<i>Buteo lineatus</i>	THR	N	This species prefers nesting in large stands of older aged to mature bottom land hardwoods along riparian areas. This type of habitat is not anticipated to be impacted by the project.
Cerulean warbler	<i>Dendroica cerulea</i>	THR	N	This species prefers nesting in large stands of older aged to mature bottom land hardwoods along riparian areas. This type of habitat is not anticipated to be impacted by the project.
Acadian flycatcher	<i>Empidonax virescens</i>	THR	N	This species prefers nesting in large stands of older aged to mature bottom land hardwoods along riparian areas. This type of habitat is not anticipated to be impacted by the project.
Hooded warbler	<i>Wilsonia citrina</i>	THR	N	This species prefers nesting in large stands of older aged to mature bottom land hardwoods along riparian areas. This type of habitat is not anticipated to be impacted by the project.
American bittern	<i>Botaurus lentiginosus</i>	SC	N	Avian species. No critical habitat of preference on-alignment.
Butler's garter snake	<i>Thamnophis butleri</i>	SC	N	Corridor specific investigation. No populations detected.
Blanding's turtle	<i>Emydoidea blandingii</i>	SC	N	Project requires precautionary construction period protection measures.
Eastern ribbonsnake	<i>Thamnophis sauritus</i>	END	N	Semi-aquatic snake primarily found in bog relics and associated vegetation near or south of the Tension Zone. Corridor specific investigation. No populations detected.
Striped shiner	<i>Luxilus chrysocephalus</i>	END	N	Aquatic species with no known local occurrences.
Swamp metalmark	<i>Calephelis muticum</i>	END	N	No known habitat or host plants identified in project proximity.
Midwest pleistocene vertigo snail**	<i>Vertigo hubrichti</i>	END	N	Inhabitants of cold, undisturbed, and well-forested algific sites occurring characteristically in small patches of decaying deciduous tree leaves (most often paper birch or mountain maple) on or in front of open vents in areas otherwise dominated by mosses and lichens. Primary habitat is the soil and fern covered ledges of limestone cliffs. Not identified on NHI on project. Added to species review list based on project proximity to Niagara escarpment.

\*\*WDNR addition though initially distant T16N, R18E.

Additionally, the WDNR reviewed the NHI database on August 16, 2017. In that review, WDNR determined that there are no known NLEB maternity roost trees within 150 feet and no known hibernacula within 0.25 miles of the proposed project.

2. Has threatened and endangered resource coordination with WDNR been completed?

No—Explain:

Yes—Attach and reference location in this document: See Appendix C.

3. Are Avoidance, minimization or compensatory mitigation measures required?

- No  
 Yes—Describe. Include commitments on Basic Sheet 8, Environmental Commitments.

#### Rare Plants

No specific locations of individual plants nor populations of rare plants have been identified along the corridor as of October 2017. NHI reviews and coordination with WDNR indicates that some species have occurrences on the project corridor or within similar habitat types nearby. Based on WDNR coordination to date the WDNR has requested that plant surveys be conducted for the snow trillium (*Trillium nivale*). These surveys were completed and no snow trillium was found.

#### Rare Animals

- a. Reptiles and Amphibians: Since environmental documentation was initiated there have been changes to the categorization of two rare species. Both of these species have management techniques that are suitable and easily employable on transportation projects. The following paragraphs summarize WDNR comments for these species. Based on recent WDNR rare and endangered species coordination, the Butler's garter snake and Blanding's turtle were changed to species of special concern.
- i. Butler's garter snake (*Thamnophis butleri*)—Special Concern—requires no further investigation. Butler's garter snake was initially investigated through a field survey in 2005. These past investigations for Butler's garter snake indicate that neither a population of the snake nor special habitat management is needed for this species in the project area. Statewide the Butler's garter snake populations are stable and the species may be delisted.
  - ii. Blanding's turtle (*Emydoidea blandingii*)—Special Concern—requires construction period protection measures. Blanding's turtle has been a common species of record or one in-need-of-mitigation for numerous years on numerous projects. Because of the more widely distributed Blanding's turtle, the WDNR has requested special turtle protection measures during construction, including exclusion fencing, be used to help protect this species.
- b. Freshwater Mussels: Freshwater mussel investigations were completed previously by WDNR staff at the Sheboygan River crossing of the current alignment in Section 7 of the town of Forest and in the Mullet River in Section 10/11 of the town of Greenbush. Three rare freshwater mussel species were identified in a Sheboygan River investigation adjacent to the existing crossing and two of the three were identified at the Mullet River. WDNR plans to conduct wading surveys 6 to 9 months before construction to determine which if any of the three state-listed mussel species occur in the respective streams. Should freshwater mussel species be identified from WDNR mussel surveys, WisDOT would arrange with WDNR staff to translocate necessary species upstream.
- i. Slippershell mussel (*Alasmidonta viridis*)—Threatened
  - ii. Ellipse mussel (*Venustaconcha ellipsiformis*)—Threatened
  - iii. Rainbow shell mussel (*Villosa iris*)—Endangered
- c. Rare State-Listed Woodland Nesting Species: Destruction of swallows and other migratory birds or their nests is unlawful unless a permit has been obtained from the USFWS. 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.

If there is evidence of migratory bird nesting on the existing structure B-59-0099, the project should either utilize measures to prevent nesting (e.g. remove unoccupied nests during the non-



*nesting season and install barrier netting prior to May 1) or work on the structure should occur only between August 30 and May 1 (non-nesting season). If netting is used, ensure it is properly maintained and removed as soon as the nesting period is over. If neither option is practicable the USFWS should be contacted, and a depredation permit may need to be applied for.*

As noted, the WDNR determined that there are no known NLEB maternity roost trees within 150 feet and no known hibernacula within 0.25 miles of the proposed project.

### Other Protected Resources

#### Bald and Golden Eagles

1. Are bald and/or golden eagles known to occur in the vicinity of the project?  
 None identified.  
 Yes
2. Will there be adverse or beneficial effects on bald and/or golden eagles as a result of the project?  
 No—Explain: All alternatives are on-alignment and would minimize impacts to bald and golden eagle habitat. The bald eagle nest location map, updated July 2017 (nests active as of 2016), did not identify any nests in the vicinity of the project.  
 Yes—Describe general proximity to project and potential impacts:
3. Has bald and golden eagle-related coordination with WDNR and/or USFWS been completed?  
 No—Explain: No eagle nests are found in the vicinity of the project.  
 Yes—Attach and reference location in this document:
4. Are Avoidance, minimization or compensatory mitigation measures required?  
 No  
 Yes—Describe. Include commitments on Basic Sheet 8, Environmental Commitments.

#### Migratory Birds

1. Are migratory birds known to occur in the vicinity of the project?  
 None identified.  
 Yes
2. Will there be adverse or beneficial effects on migratory birds as a result of the project?  
 No—Explain: If there is evidence of migratory bird nesting on the existing structure B-59-0099, the project would either utilize measures to prevent nesting or work on the structure should only occur between August 30 and May 1.  
 Yes—Describe general proximity to project and potential impacts:
3. Has migratory bird-related coordination with WDNR and/or USFWS been completed?  
 No—Explain:  
 Yes—Attach and reference location in this document: See Appendix C.
4. Are Avoidance, minimization or compensatory mitigation measures required?  
 No  
 Yes—Describe. Include commitments on Basic Sheet 8, Environmental Commitments.

Information for the Air Quality Evaluation Factor Sheet has been augmented and updated, but there are no substantive changes from the 2014 LS SFEIS.

## 4.7 D-1 AIR QUALITY EVALUATION

## Factor Sheet D-1

## 1. Ozone:

## A. Is the project located in a county, which is designated non-attainment or maintenance for ozone?

No

Yes – If Yes, one of the following boxes must be checked:

- The 4-lane On-alignment Alternative (Preferred Alternative) 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 TIP.
- This project is located outside of a Metropolitan Planning Organization's boundaries and has received a positive conformity determination per the rural conformity section of the WisDOT/WDNR Memorandum of Agreement regarding determination of conformity, completed as part of State Implementation Plan on January 21, 2016.
- This project is located outside of a Metropolitan Planning Organization's boundaries and is exempt from conformity requirements per 40 CFR 93.126
- This project has been determined to be Not Regionally Significant
- Other, describe:

The proposed WIS 23 project is located in the Lake Michigan Intrastate Air Quality Control Region. Fond du Lac County is presently in attainment of all NAAQS.

The project was included in the MPO assessment of conformity of the *Year 2045 Sheboygan Area Transportation Plan*, and although the project is located outside of the Sheboygan MPO's boundaries, through interagency consultation, it was agreed that this project (4-lane On-alignment Alternative) would be included in the Assessment of Conformity of the *Year 2045 SATP*. It has been customary for the MPO to conduct conformity analyses for all of Sheboygan County and include modeling of capacity modifying projects in portions of the county outside the Sheboygan Metropolitan Planning Area in the analysis. It was assumed that the project would be open to traffic by 2025 in the conformity analysis.

Sheboygan County currently demonstrates transportation 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).

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 of being at or below 75 parts per billion measured over an eight-hour period 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. On September 25, 2017, WDNR submitted the 2008 ozone NAAQS attainment demonstration for Sheboygan County.

USEPA finalized the ozone NAAQS to a 2015 8-hour standard of 70 parts per billion.

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. However, the 2008 standard has not been revoked; control measures and transportation conformity continue to apply for the whole county under the 2008 standard.

Provide RTP Name, TIP name, MPO name, TIP number and conformity finding date(s):	
RTP Name: Year 2045 Sheboygan Area Transportation Plan (SATP)	TIP Name: The project is outside the Sheboygan Metropolitan Planning Area, so it is not included in the MPO TIP.
MPO Name: Sheboygan MPO	TIP ID Number: No number because not in the MPO planning area
Conformity Finding Date(s): January 21, 2016	
This project is located outside of a Metropolitan Planning Organization’s boundaries yet is included in the Sheboygan Area Transportation Plan conformity analysis.	

**2. Carbon Monoxide:**

**A. Is this project exempt from air quality analysis under the repealed Wisconsin Administrative Code – NR 411?**

- No – NR 411 exemptions do not apply.
- Yes – NR 411 exemption(s) apply – Identify exemption(s) and explain why project is exempt.

Wisconsin Administrative Code NR 411 used to govern indirect sources of carbon monoxide by establishing a permitting process for highway and parking facilities. Proposed highway projects needed to qualify for an exemption or model the proposed carbon monoxide emissions and obtain a permit. Wisconsin Act 121 repealed the provisions of Wisconsin Administrative Code NR 411. WisDOT still uses the provisions of NR 411 in NEPA documentation to evaluate air quality impacts of a proposed action. The explanation for why the project is exempt is described in Question 2B.

**B. Was an air quality analysis required?**

- No
- Yes – Identify the air quality modeling technique or program used to perform the analysis. Complete the Maximum Projected Carbon Monoxide (CO) Concentrations Table to illustrate the results:

The Passing Lane Alternative would have been exempt from indirect source permit requirements under NR 411 because it carries less than 4 lanes of traffic.



The Hybrid Alternative and 4-lane On-alignment Alternative (Preferred Alternative) would have been exempt from indirect source permit requirements under NR 411 because they meet the following exceptions detailed under NR 411.04(2)(b):

- A portion of the modified highway is located in Sheboygan County (a metropolitan county) and the increase in peak-hour volume is less than 1,200 motor vehicles per hour for all segments.
- The remaining portion of the modified highway is located in Fond du Lac County (a nonmetropolitan county) and the increase in peak-hour volume is less than 1,800 motor vehicles per hour for all segments.
- Where there is a shift in intersection approach legs: The roadway edges typically shift toward any potential receptor location by 12 feet or less.

**C. If an air quality analysis was performed, will a construction permit be required to address air quality before the project may proceed?**

- No
- Letter of concurrence from WDNR Bureau of Air Management requested. (See attached request letter – Exhibit )
- Letter of concurrence received from WDNR Bureau of Air Management. (See attached Exhibit )
- Yes – Indicate: \_\_\_\_\_ Date Permit Requested \_\_\_\_\_ OR Date of Permit \_\_\_\_\_

Air quality analysis was not required or performed. See answer to Question B **above**.

**3. Mobile Source Air Toxics (MSAT)**

**Discuss the potential MSAT effects of this project.**

Mobile source air toxics are compounds emitted from highway vehicles and nonroad equipment that are known or suspected to cause cancer or other serious health and environmental effects. The USEPA is the lead federal agency with responsibility for determining the health effects of MSAT and how to best protect human health and the environment from those effects. The USEPA has issued three rules that control MSAT from motor vehicles (66 FR 17229, March 29, 2001; 72 FR 8427, February 26, 2007; and 79 FR 23413, April 28, 2014). These rules include the following mobile source control programs: reformulated gasoline, national low emission vehicle standards, Tier 3 motor vehicle emissions standards and gasoline sulfur control requirements, heavy-duty engine and vehicle standards, and on-highway diesel fuel sulfur control requirements. These controls will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines.

The FHWA's Updated Interim Guidance on MSAT (October 18, 2016) presents a tiered approach to analyzing MSAT. Using that guidance, the proposed WIS 23 project is considered to have low potential MSAT effects, requiring a qualitative analysis. Examples of the types of projects considered to have low potential MSAT effects include minor widening projects, new interchanges, or projects where design year **average annual daily** traffic **volumes are** projected to be less than 140,000 to 150,000 **vehicles per day (vpd)**.

Evaluating the environmental and health impacts from MSAT on a proposed highway project involves several key elements including emissions modeling, dispersion modeling to estimate ambient concentrations resulting from the estimated emissions, exposure modeling to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each model has technical shortcomings or relies on uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

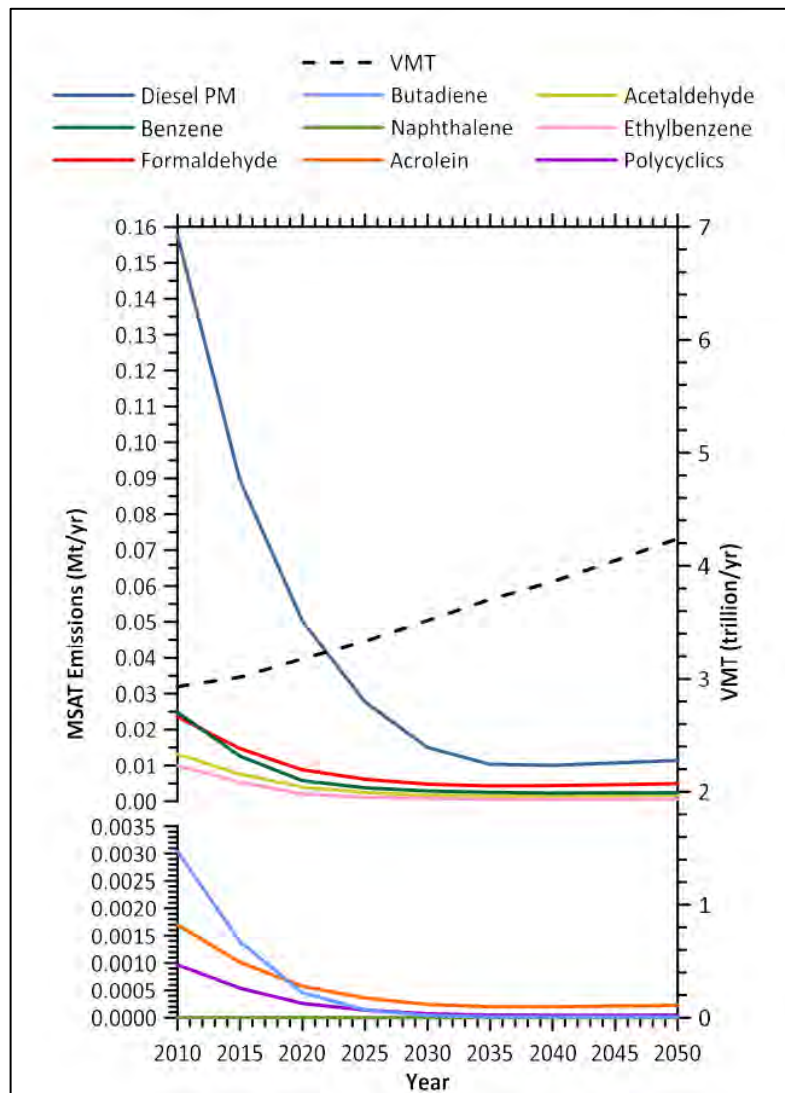
It is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from MSAT, it can give a basis for

identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA titled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at:

[https://www.fhwa.dot.gov/environment/air\\_quality/air\\_toxics/research\\_and\\_analysis/mobile\\_source\\_air\\_toxics/msatemissions.cfm](https://www.fhwa.dot.gov/environment/air_quality/air_toxics/research_and_analysis/mobile_source_air_toxics/msatemissions.cfm)

**Qualitative Assessment**

Based on FHWA analysis using USEPA's MOVES2014a (Motor Vehicle Emission Simulator computer model), as shown in Figure 4.7 D-1.1, even if Vehicle Miles Traveled (VMT) increases by 45 percent as forecasted from 2010 to 2050, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period. Figure 4.7 D-1-1 shows the National MSAT trends for vehicles operating on our nation's roadways.



[https://www.fhwa.dot.gov/environment/air\\_quality/air\\_toxics/policy\\_and\\_guidance/msat/2016msat.pdf](https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/2016msat.pdf) 11/2017

**Figure 4.7 D-1-1 National MSAT Emission Trends 2010 to 2050 for Vehicles Operating on Roadways Using USEPA's MOVES2014a Model**

The Health Effects Institute (HEI) has undertaken efforts to research near-roadway MSAT hot spots and the health implications of mobile source pollutants and has reviewed much of the research and studies done to date. HEI is an independent research organization that provides impartial and relevant science on the effects of air pollution on health. The group is funded by the USEPA (50 percent) and the worldwide motor vehicle industry (50 percent).

In *Special Report 16-Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects* (available at [www.healtheffect.org](http://www.healtheffect.org)), HEI analyzed MSAT asking the following questions:

1. To what extent are motor vehicles a significant source of exposure?
2. Does it affect human health?
3. Does it affect human health at environmental concentrations?

In its conclusions, HEI found that exposure to many MSAT comes from sources other than motor vehicles. In addition, for many of the MSAT reviewed, HEI concluded there is insufficient data for an assessment of ambient exposures on human health.

A National Cooperative Highway Research Program (NCHRP) report, *Analyzing, Documenting, and Communicating the Impacts of Mobile Source Air Toxics in the NEPA Process* (NCHRP 25-25 Task 18, March 2007), analyzed how changes in traffic volumes would relate to changes in contracting cancer from benzene, one of USEPA's seven MSATs. The study suggests for highway projects that result in an incremental change in traffic volumes of 125,000 vpd, a corresponding incremental 1 in 1 million risk of contracting cancer from benzene exposure could be expected. The build alternatives for the WIS 23 project, anticipated the maximum traffic volume change between 2017 and 2040 to be 7,800 vpd, or about one-sixteenth of the 125,000 increment. This suggests that if the NCHRP conclusions are correct, the project would have impacts of far less than 1 in 1 million. The 1 in 1 million level is considered to represent negligible risk by both USEPA and the risk assessment community at large. FHWA assessment of the NCHRP report also indicates the analysis behind the benzene risk conclusions may be pessimistic. Practically all benefits of the USEPA's Tier 3 light-duty vehicle emissions standards, additional volatile organic compound (VOC) reductions from motor vehicles (USEPA's 2014 MSAT rulemaking), and a 38 percent reduction in the benzene content (as required by USEPA's 2007 MSAT rulemaking) of gasoline were not incorporated.

For each alternative in this document, the amount of MSAT emitted would be proportional to the VMT assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the build alternatives **and implemented improvements associated with corridor preservation** is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the build alternatives along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to USEPA's MOVES2014a model, emissions of all of the priority MSAT decrease as speed increases. The 2040 VMT with the build alternatives ranges from 2.5 percent greater than the No-Build Alternative (Passing Lane Alternative) to 40 percent greater than the No-Build Alternative (4-lane On-alignment Alternative). Differences in overall MSAT emissions among the various alternatives are expected to be roughly proportional to VMT.

Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA's national control programs that are projected to reduce annual MSAT emissions by over 90 percent between 2010 and 2050 (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016). Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the



USEPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional passing lanes and additional travel lanes associated with the build alternatives and implementation of improvements associated with corridor preservation will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under certain build alternatives than the No-Build Alternative. The magnitude and the duration of these potential increases compared to the No-Build Alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the build alternatives could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). However, on a regional basis, USEPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

**Note:** 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. Other Air Quality Issues?

Greenhouse gas emissions are a growing concern both internationally and by USEPA.<sup>8</sup> While there are no accepted quantitative tools to estimate greenhouse gases at the project level, vehicles using WIS 23 can be expected to contribute to greenhouse gas emissions within the region. A 2007 WisDOT report, *Transportation and Global Warming: Defining the Connection and the Solution*<sup>9</sup> noted that greenhouse gas emissions in Wisconsin grew by 26 percent in the prior decade, compared to 20 percent across the United States. The World Resources Institute prepared a study for the WDNR and the Governor's Task Force on Global Warming, *Wisconsin Greenhouse Gas Emissions Inventory and Projections*<sup>10</sup>, which noted that the transportation sector accounts for approximately 24 percent of greenhouse gas emissions in Wisconsin, ranking second behind the energy sector at 35 percent.

Currently, the major way to reduce emissions of greenhouse gases from transportation is to reduce the amount of fuel consumed, which can be accomplished by reducing congestion (more efficient driving conditions), reducing driving, and using more fuel-efficient vehicles. Some of the policy recommendations from the WDNR and the Governor's Task Force on Global Warming Report include reducing emissions through improved vehicle technology, using lower carbon fuels, and reducing VMT through land use planning and implementing public transit.

Managing and reducing greenhouse gases requires the continued use of appropriate land use and zoning policies that reduce travel demand within individual communities and east central Wisconsin. A study published by the Urban Land Institute indicates that the continuing growth of VMT may offset emissions reduction gained through technological improvements in vehicles and fuels.<sup>11</sup> The study points to the importance of reducing VMT by managing growth and land use patterns. Several studies on the relationship between land use and vehicle trips found that where diverse land use, accessible

<sup>8</sup> <https://www.epa.gov/ghgemissions>, [https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR\\_2017.pdf](https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR_2017.pdf) accessed April 2018

<sup>9</sup> CTC and Associates; *Transportation and Global Warming: Defining the Connection and the Solution*; July 16, 2007; Retrieved from [https://www.pdfFiller.com/en/project/145150783.htm?f\\_hash=e241dc&reload=true](https://www.pdfFiller.com/en/project/145150783.htm?f_hash=e241dc&reload=true).

<sup>10</sup> World Resources Institute; *Wisconsin Greenhouse Gas Emissions Inventory and Projections*; June 25, 2007; Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.177.1094&rep=rep1&type=pdf>.

<sup>11</sup> Ewing, R., K. Bartholomew, et al. (2008). *Growing Cooler: The Evidence on Urban Development and Climate Change*, Urban Land Institute, Washington, D.C.

destinations, and interconnected streets exist, households drive 33 percent less compared to households in low-density developments.

Increased amounts of greenhouse gases in the atmosphere can have impacts on the environment and human health across the planet. Examples of these impacts include rising sea levels, causing erosion of beaches and shorelines, destruction of aquatic plant and animal habitat, floods of coastal cities, and disruption of ocean current flows. Other impacts include a warming trend over much of the planet, broadening the range for many insect-borne diseases, and chronic stress of coral reefs. The possible impacts of climate change to Wisconsin include warmer and wetter<sup>12</sup> weather; decreases in the water levels of the Great Lakes, inland lakes, and streams; increases in water temperature (lowering water quality and favoring warm water aquatic species); changes in ecosystem and forest composition; increases in droughts and floods (impacting crop productivity); and reduction of snow and ice cover (lessening recreational opportunities).<sup>13</sup>

Carbon dioxide is not currently a regulated gas under the NAAQS, and therefore, no quantitative analysis is required. Vehicle fuel consumption is an approximate indicator of carbon dioxide emissions, and is directly related to vehicle miles traveled. The 4-lane On-alignment Alternative is projected to have approximately 45 percent and 34 percent more VMT in Fond du Lac County and Sheboygan County, respectively, in comparison to the No-Build Alternative. The Hybrid Alternative is projected to have approximately 32 percent and 13 percent more vehicle miles traveled in Fond du Lac County and Sheboygan County, respectively, and the Passing Lane Alternative is projected to have approximately 3 percent and 2 percent more vehicle miles traveled in Fond du Lac County and Sheboygan County, respectively, in comparison to the No-Build Alternative. With the travel speeds projected for these alternatives in the 2040 design year, it is anticipated that each alternative's carbon dioxide emissions would be roughly proportional to the difference in VMT associated with each alternative.

See Sections 4.4 and 4.5, Indirect **Effects** and Cumulative Effects, **respectively**, for further discussion of WIS 23 air quality impacts.

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<sup>12</sup> <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-wi.pdf> accessed November 16, 2017

<sup>13</sup> Public Service Commission of Wisconsin and WDNR, 2004

Information for the Construction Stage Sound Quality Evaluation Factor Sheet has been augmented and updated, but there are no substantive changes from the 2014 LS SFEIS.

**4.7 D-2 CONSTRUCTION STAGE SOUND QUALITY EVALUATION****Factor Sheet D-2****1. Identify and describe residences, schools, libraries, or other noise sensitive areas near the proposed action and which will be in use during construction of the proposed action. Include the number of persons potentially affected:****A. No-Build Alternative**

No effects since no construction would occur **outside of routine maintenance by WisDOT.**

**B. Passing Lane Alternative**

Noise from the construction of the Passing Lane Alternative would impact scattered residential, commercial, and industrial areas. Residential development is sparsely scattered throughout the study area with most concentrated along existing WIS 23. Concentrated residential development exists in the **town** of Greenbush and the western portion of the study area near the city of Fond du Lac. St. Mary's Springs Academy also exists on the west portion of the corridor. Individual residences are intermixed with farm residences throughout the project study area. Commercial and industrial development is sparsely scattered along WIS 23.

**C. Corridor Preservation Associated with Passing Lane Alternative**

Corridor preservation **itself** would not create construction noise impacts. **Improvements associated with corridor preservation, if implemented, would impact scattered residential, commercial and industrial areas. 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**

Noise from the construction of the Hybrid Alternative would impact scattered residential, commercial, and industrial areas. Residential development is sparsely scattered throughout the study area with most concentrated along existing WIS 23. Concentrated residential development exists in the **town** of Greenbush and the western portion of the study area near the city of Fond du Lac. St. Mary's Springs Academy also exists on the west portion of the corridor. Individual residences are intermixed with farm residences throughout the project study area. Commercial and industrial development is sparsely scattered along WIS 23.

**E. Corridor Preservation Associated with Hybrid Alternative**

Corridor preservation **itself** would not create construction noise impacts. **Improvements associated with corridor preservation, if implemented, would impact scattered residential, commercial and industrial areas. 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)**

Noise from the construction of the 4-lane On-alignment Alternative would impact scattered residential, commercial, and industrial areas. Residential development is sparsely scattered throughout the study area with most concentrated along existing WIS 23. Concentrated residential development exists in the **town** of Greenbush and the western portion of the study area near the city of Fond du Lac. St. Mary's Springs Academy also exists on the west portion of the corridor. Individual residences are



intermixed with farm residences throughout the project study area. Commercial and industrial development is sparsely scattered along WIS 23.

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

Corridor preservation itself would not create construction noise impacts. Improvements associated with corridor preservation, if implemented, would impact scattered residential, commercial and industrial areas. 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 4.7 D-2.1 lists the approximate number of noise sensitive receptors that are within 1,000 feet of the roadway (measured from the existing roadway centerline) and could be affected by construction noise of the build alternatives. Public facilities within the table include a hospital, a school, a golf course, a church and school, the Wade House Historic Site, the Greenbush Fire Department and town hall, Old Plank Road Trail trailhead, and the KMSF-NU and various trails.

**Table 4.7 D-2.1 Approximate Number of Residences within 1,000 feet of Roadway**

Location <sup>1</sup>	Approximate Number of Residences Within 1,000 feet	Approximate Number of Noise Sensitive Areas/Facilities (Excluding Residences) Within 1,000 feet
Fond du Lac County	52	4
Sheboygan County	76	4

<sup>1</sup>Residences listed are from County UU to County P in Fond du Lac and Sheboygan counties (does not include buildings that are, or could be, razed as part of the project).

**2. Describe the types of construction equipment to be used on the project. Discuss the expected severity of noise levels including the frequency and duration of any anticipated high noise levels:**

Construction of a build alternative and implementation of corridor preservation improvements would require the use of earth-moving equipment, materials handling equipment, stationary equipment, and impact equipment.

The noise generated by construction equipment will vary greatly depending on equipment type/model/make, duration of operation, and specific type of work effort. However, typical noise levels may occur in the 67 to 107 dBA range at a distance of 50 feet (15.2 meters).

Table 4.7 D-2.2 shows typical noise levels for a variety of construction equipment. Adverse effects related to construction noise are anticipated to be of a localized, temporary, and transient nature.

Table 4.7 D-2.2 Construction Equipment Sound Levels

Equipment Powered by Internal Combustion Engines	Range Of Sound Levels (dBA) at 15 m (50 ft)
<b>Earth Moving</b>	
Compactors (Rollers)	72-75
Front Loaders	72-85
Backhoes	77-94
Tractors	76-97
Scrapers, Graders	80-94
Pavers	86-89
Trucks	54-95
<b>Materials Handling</b>	
Concrete Mixers	75-87
Concrete Pumps	81-84
Cranes (Movable)	76-86
Cranes (Derrick)	86-89
<b>Stationary</b>	
Pumps	67-72
Generators	72-82
Compressors	75-87
<b>IMPACT EQUIPMENT</b>	
Pneumatic Wrenches	82-89
Jack Hammers & Rock Drills	81-97
Impact Pile Drivers (Peaks)	95-105
<b>OTHER</b>	
Vibrator	69-81
Saws	72-83

Source: Figure 2-36, Report to the President and Congress on Noise, prepared by the USEPA, February 1972.

**3. Describe the construction stage noise abatement measures to minimize identified adverse noise effects. Check all that apply:**

- WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply. Generally, no construction would occur before 6 A.M. or after 10 P.M. without written permission from the project engineer. All equipment would have mufflers in good working order.
- WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply with the exception that the hours of operation requiring the engineer's written approval for operations will be changed to \_\_\_\_\_ P.M. until \_\_\_\_\_ A.M.
- Special construction stage noise abatement measures will be required. Describe:

The Traffic Noise Evaluation Factor Sheet has been updated to remove the US 151/WIS 23 System Interchange Alternatives and the 4-lane Off-alignment Alternatives. The Traffic Noise Model (TNM) 2.5 computer software is being used to evaluate noise impacts. Although the 2018 LS SDEIS and 2018 LS SFEIS evaluates additional alternatives, the noise model that was completed for the 2014 LS SFEIS is still relevant because:

1. Traffic volumes used for the design year 2035 in the model are higher than the traffic volumes in this document for the design year 2040.
2. The previous preferred alternative (4-lane On-alignment Alternative) in the 2014 LS SFEIS would show the worst-case scenario compared to current alternatives being evaluated. The Passing Lane Alternative and the Hybrid Alternative in Sheboygan County would have greater separation between the roadway traffic and the receptor. The 4-lane On-alignment Alternative would have the same separation between the roadway traffic and the receptor yet with lower forecast traffic volumes.

Because of these two reasons, the impacts shown in this factor sheet are higher than what would occur with the alternatives being evaluated in the 2018 LS SDEIS. There have been no changes to the alternatives being evaluated in this 2018 LS SFEIS. Since noise barrier walls were not reasonable or feasible with the alternatives in the 2014 LS SFEIS document, noise barrier walls would continue to not be reasonable or feasible with the alternatives considered. The criteria for noise abatement has been updated since the 2014 LS SFEIS.

#### 4.7 D-3 TRAFFIC NOISE EVALUATION

Factor Sheet D-3

##### 1. Need for Noise Analysis:

- A. Is the proposed action considered a Type I project? (A Type I project is defined as a project that involves construction of a roadway on new location or the physical alteration of an existing highway which substantially changes either the horizontal or vertical alignment or increases the number of through-traffic lanes).
  - No – Complete only Construction Stage Sound Quality Impact Evaluation.
  - Yes – Complete Construction Stage Sound Quality Impact Evaluation and the rest of this sheet.

##### 2. Traffic Data:

- A. Indicate whether traffic volumes for sound prediction are different from the Design Hourly Volume (DHV) on Environmental Evaluation of Facilities Development Action, Traffic Summary Basic Sheet:
  - No
  - Yes – Indicate volumes and explain why they were used:
 

Automobiles	Veh/hr
Trucks	Veh/hr
Or Percentage (T)	
- B. Identify and describe the noise analysis technique or program used to identify existing and future sound levels: (See receptor location map as Receptor Maps Figures 4.7 D-3.1 to D-3.16).

The noise model that was completed for the 2014 LS SFEIS is still valid because:

1. Traffic volumes used for the design year 2035 in the model are higher than the traffic volumes in this document for the design year 2040.
2. The 4-lane On-alignment in the 2014 LS SFEIS shows the worst-case situation compared to alternatives considered in this LS SEIS. The Passing Lane and the Hybrid Alternative



in Sheboygan County would have greater separation between the roadway traffic and the receptor. The 4-lane On-alignment Alternative would have the same separation between the roadway traffic and the receptor yet with lower forecast traffic volumes.

In the 2014 LS SFEIS a detailed analysis was performed for the on-alignment receptors using the TNM 2.5 computer software. The analysis modeled the existing and future noise levels for the 4-lane expansion from US 151 to County P. See the [receptor location maps in](#) Figures 4.7 D-3.1 to D-3.15 for locations of receptors along the corridor.

Criteria used to define traffic noise impacts are determined by WisDOT's noise policy which is contained in Chapter 23 of the [WisDOT Facilities Development Manual \(FDM\)](#). Traffic noise impacts occur when the predicted equivalent sound levels approach the noise level criteria (NLC) established for a type of land use or when predicted future sound levels exceed existing levels by 15 dB or more. "Approach" is defined as 1 dBA less than the NLC. Noise impacts for the various alternatives are compared based on the number of receptors that approach or exceed the activity category.

- C. Identify sensitive receptors, e.g., schools, libraries, hospitals, residences, etc. potentially affected by traffic sound: (See receptor location maps in Figures 4.7 D-3.1 to D-3.15). Sensitive receptors include residences, St. Mary's Springs Academy, St. Paul's Church and School, the Wade House [Historic Site](#), the KMSF-NU, the IAT, the State Equestrian Trail, and the Old Plank Road Trail. These receptors are considered Land Use Categories B and C under WisDOT's noise policy and are subject to an exterior NLC of 67 dBA.
- D. If this proposal is implemented will future sound levels produce a noise impact?
- No
- Yes - The impact will occur because:
- The Noise Level Criteria (NLC) is approached (1 dBA less than the NLC) or exceeded.
- Existing sound levels will increase by 15 dBA or more.

See Table 4.7 D-3.1 for more information on future sound levels that produce a noise impact.

- E. Will traffic noise abatement measures be implemented?
- Not applicable – Traffic noise impacts will not occur.
- No – Traffic noise abatement is not reasonable or feasible (explain why). In areas currently undeveloped, local units of government shall be notified of predicted sound levels for land use planning purposes. **A COPY OF THIS WRITTEN NOTIFICATION SHALL BE INCLUDED WITH THE FINAL ENVIRONMENTAL DOCUMENT.**
- Yes – Traffic noise abatement has been determined to be feasible and reasonable. Describe any traffic noise abatement measures which are proposed to be implemented. Explain how it will be determined whether or not those measures will be implemented:

For a noise barrier to be reasonable, the total cost may not exceed \$47,000 per benefited receptor and meet the following criteria according to FDM Chapter 23 (March 16, 2018):

- A minimum of 1 receptor or common use area achieves the department's noise reduction design goal of 9 decibels.
- The noise barrier reduces noise levels by a minimum of 8 decibels for each benefiting receptor used in the cost calculation.
- For purposes of reasonableness determination;
  - Each individual residence benefited is counted as one benefited receptor.
  - Each dwelling unit benefited in a multi-family dwelling is counted as one benefited receptor.

- Each dwelling unit in the multi-family complex eligible to use the benefited common use area is counted as one benefited receptor.
- Each discrete parcel benefited in Land Use Categories A, C, D and E is counted as one benefited receptor, except,
  - Section 4(f) properties as identified in Land Use Category C, will be evaluated on a case-by-case basis to determine the location of equivalent receptors on the discrete parcel that will each count as one benefited receptor.
  - Soundproofing of properties as identified in Land Use Category D will be evaluated on a case-by-case basis to determine the location of equivalent receptors on the discrete parcel that will each count as one benefited receptor.

The noise analysis for the 4-lane On-alignment Alternative (Preferred Alternative for the 2014 LS SFEIS) from US 151 to County P evaluated the reasonableness of noise walls. Between US 151 and County UU noise barriers are not reasonable.

Between County UU and County P noise barriers were modeled on the north side of WIS 23, west and east of Ledgewood Drive, in the areas of Receptors 16 and 18. This location has more receptors than other areas of the corridor.

In the area of Receptor 16, a noise barrier was found to be not feasible from a construction standpoint. A noise barrier greater than 50' in height would be needed to achieve the design goal noise reduction.

In the area of Receptor 18, a noise barrier was found to be feasible from a construction standpoint, but not reasonable from a cost per receptor standpoint. A 31.5' wall, 635' in length would achieve the reasonableness design goal (9 decibels). The estimated cost for this barrier would be approximately \$93,345 per benefitted receptor.

No noise barrier walls were reasonable or feasible in the 2014 LS SFEIS. With the March 2018 updates to the FDM the estimated costs still show that the noise barrier walls are not reasonable or feasible.

A copy of the written notification sent to local governments was provided as Appendix O of the 2010 FEIS. A subsequent notification was provided on June 27, 2013 and is included in Appendix D of the 2014 LS SFEIS.

**Table 4.7 D-3.1 4-lane On-alignment Alternative (Preferred Alternative for the 2014 LS SFEIS)  
County K–County UU**

Receptor Location or Site Identification (See Figures 4.7 D-3.1 to D-3.15) (a)	Distance from C/L of Near Lane to Receptor in feet (ft.) (b)	Number of Families (Households) Typical of this Receptor Site (c)	Sound Level $L_{eq}^{14}$ (dBA)			Impact Evaluation		
			Noise Level Criteria <sup>15</sup> (NLC) (d)	Future Sound Level (e)	Existing Sound Level (f)	Difference in Future and Existing Sound Levels (Col. e minus Col. f) (g)	Difference in Future Sound Levels and Noise Level Criteria (Col. e minus Col. d) (h)	Impact <sup>16</sup> or No Impact (i)
1	475	business	72	53	52	1	-19	N
3	125	3	67	68	64	4	1	I
4	130	4	67	69	65	4	2	I
5	Building has been purchased and razed							
7	155	4	67	63	62	1	-4	N
8	275	2	67	60	58	2	-7	N
10	905	school	67	52	50	2	-15	N
11	525	school	67	56	54	2	-11	N
13	130	3	67	69	67	2	2	I
14	160	2	67	68	65	3	1	I
15	135	2	67	69	67	2	2	I
16	120	5	67	69	65	4	2	I
17	125	1	67	69	64	5	2	I
18	135	6	67	69	67	2	2	I
19	195	1	67	64	64	0	-3	N
20	255	4	67	62	62	0	-5	N
21	145	1	67	69	65	4	2	I
22	265	3	67	62	62	0	-5	N
24	140	business	72	68	63	5	-4	N
25	125	1	67	69	63	6	2	I
26	Building has been purchased and razed							
28	130	3	67	68	66	2	1	I
30	95	1	67	70	64	6	3	I
31	240	1	67	61	61	0	-6	N
33	245	1	67	61	61	0	-6	N
34	480	2	67	56	53	3	-11	N
35	210	1	67	61	60	1	-6	N
36	150	1	67	65	64	1	-2	N
37	325	1	67	58	57	1	-9	N
39	230	1	67	62	60	2	-5	N
40	120	1	67	67	65	2	0	I
41	265	1	67	61	57	4	-6	N
42	255	1	67	62	60	2	-5	N
43	345	1	67	58	57	1	-9	N
44	90	1	67	70	68	2	3	I
45	130	2	67	67	65	2	0	I
46	80	1	67	70	69	1	3	I
48	205	1	67	62	62	0	-5	N
49	425	1	67	57	56	1	-10	N
50	160	1	67	65	64	1	-2	N
51	465	1	67	55	54	1	-12	N
52	125	1	67	67	66	1	0	I
53	Building has been purchased and razed							
54	Building has been purchased and razed							
55	Building has been purchased and razed							
56	150	2	67	64	61	3	-3	N

<sup>14</sup> Uses whole numbers only.<sup>15</sup> Insert the actual Noise Level Criteria from Wisconsin Administrative Code, Chapter Trans. 405.04, Table 1.<sup>16</sup> An impact occurs when future sound levels exceed existing sound levels by 15 dB or more, **or**, future sound levels approach or exceed the Noise Level Criteria ("approach" is defined as 1 dB less than the Noise Abatement Criteria, therefore an impact occurs when Column (h) is -1 dB or greater). I = Impact, N = No Impact.



**Table 4.7 D-3.1 4-lane On-alignment Alternative (Preferred Alternative for the 2014 LS SFEIS)  
County K–County UU**

Receptor Location or Site Identification (See Figures 4.7 D-3.1 to D-3.15) (a)	Distance from C/L of Near Lane to Receptor in feet (ft.) (b)	Number of Families (Households) Typical of this Receptor Site (c)	Sound Level $L_{eq}^{14}$ (dBA)			Impact Evaluation		
			Noise Level Criteria <sup>15</sup> (NLC) (d)	Future Sound Level (e)	Existing Sound Level (f)	Difference in Future and Existing Sound Levels (Col. e minus Col. f) (g)	Difference in Future Sound Levels and Noise Level Criteria (Col. e minus Col. d) (h)	Impact <sup>16</sup> or No Impact (i)
57	225	1	67	61	61	0	-6	N
58	225	1	67	61	61	0	-6	N
59	325	1	67	58	57	1	-9	N
60	460	1	67	55	55	0	-12	N
61	220	1	67	62	58	4	-5	N
62	150	1	67	65	65	0	-2	N
63	350	1	67	58	55	3	-9	N
64	165	1	67	64	60	4	-3	N
65	135	2	67	65	66	-1	-2	N
66	245	1	67	60	57	3	-7	N
67	335	4	67	58	57	1	-9	N
68	330	1	67	58	58	0	-9	N
69	310	1	67	59	59	0	-8	N
70	145	1	67	65	61	4	-2	N
71	215	1	67	63	62	1	-4	N
72	195	1	67	62	62	0	-5	N
73	240	1	67	61	59	2	-6	N
74	305	1	67	60	58	2	-7	N
76	245	1	67	60	61	-1	-7	N
77	120	1	67	67	62	5	0	I
78	190	1	67	62	59	3	-5	N
79	145	1	67	65	61	4	-2	N

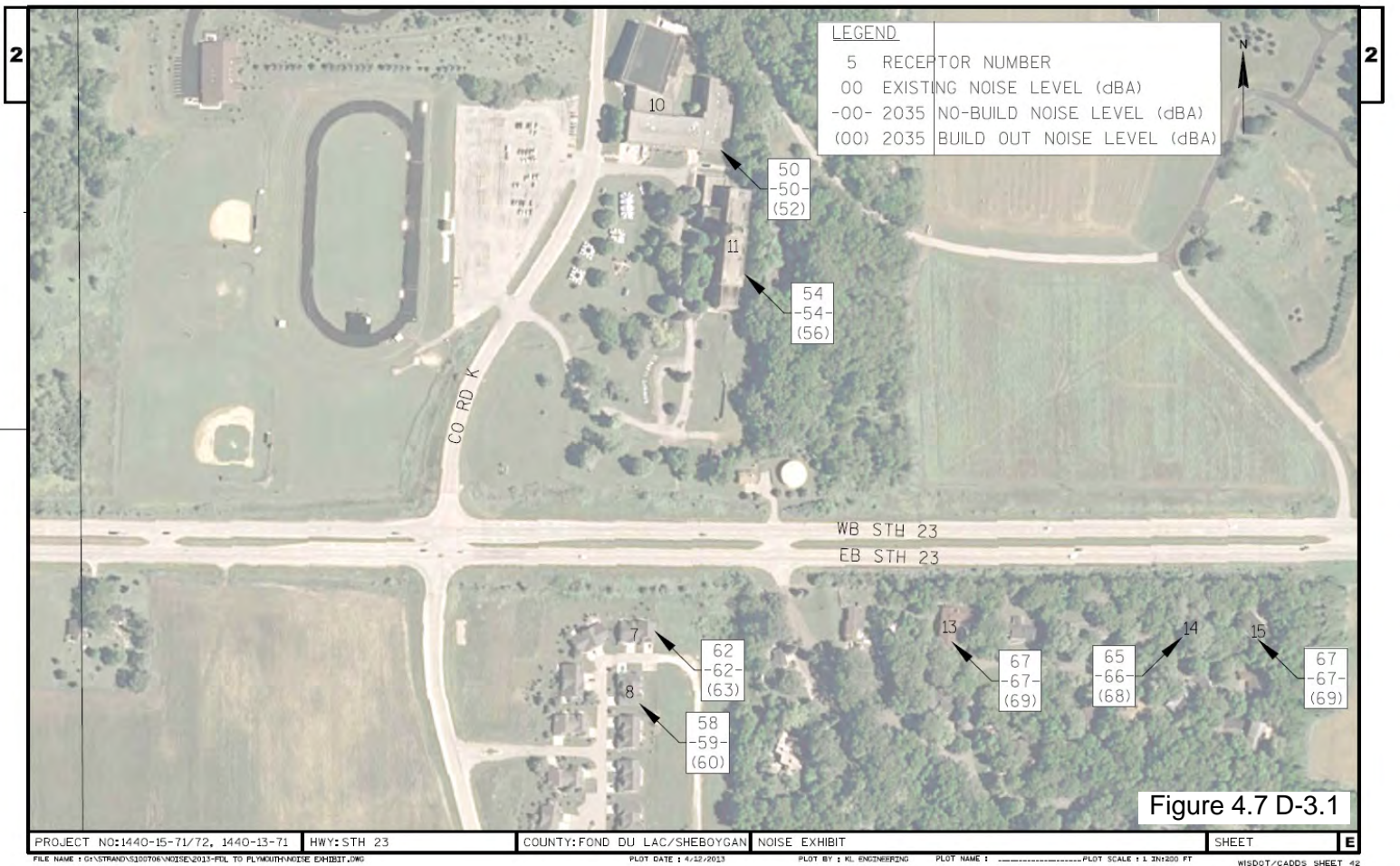
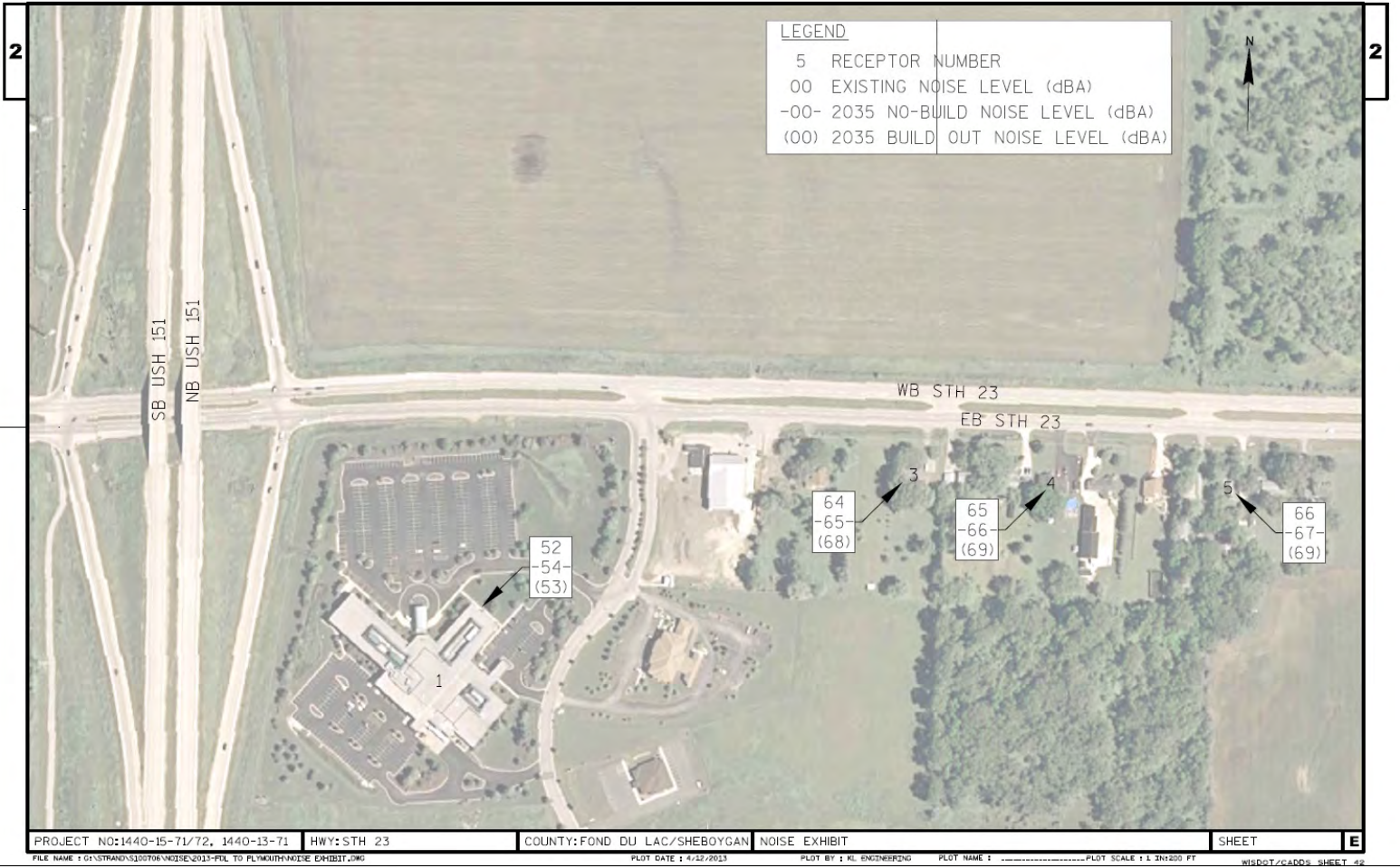


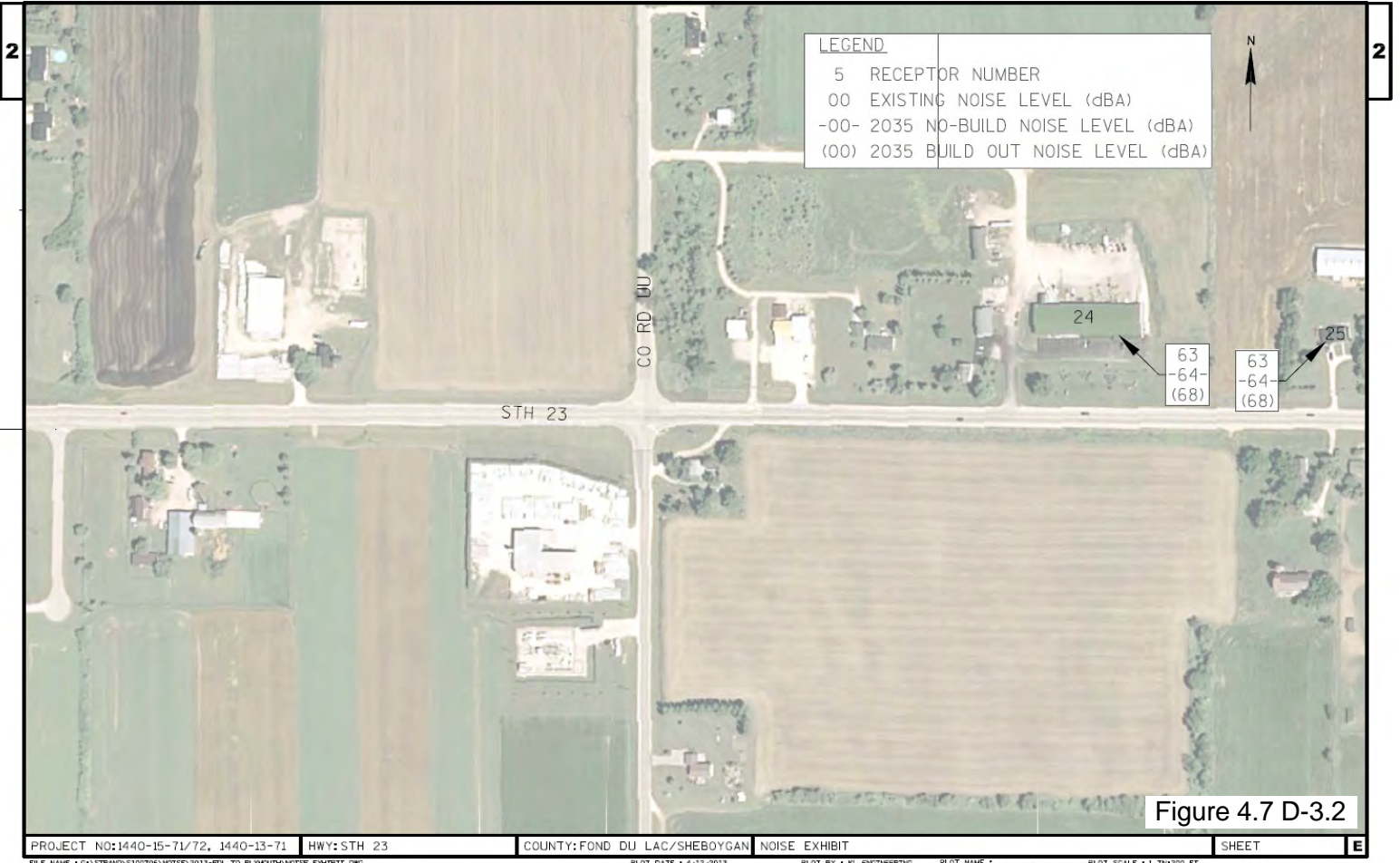
Figure 4.7 D-3.1





PROJECT NO: 1440-15-71/72, 1440-13-71 | HWY: STH 23 | COUNTY: FOND DU LAC/SHEBOYGAN | NOISE EXHIBIT | SHEET | E

FILE NAME: I:\STRAND\130706\NOISE\2013-PL TO PLYMOUTH\NOISE EXHIBIT.DWG | PLOT DATE: 4/22/2013 | PLOT BY: KL ENGINEERING | PLOT NAME: | PLOT SCALE: 1"=1200 FT | WISDOT/CADD/SHEET 42



PROJECT NO: 1440-15-71/72, 1440-13-71 | HWY: STH 23 | COUNTY: FOND DU LAC/SHEBOYGAN | NOISE EXHIBIT | SHEET | E

FILE NAME: I:\STRAND\130706\NOISE\2013-PL TO PLYMOUTH\NOISE EXHIBIT.DWG | PLOT DATE: 4/22/2013 | PLOT BY: KL ENGINEERING | PLOT NAME: | PLOT SCALE: 1"=1200 FT | WISDOT/CADD/SHEET 42

Figure 4.7 D-3.2



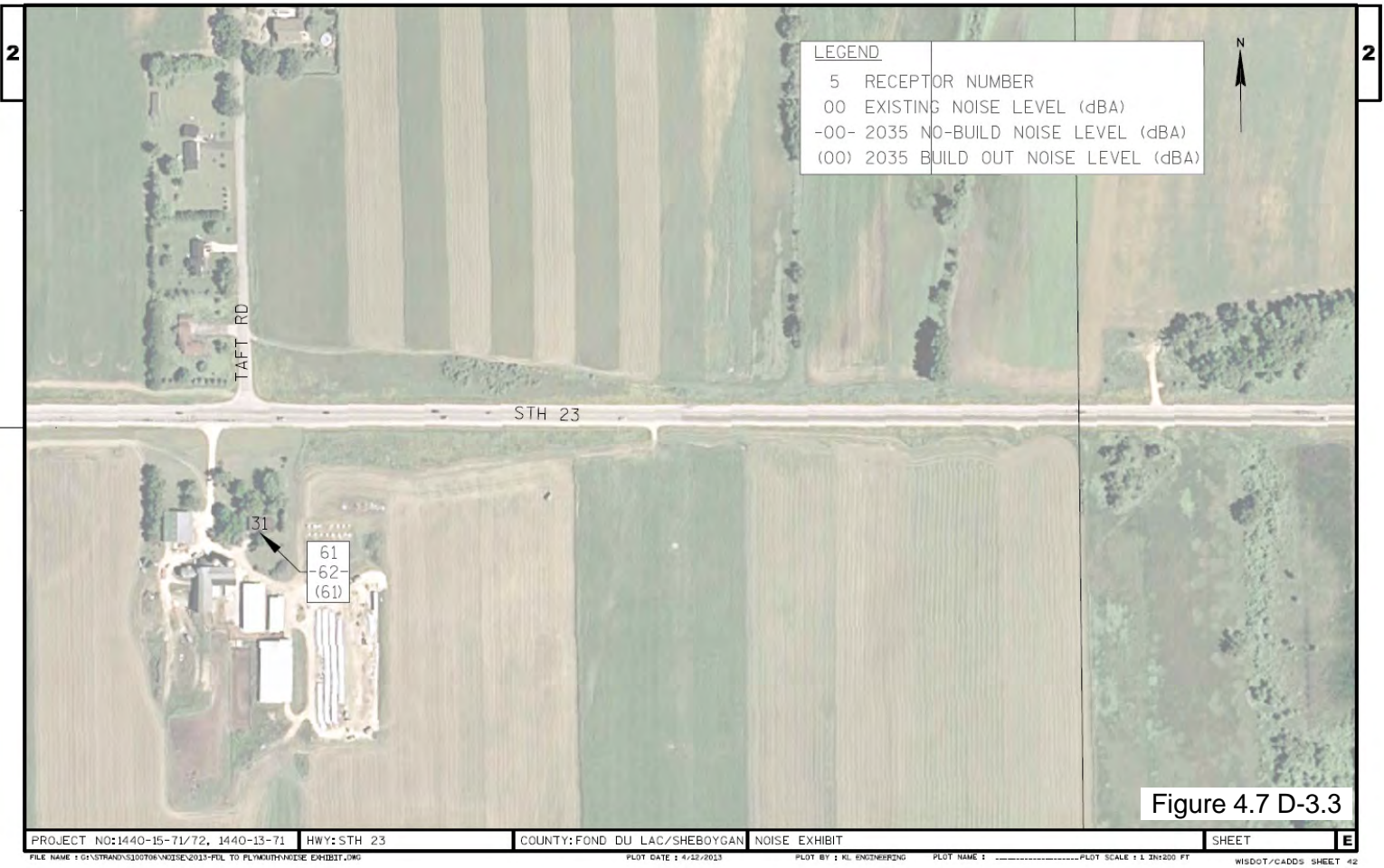


Figure 4.7 D-3.3





Figure 4.7 D-3.4



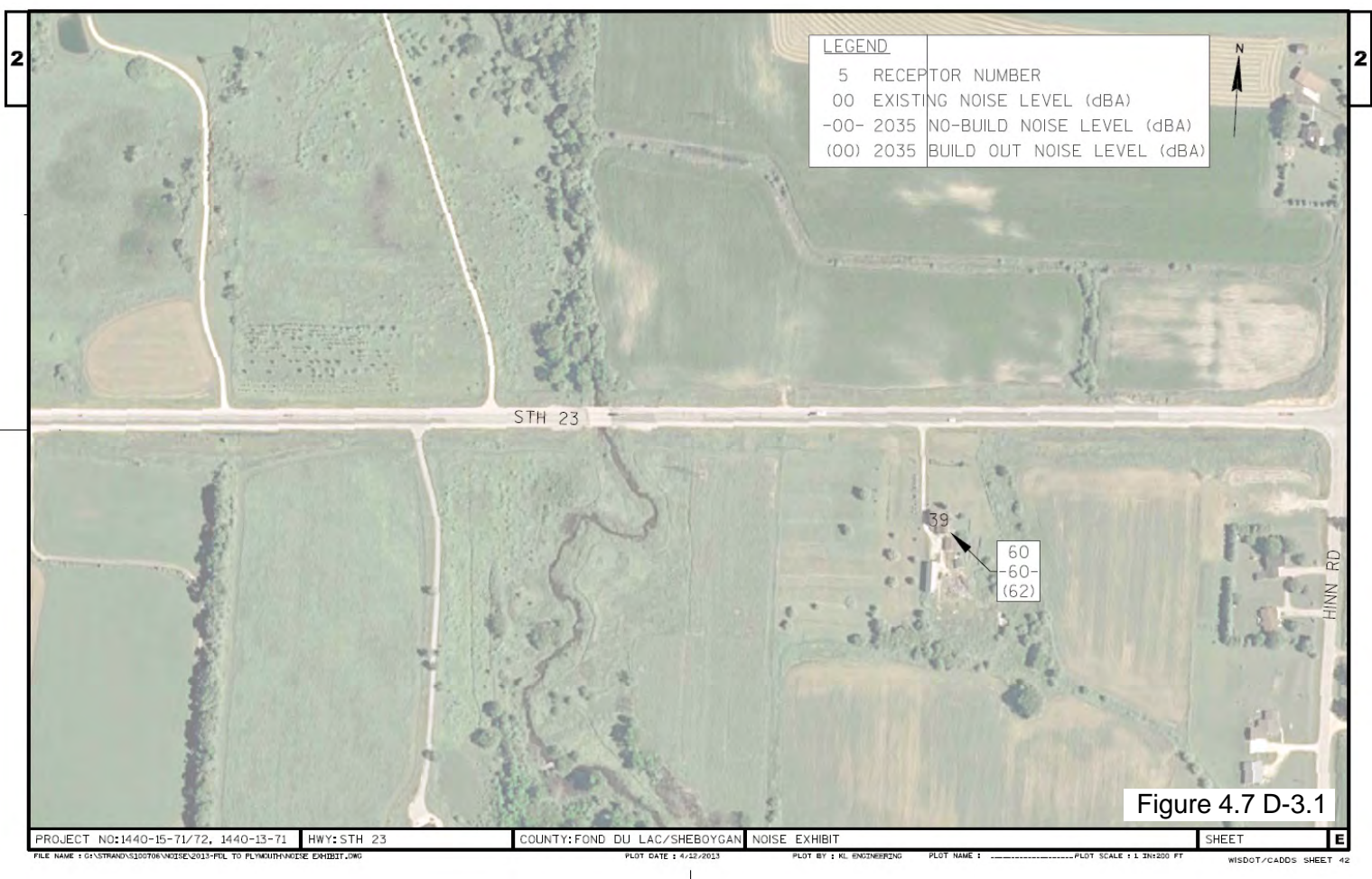


Figure 4.7 D-3.1



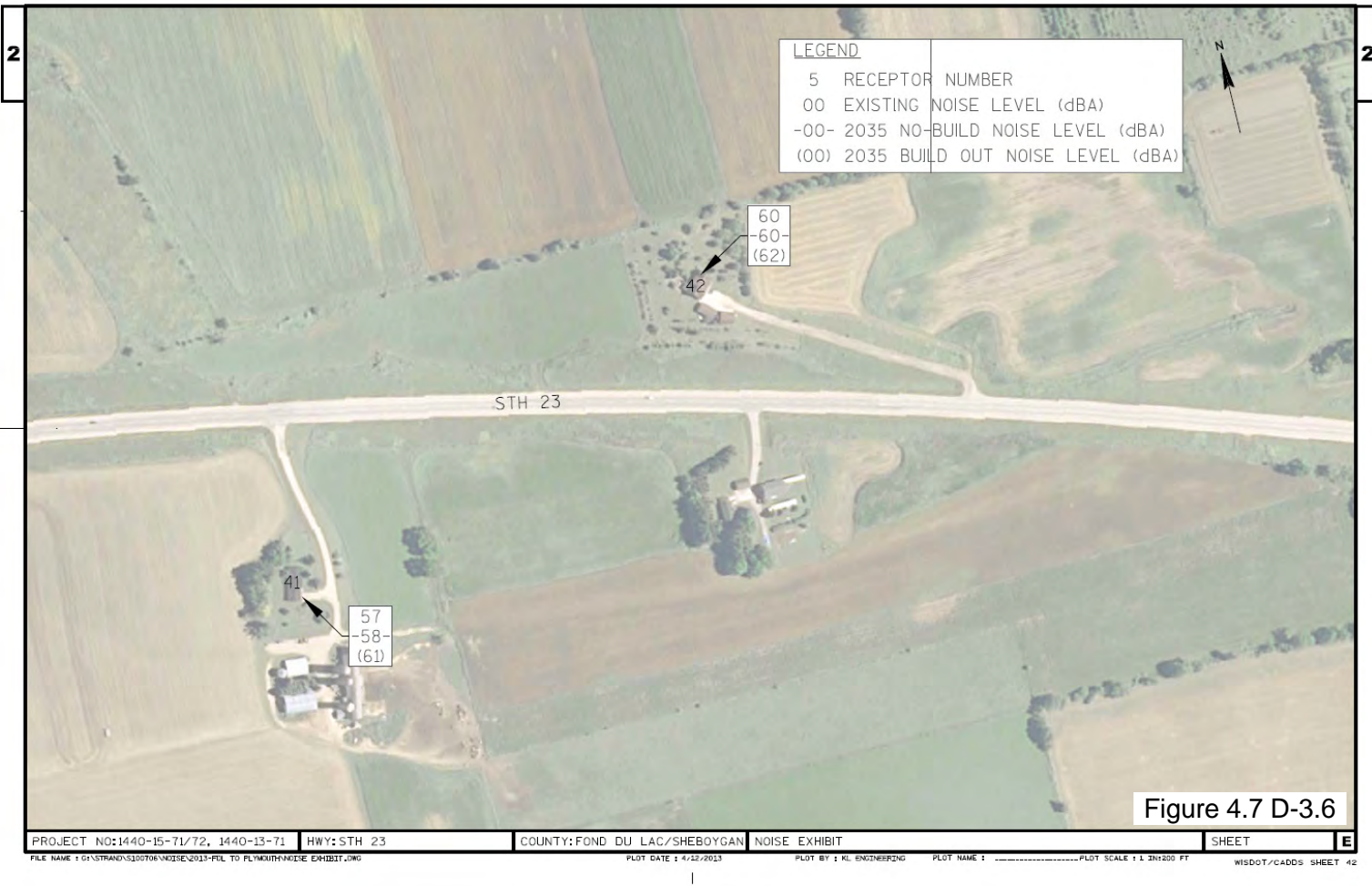






Figure 4.7 D-3.7





PROJECT NO: 1440-15-71/72, 1440-13-71 HWY: STH 23 COUNTY: FOND DU LAC/SHEBOYGAN NOISE EXHIBIT SHEET **E**

FILE NAME: G:\STRAND\S300706\NOISE\2013-FILE TO PLYMOUTH\NOISE EXHIBIT.DWG PLOT DATE: 4/22/2013 PLOT BY: KL ENGINEERING PLOT NAME: PLOT SCALE: 1 IN=200 FT WISDOT/CADDIS SHEET 42



Figure 4.7 D-3.8

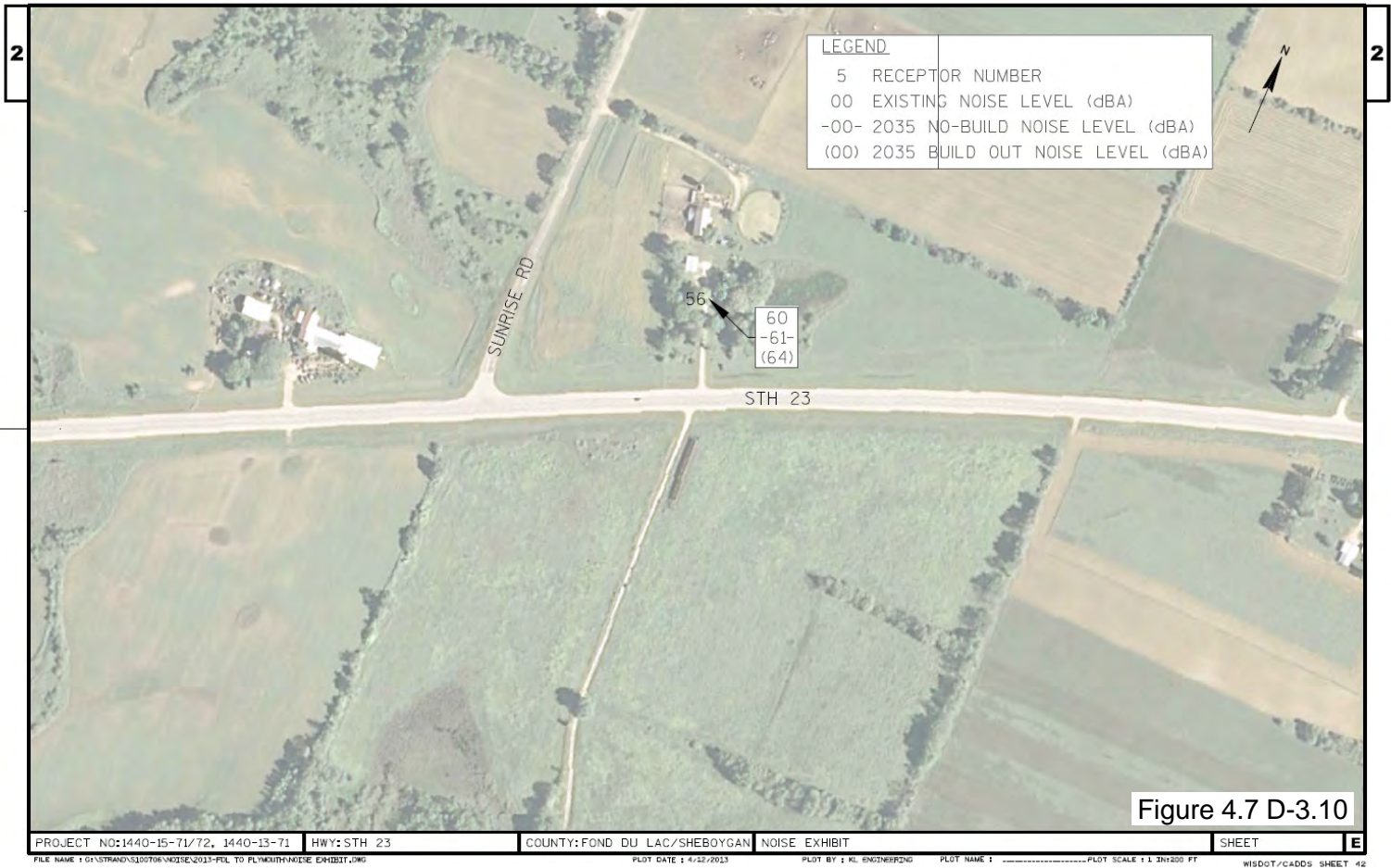
PROJECT NO: 1440-15-71/72, 1440-13-71 HWY: STH 23 COUNTY: FOND DU LAC/SHEBOYGAN NOISE EXHIBIT SHEET **E**

FILE NAME: G:\STRAND\S300706\NOISE\2013-FILE TO PLYMOUTH\NOISE EXHIBIT.DWG PLOT DATE: 4/22/2013 PLOT BY: KL ENGINEERING PLOT NAME: PLOT SCALE: 1 IN=200 FT WISDOT/CADDIS SHEET 42





















PROJECT NO: 1440-15-71/72, 1440-13-71 HWY: STH 23 COUNTY: FOND DU LAC/SHEBOYGAN NOISE EXHIBIT SHEET E  
 FILE NAME: G:\STRANDS\10706\NOISE\2013-FDL TO PLYMOUTH\NOISE EXHIBIT.DWG PLOT DATE: 4/22/2013 PLOT BY: KL ENGINEERING PLOT NAME: PLOT SCALE: 1"=3000' FT WISDOT/CADDIS SHEET 42



PROJECT NO: 1440-15-71/72, 1440-13-71 HWY: STH 23 COUNTY: FOND DU LAC/SHEBOYGAN NOISE EXHIBIT SHEET E  
 FILE NAME: G:\STRANDS\10706\NOISE\2013-FDL TO PLYMOUTH\NOISE EXHIBIT.DWG PLOT DATE: 4/22/2013 PLOT BY: KL ENGINEERING PLOT NAME: PLOT SCALE: 1"=3000' FT WISDOT/CADDIS SHEET 42

Figure 4.7 D-3.13





Figure 4.7 D-3.14



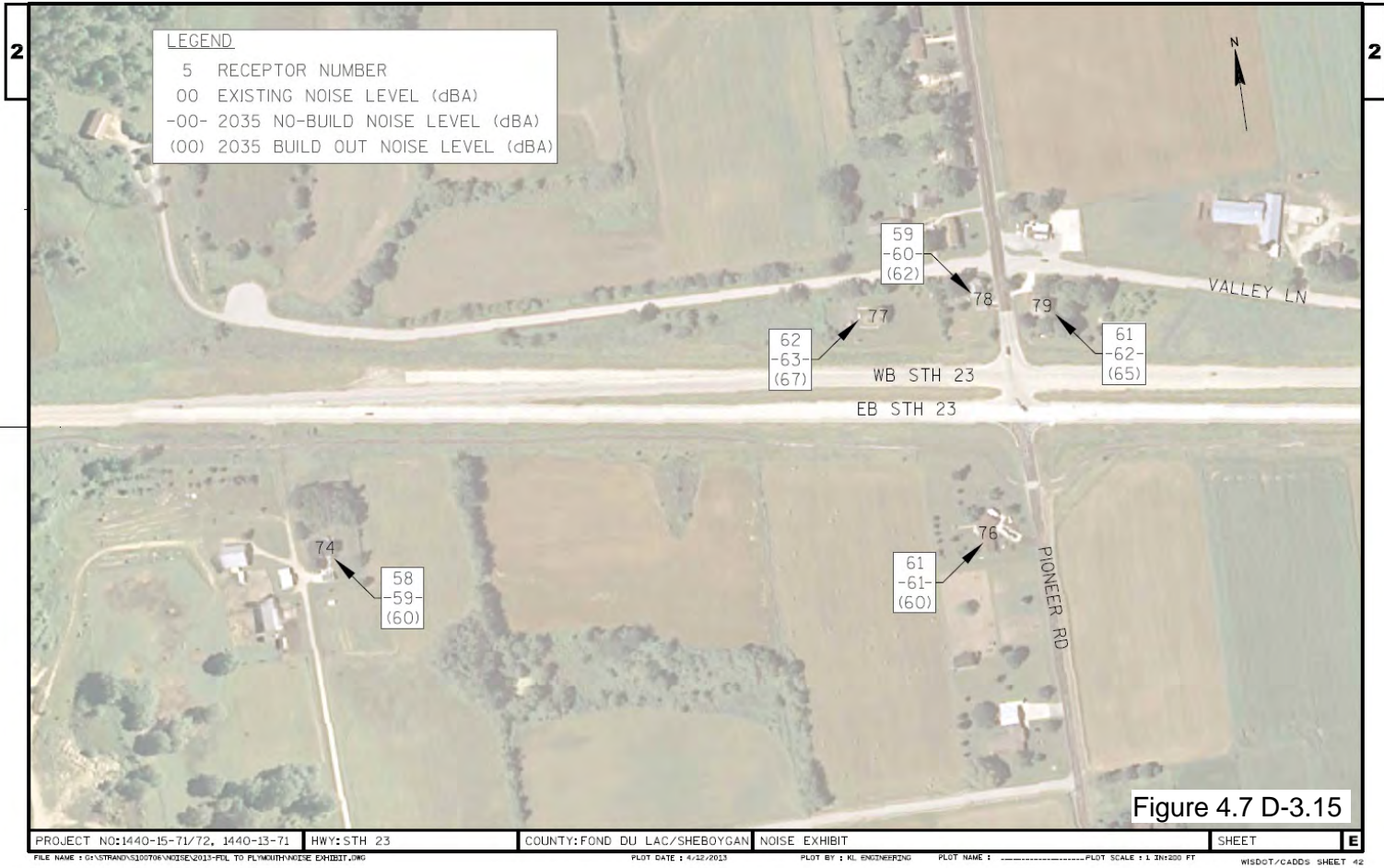
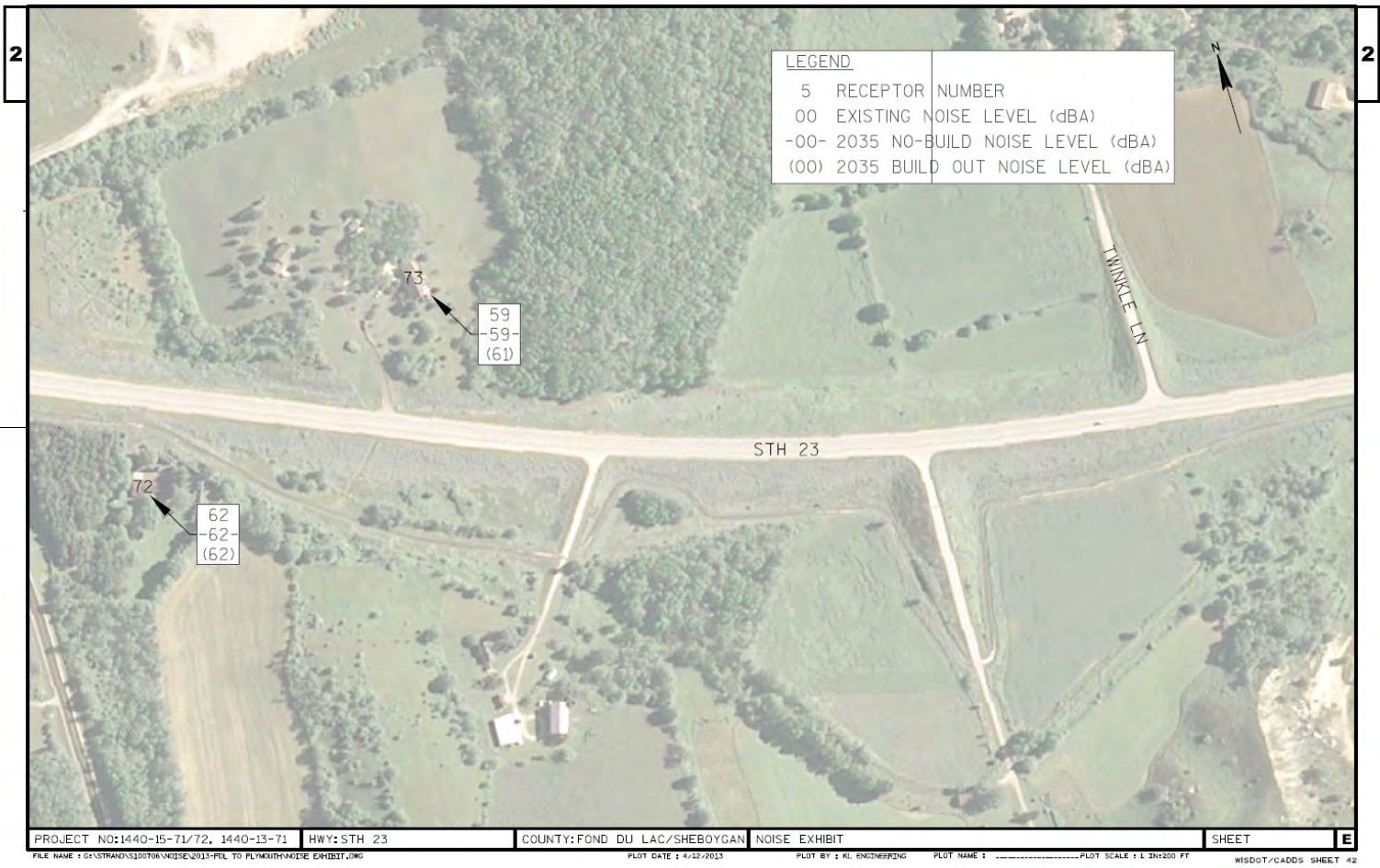


Figure 4.7 D-3.15



Additional information was collected to update the Phase 1 Hazardous Materials Assessment. Sites 28-42 were not previously identified in the 2014 LS SFEIS.

Sites 16 and 17 could be in corridor preservation areas. Phase 2 investigation would be performed when and if the proposed improvements associated with corridor preservation are implemented.

**4.7 D-4 HAZARDOUS SUBSTANCES, CONTAMINATION AND ASBESTOS EVALUATION**

**Factor Sheet D-4**

**1. Briefly describe the results of the Phase 1 Hazardous Materials Assessment for this alternative. Do not use property identifiers including owner name, address or business name:**

A. No-Build Alternative

The No-Build Alternative would not affect potentially contaminated sites along the WIS 23 corridor.

Each build alternative could potentially affect the following sites that are located along the WIS 23 corridor. Corridor preservation does not affect any potentially contaminated sites but would potentially restrict property owner's ability to make improvements in areas containing contaminated sites. Improvements associated with corridor preservation, if implemented, could impact contaminated sites. 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 4.7 D-4.1 Possibly Contaminated Sites**

Site Reference #	Land Use of Concern (Past or Present)	Contaminants of Concern	Phase 1 Recommendation
1	LUST/UST	Petroleum	NFA
2	AST	Petroleum	NFA
3	AST	Petroleum	NFA
4	AST/Junk	Petroleum	NFA
5	UST	Petroleum	Phase 2
6	Drums/Junk	Petroleum	NFA
7	Possible UST	Petroleum	NFA
8	Auto Sales & Repair	Petroleum	NFA
9	AST	Petroleum	NFA
10	AST	Petroleum	NFA
11	LUST/UST	Petroleum	Prepare special provisions for management of contamination
12	Junk	Petroleum	Phase 2
13	Junk/Old Tractors	Petroleum	NFA
14	AST	Petroleum	NFA
15	AST	Petroleum	NFA
16	UST	Petroleum	Phase 2
17	Vehicle Repair	Petroleum	Phase 2
18	UST	Petroleum	NFA
19	AST	Petroleum	NFA
20	AST	Petroleum	NFA
21	Auto Sales & Repair	Petroleum	Phase 2
22	Vacant	Petroleum	Phase 2
23	AST	Petroleum	NFA
24	AST	Petroleum	NFA
25	AST	Petroleum	NFA
26	AST	Petroleum	NFA
27	LUST/UST	Petroleum	NFA
28	Spill	Petroleum	NFA
29	Spill	Petroleum	NFA
30	AST	Petroleum	NFA
31	Spill	Petroleum	NFA
32	Spill	Petroleum	NFA
33	UST	Petroleum	NFA

**Table 4.7 D-4.1 Possibly Contaminated Sites**

Site Reference #	Land Use of Concern (Past or Present)	Contaminants of Concern	Phase 1 Recommendation
34	Spill	Petroleum	NFA
35	Spill	Petroleum	NFA
36	SQG	Solvents	NFA
37	Spill	Petroleum	NFA
38	UST	Petroleum	NFA
39	Spill	Petroleum	NFA
40	Spill	Petroleum	NFA
41	Spill	Petroleum	NFA
42	Spill	Petroleum	NFA

AST–Aboveground storage tank, LUST–Leaking underground storage tank, NFA–No further action, SQG–Small quantity generator, UST–Underground storage tank.

**2. Were any parcels not included in the Phase 1 assessment?**

- No
- Yes - How many:  
Why were the parcels not reviewed?

**3. Are there any sites with continuing obligations or deed restrictions?**

- No
- Yes - Complete the table for each site closed with continuing obligations or deed restrictions.

**4. Have Phase 2, 2.5, or 3 Assessments been completed? Discuss the results:**

**Table 4.7 D-4.2 Recommended Phase 2, 2.5, or 3**

Site Reference #	Phase 2, 2.5 or 3 Recommendations	Material Handling Plan or Remediation Recommended?		Is WisDOT a Responsible Party?	
		Yes	No	Yes	No
5	Phase 2 will be evaluated during final design.	Yes		TBD	
12	Phase 2 completed and contamination was detected. Site purchased in highway easement.	Yes			No
16	Phase 2 is pending. Site could be area associated with the corridor preservation.				No
17	Phase 2 is pending. Site could be area associated with corridor preservation.				No
21	Phase 2 completed and no contamination was detected. No further investigation recommended.		No		No
22	Phase 2 completed and no contamination was detected. No further investigation recommended.		No		No

**5. Describe the results of any additional investigations performed by WisDOT or others (Include the number of sites investigated, the level of investigation and results for each site that relates to this project):**

Site 5 has been acquired by WisDOT. The need for additional investigation will be evaluated during final design.

A Phase 2 investigation was performed on Site 12. Contamination was discovered and reported to the WDNR. WisDOT is not the Responsible Party. The property is a total acquisition and WisDOT purchased the property in highway easement.

Sites 16 and 17 could be in corridor preservation areas. Phase 2 investigation would be performed when and if the proposed improvements associated with corridor preservation are implemented.

At Sites 21 and 22, Phase 2 investigations were completed and no contamination was detected. The Phase 2 reports recommend no further investigation.

**6. Describe any design elements that have been incorporated into this alternative to avoid any contaminated sites:**

A. No-Build Alternative

Not applicable **because** there are no design elements with the No-Build Alternative.

B. Corridor Preservation Associated with Build Alternatives

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.

C. Build Alternatives

Impacts would be minimized by avoiding contaminated sites to the extent possible. Where feasible and cost effective, contamination could be avoided by adjusting horizontal or vertical alignments. Retaining walls could also be considered to minimize the footprint of the roadway to potentially minimize or avoid impacts from contaminated soil or groundwater that could be generated during construction. Where avoidance is not possible, the remediation measures employed would depend on the extent, magnitude, and type of contamination impacting the roadway. WisDOT Northeast Region would work with all concerned parties to the satisfaction of the WDNR, WisDOT Bureau of Technical Services, and FHWA.

**7. Describe the remediation and waste management practices to be included in the design for areas where contamination cannot be avoided (e.g., waste handling plan, remediation of contamination, design changes to minimize disturbances):**

If contamination cannot be avoided, investigation of contaminated sites and the management of any excavated contaminated material would be completed in accordance with the FDM and the NR 500 Series and NR 700 Series of Wisconsin Administrative Codes. The management of excavated contaminated materials on transportation projects typically involves reuse of the materials on the project to the extent practicable, disposal of excess contaminated materials in a landfill, or treatment of the materials at a biopile site. If the contaminated material is classified as a hazardous waste, activities related to the management of excavated contaminated material would follow the NR 600 Series of Wisconsin Administrative Codes rather than the NR 500 Series. WisDOT would work with all concerned parties to the satisfaction of the WDNR, WisDOT Bureau of Technical Services, and the FHWA before advertising the project for letting. A Material Handling Plan would be completed for these parcels during a more detailed design phase.

**8. List any parcels with known contamination which are proposed for acquisition:**

A Phase 2 investigation was completed at Site 12 and contamination was detected and reported to the WDNR.

**9. Asbestos**

Have the bridges been inspected for the presence of asbestos containing materials (ACMs)?

- No - Explain - Inspections would occur before construction of the project.
- Yes - Fill out the table. Insert additional rows as needed.



#### **4 Environmental Consequences 4.7 D-4 Hazardous Substances, Contamination and Asbestos Evaluation**

Note: Asbestos inspections were completed on structures previously acquired as part of the decision in the 2014 LS SFEIS prior to demolition. All structures to be acquired and demolished or relocated require asbestos inspections and will be inspected once acquisition has taken place.

Information for the Stormwater Evaluation Factor Sheet has been augmented and updated.

As of March 2016, Wisconsin Act 307 removed the WisDOT exemption from obtaining a WPDES Permit and required WDNR to issue a TCGP Permit on or before June 30, 2018 for WisDOT administered projects. The new TCGP is now in effect. WisDOT will apply for coverage under the new TCGP prior to construction.

#### 4.7 D-5 STORMWATER EVALUATION

#### Factor Sheet D-5

### 1. Indicate whether the proposed action may cause a discharge or will discharge to the waters of the state.

The No-Build Alternative will not cause a discharge to the waters of the state. The build alternatives and improvements associated with corridor preservation, if implemented, may cause a discharge to the waters of the state.

### 2. Special consideration should be given to areas that are sensitive to water quality degradation. Indicate whether or not a sensitive area is present and provide specific recommendations on the level of protection.

- No water special natural resources are affected by the alternative.
- Yes - Water special natural resources exist in the project area.
- River/stream
  - Wetland
  - Lake
  - Endangered species habitat
  - Other – Describe

Describe protection recommendations:

The WDNR had the following recommendations in their project review from November 21, 2017 (see Appendix C).

- An adequate Erosion Control Implementation Plan (ECIP) must be developed by the contractor and submitted to the WDNR office for review at least 14 days prior to the preconstruction conference.
- Erosion control measures must be inspected once per week and after every rainfall exceeding 1/2 inch. Any necessary repairs or maintenance must be performed after each inspection.
- A log of the erosion control inspections, repairs made, and rain events must be maintained. This must be made available to Department personnel upon request and must remain on the project site at all times work is being performed.
- All demolition material must be disposed of properly. Disposal of waste or excess materials in floodplains, wetlands, or waterways is not permitted.
- Construction materials and equipment must be stored in an upland location; storage in wetlands, waterways, or floodplains is not permitted.
- All temporary stock piles must be in an upland location and protected with erosion control measures (e.g. silt fence, rock filter-bag berm, etc.). Do not stockpile materials in wetlands, waterways, or floodplains.
- If dewatering is required for any reason, the water must be pumped into a properly selected and sized dewatering basin before the clean/filtered water is allowed to enter any waterway or wetland. The basin must remove suspended solids and contaminants to the maximum extent practicable. A properly designed and constructed dewatering basin must take into

consideration maximum pumping volume (gpm or cfs) and the sedimentation rate for soils to be encountered. See the Department's Dewatering Technical Standard 1061 to assist in method selection by soil type. The dewatering technique may not be located in a wetland.

- Removal of vegetative cover must be restricted, and exposure of bare ground kept to the minimum amount necessary to complete construction. Restoration of disturbed soils should take place as soon as conditions permit. If sufficient vegetative cover will not be achieved because of late season construction, it will be important that the site is properly winterized (e.g. dormant seeding, erosion control matting, sodding, etc.).
- After the site is stabilized all temporary erosion control measures must be removed and disposed of properly.

**3. Indicate whether circumstances exist in the project vicinity that require additional or special consideration, such as an increase in peak flow, total suspended solids (TSS) or water volume.**

- No additional or special circumstances are present.
- Yes - Additional or special circumstances exist. Indicate all that are present.
- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Areas of groundwater discharge   | <input type="checkbox"/> Areas of groundwater recharge           |
| <input type="checkbox"/> Stream relocations  | <input type="checkbox"/> Overland flow/runoff                    |
| <input type="checkbox"/> Long or steep cut or fill slopes  | <input type="checkbox"/> High velocity flows                     |
| <input type="checkbox"/> Cold water stream   | <input type="checkbox"/> Impaired waterway                       |
| <input type="checkbox"/> Large quantity flows  | <input type="checkbox"/> Exceptional/outstanding resource waters |
| <input type="checkbox"/> Increased backwater   |  |
| <input type="checkbox"/> Other - Describe any unique, innovative, or atypical stormwater management measures to be used to manage additional or special circumstances. |  |

**4. Describe the overall stormwater management strategy to minimize adverse and enhance beneficial effects.**

Typical stormwater management techniques can be used to minimize adverse effects and enhance beneficial effects. Typical best management practices might include the following:

- Limit disturbance of natural drainage features and vegetation.
- Prior to land disturbance, prepare and implement an approved erosion and sediment control plan.
- Protect areas that provide important water quality benefits and/or that are susceptible to erosion and sediment loss.
- Reduce direct discharge of stormwater into streams and wetlands by directing it through filter strips or vegetated swales.
- Reduce runoff velocities by using weirs or other barriers to dissipate high velocities.

The build alternatives require a review of stormwater facilities and the implementation of stormwater treatments via approved and permitted ECIPs.

**5. Indicate how the stormwater management plan will be compatible with fulfilling Trans 401 requirements.**

As of March 2016, Wisconsin Act 307 removed the WisDOT exemption from obtaining a WPDES Permit and required WDNR to issue a TCGP Permit on or before June 30, 2018 for WisDOT administered projects. The new TCGP is now in effect. WisDOT will apply for coverage under the new TCGP prior to construction.



**6. Identify the stormwater management measures to be utilized.**

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Swale treatment (parallel to flow)<br>Trans 401.106(10) | <input type="checkbox"/> In-line storm sewer treatment, such as catch basins,<br>non-mechanical treatment systems. |
| <input type="checkbox"/> Vegetated filter strips<br>(perpendicular to flow)                 | <input type="checkbox"/> Detention/retention basins – Trans 401.106(6)(3)  |
| <input type="checkbox"/> Constructed storm water wetlands                                   | <input type="checkbox"/> Distancing outfalls from waterway edge  |
| <input type="checkbox"/> Buffer areas – Trans 401.106(6)                                    | <input type="checkbox"/> Infiltration – Trans 401.106(5)   |
|   | <input type="checkbox"/> Other -Describe - _____   |

**7. Indicate whether any Drainage District may be affected by the project.**

- No - None identified  
 Yes  
 Has initial coordination with a drainage board been completed?  
 No - Explain \_\_\_\_\_  
 Yes - Discuss results \_\_\_\_\_

**8. Indicate whether the project is within WisDOT's Phase I or Phase II stormwater management areas.**

- No - The project is outside of WisDOT's stormwater management area.  
 Yes - The project affects one of the following and is regulated by a WPDES stormwater discharge permit, issued by the WisDNR:  
 A WisDOT storm sewer system, located within a municipality with a population greater than 100,000.  
 A WisDOT storm sewer system located within the area of a notified owner of a municipal separate storm sewer system.  
 An urbanized area, as defined by the U.S. Census Bureau, NR216.02(3). The Fond du Lac urbanized area and city of Plymouth urban cluster.  
 A municipal separate storm sewer system serving a population less than 10,000.

**9. Has the effect on downstream properties been considered?**

- No  
 Yes - Coordination is in process.

Information for the Erosion Control Evaluation Factor Sheet has been augmented and updated.

As of March 2016, Wisconsin Act 307 removed the WisDOT exemption from obtaining a WPDES Permit and required WDNR to issue a TCGP Permit 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.

#### 4.7 D-6 EROSION CONTROL EVALUATION

#### Factor Sheet D-6

**1. Give a brief description of existing and proposed slopes in the project area, both perpendicular and longitudinal to the project. Include both existing and proposed slope length, percent slope and soil types.**

East of County UU the existing roadway profile slopes are mostly rolling and range from 0 to 4 percent. West of County UU, as WIS 23 travels up the Niagara Escarpment, roadway slope profiles are up to a mile long and increase to 4 to 7 percent. Proposed slopes associated with the build alternatives are generally similar to existing slopes.

Perpendicular to the roadway existing slopes beyond the shoulders generally are between 4:1 (1 foot of rise to every 4 feet of horizontal) and 3:1. The proposed slopes beyond the shoulder should be 6:1 within the 34-foot clear zone, and 4:1 to 3:1 beyond that.

**2. Indicate all natural resources to be affected by the proposal that are sensitive to erosion, sedimentation, or waters of the state quality degradation and provide specific recommendations on the level of protection needed.**

- No - there are no sensitive resources affected by the proposal.  
 Yes - Sensitive resources exist in or adjacent to the area affected by the project.
- River/stream
  - Lake
  - Wetland
  - Endangered species habitat
  - Other - Describe \_\_\_\_\_

**3. Are there circumstances requiring additional or special consideration?**

- No - Additional or special circumstances are not present.  
 Yes - Additional or special circumstances exist. Indicate all that are present.
- Areas of groundwater discharge
  - Overland flow/runoff
  - Long or steep cut or fill slopes - as WIS 23 travels up the Niagara Escarpment.
  - Areas of groundwater recharge (fractured bedrock, wetlands, streams)
  - Other - Describe any unique or atypical erosion control measures to be used to manage additional or special circumstances \_\_\_\_\_

**4. Describe overall erosion control strategy to minimize adverse effects and/or enhance beneficial effects.**

The WDNR had the following recommendations in their project review from November 21, 2017 (see Appendix C).

- An adequate ECIP must be developed by the contractor and submitted to the WDNR office for review at least 14 days prior to the preconstruction conference.
- Erosion control measures must be inspected once per week and after every rainfall exceeding 1/2 inch. Any necessary repairs or maintenance must be performed after each inspection.

- A log of the erosion control inspections, repairs made, and rain events must be maintained. This must be made available to Department personnel upon request and must remain on the project site at all times work is being performed.
- All demolition material must be disposed of properly. Disposal of waste or excess materials in floodplains, wetlands, or waterways is not permitted.
- Construction materials and equipment must be stored in an upland location; storage in wetlands, waterways, or floodplains is not permitted.
- All temporary stock piles must be in an upland location and protected with erosion control measures (e.g. silt fence, rock filter-bag berm, etc.). Do not stockpile materials in wetlands, waterways, or floodplains.
- If dewatering is required for any reason, the water must be pumped into a properly selected and sized dewatering basin before the clean/filtered water is allowed to enter any waterway or wetland. The basin must remove suspended solids and contaminants to the maximum extent practicable. A properly designed and constructed dewatering basin must take into consideration maximum pumping volume (gpm or cfs) and the sedimentation rate for soils to be encountered. See the Department's Dewatering Technical Standard 1061 to assist in method selection by soil type. The dewatering technique may not be located in a wetland.
- Removal of vegetative cover must be restricted, and exposure of bare ground kept to the minimum amount necessary to complete construction. Restoration of disturbed soils should take place as soon as conditions permit. If sufficient vegetative cover will not be achieved because of late season construction, it will be important that the site is properly winterized (e.g. dormant seeding, erosion control matting, sodding, etc.).
- After the site is stabilized all temporary erosion control measures must be removed and disposed of properly.

To protect the drainage areas, streams, and rivers and to control construction site runoff, all build alternative construction documents would include detailed sedimentation and erosion control measures. The use of silt fences, turbidity barriers, sedimentation ponds, cofferdams, and the timely mulching and seeding or sodding of roadway slopes and other exposed areas will reduce runoff and siltation for all the build alternatives. An erosion control implementation plan would be prepared by the contractor and approved by WisDOT before the construction begins.

During construction, erosion and sedimentation into adjacent surface waters would be minimized through the application of WisDOT's Standard Specifications for Highway and Structure Construction. Timely mulching and seeding or sodding of roadway slopes and other exposed areas would provide long-term erosion control. During construction, techniques such as silt fences, turbidity barriers, bale dikes, temporary interceptor ditches, ditch checks, ditch liners, and sediment ponds would be used where possible to minimize erosion. The use of a silt screen below the water level during construction operations in drainage areas might also be used to reduce off-site siltation. Unstable materials would be disposed of in upland areas, not in wetlands or waterways.

Precautions would be taken at the Sheboygan River and Mullet River crossings to preclude erosion and stream siltation. Crossing work will be coordinated with the WDNR to protect fish habitat and water quality. Impacts to water quality would be minimized through the implementation of erosion control measures according to the ECIP included in the construction contract, the Standard Specifications, and project special provisions. In addition, construction near surface waterways would be avoided during periods of high snowmelt or rains. Erosion control devices would be installed before erosion-prone construction activities begin, the devices would be maintained and repaired, as needed, throughout the life of the contract, and areas would be promptly restored to grass or permanent cover.



**5. Discuss results of coordination with the appropriate authorities as indicated below:**

- WDNR
- American Indian Tribe

All erosion control measures (i.e., the Erosion Control Plan) will be coordinated through the WisDOT-WDNR liaison process. WDNR's concurrence is not forthcoming without an Erosion Control Plan. In addition, the contractor must prepare an ECIP, which identifies timing and staging of the project's erosion control measures. The ECIP shall be submitted to the WDNR and to WisDOT 14 days prior to the preconstruction conference and must be approved by WisDOT before implementation.

**6. Will any special erosion control measures be implemented to manage additional or special circumstances identified in Item 3 above?**

- No
- Yes - Describe:

The WDNR had recommendations in their project review from November 21, 2017 (see Appendix C or Question 3).