

6.5 FLOODPLAINS

Floodplain resources and impacts were discussed in Sections 4.2.6 and 5.3.7 of the DEIS.

6.5.1 INFORMATION FROM THE DEIS THAT REMAINS UNCHANGED

The DEIS described the need to prepare a floodplain assessment for waterways affected by the proposed alternatives, as required under Executive Order 11988, Floodplain Management and Minnesota Statutes 103F.101 to 103F.155. Findings related to County Ditch 34 floodplain impacts along the east and west sides of I-494 south of the TH 62 interchange have not changed since the DEIS assessment. However, impacts to Minnehaha Creek at Minnetonka Boulevard and Nine Mile Creek between West Bush Lake Road and TH 100 have changed, as described in Sections 6.5.2 and 6.5.3.

6.5.2 CHANGES IN THE SETTING, REGULATORY FRAMEWORK OR TECHNICAL ANALYSIS THAT HAVE OCCURRED SINCE THE DEIS

6.5.2.1 Physical Setting

For this study, references that were used for floodplain assessment were the following:

- FEMA NFIP Flood Insurance Rate Maps (FIRM) for the Cities of Bloomington (1981, 1998) and Minnetonka;
- Flood Insurance Study for the City of Bloomington (1981);
- Digital Q3 Flood Data maps (based on FIRMs);

- Nine Mile Creek Watershed District Water Management Plan (1996);
- Minnehaha Creek Watershed District Water Management Plan (revised 2000);
- Special study conducted by Mn/DOT utilizing XP-SWMM and HEC-RAS models of the East Bush Lake Road area (1999).

The existing waterway conditions as they relate to I-494 and how they have changed since the DEIS are described below:

- **County Ditch 34:** This ditch conveys surface water through the Cardinal Creek Conservation Area, passes underneath I-494 through a 1.4-meter (54-inch) culvert from west to east and into Bryant Lake (see Figure 6.17).
- **Minnehaha Creek:** Minnehaha Creek crosses underneath I-494 at the Minnetonka Boulevard underpass in Minnetonka. Several years ago, the Minnetonka Boulevard interchange was rebuilt and floodplain impacts were considered and mitigated at that time. Under the I-494 Preferred Alternative, no further floodplain impacts are expected.
- **Nine Mile Creek:** Nine Mile Creek, its forks and one tributary intersect I-494 in several locations. From west to east:
 - The South Fork passes from Lake Smetana under TH 169 just north of the I-494 corridor. Floodplain encroachments have been addressed during the reconstruction of the TH 169/I-494 interchange and thus no longer are an issue for this FEIS. The South Fork then turns south into the study area (refer to Figure 6.18), passes under the 78th Street frontage road through a 2.0-meter (78-inch) culvert and daylights within the I-494 right-of-way along the north side. The South Fork then leaves the I-494 right-of-way to the north, passes under Creek Ridge Circle, turns south again and passes under I-494 in a 2.4-meter (96-inch) culvert into the Highwood Corridor area of the Hyland-Bush-Anderson Lakes Regional Park Reserve located along the south edge of the roadway. The South Fork continues south and east and crosses under the Canadian Pacific Railroad and then immediately under East Bush Lake Road where it joins the North Fork.
 - The North Fork enters study the area by passing onto the TH 100 right-of-way under Metro Boulevard north of Lake Edina. It then follows TH 100 south, crosses under 77th Street, turns southwest with the southbound TH 100 to westbound I-494 ramp and then passes under I-494 through a 3.1-meter (120-inch) culvert (refer to Figure 6.19). Upon daylighting on the south side of I-494, the North Fork passes under Green Valley Drive and, a short distance later, joins the South Fork.
 - At the confluence of the North and South Forks (refer to Figure 6.18), Nine Mile Creek travels south, passes under 84th Street and into Normandale Lake.

In addition to roadway changes at the noted crossings, a considerable amount of work outside of the corridor has affected the floodplain mapping for the cities within the study area. A number of Letters of Mapping Changes (LOMC) and Mapping Revisions (LOMR) have been issued since the DEIS. These have been considered in the analysis performed for this FEIS.

6.5.2.2 Regulatory Framework

Methodologies used to conduct floodplain assessments have evolved over the past ten years and are summarized in the Mn/DOT *HPDP Handbook*¹⁹, which is based on Presidential Executive Order 11988 – Floodplain Management. Other codes, standards and policies such as, but not limited to, the FHWA’s, *Location and Hydraulic Design of Encroachments on Flood Plains* (1994), FEMA National Flood Insurance Program’s *Title 44 Code of Federal Regulations* (1994 – 1999) and the MnDNR’s Minnesota Rules Chapter 6115, *Bridges and Culverts, Intakes and Outfalls* (2000) have all been updated. The assessments carried out as part of this FEIS reflect the most current standards, policies, practices and formats.

6.5.2.3 Technical Analysis

The assessment completed for this FEIS follows Mn/DOT’s HPDP Handbook Part II, Section D, Appendix #1, *How to Prepare a Floodplain Assessment*. The Regional Flood²⁰ elevations for County Ditch 34 have been taken from flood profiles published in the Nine Mile Creek Watershed District Water Management Plan (1996). In the East Bush Lake Road Area where the North and South Forks of Nine Mile Creek converge, Regional Flood elevations have been taken from an XP-SWMM model developed by Mn/DOT in 1999. Base Flood extents for Minnehaha Creek have been taken from available FIRM maps.

6.5.3 IMPACTS ASSOCIATED WITH THE PREFERRED ALTERNATIVE

6.5.3.1 Description of Impacts

Minnehaha Creek

As noted above, the Preferred Alternative will not impact the Minnehaha Creek floodplain.

County Ditch 34

Due to some widening of lanes and shoulders that will occur with the Preferred Alternative, transverse and longitudinal encroachments are likely on both sides of the highway where the ditch passes under I-494. Table 6.12 summarizes the nature of these encroachments. These encroachments have not changed since the DEIS analysis, where they were found to have no substantial impacts on the County Ditch 34 floodplain.

¹⁹ Minnesota Department of Transportation, *Highway Project Development Process Handbook*, (Mn/DOT, 1999)

²⁰ Regional Flood is defined by the HPDP as, “the flood which can be expected to occur on average once every 100 years.” It is equivalent to FEMA’s “Base Flood.”

Figure 6.17 11 x 17

Figure 6.18

Figure 6.19

North and South Branches of Nine Mile Creek

Nine Mile Creek is being impacted differently from the effects anticipated in the DEIS. Following an extensive analysis and issuance of a technical memorandum by Mn/DOT (August 2000) regarding the 1987 super-storm, discharge into the South Fork west of East Bush Lake Road is proposed to be re-routed east of East Bush Lake Road prior to reentering the creek. The 3.1-meter (120-inch) culvert that conveys the North Fork underneath I-494 near the TH 100 interchange was also recommended to be replaced by a 3.1-meter by 3.7-meter (10-foot by 12-foot) box culvert. The memorandum also recommended that the low point, located 174 meters (570 feet) west of the East Bush Lake Road overpass, should be raised 0.6 meter (2 feet) together with the berm that separates the highway from the Highwood Corridor area of the Hyland-Bush-Anderson Lakes Regional Park Reserve. According to these recommendations, the analysis shows a net elevation reduction of the North Fork of approximately 0.6 meters (2 feet) prior to crossing under I-494 and less than 15 centimeters (0.5-foot) difference in elevation at and below the North Fork/South Fork confluence. Flood elevations for the South Fork west of East Bush Lake Road were reduced by approximately 0.3 meter (1 foot). However, the Mn/DOT analysis did not foresee construction of up to three storm water treatment ponds in the southeast quadrant of East Bush Lake Road and I-494. Layout revisions for I-494, East Bush Lake Road, TH 100 and Green Valley Drive have also impacted these revisions. All these developments will impact floodplain both positively (pond and mitigation site volumes) and negatively (roadway encroachments). A complete floodplain analysis is currently underway and proposed mitigation, if required to maintain existing floodplain limits, will be finalized after the design and impacts are confirmed.

**TABLE 6.12
FLOODPLAINS ENCROACHMENT ASSESSMENT**

Floodplain	Figure No.	Location	Base Flood Elevation		Type of Encroachment	Length	
			meters	Feet		meters	feet
County Ditch 34	6.17	FP1	262	859*	Transverse	76.3	250
County Ditch 34	6.17	FP1	260.2	853*	Longitudinal	91.5	300
Nine Mile Creek	6.18	FP2	249.2	817*	Transverse	9.2	30
Nine Mile Creek	6.18	FP3	249.6	815**	Transverse	27.5	90
Nine Mile Creek	6.18	FP4	248.6	815**	Longitudinal	195.2	640
Nine Mile Creek	6.18	FP5	248.6	815**	Longitudinal	64.1	210
Nine Mile Creek	6.18	FP6	248.3	814**	Transverse	61	200
Nine Mile Creek	6.18	FP7	248.3	814**	Longitudinal	283.7	930
Nine Mile Creek	6.18	FP7	248.3	814**	Transverse	61	200
Nine Mile Creek	6.18	FP8	248.3	814**	Longitudinal	79.3	260
Nine Mile Creek	6.18	FP9	248.6	815**	Longitudinal	143.4	470
Nine Mile Creek	6.19	FP10	248.6	815**	Transverse	10.7	35
Nine Mile Creek	6.19	FP11	249	817**	Transverse	18.3	60
Nine Mile Creek	6.19	FP12	249	817**	Longitudinal	335.5	1,100

* From NMCWD Water Management Plan, higher number represents upstream of culvert, lower number represents downstream of culvert under I-494.

** From Mn/DOT XP-SWMM model

6.5.3.2 Floodplain Assessment

According to Presidential Executive Order - 11988, four areas must be addressed in a floodplain assessment. These are:

- Area 1: No significant potential for interruption of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route.
- Area 2: No significant impact on natural or beneficial floodplain values;
- Area 3: No significant increased risk of flooding will result;
- Area 4: Will the project support and/or result in incompatible floodplain development?

The following discussion addresses the four areas noted above for the watercourses that would be affected by the I-494 Preferred Alternative floodplain encroachments.

County Ditch 34

First, no interruption of transportation facilities will occur, as the flood elevation is 3.4 meters (11 feet) below the roadway surface. Secondly, the fill is limited to inslopes to allow for a wider embankment (i.e. at a ditch culvert). Due to the nature of encroachment, no adverse impact on floodplain values will occur. Thirdly, while a small transverse encroachment into the floodplain is anticipated, the regional flood elevation, when compared to the large flood extent within the Cardinal Creek Conservation Area, will not be increased, based on DEIS analyses. Thus, no increase in flooding will result. Finally, both the City of Eden Prairie and the Nine Mile Watershed District have instituted floodplain encroachment policies so that no incompatible floodplain development will occur.

North and South Forks of Nine Mile Creek

First, no potential for interruption of a transportation facility will occur. There are a number of alternative routes in and out of the area and where roadway is either being reconstructed or newly constructed, elevating the surface above the 100-year base flood elevation will occur.

Second, floodplain encroachments and/or stream channel realignments have been planned to minimize impacts to natural and beneficial floodplain values. Use of closed conveyance systems has been minimized to the extent possible; and open, meandering stream channels are planned in a number of areas where channel realignments are required.

Third, the principle of avoidance, minimization and mitigation has been followed to avoid flooding risks. Avoiding impacts has been exercised along the north side of I-494 by moving the proposed roadway alignment south out of the South Fork floodplain prior to where it crosses the roadway. Impacts to the North Fork on the west side of TH 100 could not be avoided without substantial roadway realignments and acquisition of a number of commercial development parcels on the east side of TH 100. Minimization of impacts has been pursued by choosing roadway alignments that skirt the flood fringe (e.g., portions of Green Valley Drive), that

maintain the existing alignment (e.g., at East Bush Lake Road) or that pass over the creek (e.g., bridge structures in lieu of fill/culverts at TH 100 area). Accurate assessment of impacts and needed mitigation requires additional refinement of project design. The final design will incorporate mitigation measures, as necessary, to prevent substantive increases in flood levels. The ultimate outcome will be no substantive changes to floodplain levels or values. Examples of potential mitigation measures are provided in Section 6.5.4.2.

Fourth, no incompatible floodplain development would result from the proposed project. Watershed, state, and city guidelines and policies regulate floodplain development, including the Nine Mile Creek Watershed District floodplain encroachment policy²¹ and city floodplain ordinances.

Summary of Floodplain Assessment

Although floodplain encroachments would occur as a result of the proposed Preferred Alternative, no substantial floodplain impacts would result since either: 1) the encroachment impact is not substantive; or 2) the proposed project will include measures to mitigate impacts ultimately resulting in no substantial impacts. The proposed project will conform to all state and local (city and watershed) floodplain protection standards and mitigation requirements. Since no substantial floodplain impacts would result from the proposed project, preparation of a floodplain finding (“only practicable alternative”) is not required.

6.5.4 MITIGATION MEASURES

As described above, floodplain encroachment is limited to two watercourses: County Ditch 34 and the North and South Forks of Nine Mile Creek. Mitigation plans for each of these areas are described below.

6.5.4.1 County Ditch 34

Based on DEIS analysis, no substantial impacts to this floodplain are anticipated. However, during final design of this portion of I-494, further impact analysis will be completed and at that time mitigation measures, if required, will be recommended.

6.5.4.2 North and South Forks of Nine Mile Creek

Section 6.5.3.2 describes avoidance and minimization measures incorporated into the project design concept. Additional analysis of impacts and required mitigation will be performed as final design progresses. Development of final design floodplain mitigation will include working with the Nine Mile Creek Watershed District to identify appropriate mitigation strategies, involving floodplain volume replacement and/or changes in discharge rates, to achieve the goal

²¹ Nine Mile Creek Watershed District, *Water Management Plan*, (NMCWD, 1996), section 4.2.3.

of maintaining or reducing existing flood stage levels. Floodplain volume replacement would involve measures such as construction of ponds or wetland areas within floodplain areas. Discharge rate control would involve increasing or decreasing discharge rates, as needed, by increasing or decreasing system flow capacity (e.g., changing culvert or channel design) and/or storage.

6.6 GROUNDWATER

The Affected Environment for groundwater for the I-494 reconstruction study area is described in Section 4.2.6 of the DEIS. Impacts and mitigation measures for groundwater are discussed in Section 5.3.8 of the DEIS.

6.6.1 INFORMATION FROM THE DEIS THAT REMAINS UNCHANGED

The hydrogeology of the project area remains as described in the DEIS. The general bedrock profile in the project area is as follows:

- St. Peter Aquifer
- Prairie du Chien-Jordan Aquifer
- Franconia-Ironton-Galesville Aquifer
- Mount Simon-Hinkley Aquifer

The most widely used water supply aquifer in the Minneapolis-St. Paul Metropolitan Area is the Prairie du Chien-Jordan formation. The potentiometric elevation of this aquifer within the study area ranges from approximately 265 meters (870 feet) to 235 meters (770 feet) above mean sea level. The roadway surface elevations along the I-494 reconstruction corridor range from approximately 299 meters (980 feet) near the I-394/I-494 interchange to 249 meters (815 feet) above mean sea level near the TH 5/I-494 junction just west of the Minnesota River.

The surficial geology of the project area is broadly characterized as follows:

- West and north of the France Avenue/I-494 interchange—mainly glacially deposited till, including loam, clay loam, and sandy loam.
- East of the France Avenue/I-494 interchange—mainly outwash and terrace deposits, including gravelly sand, sand, and loamy sand.

The water table gradient, and thus movement, within the project area is generally south-southeast to the Minnesota River. Hennepin County Geological Atlas C-4, Quaternary Hydrogeology, depicts water table elevation of approximately 281 meters (920 feet) at the I-494/I-394 interchange location, and approximately 238 meters (780 feet) at the split between I-494 and TH 5 in the vicinity of the Mississippi River.

The municipal well locations within approximately 0.8 kilometer (0.5 mile) of the mainline and interchanges within the project area are as follows:

- Minnetonka Well # 10
- Minnetonka Well # 14
- Edina Well # 10
- Edina Well #11
- Edina Well # 14

There currently are two known areas within the project corridor at which dewatering operations are currently in place. They are described below.

I-494/Penn Avenue Interchange: The elevation of the roadway at this location is approximately three meters (10 feet) below the natural elevation of the water table. A lift station is currently used to drain this area, depress the water table, and convey the diverted water to Penn Lake.

I-494/34th Avenue Interchange: There currently is a subdrain system for this area which is used to depress the water table elevation below the roadway profile. The perforated pipe collection system has a low invert of 245 meters (803 feet). This drainage is routed via a trunk storm sewer to an outfall at the Minnesota River in the vicinity of the Minneapolis-St. Paul International Airport.

6.6.2 CHANGES IN THE SETTING OR TECHNICAL ANALYSIS SINCE THE DEIS

The DEIS Build alternatives included raising the profile of the roadway in the vicinity of the I-494/Penn Avenue interchange above the natural water table elevation. This design approach would have eliminated the need for depressing the water table and the lift station currently used to accomplish this.

The Preferred Alternative includes very minor changes to raising the profile of the roadway at this location. Thus, there will still be a need to depress the water table. The Preferred Alternative will continue to require permanent dewatering, but may discharge to Penn Lake via a lift station, or to the Minnesota River via a gravity system. The conveyance systems are discussed in more detail in Section 6.3.4.

6.6.3 GROUNDWATER IMPACTS ASSOCIATED WITH THE PREFERRED ALTERNATIVE

The Preferred Alternative is not anticipated to negatively impact groundwater resources in the project area. There will be increased impervious surfaces in the project area associated with expanded roadways and interchange features. However, the percentage increase, relative to existing conditions (refer to Table 6.10), is not anticipated to be large enough to noticeably affect regional groundwater recharge rates. Dewatering operations at the I-494/Penn Avenue

and I-494/34th Avenue locations will continue to be performed in accordance with Minnesota Department of Natural Resources permit requirements. No additional permanent dewatering is anticipated to be required as part of the Preferred Alternative construction.

A small amount of temporary dewatering may be required during construction of the additional storm sewer line proposed to serve the eastern I-494 corridor (see Section 6.3.4.4). Construction plans for this line currently include tunnel boring through unconsolidated material (soil) areas that contain groundwater. However, the tunnel boring process would require little, if any, temporary dewatering, and the tunnel shaft would be sealed immediately after excavation to prevent groundwater seepage into the shaft and/or storm water leakage to groundwater. This method of construction would prevent impacts to groundwater quality and/or groundwater surface elevations from construction of the proposed storm sewer line.

There will be limited increases in pollutant loadings in surface water run-off associated with the Preferred Alternative due to increased impervious surfaces and related facility operations. However, this runoff will be treated utilizing ponds and other BMPs in accordance with watershed district and Minnesota Pollution Control Agency requirements. These facilities, as discussed in Sections 6.3 and 6.4, will reduce pollutant loadings prior to discharge to receiving surface waters, and thus reduce pollutant loadings to groundwater via recharge from these surface waters. In addition, the storm water detention ponds and water quality swales (ditches with ditch blocks) provide an opportunity for infiltration, thus reducing surface water runoff volumes and providing groundwater recharge areas.

The proposed construction will not physically impact any of the municipal wells. Any private wells, abandoned wells or unused commercial, industrial or irrigation wells encountered during reconstruction will be sealed, following the well abandonment procedures required by the Minnesota Department of Health.

6.6.4 MITIGATION MEASURES

As addressed in the preceding section:

- Dewatering operations at the 34th Avenue and Penn Avenue locations will continue to be performed in accordance with Minnesota Department of Natural Resources permit requirements.
- Temporary dewatering may be required in conjunction with installation of new storm water conveyance facilities. If required, the temporary dewatering is anticipated to be of short duration. Storm water conveyance lines installed within groundwater zones will be sealed to prevent infiltration into or leakage out of the conveyance system.
- Surface water drainage will be treated utilizing ponds and other appropriate BMPs in conformance with appropriate regulatory requirements.

- Any wells that are encountered during the reconstruction of I-494 will be sealed and abandoned in accordance with Minnesota Department of Health standards as defined in Minnesota Rules, Part 4725.2700.
- Storm water detention ponds and water quality swales reduce pollutant loadings and provide groundwater recharge opportunities.

6.7 WETLANDS

The DEIS addressed wetlands in Section 4.0 Affected Environment (Section 4.2.4 Wetlands) and in Section 5.0 Environmental Consequences and Potential Mitigation Measures (Section 5.3.9 Wetlands).

6.7.1 INFORMATION FROM THE DEIS THAT REMAINS UNCHANGED

Much of the information presented in the DEIS is still accurate. The DEIS included an inventory of the wetlands that exist in the I-494 corridor that could potentially be impacted by the I-494 expansion and reconstruction project. The inventory noted the size, classification, location and distribution of each wetland. The inventory identified wetland basins in aggregate in the project area covering over 162 hectares (400 acres), with the majority of these wetlands being Types 3, 4 or 5 (shallow to deep marshes or ponds). These wetlands are concentrated along the northern- and western-most sections of the project area, with the highest concentration occurring between Oakland Road and TH 7 in Minnetonka, and between TH 62 and TH 100 in Eden Prairie and Bloomington. Several sections of the corridor do not have wetlands, including the area from TH 7 to Baker Road in Minnetonka, the section between France Avenue and Penn Avenue in Edina, Bloomington and Richfield, and the section between Lyndale Avenue and 24th Avenue South in Richfield and Bloomington.

As was indicated in the DEIS, the study area is primarily urban in use, and several man-made ponds are present in the study area, created for storm water management or aesthetic reasons. The field verifications performed for the DEIS indicated some wetlands were not identified on the U.S. Fish and Wildlife Service (FWS) National Wetland Inventory (NWI) maps, and that some NWI classifications were incorrect. The DEIS identified several wet ditches in the corridor.

6.7.2 CHANGES IN THE SETTING OR TECHNICAL ANALYSIS SINCE THE DEIS

6.7.2.1 Changes in the Existing Environment

Several projects have occurred in the I-494 corridor since the DEIS, resulting in alteration of some wetlands in these project areas. These projects are described in greater detail in Section 1.2.2 of this FEIS. These projects included reconstruction of the interchanges of I-494 with TH 169, TH 5 and Minnetonka Boulevard/CSAH 5. In these three project areas,

wetlands were filled, storm water ponds were created and surface water drainage patterns were altered. To avoid confusion, the numeric designations originally assigned to the wetland basins in the DEIS have been retained in the FEIS analysis where possible. It should be noted that because some wetlands have been eliminated by the previously completed projects, the current numbering sequence has gaps.

For the DEIS, the wetland basins in the project area were located using NWI maps, and approximate wetland boundaries were confirmed with site visits. Wetlands in the corridor were then classified according to *Wetlands of the United States* (USFWS Circular 39; Shaw and Fredine, 1971), and *Wetlands and Deepwater Habitats of the United States* (FWS/OBS Publication 79/31; Cowardin et al., 1979).

In August and September of 2000, the wetland basins in the I-494 corridor were field verified for the FEIS to identify notable changes in the field conditions since the DEIS. The wetland basins were identified through the use of NWI maps, Minnesota Department of Natural Resources Protected Waters and Wetlands maps, U.S. Geological Survey topographic maps, Natural Resource Conservation Service soil maps, and aerial photography. Additionally, each potential wetland was field-checked to verify the NWI wetland type classification. The wetlands were classified using both the Circular 39 System and the Cowardin system utilized in the DEIS. Brief definitions of the wetland types identified in the project area are illustrated in Table 6.13. Further discussion of wetland classification was included in the 1992 *Water Resources Technical Report* for the I-494 reconstruction project.

**TABLE 6.13
WETLAND CLASSIFICATION SYSTEM DESCRIPTORS/MODIFIERS**

<u>Circular 39 System</u>		
Type 1	Seasonally flooded basins and flats	
Type 1L	Seasonally flooded hardwoods	
Type 2	Inland fresh meadow, saturated at or near the surface after heavy rains or seasonally	
Type 3	Inland shallow fresh marsh, flooded up to 1.8-meter (6-foot) depth	
Type 4	Inland deep fresh marsh, flooded up to 0.9-meter (3-foot) depth	
Type 5	Inland open fresh water, flooded up to 3.1-meter (10-foot), marshy border may be present	
Type 6	Shrub swamp, flooded up to 15-centimeter (6-inch) depth	
<u>Cowardin System</u>		
<u>System/Subsystem</u>	<u>Class/Subclass</u>	<u>Water Regime</u>
P – Palustrine	EM – Emergent	A – Temporarily Flooded
	1 – Persistent	B – Saturated
R – Riverine	FO – Forested	C – Seasonally Flooded
		F – Flooded
L – Lacustrine		G – Intermittently Exposed
		H – Permanently Flooded
1 – Limnetic	SS – Scrub-Shrub	J – Intermittently Flooded
2 – Littoral	UB – Unconsolidated Bottom	D – Partially Drained/Ditched

In general, the I-494 corridor conditions have not changed substantially since the DEIS. The project area extends through an urban environment where the surrounding land use is residential development, office, commercial/industrial, retail space, and public roads. Most of the wetlands are altered from their original undisturbed (pre-development) condition by surrounding development. Nearly all have previously undergone changes in watershed size and in the amount and quality of the runoff they receive. Several man-made ponds created for storm water management and/or aesthetic reasons are also present within the project study area.

The DEIS discussed a total of 81 wetland basins covering approximately 166 hectares (410 acres) in close proximity to the I-494 corridor. For the FEIS, a total of 81 wetlands, covering approximately 159 hectares (392 acres) were identified within close proximity to the I-494 corridor (Table 6.14 and Figure 6.20). Most wetland basins did not change in size or type from 1992 to 2000. The difference in total area of wetlands in the project corridor is slight (7 hectares or 18 acres), and is attributed to the three interchange reconstruction projects that have occurred in the corridor since 1992 (TH 169, TH 5 and Minnetonka Boulevard/CSAH 5), and to differences in total area estimated for the larger wetlands whose boundaries extended beyond the project corridor.

Note that the wetlands in the area of the east storm water drainage system described in Section 1.7 and Section 6.3.4.4 are not included in the discussion of wetlands in Section 6.7.2 to 6.7.4 and are not included on Table 6.15. Because details of the drainage system design and configuration are still being studied, the wetlands in that area and impacts on those wetlands are discussed separately in Section 6.7.5.

Specific changes with respect to the basins identified are as follows, from west to east:

- Basin 16A was added at CSAH 5.
- Basin 31 was not considered to be within the corridor boundary for the FEIS.
- Basins 31A (comprised of several small wetlands) and 36A and B, which were not counted as wetlands in the DEIS were added near TH 62.
- Basin 28A was added near the CP Rail/Soo Line bridge.
- Basins 41, 44 and 46 from the DEIS no longer exist, and these numbers were reassigned as 41A, 44A and 46A to other basins in the general area of the TH 5/312 improvements.
- Several basins were eliminated (Basins 56, 57 and 58) and Basin 60A was added in the area of TH 169.
- Basin 74 from the DEIS was determined to be outside the project corridor and the Basin 74 designation was reassigned (as 74A) to the large MnDNR wetland along Normandale Boulevard.

**TABLE 6.14
I-494 CORRIDOR PROJECT AREA WETLAND INVENTORY**

Wetland Basin Number	NWI Map Classification⁽¹⁾ (Cowardin)	Field-Verified Cowardin Classification⁽¹⁾	Circular 39 Type⁽²⁾	MnDNR No.	Dominant Vegetation
1	PEMC	PEMC	3	-	Cattails
2	PSS1/EMCd	PSS1/EMC	3/6	736W	Willow/reed canary grass
3	PEMC	PEM1A	2	-	Cattails
4	PEMC	PEMC	3	-	Cattails/reed canary grass
5	PSS1/EMC	PSS1/EMC	3/6	-	Cattail/sedge
6	PEMC	PEMC	3	-	Cattails
7	PEMC	PEM1A	2	-	Cattails
8	PEMC	PEMC	3	755W	Cattails
9	PEMC	PEMC	3	-	Cattails
10	PSS1C	PSS1C	6	-	Cattails/willow
11	PEMC	PEM1A/C	2/3	-	Cattails
12	PEMC	PEMC	2/3	-	Cattails
13	PFO1C	PFO1C	1	-	Box elder/poplar
14	PEMC	PEMC	3	-	Cattails
15	PEMC	PEMC	3	-	Reed canary grass
16	PEM/FO1C	PEM/FO1C	1/3	-	Poplar/box elder
16A	PEMC	PEMC	3	-	Reed canary grass
17	PEM/SS1Cd	PEM/SS1Cd	3	761W	Buckthorn/reed canary grass
18	PEMC	PEMC	3	-	Cattails
18A	PEMC	PEMC	3	-	Reed canary grass/cattails
19	PEMC	PEMC	3	-	Reed canary grass/cattails
20	PEMC	PEMC	3	-	Reed canary grass/cattails
21	PEMF	PEMF	3	-	Cattails
22	PEMF	PEMF	3	-	Cattails
23	PUBF/PEMF	PEMF	4	-	Open water
24	PEMF	PEMF	3	-	Sedge/cattail
25	PEMC	PEMC	3	773W	Reed canary grass/cattails
26	PUBG	PUBG	5	771W	Open water
27	PEMB/PUBF	PEMB/PUBF	2/4	789W	Reed canary grass/cattails
28	PEMC	PEMC	3	-	Cattails

TABLE 6.14 continued
I-494 CORRIDOR PROJECT AREA WETLAND INVENTORY

Wetland Basin Number	NWI Map Classification ⁽¹⁾ (Cowardin)	Field-Verified Cowardin Classification ⁽¹⁾	Circular 39 Type ⁽²⁾	MnDNR No.	Dominant Vegetation
29 ⁽³⁾	PUBF	PUBGx	5	-	Open water
30	PSS1C	PSS1C	6	-	Willow
31 ⁽³⁾	PEM/SS1C	PUBGx	5	-	Open water
32	PEMF	PEMF	4	-	Open water/willow
33	-	PEMC	3	-	Reed canary grass/cattails
34	PUBF	PUBF	5	-	Open water
35	PEMC	PEMC	3	-	Reed canary grass/cattails
36	PEMF	PEMF	3	-	Cattails
36A	-	PEMC	3	-	Reed canary grass/cattails
36B	-	PEMC	3	-	Cattails
37	L1UBH/PEMF	L1UBH/PEMF	3	67P	Sedges
38	PEMcd	PEMC	3	814W	Cattails
39	PUBGx	PEMF/PSS1	3/6	813W	Box elder/reed canary grass
40	PUBF	PEMF	3	72P	Cattails
41A	-	PEMC	3	-	Reed canary grass/cattails
42	PEM/SS1C	PFO1C	1	-	Reed canary grass
43	-	PEMF	3	-	Cattails
44A	-	PEMF	3	-	Cattails
45	-	PEMC	3	-	Cattails
46A	L1UBH	L1UBH	5	74P	Open water
47	PEMF	PEMF	4	-	Sedges/cattails
48	PSSI/EMC	PSSI/EMC	3/6	1088W	Cattails
49	PEMF/L1UBH	PEMF/L1UBH	3/4	73W	Sedges/cattails
50	PUBG	PUBG	5	-	Open water
51 ⁽³⁾	PUBG	PUBG	5	-	Open water
52	L2UBG	L2UB	5	62P	Open water
53	R2UBG	R2UB	4	1012W	Reed/sedge
54	PEM/SS1C	PEMC/SS1C	3/6	1013W	Box elder/willow
60	PEMC	PEMC	3	-	Cattails
60A	PEMC	PEMC	3	-	Cattails
61	PEM/SS1C	PEM/SS1C	6	-	Cattail/poplar

TABLE 6.14 continued
I-494 CORRIDOR PROJECT AREA WETLAND INVENTORY

Wetland Basin Number	NWI Map Classification ⁽¹⁾ (Cowardin)	Field-Verified Cowardin Classification ⁽¹⁾	Circular 39 Type ⁽²⁾	MnDNR No.	Dominant Vegetation
62	PEM/SS1C	PEM/SS1C	6	1013W	Cattails
63 ⁽³⁾	R2UBGx/PUBG	R2UBGX/PUBG	5	1013W	Open water
64	R2UBG	PEMF/R2UBG	3	1013W	Poplar
65	R2UBGx	PUBGx	5	-	Open water
66	R2UBGx	PUBGX	5	-	Open water
67	-	PSS/EMC	6/3	-	Alder/cattails
68	PUBGx	PUBG	5	-	Open water
69	PEMC/PUBGx	PEMC/PUBGx	3/4	1043W	Cattails
70	PEMC	PEMC	3	1042W	Cattails
71 ⁽³⁾	-	PUBGx	5	-	Open water
72 ⁽³⁾	-	PUBGx	5	-	Open water
73	R2UBG/PUBGx	PUBGx	5	1044W	Open water
74A ⁽³⁾	PUBGx	PUBGx	5	1045W	Open water
75	R2UBGx	R2UBGX	3	1044W	Sedges
76	PUBGx	PUBGx	5	-	Open water
77	PUBGx	PUBGx	5	-	Open water
78	PEMC	PEMC	2	-	Cattails
79 ⁽³⁾	PUBGx	PUBGx	5	-	Open water
80	PEMC	PEMC	2	-	Cattails/reed canary grass
81	PUBGx	PUBGx	5	1081W	Open water

Table includes streams and waterbodies. Table does not include wetlands in the area of the east storm water drainage system (discussed in Section 1.7) with the exception of #81.

- Notes:
- (1) Given the complexity of many of the larger wetlands, only the dominant wetland habitat(s) are listed in the Cowardin Classification columns for each wetland basin. Also see Table 6.14 for letter code definitions.
 - (2) It is not possible to directly equate the Circular 39 system with the Cowardin system. The Cowardin system classifies wetland habitats, whereas the Circular 39 system maps wetland basins.
 - (3) These wetlands are excavated open water ponds with fountains.

6.7.2.2 Changes in Wetland Regulations

Since the DEIS, the regulation of wetland impacts in Minnesota has evolved due to implementation of regulations and guidelines for enforcement of the Wetland Conservation Act of 1991 (Minnesota Statute 103G.222-2373 amended 2000; Minnesota Rules Chapter 8420), referred to as “WCA.” At the time of completion of the DEIS in April 1992, WCA had been in effect for a short time and full implementation of WCA did not occur until 1994. Therefore, essentially all WCA procedures can be considered “new” or changes since the DEIS.

Prior to 1992 (the date of the DEIS), several federal laws and actions, including the Clean Water Act, the Food Securities Act, Presidential Executive Order 11990, the Rivers and Harbors Act and other coastal zone and natural resource protection laws evolved into a complex federal regulatory structure that established the principal guiding steps for wetland impacts (avoid,

Figure 20 11 x 17 2 pages

Figure 20 11 x 17 page 2

minimize and mitigate/replace). As a result of this regulatory framework, federal wetland protection jurisdiction is shared among the U.S. Environmental Protection Agency (EPA), the Army Corps of Engineers (COE) and other federal agencies with the COE being the primary permitting authority.

The three principal guiding steps (avoid, minimize and mitigate/replace) were perpetuated at the state level in Minnesota through WCA and the Minnesota Governor's Executive Order 91-3, which established the "no net loss" policy with regard to wetlands. The WCA established that wetland protection in Minnesota will be administered by the Board of Water and Soil Resources (BWSR), and requires Local Governmental Units (LGUs) to oversee the wetland permitting process and to enforce mitigation requirements. The law regulates the draining and filling of wetlands in Minnesota and requires replacement via approved plans when wetland draining or filling is unavoidable. The Minnesota Department of Natural Resources (MnDNR) was afforded joint permitting authority for impacts on MnDNR-protected waters (a sub-set of wetlands in Minnesota).

In 1994, state and federal agencies developed (and later amended) a state wetland banking program for wetland replacement. The BWSR and the COE developed a process to provide both state and federal approval of wetland banking sites. An applicant using a site that satisfies both WCA replacement and COE (Section 404 of the Clean Water Act) mitigation requirements would comply with both state and federal replacement requirements.

In 1998, a new reporting system to track WCA (and other natural resource program) numbers was developed: the Local Government Annual Reporting System, or LARS. Local governments that implement the WCA (such as Mn/DOT) are required to report data more specifically and completely than had been required previously. As an LGU, Mn/DOT developed and maintains its own tracking system for banking and impacts.

The functional assessment of wetlands received attention in 1997. The Minnesota Interagency Wetland Group developed the Minnesota Routine Assessment Method for Evaluating Wetland Functions (MnRAM), a tool for evaluating wetlands based on function rather than size and type. Greater emphasis has been placed in recent years on replacing wetlands with same-type wetlands.

In January 2000 a "letter of permission" (LOP) process for COE wetland permitting was adopted, replacing the nationwide permitting process, in an effort to streamline wetland permit approvals. The LOP uses many of the standards contained in WCA, meaning that a project permitted through WCA would generally also be permitted through the COE.

Amendments to WCA rules (Chapter 8420) in 2000 added excavation of wetlands (excluding Type 1 and Type 2) to the activities that WCA regulates; established new permitting application forms (to be more useful in conjunction with the LOP, above); and modified wetland replacement procedures, strongly encouraging mitigation to occur within the same county as the impact. Modification of Chapter 6115 (pertaining to MnDNR wetlands) allows for the MnDNR to waive jurisdiction of lake-like ("P") wetlands to the LGU, and categorically waives regulation of shallow wetlands ("W") from MnDNR to the LGU.

6.7.2.3 Changes in Wetland Impact Areas

Wetland impacts determined for the DEIS were presented as a range reflecting the various mainline and interchange options considered in that document. For this FEIS, only the Preferred Alternative impacts were examined. These design differences, as well as changes resulting from the three interchange reconstruction projects implemented since 1992 result in wetland impacts differing from those discussed in the DEIS.

6.7.3 IMPACTS ASSOCIATED WITH THE PREFERRED ALTERNATIVE

Existing wetlands in the project area are described in Section 6.7.2.1. Wetland impacts that would result from the Preferred Alternative are summarized below. Note that the wetland impacts identified in this section include stream and water body modifications identified in Section 6.12 of this FEIS. Also note that the potential wetland impacts from the east storm water drainage system described in Section 1.7 and Section 6.3.4.4 are not included in the discussion of wetland impacts in Section 6.7.3.1. Because details of the drainage system design and configuration are still being studied, these impacts are discussed separately in Section 6.7.5.

6.7.3.1 Wetland Area Impacts

Because the project involves the expansion of an existing roadway, the extent that wetland impacts can be avoided or minimized is limited. The amount of impact on each wetland in the I-494 corridor will vary depending in part upon the wetland's proximity to the roadway and if the road alignment can or cannot be shifted to avoid wetland impacts.

This section addresses direct impacts on wetlands resulting from excavation or filling necessary for the Preferred Alternative (described in Section 3.4). The impacts were determined using anticipated construction limits and the identified wetlands described in the previous section. The construction limit lines were overlain onto the wetland inventory to identify potential wetland impact areas; i.e., all wetland areas within the construction limit lines were assumed to be impacted. Some smaller wetlands that were partially within the construction limits were assumed to be completely filled (i.e., 100 percent impacted) because the unfilled portion of wetland that would remain would likely cease to function as a wetland.

In some locations, site constraints and the need to construct storm water ponds to detain/treat surface water runoff may necessitate construction of a storm water pond in a wetland. These potential impacts are shown in italic print in Table 6.15 – Estimated Wetland Impact Summary. While the storm water pond would provide water quality and flood control functions, this may result in a change in wetland type and/or function. In each case that this would be proposed, the value of the storm water pond will be compared against the value of the wetland. Avoidance and mitigation of storm water pond wetland impacts will be reviewed with regulatory agency staff on a case-by-case basis during final design and permitting.

The wet ditches identified within the existing right-of-way would be affected by the road construction. The ditches were not identified as wetlands because these ditches were incidentally created by the grading and drainage patterns of the roadway. The ditches would not likely be considered wetlands because the ditches have probably not developed hydric soils. In addition, similar wet ditches would develop with the Preferred Alternative, just as the existing ones developed, as construction is completed and culvert and drainage systems are extended or replaced.

Wetland impacts were avoided/minimized to the extent possible by widening the roadway within the existing median and where possible, shifting the roadway alignment. Anticipated wetland basin impacts (including fill and excavation) from the Preferred Alternative are summarized in Table 6.15 (by basin) and Table 6.16 (by wetlands type) and are described in the remainder of this section.

I-394 Area - Basins 1 through 6: The proposed I-494 project would avoid impacts on basins in this area by utilizing the median between the northbound and southbound lanes for much of the roadway widening and shoulders. Three of the six wetlands (Basins 1, 2 and 4) would not be impacted and the remaining three basins (3, 5 and 6) directly adjacent to the existing roadway would be impacted.

North of Stone Road to North of McGinty - Basins 7 through 12: The proposed I-494 widening would avoid impacts on these basins by utilizing the median for the expansion area, rather than expanding on the outside travel lanes. Impacts would result on portions of three of the six basins (Basins 7, 8 and 12) that are nearest to the roadway. Stone Pond (as shown on Figure 6.5) would impact Basin 9.

South of McGinty Road - Basins 13 through 15: Impacts on these wetlands would be minimized by utilizing the median for the expansion area. The two wetlands closest to the road would be impacted.

I-494/Minnetonka Boulevard Interchange - Basins 16 through 18: Improvements to this interchange were completed as part of a previous separate project. No additional impacts on these wetlands would occur as a result of the I-494 Preferred Alternative, with the exception of impacts to Basin 18 from the construction of McGinty Pond (shown on Figure 6.6).

Orchard Road Bridge - Basins 19 through 26: Impacts on these wetlands would be minimized by utilizing the median for the roadway construction. Impacts on Basins 20, 21, 22, 23, 24 and 26 would be avoided, but Basins 19 and 25 would be impacted.

Trail Bridge and CP Rail/Soo Line Bridge - Basins 27 through 30: Impacts on these wetlands would be minimized by utilizing the median for the roadway construction. Basins 27, 29 and 30 will not be impacted, while Basins 28, 28A and 30 will be impacted. Basin 30 is assumed to be fully impacted because approximately half of this wetland would be filled.

**TABLE 6.15
ESTIMATED WETLAND IMPACT SUMMARY**

Wetland Basin Number	Verified Type (Cowardin) ⁽¹⁾	Type ⁽¹⁾ (Circ. 39)	Total Wetland Area		Estimated Impact Area		Percent of Wetland Impacted
			Acres	Hectares	Acres	Hectares	
1	PEMC	3	0.3	0.1	-	-	-
2	PSSI/EMC	3/6	5.3	2.1	-	-	-
3	PEM1A	2	0.8	0.3	0.3	0.1	33
4	PEMC	2/3	>5	>2	-	-	-
5	PSSI/EMC	3/6	0.5	0.2	0.03	0.01	6
6	PEMC	3	3.50	1.4	0.8	0.3	23
7	PEM1A	2	>5	>2	0.04	0.02	<1
8	PEMC	3	>25	>10	0.02	0.01	<1
9	PEMC	3	0.2	0.1	-	-	-
<u>9</u>	<u>PEMC</u>	<u>3</u>	<u>0.6</u>	<u>0.2</u>	<u>0.6</u>	<u>0.2</u>	<u>100</u>
10	PSS1C	6	0.8	0.3	-	-	-
11	PEM1A/C	2/3	0.1	0.04	-	-	-
12	PEM1A	2/3	0.9	0.4	0.02	0.01	2
13	PFOIC	1	0.4	0.2	0.1	0.04	2
14	PEMC	3	0.1	0.04	0.04	0.02	4
15	PEMC	3	0.1	0.04	-	-	-
16	PEM/FO1	1/3	0.7	0.3	-	-	-
16A	PEMC	3	0.4	0.2	-	-	-
17	PEM/SS1Cd	4	>10	>4	-	-	-
<u>18</u>	<u>PEMC</u>	<u>3</u>	<u>0.8</u>	<u>0.3</u>	<u>0.8⁽²⁾</u>	<u>0.3⁽²⁾</u>	<u>100⁽²⁾</u>
18A	PEMC	3	0.4	0.2	0.4	0.2	100
19	PEMC	3	1.8	0.7	0.8	0.3	44
20	PEMC	3	1.6	0.6	-	-	-
21	PEMF	3	0.3	0.1	-	-	-
22	PEMF	3	2.0	0.8	-	-	-
23	PEMF	4	0.8	0.3	-	-	-
24	PEMF	3	0.2	0.1	-	-	-
25	PEMC	3	3.6	1.5	0.9	0.4	25
26	PUBG	5	5.1	2.1	-	-	-
27	PEMB/PUBF	2/4	4.1	1.7	-	-	-
28	PEMC	3	0.6	0.2	0.1	0.04	17
28A	PEMC	3	0.5	0.2	0.2	0.1	40
29	PUBGx	5	0.7	0.3	-	-	-
30	PSS1C	6	0.2	0.1	0.2 ⁽²⁾	0.1 ⁽²⁾	100 ⁽²⁾
31	PUBGx	5	0.5	0.2	0.5	0.2	100
32	PEMF	4	0.9	0.4	0.03	0.01	3
33	PEMC	3	0.9	0.4	0.01	<0.01	1
34	PUBF	5	0.5	0.2	-	-	-

TABLE 6.15 continued
ESTIMATED WETLAND IMPACT SUMMARY

Basin	Verified Type (Cowardin) ⁽¹⁾	Type ⁽¹⁾ (Circ. 39)	Total Wetland Area		Estimated Impact Area		Percent of Wetland Impacted
			Acres	Hectares	Acres	Hectares	
35	PEMC	3	0.4	0.2	-	-	-
36	PEMF	3	0.3	0.1	-	-	-
36A	PEMC	3	0.1	0.04	-	-	-
36B	PEMC	3	0.2	0.1	-	-	-
37	L1UBH/PEMF	3	>10	>4	0.2	0.1	<2
38	PEMC	3	>15	>6	-	-	-
39	PEMF/PSS1	3/6	>50	>20	-	-	-
40	PEMF	3	>15	>6	-	-	-
41A	PEMC	3	0.9	0.4	-	-	-
42	PFO1C	1	1.0	0.4	-	-	-
43	PEMF	3	0.6	0.2	-	-	-
44A	PEMF	3	0.2	0.1	-	-	-
45	PEMC	3	1.7	0.7	-	-	-
46A	L1UBH	5	>10	>4	-	-	-
47	PEMF	4	0.6	0.2	-	-	-
48	PSS1/EMC	3/6	5.00	2.0	-	-	-
49	PEMF/L1UBH	3/4	>25	>10	-	-	-
50	PUBG	5	2.0	0.8	-	-	-
<i>51</i>	<i>PUBG</i>	<i>5</i>	<i>0.5</i>	<i>0.2</i>	-	-	-
52	L2UB	5	>50	>20	-	-	-
53	R2UB	4	>10	>4	-	-	-
54	PEMC/SS1C	3/6	5.0	2.0	-	-	--
<u>54</u>	<u>PEMC/SS1C</u>	<u>3/6</u>	<u>5.0</u>	<u>2.0</u>	<u>0.7</u>	<u>0.3</u>	<u>14</u>
60	PEMC	3	0.7	0.3	-	-	-
60A	PEMC	3	0.4	0.2	-	-	-
61	PEM/SS1C	6	6.8	2.8	0.01	<0.01	<1
62	PEM/SS1C	6	>10	>4	-	-	-
63	R2UBGx/ PUBG	5	5.0	2.0	0.01	<0.01	<1
64	PEMF/R2UBG	3	2.0	0.8	0.2	0.1	10
65	PUBGx	5	0.4	0.2	-	-	-
66	PUBGx	5	0.6	0.2	-	-	-
67	PSS/EMC	6/3	0.1	0.04	-	-	-
68	PUBG	5	1.4	0.6	1.4	0.6	100
69	PEMC/PUBGx	3/4	>10	>4	2.0	0.8	<20
70	PEMC	3	>10	>4	3.4	1.4	<34
<u>70</u>	<u>PEMC</u>	<u>3</u>	<u>>10</u>	<u>>4</u>	<u>1.0</u>	<u>0.4</u>	<u><10</u>
71	PUBGx	5	0.2	0.1	-	-	-
72	PUBGx	5	0.4	0.27	0.4 ⁽²⁾	0.2 ⁽²⁾	100
73	PUBGx	5	3.0	1.2	0.4	0.2	13

TABLE 6.15 continued
ESTIMATED WETLAND IMPACT SUMMARY

Basin	Verified Type (Cowardin) ⁽¹⁾	Type ⁽¹⁾ (Circ. 39)	Total Wetland Area		Estimated Impact Area		Percent of Wetland Impacted
			Acres	Hectares	Acres	Hectares	
74A	PUBGx	5	>15	>6	-	-	-
<u>74A</u>	<u>PUBGx</u>	<u>5</u>	<u>>15</u>	<u>>6</u>	<u>4.3</u>	<u>1.7</u>	<u>28</u>
75	R2UBGx	3	0.8	0.3	0.8	0.3	100
76	PUBGx	5	0.5	0.2	0.5 ⁽²⁾	0.2 ⁽²⁾	100
77	PUBGx	5	0.4	0.2	0.5 ⁽²⁾	0.2 ⁽²⁾	100
78	PEMC	2	0.5	0.2	0.5 ⁽²⁾	0.2 ⁽²⁾	100
79	PUBGx	5	0.4	0.2	0.3	0.1	60
80	PEMC	2	0.1	0.04	-	-	-
81	PUBGx	5	3.1	1.3	-	-	-
TOTALS			392	159	22.5	9.1	

Table includes stream and water body modifications identified in Section 6.12 of this FEIS. Table does not include potential wetland impacts from the east storm water drainage system discussed in Section 1.7.

“-” Indicates no fill or zero percent impact.

MnDNR wetland basins are shown in **bold type**.

Impacts from storm water pond construction are presented separately from roadway fill impacts, and are shown in italicized underlined type.

⁽¹⁾ Wetland types presented reflect the deepest-water habitat or type.

⁽²⁾ Because 50 percent or less of the wetland would remain, 100 percent impact is assumed.

⁽³⁾ The boundaries of these wetlands extended beyond the contour maps used to measure wetland acreage. Actual basin size is larger than the number represented here.

TABLE 6.16
ESTIMATED TOTAL WETLAND IMPACTS BY WETLAND TYPE (CIRCULAR 39)

Type ⁽¹⁾ (Circ. 39)	Wetland Fill Impacts from Roadway		Wetland Impacts from Storm Water Ponds		Total Wetland Impacts	
	Acres	Hectares	Acres	Hectares	Acres	Hectares
1	0.1	<0.1	-	-	0.1	<0.1
2	0.9	0.4	-	-	0.9	0.4
3	9.9	4.0	3.1	1.3	13.0	5.3
4	-	-	-	-	-	-
5	4.0	1.6	4.3	1.7	8.3	3.4
6	0.2	0.1	-	-	0.2	0.1
7	-	-	-	-	-	-
TOTALS	15.1	6.1	7.4	3.0	22.5	9.1

Table includes stream and waterbody impacts. Table does not include impacts resulting from the east storm water drainage system (discussed in Section 6.7.5).

Interstate-494/TH 62 - Basins 31 through 36: One basin (31) nearest the interchange would be fully impacted, and two further to the east (Basins 32 and 33) would be partially affected by fill necessary for the new interchange configuration. Basins 34 through 36 would not be impacted by the new interchange. Other interchange configurations considered at this location (a widened full diamond or addition of bridged ramps) would have resulted in greater wetland impacts.

TH 62 to Valley View Road - Basins 37 through 41A: Impacts on these wetlands would be minimized by utilizing the median for the roadway construction. Two of the five wetlands (Basin 37 – a MnDNR wetland - and Basin 41A) would be affected by roadway fill. The remaining three wetlands that would be avoided (Basins 38, 39 and 40) are MnDNR wetlands.

TH 5/TH 12/Flying Cloud Drive/Prairie Center Drive Area - Basins 42 through 48: Improvements to the I-494/TH 5 interchange area were completed as part of a previous separate project. Wetland impacts were addressed in the project memorandum for that project, as discussed Section 1.2.2. No additional impacts on these wetlands would occur as a result of the I-494 Preferred Alternative.

Viking Drive, TH 169 and Bush Lake Road West - Basins 49 through 62: (Note number sequencing gap from 55 through 59 due to the previously completed project in this area.) The I-494/TH 169 interchange has recently been reconstructed. No additional impacts on the remaining wetlands in this area would occur as a result of the I-494 Preferred Alternative, with the exception of impacts on Basin 54 that would result from the expansion of existing Molar Pond (discussed in Section 6.3 “Surface Water Drainage” and shown on Figure 6.9), and on Basin 61 where the Bush Lake Road West bridge over I-494 will be widened.

A developer that has acquired property in this area has contacted Mn/DOT regarding planned development that could impact Basin 54. The developer will continue to plan their activities in cooperation with Mn/DOT but will obtain separate permits and reviews for their project and any resultant wetland impacts.

Seventy-eighth Street and East Bush Lake Road - Basins 63 through 73: I-494 from TH 169 eastward will be widened with two additional lanes in each direction to a total of four lanes, which would require utilization of property adjacent to the outside lanes in addition to the use of some of the median for the widening. Wetlands would also be impacted by the reconstruction of East Bush Lake Road and its bridge over I-494, addition of a loop ramp to provide access between eastbound I-494 and East Bush Lake Road, and the relocation of the south frontage road (Green Valley Drive) at East Bush Lake Road. Impacts on wetlands would be minimized by locating the access ramps where Green Valley Drive currently exists, and placing the new Green Valley Drive alignment on a route that uses upland areas. Basins 63, 64, 68, 69, 70, 72, 73, 75 and 76 would be impacted by road-related fill, while Basins 62, 65, 66, 67 and 71 would not be impacted. Basin 70 would be impacted by fill from the construction of Porkchop Pond and Ballpark Pond (discussed in Sections 6.3.3.2 and 6.3.4.2 and shown on Figure 6.10).

TH 100 to France – Basins 74A through 78: In this stretch of road there is little or no available median, so impacts were minimized by widening the road immediately adjacent to the existing road, thus limiting impacts to only those wetlands that are already adjacent to the existing highway. Basin 74A would be impacted by the creation of Goldman Pond (shown on Figure 6.10 and discussed in Section 6.3) while Basins 75, 76, 77 and 78 would sustain impacts from I-494 project fill.

Interstate-35W and Airport – Basins 79 through 81: In this stretch of road there is little or no available median, so impacts were minimized by widening the road immediately adjacent to the existing road, thus limiting impacts to only those wetlands that are already adjacent to the existing highway. The reconfiguration of the I-494/I-35W interchange would impact Basin 79. Basins 80 and 81 would not be impacted because of their distance from the proposed construction.

6.7.3.2 Wetland Function

In addition to the general wetland type classification, a functions assessment was performed for the wetlands that would be impacted by the project. The Minnesota Routine Assessment Method (MnRAM) was used as a guide for the functions assessment, but was modified to fit the circumstances of the project area (i.e., a project area where most wetlands have been impacted by their proximity to metropolitan development, and for which detailed assessments would be performed closer to the time of construction and permitting). The method was modified in two ways: 1) Instead of conducting a detailed field assessment for each basin, the wetlands were assessed using aerial photographs and information found in municipal storm water plans and a brief visit to each basin to assess its vegetation; and 2) A specific reference wetland was not identified for comparison with the assessed wetlands; rather, the wetlands were compared to a hypothetical relatively undisturbed suburban metropolitan area wetland, the characteristics of which were developed based on the analyst's familiarity with wetlands in this setting. The following discussion details the methodology of this functions assessment for the wetlands that would be impacted by the project, and describes the impacts of the project.

The MnRAM rating scale for each function includes five levels, from lowest (function not performed by a wetland) to highest (for functions performed exceptionally by a wetland). The scale includes NA (for Not Applicable); Low; Medium; High; Exceptional.

Wetland functions include groundwater recharge and discharge, flood storage, sediment trapping, nutrient retention and removal, and habitat for a wide variety of vegetation and wildlife species. Wetlands can also provide aesthetic value to communities and landscapes. As stated before, the wetlands in the I-494 project corridor are generally surrounded by developed, suburban landscapes. While these wetlands do provide habitat for some wetland plant species that are adapted to life in a developed environment, population densities and diversity have been reduced by disturbance and degradation of habitat. Extensive monocultures of reed canary grass and cattails are common in these wetlands. Hydrologic regimes have been altered by surrounding development, construction of outlets and, in some cases, discharge of storm water into the wetlands.

Due to these conditions and a lack of adjacent undeveloped upland areas, it generally can be said that the wildlife functions of these wetlands are low or medium when compared with the hypothetical wetland, unless otherwise noted. The vegetative diversity and maintenance of characteristic hydrologic regime functions are assumed to be low as well, due to the heavy impacts of urbanization on the native vegetation and natural hydrology. Unless otherwise noted, the fishery habitat function of these wetlands is also assumed to be low because of their small size and relative isolation. Only wetlands associated with lakes or watercourses would have a shoreland protection function; this function is assumed to be not applicable unless otherwise noted.

Basins 3 through 30 – City of Minnetonka:

The City of Minnetonka conducted a wetland evaluation and inventory for their 1999 *Water Resources Management Plan*. Information such as the amount of available water storage, outlet elevation, and phosphorous removal capability for these wetlands was taken from this report.

Wildlife Habitat: These wetlands are all rated medium for wildlife habitat because while they do provide some habitat, they are surrounded by developed land, have altered hydrology and contain monocultures.

Flood and storm water storage/attenuation: Basins 3, 5, 13, 14 and 30 are rated low for this function due to their low water storage potential (less than 1,233.5 cubic meter [one acre-foot]) and/or the presence of open constructed channels. Basins 9, 12, 18, 18A, 28, 28A are rated medium for this function due to their intermediate capacity for storm water storage. Wetlands with high water storage potential (greater than 6,167.4 cubic meters [5 acre-feet]), that are managed for storm water and have a high ranking for this function include wetlands 6, 7, 8, 19, 25.

Water quality protection: Basins 3, 5, 9, 14 and 18 are rated low for water quality protection based on their small size, ditched flow-through characteristics and documented low phosphorus removal. Basins 12, 13, 18A, 28, 28A and 30 are small and would have short detention times but would still contribute to protection of the water quality in the watershed. These wetlands are rated medium. Basins 6, 7, 8, 19 and 25 are large vegetated wetlands that would provide sufficient residence time for settling of particulates and therefore would provide greater contribution to water quality improvement in the watershed and are rated high.

Aesthetics/Recreation: All the studied wetlands are visible from the road or from adjacent developed areas and therefore provide visual diversity, particularly in contrast with developed lands. The wetlands are rated medium to high depending on the level of disturbance and whether they are associated with a frequently viewed natural setting such as a park.

Basins 31 through 37 - City of Eden Prairie

These wetlands are part of the Nine Mile Creek Watershed District. Wetlands impacted by the proposed project include Basins 31, 32, 33 and 37.

Wildlife Habitat: Basins 31, 32 and 33 wetlands are all rated medium for wildlife habitat because, while they do provide some habitat, they are all surrounded by developed land, have altered hydrology and contain monocultures. Basin 37 (Bryant Lake) is rated high for wildlife habitat due to its diversity, size and connectedness to undeveloped parkland. Basin 37 is also rated high for fishery habitat based on DNR characterizations of fish populations in Bryant Lake, and Nine Mile Creek Watershed District classification of the lake as a pristine water body.

Flood and storm water storage/attenuation: Basins 32 and 33 have an overall low rating for storm water attenuation/storage due to their small size and topographic position. Basin 31 is rated medium because it is managed to intercept storm water runoff but its small size limits its effectiveness. Basin 37 has a high rating for flood and storm water attenuation/storage because of its size.

Water quality protection: Basins 31 and 37 have high ratings for water quality protection, and Basins 32 and 33 have medium ratings. Basin 31 is managed to intercept storm water and there is the potential for sediments to settle out. Basin 37 has a high rating because of its large size and long retention time. While Basins 32 and 33 are small, they have a high amount of vegetative cover that would aid in slowing the flow of water and removing excess nutrients from the water before it moved farther down the watershed.

Aesthetics/Recreation: All the studied wetlands are visible from the road or from adjacent developed areas and therefore provide visual diversity particularly in contrast with developed lands. The wetlands are rated medium to high depending on the level of disturbance and whether they are associated with a frequently viewed natural setting such as a park.

Wetland areas associated with Basin 37 are also rated high for shoreland protection because emergent shoreland vegetation reduces wave shore erosion.

Basins 54 to 79 - Cities of Bloomington and Richfield

Wildlife Habitat: All of these wetlands except Basins 69 and 74A are rated medium for wildlife habitat because while they do provide some habitat, they are surrounded by developed land, have altered hydrology and contain monocultures. Basins 69 and 74A are rated high for wildlife habitat because of their size, hydrologic diversity and connectedness to undeveloped land. The DNR Fisheries office has identified Nine Mile Creek as supporting northern pike and other species of fish, but there are no confirmed reports of this species in the I-494 corridor creeks.

Flood and storm water storage/attenuation: Basin 75 is rated low for storm water attenuation/storage because it is a steep-sided ditch, and Basin 72 is rated low because it is isolated and small. Basins 61, 68, 73, 76, 77, 78 and 79 are rated medium for flood and storm water attenuation/storage. These basins are isolated but are medium-sized. Basins 54, 63, 64, 69, 70 and 74A are rated high for flood and storm water attenuation/storage because of their large areas, high percentage of vegetative cover and association with Nine Mile Creek.

Water quality protection: Basin 75 is rated low for water quality protection because it is a ditched section of Nine Mile Creek, and Basin 72 is rated low because it is isolated and small. Basins 63, 64, 68, 72, 73, 76, 77, 78, and 79 are rated medium because they would provide indirect water quality benefits to downstream receiving waters. Basins 54, 61, 69, 70 and 74A are rated high for water quality functions because they are large, heavily vegetated and are directly associated with Nine Mile Creek.

Aesthetics/Recreation: All the studied wetlands are visible from the road or from adjacent developed areas and therefore provide visual diversity particularly in contrast with developed lands. The wetlands are rated medium to high depending on the level of disturbance and whether they are associated with a frequently viewed natural setting.

Basins through which Nine Mile Creek flows (Basins 54, 63, 64, 69, 70 and 73) are rated high for shoreland protection because the vegetation and wide floodplains associated with these wetlands slow down runoff and reduce erosion.

Table 6.17 summarizes the results of the wetland function assessment. The effect of the project on function is shown by arrows (↓), each denoting a reduction in one level of function rating (i.e. *High* ↓ indicates a pre-project function of High and a post project function of Medium, and *High* ↓↓ indicates a post project function of Low, and Medium ↓↓ indicates that the function would cease and become NA, usually because of 100 percent fill).

6.7.3.3 Summary of Impacts

Based on the impacts assessment for the Preferred Alternative described in the previous sections, it is expected that a total of 35 wetland basins would be affected. After implementation of avoidance and minimization techniques as described in Section 6.7.3.1 of this FEIS, approximately 9.1 hectares (22.5 acres) of impact would result from the proposed project. Of the impact areas, approximately 6.1 hectares (15.1 acres) would be due to construction-related fill, and 3.0 hectares (7.4 acres) of impact would be due to construction of storm water ponds in existing wetlands. This impact area is greater than the wetland impact area estimated in the DEIS. The increased estimate in this FEIS is the result plan revisions that include: additional design concept development that identified unavoidable impacts that were not considered in the DEIS (e.g., East Bush Lake Road interchange) and inclusion of approximately 3 ha (7.4 acres) of wetland impacts related to storm water treatment pond construction.

The proposed project would fill ten wetlands completely. These wetlands range in size from less than 0.1 to 0.6 hectares (0.2 to 1.4 acres). The total area of these wetlands is 2.5 hectares (6.2 acres). Their functions are generally rated Medium for all categories. All of the functions of these wetlands would be lost if the project is built. The remainder of the wetlands would be partially impacted. Partial filling of wetlands would have varying effects on functions. The portion of the wetlands remaining intact is not necessarily rated lower than the original wetland even though there is a net loss of wetland functions. However some wetlands are rated lower if a substantial portion of the wetland is filled.

**TABLE 6.17
FUNCTIONS ASSESSMENT FOR IMPACTED WETLANDS**

Basin	Wildlife Habitat	Fishery Habitat	Flood/ Storm Water/ Attenuation	Water Quality Protection	Shoreline Protection	Aesthetics/ Recreation	Proposed Impact Area
3	Medium	NA	Low	Low	NA	Medium	33%
5	Medium	NA	Low	Low	NA	High	6%
6	Medium	NA	High	High	NA	Medium	23%
7	Medium	NA	High	High	NA	High	<1%
8	Medium	NA	High	High	NA	Medium	<1%
9	Medium	NA	Medium↑	Low↑	NA	Medium	100%
12	Medium	NA	Medium	Medium	NA	High	2%
13	Medium	NA	Low	Medium	NA	Medium	2%
14	Medium	NA	Low	Low	NA	Medium	4%
18	Medium↓	NA	Medium↑	Low↑↑	NA	Medium	100%
18A	Medium↓↓	NA	Medium↓↓	Medium↓↓	NA	Medium↓↓	100%
19	Medium	NA	High↓	High↓	NA	Medium	44%
25	Medium	NA	High	High	NA	High	25%
28	Medium	NA	Medium	Medium	NA	Medium	17%
28A	Medium	NA	Medium	Medium	NA	Medium	40%
30	Medium↓↓	NA	Low↓	Medium↓↓	NA	Medium↓↓	100%
31	Medium↓↓	NA	Medium↓↓	Medium↓↓	NA	Medium↓↓	100%
32	Medium	NA	Low	Medium	NA	Medium	3%
33	Medium	NA	Low	Medium	NA	Medium	1%
37	High	High	High	High	High	High	<2%
54	Medium	Low	High	High	High	Medium	13%
61	Medium	NA	Medium	High	NA	Medium	<1%
63	Medium	Low	High	Medium	High	Medium	<1%
64	Medium	Low	High	Medium	High	Medium	10%
68	Medium↓↓	NA	Medium↓↓	Medium↓↓	NA	Medium↓	100%
69	High	Low	High	High	High	High	<20%
70	Medium	Low	High	High	High	Medium	<34%
72	Medium	NA	Low↓	Low↓	NA	Medium↓↓	100%
73	Medium	Low	Medium	Medium	High	Medium	13%
74A	High	NA	High	High	High	High	28%
75	Medium↓↓	NA	Low↓	Low↓	NA	Medium↓↓	100%
76	Medium↓↓	NA	Medium↓↓	Medium↓↓	NA	Medium↓↓	100%
77	Medium↓↓	NA	Medium↓↓	Medium↓↓	NA	Medium↓↓	100%
78	Medium↓↓	NA	Medium↓↓	Medium↓↓	NA	Medium↓↓	100%
79	Medium	NA	Medium↓	Medium↓	NA	Medium	60%

6.7.4 MITIGATION MEASURES

Federal and state wetland regulations require the use of a sequenced approach when projects have potential impacts on wetlands. Sequencing requires avoiding impacts on wetlands first, and if impacts are not avoidable, they must be minimized to the greatest extent practicable. After all options for avoidance and minimization of impacts have been considered and implemented, mitigation that will replace lost wetland functions is required for those impacts that are not avoidable. Mitigation of wetland impacts is most commonly accomplished by restoring previously-altered wetlands (wetland restoration or enhancement credits) or by creating new wetlands where upland currently exists (“new” wetland credits). State wetland mitigation regulations allow the use of constructed storm water treatment ponds and/or related preservation of upland buffer areas as “public value credit” (PVC) towards a portion of wetland mitigation required for project impacts.

6.7.4.1 Avoidance of Wetland Impacts

Complete avoidance of wetland impacts was not possible due to several factors, including the presence of wetlands on both sides of the existing roadway alignment in many areas, the need to widen the roadway to meet capacity requirements and current roadway design standards and the need to construct storm water detention/treatment ponds to meet federal, state and local surface water regulations. Efforts made to avoid/minimize wetland impacts in the project area during development of the Preferred Alternative design concept were described in Section 6.7.3.

For the Preferred Alternative, avoidance measures that could be incorporated into designs while meeting design standards resulted in decreased areas of impact for several wetlands. Frontage road realignment using land already in use as roadways, and alignments that keep loops, ramps and frontage roads as close to the main road as is safely possible avoided wetland impacts in the area of TH 100, TH 169, Bush Lake Road West and East Bush Lake Road. Other design criteria required the frontage road connections to be located away from the mainline to provide adequate spacing. Where possible, these road connections were designed to avoid wetland impacts.

The Preferred Alternative requires the widening of the road (addition of one lane in each direction) for the entire project corridor. The use of the current roadway alignment (rather than shifting the road off the centerline) allows impacts on wetlands adjacent to I-494 to be avoided or minimized. Use of the available median between the eastbound and westbound lanes from I-394 to approximately TH 169 avoids or minimizes wetland impacts in this portion of the corridor.

The wetland impacts related to storm water construction were minimized to the extent possible, but could not be avoided and still meet storm water detention/treatment requirements effectively. Wetlands that are proposed to be impacted by storm water pond construction are either: 1) located adjacent to existing ponds that need to be expanded (e.g., Molar Pond, which is proposed to be expanded to include a two-cell design) or, 2) located where a regional treatment pond is proposed by a local government as part of its storm water management plan (e.g., McGinty Pond) or, 3) located where topography dictates system drainage to the lower (wetland) area.

6.7.4.2 Minimization of Wetland Impacts

Minimization of wetland impacts was considered during the conceptual design phase of the project. As described above, roads, bridges and other facilities related to the project were aligned and designed to avoid wetland impacts. Additional design modifications will be considered in the final design of the project to further minimize wetland impacts. Designing road profiles as low as possible and designing inslopes (beyond the required clear zone) as steeply as practicable may further minimize impacts.

Best management practices would be implemented to control impacts on wetland functions. Erosion prevention and sediment control measures would include provision of silt fences and traps, hay bales, and temporary ponding areas. Permanent ponding areas would be constructed as early in the project as practicable. Excess fill material would not be deposited in wetlands or other environmentally-sensitive areas.

Temporary disturbance of wetland areas during construction would be avoided where possible; however, some disturbance of wetlands may occur. Any temporary wetland disturbance would be restored as soon as possible following grading or excavating activities. No construction debris or fill would be permanently placed in temporary wetland impact areas. Therefore, impacts listed in Tables 6.15 and 6.16 do not include temporary impacts. Any temporary construction impacts would be rectified by use of regrading to original contours, vegetation replacement and landscaping.

The existing hydrologic characteristics of basins experiencing partial impacts as a result of the project would be maintained through minimization techniques such as ensuring that drainage patterns between and through wetlands are maintained and preventing wide fluctuations from existing water levels.

6.7.4.3 Wetland Replacement

Current state and federal regulations require mitigation of wetland impacts. Current state (WCA) regulations require a wetland mitigation ratio of 2:1 if replacement is within the same watershed or county as the impact; replacement that is not in the same watershed or county is required at a 2.5 to 1 ratio, and replacement from an established wetland bank is required at a 2.25 to 1 ratio. Created or new wetlands must be used for the first 1:1 ratio, and Public Value Credit (PVC) areas (such as permanent upland buffer and water quality treatment ponds) may be used for replacement credit in excess of the initial 1:1 ratio. Similarly, under current state regulations, wetland impacts from storm water ponds can sometimes be counted at a reduced ratio toward the total impact area.

At a 2:1 mitigation ratio, the 9.1 hectares (22.5 acres) of impact for the I-494 reconstruction project would result in the need to provide approximately 18.2 hectares (45 acres) of wetland mitigation (half of which must be created or new replacement wetlands). (This area is

representative of a worst-case scenario as it includes wetland impacts from storm water ponds which can be counted at a reduced ratio toward the total impact area.) If wetland regulations change during the course of project implementation, the required mitigation may change. Applicable regulations will be reviewed as each phase of construction is implemented, to determine appropriate replacement requirements.

Wetland mitigation would occur – consistent with availability of mitigation sites - at locations following this priority order:

- 1) On-site or in the same minor watershed as the affected wetland
- 2) In the same watershed as the affected wetland
- 3) In the same county as the affected wetland
- 4) In an adjacent watershed or county
- 5) Statewide.

Section 404 of the Clean Water Act (administered by the COE) also regulates wetlands at the federal level. The COE regulations regarding wetland mitigation requirements are generally consistent with WCA requirements. Therefore, fulfillment of WCA requirements would satisfy Section 404 regulations.

In Minnesota, impacts on public waters (MnDNR Protected Waters and their wetlands) are subject to additional regulation. Basins 8, 25, 37, 54, 63, 64, 69, 70 73, 74A and 75 are MnDNR Protected Waters that may be impacted by the Preferred Alternative. Impacts on Mn/DNR Protected Waters are estimated as 5.6 hectares (13.9 acres). Additional replacement wetlands or compensation may be necessary for impacts on these basins. Closer to the time of construction of each project phase, regulations will be reviewed to determine replacement requirements and ratios. The impacts on streams are discussed further in Section 6.12, Stream and Waterbody Modifications.

During final design for each phase of construction, a wetland compensation plan for replacement of the affected wetland areas would be developed. That plan would reassess the areas of wetland impacts (and mitigation needed) based on final design plans, wetland delineations, and the current and applicable wetland mitigation guidelines and regulations in effect at that time. The intent of the wetland mitigation plans would be to replace lost wetland functions in the project area where possible and create an off-site wetland mitigation area to accomplish the remainder of the required mitigation. Current WCA regulations require a five-year monitoring plan to be developed for all wetland replacement lands. This plan would be included in the wetland compensation plan if required at the time of permitting. Other requirements include the need for an MPCA 401 water quality certification for all COE Section 404 permits. This certification would be obtained if necessary.

On-Site Mitigation

As described in Sections 6.3 and 6.4, storm water ponds will be constructed as part of the I-494 reconstruction project. The purpose of these storm water ponds is to provide attenuation (discharge rate control) and treatment for storm water that presently runs off the road

surfaces without the benefit of treatment or rate control (except in the sections of I-494 that have recently been rebuilt, i.e. the interchanges of I-494 with TH 169, TH 5 and Minnetonka Boulevard/CSAH 5 as described in Section 1.2.2, where treatment exists). Construction of the storm water treatment ponds will, compared with current conditions, improve runoff water quality in the project corridor, as well as provide discharge rate control to receiving waters.

In addition to the storm water ponds, new wetlands will be created in the project corridor where possible, as partial mitigation for construction fill impacts on existing wetlands. Based on the availability of undeveloped land and preliminary feasibility assessments, seven potential on-site mitigation locations have been identified in the project corridor. These potential wetland mitigation sites are shown on Figure 6.20.

The on-site mitigation sites being considered are areas adjacent to or within the right-of-way that have potential for wetland creation for mitigation and compensation. The seven sites that have been identified could potentially yield a total of 2.3 hectares (5.7 acres). Most of the areas lie adjacent to existing wetlands and all are currently undeveloped open space. Figure 6.20 shows the potential wetland mitigation areas, and Table 6.18 presents the potential size, ownership, general location and potential limitations of these potential wetland restoration/creation sites.

**TABLE 6.18
POTENTIAL ON-SITE MITIGATION LOCATIONS**

Area	Potential Mitigation Area Location	Ownership	Potential Wetland Area to be Created hectares (acres)	Limitations
A	Around Basin 6	Private/ Mn/DOT	0.3 (0.8)	Topography; R/W Acquisition
B	Around Basin 12	Private/Minnetonka	0.1 (0.3)	Topography; R/W Acquisition
C	NE Quadrant of I-494/ Minnetonka Boulevard	Mn/DOT	0.4 (0.9)	Topography
D	Between Minnetonka Blvd. and Minnetonka Drive	Minnetonka	0.2 (0.5)	R/W Acquisition; Agency Coordination
E	North of/Around Basin 19	Minnetonka/Mn/DOT	0.6 (1.4)	R/W Acquisition
F	West of Basin 23	Private/Mn/DOT	0.3 (0.8)	R/W Acquisition
G	Between Basins 39 and 37	Eden Prairie	0.4 (1.0)	R/W Acquisition; DNR Coordination
TOTAL			2.3 hectares (5.7 acres)	

Off-Site Mitigation

The vast majority of the land in the project corridor is either developed or is already wetland. Because of the limited amount of undeveloped upland, off-site wetland mitigation will likely be necessary for wetland replacement. Mn/DOT has a Memorandum of Understanding with Hennepin Conservation District to cooperate on locating and designing off-site wetland mitigation sites for this and other Mn/DOT projects. Mn/DOT has begun coordinating with the Hennepin Conservation District to identify an off-site location or locations to utilize for replacement areas that cannot be met within the I-494 corridor or adjacent to it. This process will continue and adequate mitigation area will be provided consistent with regulatory requirements, for each phase of project construction.

6.7.5 OTHER POTENTIAL WETLAND IMPACTS – EAST STORM WATER DRAINAGE SYSTEM

As described in Sections 1.7, 6.3.3 and 6.3.4 of this FEIS, the storm water conveyance system for the segment of I-494 from I-35W to the Minnesota River is undersized for existing conditions. With the additional flows associated with the Preferred Alternative the undersizing would become more pronounced, and additional storm sewer capacity would need to be provided. A separate study is currently being conducted to identify various alternatives and recommend a conveyance method and location. Initial study analyses indicate that either a supplemental “high flow” line or an enlarged replacement trunk line would likely be required.

The supplemental/and or expanded drainage line is anticipated to be located within Mn/DOT right-of-way from its western origin in the general vicinity of the I-494/I-35W interchange to approximately 34th Avenue. East of 34th Avenue, the line route to Almaz Pond with a high flow bypass to the Minnesota River (to be constructed by the Metropolitan Airports Commission [MAC] in 2001/02 as discussed in Section 6.3.4) would need to be supplemented with a new overflow (greater than 16.8 cms [600 cfs]) storm water conveyance system line. The route of this new line to the Minnesota River would be defined by the outfall location selected. While the drainage study referenced above has not been completed, work performed to date has narrowed down discharge and associated alignment options for an overflow line east of 34th Avenue to the following (see Figure 6.16):

- A) Outlet to Military Reservation Pond (see Figure 6.16)—under this option, the conveyance alignment would stay within Mn/DOT right-of-way or Mn/DOT-owned land. It is anticipated that a forebay pond for treatment upstream of Military Reservation Pond would be utilized. Military Reservation Pond discharges to the Minnesota River.

- B) Outlet to MAC treatment pond “040” north of the I-494 Bridge (see Figure 6.16)—under this option, the conveyance alignment could stay within Mn/DOT right-of-way except possibly for a portion south and east of TH 5 where easement would have to be obtained from the United States Air Force and/or the MAC. The Minnesota Department of Transportation would work with the MAC to enhance treatment pond “040” as required to maintain treatment efficiency. Water from this pond is discharged to the Minnesota River.

Two basic construction options are being considered for the east I-494 storm water drainage system improvement alternatives described above: microtunneling and open cut excavation. Microtunneling is a method of boring a tunnel with a Tunnel Boring Machine (TBM) with little surface disturbance. If open cut excavation were utilized, surface features and elevations would be returned to pre-construction conditions following installation of the line. A preferred method of construction has not yet been identified.

The drainage study currently underway will recommend a method and outfall location based on the various environmental and design factors, including impacts on wetlands. Further refinement will take place during the final design of this conveyance system. Because the location and design of the new drainage system east of 34th Avenue are not known at this time, the analysis of potential wetland impacts is limited to a discussion of all existing wetlands that could conceivably be impacted by the conveyance and outfall location ultimately chosen (within “Review Area” of Figure 6.16).

The wetlands south of I-495/TH 5 and west of the river (including wetlands associated with Military Reservation Pond) are all Circular 39 system Type 2, 3, 4, 5 or 7 wetlands (or Cowardin system PEMC, PEMF, PFO1C or PEM/UBF wetlands). The deeper water areas (areas below the ordinary high water mark) of Military Reservation Pond are MnDNR wetlands. These wetlands would potentially be impacted by Option A. It may be possible to avoid impacts on the MnDNR wetlands by routing the conveyance system through shallow water areas, but wetland impacts would be unavoidable assuming this outfall location and associated conveyance line.

North and west of I-494/TH 5, the only existing wetland is Wetland Basin 81, which is also MnDNR wetland 1081W. It is not anticipated that this wetland would be impacted under Option A or Option B.

East of TH 5 and north of I-494 are several wetland areas. Riverine shoreline wetlands (classified as R2USC, riverine, lower perennial, unconsolidated shoreline, seasonally flooded), and fringe wetlands (classified as PFO1C, Circular 39 Type 6/7) of varying widths (0 to 4.6 meters [0 to 15 feet]) are present along the Mississippi River in this general location. MAC Pond 040, a 0.9-hectare (2.1-acre) storm water pond classified as PUBGx, Circular 39 Type 5, is located just north of I-494. Option B would impact MAC Pond 040 and possibly riverine shoreline wetlands if the outfall from MAC Pond 040 to the river had to be reconstructed. Tunneling or ditching would be used to place necessary conveyance lines.

The Minnesota River channel is a MnDNR protected water; while WCA may not be applicable to riverine impacts, the MnDNR and the COE regulate impacts on the river and avoidance measures must be employed. Based on the conveyance systems alternatives outlined above, no direct river impacts are anticipated.

The eastern portion of the I-494 reconstruction project, including the expanded storm water conveyance system, is not scheduled for construction until some time after 2010. During final design for this project, wetland avoidance and minimization will be incorporated into design efforts and a wetland compensation plan will be developed for replacement of unavoidable wetland impacts. That plan will assess the exact areas of wetland impacts (and mitigation) based

on final design plans, wetland delineations, and applicable wetland mitigation guidelines and regulations in effect at that time. The intent of the wetland mitigation plan would be to replace lost wetland functions in the project area where possible and create an off-site wetland mitigation area to accomplish the remainder of the required mitigation.

On-site mitigation opportunities will be examined in final design. Preliminary identification of potential mitigation areas indicates that the area south of I-494 extending from the east edge of Military Reservation Pond to the west edge of Long Meadow Lake could be used for mitigation. Limitations on the use of this land include the need to coordinate with Mn/DNR for right-of-way acquisition and steep slopes. Other opportunities for replacement wetland creation may exist north of I-494 in the area of MAC Pond 040, or northwest of TH 5 in the areas of MAC Ponds 1 and 2 (see pond locations on Figure 6.16).

6.7.6 ONLY PRACTICABLE ALTERNATIVE FINDING

Based upon the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

6.8 POTENTIAL SOIL AND GROUNDWATER CONTAMINATION

The Affected Environment for potential soil and groundwater contamination sites for the I-494 corridor reconstruction was described in Section 4.2.7 of the DEIS. Impacts and mitigation measures were addressed in Section 5.3.10 of the DEIS.

6.8.1 INFORMATION FROM THE DEIS THAT REMAINS UNCHANGED

As discussed in the DEIS, since much of the I-494 corridor is highly developed, there is corresponding potential to encounter contaminated sites during construction activities.

6.8.2 CHANGES IN THE SETTING OR TECHNICAL ANALYSES SINCE THE DEIS

For the DEIS, the Minnesota Pollution Control Agency (MPCA) Property Transfer File Evaluation Program was used to get information on potential contamination sites in the project corridor. This information was supplemented by field surveys and communications with staff of the cities within the project corridor.

Because the information compiled for the DEIS was dated (greater than five years old) by the time that the FEIS process was reinstated in 2000, the determination was made to conduct a completely new analysis of potential contaminated sites following current standards and practices for a Phase I Environmental Site Assessment (Phase I ESA). A discussion of the analysis and findings is presented in Section 6.8.3, below.

6.8.3 IMPACTS ASSOCIATED WITH THE PREFERRED ALTERNATIVE

The presence of potentially contaminated properties (defined as properties where soil and/or groundwater is impacted with pollutants, contaminants or hazardous wastes) is a concern in the development of highway projects because of potential liabilities associated with ownership of such properties, potential cleanup costs, and safety concerns associated with construction personnel encountering unexpected wastes, contaminated soil or groundwater. Contaminated materials encountered during highway construction projects must be properly handled and treated in accordance with state and federal regulations. Improper handling of contaminated materials can worsen their impact on the environment. Contaminated materials also cause adverse impacts to highway projects by increasing construction costs and causing construction delays, which also can increase project costs.

A Phase I ESA provides information on potentially contaminated properties. These properties are identified through review of historic land use records and air photos, federal (Environmental Protection Agency [EPA]), state (MPCA) and county/city records, as well as current property condition. Sites of potential concern identified by the Phase I ESA can be categorized into three risk areas: high, medium, and low environmental risk. In general, high environmental risk sites are properties that have a documented release of chemicals or other strong evidence of contamination such as soil staining or storage of large volumes of petroleum or other chemicals, and sites enrolled in the MPCA Voluntary Investigation and Cleanup (VIC) program. These sites have the greatest potential for high cleanup costs and/or environmental liability. Medium environmental risk sites are properties where relatively small volumes of petroleum, chemicals, or hazardous materials are stored, but no evidence of spills or releases is noted or documented, and properties with documented releases that have been “closed” or are “inactive” (signifying no further cleanup actions deemed necessary) by the MPCA. Closed or inactive sites are considered medium risks because residual soil or groundwater contamination may exist. Low environmental risk sites include properties where small volumes of chemicals or hazardous materials are/have been used or stored.

A Phase I ESA in general conformance with the American Society of Testing and Materials standard was completed for the project area in November 2000 (*Phase I Environmental Site Assessment – I-494 Reconstruction Project, SP 2785-261*, STS Consultants, Ltd.). A copy of the Phase I ESA report has been placed on file and is available for review at the Mn/DOT Metro Division office.

The Phase I ESA identified 270 known or potentially contaminated properties in the total study area: 109 high environmental risk sites, 57 medium risk sites, and 104 low risk sites. Of these sites, review of the Phase I ESA information indicates that 87 have a potential to be impacted by the project, based upon two criteria: a) they are either high or medium environmental risk sites, and b) they are in close proximity to the proposed project limits. These 87 sites are identified in Table 6.19, and their locations are depicted on Figure 6.21. Table 6.19 presents the reason for concern at each site. Please note that the site identification numbers are consistent between Table 6.19 and Figure 6.21. The numbering scheme is taken directly from the Phase I ESA referenced above.

**TABLE 6.19
KNOWN OR POTENTIALLY CONTAMINATED PROPERTIES THAT
MAY BE AFFECTED BY THE PROJECT**

Site ID⁽¹⁾	Site Address	Reason for Concern
136	13305 Excelsior Boulevard	Active gas station. Petroleum underground tanks registered at site. No release reported at site.
134	5801 Baker Road	Petroleum underground storage tank release (closed) reported at site.
41A	7901 Flying Cloud Drive	Petroleum underground storage tank release (closed) reported at site.
117*	Northeast quadrant intersection of TH 169 & West 78th Street	Record of solid waste landfill at this location containing street sweepings.
37	8025 Edwood Place	Petroleum underground storage tank release (closed) reported at site.
107B	7800 Picture Drive	Petroleum underground storage tank release (closed) reported at site.
22A	8331 Normandale Boulevard	Active gas station. Petroleum underground storage tank release reported at site.
34C	5311 Green Valley Drive	Petroleum underground storage tank release (closed) reported at site.
30	8111 Normandale Boulevard	Active gas station. Petroleum underground storage tank release (closed) reported at site.
24A*	8151 Normandale Boulevard	Reported release site (inactive) in MPCA VIC program.
102	7851 Normandale Boulevard	Petroleum underground storage tank release reported at site.
110	5101 Industrial Boulevard	Active gas station.
100	4930 West 77th Street	Petroleum underground storage tank release (closed) reported at site.
14C	4801 West 80th Street	Petroleum underground tanks registered at site. No release reported at site.
21*	4700, 4900, 4950 West 78th Street	Reported release site (inactive) in MPCA VIC program.
16H	4470 West 78th Street	CERCLIS

**TABLE 6.19 continued
KNOWN OR POTENTIALLY CONTAMINATED PROPERTIES THAT
MAY BE AFFECTED BY THE PROJECT**

Site ID⁽¹⁾	Site Address	Reason for Concern
16C*	4470 West 78th Street	Reported release site (inactive) in MPCA VIC program.
16E	4444 West 78th Street	Petroleum underground storage tank release (closed) reported at site.
20A*, 20B*	4300 West 78th Street	Reported release site (active) in MPCA VIC program.
15A*	4200 West 78th Street	Reported release site (active) in MPCA VIC program. Records also indicate this was the location of a former dump.
13B	3905 West 80th Street	Petroleum underground storage tank release (closed) reported at site.
98A, 98C	7920 France Avenue	Active gas station. Petroleum underground storage tank release (closed) reported at site.
95 B	7900 Xerxes Avenue South	Petroleum underground storage tank release (closed) reported at site.
93B	7900 Penn Avenue South	Former gas station site.
88E	7744 Penn Avenue South	Petroleum underground storage tank release reported at site.
88D	7720 Penn Avenue South	Petroleum underground storage tank release (closed) reported at site.
93A	7901 Penn Avenue South	Petroleum underground storage tank release reported at site.
92B*	7925 Southtown Center	Dry cleaner
88B	7745 Penn Avenue South	Petroleum underground tanks registered at site. No release reported at site.
86A	2115 West 78th Street	Vehicle repair on site. Petroleum underground tanks registered at site. No release reported at site.
90A	2100 West 78th Street	Petroleum underground storage tank release (closed) reported at site.
86B	2000 West 78th Street	Petroleum underground tanks registered at site. No release reported at site.
94 B	1900 West 78th Street	Petroleum underground storage tank release reported at site.

TABLE 6.19 continued
KNOWN OR POTENTIALLY CONTAMINATED PROPERTIES THAT
MAY BE AFFECTED BY THE PROJECT

Site ID⁽¹⁾	Site Address	Reason for Concern
8B	8200 Humboldt Avenue South	Petroleum underground storage tank release (closed) reported at site.
9B	8053 East Bloomington Freeway	Petroleum underground storage tank release (closed) reported at site.
91B	1601 Southtown Drive	Petroleum underground storage tank release reported at site.
80D	1217 Clover Drive South	Petroleum underground storage tank release (closed) reported at site.
80E, 80C*	1201 Clover Drive South	Petroleum underground storage tank release (closed) reported at site. Reported release site (inactive) in MPCA VIC program.
89B	1700 West 78th Street	Petroleum underground storage tank release (closed) reported at site.
57*	1205 West 78th Street	Reported release site (inactive) in MPCA VIC program.
85B*	7800 Dupont Avenue South	Reported release site (inactive) in MPCA VIC program.
83A	1001 Clover Drive	Petroleum underground storage tank release (closed) reported at site.
84*	77th Street West & Colfax Avenue South	Reported release site (inactive) in MPCA VIC program.
70B	7856 Lyndale Avenue	Active gas station. Petroleum underground storage tank release reported at site.
70C	7840 Lyndale Avenue South	Petroleum underground tanks registered at site. No release reported at site.
70A	7801 Lyndale Avenue South	Petroleum underground tanks registered at site. No release reported at site.
81A, 83C*	920 West 78th Street	Reported release site (inactive) in MPCA VIC program. Petroleum underground storage tank release (closed) reported at site.
72A	7700 Lyndale Avenue South	Active gas station. Petroleum underground storage tank release (closed) reported at site.

TABLE 6.19 continued
KNOWN OR POTENTIALLY CONTAMINATED PROPERTIES THAT
MAY BE AFFECTED BY THE PROJECT

Site ID⁽¹⁾	Site Address	Reason for Concern
78A	805 77-1/2 Street	Petroleum underground tanks registered at site. No release reported at site.
72C	718 77-1/2 Street	Petroleum underground tanks registered at site. No release reported at site.
77	7645 Lyndale Avenue South	Active gas station. Petroleum underground storage tank release (closed) reported at site.
7B*	78th Street and Lyndale	Record of open dump at this location.
59B, 74C	333 West 78th Street	Petroleum underground storage tank release (closed) reported at site.
67C, 67B*	303 West 78th Street	Reported release site (inactive) in MPCA VIC program. Petroleum underground storage tank release (closed) reported at site.
71A	400 West 78th Street	Petroleum underground tanks registered at site. No release reported at site.
71B	300 West 78th Street	Petroleum underground tanks registered at site. No release reported at site.
73A	203 West 78th Street	Petroleum underground tanks registered at site. No release reported at site.
69E	7700 Pillsbury Avenue South	Petroleum underground storage tank release reported at site.
69B*, 69C	7721 Pillsbury Avenue South	Reported release site (inactive) in MPCA VIC program. Petroleum underground storage tank release (closed) reported at site.
6A	7900 Nicollet Avenue South	Petroleum underground storage tank release reported at site.
65C	7720 Nicollet Avenue South	Active gas stations. Petroleum underground storage tank release reported at site.
66C	210 East 78th Street	Petroleum underground storage tank release (closed) reported at site.
59I	335 East 78th Street	Petroleum underground tanks registered at site. No release reported at site.
59A	431 East 78th Street	Petroleum underground tanks registered at site. No release reported at site.

**TABLE 6.19 continued
KNOWN OR POTENTIALLY CONTAMINATED PROPERTIES THAT
MAY BE AFFECTED BY THE PROJECT**

Site ID⁽¹⁾	Site Address	Reason for Concern
64A	405 East 78th Street	Petroleum underground storage tank release (closed) reported at site.
59G*	7801 Portland Avenue South	Reported release site (active) in MPCA VIC program. Petroleum underground storage tank release reported at site.
60C	7730 Portland Avenue South	Vehicle repair on site. Petroleum underground storage tank release (closed) reported at site.
59F	7801 Portland Avenue South	Active gas station. Petroleum underground storage tank release reported at site.
60D	7733 Portland Avenue South	Petroleum underground storage tank release (closed) reported at site.
63	620 East 78th Street	Petroleum underground storage tank release (closed) reported at site.
58	1501 East 78th Street	Petroleum underground storage tank release (closed) reported at site.
54C	7744 12th Avenue South	Active gas station. Petroleum underground tanks registered at site. No release reported at site.
53A	1400 East 78th Street	Petroleum underground tanks registered at site. No release reported at site.
52A	1501 East 78th Street	Petroleum underground storage tank release (closed) reported at site.
3A	7900 East 79th Street	Petroleum underground storage tank release (closed) reported at site.
51A	2100 MTC Road	Petroleum underground tanks registered at site. No release reported at site.
47D	7800 24th Avenue South	Petroleum underground storage tank release (closed) reported at site.

**TABLE 6.19 continued
KNOWN OR POTENTIALLY CONTAMINATED PROPERTIES THAT
MAY BE AFFECTED BY THE PROJECT**

Site ID⁽¹⁾	Site Address	Reason for Concern
47I	7841 24th Avenue South	Petroleum underground storage tank release (closed) reported at site.
2E	8027 East 79th Avenue	Active gas station. Petroleum underground tanks registered at site. No release reported at site.
46*	2731 East 78th Street	Reported release site (inactive) in MPCA VIC program.

⁽¹⁾Note: The site identification numbers are not sequential and have gaps because the numbering system used is taken directly from *Phase I Environmental Site Assessment – I-494 Reconstruction Project*, (STS Consultants, Ltd.). Not all of the sites in the search area for this document were close enough to anticipated construction limits to be potentially impacted by construction of the Preferred Alternative.

* “Site of Concern” (refer to Section 6.8.3 text).

Based on available information obtained through the referenced Phase I ESA, 18 of the sites identified in Table 6.19 and Figure 6.21 have a potential for high cleanup costs and/or environmental liability. These eighteen "Sites of Concern" (as highlighted in Table 6.19 and depicted on Figure 6.21) were selected using Phase I ESA information regarding type and magnitude of the potential impact for individual sites. The Sites of Concern are: an active solid waste landfill (site 117), two former solid waste landfills (sites 15A and 7B), 11 VIC sites that are currently inactive (sites 24A, 21, 16C, 20A, 80C, 57, 85B, 84, 83C, 67B, 69B, and 46), 3 active VIC sites (sites 20B, 15A, and 59G) and a dry cleaner site (site 92B). With the proposed project design, all of these sites will be affected by the project.

Based upon available information on potentially contaminated sites obtained through the Phase I ESA, it does not appear that any of the sites identified would be serious enough to require that any basic project elements be substantially altered or abandoned. However, if further investigation of potentially contaminated sites (see discussion in Section 6.8.4) reveals contaminated areas that could be impacted by the project, modifications will be evaluated and implemented, if possible, to minimize or avoid impacts to any contaminated portions of the sites.

6.8.4 MITIGATION OF IMPACTS

Prior to construction activities, properties identified on Table 6.19 and Figure 6.21 will be evaluated for their potential to be impacted by construction and/or acquired as right of way. Any properties with a potential to be impacted by the project will be investigated (through detailed review of MPCA project files, and collection and laboratory analysis of soil and groundwater

Figure 21 11 x 17 2 pages

Figure 21 page 2

samples, if necessary) to determine the extent and magnitude of contaminated soil or groundwater in the areas of concern. The results of the investigation will be used to determine if the contaminated materials can be avoided, or the project's impacts to the properties minimized. If necessary, a plan will be developed for properly handling and treating contaminated soil and/or groundwater during construction.

In addition, coordination and consultation with the MPCA Voluntary Investigation and Cleanup (VIC) Unit, the Voluntary Petroleum Investigation and Cleanup (VPIC) Unit, Tanks and Emergency Response Section (TERS), and the Minnesota Department of Agriculture Agricultural Voluntary Investigation and Cleanup Program (AGVIC) will take place as appropriate, to obtain assurances that contaminated site cleanup work, and/or contaminated site acquisition will not result in long-term environmental liability for the contamination, and to obtain contaminated soil and/or groundwater handling and cleanup plan approvals.

6.8.5 OTHER POTENTIAL CONTAMINATED SITES – EAST STORM WATER DRAINAGE SYSTEM

As discussed in Section 3.3.4 of this FEIS, it is anticipated that a new storm water overflow conveyance line for I-494 drainage and associated outfall will have to be constructed east of 34th Avenue. It is anticipated that this line would discharge ultimately to the Minnesota River, potentially through Military Reservation Pond or through MAC Pond 040. Prior to the completion of a study currently being performed by Mn/DOT to assess alignment, construction, and outfall options for this overall system (trunk line from approximately the I-494/I-35W interchange area east to the Minnesota River) it is not known where specifically this line and outfall will be located.

For the purposes of this FEIS, an overall area of review within which this overflow system might be located is identified on Figure 6.16. This area was not included in the study area for the I-494 reconstruction Phase I ESA referenced in Section 6.8.3. This portion of the I-494 reconstruction project does not currently have a letting date and is not anticipated to be constructed until after 2010. Prior to the construction of this eastern portion of the I-494 reconstruction project, a Phase I ESA to cover the east drainage review area identified on Figure 6.16 will be performed. Sites of concern which might be impacted by the construction of that project phase will be further investigated for potential environmental impacts, and potential options to avoid affecting contaminated areas through project design will be assessed.

6.9 VEGETATION AND WILDLIFE

The Affected Environment for vegetation and wildlife for the I-494 corridor reconstruction was described in Section 4.2.9 of the DEIS. Impacts and mitigation measures were addressed in Section 5.3.11.

6.9.1 INFORMATION FROM THE DEIS THAT REMAINS UNCHANGED

As was identified in the DEIS, the largest cover type within the study area is suburban residential and commercial. The vegetation associated with these areas is typically landscaping, consisting of lawns with trees and shrubs from nursery stock. Trees and shrubs have also been planted near some of the interchanges and along noise walls. As was identified in the DEIS, there are also several natural wooded areas adjacent to existing right-of-way in the project area.

In coordination with the wetland inventory initially done for the DEIS, other vegetation along the existing and proposed right-of-way was identified with the use of aerial photography and field surveys. The study area was searched for native prairie plants by using Bluestem, Indiangrass, and Little Bluestem as indicator species for other possible native plant species. As reported in the DEIS, none of these indicator species or any associated prairie plant species were identified in or adjacent to the right-of-way. It is assumed that if native/prairie plants were not within the corridor at the time of the DEIS, they would not have developed or been introduced since that time.

As is pointed out in the DEIS, I-494 is a high-speed, high volume, multi-laned roadway in an urban/suburban setting that has been operating for decades. The likelihood that the highway right-of-way or adjacent land areas are supporting any notable populations of wildlife is very low.

6.9.2 CHANGES IN THE SETTING OR TECHNICAL ANALYSIS SINCE THE DEIS

Information pertaining to existing wetlands and wetland impacts resulting from the Preferred Alternative has been updated relative to the DEIS (refer to Section 6.7 of this FEIS).

Three potential new interchange locations at which woodland impacts would occur were identified in the DEIS as alternatives being considered in the I-494 reconstruction project. These three interchanges are no longer part of the Preferred Alternative:

- I-494/Oakland Road
- I-494/Baker Road
- Highwood Drive/TH 169 (old TH 18)

Two of the other interchanges identified in the DEIS as part of the I-494 reconstruction and at which woodland impacts would occur have already been reconstructed. Impacts from these projects were addressed in project memorandum (PM) documentation:

- CSAH 5 (Minnetonka Boulevard)—SP No. 2785-307; PM signed February 1998
- TH 169—SP No. 2785-290; PM signed March 1997

In some instances, the impacts to woodlands associated with the Preferred Alternative will be somewhat greater than impacts identified in the DEIS. This is due to two factors:

- The overall mainline alignment is being shifted approximately 15 meters (50 feet) to the south in the area between West Bush Lake Road and East Bush Lake Road to minimize impacts to Nine Mile Creek. This will result in a somewhat larger area of impact to woods to the south of I-494 in this area than was assumed in the DEIS.
- Increased number of ponding locations compared to the DEIS assumptions.

6.9.3 IMPACTS ASSOCIATED WITH THE PREFERRED ALTERNATIVE

The impacts to wetlands associated with the Preferred Alternative are addressed in detail in Section 6.7.3 of this FEIS. The locations and approximate acreages of impacts to wooded areas associated with the Preferred Alternative are summarized below.

- TH 7 interchange area: 1.2 hectares (3.0 acres)
- TH 62 interchange area: 0.9 hectares (2.1 acres)
- West Bush Lake Road to East Bush Lake Road interchange area: 6.2 hectares (15.4 acres)
- Ponding areas (inclusive for whole corridor): 1.4 hectares (3.4 acres)

Since the highway right-of-way and adjacent land areas are not likely supporting any substantial wildlife populations, no adverse wildlife population impacts from the Preferred Alternative are anticipated. It is possible that bridge work will be disruptive to bird nesting.

6.9.4 MITIGATION MEASURES

Mitigation measures regarding wetlands impacted by the Preferred Alternative are addressed in Section 6.7.4 of this FEIS. Some impacts to wooded areas cannot realistically be avoided in a project of this magnitude. Some of the Preferred Alternative impacts to wooded areas would result from construction of storm water ponds that are being implemented to protect water quality and from roadway realignment to limit impacts to Nine Mile Creek.

Mature trees (those greater than six meters [20 feet] in height) cannot be moved successfully. Therefore, mitigation for the loss of wooded areas would be provided by planting new trees near the area of impact, where possible. Because large trees within freeway right-of-way can represent a safety hazard if they are too close to the roadway or obstruct sight lines, the placement would have to conform with applicable safety standards.

Any wildlife impacts resulting from filling of wetlands would be addressed through the wetland mitigation measures described in Section 6.7.4. No substantial wildlife population impacts are anticipated, so no other mitigation measures are proposed.

Prior to construction, project areas will be reviewed for evidence of bird nesting. If nesting is found, appropriate steps will be taken to comply with Federal Migratory Bird Treaty Act requirements.

6.9.5 OTHER POTENTIAL IMPACTS – EAST STORM WATER DRAINAGE SYSTEM

As discussed in Section 6.3.4, it is anticipated that an overflow drainage line will have to be built east of 34th Avenue for I-494 drainage. The specific location of this line and its outfall cannot be identified until the completion of a study that Mn/DOT is preparing to address the need for added capacity for the trunk drainage line from approximately the I-35W/I-494 interchange area east to the Minnesota River. However, for the purposes of this FEIS, the review area where this line and its outfall might be located is presented on Figure 6.16. This area does not include the U.S. Fish and Wildlife Service Minnesota Valley National Wildlife Refuge.

This line would involve the construction of a buried pipe for conveyance and an associated outfall. After completion of construction of this system, the setting would be returned to existing conditions, with regrading and re-vegetation as needed. Any impacts to wetlands would be mitigated in compliance with applicable regulations as discussed in Section 6.7.2.2.

It is not anticipated that the east storm water overflow system will result in adverse impacts to vegetation or wildlife resources.

6.10 RARE AND ENDANGERED SPECIES

The affected environment for rare and endangered species for I-494 reconstruction is described in Section 4.2.9 of the DEIS.

6.10.1 INFORMATION FROM THE DEIS THAT REMAINS UNCHANGED

The DEIS discussed that the proposed project will occur in an urbanized area that has previously been disturbed by human activities. Given the existing high volumes of roadway traffic and disturbed nature of the study area, it is unlikely that existing or Build right-of-way would support any state or federally listed rare/endangered species. This information is still valid.

The DEIS identified that a search of the Minnesota Natural Heritage Program database was performed as part of the scoping phase of the DEIS preparation process. This search did not identify any plant or animal species that were listed or of special concern within or near the study area.

6.10.2 CHANGES IN THE SETTING OR TECHNICAL ANALYSIS SINCE THE DEIS

Because of the passage of time since the initial search of the Minnesota Natural Heritage Program database referenced above, a new search for federally and state listed rare/endorsed species was conducted as part of this FEIS preparation.

In October 2000, Mn/DOT conducted a review of the potential for federally-listed threatened or endangered species to be impacted by the proposed reconstruction of I-494. The Mn/DOT Wildlife Biologist determined that the Preferred Alternative would have no impact on federal endangered species known to occur in Minnesota.

The Minnesota Department of Transportation requested that the Minnesota Department of Natural Resources (DNR) complete a *Natural and Recreational Resources Questionnaire* for the Preferred Alternative. Part of the questionnaire response (completed in January 2001) included a review of the Minnesota Natural Heritage Program database. Relative to rare and endangered species, the DNR included the following information:

- There are 14 known occurrences of rare species or natural communities within an approximate 1.6-kilometer (1.0-mile) radius of the project area.
- Blandings turtles, a state threatened species, have been observed in the I-494 corridor vicinity (i.e. within 1.6 kilometer [1.0 mile]) near I-35W and TH 100. Since the I-494 corridor and the adjacent areas in the vicinity of I-35W and TH 100 are already developed, it is unlikely that the project would impact the local Blandings turtle population.
- The eastern portion of the project (near the Minnesota River) falls within an area identified by the county biological survey as having biodiversity significance.

The DNR response also included recommendations regarding general construction techniques to be followed to limit the potential for impacts to rare communities.

6.10.3 IMPACTS ASSOCIATED WITH THE PREFERRED ALTERNATIVE

No impacts would result from the No-Build Alternative since it does not involve construction impacts. Based upon the information provided above, it is not anticipated that the Preferred Alternative would have adverse impacts to federal or state protected species.

6.10.4 MITIGATION

Since the proposed project would not result in adverse impacts on state or federally listed rare/endorsed species, no mitigation is required, over and above appropriate construction methods to limit the potential for impacts to sensitive species or communities.

6.10.5 OTHER POTENTIAL IMPACT – EAST STORM WATER DRAINAGE SYSTEM

Relevant information is provided in Section 6.9.5 of this FEIS. It is not anticipated that the east storm water drainage system will result in adverse impacts to rare and endangered species.

6.11 WILD AND SCENIC RIVERS

Section 5.3.12 of the DEIS described Wild and Scenic River and Canoe/Boating River issues in the I-494 corridor.

6.11.1 INFORMATION FROM THE DEIS THAT REMAINS UNCHANGED

The information on river designations as they relate to the project has not changed since the DEIS.

6.11.2 CHANGES IN THE SETTING, REGULATORY FRAMEWORK OR TECHNICAL ANALYSIS THAT HAVE OCCURRED SINCE THE DEIS

As is discussed in Section 6.3.4 of this FEIS, it is anticipated that additional capacity will be required for the trunk storm sewer serving I-494 between approximately the I-494/I-35W interchange and the Minnesota River. West of 34th Avenue, it is anticipated that this additional capacity will be provided within existing Mn/DOT right-of-way. East of 34th Avenue, additional conveyance capacity outside of Mn/DOT right-of-way may be required. Options for the design and alignment to be used for this additional capacity and outfall are currently being assessed in a study being performed by Mn/DOT. The general area in which the work east of 34th Avenue may take place is depicted on Figure 6.16.

6.11.3 IMPACTS ASSOCIATED WITH THE PREFERRED ALTERNATIVE

Wild and Scenic Rivers

The I-494 corridor does not cross nor will it adversely affect any state or federally-designated Wild and Scenic River or state-designated Canoe/Boating River. Minnehaha Creek is on the Nationwide River Inventory and is a potential candidate for federal Wild and Scenic River designation. The Preferred Alternative will not have adverse effect on natural, cultural, or recreational values of Minnehaha Creek.

Mississippi River Critical Area/Mississippi National River and Recreation Area

Under the authority of the Critical Areas Act of 1973, the Mississippi River Critical Area (MRCA) includes the Minnesota River upstream to the I-494 bridge. On the west bank of the Minnesota River, the MRCA in the Preferred Alternative project area extends west to the centerline of TH 5. As communicated to Mn/DOT by the Minnesota Department of Natural Resources (correspondence dated August 3, 1999):

“The purposes of designating the Mississippi River as a Critical Area include:

- Protecting and preserving a unique and valuable state and regional resource for the benefit of the health, safety and welfare of the citizens for the state, region and nation;
- Preventing and mitigating irreversible damage to this resource;
- Preserving and enhancing its natural, aesthetic, cultural, and historical value for public use;
- Protecting and preserving the river as an essential element in the national and regional transportation, sewer and water and recreational systems; and
- Protecting and preserving the biological and ecological functions of the corridor.”

The area defined above as part of the MRCA is also defined as part of the Mississippi National River Recreation Area (MNRRA), which in November of 1988 was incorporated as a unit of the National Park Service under Public Law 100-696.

Figure 6.16 shows that the study area for possible location of capacity improvements to the I-494 trunk storm sewer line includes areas that would be within the MRCA/MNRRA boundaries. Further information regarding the potential location and design of this storm sewer system is provided in Section 6.3.4 and Section 6.7.5 of this FEIS. With the exception of the possible construction impacts from sewer line, no other impacts to the MRCA/MNRRA would result from the I-494 reconstruction project.

6.11.4 MITIGATION MEASURES

Wild and Scenic Rivers

Since the Preferred Alternative will not cause adverse impacts as addressed in Section 6.11.3, no mitigation is required.

Mississippi River Critical Area/Mississippi National River and Recreation Area

Currently, the Mn/DNR, Metropolitan Council, and National Park Service work in partnership in various roles on the Mississippi River Critical Area and Mississippi National River and Recreation Area (MNRRA) programs to protect and preserve the corridor. The Minnesota Department of Natural Resources administers *Critical Area Standards and Guidelines from Executive Order 79-19*. The guidelines potentially applicable to the Preferred Alternative include minimization of impacts to wetlands, bluff areas, water quality, and existing vegetation, as well as limiting beach and riverbank erosion.

Under federal law, the National Park Service (NPS) administers *MNRRA Policies and Guidelines (NPS Comprehensive Management Plan)*. The policies potentially applicable to the Preferred Alternative are similar to the guidelines for the MnDNR Critical Area Guidelines: minimization of impacts to shorelines and shoreline vegetation, wetlands, bluff areas, water and air quality, and limiting storm water flow/rate increases and noise impacts.

If it is necessary to construct a storm water drainage line and/or its associated outfall within the MRCA/MNRRRA area referenced in Section 6.11.3, it would be conducted in conformance with the MRCA and MNRRRA policies listed above, and Mn/DOT would coordinate with the staff from the Minnesota Department of Natural Resources and the National Park Service. Relevant information regarding possible construction impacts in this area is provided in other portions of this FEIS including the following:

- Section 6.3 (surface water drainage)
- Section 6.4 (water quality)
- Section 6.7 (wetlands)
- Section 7.3 (construction impacts)

6.12 STREAM OR WATER BODY MODIFICATIONS

The DEIS did not include a separate section to discuss stream and water body modifications. “Modifications” are actions that change or diminish the course, current or cross-section of public waters by filling, excavating or placing of materials in or on the beds of public waters. The purpose of considering stream and water body modifications is to identify the potential for problems such as erosion, bank instability (which may lead to erosion), aesthetic intrusion, fish and wildlife impacts flooding and impediments to navigation that may arise due to these modifications. Project-related floodplain impacts are discussed in Section 6.5 of this FEIS, and wetland impacts are discussed in Section 6.7.

6.12.1 INFORMATION FROM THE DEIS THAT REMAINS UNCHANGED

The DEIS did not include a separate section to discuss stream and water body modifications. However, Section 5.37 (Floodplains) disclosed stream impacts in the project area in the specific context of floodplains impacts/mitigation. Section 5.3.9 of the DEIS discussed impacts on water bodies through the discussion of impacts on the MnDNR wetlands (public waters).

In this FEIS, Figure 6.3 (Watershed District Boundaries) shows the streams and MnDNR water bodies in the project area. Section 6.5.2 provides a description of the streams and Section 6.7.2 discusses the MnDNR water bodies in the project area.

To identify information that has not changed since the DEIS regarding stream impacts, the Preferred Alternative impacts in the area of the four public water streams (Minnehaha Creek at Minnetonka Boulevard, County Ditch 34 south of the TH 62/I-494 interchange, Nine Mile Creek between West Bush Lake Road and TH 100 [both the South and North Forks], and Minnesota River at the eastern project terminus) were reviewed. Based upon this assessment, the following information remains unchanged from the DEIS:

- Impacts on County Ditch 34 along the east and west sides of I-494 have not changed.
- As discussed in Sections 6.7.1 and 6.7.2 of this FEIS, much of the information presented in the DEIS regarding wetland water bodies remains unchanged.

6.12.2 CHANGES IN THE SETTING, REGULATORY FRAMEWORK AND TECHNICAL ANALYSIS SINCE THE DEIS

Changes in the project setting since the DEIS are primarily the result of Mn/DOT projects that occurred at the interchanges of I-494 with Minnetonka Boulevard/CSAH 5, TH 5 and TH 169. These projects are described in greater detail in Sections 1.2.2, 6.3 and 6.7 of this FEIS. In the areas where these activities occurred, wetlands were filled, storm water ponds were created and surface water drainage patterns were altered.

The regulatory framework for protection of streams and water bodies was not discussed in the DEIS, and so is summarized here. At the federal level, the Fish and Wildlife Coordination Act (16 USC 661-666c), the Federal Water Pollution Control Act of 1972 (as amended by the Clean Water Act of 1977 & 1987 [33 USC 1251-1376]), the Rivers and Harbors Act of 1899 and other laws protect streams, aquatic habitat and waterways. Applicable federal regulations are primarily administered through the U.S. Army Corps of Engineers (COE). At the state level, protection is afforded through the Minnesota Wetland Conservation Act, Minnesota Statute 103G.24 and the rules that implement these acts and define the state waters that are protected under the jurisdiction of the Mn/DNR.

The technical analysis of impacts on streams and water bodies in the DEIS was presented as a general discussion of the floodplain and wetland impacts. The technical analysis of impacts on wetland water bodies for this FEIS is presented in Section 6.7. The technical analysis of impacts on streams, that follows, focuses more specifically on impacts to the course, current or cross section of the four streams in the project area.

6.12.3 IMPACTS ASSOCIATED WITH THE PREFERRED ALTERNATIVE

The following sections describe the impacts on the course, current or cross section of the streams in the project area. The impacts are summarized in Table 6.20 and shown on Figures 6.17, 6.18 and 6.19.

**TABLE 6.20
STREAM MODIFICATIONS**

Stream	Stream Use (Recreation, Water Supply, etc.)	Description of Impact	Type of Impact (Course, Current or Cross Section)	Length of Impact		Area of Impact	
				Meters	Feet	Hectare	Acres
Minnehaha Creek	Recreation, Aesthetic value	None	None	None			
County Ditch 34	Drainage	Culvert Lengthening	Cross Section	92	300	0.04	0.1
South Fork – Nine Mile Creek	Aesthetic value Drainage	Realignment, Culvert Lengthening	Course, Cross Section	331	1,085	0.2	0.4
North Fork – Nine Mile Creek	Drainage	Culvert Removal, Realignment, Culvert Placement, Culvert Replacement	Course, Cross Section	456 ⁽¹⁾	1,496 ⁽¹⁾	0.3	0.7
Minnesota River	Recreation, Water Supply, Aesthetic Value	None	None	None			
TOTALS:				879	2,881	0.5	1.2

⁽¹⁾ Includes some replacement of culvert with open stream channel

6.12.3.1 Minnehaha Creek

The Minnetonka Boulevard/CSAH 5 interchange was rebuilt since the DEIS. Stream impacts were considered and mitigated at that time. No further stream impacts would occur with the I-494 Preferred Alternative.

6.12.3.2 County Ditch 34

As shown on Figure 6.17, the widening of lanes and shoulders with the Preferred Alternative would result in encroachment to County Ditch 34 on both sides of I-494 where extensions will be added to the I-494 underpass culvert for the ditch. On either side of I-494, approximately 46 meters (150 feet) of channel (92 meters [300 feet] total) would be filled where the existing culvert would be lengthened to accommodate the road widening. A total of 0.04 hectares (0.1 acres) of fill would be placed in the ditch channel. The course and current of the ditch would not be impacted, but the cross section would be modified slightly.

6.12.3.3 South Fork of Nine Mile Creek

At TH 169

The TH 169/I-494 interchange was reconstructed as a separate project since the DEIS. Impacts on the South Fork of Nine Mile Creek in this area were considered and mitigated at that time. No further stream impacts would occur with the I-494 Preferred Alternative.

West of East Bush Lake Road

As shown on Figure 6.18, within the Highwood Corridor of the Hyland-Bush-Anderson Lakes Regional Park Reserve, where the primary Nine Mile Creek channel lies south of and parallel to I-494 on the south, a 128-meter (420-foot) length of the channel would be filled (approximately 0.1 hectare [0.2 acres] of fill) to accommodate widening of I-494. Two possible alternatives are being considered for rerouting the channel: 1) shifting the channel to a new 82-meter (270-foot) long channel located approximately 6 meters (20 feet) south of the fill (the North Channel Alignment Option); or 2) directing the flow to an existing secondary channel south of the fill area by creating a new 122-meter (400-foot) long connection through the secondary channel area to connect with the main channel southeast of the fill area (South Channel Realignment Option). Either of these options (shown on Figure 6.18) would reconnect the new channel to the existing channel just west of East Bush Lake Road. Mn/DOT will work with state and local water regulatory agencies to identify the preferred realignment concept in this area. In addition, since the Highwood Corridor is owned and managed by the City of Bloomington parks system, this change in stream flow would need to be approved by the City (see Section 8.31 of this FEIS).

East Bush Lake Road Crossing

The existing channel flows east beneath a trestle on the Canadian Pacific (CP) Rail line just west of East Bush Lake Road (see Figure 6.18). The creek then flows beneath East Bush Lake Road

through a culvert. A 3- by 2-meter (10- by 6-foot) culvert would be added at the CP Rail crossing to replace the existing trestle during construction of the Preferred Alternative. The existing culvert beneath East Bush Lake Road would be lengthened on the east end by approximately 27 meters (90 feet). The widening of East Bush Lake Road would result in the fill of a 134-meter (440-foot) segment of channel downstream of the culvert extension where the creek bends to the south. A new channel would be required to accommodate the flow. This new meandering channel would be located approximately 26 meters (85 feet) east of the existing channel.

Green Valley Drive

The realignment of Green Valley Drive would result in the culverting of approximately 38 meters (125 feet) of stream channel just north of the confluence of the South and North Forks of Nine Mile Creek. The existing stream channel in this area is relatively straight and conveying it through a culvert would not alter its course substantially. The culvert will be sized to avoid impeding channel flow.

6.12.3.4 North Fork Nine Mile Creek

Industrial Boulevard/77th Street and West of TH 100

The North Fork of Nine Mile Creek in this area was channelized and modified during the original construction of TH 100 and the I-494 interchange. Mn/DOT staff have met with Nine Mile Creek Watershed District staff to discuss options for design elements that would accommodate the needed roadway improvements while maintaining stream channel flow and minimizing physical impacts to the channel. Based on these discussions, the proposed channel modifications in this area (from north to south, in the direction of stream flow) include:

- The 72-meter (236-foot) culvert used to convey North Fork flow underneath the TH 100/77th Street intersection would be removed, the 77th Street overpass lengthened, and the creek would be provided with a meandering channel flowing under the overpass structure.
- South of the TH 100/77th Street interchange, a 116-meter (380-foot) segment of the creek channel would be relocated west (due to widening of TH 100) into a new meandering open creek channel.
- A culvert would then carry the creek for a length of 177 meters (580 feet) parallel to the highway, to accommodate proposed TH 100 widening.
- The culvert would discharge directly into the existing open channel that will flow beneath the raised interchange ramps/loop at the northwest quadrant of the I-494/TH 100 interchange.
- The existing channel would discharge into a 92-meter (300-foot) replacement culvert beneath I-494 (to be installed at the location of the existing culvert). This culvert would discharge into the existing channel of the North Fork of Nine Mile Creek, in the southwest quadrant of the I-494/TH 100 interchange.

6.12.3.5 Minnesota River

The Minnesota River channel would not be impacted by the proposed roadway improvements.

6.12.3.6 Summary of Impacts

A total of 0.5 hectares (1.2 acres) of fill would result from the realignment and placement of structures, and total length of 879 meters (2,881 feet) of stream channel would be impacted. Aquatic habitat loss would occur in all fill areas. Other potential negative effects include erosion during and after construction, visual impacts, and vegetation removal.

6.12.4 MITIGATION MEASURES

Federal and state regulations require the use of a sequenced approach (avoid, minimize and replace/mitigate) when projects have potential impacts on water bodies and streams. Complete avoidance of stream and water body impacts was not possible due to several factors, including the presence of streams and water bodies on both sides of the existing roadway alignment as well as the need to widen the roadway to meet capacity requirements and current roadway design standards. Road locations considered for the Preferred Alternative to avoid streams and water bodies are described in Sections 6.5.3 and 6.7.3.

Although all stream and water body impacts could not be avoided, they will be minimized to the extent practicable by utilizing steep fill slopes or structures (e.g. ramps on structure at TH 100 south of 77th/Industrial Boulevard and extension of the 77th Avenue/Industrial Boulevard bridge structure) where feasible.

Mitigation of potential impacts during and after construction such as erosion, flooding, and adverse impacts on appearance, vegetation, and fish and wildlife habitat is discussed in other sections of this FEIS. Floodplain mitigation is discussed in Section 6.5.4. As discussed in Section 6.7.4, lost aquatic habitat will be replaced in accordance with applicable wetland mitigation regulations. With the erosion control measures referenced in the previous paragraph and in Section 7.3.4, and general design requirements associated with applicable water districts and regulatory bodies, adverse impacts on any fish populations in the project area are not anticipated.

Permanent erosion, bank protection and stabilization methods will be utilized where applicable. Native grasses and plant species found in the area will be given preference for use in re-vegetation and bank stabilization. Vegetative mats and other bio-engineering techniques will be used when possible in higher-erosion areas, although riprap may be required in some areas. To offset stream channel impacts, and to provide better stream habitat, the new stream channels would have a meandering course (where space allows) to approximate the existing aesthetic and functional conditions. Channel design will also maintain existing flow rates, to avoid floodplain impacts upstream.

A Mn/DNR Protected Waters permit and COE Section 404 permit will be required for the impacts on streams and water bodies. An NPDES permit for sedimentation and erosion control will also be obtained from the MPCA. Detailed mitigation plans for impacts on streams and water bodies would be coordinated with the appropriate regulatory agencies, in conjunction with project final design. The permit and mitigation plans would reassess the exact areas of impacts (and mitigation) based on final design plans, field examinations and consultation with the appropriate regulatory agencies, and the current and applicable guidelines and regulations in effect at that time.

6.13 CUMULATIVE IMPACTS

6.13.1 INFORMATION FROM THE DEIS THAT REMAINS UNCHANGED

This topic was not addressed in the DEIS.

6.13.2 CHANGES IN THE SETTING, REGULATORY FRAMEWORK OR TECHNICAL ANALYSIS THAT HAVE OCCURRED SINCE THE DEIS

The Council on Environmental Quality (CEQ) has provided guidance (issued in 1997) on addressing the issue of cumulative impacts since the publication of the I-494 Reconstruction DEIS in 1992. Based on that guidance, discussion of this issue was added to the FEIS.

6.13.3 CUMULATIVE IMPACTS

This section describes the potential for cumulative impacts, both direct and indirect, from the Preferred Alternative and the No-Build Alternative in combination with other past, present and future actions. Cumulative impacts analysis takes into account an array of potential actions and their impacts that are unrelated to the proposed action (Preferred Alternative) except to the extent that their impacts may, in combination with the potential impacts from the proposed action, result in adverse impacts. Cumulative impacts are defined as follows in the CEQ's regulations (40CFR 1500-1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended:

The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. (40 CFR 1508.7)

Direct and indirect impacts of the Preferred and No-Build Alternatives have been discussed in the previous sections of this FEIS and the DEIS. Cumulative impacts are not causally linked to the Preferred Alternative, but are the total effects of actions with similar impacts in a broader geographic area. The purpose of the cumulative impacts analysis is to look for potential impacts

which may be minimal and therefore neither significant nor adverse when examined within the context of the proposed action, but which may accumulate and become both significant and adverse over a large number of actions.

6.13.3.1 Methodology

This discussion of the cumulative effects will assess the effects of the Preferred Alternative and the No-Build Alternative as described in the previous sections for their potential to combine with the effects of other foreseeable activities in the past, present and future which, when combined, have the potential to create further adverse impacts. To that end, this analysis will attempt to define other non-related actions in the foreseeable future, taking into account both political and natural resource boundaries, that have the potential to result in cumulative impacts in conjunction with the I-494 Preferred and No-Build Alternatives.

Since the I-494 corridor proposed for reconstruction is an urban beltway that serves and is located in the first and second tier southwest suburbs of the Minneapolis-St. Paul Metropolitan Area, the “study area” considered for this assessment includes the cities (Minnetonka, Edina, Eden Prairie, Richfield and Bloomington), the Minneapolis-St. Paul International Airport and local watersheds along the I-494 reconstruction corridor. Development trends and transportation system improvements (other than the I-494 reconstruction) were the actions considered in assessing cumulative impacts in this area. The time period considered is through year 2020 (the current regional long-range planning period).

6.13.3.2 Existing Conditions and Future Development Trends

The study area includes the fully developed cities of Edina, Bloomington and Richfield and the developing cities of Minnetonka and Eden Prairie, as well as the intensely developed Minneapolis-St. Paul International Airport. Most of the areas in these cities adjacent to the I-494 corridor have been developed to urban/suburban uses, including residential, commercial/retail, light industrial and transportation uses. Some land in the area has been dedicated to park use and remains in open space. Wetlands also constitute a portion of the remaining open space in this area.

Due to the proximity of these cities to the I-494 beltway and the more urbanized portions of the Minneapolis-St. Paul Metropolitan Area, many future intensive development or re-development projects are planned in the area, consistent with “Smart Growth” philosophy. Promoting infill development would help maintain intensive development within the urban service area, where transportation and other services can accommodate the development most effectively. This trend is already apparent in the redevelopment projects implemented (e.g. Lyndale shops), in planning/approval (e.g. Best Buy campus, Mall of America Expansion and Norman Pointe) or envisioned in the cities of Bloomington and Richfield, and in intensive new developments in Eden Prairie’s “city center” located just southwest of the I-494 corridor.

To serve this planned development (as well as to meet increasing background demands), a number of local and trunk highway roadway improvement projects are also planned in the area, including capacity/operational improvements to TH 62, TH 100, TH 169 and numerous local

collector streets. Improvement of transit service is also planned, including service based at the Mall of America and Eden Prairie transit hubs as well as rail corridors being implemented (the Hiawatha corridor) or considered (e.g. the Dan Patch corridor).

6.13.3.3 Assessment of Cumulative Impacts

The planned increases in intensive land development for community development and transportation would result in additive impacts to the I-494 Build and No-Build Alternative impacts, especially in the areas of storm water quality and quantity, wetlands, traffic noise and air quality, and social/property acquisition impacts.

Storm Water Quality and Quantity

Intensive development would add impervious surface and, potentially, add to the pollutant load in surface water runoff, adding to the impacts of the increased impervious surface area for the I-494 reconstruction Preferred Alternative. However, federal, state and local watershed regulations require implementation of mitigation, including detention and treatment ponds and other Best Management Practices, in conjunction with development project implementation. In some cases, joint storm water detention and treatment projects are being implemented by Mn/DOT and adjacent governmental units (e.g. with the Metropolitan Airports Commission at the Minneapolis-St. Paul International Airport). These requirements minimize impacts and, in some cases (e.g. redevelopment projects and the I-494 Build Alternative) may actually result in an improvement over existing conditions if less than state-of-the-art or no runoff water treatment is currently being provided. Therefore, the cumulative impacts would not be substantial.

Wetlands

Increasing land values within the study area also increase the potential for wetland impacts, as pressure to develop land “to the fullest” increases. This would result in cumulative impacts to existing wetlands in the area. However, state and federal regulations require mitigation for wetland impacts, including provision of replacement wetlands, preferably within the same project area or within the same watershed. This mitigation requirement minimizes the cumulative impacts, although it should be acknowledged that the lack of undeveloped land and the high value of land in the area makes local replacement more difficult to achieve.

Traffic Noise

Increasing traffic volumes on I-494 resulting from planned intensive development were considered in the Build and No-Build noise modeling for the I-494 reconstruction project (see Section 6.2). However, increased traffic on local roads from intensive development could result in increasing noise levels in those roadway corridors, as well, increasing the pervasiveness of traffic noise. (However, it should be noted that traffic levels on any given roadway would have to double before a noticeable (i.e. 3-decibel or greater) increase would result.) Similar cumulative noise impacts would result with either the Build or No-Build Alternative

on I-494 (although the I-494 corridor localized impacts would vary between the two I-494 alternatives, as discussed in Section 6.2). Consideration of the need for or effectiveness of noise mitigation varies with type of road and funding source for roadway improvements.

Air Quality

The impact of the proposed I-494 Preferred Alternative improvements on local air quality were assessed in Section 6.1 of this FEIS. The I-494 Preferred Alternative conditions, as well as the Build condition for other local and trunk highway improvements, would cumulatively improve local air quality, by reducing congestion. In addition, the planned intensive development may result in an increased use of transit by people who live and work in the area, which could result in an overall improvement in air quality by decreasing the number of single car trips.

Social/Acquisition of Property

The redevelopment of property to more intensive use called for in local comprehensive plans may result in cumulative changes in the social make-up of the population or a change in the services and/or employment opportunities available to residents in redevelopment areas. The potential for and intensity and timing of these changes is difficult to estimate. However, the cumulative impacts would likely be similar for both the Build and No-Build Alternatives since the proposed Build right-of-way acquisition would likely be a small part of the total impacts that would result from the redevelopment that is planned in the study area communities.

6.13.3.4 Mitigation Measures

The assessment of potential impacts above included some discussion of mitigation. A summary of mitigation for each potential cumulative impact is summarized below.

Storm Water Quality and Quantity

Federal, state and local watershed regulations require implementation of mitigation, including detention and treatment ponds and other Best Management Practices, in conjunction with development project implementation. In some cases, joint storm water detention and treatment projects are being implemented by Mn/DOT and adjacent governmental units (e.g. the Metropolitan Airports Commission). These requirements minimize impacts and, in some cases (e.g. redevelopment projects and the I-494 Build Alternative) may actually result in an improvement over existing conditions if less than state-of-the-art or no runoff water treatment is currently being provided.

Wetlands

State and federal regulations require mitigation for wetland impacts, including provision of replacement wetlands, preferably within the same project area or within the same watershed. This mitigation requirement minimizes the cumulative impacts, although it should be acknowledged that the lack of undeveloped land and the high value of land in the area makes local replacement more difficult to achieve.

Traffic Noise

Consideration of the need for or effectiveness of noise mitigation varies with type of road and funding source for roadway improvements. Mitigation for impacts would be provided consistent with federal and state requirements.

Air Quality

Air quality should improve as a result of planned local and regional roadway improvements. No mitigation would be required.

Social/Acquisition of Property

Local planning agencies should review the potential impacts of planned redevelopment on local neighborhoods, and identify redevelopment plans that allow for maintaining social cohesion either in the existing or a new location.

6.13.5 CONCLUSION

Potential for cumulative impacts exists in issue areas related to storm water quantity and quality, wetlands, traffic noise, and social/acquisition of property. The first three impacts are generally addressed through mitigation requirements in state, federal, or local regulations. The issue of social impacts and relocation is typically considered through local and regional comprehensive planning efforts.