SECTION 3

Affected Environment, Environmental Consequences, and Mitigation Measures

3.1 Introduction

Section 3 combines a discussion of the affected environment with potential environmental impacts. In describing impacts, Section 3 frequently makes reference to the project alternatives. Therefore, some reference to the content of Section 2 (Alternatives) is important to understand the content below, and the ***Aerial Photo Exhibit*** is essential to understand the scope of the impacts in detail (a separate exhibit, as previously referenced in Section 2).

3.1.1 Environmental Impact Categories and Relative Importance

Section 3 is organized into major sub-sections based on the environmental categories or topics listed below. While all relevant aspects of the environment are discussed, some environmental topics have emerged as more important to understanding the tradeoffs between the alternatives than others. Those topics are highlighted below in ***bold italic*** text.

- ***Relocations and Right-of-Way (3.2)***
- ***Land Use and Visual Quality (3.3)***
- ***Agricultural Resources and Soils (3.4)***
- ***Transportation (3.5)***
- ***Socioeconomics (3.6)***
- ***Surface Water, Water Quality, Erosion Control, and Slope Stability (3.7)***
- Ground Water (3.8)
- ***Wetlands (3.9)***
- ***Floodplains (3.10)***
- Upland Habitat and Wildlife (3.11)
- Threatened and Endangered Species (3.12)
- ***Cultural Resources-Historic and Archaeological, and Section 106 Evaluation (3.13) (Note: Also see Appendix A: Draft Section 4(f) Evaluation)***
- ***Public Lands (3.14)***
- Contaminated Properties and Materials (3.15)
- Air Quality (3.16)
- Noise (3.17)
- Indirect and Cumulative Impacts (3.18)
- Permits and Related Approvals (3.19)
- Relationship of Short-term Uses v. Long-term Productivity (3.20)
- Irreversible and Irretrievable Commitments of Resources (3.21)
- Construction and Excess Material (3.22)

Section 3 provides the best comparison of the alternatives possible at this time, with a level of analysis sufficient for the Draft EIS impacts evaluation. Anticipated environmental impacts discussed in this chapter were determined using appropriate methods, depending on the impact category. Impacts confined to the footprints of the build alternatives were calculated using the footprint shown on the Aerial Photo Exhibit; this includes the overall right-of-way that would be needed for each alternative, as well as specific acreage impacts to agricultural lands, wetlands, and floodplain. Impacts to many categories, such as residences, businesses, visual quality, air quality, noise extend beyond an alternative's footprint and are less quantitative than simply counting acres of land. The areas used to calculate impacts for these

resources are described at the appropriate location. The identification and refinement of a preferred alternative, considering public and agency input, may result in changes to the alignment which could further avoid or minimize the adverse impacts.

The ten key environmental factors shown on p. 3-1 are consistent with those identified previously (in project scoping) and remain most important today in the decision-making process.

The project alternatives are laid out to fit the conditions found in the corridor, often highlighting tradeoffs in the decision-making process. As discussed in Section 2, this includes two very different choices on the west end—either following existing US 14 along the Minnesota River Valley (Alternative W1) or along the top of the bluff north of the existing highway (W2). Alternative W3 is also available, blending the features of W1 and W2 (see Exhibit 2-1).

On the east end, the alternatives differ primarily in how they bypass the City of Nicollet and the extent to which they use the existing highway. Alternatives E1, E2, and E3 all bypass Nicollet as close to town as reasonable. Alternative E1 connects back to existing US 14 just west of town, passing through the Swan Lake Wildlife Management Area (WMA) and affecting more residences along existing US 14. Alternatives E2 and E3 would use increasingly more, thus avoiding the WMA and residences along existing US 14. Alternative E4 would result in the greatest amount of new corridor on the east, running about one mile south of existing US 14 in Nicollet, making it a true bypass.

The ten key environmental factors highlighted in the list below are consistent with those identified as most important in the original Scoping Decision Document (March 2003) and with a similar discussion of project issues in the Amended Scoping Decision Document (October 2005). The following points summarize issues addressed in Section 3 for those key factors, which remain important today in the decision-making process:

- **Right of Way and Relocation (3.2)**—Considers the residential/commercial relocations or land acquisition that would be required by the Build Alternatives. Generally, the alternatives that use the most new alignment, rather than expand US 14, tend to minimize residential relocation impacts.
- **Land Use and Visual Quality (3.3)**—Addresses how community bypasses and other new corridors (for example W2—Top-of-Bluff) may influence existing and future land use and community cohesion. Visual quality issues are also discussed, especially at the west end near the Minnesota River and the bluff.
- **Agricultural Resources and Soils (3.4)**—Agriculture is a defining feature of the US 14 project area. New highway corridors generally involve greater impacts to farm fields and prime farmlands.
- **Transportation (3.5)**—Considerations include a proposed constrained roadway cross section along the Minnesota River (Alternatives W1 and W3), grades where the highway runs up and down the bluff (W2 and W3), and the configuration of community bypasses and alternative interchange configurations (all four eastern alternatives bypassing Nicollet).

- **Socioeconomics (3.6)—**US 14 is the principal highway along a regional growth corridor. Socioeconomic issues include business location or investment decisions and satisfying the demand for mobility while supporting existing social and economic qualities.
- **Surface Water, Water Quality, Erosion Control, and Slope Stability (3.7)—**Primarily concerns alternatives near the west end (W1-W3), where the proposed project interacts with the Minnesota River and the bluff area (also relates to Section 3.10—Floodplains).
- **Wetlands (3.9)—**Regulatory requirements include the proper identification of wetlands and wetland impact avoidance, minimization, and compensation. Considering wetland functions and values also helps to understand the alternatives and plan for potential mitigation (also relates to Section 3.14, Public Lands).
- **Floodplains (3.10)—**Like Section 3.7, this topic primarily concerns alternatives on the west end of the project, near the Minnesota River. A constrained highway cross section is proposed (see Section 2 for details) to minimize these impacts.
- **Cultural Resources-Historic, Archaeological, and Section 106 Evaluation (3.13)—**Detailed investigations of the US 14 corridor have found a number of historic architectural and archaeological resources. Section 3.13 introduces these resources, which are then presented and evaluated in detail in Appendix A: Draft Section 4(f) Evaluation.
- **Public Lands (3.14)—**Swan Lake Wildlife Management Area (WMA) is an important public land resource located within the study area. Alternative E1 would affect WMA lands along existing US 14 and other alternatives avoid it. This project, with anticipated wetland mitigation features, provides a stewardship opportunity to expand and enhance the WMA. Section 3.14 addresses the WMA, as well as other public lands located within the study area.

3.1.2 Organization of Sub-Sections

The content in each major sub-section below is typically divided into: Affected (existing) Environment, Environmental Consequences (e.g. impacts), and Mitigation Measures. As described in Section 2, the DEIS alternatives include three highway location alternatives to the west and four to the east. This means that up to twelve combinations are possible. To simplify, the impact discussions typically compare the effects for each study section (first west and then east). To summarize the whole project, high and low values are often added to show the range of possible impacts (see the DEIS Summary, Table S-1).

3.2 Relocations and Right-of-Way

3.2.1 Affected Environment

Mn/DOT currently has right-of-way along existing US 14. Most of the US 14 right-of-way is located adjacent to agricultural land. US 14 also passes by residential, commercial, institutional (schools, government buildings, etc.), and industrial land uses. More specific land use discussions are included in Section 3.3 Land Use and Visual Quality, 3.4 Agricultural Resources and Soils, Section 3.10 Floodplains and Section 3.14 Public Lands.

3.2.2 Environmental Consequences

The No Build Alternative would not require any relocations or land acquisition. All Build Alternatives would involve right-of-way acquisition and residential relocations. The western alternatives would also involve business relocations. Generally, the alternatives that use the most new alignment, rather than expand US 14, tend to minimize residential relocation impacts.

This discussion focuses on how the build alternative acquisitions would affect existing and future developed land uses—generally, residential properties, commercial/industrial sites, and the Minnesota Valley Lutheran High School. Similar to agriculture, special land/natural resources are discussed in other subsections—for example, wetlands (Section 3.9), floodplains (3.10), and Swan Lake WMA/public lands (Section 3.14).

3.2.2.1 Relocations

Generally, alternatives that use the most new alignment, rather than expanding existing US 14, minimize residential or business relocation impacts while causing greater impacts to agricultural lands (Section 3.4). Table 3-1 summarizes the number of relocations required by each of the Build Alternatives.

TABLE 3-1
Residential & Business Relocations

West Study Section			
	Alt. W1	**Alt. W2**	**Alt. W3**
Residential Relocations	16	6	8
Business/Other Relocations	4	3	3

East Study Section [NOTE: Bracketed numbers are the impacts for the optional interchange at MN 99 instead of at CR 23]				
	E1	**E2**	**E3**	**E4**
Residential Relocations	10 [12]	10 [12]	11 [12]	9
Business/Other Relocations	1	0	0	0

Residences and businesses that would fall within 85' of the proposed right-of-way of any alternative were identified as relocations. 85' is Nicollet County's setback from a state highway. This was selected as the relocation criterion so as not to create a non-conforming building.

The top of the bluff alignment (all of W2 and part of W3) avoid more residential relocations than Alternative W1 and part of W3; however, as shown in the following section, more land is affected. Alternative W1 would require 16 residential relocations, including several in the Shady Brook Acres/Fleck's Subdivision (see Plate 1 of the Aerial Photo Exhibit). Alternatives W2 and W3 avoid relocation impacts to that subdivision, thereby decreasing the number of residential relocations to six or eight. Alternative W2 would require relocations in the top of bluff community (including the Spruce Haven neighborhood), that would be avoided by Alternatives W2 and W3. The three businesses impacted by Alternatives W1 and W3 are all located near the west end of the project and include Mn/DOT's maintenance facility. Specific details on

businesses impacted by the build alternatives are provided below in Section 3.6 Socioeconomics.

The total project land acquisition requirements range from about 700 acres to almost 1,000 acres, depending on the combination of build alternatives. Most of this land is currently in agricultural use (see also Section 3.4).

Eastern alternatives vary little in their range of impacts to residential properties. Alternative E1 would affect more residential properties than the other three eastern alternatives. Alternatives E2, E3, and E4 result in fewer impacts to existing buildings. Alternative E1 would require relocation of the Hormel Hog Buying Station, located south of US 14, directly across from the Swan Lake WMA (see Plate 3 of the Aerial Photo Exhibit).

The highest number of residential relocations anticipated under any combination of the West and East Build Alternatives is 28. There is adequate replacement housing[1] and land available within the project area to develop comparable alternative housing (right-of-way acquisition and relocation mitigation is discussed further in Section 3.6).

3.2.2.2 Right-of-Way

Review of the estimated impacts, detailed in Table 3-2 below, shows that the total project land acquisition requirements range from about 700 acres[2] to almost 1,000 acres,[3] depending on the combination of build alternatives. Not surprisingly, maximum use of the existing US 14 highway route yields the lowest total land acquisition number, although that approach also brings more residential and business relocations (see above) and other challenges as discussed in the subsections below.

TABLE 3-2
Total Land Acquisition Estimates

	West Study Section		
	Alt. W1 Existing US 14	**Alt. W2 Bluff**	**Alt. W3 Combo**
Land Acquisition (acres)	194	351	299

East Study Section [NOTE: Bracketed numbers are the impacts for the optional interchange at MN 99 instead of at CR 23]				
	Alt. E1 Through WMA	**Alt. E2 South of WMA**	**Alt. E3 Section Line**	**Alt. E4 Far South**
Land Acquisition (acres)	500 [530]	540 [570]	600 [635]	605

Table 3-3 summarizes the amount of residential, commercial/mine, and institutional lands that would need to be acquired for each of the Build Alternatives (again, agricultural and other undeveloped lands are not included in this section—see Sections 3.4, 3.9, 3.10, and 3.14). The

[1] The US Census reported that the median value of owner-occupied homes was $113,400 in Nicollet County and $85,400 in Brown County in the year 2000. A search of the website, www.mnlistingsite.com/, revealed in November 2007 that there were 20-25 homes listed in the communities of New Ulm, Nicollet, and Courtland ranging from $75,000 to $200,000. The maximum number of relocations possible for this project is 28. Given the procedures and timeframe to implement a relocation program, it is expected that replacement housing needs would be met.

[2] 694 acres is the estimated total for Alternatives W1 and E1, with the Nicollet interchange at CR 23,

[3] 975 acres is the estimated total for Alternatives W2 and E3, with the Nicollet interchange at MN 99

residential areas that are impacted include the relocations discussed above, as well as residential parcels that would be acquired in part, but do not require relocation.

TABLE 3-3
Land Acquisition Requirements in Acres

West Study Section Land Acquisition Needs by Land Use Type in Acres			
Land Use Type	**Alt. W1**	**Alt. W2**	**Alt. W3**
Residential	25	35	25
Commercial and Mine Lands	17	16	14
MN Valley Lutheran H.S.	7	0	0

East Study Section Land Acquisition Needs by Land Use Type in Acres [NOTE: Bracketed numbers are the impacts for the optional interchange at MN 99 instead of at CR 23]				
	Alt. E1	**Alt. E2**	**Alt. E3**	**Alt. E4**
Residential	60	60	50	40
	[55]	[55]	[45]	
Commercial	1	0	0	0
	[0]	[0]	[0]	

3.2.3 Mitigation Measures

All right-of-way acquisition and relocation will adhere to the Uniform Relocation and Real Property Acquisition Act of 1970, as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987 and 49 Code of Federal Regulations, part 24, effective April 1989. Two booklets entitled *Relocation: Your Rights and Benefits* and the *Guidebook for Property Owners* have been produced by Mn/DOT to provide information to residents and business owners or tenants, whose properties are being acquired and who will be displaced by construction of the proposed project. These documents are available from the Mn/DOT Office of Land Management.

At the time of property acquisition, Mn/DOT relocation advisors will be available to provide information on programs and benefits and to develop individual relocation plans; these resources are available to all without discrimination. Those impacted by residential displacement are entitled to advisory services and the reimbursement of some of the costs associated with relocation. These may include moving expenses, replacement housing costs, increased rental or mortgage payments, closing costs, and other valid relocation costs. The replacement dwelling to which a displacee relocates must be "decent, safe, and sanitary," meaning that it must meet all of the minimum requirements established by federal regulations and conform to all housing and occupancy codes. If necessary, Last Resort Housing provisions will be implemented to ensure that comparable replacement housing is available to each displacee. These provisions may include increased replacement housing payments or other alternate methods based on reasonable costs.

3.3 Land Use and Visual Quality

3.3.1 Affected Environment

The majority of the 22.5-mile long project corridor consists of agricultural land uses, including crop production and livestock farming (see Section 3.4). There are also areas of residential development; and limited commercial, industrial, and institutional development.

Key Issues—Land Use and Visual Quality:
- The effects of proposed community bypasses on existing and future land uses
- Views of the highway and from the highway may be affected—especially along the bluff on the west end of the project

3.3.1.1 Planning and Zoning Overview

Farming has long been the dominant activity in the project area. The ongoing rural nature of the study area is due, in part, to zoning policies enacted by Nicollet County in 1981 to preserve agricultural land. These regulations—intended to guide development to the cities where public utilities are available—limit residential building eligibility to one dwelling unit per quarter-quarter section of land and non-residential development opportunities outside municipal boundaries. (Development within the unincorporated portions of the project area is unsewered and does not have a centralized water treatment or supply).

Farming has long been the dominant activity in the project area. Zoning policies guide development to the cities and greatly restrict development on agricultural lands.

The Cities of Courtland and Nicollet both have comprehensive plans to guide development. Courtland's 1999 Future Land Use Plan Map identifies a future US 14 corridor north of the existing alignment. The Courtland bypass, which is included in all alternatives, is north of the location identified on the City's Future Land Use Map (see Plate 2 of the Aerial Photo Exhibit). The City of Nicollet's 1986 Land Use Plan does not include an expanded or realigned US 14 corridor. Generally, higher intensity land uses are shown near the proposed CR 23 and MN 99 interchange options; industrial uses are shown at the CR 23 interchange location and multifamily residential is located at a realigned MN 99.

In July 2005, both communities passed resolutions endorsing the removal of the existing US 14 alignment from the list of alternatives studied in this DEIS (see the *Amended Scoping Decision Document* on the Project Website). Courtland has specifically expressed its preference is for a US 14 bypass.

In July 2005, both communities passed resolutions endorsing the removal of the existing US 14 alignment from the list of alternatives studied in this DEIS.

3.3.1.2 Description of Existing Land Use from West to East

The area between Front Street and the Minnesota River bridge is the only part of the project area located in the City of New Ulm, within Brown County (see Plate 1 of the Aerial Photo

Exhibit). This area includes industrial land uses, US 14, and Minnecon Park (see Section 3.14 for more information).

The remainder of the project area is in Nicollet County. Land between the Minnesota River bridge and the intersection of US 14/MN 15/CR 21 consists primarily of floodplain. There is a small concentration of residential and light industrial/commercial development at the US 14/MN 15/CR 21 intersection, including two businesses and a Mn/DOT Maintenance facility. East of CR 37, land uses include several active farms, active mining operations (including the New Ulm Quartzite Quarry), the Shady Brook Acres/Fleck's Subdivision, and the Minnesota Valley Lutheran School (see Plates 1 and 2 of the Aerial Photo Exhibit). Several rural residences are located on top of the bluff just east of MN 15.

The clusters of residences outside of incorporated areas predate Nicollet County's current land use regulations, which would not allow for such dense development in rural areas (see Section 3.3.1.1). As shown on Exhibit 3-1, there are several undeveloped lots located west of the Shady Brook Acres/Fleck's Subdivision and south of the Minnesota Valley Lutheran High School that would be eligible for single-family home building permits. These undeveloped lots also predate Nicollet County's current land use regulations which would not allow this level of density in outside of the city limits.

The Cities of Courtland and Nicollet are developed on both sides of US 14. The populations of both communities are growing as discussed later in Section 3.6. Prior to 1990, development within Courtland largely occurred in a strip fashion that extends approximately one block north and south of the highway. Since 1990, Courtland's residential growth has gravitated south of US 14 along CR 24 toward the bluff overlooking the Minnesota River Valley (see Plate 2 of the Aerial Photo Exhibit). Commercial activity in Courtland is primarily located along US 14 and includes a car dealership, a gas station/convenience store, a bank, a hardware store, and two bars/restaurants. Industrial and agricultural-related activities located south of US 14 include a grain elevator, a gravel mine, a saw mill, a concrete business, and a machine shop.

All of the residential development in Nicollet is located north of US 14, with the exception of a mobile home park located south of the highway on the east end of the city. The majority of residential growth in the city is taking place north of MN 99, near the community's elementary school and newly constructed high school (see Plate 3 of the Aerial Photo Exhibit). According to the City Administrator of Nicollet, future residential development is expected to occur north of US 14 and west of CR 23.

Industrial development in Nicollet is located north of MN 99 and west of MN 111, as well as south of US 14 on CR 23. The City's wastewater treatment ponds are also located south of US 14 on the east side of CR 23. The remainder of the study area, from east of Nicollet to the project's eastern terminus at CR 6 near North Mankato is characterized by agricultural land use and scattered rural residential development.

3.3.1.3 Specific Land Uses

Minnesota Valley Lutheran High School— The Minnesota Valley Lutheran High School (MVLHS) is located on the northwest corner of US 14 and 561st Street in Courtland Township (see Plate 1 of the Aerial Photo Exhibit). Currently, two softball fields are located directly adjacent to US 14 just west of 561st Avenue. MVLHS is in the process of implementing the "25 and Growing" building project that includes expansion of the existing buildings, new sports

facilities, and additional parking. A wetland complex is located between the highway and the school.

Utilities— New Ulm Public Utilities provides electric, water, district energy, natural gas, and wastewater service to residents and businesses in New Ulm. Outside of New Ulm, utility services are provided by the following:

- Electric service is provided by Xcel or Blue Earth-Nicollet Cooperative Electric Association (BENCO Electric);
- Local telephone, long distance, and internet service is provided by Hickory Tech;
- Cable television service is provided by Charter Communications
- Natural gas service is provided by Reliant Energy-Minnegasco

Power transmission lines are located throughout the project area. In the West Study Section, a Great River Energy line crosses over MN 15, ending at a substation just southeast of 422nd Street. An Xcel Energy electric transmission line runs along the top-of-bluff area and crosses over MN 15. This line includes several large poles on the top-of-bluff area, as shown in the upper left photo on Exhibit 3-4. The line continues to run east, turning northeast at Heyman's Creek.

Two Xcel Energy power lines are also located at the far east end of the East Study Section. Each line crosses over US 14 just north of CR 6.

New Ulm Quartzite Quarry—Located south of US 14 on 571st Lane, this quarry contains a variety of deposits (including sand, gravel, and crushed stone). A representative from the quarry shared that plans are to mine within 300 feet of the current US 14 right-of-way; this mining will occur for the next 30 to 40 years.

Hewitt Roll-a-Docks—The City's largest industrial employer, Hewitt Machine and Manufacturing, manufactures docks, lifts, and other accessories. This business employs 94 people and is located south of US 14, east of CR 23.

3.3.1.4 Existing Visual Quality

Visual quality refers to what viewers like and dislike about the parts that make up a particular scene. Evaluation of changes to a scene's visual quality is subjective, meaning that individual opinions can vary. For example, those living near a visual resource may have a different opinion of what they like or dislike about it than those traveling by the resource.

Existing visual qualities, as well as potential changes brought about by the proposed alternatives, were evaluated using Mn/DOT's visual impact assessment methodology.[4] Descriptions of the existing visual environment are provided below using the following evaluation criteria:

[4] The six steps that comprise Mn/DOT's Visual Impact Assessment methodology include: 1) identifying the affected visual resources; 2) identifying the affected people; 3) defining the existing visual quality; 4) analyzing impacts to the visual quality; 5) summarizing visual impacts by alternative; and 6) mitigating adverse visual impacts and enhancing the existing visual quality.

- ***Natural Visual Resources*** encompass land, water, vegetation, and animals that compose the natural environment; views including these resources are described as ***harmonious*** or ***disharmonious***.
- ***Cultural Visual Resources*** are always constructed by people; these resources include buildings, structures, and artifacts that compose the cultural environment. The cultural environment of an area is described as ***orderly*** or ***disorderly***.
- ***Project Coherence*** refers to what viewers like and dislike about the project environment; this is evaluated as being either ***coherent*** or ***incoherent***.

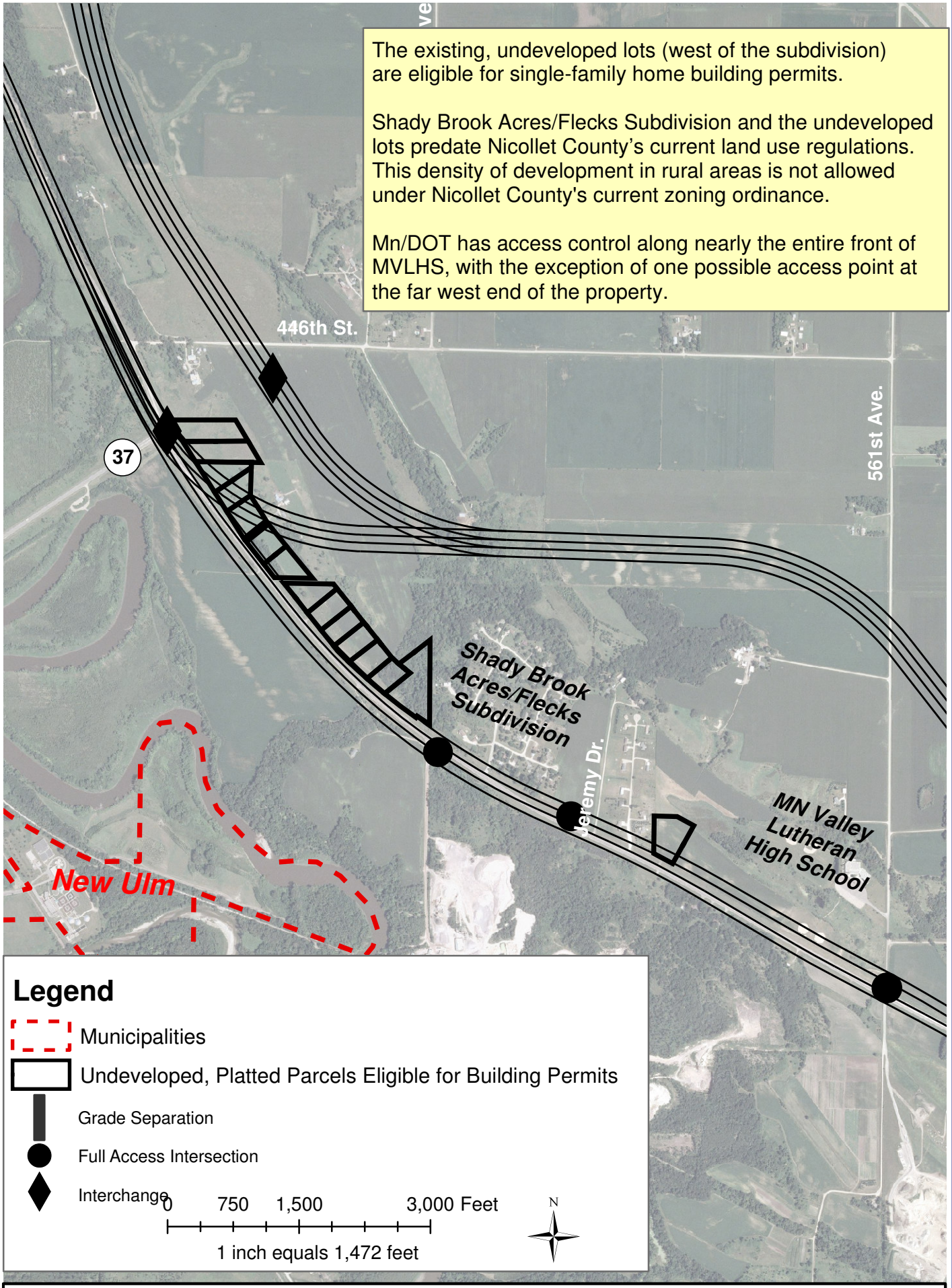
West Study Section (New Ulm to Courtland)—The visual resources characterizing this area, between New Ulm and Courtland, can be generally characterized into two distinct areas the river valley (bottom-of-bluff) and the top-of-bluff. An evaluation of the existing visual quality of these areas is provided below.

River Valley/Bottom-of-Bluff—Natural elements along the existing US 14 corridor between the Minnesota River bridge and CR 37 provide travelers and residents with harmonious views of a prominent bluff that extends approximately 150 feet above existing US 14, the Minnesota River, floodplain, floodplain forests, and remnant river corridors. East of CR 37, views of the natural environment are still harmonious, although less dramatic, as the landscape is primarily composed of large crop fields and scattered development.

Views from the base of the wooded bluff are most visible from US 14 just past the US 14/MN 15/CR 21 intersection through the US 14/CR 37 intersection. Exhibit 3-2 shows the view from the US 14/MN 15 intersection, looking towards the forested bluff, while the top photo on Exhibit 3-3 shows US 14 farther east—provides an eastbound traveler's view of the forested bluff on the left, and the Minnesota River Valley to the right.

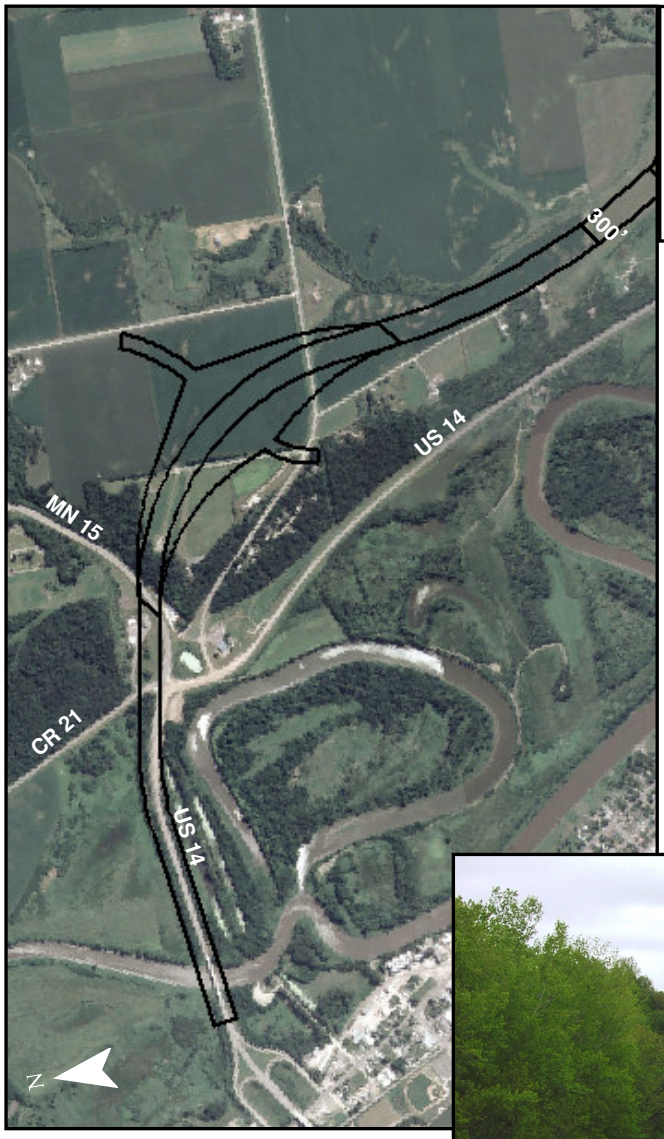
As described above in Section 3.3.1.4, cultural (or man-made) visual resources along existing US 14 include scattered residential, commercial, industrial, and institutional development, as well as the Minnesota River bridge. The bridge is not visible from most of the US 14 corridor because of the 90 degree turn at the intersection of US 14/MN 15/CR 21 and the floodplain forests. The bridge is visible from a few river bank areas in New Ulm.

The cultural or man-made environment near the west project terminus at New Ulm is somewhat disorderly as the landscape is dotted with industrial, residential, agricultural, and institutional developments. The views of cultural features become more orderly proceeding east, as views feature rural homes and bluff woodlands, which later transition to large crop fields and farmsteads. Visual resources in the bluff/river area are generally coherent, in that those living there and driving along existing US 14 find the experience visually appealing—even memorable or remarkable for those new to the area. The cultural environment also includes three historic properties—the New Ulm Spring roadside parking area, located just west of CR 37 next to the wooded bluff; and two historic barns, located between CR 37 and Courtland. The historic barns contribute to the overall rural/agricultural context of the area, as do the many other agricultural buildings, rural residences, and large crop farms that become more prevalent east of CR 37 (see also Section 3.13 and Appendix A: Draft Section 4(f) Evaluation).



US 14 EIS
New Ulm to North Mankato
06-05-07

Exhibit 3-1
Parcels with Development Potential



Aerial view of US 14/MN 15/CR 21 intersection from US 14 just east of Minnesota River bridge looking towards bluff (see ground view below)

Ground view of US 14/MN 15 intersection just east of Minnesota River bridge looking towards the bluff (also see aerial view above)

Existing US 14 - Next to Bluff (left) and Minnesota River Valley (right)

Existing US 169 South of St. Peter – Example of a 4-Lane Constrained Highway Design

Top-of-Bluff—Drivers reach the top-of-the-bluff from existing US 14 by driving up the steep hill on MN 15 or CR 21 (see the Aerial Photo Exhibit). The man-made or cultural environment on top-of-the-bluff between existing MN 15 and CR 21 include rural residential (described above in Section 3.3.1.2) and agricultural elements such as large crop farms; hobby farms; and rural residences. Exhibit 3-4 provides the view from Spruce Haven Lane, a gravel road located on top of the bluff, along which some rural residences are located. Two homes eligible for the National Register of Historic Places (NRHP) are also located on the bluff top (see Section 3.13 for more details on historic structures). The top-of-bluff area also includes natural elements such as Heyman's Creek, floodplain, ravines, and restored prairie areas. A few residents living in the Shady Brook Acres Subdivision along US 14 have views of the deep Heyman's Creek ravine.

The views along the bluff near the west end of the project are striking and are enjoyed by many of those living in the area (west of Heyman's Creek). Looking to the southeast, many vantage points provide panoramic views of deciduous forest, giving way to the Minnesota River Valley and sprawling floodplains, and finally the picturesque City of New Ulm, the view of which includes notable landmarks such as the Hermann Monument. Looking north, residents and drivers see vast expanses of agricultural lands, planted prairie fields, farmsteads, and rural homes.

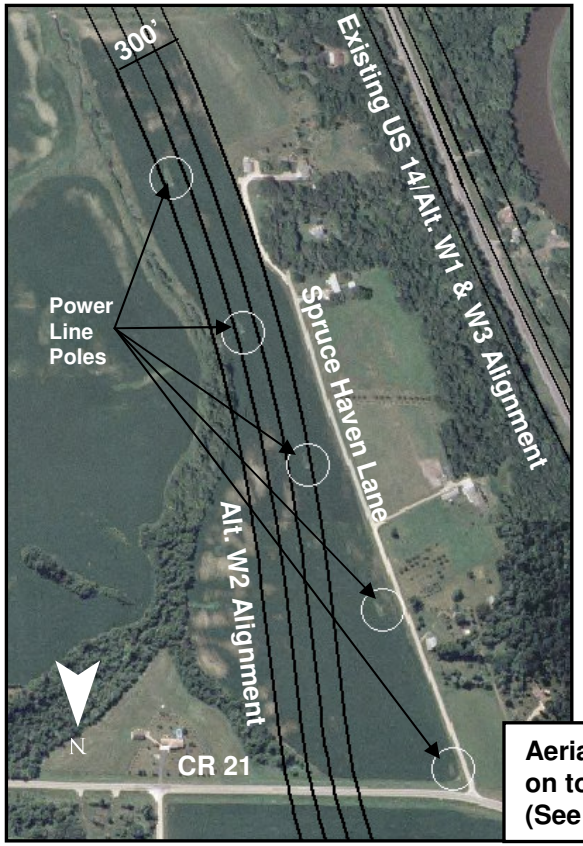
The natural and cultural features in this area combine and complement each other to form harmonious, orderly, and coherent views for those living in and visiting the area. The top-of-bluff area, in particular, provides an overview of the Minnesota River Valley and New Ulm, an historic Minnesota River City. The Nicollet County zoning code helps to ensure that this area is unlikely to develop in a manner that would change the visual character (see Section 3.3.1.1).

East Study Section (Courtland to Nicollet)—Views in this area are composed of vast amounts of large crop fields on land that ranges from flat to gently rolling, rural residences, the Cities of Courtland and Nicollet, and the Swan Lake Wildlife Management Area (WMA). Because this part of the project area is more homogeneous than the West Study Section, the visual quality analysis focused on these resources, rather than on distinct geographical areas, as was done for the West Study Section.

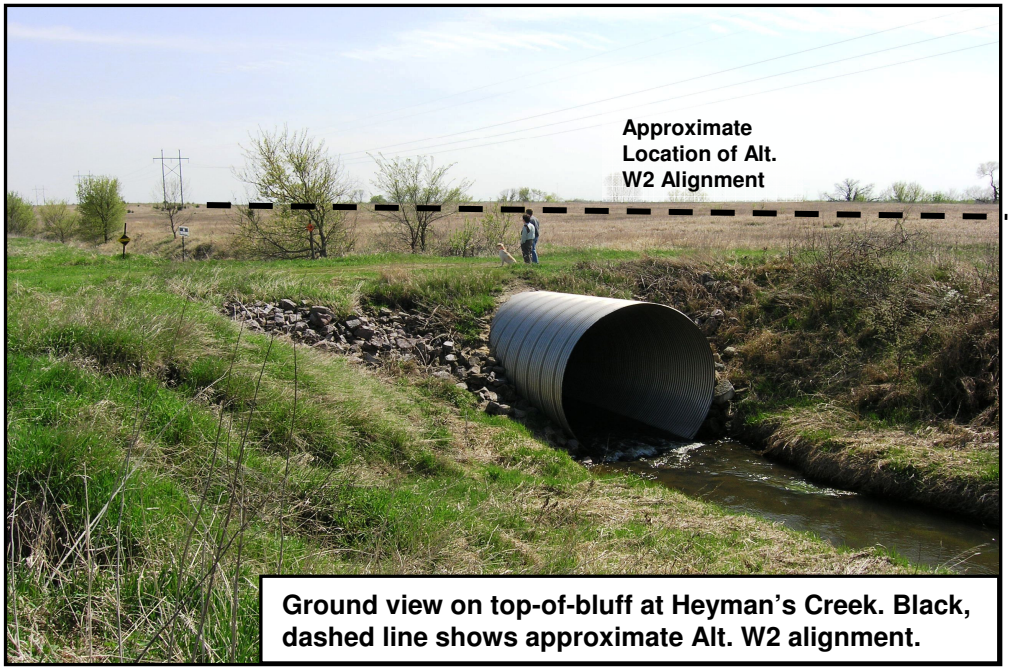
City of Courtland—Those living along or traveling on US 14 through Courtland are provided with views typical of a small Midwestern farm town, which include a mixture of residential, commercial, and institutional land uses (described above in Section 3.3.1.2). There are no striking natural or man-made features in Courtland; however the views are generally orderly and coherent, within the context of small, rural communities that support agricultural activities.

The views along the bluff near the west end of the project are striking and are enjoyed by many of those living in the area. The Nicollet County zoning code also helps to ensure that this area is unlikely to develop in a manner that would change the visual character.

City of Nicollet—Those living along or traveling through Nicollet experience less of a small Midwestern farm town compared to Courtland. (These qualities do exist in Nicollet, north of US 14). US 14 through Nicollet includes views of scattered residential, commercial, and industrial land uses. There are no striking natural or man-made features on US 14 through Nicollet.



Aerial view of proposed Alt. W2 alignment on top-of-bluff near Spruce Haven Lane. (See photo below for ground view).



Ground view on top-of-bluff at Heyman's Creek. Black, dashed line shows approximate Alt. W2 alignment.

Ground view on top-of-bluff from Spruce Haven Lane looking roughly south. (See photo above for aerial view and more precise location of Alt. W2 alignment).

Swan Lake Wildlife Management Area (WMA)—The WMA is the most noteworthy natural feature in the east study section. However, Swan Lake itself is not visible from the highway as the flat land limits views of this expansive resource (see Section 3.14 for additional discussion of the WMA). A sign identifying the WMA is visible to drivers, as well as some restored prairie and wetland vegetation.

Agricultural Areas—Landscape in the East Study Section, particularly east of Courtland, is almost entirely agricultural with harmonious and orderly views of open land and large crop fields cultivated for corn and soybeans. There are two historic properties visible from US 14 in the East Study Section—one historic house and one barn—which add to the overall agricultural context of the area (see Section 3.13 and Appendix A for more details).

3.3.2 Environmental Consequences

3.3.2.1 Planning and Zoning Impacts

As discussed in Section 3.3.1.1, Nicollet County uses the zoning ordinance to guide new development towards cities and available public utilities. Because of the County's goal to preserve agricultural land, it is anticipated that land use designations in rural Nicollet County will remain unchanged, regardless of the alternative.

3.3.2.2 Land Use Impacts

Land acquisition for highway right-of-way would comprise the most basic land use impact, as it would convert existing private and public lands to use in transportation. The conversions required for each build alternative are presented above, in Section 3.2, Relocations and Right-of-Way.

West Study Section (New Ulm to Courtland): Build Alternative Land Use Impacts—The western build alternatives differ primarily in relation to Minnesota River valley and the top-of-bluff area. As presented in Table 3-1, above, the total land acquisitions would be considerably different given these choices. The top of the bluff alignment (all of W2 and part of W3) would affect more new land; however these alternatives require fewer residential relocations, primarily by not relocating residents of the Shady Brook Acres/Fleck's Subdivision.

None of the Build Alternatives near the west end would promote substantial additional growth in that area because of Nicollet County's zoning policies on rural growth (see Section 3.3.1.1) and because New Ulm does not provide public utilities north of the Minnesota River. The one potentially important comparison would be in the area near Minnesota Valley Lutheran High School, where there are several undeveloped lots located west of the Shady Brook Acres/Fleck's Subdivision and south of the Minnesota Valley Lutheran High School (see Exhibit 3-1). Under Alternative W1, the acquisition of right-of-way in this area would serve to eliminate private access points; this would favor consolidation of these private parcels which would likely result in land uses that are compatible with the High School, or even potential ownership of the parcels by the High School. Alternatives W2 and W3, however, bypass this area; this would in turn mean that Nicollet County, not Mn/DOT, would have jurisdiction over both the adjacent road (old Highway 14) and the lots, which would be more feasible for single-family development.

3.3.2.3 Specific Land Use Impacts

New Ulm Quartzite Quarry—The Alternative W1 alignment past the quarry was shifted slightly north to minimize impacts to the quartzite resource along US 14.

Minnesota Valley Lutheran High School— Alternative W1 would impact 7 acres of the Minnesota Valley Lutheran High School property, including existing ball fields located adjacent to US 14 (see Plate 1 of the Aerial Photo Exhibit). The school shows planned uses of the area that would be impacted on the "25 and Growing "plan, including a concessions area, a football/track facility, and parking. The common portion of Alternative W2 and W3 avoids the school.

Under all build alternatives, both Courtland and Nicollet would be afforded the opportunity to set new visions for the bypassed "old" US 14 corridor through each town.

Under Alternative E4 (the far south bypass of Nicollet), development pressures should be expected to shift most dramatically as compared to any other build alternative.

Utilities—The No Build Alternative would not impact local utilities. For the Build Alternatives, existing utilities may require adjustment and relocations due to the highway construction. This is especially true at the top-of-bluff portion of Alternative W2 which would require moving and replacing a portion of a power line and several large poles (see Exhibit 3-4 the exact location of the power poles). There is also a power line with large poles located on the south side of US 14 at the far east end of the study corridor—where all eastern alternatives share the same alignment. Mn/DOT will coordinate with local utilities during the project's design phase, to define any adjustments or relocations.

East Study Section (Courtland to Nicollet): Build Alternatives Land Use Impacts—Similar to the choices in the West Study Section, Table 3-1 shows that total land acquisitions to the east would differ by as much as 100 acres—Alternative E1 requiring conversion of about 500-530 acres along existing US 14 (while bypassing the local communities) and Alternatives E2, E3, and E4 requiring from 540 to 635 acres. Alternative E1 would require acquisition of more residential properties and would provide fewer opportunities to limit direct highway access than the other eastern build alternatives. Alternatives E2 and E3 increasingly provide more opportunity for optimal highway design and fewer impacts to existing buildings; however, they also impact on more agricultural lands (Section 3.4).

The Courtland bypass, common to all eastern alternatives, is north of the bypass location identified on the City of Courtland's 1999 Future Land Use Plan Map; however, the proposed bypass would not alter the City's land use plans for that area.[5] The bypass alignment also preserves the existing residential, commercial, and industrial land uses along the existing US 14 alignment, with the exception of five residential relocations that would be needed for the extension of CR 24 up to the bypass north of Courtland (see the Aerial Photo Exhibit).

[5] During alternatives development, it was determined that the bypass location identified by the City of Courtland would require placing an interchange on the slope of the bluff. The Courtland bypass and US 14/CR 24 interchange being studied in this DEIS is able to accommodate the bypass and interchange without placing the interchange on the slope of the bluff.

Under all build alternatives, both Courtland and Nicollet would be afforded the opportunity to set new visions for the bypassed "old" US 14 corridor through each town. As discussed in Scoping Documents, in Section 1, and in other portions of this DEIS, the high volumes of through traffic on existing US 14 through the towns (which would increase under a No-Build future) contribute greatly to the need for bypasses and other highway improvements.

Alternatives E1, E2, and E3 pass through the southern portion of Nicollet. However, because most new residential development in Nicollet is planned for the northern portion of the city, the nearer bypass configurations would not substantially affect residential development plans. However, the near bypass configurations would limit industrial development, particularly the Hewitt Lifts & Roll-a-Dock (see below). Through the final highway design process, the first three alternatives would also allow for close coordination between interchange and local roadway designs and nearby land uses.

Alternative E4, in contrast, is about one mile south of existing US 14 and outside the city limits of Nicollet, which makes it a "true bypass"—potentially less convenient to the local community, but also a more direct route for through traffic. Selecting Alternative E4 would promote an expansion of Nicollet to the south, as the opportunity for more intensive land use one mile south of existing US 14 would naturally be addressed by the City and Nicollet County. This one choice thus raises perhaps the biggest tradeoff in consideration of future land uses impacts, as development pressures should be expected to shift most dramatically as compared to any other build alternative.

As discussed in Section 2, Alternatives E1, E2, and E3 include consideration of interchanges at CR 23 and on a realigned MN 99 (along the east side of Nicollet). Alignment E4 considers an interchange only on CR 23. An interchange at CR 23 would remove the existing US 14/MN 99 connection (existing US 14 would become a county road). Nicollet traffic would access US 14 via the CR 23 interchange, resulting in changes to current traffic movements through Nicollet. An interchange at a realigned MN 99 on the east side of Nicollet would remove some truck traffic from the downtown area of Nicollet (see Section 3.5 for additional traffic impact discussion).

Nicollet's Comprehensive Plan places higher intensity land use designations near the proposed interchanges. The area near the proposed CR 23 interchange is shown as industrial; and the area near the realigned MN 99 is shown as multifamily residential. Property owners in these areas, including Hewitt Lifts & Roll-a-Dock operation and the mobile home park, have discussed potential expansions with the City. While these sites would not need to be acquired under Alternatives E1, E2, or E3, construction of either interchange option would limit the space available to Hewitt Lifts & Roll-a-Dock or the mobile home park for future expansion.

3.3.2.4 Visual Quality Impacts

All proposed build alternatives will create some adverse impacts to visual quality by causing both minor and major changes to the visual resources of the natural, cultural, and project environments. Impacts to specific resources by alternative are discussed below.

Field observations and photographs were used to evaluate the natural and cultural scenes experienced by residents and travelers and how these scenes would be impacted by DEIS alternatives. The evaluation criteria used to describe these impacts are from Mn/DOT's visual impact assessment methodology; they are summarized below.

- ***Scale of Impact***—refers to physical change to visual resources; described as major or minor.
- ***Extent of Impact***—describes the number of viewers affected by changes that would be brought about by the proposed alternatives; described as localized or widespread.
- ***Value of Impact***—describes how individuals define impacts to visual resources; defined as beneficial, adverse, or neutral. Value of impact may vary between individuals; for example, those living near a resource may have a different opinion of an impact than those driving by a resource.

The top-of-bluff alternatives—all of W2 and part of W3— would result in the most major and adverse impacts to visual quality and context in the West Study Section. Alternative W1 would largely maintain the visual quality currently experienced along US 14.

Another related factor in today's highway design practice is whether the project can be built in a manner that best fits the area's context—these goals are often called context-sensitive design or context-sensitive solutions (CSD/CSS). While these methods are evolving, the basic goal of context-sensitivity is excellence in transportation design, considering a full range of inputs, including: satisfaction of purpose and need, awareness of community values, and satisfaction for stakeholders (including transportation agencies, resource agencies, local governments, and the public). The process of developing a project in a context-sensitive manner, therefore, generally includes the steps being taken to develop and evaluate this project, including an understanding of transportation needs, environmental features, and stakeholder objectives.[6] Context-sensitivity is also often expressed with reference to the visual environment and so it is reasonable to discuss it in this section of the DEIS. However, visual impacts are not the only concern in good design. For this project, a good fit to context is probably best expressed in terms of how project transportation solutions suit the environment overall, considering the US 14 corridor values of agriculture, small communities, the bluff-river environment near New Ulm, and the area's many other natural and cultural features.

No Build Alternative –This alternative would result in only minor changes to the natural and cultural environments. Overall, views would remain unchanged, with the exception of the widespread increase of traffic and congestion along the corridor. Increasing traffic volumes and congestion would most adversely impact the visual quality of the communities of Courtland and Nicollet. As discussed in Section 3.3.2.2, this no-build future is in contrast to the build alternatives' potential to greatly reduce traffic through the towns, along with the opportunity to visually enhance the bypassed "old" segments of US 14.

Build Alternatives—West Study Section (New Ulm to Courtland) – The top-of-bluff alternatives—all of W2 and part of W3—would result in the most major and adverse impacts to visual quality and context in the West Study Section. Alternative W1 would largely maintain the visual quality currently experienced along US 14. Specific visual quality impacts are described below, by geographic area in the west study section.

[6] While there are a number of CSD/CSS practice references, two of the most noteworthy publications are: *Flexibility in Highway Design* (FHWA, 1998) and *NCHRP Report 480—A Guide to Best Practices for Achieving Context Sensitive Solutions* (Transportation Research Board, 2002).

Minnesota River Crossing—All western build alternatives include expansion of the current bridge from two to four lanes, and raising the bridge elevation to provide greater clearance of the floodway and floodplain below the bridge. The four-lane bridge will match the elevation of US 14 at Front Street (the end of the study area). Because the bridge will match the elevation of the existing roadway, drivers and residents would still witness the floodplain forests along the riverbanks—there would be little change when construction is complete.

River Valley (Bottom-of-Bluff)—The common portion of Alternatives W1 and W3 would result in minor changes to the natural and cultural environments currently experienced by those traveling along US 14. Residents of homes along US 14, as well as those working and going to school at the MVLHS would likely view the highway expansion as an adverse visual impact. However, this perception would be localized to these individuals; drivers would find visual changes neutral because the changes to the visual environment would be minor.

The narrow, urban four-lane cross section proposed between US 14/MN 15 and US 14/CR 37 would substantially minimize visual impacts of Alternative W1, including views of the highway, bluff, and floodplain (see Exhibit 2-3 for details on the urban cross section). The top photo in Exhibit 3-3 shows a typical, current view from the US 14 corridor in this area. The photo at the bottom of Exhibit 3-3 shows US 169 south of St. Peter which was built using a constrained, four-lane cross section located between a river and a bluff. This photo illustrates how Alternatives W1 or W3 would likely look along the bluff-river segment, if constructed.

The two proposed interchanges along the W1/W3 bluff-river area would change the existing visual environment by replacing stop-controlled intersections with larger interchange footprints. Both interchanges require acquisition of properties. Alternative W1 continues along the existing US 14 alignment east of CR 37; property acquisition needed for construction, and the expanded highway would result in minor changes to the existing built environment. The constrained urban roadway cross section proposed for W1 and W3 would also help minimize change in highway design context, as it provides a transitional segment from the New Ulm urban street to the very wide-open rural cross section proposed for segments east of the river-bluff area. At this point in the design process, a number of interchange configurations also remain possible along the river-bluff area, offering potential to fit the areas at MN 15 and at CR 37 both functionally and contextually (including aesthetic treatments and avoiding or minimizing other adverse impacts).

The constrained urban roadway cross section proposed for W1 and W3 would help minimize change in highway design context, as it provides a transitional design from the New Ulm urban street to the very wide-open rural cross section proposed for segments east of the river-bluff area.

Under Alternative W2, the main design context issues concern the grade's relationship to highway function in the transition from the streets of New Ulm to the full expressway cross section on top of the bluff. Under this alternative, the logical relationship of grade and speed is awkward.

As described above, the river valley alignment passes by three historic properties. The common portion of Alternative W1/W3 passes by the New Ulm roadside parking area (RPA)-see the

Aerial Photo Exhibit, plate 1. Views of the wall would remain unchanged under the proposed alternative passing by the wall; however, drivers would no longer be able to pull-off the highway to view the wall. One historic barn would be acquired as part of highway widening. This has a minor, adverse effect on existing views as well as the area's agricultural context (see Section 3.13 and Appendix A: Draft Section 4(f) Evaluation) for more details).

Top-of-Bluff—The top-of-bluff alignment just east of existing MN 15 would result in the most dramatic and widespread visual and contextual changes to the natural and cultural environment in the West Study Section. Drivers leaving New Ulm on the proposed Alternative W2 alignment would climb the bluff near MN 15. The highway's path up the bluff under Alternative W2 is shown in the top photograph on Exhibit 3-2. A substantial new depth of fill (estimated at up to 45 feet) and then a cut into the bluff (up to 56 feet of cut) would be required to obtain an acceptable highway grade (5 percent) and for accommodating the new MN 15 interchange at the top of the bluff. These features would dramatically re-shape and open the bluff area and thus change views of the bluff and from the bluff. The main design context issues for this alignment concern the grade's relationship to highway function in the transition from the streets of New Ulm to the full expressway cross section on top of the bluff. Under Alternative W2, the logical relationship is awkward because vehicles would be going up hill into the higher-speed rural context and downhill into the lower-speed urban context.

As described above, some rural residential properties will be acquired to accommodate the W2 alignment at the west end of the bluff, including two homes along Windhaven Lane (see Plate 1 of the Aerial Photo Exhibit). Residents remaining on the bluff top after construction—especially the one remaining home along Windhaven Lane and the residences along Spruce Haven Lane—would experience adversely impacted views to the north and west of their properties. The current view of a harmonious rural-residential landscape would be replaced by a four-lane highway and interchange. It is notable that one home along Spruce Haven Lane is eligible for the National Register for Historic Places. The proposed highway alignment and interchange would effectively isolate the homes remaining along Windhaven Lane and Spruce Haven Lane between the bluff and the highway; thereby cutting these residences off from the context of the larger rural environment.

Re-routing MN 15 along 577th Avenue would also adversely affect the visual quality of two homes located along 577th Avenue—one of which is eligible for the NRHP. See Section 3.13 and Appendix A: Draft Section 4(f) Evaluation for more details regarding the NRHP eligible properties. The visual quality impact to the homes along existing 577th Avenue would be somewhat less than experienced by other top-of-bluff residences because existing views of a gravel road would be replaced by a two lane state highway and local street , rather than a four-lane highway and interchange.

The top-of-bluff alignment would likely be viewed as neutral to beneficial by those traveling along a realigned US 14 and MN 15. Depending on how the highway would be built, those traveling along US 14 could potentially experience panoramic views of the river valley and New Ulm currently enjoyed by the residents of this area because the corridor would be located on a bluff approximately 150 feet above the existing highway.

Moving to the east, views of the ravine associated with Heyman's Creek currently enjoyed by a few residents of the Shady Brook Acres subdivision would be adversely impacted by the

placement of a raised, four-lane highway. Travelers through this area would most likely see views of the Heyman's Creek ravine in a more positive light.

Finally, the top-of-bluff alignment, as it angles southeast to tie into the northern bypass of Courtland, would adversely impact the views of the agricultural environment, including views from two properties eligible for the NRHP.

Build Alternatives—East Study Section (Courtland to North Mankato)— The bypasses of Courtland and Nicollet remove US 14 from these communities, creating a dramatic visual and contextual change for both residents and drivers. Generally, the closer an alignment is to the existing highway, the less impact it would have to the agricultural landscape that dominates the East Study Section. Other changes to specific visual resources are discussed in detail below.

Cities of Courtland and Nicollet—The bypasses of Courtland and Nicollet would provide drivers with panoramic view of the agricultural landscape that is familiar in the area. Travelers would no longer witness the "small town" visual experience currently provided by US 14 particularly through Courtland. Alternatives E1, E2, and E3 approach the southern edge of Nicollet, where a new highway would become part of the City's character. Alternative E4's far south proximity would offer a more rural experience where drivers would not see Nicollet.

As previously noted (Section 3.3.2.2), the build alternatives also offer substantially reduced traffic volumes through the towns, along with the opportunity to visually enhance local community functions along the bypassed "old" segments of US 14 which would primarily benefit the local residents. This change is considered a fitting shift in context, as increased traffic volumes (especially through-traffic and trucks) are more compatible with the proposed expressway bypasses than with the highway routes through the communities.

Swan Lake Wildlife Management Area—Alternatives E1 and E2 would have minimal visual impact on the Swan Lake WMA landscape. Residents and travelers have witnessed a roadway adjacent to the WMA for many years. A four-lane highway would continue to provide a cohesive view of the WMA. Travelers would not have a close view of the WMA under Alternatives E3 and E4 given the distance of those alternatives from the WMA.

Agricultural Areas—All eastern alternatives would cut through farmland used for row crops with a four-lane highway and interchanges. As shown on Plates 3 and 4 of the Aerial Photo Exhibit, Alternatives E1 and E2 most closely follow the existing US 14 alignment with the exceptions of the Courtland and Nicollet bypasses. Alternatives E3 and E4 minimally use the existing US 14 alignment. This creates the greatest visual impact because the four-lane roadway would interrupt the visual pattern of rural, agricultural activities. Alternative E4 would provide the most dramatic visual change with the far south bypass of Nicollet. The top of Exhibit 3-5 provides a view of the current two-lane US 14 along a rural portion of the study area. The bottom photo in Exhibit 3-5 provides a view from a rural, four-lane, divided highway. As demonstrated in this photo, there is little visual difference between a two-lane and four-lane rural highway. The primary difference between alternatives would be whether or not an alternative uses existing US 14 alignment or would diverge into agricultural areas.


Classic
TRENDS
Existing US 14 2-Lane Rural Highway Design


Representative 4-Lane Rural Highway Design

3.3.3 Mitigation Measures

As described above, the alternatives that most closely follow the existing US 14 alignment avoid and minimize adverse impacts to the natural and cultural visual resources. Alternatives that deviate the most from US 14 would create the greatest degree of adverse impacts to the natural and cultural visual resources (Alternative W2 and part of W3 in the west and alternatives E3 and E4 in the east). If an alternative that closely follows the existing US 14 alignment is selected as the preferred alternative (Alternative W1 and part of W3 in the west; and Alternatives E1 and E2 in the east), minimal mitigation would be required.

The project will attempt to avoid diminishing and obstructing desirable harmonious, orderly, and coherent views. Impacts that cannot be avoided will be minimized. For example, consideration will be given to landscaping to minimize the visual impacts that would be caused by Alternative W2 to those residents currently living on the bluff top.

3.4 Agricultural Resources and Soils

3.4.1 Affected Environment

3.4.1.1 Agricultural Resources

Agricultural land is the predominant land use within the study area, particularly within the East Study Section. Table 3-4 summarizes the crops grown in Nicollet and Brown Counties and the acreage devoted to each crop. Corn for grain and soybeans are the predominant crops, which together accounted for more than 90 percent of the harvested cropland in 2002.

TABLE 3-4
2002 Harvested Cropland Statistics for Brown and Nicollet Counties

	Brown County		Nicollet County	
	Acreage	**Percent of Total**	**Acreage**	**Percent of Total**
Corn for grain	133,676	46%	107,835	48%
Soybeans	129,966	44%	101,194	45%
Forage (hay)	11,182	3.8%	5,834	3%
Vegetables	11,221	3.8%	4,544	2%
Wheat for grain	2,858	1%	918	0.4%
Oats & Barley for grain	1921	0.7%	1,625	0.7%
Other	2,043	0.7%	2,086	0.9%
TOTAL Harvested Cropland[1]	292,867	100.00%	224,036[a]	100.00%

1=In 2002, there were 19,398,309 acres of harvested cropland in Minnesota. Brown County's cropland accounts for 1.5 percent of this total; Nicollet county's cropland accounts for 1.1 percent.

Source: USDA National Agricultural Statistics Service; 2002 Census of Agriculture

Table 3-5 provides the market value of crops and livestock sold in Brown and Nicollet Counties in 2003. Hogs and pigs represent more than half of the dollar value of livestock in both counties. In 2002, the dollar value from sales of hogs and pigs was over $51 million in Brown County and over $53 million in Nicollet County, ranking 4th and 5th respectively out of all Minnesota counties (USDA National Agricultural Statistics Service, 2002 Census of Agriculture – County Data).

TABLE 3-5
Value of Agricultural Products Sold in 2003

	Brown County		Nicollet County	
	Value of Cash Receipts	**State Ranking**	**Value of Cash Receipts**	**State Ranking**
Crops	$72,839,000	28	$57,734,000	37
Livestock, Poultry & Their Products	$92,569,000	12	$90,601,000	14
TOTAL	$165,408,000.00		$148,335,000.00	

Source: 2004 Minnesota Agricultural Statistics

3.4.1.2 Soils and Prime Farmland

The topography and soil types in the West and East Study Section are markedly distinct. West of Courtland, the topography includes wooded bluffs along the Minnesota River valley, and little agricultural activity. East of Courtland, the topography is generally flat and poorly drained and almost all of the land is agricultural.

Key Issues—Agricultural Resources and Soils:
- The impacts of proposed alternatives on farmlands, including land acquisition, parcel severances, and effects on farm field access
- The project's effects on prime agricultural land

The area west of Courtland contains sandy, loamy, and clayey soil formations on bluffs and terraces above the Minnesota River that range in slope from 2 to 70 percent. Soils on the river bluff terraces and floodplain were formed from post-glacial sandy and gravelly sediments derived primarily from the surrounding uplands.

East of Courtland, nearly all of the land lies within the Canisteo-Webster-Nicollet and Cordova-Lester-Le Sueur soil associations, which are generally level and very poorly to moderately well drained. Because of the poor drainage capacity of these soils, much of the farmland in this area is either ditched, tile-drained, or both.

Prime Farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. In order to be designated as Prime Farmland, these lands must be zoned for agricultural use. Generally, with proper soil management, Prime Farmland is highly productive in terms of bushels produced per acre.

The Soil Survey for Nicollet County states that 74 percent of Nicollet County is considered Prime Farmland (NRCS 1994). A considerable amount of Nicollet County's Prime Farmland is located in the Canisteo-Webster-Nicollet soil association east of Courtland. In the West Study

Section, Prime Farmland is limited to loams in the Dickinson, Plainfield, Terril and Wadena soil series on slopes less than 6 percent.

3.4.2 Environmental Consequences

Agricultural impacts resulting from roadway construction, especially on new alignment away from the existing highway location, include farm severances and hindrances to field access. In some cases, such impacts may make agricultural production infeasible on a piece of land or unprofitable for the affected farmers. Agricultural severances occur when a roadway divides an agricultural parcel into two or more smaller parcels. Severances can negatively impact agricultural production when the severed parcels become too small to be efficiently farmed, are of an irregular shape that makes cultivation difficult, or are separated from adjacent farmed parcels. To the extent possible, Build Alternatives in the East Study Section were developed to follow quarter-quarter section lines to be consistent with typical property ownership boundaries and minimize severance impacts.

Table 3-6 summarizes prime farmland and agricultural parcel impacts by Build Alternative. The parcel impacts shown below are based on impacts to parcels affected by proposed new highway corridors, including new US 14 alignments and connecting roads on new alignments). Generally, the Build Alternatives that most closely follow the existing US 14 alignment (W1 and E1) would impact agricultural parcels the least. Parcel ownership was not considered in this analysis.

TABLE 3-6
Estimated Agricultural Land Acquisition, Prime Farmland Impacts, Agricultural Parcels Impacts, and Severances by Build Alternative

Alternative	Agricultural Land Acquisition (Acres)	Prime Farmland Impacts (acres)*	Agricultural Parcels Impacted	Agricultural Parcels Impacted by Severance
W1	145	80	12	1
W2	300	195	24	12
W3	260	125	18	15
E1	435 [475]	280 [270]	27 [34]	17 [22]
E2	480 [515]	300 [280]	30 [36]	17 [22]
E3	550 [590]	360 [350]	39 [46]	24 [18]
E4	565	415	50	25

* The acreage of prime farmland impacts shown in Table 3-6 are considerably lower than the total acres of prime and unique farmland reported on the AD-1006 Farmland Conversion Impact Rating Sheets (included at the end of Section 4, Comments and Coordination. This is because the figures only include acres that are currently zoned for agricultural use and do not include any area within the city limits of Courtland or Nicollet, or any of the area already within existing Mn/DOT right-of-way. Five agricultural parcels are severed by the common alignment (north of Courtland) between the East and West segments of the project area.

[Bracketed numbers are the impacts for the optional interchange at MN 99 instead of at CR 23.]

A comparison of estimated prime farmland impacts (Table 3-6) to total project land acquisition requirements (Table 3-1) indicates that about 40 to 70 percent of the lands needed for the build

alternatives is prime farmland. When non-prime farmland is added, this indicates that about 80 to 90 percent of the needed land for the project is currently in agricultural use.

Farmland Conversion Impact Rating forms (form AD-1006) were completed for all build alternatives as required under the Farmland Protection Policy Act (FPPA).[7] The AD-1006 forms were completed for this DEIS because this project would receive federal funding and because prime farmland would be converted under all build alternatives. These forms are located at the end of Section 4, Comments and Coordination.

3.4.3 Mitigation Measures

Mn/DOT would comply with applicable laws concerning just compensation for land acquisition, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 USC 4601). Measures would include use of a qualified appraiser to perform an assessment based on fair market value and may potentially include the "cost to cure" for impacts such as lost access to fields.

3.5 Transportation

3.5.1 Affected Environment

3.5.1.1 Highways

As discussed in Section 1.1, US 14 is a major east-west highway in southern Minnesota that is part of the state's Trunk Highway system. This corridor connects New Ulm to Mankato—both growing regional trade centers within Mn/DOT's Interregional Corridor (IRC) system. It serves daily commuters and commercial or truck traffic, and also provides access to homes, farms, and businesses. As discussed in Section 1.3.3.3, the existing US 14 corridor contains more accesses per mile than the statewide average for similar highways, as well as more accesses per mile than what is recommended by IRC guidelines. Many of the existing access points along US 14 are private.

Key Issues—Transportation

- Satisfying the purpose of and need for the project (see Section 1)

- Grades, highway cross section design, and access management under various alternatives

The local and supporting road system along US 14 is made up of frontage roads, parallel minor arterial/collector roads, and "across highway" roads. Section 1.3 discusses the identified deficiencies along US 14 which include issues relating to safety, capacity, and highway and bridge design deficiencies. Crash problems exist at several intersections where US 14 intersects other highways, including US 14/MN 15/CR 21, US 14 and CR 37, and US 14 and MN 111/CR 23. The segment of US 14 between MN 15/CR 21 and CR 37 has the highest crash rate of the entire corridor. The intersection of US 14/MN 15/CR 21 has the highest intersection crash rate on the corridor, with the US 14/CR 37 having the third highest crash rate. (The intersection with the second highest crash rate is at US 14 and MN 111/CR 23).

[7] The purpose of the FPPA is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of prime and statewide important farmland to non-agricultural uses.

As documented in Section 1.3.3.1, the traffic volumes in these areas are increasing, and are expected to continue increasing, which may further worsen the crash problems.

As noted in Section 1.3.2.2, trucks make up about 13 percent of all traffic on US 14 between New Ulm and Mankato. In addition to truck traffic on US 14, MN 111 also carries a large volume of truck traffic through Nicollet. Much of this truck traffic is either bound for or coming from US 14. Southbound MN 111 traffic bound for US 14 west access the highway via MN 99. Eastbound traffic continues south to the junction with US 14.

3.5.1.2 Mass Transit

The Brown County Heartland Express provides dial-a-ride transit services between 7:15 am and 5:00 p.m. on weekdays, and between 8:00 a.m. and 12:00 p.m. on Sundays to residents of Brown County, including New Ulm. The remainder of the study area is not served by bus service. Within Nicollet County, transit service is provided in the Cities of St. Peter and North Mankato.

3.5.1.3 Air Service

The New Ulm Municipal Airport (KLUM) is located on US 14 west of the project area, near the west city limits of New Ulm. The airport provides on demand charter service.

3.5.1.4 Rail Service

A Dakota, Minnesota and Eastern (DM & E) railroad track runs parallel to Front Street at the west end of the project limits in New Ulm. The railroad tracks continue eastward, generally remaining south of, and following the Minnesota River in Brown County for the remainder of the study area. This railroad track is part of the DM & E's mainline that extends from Rapid City, South Dakota, to Winona, Minnesota. Rail service consists of transporting freight. Passenger service is not provided on this line.

3.5.1.5 Trails and Pedestrians

The US 14 project corridor is not part of a designated bicycle or hiking trail. Trunk highways such as US 14 are generally not intended for non-motorized traffic. Pedestrian and bike traffic within the project corridor is limited to the Cities of Courtland and Nicollet which have residences, businesses, recreational, and public facilities located on both sides of the highway.

Mn/DOT's Bike Map for Southwest Minnesota rates the majority of the US 14 corridor within the project area as not suitable for bicycle traffic due to high volumes of motorized traffic. Routes paralleling US 14 to the north and south are more conducive to bike traffic given lower traffic volumes; these include CR 5 to the north and CR 25 and MN 68 to the south (see Exhibit 2-1). MN 68, which roughly parallels US 14 on the south side of the Minnesota River between Mankato and New Ulm, has lower traffic volumes and sufficient paved shoulder widths to make bicycling an acceptably safe mode of travel. In addition, MN 68 tends to be a more scenic corridor, which is a benefit for a bicycle route as most bicyclists look for scenic qualities as part of their overall travel experience.

The Nicollet County Trail Association's 2000 Snowmobile Map shows a grant-in-aid funded snowmobile trail south of US 14 between CR 37 to CR 25. These trails are funded by Mn/DNR. The trail crosses US 14 at CR 25 and remains north of US 14 through the City of Nicollet. Designated parking areas are at 547th Lane west of Courtland, and 471st Lane west of Nicollet.

The City of Nicollet is designated as a trail hub. The project area also includes other snowmobile trails that do not receive grant-in-aid funding.

3.5.2 Environmental Consequences

3.5.2.1 Safety, Traffic Operations, and Access Management Impacts

No Build Alternative The No Build Alternative would maintain the two-lane, undivided highway. Undivided highways increase the probability of head-on, opposite direction sideswipe, and passing-related crashes.

Some of the existing at-grade intersections have geometric deficiencies, such as intersection skew which is a known contributing factor to intersection crashes. Intersection skew would not be reduced or removed under the No Build Alternative.

Another crash type to consider is single vehicle run-off-the-road crashes. From 2001 to 2005, single vehicle run-off-the-road crashes resulted in 1097 fatal crashes in Minnesota—41 percent of the State's fatal crashes (source: Minnesota Department of Public Safety Crash Records Database). The No Build Alternative would not improve the safety of the roadside by providing wider clear recovery areas, flatter slopes, breakaway devices for light and sign poles, and improved guardrail and other safety hardware. These improvements provide a motorist that has left the roadway a better chance of regaining control of their vehicle or minimizing the severity if a crash occurs.

Fatal and serious injury crashes comprise a public health crisis in the U.S. and highway safety is a top priority for Mn/DOT and the State of Minnesota. The No Build Alternative would not provide an adequate level of safety for this type of transportation facility and the projected traffic volumes.

The No-Build Alternative does not address the increasing traffic volumes expected over the next 25 years. Currently, US 14 operates at either Level of Service (LOS) C or D (see Section 1.3.2.1 for more information). It is expected that under the No Build Alternative, US 14 would operate at LOS E by 2025. LOS D or E is sometimes considered acceptable in urban or suburban settings where the costs and impacts of providing additional capacity are severe. Some traffic congestion is accepted in these areas as a tradeoff to avoid other impacts. Given the rural and small town nature of the study area, a higher level of service can reasonably be expected and accomplished. The No Build Alternative does not provide adequate capacity for efficient traffic operations.

The No Build Alternative would have a lesser degree of access control. It would maintain existing traffic patterns between the local road network and the US 14 corridor, including conflict points between through traffic and traffic entering or crossing US 14. In addition to the existing at-grade intersections there would also be potential for adding access points along the highway. One example is the Shady Brook Acres/Flecks Subdivision near the west end of the study area. As described in Section 3.3.1.2, and shown on Exhibit 3-1, this area includes several undeveloped, subdivided parcels east of CR 37 and north of US 14. These parcels were platted prior to the adoption of Nicollet County's current zoning code (see Section 3.3.1.1), and are likely to be eligible for single-family home building permits. New access requires Mn/DOT approval to ensure that the access is safe and spacing is adequate. However, additional private

access in this area and along the corridor is possible under the lesser degree of access control in place under the No Build Alternative. Combined with the expected increase in traffic along the corridor, this would likely result in an increase in crashes.

Build Alternatives All Build Alternatives would improve safety and traffic operations—for both through traffic and local traffic. Expanding to a four-lane, divided highway would add enough capacity to handle future traffic volumes beyond the next 25 years (see Section 1.4.2.1). Adding interchanges and consolidating driveways would decrease the number of at-grade access points, which would reduce crashes (especially right angle crashes). This would change how the communities of Courland and Nicollet are currently accessed, from several at-grade intersections, to one interchange. Limiting direct access is consistent with Mn/DOT's plans for US 14 and with the IRC guidelines (see the Aerial Photo Exhibit for proposed access points along all Build Alternatives; also see Section 1.3.3.3 for more background). The bypasses around Courtland and Nicollet would decrease conflicts between local and through traffic. Because the opposing traffic flows are separated, the divided highway would also provide safety benefits over the existing, undivided highway—particularly fewer head-on, opposite direction sideswipe, and passing-related crashes. The Build Alternatives would also provide improved clear recovery areas and a safer roadside, reducing the number and severity of run-off-the-road crashes. Skewed intersections would be removed or realigned to improve intersection safety.

Any portion of the existing US 14 alignment that is not utilized as part of the Preferred Alternative would be turned back to Nicollet County.

The Aerial Photo Exhibit and Section 2.5 describe how local roadways would connect to the Build Alternatives. Frontage roads would also be used to consolidate private accesses. Interchange locations that require substantial changes to intersecting local, county and state roads are discussed below.

As shown on the Aerial Photo Exhibit, build alternatives use varying amounts of the existing US 14 alignment. Any portion of the existing US 14 alignment that is not utilized as part of the Preferred Alternative would be turned back to Nicollet County.

West Study Section (New Ulm to Courtland)—As mentioned above, all Build Alternatives would improve the safety of US 14. Two of the corridor's problem intersections—US 14/MN 15/CR 21 and US 14/CR 37—would use interchanges to resolve the crash problems at these locations. Several interchange configurations were developed and compared (see the Interchange Type Technical Memorandum on the Project Website). Spacing of the interchanges proposed under Alternatives W1 and W3 is similar to the spacing of the existing US 14/MN 15/CR 21 and US 14/CR 37 intersections—approximately one mile apart. This meets Mn/DOT's interchange spacing guidelines. The spacing of interchanges proposed under Alternative W2, at less than one mile, is less desirable than the interchange spacing of the other alternatives.[8]

[8] Interchange spacing of less than one mile is not desirable because it poses design, operational and safety concerns, including challenges in fitting in the appropriate road signs between ramp terminals.

For all three western alternatives, the proposed interchange near the existing intersection of US 14 and MN 15change the route of CR 21 to US 14 and New Ulm. The current interchange alternatives have CR 21 intersecting with MN 15 or local roads, which then provide access to US 14. The distance that CR 21 traffic will need to travel to access US 14 and New Ulm and the continuity of CR 21 varies depending on the alternative and the interchange configuration (see the Interchange Type Technical Memorandum on the Project Website).

Under Alternatives W1 and W3, the free trumpet interchange (see Exhibit 2-4) would result in a realignment of CR 21 that would be less direct and less continuous than the current configuration. The tight diamond under Alternatives W1 and W3 (see Exhibit 2-5) and the roundabout (see Exhibit 2-6) would provide good route continuity for US 14, MN 15, and CR 21. Compared to all interchange locations under consideration at US 14 and MN 15, the diamond interchange proposed under Alternative W2 would result in the least direct and least continuous routing of CR 21 (see Exhibit 2-7).

The proposed cross section for Alternatives W1 and W3 from New Ulm to CR 37 consists of some type of median barrier (a cable barrier, shown on Exhibit 2-3, or a concrete Jersey barrier) with enclosed drainage where necessary. The objective is to minimize impacts to the floodplain on one side of the highway and to the bluffs on the other side. While this design would improve safety, this narrow cross section has a greater probability of cross-median crashes. This issue could be largely mitigated through the use of a median barrier. A concrete median barrier would be the lowest maintenance option but exerts greater impact forces on vehicle occupants, can induce vehicular roll, would cause more snow drifting, and would impact the existing visual quality of the corridor. Another option would be a high-tension cable barrier. These systems have proven to be easier to maintain than other flexible barrier systems, do not trap snow and other debris, and provide a more stable and forgiving impact than concrete barrier. Methods for preventing cross-median crashes at the narrow median location would be investigated in more detail if Alternative W1 or W3 is selected as the preferred alternative.

In the West Study Section, Alternative W1 has the advantages of no steep grades and better interchange spacing than provided in Alternative W2. It also has the challenges of designing for well managed access and the constrained urban highway cross section along the river, which increases concerns about cross-median crashes and maintenance. Alternative W3 includes one segment of steep grade and has the same constrained highway cross section as Alternative W1.

East of CR 37, Alternative W1 remains on the existing alignment and has a larger number of at-grade intersections than W2 or W3, which have no at-grade intersections until 551st Ave near Courtland (see Aerial Photo Exhibits, Plate 1). Expressway segments with at-grade intersections do have a greater probability of crashes for entering and exiting vehicles than segments with full access control (interchange access only). The safety of at-grade expressway intersections is a concern, particularly for large traffic volumes. Research has shown that the safety of at-grade expressway intersections degrades (crash rates rise and the fraction of intersection-related crashes increases) when volumes on the expressway exceed 20,000 vpd and/or volumes on the minor road exceed 2,000 vpd. The demand for gaps in traffic to safely enter or cross the expressway can exceed the availability of gaps at these higher traffic volumes. As noted in Section 1.3.2, the 2030 projected traffic volumes

along US 14 range from 9,700 to 14,600 vpd. At these traffic volumes and with the addition of interchanges at several of the major existing at-grade intersections, availability of gaps should be adequate along this section of US 14 through the design year.

The Minnesota Valley Lutheran High School is currently served by an at-grade intersection along US 14. Under Alternative W1, at-grade access would be maintained. An at-grade intersection along a 4-lane divided expressway presents some safety concerns at this location due to the additional lanes, increasing traffic, inexperienced drivers, and higher peak usage corresponding to school hours and activities. If Alternative W1 is selected, a number of intersection design options can be considered at the school location to address or mitigate these concerns.

Alternative W1 would also provide direct, at-grade access for the heavy truck traffic associated with the mining operations east of CR 37. Alternatives W2 and W3 would require these trucks to travel short distances along the existing US 14 alignment and then access the new US 14 expressway at nearby interchanges or intersections (see Aerial Photo Exhibits, Plate 1). Full access control is a safety advantage of W2 and W3. However, properties along and near existing US 14 on this segment would have less direct access to US 14 and New Ulm under these alternatives. For example, 561st Avenue would be severed at US 14 under Alternatives W2 and W3, that is, drivers would not be able to access US 14 from 561st Avenue. Access to US 14, crossing US 14, and routes into New Ulm would be less direct for property owners in this area.

Alternative W1 presents more concerns about at-grade intersection safety than Alternatives W2 or W3. While this safety issue is reduced under W2 and W3, many properties would have less direct access to US 14.

The primary operational and safety concern for Alternatives W2 and W3 are proposed steep grades along US 14 as those alternatives traverse the Minnesota River bluffs—at the existing US 14/MN 15 intersection under Alternative W2, and at CR 37 under Alternative W3 (see the Aerial Photo Exhibit, Plate 1). To meet Mn/DOT design criteria, the maximum grade for US 14 at these locations should be 5 percent, assuming a design speed of 70 mph and mountainous terrain. (According to Mn/DOT criteria, the desirable grade is 3 percent).[9] Preliminary profiles indicate that a 5 percent grade at both locations would be necessary to maintain reasonable environmental impacts and construction costs. Preliminary profiles indicate a maximum cut depth of 56 feet and a maximum fill depth of 45 feet for Alternative W2. Alternative W3 has an approximate maximum cut depth of 27 feet and a maximum fill depth of 9 feet. Alternative W1 would not require any substantial rock or bluff cuts. (Also see Section 3.7 for a discussion on erosion, and Section 3.3 for a discussion of bluff cuts and visual quality).

While Alternatives W2 and W3 offer improved safety compared to No Build, the steep grades of these alternatives, combined with horizontal curvature, could contribute to run-off-the-road crashes. Steep grades can also contribute to large trucks losing control as they descend. The steep grade is less of a concern from an operational standpoint because the four-lane facility will allow safe passing of slower-moving vehicles.

[9] From Table 3-4.02A, Maximum % Grades for Lengths Less than 500 FT Long, of the Mn/DOT Road Design Manual (December 2004).

There are also major cut and fill areas where Alternatives W2 and W3 cross Heyman's Creek on the top of the bluff (see the Aerial Photo Exhibit, Plate 1). Preliminary profiles indicate a maximum cut depth of 54 feet and a maximum fill depth of 41 feet for W2. Alternative W3 has an approximate maximum cut depth of 30 feet and a maximum fill depth of 58 feet.

All of the build alternatives use new corridor to varied extents. Portions of existing US 14 not used for an alternative would be turned back to Nicollet County. This means that Mn/DOT would transfer jurisdiction of the highway over to Nicollet County, which would give the county the responsibility of maintaining the highway. The turn back of US 14 to the County would be beneficial for the residents of Courtland and Nicollet. Removing a high volume US highway as a through town route would create a more local road (see Section 3.6.2.4, Community Cohesion).

Most of the existing US 14 corridor would be turned back to Nicollet County under Alternative W2 because the alternative is almost entirely on new alignment. Alternative W1, using the existing alignment, would result in the least amount of turn back. Alternative W3, a combination of Alternatives W1 and W2, would turn back the portion of US 14 that poses the greatest access challenges (between CR 37 and Courtland) where the highway passes by the New Ulm Quartzite Quarries, the Minnesota Valley Lutheran High School, a subdivision, and rural residences.

In summary, there are many tradeoffs to consider in the West Study Section, as noted in Table 3-7. Many of these issues can be addressed further through more detailed designs after selection of a preferred alternative.

TABLE 3-7
Summary of Transportation and Design Considerations

Alternative	Safety, Traffic Operations, and Access Considerations	Potential Mitigation
W1, W3	Cross-median crashes at segments with narrow median.	Median barrier.
W2, W3	Steep grades in combination with horizontal curves where the alignment traverses the bluffs.	
W1	At-grade intersections between CSAH 37 and Courtland.	Closed median (right-in/right-out access) at some intersections.
W2, W3	Indirect access to US 14 and New Ulm for properties along and near existing US 14 between CSAH 37 and Courtland.	
W1, W2, W3	Indirect access to US 14 and New Ulm from County Road 21. Less continuity on CR 21.	Some alternatives and interchange configurations provide easier access and more continuity than others.

East Study Section (Courtland to North Mankato)—The segments of the Eastern Alternatives that are on new alignment provide the greatest level of access control among the alternatives—access primarily at public roads with limited private access. The segments that follow the existing alignment have only a few more access points than the new alignment alternatives by consolidating driveways and relocating them to nearby public roads.

Alternatives E1, E2, and E3 all provide convenient interchange access to Nicollet. Alternative E4's interchange, located nearly a mile south of Nicollet, would provide less convenient access than the other alternatives. The CR 23 interchange option under Alternatives E1, E2, and E3 most closely maintains existing travel patterns. However, instead of local traffic using MN 99 or Main Street/MN 111 to access US 14, residents of Nicollet would access the US 14/CR 23 interchange via a southern extension of MN 111.

Under the MN 99 interchange option (under consideration for Alternatives E1, E2, and E3), Nicollet traffic would travel south on the re-routed MN 99 (currently Birch Street/CR 72) to the US 14 interchange (see Plate 3 of the Aerial Photo Exhibit). The MN 99 interchange route provides less direct access from Nicollet to US 14 than the CR 23 interchange option. However, the new north-south connection provided by the MN 99 interchange would provide some advantages. As Nicollet continues to grow to the north and west and traffic volumes increase on MN 99, an interchange on the east side of town would reduce conflicts between interregional and local traffic.

Alternative E1 would turn back the least amount of highway to the County, while Alternatives E2 and E3, and especially E4 would turn the majority of the corridor back to the County.

3.5.2.2 Trails and Pedestrians

No Build Alternative The No Build Alternative would negatively impact the limited amount of bike and pedestrian traffic along the existing corridor because increasing traffic volumes would be accommodated by the existing highway. This impact would be more apparent in the Cities of Courtland and Nicollet (see Section 3.5.2.4 for discussion on community cohesion).

Build Alternatives The proposed Build Alternatives would not adversely affect current pedestrian and/or bicycle traffic. The proposed bypasses of Courtland and Nicollet would remove the mainline highway from the Cities of Courtland and Nicollet, thereby improving overall pedestrian and bicycle safety within city limits.

The proposed actions may impact the grant-in-aid snowmobile trial that parallels US 14 between CR 37 and the City of Nicollet. The section between CR 37 and CR 25 would likely not be impacted. The crossing at CR 25 would be impacted by any of the eastern build alternatives by adding crossing distance at US 14 for snowmobilers. While more lanes would need to be crossed, the median offers the opportunity for a safer crossing. Trail users will be able to focus on traffic from one direction at a time while crossing US 14.

3.5.2.3 Snow Control

There are currently problems with blowing and drifting snow from Courtland to east of Nicollet. This can present safety problems due to reduced visibility and icy pavement conditions. Also, additional maintenance resources are required to keep the highway open and safe.

Design of the preferred alternative will include consideration of snow control. This may include slightly raising the grade, adjusting ditch and backslope cross sections, purchasing right-of-way for snow fences, and other strategies to minimize blowing and drifting snow along US 14.

3.5.3 Mitigation Measures

Mitigation measures are generally not applicable for the transportation effects because all build alternatives under consideration would improve existing transportation conditions along the study corridor. However, upon identification of a preferred alternative, some specific issues will warrant additional consideration. Specifically, Mn/DOT will work with local residents and businesses to address specific concerns regarding access removal and convenient property access, road realignments (e.g., CR 21), and severances of some local roads. Mn/DOT will also coordinate with Nicollet County regarding issues pertaining to turnback of US 14. All of these issues will be addressed in-depth in the FEIS.

3.6 Socioeconomics

The proposed actions address a variety of socioeconomic issues related to economic development; community cohesion; and increasing traffic volumes, especially high volumes of truck traffic within the Cities of Courtland and Nicollet. These issues are important components of the purpose and need for this project, as described in Section 1.2. Mn/DOT has recognized the socioeconomic importance of this US 14 corridor by giving it a Medium Priority Interregional Corridor status (see Section 1.1 for more information).

3.6.1 Affected Environment

3.6.1.1 Population Levels and Trends

As shown in Table 3-8, population levels in the project area have been stable, with indications of more rapid growth showing up in the cities of Courtland and Nicollet.

TABLE 3-8
US 14 Project Area Population Trends and Percent Change

Area	1980 Population	1990 Population (% Change 1980-1990)	2000 (% Change 1990-2000)	2003 Population Estimate (% Change 2000-2003)
City of New Ulm (Brown County)	13,755	13,132 (-4.5%)	13,594 (3.5%)	13,798 (1.5%)
Nicollet County	26,929	28,076 (4.3%)	29,771 (6.0%)	30,881 (3.7%)
City of Courtland	399	412 (3.3%)	538 (30.6%)	559 (3.9%)
City of Nicollet	709	795 (12.1%)	889 (11.8%)	944 (6.2%)

Source: *Minnesota Department of Administration State Demographic Center Website, January 2005*

These population trends reflect the County's land use regulations within the township areas of the County (see Section 3.3), which limit rural residential growth and non-residential opportunities and focus new development on the incorporated areas (cities). Other population statistics for the project area are shown in Table 3-9. The 2000 Census shows that the median age and ethnicity of residents is fairly uniform. Deviations in population statistics for Nicollet County (for example, the younger median age) can be explained in large part by the influence of Gustavus Adolphus College in St. Peter.

TABLE 3-9
US 14 Project Area Population Characteristics

Area	Median Age	% Under 18	% Over 65	% White	% Black	% American Indian	% Asian or Pacific Islander	% Hispanic	% Other
City of New Ulm (Brown County)	37.8	23.1	16.6	98.1	0.1	0.1	0.9	1.3	0.5
Nicollet County	32.6	24.7	10.8	96.4	0.8	0.3	2.3	1.8	0.7
City of Courtland	35.1	31.6	6.5	98.5	0	0	2.2	0.6	0.4
City of Nicollet	34.4	28.1	11.1	98.2	0.1	0.3	0.6	0.9	0

Source: *US Bureau of the Census, 2000*

3.6.1.2 Employment and Income

Table 3-10 shows the number of people employed in broad job categories within the project area in 2000. Approximately fifty percent of jobs within the project area fall into the categories of education, health, and social services, and manufacturing. The non-seasonally adjusted unemployment rate in Nicollet County in December 2004 was 2.8 percent, which is lower than the State of Minnesota average of 4.2 percent.[10] Trends indicate the study area has a diverse workforce with a strong manufacturing and educational-health-social service base. The agricultural industry does not employ a large percentage of people; however, agricultural activities within study area communities do contribute to the overall agricultural industry within Minnesota (see Section 3.4 for more details).

TABLE 3-10
US 14 Project Area Employment by Industry Sector in 2000

Industry Sector	City of New Ulm (%)	Nicollet County (%)	City of Courtland (%)	City of Nicollet (%)
Agricultural, Forestry, Fishing & Mining	85 (1.2%)	827 (4.9%)	6 (2.0%)	17 (3.3%)
Construction	274 (3.8%)	761 (4.5%)	28 (9.5%)	28 (5.4%)
Manufacturing	1,844 (25.4%)	3,563 (21.3%)	89 (30.1%)	126 (24.3%)
Wholesale & Retail Trade	1,098 (15.1%)	2,044 (12.2%)	33 (11.2%)	70 (13.5%)
Transportation, Warehousing & Utilities	331 (4.6%)	613 (3.7%)	11 (3.7%)	18 (3.5%)
Information	211 (2.9%)	377 (2.2%)	3 (1.0%)	15 (2.9%)
Finance, Insurance & Real Estate	247 (3.4%)	681 (4.1%)	16 (5.4%)	19 (3.7%)

[10] Source: Minnesota Department of Employment and Economic Development website, March 2005

TABLE 3-10
US 14 Project Area Employment by Industry Sector in 2000

Industry Sector	City of New Ulm (%)	Nicollet County (%)	City of Courtland (%)	City of Nicollet (%)
Professional, Scientific & Management	482 (6.6%)	930 (5.5%)	18 (6.1%)	29 (5.6%)
Educational, Health & Social Services	1,541 (21.2%)	4,675 (27.9%)	61 (20.6%)	130 (25.0%)
Arts, Food, Entertainment & Recreation	558 (7.7%)	1,079 (6.4%)	12 (4.1%)	39 (7.5%)
Public Administration	256 (3.5%)	494 (2.9%)	8 (2.7%)	8 (1.5%)
Other Services	342 (4.7%)	713 (4.3%)	11 (3.7%)	20 (3.9%)
Total	7,269	16, 757	296	519

Source: US Bureau of the Census, 2000

Table 3-11 shows that income levels in the project area are similar to statewide levels. Cities and townships have a lower average percentage of individuals and families below the poverty level compared to Nicollet County and the State of Minnesota. The average median household income in townships is higher than the cities, Nicollet County, and State of Minnesota.

TABLE 3-11
1999 Income Characteristics

Area	Average Annual Median Household Income	Average Annual Per Capita Income	Average Percentage Below Poverty Level (Individuals/Families)
Project Area Townships	$55,268	$21,418	4.3% / 2.9%
Project Area Cities (New Ulm, Nicollet, Courtland)	$47,567	$21,682	4.6% / 3.5%
Nicollet County	$46,170	$20,517	7.5% / 4.3%
State of Minnesota	$47,111	$23,198	7.9%

Source: *US Bureau of the Census, 2000*

3.6.1.3 Housing Types and Occupancy Status

The City of Nicollet has a greater number and mix of housing types than Courtland; including apartments, attached single-family homes, mobile homes, and rental units. Based on a telephone interview with the South Central Minnesota Multi-County Housing and Redevelopment Authority in March 2005, a small number of subsidized rent payments are given to renters in Courtland and Section 8 housing is available in Nicollet. Some of the most

affordable housing in Nicollet is located within the mobile home park located along US 14 on the City's east end.[11]

TABLE 3-12
Housing Characteristics

Area	Total Housing Units	Occupancy Status			
		% Owner Occupied	% Renter Occupied	% Vacant	% Seasonal, Recreational, or Occasional Use
City of New Ulm	5,736	77.1%	22.9%	4.2%	0.3%
Nicollet County	11,240	75.8%	24.2%	5.3%	0.3%
City of Courtland	190	84.6%	15.4%	1.1%	0%
City of Nicollet	350	79.4%	20.6%	1.7%	0.3%

Source: *US Bureau of the Census, 2000*

3.6.1.4 Institutional and Public Services

Schools. Three public school districts serve students from kindergarten to twelfth grade within the project area, including Independent School District (ISD) 88 in the New Ulm area, ISD 507 in the Nicollet area, and ISD 77 in the Mankato area. As of December 2004, ISD 88 served 2,900 students, ISD 507 served 570 students, and the North Mankato sector of ISD 77 served 1,761 students. The Minnesota Valley Lutheran High School is located on the northwest corner of US 14 and 561st Street in Courtland Township (see Plate 1 of the Aerial Photo Exhibit). During the 2006/2007 school year, 256 students were enrolled at MVLHS. Three schools are located in Nicollet; including a public elementary and secondary school; and a private school. These three schools are located north of MN 99. All school districts use US 14 for busing students to and from school.

Local Government & Public Safety. New Ulm, the county seat of Brown County, provides the full range of city services, including administrative services, engineering and inspections, public works, public safety (including a police department and volunteer fire department), and parks and recreation. Nicollet County's county seat is located in St. Peter, which is outside the project area. The Cities of Courtland and Nicollet share a City Administrator. Nicollet County provides police protection to the Cities of Nicollet and Courtland. Both cities have volunteer fire departments. The New Ulm Medical Center provides ambulance service to New Ulm, Courtland and Courtland Township, and the area in-between New Ulm and Courtland. Gold Cross out of Mankato provides ambulance service to the eastern half of the project area, including the City of Nicollet.

[11] Census data show less than four percent of the residents living in the census tract in which the mobile home park is located earn an income that is below the poverty line. This is lower than the percentage of individuals living below the poverty line overall in Nicollet County and the State of Minnesota, as shown above in Table 3-11.

3.6.1.5 Churches and Cemeteries

Several churches and cemeteries are located in close proximity to US 14 and the proposed Build Alternatives; these sites are listed below in Table 3-13. Cemeteries within the project area are located along US 14 in the Cities of Courtland and Nicollet, as well as, and south of US 14 on CR 25 and CR 23. There is one church in Courtland north of US 14; two churches in Nicollet located north of MN 99; and one church located on CR 25.

TABLE 3-13
Churches and Cemeteries in Close Proximity to US 14 and Proposed Build Alternatives

Churches	
Courtland Evangelical Church	571st Avenue & 446th Street, Courtland
Immanuel Lutheran Church, Cemetery, and School	CR 25 & 501st Lane
Trinity Evangelical Lutheran Church	MN 111 (Main Street) and 6th Street, Nicollet
St. Paul Catholic Church	411 5th Street (in "triangle" created by US 14, MN 99, and MN 111)
Cemeteries	
Evangelical Cemetery	US 14 and 551st Avenue (located on private residential property, just west of Courtland)
Courtland Evangelical Lutheran Church and Cemetery	US 14 and 531st Ave.
Courtland Cemetery	531st Ave. and 446th Street
St. Paul's Cemetery	CR 23 (one mile south of Nicollet)
Nicollet Cemetery	MN 111 (one mile north of Nicollet)

3.6.2 Environmental Consequences

The proposed project would require acquisition of additional right-of-way (see Section 3.2); as well as require substantial changes in existing access and highway capacity (see Section 3.5). These changes would affect those living and doing business along the highway and would result in some social and economic impacts. Many of the impacts are discussed in other sections of the DEIS. This section addresses the following socioeconomic impacts: Environmental Justice, Economic Impacts, Community Cohesion, and Churches and Cemeteries.

3.6.2.1 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, dated February 1, 1994, directs each federal agency to achieve "environmental justice as part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority population and low-income population." The proposed project has federal funding and federal permit requirements and is considered a federal project for purposes of compliance with the Executive Order.

Environmental Justice Finding Planning, demographic studies, and field reviews in the corridor indicate that there are no minority populations or low-income populations living close to the project corridor. Since there are no identified populations, the Environmental Justice Finding for this report is that the proposed action will not have a disproportionately high and adverse human health or environmental effects to any minority population or low income population.

3.6.2.2 Economic Impacts

The No Build Alternative fails to address future regional industrial and commercial development. The economic impacts of the No Build Alternative include vehicle delays which result in higher vehicle operating costs (heavy trucks in particular) (see Section 2.6 for Benefit Cost information). Unlike the Build Alternatives, the No-Build Alternative would include no loss of property tax revenue through relocations (see Section 3.2).

All Build Alternatives support ongoing and future economic development in the project area and within southern Minnesota by enhancing US 14's function as an important interregional trade corridor (see Section 1.2.1). Improvements would enhance the system linkage of US 14 to the regional highway network. The expansion of the highway to four lanes would also decrease travel time delays and provide freight haulers with more reliable travel times.

As described in Section 3.2: Relocations and Right-of-Way, all of the Build Alternatives in the West Study Section would require acquisition of two private businesses and Mn/DOT's maintenance facility. If those residences and businesses requiring acquisition and relocation choose to relocate elsewhere, property tax revenues would be lost, thereby creating an adverse economic impact. Long-term, positive economic effects of the proposed improvements include new opportunities for local businesses and industry, travel time cost savings for highway users (including local businesses), and a reduction in costs associated with crashes.

Depending on which alternative is identified as the Preferred Alternative, the proposed bypasses of Courtland and Nicollet may result in adverse economic impacts to businesses located directly along US 14 through these communities because drivers would no longer have direct access to these businesses from US 14. These businesses include a gas station and two bar/restaurants in Courtland, and one restaurant on the west side of Nicollet.

3.6.2.3 Community Cohesion

While the No Build Alternative would not require the relocation of households or businesses, increasing traffic volumes through Courtland and Nicollet would negatively impact the community cohesion within these communities. Heavier traffic flow on an unimproved US 14 would restrict mobility and safety, making the highway a greater barrier between the north and south portions of these communities.

An improved US 14, with frontage roads and managed access, would in some areas enhance community cohesion by improving mobility for residents (it would become easier to cross the existing highway). Both Courtland and Nicollet, for example, would benefit from the opportunity to improve development character on the turned-back "old" segment of US 14. However, just as an improved US 14 would offer some positive impacts to community cohesion, the relocation of residents and other effects under some Build Alternatives would have a detrimental impact to community cohesion.

Alternative W2 would impact community cohesion within the Spruce Haven Lane neighborhood on top of the bluff by confining the neighborhood to a strip of land between the top of the bluff and the highway. Alternative W1 would impact the Shady Brook Acres and Fleck's Subdivision neighborhood (as well as the existing lots of record if they have been built upon between now and the time construction of a new US 14 highway would begin), by requiring relocations of some residents. Alternative W3, which is fundamentally defined as a blending of W1 and W2, tends to avoid these most noteworthy community impact areas although it includes substantially more impacts to agricultural lands than Alternative W1.

In the East, Alternatives E1, E2, and E3 require relocating from 9 to 12 rural residential households. All of the eastern Build Alternatives would adversely impact community or neighborhood cohesion within Courtland. Five residences would be relocated under all Build Alternatives by the northern extension of CR 24 to the Courtland bypass (see the Aerial Photo Exhibit). No large scale adverse community or neighborhood cohesion impacts would occur in Nicollet. With the exception of the isolated adverse impacts in Courtland, these bypass options are anticipated to improve connections and community cohesion by improving safety and access across US 14 and diverting traffic, including high volumes of truck traffic, away from the city centers and onto a regional highway. Outside of the cities, Alternative E1 would result in the fewest agricultural parcel severances and land acquisitions; and therefore, would best preserve the rural community outside of Courtland and Nicollet.

The No Build Alternative would not require relocations, however, increasing traffic volumes through communities would impact community cohesion—especially through Courtland and Nicollet—by restricting mobility and safety, making the highway a greater barrier between.

An improved US 14 would in some areas enhance community cohesion by improving mobility for residents along US 14, especially through Courtland and Nicollet (where existing US 14 would be turned back to the County). However, the relocation of residents and other effects under some Build Alternatives would have a detrimental impact to community cohesion in other areas.

3.6.2.4 Churches and Cemeteries

None of the alternatives would impact churches or cemeteries, although some build alternatives (both mainline and connecting roads) would be located closer to existing cemeteries than existing US 14. During alternative development, alignments were altered in the area of the Evangelical Cemetery (located just west of Courtland) to avoid impacts. The Courtland bypass (common to all Western Alternatives) would connect CR 12 and 531st Avenue and tie into 466th Street just east of Courtland. This route would be located near the Courtland Cemetery located in the southeast quadrant of the 531st Avenue and 466th Street intersection. However, the new

local road would not impact the cemetery. Under Alternative E4, the northeast quadrant of the CR 23 interchange would be located near the St. Paul Cemetery; however, the interchange would not encroach on the cemetery.

3.6.3 Mitigation Measures

Aside from mitigations for other impacts, such as relocations (described in Section 3.2.3), there are relatively few adverse impacts that may require a mitigation response. The potential economic impacts of bypassing Courtland and Nicollet could be mitigated by allowing for signage from the new US 14 corridor to the businesses and community services that are located adjacent to the existing US 14. Many of the community cohesion benefits of a less-congested, safer city business district, as described above, may improve the opportunities for customers to travel to businesses or other service centers in Courtland and Nicollet.

3.7 Surface Water, Water Quality, Erosion Control, and Slope Stability

3.7.1 Affected Environment

3.7.1.1 Surface Water Features

The study area is entirely within the Lower Minnesota River Drainage Basin; which is identified as Hydrologic Unit Code (HUC) 07020007 by the U.S. Geological Survey. The water features within the alternative analysis area are listed in Table 3-14. All features are located entirely within Nicollet County, with the exception of the Minnesota River.

TABLE 3-14

Surface Water Resources in US 14 Project Area

Water Resource	Geographic Location	Plate #, Aerial Photo Exhibit	Flow Characteristics
Minnesota River	Flows along the southern border of the project area	1 and 2	Perennial
Heyman's Creek	Crosses US 14 east of US 14 and CR 37	1	Intermittent/ Perennial
Swan Lake Outlet	Crosses existing US 14 approximately 2 miles west of MN 111	3	Perennial
County Ditch #38	One of the 2 ditches forming the headwaters of Heyman's Creek	1	Intermittent
County Ditch #81	One of the 2 ditches forming the headwaters of Heyman's Creek	1	Intermittent
County Ditch #3	Crosses US 14 approximately 1 mile northwest of the eastern project terminus	4	Intermittent
County Ditch #4	Crosses US 14 east of the City of Nicollet	3	Intermittent
County Ditch #11/12	Crosses US 14 southeast the City of Nicollet	3 and 4	Intermittent

TABLE 3-14

Surface Water Resources in US 14 Project Area

Water Resource	Geographic Location	Plate #, Aerial Photo Exhibit	Flow Characteristics
County Ditch #39	South of the City of Nicollet waste water treatment plant	3	Intermittent/ Perennial
Unnamed creek 1	Crosses the project area between Heyman's Creek and Courtland	1	Intermittent
Unnamed creek 2	Crosses the project area between Heyman's Creek and Courtland	1	Intermittent
Unnamed creek 3	Crosses the project area between Heyman's Creek and Courtland	2	Intermittent
Unnamed creek 4	Crosses the project area between Courtland and Nicollet	2	Intermittent
Unnamed creek 5	Crosses the project area between Courtland and Nicollet, flows to Swan Lake	2	Intermittent

Several excavated ponds are located in the study area. Some ponds are used for livestock watering, irrigation, stormwater detention, or ornamental purposes and are formed by the impoundment of surface water runoff. Other ponds formed as a result of rock quarrying or gravel mining. These ponds can provide a source of water for wildlife and may provide habitat for migrating waterfowl.

The Minnesota River is the largest water feature in the project area. Originating at the Minnesota-South Dakota border, the Minnesota River flows for 335 miles through southern Minnesota before joining the Mississippi River in Minneapolis/St. Paul. Special designations assigned to the Minnesota River include the following:

- **National Park Service's Nationwide Rivers Inventory (NRI) since 1982—** The NRI is a listing of more than 3,400 river segments in the United States that possess one or more "outstandingly remarkable" natural or cultural values.[12] The Minnesota River is noted as having outstandingly remarkable values for scenery, recreation, wildlife, and history; it is also one of 50 rivers within the state that has been identified as a candidate for inclusion in the National Wild and Scenic River System.
- **State Canoe and Boating River (under Minnesota Statute 85.32)—** The Minnesota River has been designated as a state canoe and boat route because it is viewed as having historic and scenic values. Canoe and boat routes also identify points of interest, portages, campsites, and all dams, rapids, waterfalls, whirlpools, and other serious hazards which are dangerous to those traveling by canoe or boat.

The Mn/DNR's 1996 Nicollet County Protected Waters and Wetlands Map identifies public waters and wetlands. Public waters and wetlands are subject to Minnesota Statutes, Section 105.42, which requires that a permit be obtained before any alteration is made to the water course, current, or cross section. Public waters within the project area are shown on the Aerial Photo Exhibit and include a meander loop of the Minnesota River west of CR 37 and Heyman's

[12] Under a 1979 Presidential directive, and related Council on Environmental Quality procedures, all federal agencies must seek to avoid or mitigate actions that would adversely affect an NRI listed river segment.

Creek (see Plate 1); unnamed creek #4 (see Plate 2); the Swan Lake Outlet (see Plate 3); and County Ditch #3 (see Plate 4). Additionally, two wetlands within the project area are identified as public waters wetlands (see Section 3.9 for more information).

Swan Lake is a shallow ("prairie pothole") lake located immediately north of the US 14 corridor (see Exhibit 2-1 and the Aerial Photo Exhibit). With a surface area of approximately 10,000 acres, Swan Lake is one of the largest prairie pothole lakes in North America and serves as a breeding and staging area for waterfowl (see Section 3.14 for additional information). While Swan Lake will not be affected by the proposed action, its only outlet is crossed by each of the alternatives considered in the East Study Section (see the Aerial Photo Exhibit, Plate 3).

3.7.1.2 Water Quality

The project area is generally characterized by heavily cultivated row crops. Surface water quality problems common to the area include sedimentation and high levels of nutrients from agricultural land that are washed into the area's streams and shallow lakes.

The Minnesota River has been cited as one of the most polluted rivers in Minnesota and the United States according to the report, *State of the Minnesota River: Summary of Surface Water Quality Monitoring 2002*. The most comprehensive study of Minnesota River water quality was completed in 1994 as part of the Minnesota River Assessment Project (MRAP). This study concluded that the Minnesota River is impaired by excessive levels of nutrients and sediment.

The *State of the Minnesota River: Summary of Surface Water Quality Monitoring 2002* report noted that it is difficult to determine if water quality in the Minnesota River Basin has improved over time given the seasonal and annual fluctuations and geographic differences. Long term and specifically focused studies are needed to understand the health of rivers and streams in the Minnesota River Basin. However, the Minnesota River Basin Data Center notes that, "In recent years, there have been major improvements in point source pollution control (like industrial and wastewater treatment plant improvements) as well as continued adoption of conservation and best management practices within the Minnesota River Basin." While strides have been made to reduce point-source pollutants, nonpoint source pollutants, such as agricultural and urban runoff, still pose major challenges.

Section 303d of the Federal Clean Water Act (CWA) requires states to report streams and lakes that are not meeting their designated uses because of excess pollutants. The "303d" list (the list of impaired waters) is meant to measure and report the water quality status and gauge whether a water body is able to support the use for which it has been designated. Examples of designated uses include drinking water, aquatic life and recreation, agriculture, wildlife, industrial consumption, aesthetic enjoyment, and navigation. Segments of the Minnesota River within the project area, including at the US 14 crossing in New Ulm, are included on the 303d list, meaning the river is considered "impaired." As such, the MPCA is in the process of developing pollutant reduction strategies known as Total Maximum Daily Loads (TMDLs). Coordination with the MPCA regarding the potential applicability of TMDLs will occur as project permits are obtained.

The Minnesota Department of Health's Nitrate-Nitrogen Probability Maps for both Brown and Nicollet Counties show areas that have low, medium and high probability of being contaminated with nitrate-nitrogen (January 2002). Within Nicollet County, the map shows that the areas near the Minnesota River valley and Swan Lake have the highest probability of

contamination in the project area. This vulnerability for nitrate-nitrogen contamination also indicates vulnerability to other contaminants.

3.7.1.3 Erosion and Slope Stability

The topography in the West and East Study Section are markedly distinct. West of Courtland, the Minnesota River valley descends over 150 feet from the top of the bluff to the River. This area is characterized by steep, wooded bluffs with slopes ranging from 2 percent to 70 percent. East of Courtland, the topography is fairly level with some gently sloping terrain; and there is limited risk for erosion due to steep slopes.

Records from the Minnesota County Well Index indicate that geology of the West Study Section bluff area is characterized by alternating layers of clay, shale, and/or sand before reaching a sandstone bedrock.[13] For wells at the top of the bluff, static water levels (i.e. the "water table" when a well is not operating) are approximately 150 to 200 feet below ground level, and bedrock is approximately an additional 50 to 100 feet deeper.

3.7.2 Environmental Consequences

3.7.2.1 Surface Water and Water Quality

Table 3-15 shows the number of agricultural ditches and river(s)/stream(s) crossed by each Build Alternative (also see the Aerial Photo Exhibit). In addition to the ditch and stream crossings, it would likely be necessary to provide small culvert crossings to allow water to drain properly. All West Study Section Build Alternatives require crossing the Minnesota River, Heyman's Creek and other unnamed creeks. Alternative W2 would have the most impact on Heyman's Creek, by crossing the creek at two locations (see the Aerial Photo Exhibit, Plate 1). Due to the size of the Heyman's Creek Watershed, it is not expected that Alternative W2 will change the nature of the creek. The East Study Section Build Alternatives would impact several unnamed creeks, county ditches, and the Swan Lake Outlet. Alternative E4 would result in the highest impacts by crossing County Ditch 11 in three locations (see the Aerial Photo Exhibit, Plate 3). The project would not change or diminish the course, current, or cross section of any of the public waters identified above, including filling, excavating, or construction of bridge piers in or on the beds of public waters.

TABLE 3-15
Ditch, River, and Stream Crossings Impacts (Number of Crossings)

	West Study Section		
	Alt W1 Existing US 14	**Alt W2 Bluff**	**Alt W3 Combo**
Agricultural Ditch	0	0	0
River/Stream	6	6	4
TOTAL	**6**	**6**	**4**

[13] The County Well Index is an on-line database (www.health.state.mn.us/divs/eh/cwi) provided by the Minnesota Department of Health of information about wells drilled in Minnesota. Location, depth of well, static water level, and geological information is provided for many of the wells in the US 14 project area.)

TABLE 3-15
Ditch, River, and Stream Crossings Impacts (Number of Crossings)

	East Study Section			
	E1 Through WMA	**E2 South of WMA**	**E3 Section Line**	**E4 Far South**
Agricultural Ditch	4	4	4	5
River/Stream	3	3	2	2
TOTAL	**7**	**7**	**6**	**7**

All Build Alternatives would increase impervious surface by adding at least two additional lanes of traffic across the entire corridor. This would lead to increased water runoff volumes and discharge rates and would have the potential to affect runoff water quality by increasing loading of pollutants. The most common contaminants found in roadway runoff are heavy metals, inorganic salts, aromatic hydrocarbons, oil and suspended solids that accumulate on the roadway surface as a result of regular highway operation, wear and tear of vehicles, and maintenance activities. These materials are often washed off roadways during rain events. Increased runoff volumes and discharge rates can cause or exacerbate flooding problems. If no mitigation measures were implemented, increased runoff volumes could worsen water quality by increasing erosion or exceeding the capacity of existing storm water controls.

The West Study Section Alternatives all include expanding the Minnesota River bridge to four lanes. Mn/DOT will continue to coordinate with appropriate environmental resource agencies regarding the proposed river crossing. Mn/DOT has coordinated with the National Park Service (NPS) – Midwest Regional Office regarding the anticipated impacts of the project to the Minnesota River's status on the National Rivers Inventory (NRI). The NPS notes that this project, and especially the US 14 bridge, are still in conceptual phases, and has requested that Mn/DOT continue to keep NPS informed as plans for the project progress. However, the NPS did offer several recommendations to Mn/DOT as planning for the proposed project continues (the correspondence is included in Section 4). Mn/DOT has also contacted the Mn/DNR, Regional Trails and Waterway Coordinator. The Mn/DNR has concurred that the proposed project will not result in an adverse effect to Minnesota River's status as a state Canoe and Boating River (also see Section 3.14 for additional discussion of boating facilities, including the Eckstein Boat Landing).

This includes coordinating with the National Park Service regarding the listing of the Minnesota River on the Nationwide Rivers Inventory (NRI) and the river's candidacy for inclusion in the National Wild and Scenic River System.

Bridge runoff from the expanded Minnesota River bridge will be directed to the ends of the bridge, which will provide the best opportunity for sediments and pollutants to settle out. During high water events, storm water runoff may interact directly with surface waters. However, Mn/DOT will minimize impacts to water quality by enhancing opportunity to filter sediments from storm water runoff.

Alternatives W1 and W3 would use an urban highway design between MN 15 and CR 37 to expand existing US 14 to four lanes (see Exhibit 2-3). This type of design would utilize curb and

gutter and storm sewer drainage systems, as opposed to vegetated ditches and open channels, which are characteristic of rural highway designs. Mn/DOT uses guidance from the National Pollutant Discharge Elimination System (NPDES) program to assist in determining proper stormwater treatment methods.[14] The project will be designed to minimize adverse impacts to water quality.

All of Alternative W2 and part of Alternative W3 (from CR 37 to CR 12); as well as all East Study Section Alternatives will utilize a rural highway design. Rural drainage systems consist of vegetated ditches and open channels as opposed to the curb and gutter and storm sewer drainage systems characteristic of urban drainage designs. Rural drainage systems provide some water quality treatment, reducing the pollutant load conveyed by highway runoff. Curb and gutter drainage allows little infiltration of runoff into soils and tends to convey most of the pollutants to receiving waters. Conversely, rural drainage systems allow pollutants to settle or become absorbed by the soil and vegetation. Since these alternatives would use rural drainage design and would not introduce highway runoff to new or sensitive water bodies, limited impacts on water quality should result.

3.7.2.2 Erosion and Slope Stability

This project will result in some potential for erosion as existing ground cover will be disturbed during construction (see Section 3.22). After construction, the greatest potential for erosion issues are in Alternatives W2 and W3, which impact the river bluff in the vicinity of US 14/MN 15. These alternatives would create new slopes with the potential for erosion. These issues will be addressed during detailed design after Mn/DOT selects a preferred alternative.

After construction, the greatest potential for erosion issues are in Alternatives W2 and W3, which impact the river bluff in the vicinity of US 14/MN 15. These alternatives would create new slopes with the potential for erosion.

County Well Index records indicate that the water table and bedrock is located deep enough to not be impacted by roadway construction on the Minnesota River bluffs. No rock cuts are anticipated for the work to be done. However, given the alternating layers of clay and sand at these bluff lines, there is a probability that groundwater "seeps," with localized groundwater coming out of the hillside, could become apparent. The relatively small amount of water that would come out of these naturally occurring seeps could be controlled with standard BMPs such as vegetated buffers to limit the potential for erosion.

3.7.3 Mitigation Measures

All Build Alternatives would cross numerous small drainage ways. These drainage ways would be examined for any localized flooding problems related to the highway during design and construction and corrected to the extent practicable. In addition, flow in drainage ways will be maintained, so that drainage is not adversely affected upstream of highway crossings. Existing agricultural drain tiles will be modified to the extent possible to maintain existing farmland

[14] The NPDES is a federal program implemented by the United States Environmental Protection Agency (EPA) through the MPCA intended to regulate storm water discharges associated with construction activity.

drainage. See also Section 3.22.2.6 for a discussion of storm water management related to construction activities.

3.8 Ground Water

3.8.1 Affected Environment

Several aquifers are available for water supply in Nicollet County, with the majority of groundwater coming from glacial aquifers formed by deposits of the series of glaciers covering the project area thousands of years ago. Rural homes and the cities of Nicollet and Courtland have wells that draw from these glacial aquifers. Historically, contamination of water supplies (primarily by nitrates-nitrogen) in Nicollet County has been a concern. Groundwater data from the *Drinking Water Quality Report for Nicollet County*[15] showed that between 1988 and 2001, about 5 percent of the 1,468 wells sampled had average nitrate concentrations above the national drinking water standard of 10 parts per million (ppm). The City of New Ulm, which also draws from glacial drift has not had this contaminant problem. According to County Well Index records, the water table is anywhere between approximately 25 feet below ground surface (near the Minnesota River) to 200 feet below ground surface (at the top of the bluffs) in the US 14 project area.

Ground water seeps have been identified along the Minnesota River bluffs in western portions of the project area. As referred to in Section 3.7.2.2, these are typically a result of local drainage patterns where infiltrated water is unable to go through a layer of clay, instead running on top of the clay until it flows out of the bluff hill side. The water flow at these seeps is relatively minor compared to the more substantial ground water resource found at greater depths below surface.

3.8.2 Environmental Consequences

While there has been a documented concern about nitrate contamination in Nicollet County wells, no adverse groundwater impacts are anticipated. Neither highway construction nor highway maintenance practices are considered to be sources of contamination. With the combination of water table depths 100 feet below ground or greater and water runoff mitigations as described in Section 3.7.2, groundwater flow and quality would not be impacted.

3.8.3 Mitigation Measures

This project would not involve installation of new wells. Residential or commercial wells that would be removed during construction and unused or unsealed wells discovered in the right-of-way during construction will be addressed according to Minnesota Rules, Chapter 4725 or through obtaining an annual maintenance permit.

3.9 Wetlands

Wetlands are protected by Federal law (the Clean Water Act - Section 404) and State law (Minnesota Wetland Conservation Act and State Executive Orders). These laws mandate the

[15] Brown-Nicollet Environmental Health and Minnesota Department of Health *Drinking Water Quality Report for Nicollet County* (2002).

"no net loss" of wetland functions and values; and require that projects seek to avoid, minimize, and mitigate any potential impacts (referred to as sequencing). To comply with Federal and State laws, all potentially affected wetlands in the project area have been identified and classified, and Mn/DOT's designers have attempted to avoid and minimize impacts.

Wetlands potentially impacted by any of the project alternatives were assessed for this DEIS. The process of identifying these wetlands consisted of a review of published sources (including National Wetland Inventory (NWI) mapping, soil survey data, rainfall data, aerial photography, topographic maps, and stream gage data); a preliminary planning-level "windshield" survey; delineation of wetlands using the "Three-parameter" methodology and an aerial slide review. Wetland functions were assessed with the Minnesota Routine Assessment Method (MNRAM 3.0).

A *Preliminary Draft Wetland Technical Report* was prepared early into the EIS process to document the wetland assessment process. This publication is found under "documents" on the project Website: www.dot.state.mn.us/d7/projects/14newulmtonmankato/documents.html. Wetland resource agencies reviewed and commented on this report, which was subsequently used to guide a meeting of a Technical Evaluation Panel (TEP) on March 2, 2005. Updates to the Wetland technical report are posted as report Supplements on the project web-site. The TEP, including members from Mn/DOT, the Minnesota Board of Water and Soil Resources (BWSR), the Nicollet County Soil and Water Conservation District (SWCD), Nicollet County Environmental Services, Minnesota Department of Natural Resources (Mn/DNR), the US Army Corps of Engineers (US COE), and the US Environmental Protection Agency (via teleconference)—reviewed the wetland boundaries that are assessed in this DEIS.

To comply with Federal and State laws, all potentially affected wetlands in the project area have been identified and classified, and Mn/DOT's designers have attempted to avoid and minimize impacts.

After preferred alternative is identified, including an exact roadway footprint and vertical alignment, wetland impacts will be calculated more precisely. Also, efforts to minimize impacts to each delineated wetland will be described in greater detail when the exact horizontal and vertical alignment becomes available. These updates will be completed and the Wetland Technical Report will be finalized and published on the Project Website.

3.9.1 Affected Environment

Within the area that covers all lands potentially impacted by any of the project alternatives (the US 14 wetland study area or "polygon"), forty-three wetlands were identified during the review of Farm Service Agency aerial slides. Twenty additional wetlands were identified using the "three-parameter" wetland delineation method. Wetland types identified within the project area are summarized in Table 3-16. The *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin 1979) assigns codes to these wetland types consistent with usage in the NWI. The publication *Wetlands of the United States* (a.k.a 'Circular 39') (Shaw and Fredine 1956) assigns codes to wetland types consistent with usage in the Minnesota Wetland Conservation Act. Table 3-16 summarizes frequency of these wetland types in the wetland study area.

Wetlands in an agricultural landscape (generally Circular 39 Type 1) are typically impacted by farm drainage or chemical application practices and may even be used for crop production in

some years; these wetlands will often have limited diversity or ecological functions. Wetlands that are not farmed, especially in this region, will often have characteristics that are supportive of waterfowl and some diversity of vegetation. Both wetland types may also provide some retention of surface water drainage to help reduce seasonal effects of flooding in the Minnesota River Valley.

TABLE 3-16
Extent of Wetland Types in the US 14 Study Area[1]

Circular 39 Type	Cowardin Code	Area (acres)	Percentage Area of US 14 Project Area Polygon [2]
1 (seasonal basin)	PEMA	167.2	2.4%
2 (wet meadow)	PEMB	14.9	0.2%
3 (shallow marsh)	PEMC	68.6	0.9%
4 (deep marsh)	PEMC, PEMF	0.0	0.0%
5 (open water)	PEMF, POWF	2.9	0.0%
6 (shrub swamp)	PSS1A, PSS1C	1.8	0.0%
7 (wooded swamp)	PFO1A, PFO1C	108.7	1.5%
8 (bog)	PFO (various)	0.0	0.0%
Total		**364.1**	**5.2%**

[1] Translations of Cowardin Codes and Circular 39 Codes are per the Minnesota Wetland Conservation Act. These acreages are based on data analyzed in December 7, 2004 and August 24, 2005.

[2] The US 14 Project Area Polygon covers 6,902 acres and represents all land within the range of alternatives (i.e. the area of potential impacts for the proposed action).

Review of the Mn/DNR Nicollet County Protected Waters and Wetlands Map revealed two Pubic Waters Wetlands and four Public Waters mapped partly or wholly within the US 14 Project Area Polygon. Some are labeled, e.g. "26W" or "60P"; however, Public Water streams are not labeled though they are depicted as heavy lines on the Protected Waters and Wetlands map for Nicollet County summarized as follows:

- **Public Water Wetland "26W"** is mapped south of the City of Nicollet, MN. The Protected Wetland (26W) corresponds in part with delineated wetlands "W-NI-28-6-1" and "AW-NI-28-9-1."
- **Public Water Wetland "62W"**, an abandoned River oxbow, is mapped in the bottoms of the Minnesota River just northwest of CR 37.
- **Public Water, "60P"** is mapped in a meander loop of the Minnesota River between the western project area terminus and the US 14/ CR 37 intersection.

- **Unnamed Tributary**, crosses US 14 approximately 1.5 miles east of the City of Courtland, mapped as a Public Water.
- **Nicollet Creek**, crosses US 14 and all of the "East" Alternatives approximately 2 miles west of the City of Nicollet, mapped as a Public Water.
- **Heyman's Creek**, in portions within the US 14 Project Area Polygon, is mapped as a Public Water.

These Public Waters and Public Waters Wetlands are under the jurisdiction of the Mn/DNR and are excluded from protection under the Minnesota Wetland Conservation Act. See the Aerial Photo Exhibit and Section 3.7 for more information regarding water bodies in the study area with Public Water or Public Water Wetland status).

3.9.2 Environmental Consequences

Tables 3-17 and 3-18 summarize wetland impacts for the western and eastern alternatives.

TABLE 3-17
Summary of Wetland Impacts by Wetland Type in West Study Section

Circular 39 Type	Impacts per Proposed Alternative – acres*		
	Alt. W1	Alt. W2	Alt. W3
1 (seasonal basin)	0.1	0.0	0.0
2 (wet meadow)	2.9	1.3	1.3
3 (shallow marsh)	0.0	0.0	0.0
4 (deep marsh)	0.0	0.0	0.0
5 (open water)	0.0	0.5	0.5
6 (shrub swamp)	1.0	0.0	1.0
7 (wooded swamp)	15.8	3.2	17.4
8 (bog)	0.0	0.0	0.0
Total	**19.8**	**5.0**	**20.2**

* The highest wetland impact scenario for interchanges at MN 15/CR 21 and CR 37 was assumed for all alternatives.

Wetland impacts for Alternatives E1, E2, and E3 will depend on the interchange option selected at Nicollet. Generally, the CR 23 interchange option (immediately south of Nicollet) results in higher wetland impacts than the re-routed MN 99 interchange option (to the southeast of Nicollet). To the southwest of Nicollet, Alternative E3 comes close to Public Waters Wetland 26W, but avoids impacts (see the Aerial Photo Exhibit).

TABLE 3-18
Summary of Wetland Impacts by Wetland Type in East Study Section

Circular 39 Type	Impacts per Proposed Alternative – acres*			
	Alt E1	Alt E2	Alt E3	Alt E4
1 (seasonal basin)	6.0 [5.5]	6.6 [6.4]	17.8 [13.9]	4.7
2 (wet meadow)	3.6 [3.6]	2.1 [2.1]	0.0 [0.0]	0.0
3 (shallow marsh)	2.3 [2.3]	5.0 [5.0]	0.1 [0.1]	0.1
4 (deep marsh)	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]	0.0
5 (open water)	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]	0.0
6 (shrub swamp)	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]	0.0
7 (wooded swamp)	0.1 [0.1]	0.1 [0.1]	0.0 [0.0]	0.0
8 (bog)	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]	0.0
Total	**12.0 [11.5]**	**13.8 [13.6]**	**17.9 [14.0]**	**4.8**

Note: The numbers not in brackets under Alts. E1, E2, and E3 are the impacts for the optional interchange at MN 99. The bracketed numbers under Alts. E1, E2, and E3 are the impacts for the optional interchange at MN 99 instead of at CR 23.

* Assumes highest wetland impact scenario for interchanges at CR 24, CR 23, or MN 99.

3.9.3 Wetland Sequencing

Wetland sequencing refers to the planning process which demonstrates wetland avoidance, wetland impact minimization, and mitigation for unavoidable wetland impacts. This DEIS summarizes wetland impact sequencing. Several resource agencies, including the U.S. Army Corps of Engineers, Mn/DNR, NRCS, and Nicollet County SWCD were consulted as part of the wetland sequencing process. The Draft Wetland Technical Report and associated updates (see www.state.mn.us/d7/projects/14newulmtomankato/documents.html) provide more detail concerning ongoing wetland sequencing efforts.

Wetland sequencing refers to the planning process which demonstrates wetland avoidance, wetland impact minimization, and mitigation for unavoidable wetland impacts. Several resource agencies, including the U.S. Army Corps of Engineers, Mn/DNR, NRCS, and Nicollet County SWCD were consulted as part of the wetland sequencing process.

3.9.4 Wetland Impact Avoidance

Given the abundance of wetlands in the US 14 Project Area it is not practical to design alternatives that meet safety guidelines and completely avoid impacts to wetlands. However,

wetland boundaries identified early in the EIS process were used by Mn/DOT highway designers to develop alignment alternatives that would avoid wetlands to the extent practicable. The following list summarizes the avoidance measures that have been implemented on the Build Alternatives:

- A Far North Courtland Bypass was eliminated early in the planning process in part because of potential for high wetland impacts.
- Alternative E-3 was designed to avoid impacts to Mn/DNR Protected Wetland "26W," just southwest of Nicollet.
- Alternative E4 was designed to avoid an area mapped by NWI as a wetland in the southwest corner of Section 8, Range 28W, Nicollet Township.

A more detailed account of alternatives screening and alignment adjustment pertinent to wetland avoidance can be found in documents available on the Project Website: http://www.dot.state.mn.us/d7/projects/14newulmtonmankato/

3.9.4.1 Wetland Impact Minimization

Several design strategies and Best Management Practices (BMPs) have been used to minimize unavoidable wetland impacts. Design strategies under consideration for the US 14 road improvement project include:

- **Use of existing US 14 alignment where possible.** Alternatives W1 and E1 use existing alignment, minimizing wetland impacts.
- **Constrained median width with curb and gutter.** The west portion of Alternative W1 (between CR 37 and the US 14/MN 15 interchange) would selectively use a constrained median and curb and gutter (north side of US 14) to reduce the cross-section width of the highway and prevent impacts to 3.4 acres of wetlands and 7.0 acres of floodplain in the bottoms of the Minnesota River. The constrained design brings the roadway footprint approximately 52 feet north of (away from wetlands) the unconstrained design footprint.
- **Increase in ditch slope.** Increasing the slope of the ditch adjacent to the outside lanes would reduce the footprint of the roadway. The typical rural cross section calls for 1:6 (vertical: horizontal) slopes. However, a 1:5 or 1:4 slope with additional unpaved shoulder width are potential strategies to minimize wetland impacts. Steeper slopes are considered hazardous and would require the use of guard rail.

Best Management Practices (BMPs) that may serve to minimize wetland impacts for the US 14 road improvement project include properly installed silt fences, establishment of no intrusion areas during road construction, rapid revegetation of side slopes with anti-erosion cover crops with techniques such as hydro-seeding or seed drills, and the use of appropriate anti-erosion technologies such as jute mats or hay-disking.

3.9.4.2 Wetland Mitigation

More detailed analyses of parcels both suitable and available for wetland mitigation will be completed after a Preferred Alternative has been identified. The abundant amounts of drained hydric soils in the East Study Section have high potential for successful wetland restoration. Landowners willing to sell parcels suitable for wetland mitigation will be identified through a

dialogue with the MnDNR and the Nicollet County Soil and Water Conservation District (SWCD).

It is anticipated that wetland mitigation required for the US 14 improvements will be accomplished in conjunction with the long-term management goals of the Swan Lake Wildlife Management Area, state land managed by the MnDNR. The WMA presents an opportunity to attain a positive environmental preservation and stewardship outcome in connection with wetland and other project mitigation.

It is anticipated that wetland mitigation required for the US 14 road improvement project will be accomplished in conjunction with the long-term management goals of the Swan Lake Wildlife Management Area, state land managed by the MnDNR (see Section 3.14 for more details). The WMA presents an opportunity to attain a positive environmental preservation and stewardship outcome in connection with wetland and other project mitigation. The WMA's core mission is to provide, expand, and preserve habitat for waterfowl. The US 14 project wetland mitigation goals would be in keeping first with the intent of Section 404 of the Clean Water Act and the Minnesota Wetland Conservation Act. These goals overlap in part with the long-term wildlife management goals of the Swan Lake Wildlife Management Area. The opportunity to provide mitigation within the WMA for natural resources affected by the proposed US 14 project also offers very good potential to advance the WMA's mission while compensating for adverse project impacts.

Landowners willing to sell parcels suitable for wetland mitigation will be identified through a dialogue with the MnDNR, the Nicollet County SWCD, the Nicollet Conservation Club, and Ducks Unlimited. An analysis of potential parcels with respect to their suitability for wetland mitigation and availability for acquisition versus other traditional wetland mitigation options such as the purchase of mitigation credits through BWSR will be prepared after a preferred alternative has been identified and will be documented in the Final EIS and in updates to the Draft Wetland Technical Report.

3.10 Floodplains

3.10.1 Affected Environment

3.10.1.1 Floodplains

As discussed in Section 3.7.1, the study area includes a variety of surface water resources that are contained within the Lower Minnesota River Drainage Basin. FEMA mapping of the one hundred year floodplain is available for the areas along the Minnesota River and Heyman's Creek in the West Study Section (see the Aerial Photo Exhibit, Plate 1). FEMA has not mapped the floodplain for any other river, stream, or ditch within the study area. The one hundred year floodplain areas for the Minnesota River and Heyman's Creek are depicted on Flood Insurance Rate Maps (FIRM), panel numbers 27015C0205 C and 27103C0245 G. Project area floodplains, including vegetated riparian zones, provide flood and storm water attenuation by decreasing water velocities and providing temporary water storage. Floodplains also filter, remove, and retain nutrients and sediments; provide erosion control; and provide habitat and movement corridors for wildlife.

The elevation of the one hundred year floodplain near the bridge and the MN 15 intersection is approximately 809.5 feet. As a reference point, the existing US 14 bridge over the Minnesota River has a bridge deck elevation of approximately 820 feet. This section of the Minnesota River has a history of flooding. The record flood year was in 1997 when the river reached 811 feet. The river reached 809.5 feet in 1969 and 808.3 feet in 2001.

US 14 roadway elevations in the western limits of the project area are generally at or above an elevation of 812 feet. However there is a short segment of US 14 (approximately 1,000 feet east of the MN 15 intersection) that has a roadway elevation of approximately 810 feet. These roadway elevations are indicative of a risk for flood waters to overtop the highway at some locations.

Presidential Executive Order 11988 on Floodplain Management requires that federal agencies, in carrying out their proposed projects, provide leadership and take action to reduce the risk of flood loss; minimize the impacts of floods on human safety, health and welfare; and restore and preserve the natural and beneficial values served by floodplains. In addition FHWA's policy aims to:

- Avoid longitudinal encroachment, where practicable
- Avoid substantial encroachments, where practicable (23CFR Chapter 1, Sec. 650.103)
- Encourage a broad and unified effort to prevent uneconomic, hazardous or incompatible use and development of the Nation's floodplains

3.10.2 Environmental Consequences

3.10.2.1 Floodplains and Hydraulics

Based on review of FIRM mapping, floodplain is located along the Minnesota River and Heyman's Creek in the West Study Section. Alternatives W1, W2 and W3 would impact the Minnesota River's 100-Year floodplain and the Heyman's Creek 100-Year floodplain (see Table 3-19). Alternatives W1, W2, and W3 would transversely impact the Minnesota River 100-Year floodplain between Front Street and the intersection of US 14/MN 15. Additionally, Alternatives W1 and W3 include longitudinal floodplain impacts along existing US 14 between MN 15 and CR 37. Alternative W2 includes transverse impacts of the Heyman's Creek floodplain on top of the bluff in three locations. Alternatives W1 and W3 transversely impact Heyman's Creek in one location. Alternative W2 minimizes floodplain impacts by using new alignment on the top of the bluff above the Minnesota River valley.

In this study area, impacts to the 100-Year floodplain identified as associated with the Minnesota River are also floodway encroachments (i.e. the floodplain and floodway in the Minnesota River are the same). Encroachments at Heyman's Creek are not in a floodway, rather they are in the flood fringe area.

TABLE 3-19
Summary of 100-Year Floodplain Impacts in West Study Section in Acres and Feet

	Alt. W1		Alt. W2		Alt. W3	
	Acres	**Length of Encroachment (feet)**	**Acres**	**Length of Encroachment (feet)**	**Acres**	**Length of Encroachment (feet)**
Minnesota River – Transverse Impacts	21	3,700	19	3,700	21	3,700
Heyman's Creek – Transverse Impacts	2	300	6	850	3	300
Minnesota River – Longitudinal Impacts	24	10,100	None	None	24	10,100
Heyman's Creek – Longitudinal Impacts	None	None	2	250	None	None
TOTAL	47	14,100	27	4,800	48	14,100

Note: Impacts include only new alignment; existing roadway within the floodplain is not included in the impacts.

3.10.2.2 Floodplain Impact Assessment

The assessment of potential impacts to 100-Year floodplains was completed using the methodology and guidance provided by FHWA in Technical Advisory 6640.8A, which requires assessment of the topics below. Based on the assessment below, no substantial floodplain impacts are expected.

Flooding Risk All alternatives would have floodplain impacts, notably at the Minnesota River crossing. Overall, Alternative W2 poses less flooding risk than Alternatives W1 and W3 because it impacts the least amount of floodplain and would not reuse the existing alignment (like W1 and W3 do) adjacent to the Minnesota River floodplain between MN 15 and CR 37 at the western extent of the project area. By continuing adjacent to the Minnesota River floodplain, Alternatives W1 and W3 have greater exposure to the flood risk. Alternative W2 only complies with Presidential Executive Order 11988 by avoiding longitudinal encroachment to the Minnesota River. Consequently, W2 may pose more of a flood risk to Heyman's Creek than Alternatives W1 and W3 because of the longitudinal encroachment and it requires more crossings of the Creek than Alternatives W1 and W3.

Impacts on Natural and Beneficial Floodplain Values Alternative W2 includes the least amount of floodplain impact and also does not include any longitudinal encroachments. Alternatives W1 and W3, which share the same alignment adjacent to the Minnesota River have similar impacts to the Minnesota River floodplain. No changes to the channels of either the Minnesota River or Heyman's Creek are anticipated. The current public access (boat and/or canoe) and boat passage on the Minnesota River are not anticipated to be adversely affected by any of the Build Alternatives.

Compatibility with Community Floodplain Development Plans The City of New Ulm has a Floodplain Management section in Chapter 12 of their ordinances. Bridges are a permitted conditional use in the floodplain district (12.04 Subd 3D). Nicollet County's zoning ordinance 610.5 allows for bridges as a conditional use in the 500-Year Floodplain. FEMA/FIRM maps are used to designate the 100-Year floodplain boundaries.

The Federal Emergency Management Agency (FEMA) dispenses funds to municipalities to buy parcels of inhabited land that are subject to frequent flooding. Nicollet County and the City of New Ulm were contacted in December 2006 to determine if any parcels in the US 14 project area had been purchased with FEMA floodplain buy-out funds. The City of New Ulm had used these funds to purchase a flood prone parcel on the Cottonwood River but none within the US 14 project area. Nicollet County has not purchased any flood prone parcels in the US 14 project area with FEMA floodplain buyout funds.

Measures to Minimize Floodplain Impacts The design of US 14 over the Minnesota River and Heyman's Creek would accommodate the 100-Year flood by ensuring that the new highway would be built with acceptable clearance above the calculated 100-Year flood stage. Additional design features such as maximizing side slopes, guardrails, and wing walls will be considered to minimize impacts near the Minnesota River and Heyman's Creek. Unavoidable impacts would result from the addition of lanes and the placement of riprap to help minimize stream bank and abutment scouring.

All western alternatives would have floodplain impacts at the Minnesota River crossing. Overall, Alternative W2 poses less flooding risk than Alternatives W1 and W3 because it impacts the least amount of floodplain and would not reuse the existing alignment (like W1 and W3 would do). However, W2 may pose more of a flood risk to Heyman's Creek than Alternatives W1 and W3 because it requires more creek crossings.

Construction in or near floodplains would be undertaken in accordance with Mn/DOT's Standard Specifications for Road and Bridge Construction or special provisions to minimize erosion and sedimentation. Temporary and permanent erosion control methods may include silt fences, retention basins, detention ponds, interceptor ditches, seeding and sodding, riprap of exposed embankments, erosion mats, and mulching. Drainage systems, including ditches on private lands, would be maintained, restored, or re-established in a manner that would not impound water. Permanent retention facilities would be considered in areas adjacent to streams and wetlands such that roadway runoff would be intercepted before entering the waterway.

Measures to Restore and Preserve Natural and Beneficial Floodplain Values Mitigation for unavoidable floodplain impacts would include storm water detention ponds with volumes equal to the floodplain lost as a result of the proposed improvements. Appropriate erosion and sedimentation control measures (such as silt fences, riprap, etc.) would be implemented for the Minnesota River and Heyman's Creek crossings to minimize impacts to water quality. To minimize impacts to aquatic wildlife, bridge work over the streams will be coordinated with the MnDNR.

3.10.3 Mitigation Measures

In addition to the mitigation measures discussed above, Alternatives W1 and W3 include a constrained highway design between the Minnesota River bridge and CR 37 to avoid and minimize potential impacts to the Minnesota River floodplain (see Section 2.4.1.2 and Exhibit 2-3). Changes such as the use of additional structures to reduce the potential for overtopping of US 14 would be designed to have no net or a positive impact on the surrounding floodplain.

3.11 Upland Habitat and Wildlife

3.11.1 Affected Environment

For purposes of this DEIS, upland habitat is considered to include non-tilled land that is wooded or has other cover suitable for providing wildlife food and cover. Upland plant communities present within the US 14 project area include Mesic Upland Forest, Forested Fencerows, Mesic Prairie, Shrubland, and Non-Native Grassland. The types of upland plant communities in the project area are briefly described below.

- **Mesic Upland Forest**. Mesic upland forests within the project area are generally dominated by bur oak, white oak, and red oak. West of Courtland, several large tracts of mesic upland forest are located in the dissected bluffland and terraces above the Minnesota River. East of Courtland, mesic upland forests are sparse and small and often maintained as woodlots or windbreaks.
- **Forested Fencerows**. The plant species composition of forested fencerows is quite variable. Forested fencerows provide foraging and cover of movement for a variety of wildlife.
- **Mesic Prairie**. Several small degraded native stands of mesic prairie are scattered throughout the project area. More common are stands of planted mesic prairie on private land, road rights-of-way, and within the Swan Lake Wildlife Management Area. Common plant species in mesic prairie stands are big bluestem, little bluestem, Indian grass, switchgrass, horsemint, and black-eyed susan.
- **Shrubland**. Shrubland is scattered throughout the project area and is generally present in disturbed areas such as road right-of-way. Common species in shrubland include sumac, eastern red-cedar, and dogwoods.
- **Non-Native Grassland**. Non-native grassland is abundant throughout the project area as lawns and road rights-of-way. Non-native grassland is dominated by cool season grasses such as Kentucky bluegrass and smooth brome.

3.11.1.1 Wildlife Habitat Generalist Species

Wildlife species that inhabit agricultural land or developed land are mostly common habitat generalists. Generalist mammal species potentially in the US 14 project area include white-tail deer, striped skunk, gray squirrel, fox squirrel, opossum, raccoon, big brown bat, eastern cottontail, thirteen-lined ground squirrels, several mouse species, coyotes, and red fox. Common bird species adapted to either agricultural land or developed land and potentially in the project area include pheasant, Canada goose, grackle, starling, english sparrow, robin, cardinal, bluejay, and junco.

3.11.1.2 Wildlife Habitat Specialist Species

Several large tracts of forest in the western portion of the project area, specifically mesic forest in the dry bluffs and wet-mesic forest in the Minnesota River bottoms, may provide habitat for several specialist wildlife species. These habitats tend to be more complex than agricultural or developed lands, and as such, provide resources for different, less-common species. Specialist species that may be found in the project area include the Eastern pipistrelle bat, Hairy-tailed bat, Plains pocket gopher, beaver, woodland deer mouse, White-footed mouse, muskrat, gray fox, long-tailed weasel, mink, and in rare cases, the mountain lion.

The larger mesic and wet-mesic forest tracts found in the western portion of the project area may provide nesting and migration stopover habitat for several neotropical migratory bird species. Large forested tracts provide some protection to migratory birds from forest edge-dwelling predators such as the brown-headed cowbird. However, even the relatively large tracts of floodplain forest along the bottoms of the Minnesota River are fragmented enough to make bird species susceptible to predation.

3.11.2 Environmental Consequences and Mitigation Measures

The most notable impacts to upland habitat would occur in the western portion of the project area. Each of the Build Alternatives in this area would create impacts to upland forest habitat particularly near the Minnesota River, in the vicinity of Heyman's Creek, and in the bluffs associated with those features. Alternatives W2 and W3 would present the greatest magnitude of upland forest impacts, with W2 (top-of-bluff) dividing forest lands both along the steep bluff near the west end and at the Heyman's Creek crossing. Alternative W3 would impact the same area at Heyman's Creek as W2, but would not divide the western-most woodlands on the bluff.

The most notable impacts to upland habitat would occur in the West Study Section. Each of the Build Alternatives in this area would create impacts to upland forest habitat particularly near the Minnesota River, in the vicinity of Heyman's Creek, and in the bluffs associated with those features.

Upland habitat impacts that will occur in the East Study Section are characterized by impacts to forested fencerows or shrubland associated with property lines and roadways. Alternative E1 would impact approximately 10 acres of the largest part of the Swan Lake Wildlife Management Area (and its related prairie habitat), directly along US 14. Alternative E3 would impact approximately 3 acres of a smaller, separate parcel of the Swan Lake WMA, located on the Swan Lake Outlet, south of US 14 (see Plate 3 of the Aerial Photo Exhibit). Alternative E1 uses the existing US 14 corridor at the WMA, therefore additional roadway at that location might not represent a substantial change to the upland habitat and wildlife features of the WMA. The impact of Alternative E3 on the WMA would be at a location of new highway alignment, representing a disruption to this currently isolated section of the WMA and creating unsuitable habitat for some species due to increased noise and activity.

The primary impact associated with loss of upland plant communities is loss of wildlife habitat, which serves as a wildlife movement corridor and provides cover for breeding and foraging. Other wildlife impacts caused by removing vegetation and adding highway lanes include

increasing the potential for animal-vehicle collisions on the highway and altering the aesthetic and recreational opportunities and values associated with wildlife.

As discussed in Section 3.9, Wetlands and Section 3.14, Public Lands and Recreational Resources, the mitigation required for impacts to wetlands (under all Build Alternatives) and the Swan Lake WMA (under Alternatives E1 and E3) provide opportunities for changes that would further the Swan Lake WMA Recovery Plan efforts. Given the nature of the Swan Lake resource, it can be expected that many of the opportunities created by coordination with the MnDNR will result in mitigation sites that have the potential to collectively address wetland, wildlife and upland habitat impacts from the proposed action. Specific mitigation locations would be identified after identification of a preferred alternative and during the highway design process.

3.12 Threatened and Endangered Species

3.12.1 Affected Environment

3.12.1.1 Federally Listed Species

A November 2004 search of the U.S. Fish and Wildlife Service (USFWS) database identified two occurrences of federally listed species within a 1-mile buffer of the US 14 project area: the Federally Threatened Bald Eagle (*Haliaeetus leucocephalus*) and the Federally Threatened Prairie Bush Clover (*Lespedeza leptostachya*).

Bald Eagle Although "delisted" on June 28, 2007, the bald eagle is still protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.[16] The bald eagle prefers large, tall trees near rivers or reservoirs. Mature floodplain trees, often cottonwoods, are considered prime habitat. Eagles roost or nest in the upper branches of the tallest trees. Edges and openings in forests (riverbank, rangeland, cropland) are important for easy surveillance of food and accessibility. Large dead or dying trees are also frequently used as perches for similar reasons. Eagles prey primarily on small fish but also on small mammals, waterfowl (particularly when injured), small birds, and carrion (e.g., road kills). Bald eagle populations have increased substantially over the past twenty years in Minnesota and across the United States. In 1999, the USFWS proposed to remove the bald eagle from the endangered and threatened species list due to this recovery.

Bald eagle nests tend to shift locations over time. However, one bald eagle has been identified by recent USFWS bird surveys in the Minnesota River bottoms near New Ulm. In terms of potential for impacts, the West Study Section (especially along the Minnesota River near CR 37) is the area of greatest interest.

Prairie Bush Clover While the USFWS database identified this species as being within a 1-mile buffer of the project area, habitat for the Prairie Bush Clover is not present within the US 14 project area. Therefore, this species will not be discussed further in Environmental Consequences of this section.

[16] Source: www.fws.gov/midwest/eagle

3.12.1.2 State Listed Species

Minnesota's endangered flora and fauna have been classified into three status categories: Endangered, Threatened, and Special Concern. State law and rules provide special protections against the loss of species classified as endangered or threatened. Special Concern Species are not protected by Minnesota's Endangered Species Statute or the associated Rules, however these species are considered extremely uncommon in Minnesota or have unique or highly specific habitat requirements.

The Minnesota Department of Natural Resources Natural Heritage database, as archived by Mn/DOT, was accessed in November 2004 to determine the element occurrences that have been documented within a 1-mile buffer of the US 14 project area. In addition, a letter was sent to the Natural Heritage Program in November, 2004 requesting their concurrence on our interpretation of the data. A list of the State Endangered and Threatened Species documented by the DNR within 1 mile of the project area is provided in Table 3-20.

The Wolf's spikerush, the only plant on the list above, was previously known from the east side of the City of Nicollet. However, this plant has not been seen in the area since it was first documented in 1892. Given the lack of recent documentation, there is no reason to believe this plant exists in the project area. The remaining six species are mussel species known to occur in the Minnesota River near and upstream of the City of New Ulm.

The Minnesota River and associated river bottoms is also the general location of most of the Special Concern Species documented in the project area, including three fish species (blue sucker, lake sturgeon, and black buffalo), one plant (snow trillium), one bird (bald eagle), and one reptile (smooth softshell). Two Special Concern plant species (small white lady's slipper and plains prickly pear cactus) have habitat in the granite outcrop areas south of US 14 and west of Courtland, while one Special Concern bird species (forster's tern) is known to occur in the Swan Lake WMA.

TABLE 3-20
State Endangered and Threatened Species Documented Within 1-Mile of the US 14 Project Area

Common Name	Scientific Name	Group	Status
Wolf's spike rush	*Eleocharis wolffii*	Plant	Endangered
Rock Pocketbook	*Arcidens confragosus*	Mussel	Endangered
Mucket	*Actinonaias ligamentina*	Mussel	Threatened
Wartyback	*Quadrula nodulata*	Mussel	Endangered
Yellow sandshell	*Lampsilis teres*	Mussel	Endangered
Elktoe	*Alasmidonta marginata*	Mussel	Threatened
Round pigtoe	*Pleurobema coccineum*	Mussel	Threatened

Source: Natural Heritage Database, accessed in November, 2004

3.12.2 Environmental Consequences

3.12.2.1 Federally Listed Species

As shown on Plate 1 of the Aerial Photo Exhibit, all alternatives use the same location for crossing the Minnesota River. As described above, one bald eagle nest has been documented in the river bottoms area of the Minnesota River near New Ulm. All alternatives are located more

than 1,000 feet from the nest, far removed from the distance wherein construction activities would be most likely to have negative effects on bald eagles.[17]

For purposes of comparing alternatives, and recognizing that bald eagles are known to relocate nests, the alternatives with greatest proximity to the current bald eagle nesting areas and likely future nesting sites are Alternatives W1 and W3. Construction of a new roadway at either of these locations just before egg-laying or during incubation could disrupt eagle activities to the point where reproductive success of the eagle pair would be uncertain.

3.12.2.2 State Listed Species

All state-listed species that are potentially impacted by this project are mussel species that have been documented in this portion of the Minnesota River, as well as further upstream. If mussel habitat will be encountered in this project area, it is most likely to be at the Minnesota River crossing. All alternatives share a common river crossing location for an additional bridge (immediately upstream of the current US 14 bridge). Because of this, all alternatives have the same potential impacts to mussel species.

3.12.3 Mitigation Measures

Mn/DOT will work with the USFWS and DNR to conduct bald eagle surveys during field seasons immediately prior to the start of construction. By knowing the locations of active bald eagle nests construction activities can be timed appropriately to minimize the potential harm to bald eagles. As described above, the bald eagle has been de-listed from the Endangered Species List. However, further monitoring of the bald eagle's status will be necessary. The bald eagle is protected under the Bald Eagle Protection Act of 1940 and the Migratory Bird Treaty Act of 1918.

As bridge construction draws closer, Mn/DOT will work with MnDNR to determine if it will be necessary to conduct a mussel survey, which would confirm whether any are present in the zone of potential impact. As more detailed design of the river crossing is developed, it will become possible to determine the footprint of potential effects. An important aspect of determining the footprint is to consider the physical footprint of the new bridge in addition to the impacts caused by construction of the bridge.

3.13 Cultural Resources-Historic and Archaeological, and Section 106 Evaluation

Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended), requires federal agencies to:

- assess the effect of their actions by identifying properties listed on, or eligible for the National Register of Historic Places (NRHP),

[17] The *1983 Northern States Bald Eagle Recovery Plan* identifies "Disturbance Buffer Zones" to assist in the determination of impacts and the types of measures necessary to limit impacts. The *Recovery Plan* notes that intrusions into areas within 330 feet of a nest have the greatest potential for negative effects.

- determine effects of the project on those properties, and
- consult with the State Historic Preservation Office (SHPO) and interested parties to determine ways to avoid, minimize, or mitigate effects caused by an undertaking.

FHWA and Mn/DOT are the lead agencies required to address Section 106 requirements under the NHPA for this project. This section describes the historic resources identified in the US 14 project area of potential effect (APE, the geographic limits used for the cultural resource studies, shown on Exhibit 3-6), and addresses the anticipated effects on the resources that may be caused by the No Build Alternative and the Build Alternatives.

The Section 106 process generally includes three steps: 1) identification and evaluation of historic properties; 2) assessment of the effects of a proposed project on historic properties; and 3) consultation for methods to avoid, minimize, or mitigate any adverse effects. An historic property is defined as any prehistoric or historic building, structure, site, object, or district included on, or eligible for inclusion on the NRHP. Federal regulation 36 CFR 60, defines the criteria used to evaluate the significance of a site, building, district, structure, or object, and its eligibility for listing on the NRHP. To be listed on the NRHP, properties must retain integrity of location, design, setting, materials, workmanship, feeling, association, and have significance in one of several areas of American history under one of the following criterion:

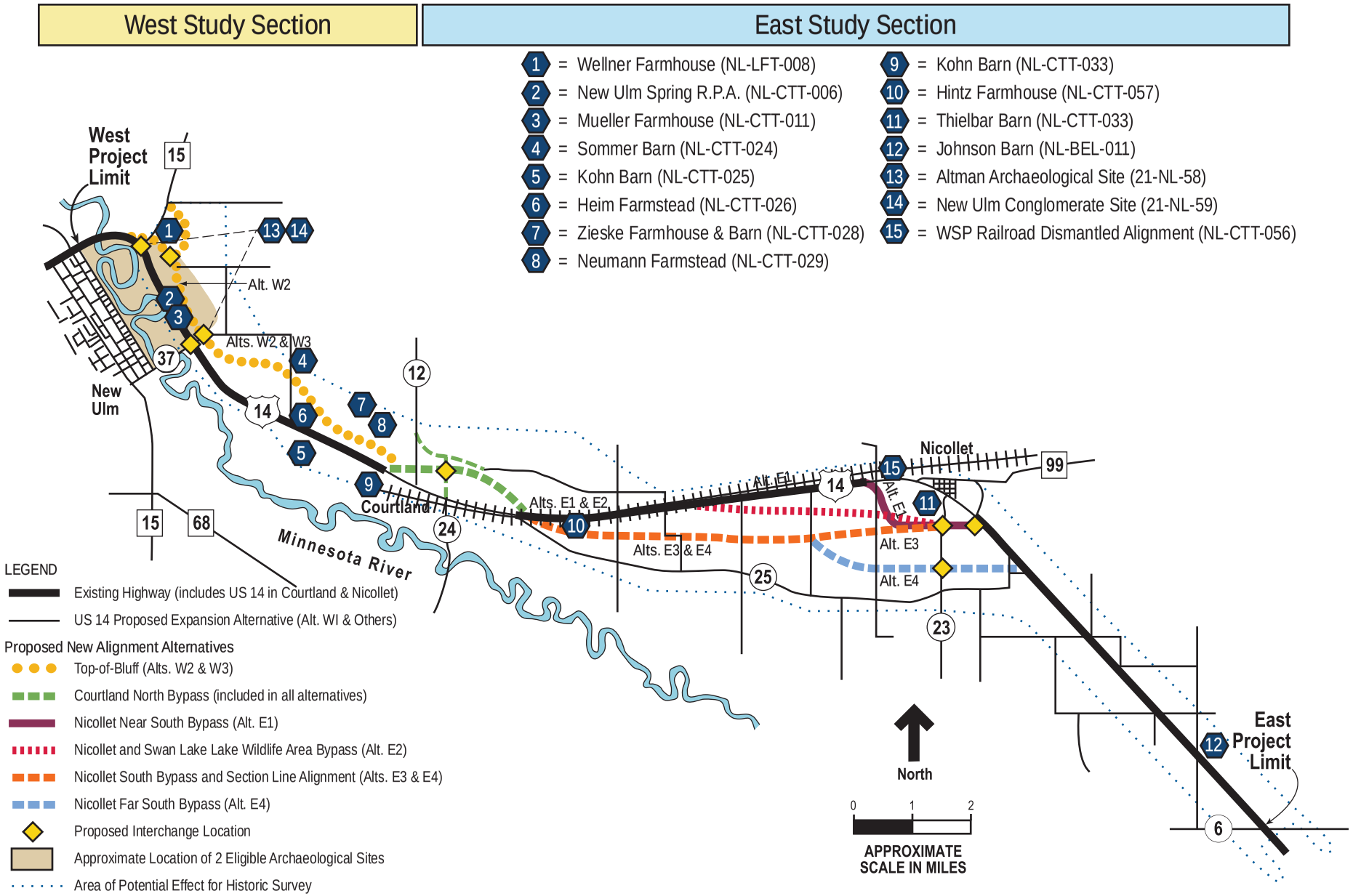
- Criterion A: association with events that have made a significant contribution to the broad patterns of history; or
- Criterion B: association with the lives of persons significant in our past; or
- Criterion C: embodiment of the distinctive characteristics of a type, period, or method of construction, or presentation of the work of a master, possession of high artistic values, or representation of a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D: the ability to yield information important in prehistory or history.

3.13.1 Affected Environment

3.13.1.1 Cultural Resource Studies and Inventory of NRHP Eligible and Listed Resources

The section summarizes the historic resources identified within the APE. The identification and evaluation of these resources are based on detailed field reviews by qualified professionals (who meet the standards of the Secretary of the Interior) and related consultations with the Minnesota SHPO. The cultural resource studies listed below were completed for this DEIS:

- *Phase I Archaeological and Geomorphological Survey and Phase II Archaeological Testing of 21NL58, 21NL59 and 21NL134* (October 2005)
- *Phase I Cultural Resource Survey (CRS) for Trunk Highway 14 West Interregional Corridor Alternative Study – SP 5200-03* (May 2004)
- *Phase II Evaluation of Historic Structures Along TH 14 Between New Ulm and Mankato, Nicollet County, Minnesota* (May 15, 2006)



US 14 Draft EIS
New Ulm to North Mankato

Exhibit 3-6
Section 106 NRHP Eligible Cultural Resources

These studies documented that one resource is already listed on the NRHP and that twenty-four historic structures and two archaeological sites within the APE have been determined to be eligible for the NHRP in consultation with the SHPO (see Table 3-21). There is also one resource, the Winona and St. Peter (WSP) Railroad alignment, for which a formal determination of eligibility has not yet been made, and is therefore considered potentially eligible for the NRHP within this DEIS.

TABLE 3-21
Properties Determined as Eligible for the National Register for Historic Places (NRHP) within US 14 Area for Potential Effect (APE)

Resource Name (SHPO Inventory Number)	Brief Resource Description	Potential Effect?
	Historic Architectural Resources	
1. Wellner Farmhouse (NL-LFT-008)	Farmhouse built around 1895	Adverse Effect
2. New Ulm Spring Roadside Parking Area (NL-CTT-006)	Former wayside rest area built in 1939 defined by a stone wall within Mn/DOT's US 14 right-of-way; listed on NRHP.	Adverse Effect & 4(f)**
3. Mueller Farmhouse (NL-CTT-011)	Well-preserved farmhouse built in the early 1900s located on top of the bluffs, above existing US 14.	Adverse Effect
4. Klippstein Barn (NL-CTT-017)*	Raised/basement barn built around 1890.	No Adverse Effect
5. Kohn Log Farmhouse (NL-CTT-021)	Log farmhouse built around 1870; largely unaltered and believed to stand on its original site.	No Adverse Effect
6. Sommer Barn (NL-CTT-024)*	Barn and unusually wide clay tile silo built around 1890.	Adverse Effect
7. Kohn Barn (NL-CTT-025)*	Barn and attached silo built in the 1890s.	Adverse Effect & 4(f)**
8. Heim Farmstead (NL-CTT-026)*	Historic farmstead, barn, and adjacent lands (85.5 acres)	Adverse Effect & 4(f)**
9. Zieske Farmhouse and Barn (NL-CTT-028)*	Farmhouse and barn, each individually eligible for the National Register.	Adverse Effect
10. Neumann Farmstead (NL-CTT-029)*	Historic structures built around 1900 and 11.6 acres of adjacent lands	Adverse Effect
11. Kohn Barn (NL-CTT-033)*	Raised/basement barn and attached silo built around 1895	Adverse Effect
12. Seeman Barn (NL-CTT-052)*	Raised/basement barn built around 1880. One of the four barns (out of 29) built with rare curved timbers.	No Adverse Effect
13. Bode Granary (NL-CTT-051)	Timber frame granary built around 1900.	No Adverse Effect
14. Meyer Barn (NL-CTT-050)*	Raised/basement barn built around 1880. One of four barns (out of 29) built with rare curved timbers; only barn with rare gunstock posts.	No Effect

TABLE 3-21
Properties Determined as Eligible for the National Register for Historic Places (NRHP) within US 14 Area for Potential Effect (APE)

Resource Name (SHPO Inventory Number)	Brief Resource Description	Potential Effect?
15. Studtmann Barn (NL-CTT-047)*	Raised/basement barn built around 1905; includes attached concrete stave silo.	No Effect
16. Hintz Farmhouse (NL-CTT-057)	Two-story brick farmhouse built around 1930; well-developed, intact example of the Colonial Revival style.	Adverse Effect & 4(f)**
17. Bruns Farmstead (NL-CTT-058)*	An historic farmstead including the Bruns Barn—a raised/basement barn built around 1890.	No Adverse Effect
18. Bode Barn (NL-NCT-011)*	Raised/basement barn (built around 1880) and clay tile silo.	No Adverse Effect
19. Bode Farmstead (NL-NCT-008)*	An historic farmstead, with barn (built around 1885) and clay tile silo; one of four barns (out of 29) built with rare curved timbers.	No Adverse Effect
20. Thom Farmstead (NL-NCT-021)*	Farmstead, a raised/basement barn (built around 1890) and 18.9 acres of adjacent lands.	No Adverse Effect
21. Dahms Barn (NL-NCT-034)*	A raised/basement barn built around 1895.	No Adverse Effect
22. Thielbar Barn (NL-NCT-033)*	A raised/basement barn (built around 1905) and a concrete stave silo.	Adverse Effect
23. Johnson Barn (NL-BEL-011)	Barn and attached silo built around 1920; a well-preserved example of rock-faced concrete block construction.	Adverse Effect
24. Budde Farmstead (NL-BEL-015)	An historic farmstead, the boundaries of which include approximately 15 structures.	No Adverse Effect
Archaeological Resources		
1. Altman Site (21NL58)	Archaeological site in the Minnesota River Valley near US 14.	Adverse Effect
2 New Ulm Conglomerate Site (21NL59)	Archaeological site in the Minnesota River Valley near US 14.	Adverse Effect & 4(f)**
Potentially Eligible Resource		
Winona and St. Peter (WSP)Railroad Courtland Segment (NL-CTT-056) Nicollet Segment (NL-CTT-001), and four stone box culverts (NL-CTT-101, -106, -107, and -108)	Potentially eligible railroad line consisting of remnant railroad grade and structures.	Adverse Effect & 4(f)**

* Indicates resource is one of the 29 timber frame barns reviewed (see Section 3.13.1.2, below).

TABLE 3-21
Properties Determined as Eligible for the National Register for Historic Places (NRHP) within US 14 Area for Potential Effect (APE)

Resource Name (SHPO Inventory Number)	Brief Resource Description	Potential Effect?

** Potential Section 4(f) resources denoted above are discussed in Appendix A: Draft Section 4(f) Evaluation.

The numbering of the historic architectural resources above corresponds to the numbering of the resources on the Aerial Photo Exhibit, with the exception of the archaeological resources, which are not shown on the map, in order to protect the integrity of the sites.

The list of eligible properties was reviewed for Section 106 effects. These effects are noted in the right-hand column of Table 3-21 and are discussed below.[18] These resources are located less than 500 feet from the edge of a build alternative. Some of the properties will be affected by physical, auditory, or visual changes to their settings, by demolition, or by a change that could cause the building to fall into disuse. All eligible properties are shown on the Aerial Photo Exhibit; those properties which have potential to result in a Section 106 adverse effect are also shown on Exhibit 3-6.

3.13.1.2 Importance of Timber Frame Barns within Project Area

Several of the historic architectural resources listed in Table 3-21 are timber frame barns (identified in Table 3-21 with an asterisk (*) next to the property name). The prevalence of older gable-roof three-bay English type barns along this corridor prompted the examination of these barns. These "raised" or "basement" barns are likely second-generation barns, built to replace earlier, smaller, settlement-era barns. The barns were likely originally built as general-purpose or "combination" structures used for storing crops and housing livestock. Many of the barns display distinctive characteristics of German immigrant construction that are now rare in Minnesota, including scribe carpentry (individually measured and cut framing members), *fachwerk*-style square panel framing in the walls, and diagonal corner braces. All of these barns have undergone some level of alteration. Changes range from the addition of small silos and milk houses, to larger-scale expansions.[19] Each barn's physical integrity was assessed for determining eligibility for the NRHP. Overall, twenty-nine timber frame barns were reviewed. Sixteen were recommended as eligible for the NRHP. Seven barns have potential for a Section 106 adverse effect under the DEIS build alternatives (see discussions below).

3.13.1.3 Description of Historic Architectural Resources

This section describes the twelve historic resources that will have Section 106 effects under one or more of the alternatives. To keep the discussion concise, NRHP eligible resources that would not result in a Section 106 adverse effect are not further discussed.

[18] Resources with potential for Section 4(f) use are also noted above; however, potential Section 4(f) uses are not discussed in this section. Rather, they are discussed in detail in Appendix A.

[19] Source: *Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, Nicollet County, Minnesota*

1. Wellner Farmhouse (NL-CTT-008)

Location	42924 577th Avenue, New Ulm, MN 56073; [Lafayette township (T110N R30W), Section 15, SE ¼ of SW ¼]
Access to Property	Driveway onto 577th Avenue

This resource, built around 1895, is a well-preserved example of a turn of the century brick farmhouse of a sophisticated design that demonstrates associations with the late 19th and early 20th century farming in the Minnesota Valley region. The farmhouse and the surrounding landscaping are therefore recommended as eligible for the NRHP under Criteria A and/or C. The barn and the rest of the farmstead are not recommended as eligible. The secluded setting of this home on top-of the bluff enhances the context of this rural, residential home. The structure is a privately owned rural residential home that is part of an operating farmstead.

2. New Ulm Spring Roadside Parking Area (RPA) (NL-CTT-006)[20]

Location	North side of US 14, approximately one mile southeast of US 14/MN 15 intersection [Courtland Twp, (T110N R30W), Sec 22].
Access to Resource	Direct pull-off on the north side of US 14

The New Ulm Spring RPA was designed by noted landscape architect, A.R. Nichols and built in 1938-1939 by the National Youth Administration (NYA) as part of President Roosevelt's New Deal and the Roadside Development Division of the Minnesota Department of Highways. The RPA was determined eligible for the NRHP as part of the *Mn/DOT Historic Roadside Development Structures Inventory*, completed in 1998. Reasons for inclusion on the NRHP include: unique construction; exemplification of NYA works in cooperation with the Minnesota Department of Highways; and for its design and use of indigenous materials. The *Roadside Development Structures Inventory* also noted that compared to the other walls inventoried, the New Ulm RPA is an "outstanding" resource.

The RPA was originally built as a wayside rest area for drivers to stop and use an artesian well (the well was capped several years ago due to water quality and health concerns). The 4.6 acre site includes several structures—all constructed from locally quarried red quartzite—including a retaining wall (~156 feet long), 2 sets of stone steps leading into the wooded hillside, and a stone picnic fireplace in the wooded hillside. The stone structures are in disrepair. The steps and fireplace are obscured by brush. Based on observations and reports from local residents and officials, this site is rarely visited for interpretive reasons nor is it used as a rest area. The RPA is located within Mn/DOT's US 14 right-of-way.

3. Mueller Farmhouse (NL-CTT-011)[21]

Location	43938 Spruce Haven Lane [Courtland Twp (T110N R30W), Section 22, SW ¼ of SW ¼]
Access to Resource	Direct access from Spruce Haven Lane (off CR 21)

Built in 1906, the Mueller Farmhouse is a well-preserved, 2 ½ story, Queen Anne style brick house, originally constructed on a large farm owned by Henry Mueller. The house has excellent integrity in design, workmanship, and materials and is one of the largest turn of the century

[20] Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.26

[21] Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.27

farmhouses within the US 14 study area. It is believed that the Mueller family owned this land from the 1860s through the 1980s.

The Farmhouse is eligible for the NRHP under Criteria A and/or C. The secluded setting of this home on top-of-the-bluff enhances the context of this rural residential home. The building fits within the agricultural lifestyle of the Minnesota River area, specifically within the secluded top-of-bluff community that also includes the Wellner Farmhouse (NL-CTT-008). The remainder of the farmstead has lost physical integrity, therefore, boundaries of the eligible property include the house, garage, lawn, grove, driveway, and other landscape elements including trees, shrubs, and other ornamental plantings.

4. Sommer Barn (NL-CTT-024)[22]

Location	561st Ave. Courtland, MN 56021 [(T110N R30W), Sec 26, SE ¼ of SE ¼]
Access to Resource	Direct turnoff on west side of 561st Avenue

Originally built by a German immigrant family circa 1890, the barn's construction details are characteristic of traditional German timber framing, which is currently understood to be rare in Minnesota. These details include dense *fachwerk* square panel wall framing, diagonal corner bracing, and evidence of scribe carpentry. An early clay tile silo that is connected to the barn is unusually wide and is a rare example of this type of silo. The Sommer Barn is one of the 29 German timber frame barns assessed within the US 14 study area. Although the barn has been altered, it is eligible for the NRHP under Criterion A and/or C for its conveyance of rare construction details and association with German immigration to the rural Minnesota River Valley.

5. Kohn Barn (NL-CTT-025)[23]

Location	54350 US 14 Courtland, MN 56021 [(T110N R30W), Sec 36, SW ¼ of SW ¼]
Access to Resource	Direct turnoff on south side of US 14

Originally built by a German immigrant family circa 1890, the barn's construction details are characteristic of traditional German timber framing, which is currently understood to be rare in Minnesota. These details include dense *fachwerk* square panel wall framing, diagonal corner bracing, and evidence of scribe carpentry. The only addition to this barn is a silo, making this one of the least altered barns in the area. A portion of the 200 acre parcel on which the barn is located encompasses the boundaries of the Heim Farmstead (NL-CTT-026).

The Kohn Barn is one of the 29 German timber frame barns assessed within the US 14 study area. The barn is eligible for the NRHP under Criterion A and/or C, primarily because the barn's rare construction details demonstrate a connection with German immigration to the rural Minnesota River Valley.

[22] Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.49

[23] Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.52

6.Heim Farmstead (NL-CTT-026)[24]

Location	55712 US 14 [Courtland Township (T109N), Section 1, NE ¼ of NW ¼]
Access to Resource	Direct access from driveway on north side of US 14.

The Heim Farmstead, along with some adjacent acreage is eligible for the NRHP under Criterion A and/or C. Approximately 85.5 acres of the original 205 acre farmstead have retained enough integrity to continue to demonstrate associations with late 19th and early- to mid-20th century farming in the Minnesota River Valley region. The eligible farmstead contains a small acreage on the north side of US 14, and part of a larger farm on the south side of US 14. The eligible farmstead currently has separate property owners on the north and south side of the highway. The northern part of the farmstead includes the eligible barn.

The Heim Barn is one of the 29 German timber frame barns assessed within the US 14 study area. Built by a German immigrant family in 1907, the barn is a late example of a timber frame construction that displays characteristics of traditional German timber framing, including dense *fachwerk* square panel wall framing and diagonal corner bracing. This barn has only undergone an early balloon frame addition. The condition of the barn is sufficient enough to continue to convey association of German immigration to the rural Minnesota River Valley.

7. Zieske Farmhouse and Zieske Barn (NL-CTT-028)[25]

Location	55299 456th Lane, Courtland, MN 56021[Courtland Township [(T110N R30W), Sec. 36, NW ¼ of SE ¼]
Access to Resource	Access to US 14 is provided by a long lane off of 551st Avenue

The Zieske Farmhouse and the Zieske Barn are individually eligible for the NRHP under Criteria A and/or C because both buildings have retained sufficient integrity for conveying association with German immigration, as well as late 19th and early 20th century farming in the Minnesota Valley region. Boundaries recommended for the two eligible properties would individually encompass the farmhouse and the barn (with the attached silo) but not include the rest of the farmstead, which has lost integrity for conveying association with late 19th and early 20th century farming in the region.

The Zieske Barn is one of the 29 German timber frame barns assessed within the US 14 study area. The raised or basement barn, built by a German immigrant family circa 1890, displays characteristics of traditional German timber framing, including diagonal corner bracing and evidence of scribe carpentry. The barn has only undergone an early balloon frame addition.

8. Neumann Farmstead (NL-CTT-029)[26]

Location	45928 551st Avenue, Courtland, MN 56021 [Courtland Township (T110N R30W), Sec 36, SE ¼ of SE ¼]
Access to Resource	Access provided by a long lane off of 551st Avenue

[24] Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.56

[25] Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.61.

[26] Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.67.

Just under 12 acres of the Neumann Farmstead are recommended for eligibility on the NRHP under Criterion A and/or C. This includes the Neumann Barn, the surrounding pasture area, and the adjacent pond. The barn's construction details are intact enough to demonstrate a connection to German immigration to the rural Minnesota River Valley. The rest of the farmstead conveys associations with late 19th and early- to mid-20th century farming in the Minnesota Valley region.

Built around 1900, the Neumann Barn displays European craftsmanship of the German tradition. Despite alterations, the barn's rare construction details convey and its association with German immigration to the rural Minnesota River Valley. This eligible barn on this property is one of the 29 German timber frame barns within the US 14 study area. This barn has undergone the addition of a balloon frame addition, silo, and small milk house.

9. Kohn Barn (NL-CTT-033)[27]

Location	46266 547th Lane, Courtland, MN 56021 [Courtland Township (T109N R29W), Sec 6, SW ¼ of NW ¼]
Access to Resource	Direct access from the south side of US 14

Built around 1895, this barn and attached concrete stave silo display characteristics of traditional German timber framing, which is currently understood to be rare in Minnesota. Evidence of scribe carpentry and other details suggest a skilled craftsman building in European tradition.

The Kohn Barn is one of the 29 German timber frame barns assessed within the US 14 study area. Despite alternations, the barn is considered eligible for the NHRP under Criterion A and/or C based on the conveyance of rare construction details and associations with German immigration to the rural Minnesota River Valley.

10. Hintz Farmhouse (NL-CTT-057)[28]

Location	51621 US 14, Courtland, MN 56021 [Courtland Township (T109N R29W), Sec 10, SE ¼ or NW ¼]
Access to Resource	Direct access from the south side of US 14

Built around 1930, this two-story, brick farmhouse is reflective of the Colonial Revival style. It may also be associated with the early 20th century progressive movement to improve American farmhouses, farm life, and farm women's workload through modern farmhouse design and improved aesthetics. Based on these observations, the Hintz Farmhouse including the garage, the driveway, and the lawn, is eligible for the NRHP under Criterion C. The rest of the farmstead has lost physical integrity.

[27] Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.75.

[28] Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.109.

11. Thielbar Barn (NL-NCT-033)[29]

Location	46928 CR 23, Nicollet, MN 56074 [Nicollet Township (T109N R28W), Sec 4, SE ¼ of SE ¼]
Access to Resource	US 14 accessed via County Road 23, south of US 14

Originally built by a German immigrant family circa 1905, the barn's and the attached silo's construction details are characteristic of traditional German timber framing, which is currently understood to be rare in Minnesota. These details include dense *fachwerk* square panel wall framing, and diagonal corner bracing. The barn is also unusual because timber framework extends down below the mow floor.

The Thielbar Barn is one of the 29 German timber frame barns assessed within the US 14 study area. The barn is eligible for the NRHP under Criterion A and/or C, primarily because the barn's rare construction details demonstrate a connection with German immigration to the rural Minnesota River Valley.

12. Johnson Barn (NL-BEL-011)[30]

Location	51621 US 14, Courtland, MN 56021 [Belgrade Township (T109N R27W), Sec 29, SW ¼ pf SW ¼]
Access to Resource	US 14 accessed via County Road 17, north of US 14

The Johnson Barn, a 39′ x 100′ dairy barn with a gothic arch roof and an attached silo are eligible for the National Register under Criterion A and/or C. The dairy barn (circa 1920) and silo are both unusually well-preserved examples of rockfaced concrete block construction. The barn is a large example of its type and retains many of its mechanical elements, including stanchions and ventilation systems. This eligible barn on this property is one of the 29 German timber frame barns within the US 14 study area. The rest of the farmstead lacks historic integrity (primarily because the farmhouse was recently replaced) and is not recommended as eligible.

3.13.1.4 Description of Archaeological Resources

Altman Site (21NL58)[31] This approximately six acre site is located to the east of the Minnesota River and to the west of the US 14 corridor in the Minnesota River valley bluff. A portion of the site is privately owned, while the other part of the site is located within Us 14 right-of-way, which is owned by Mn/DOT.

The site contains intact, deeply buried animal remains and artifacts that indicate the site was likely Archaic-period procurement and processing (butchering) site. The overall integrity of the archaeological resources at this site is very good, including the preservation of bone and shell within the deposits. Because the site is deeply buried, it has not been affected by plowing or erosion. This site is recommended as eligible for listing on the NRHP under Criterion A for its association with early occupation of the Minnesota River valley; and under Criterion D for its ability assist with answering important archaeological research questions concerning the

29 Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.205.

30 Source: Phase II Evaluation of Historic Structures Along T.H. 14 Between New Ulm and Mankato, p. 3.15.

31 Source: TH 14—New Ulm to North Mankato Archaeological Survey, Nicollet County Minnesota, (October 2005).

distribution and character of such sites (e.g., providing insights into subsistence patterns, seasonality, and technologies used at that time).

New Ulm Conglomerate Archaeological Site (21NL59)[32] Site 21NL59 is an ancient tool-making and camp site consisting of a precontact artifact scatter with intact subsurface deposits surrounding a Sioux Quartzite outcrop known as the "New Ulm Conglomerate." Artifacts found at the site (including lithics of raw materials from the outcrop and utilized cobbles), indicate that the site was a location for quarrying and lithic reduction activities. Also, the New Ulm Conglomerate is one of only two surface exposures of the Sioux Quartzite basal conglomerate within Minnesota. This makes the site important for providing an understanding of Minnesota geology. The site is recommended as eligible for listing on the NRHP under Criteria A for its role as a local lithic quarry site within the context of the precontact settlement of the Minnesota River valley and as a feature that is important for its contributions to the study of Minnesota's geology. The site is owed by a combination of multiple private property owners, and Mn/DOT (part of the site is located within US 14 right-of-way).

3.13.1.5 Description of Potentially Eligible Winona and St. Peter (WSP) Railroad

The Winona and St. Peter (WSP) Railroad line is a resource consisting of remnant railroad grade and structures (culverts and bridge abutments). The now-dismantled railroad was originally built as an extension from St. Peter to New Ulm in 1872. After many decades of service, the tracks in Nicollet County were removed in 1973. While various elements can be inventoried separately, the WSP Railroad is linear in nature and is thus described herein as a corridor (see Exhibit 3-6 and the Aerial Photo Exhibit). It is also known as the Chicago and Northwestern Railway. The individual elements near the US 14 corridor include: the Courtland Segment (NL-CTT-056), the Nicollet Segment (NL-CTT-001), and four stone box culverts (NL-CTT-101, -106, -107, and -108). The potentially eligible historic rail line also includes other structures located well outside the area of potential effect. Generally, the line in the study area runs south of Courtland, joins the existing US Highway 14 corridor east of Courtland and runs along the highway's north side, where the railbed is typically not present, having been altered by agricultural activity. Just west of Nicollet, the WSP line angles toward the northeast and away from US 14 as the highway diverges toward the southeast.

The WSP Railroad line in the US 14 study area is not as intact or visible as other segments of the same line outside the study area. However in 2000, consulting historians (AHR and Hess, Roise) recommended that, "the entire historic [WSP] line across the state of Minnesota should be listed as a linear district" (eligible for the National Register). While a formal determination of eligibility has not yet been made, the WSP line in the study area is considered potentially eligible within this DEIS.

[32] Source: TH 14—New Ulm to North Mankato Archaeological Survey, Nicollet County Minnesota, (October 2005).

3.13.2 Environmental Consequences—Potential Section 106 Adverse Effects

This section discusses the potential adverse effects to eligible cultural properties under Section 106 of the Historic Preservation Act. Table 3-22 (on the next several pages) includes a discussion of which resources may be affected by an adverse effect. [Note that the numbering of the resources in Table 3-22 (1., 2., 3., etc.) corresponds to the resource numbering on Exhibit 3-6]. Not all of the properties will be affected by all alternatives. The table also discusses *possible* strategies for avoiding adverse effects to these resources or mitigating those effects.

TABLE 3-22
Potential Section 106 Adverse Effects to NRHP Eligible and Listed properties

Resource Name (SHPO Inventory #)	Potential Section 106 Adverse Effects and Possible Avoidance/Mitigation Strategies
West Study Section—Includes Alternatives W1, W2, and W3	
1. Wellner Farmhouse (NL-LFT-008)	***Alternative W2***: MN 15 would be realigned along 577th Avenue, which is currently a two-lane gravel road that passes directly in front of the Wellner Farmhouse. The realigned MN 15 would be a two-lane, paved, state highway that would connect to US 14. Based on the farmhouse's eligibility under Criterion A and/or C, the realigned MN 15, would adversely affect the characteristics that qualify the farmhouse for the National Register. The existing setting, which "conveys a sense" of a historic farmstead, would be impacted by increased noise levels from the highway (which would carry considerably more traffic than 577th Avenue now carries). Additionally, current views of agricultural fields and rural residences seen from the front of the house would be altered by the highway. The realignment of MN 15 would not result in acquisition of property from the Wellner Farmhouse, and the farm fields located on both sides of 577th Avenue would remain accessible for the existing farming operation. ***Avoidance/Mitigation Strategy***: Through landscape buffering it is expected that the adverse effect on the farmhouse can be minimized, although not entirely avoided.
2. New Ulm Spring Roadside Parking Area (RPA) (NL-CTT-006)	***Common Portion of Alternatives W1 & W3***: Use of a constrained, urban design in the area between the Minnesota River and the bluff would not allow for a designated access to the site or an ideal area to park vehicles (see Section 2). Also, removing access to the site is consistent Mn/DOT's Interregional Corridor policy which limits access along state highways for purposes of safety and highway operations (see Sections 1.3.3.3 and 2.4.4). The wayside was originally built as a pull-off for drivers; therefore, removal of access would be a change in physical context and use, resulting in an adverse effect to this resource. ***Avoidance /Mitigation Strategy Under Common Portion of Alternatives W1 & W3***: The adverse effect to the RPA under this common alignment would not be avoided unless access is provided. The RPA would remain within Mn/DOT right-of-way. Mn/DOT would remain the entity responsible for maintenance, and would work with SHPO to develop a minimization and/or mitigation proposal if this alignment were selected. ***Alternative W2***: Under this alternative, US 14 between MN 15 and CR 37 would be turned back to Nicollet County. Jurisdiction of the RPA, including maintenance responsibility, would be given to Nicollet County. ***Avoidance /Mitigation Strategy Under Alternative W2***: Prior to turn back, provisions would be made for maintenance of the property to the Secretary of Interior's Standards for the Treatment of Historic Properties.

TABLE 3-22
Potential Section 106 Adverse Effects to NRHP Eligible and Listed properties

Resource Name (SHPO Inventory #)	Potential Section 106 Adverse Effects and Possible Avoidance/Mitigation Strategies
3. Mueller Farmhouse (NL-CTT-011)	***Alternative W2***: This alternative would place a four-lane highway in close proximity to the front of the Mueller Farmhouse, which is currently located near the dead-end of a gravel road. Based on its eligibility under Criterion A and/or C, introduction of the new highway would adversely affect the characteristics that qualify the farmhouse for the National Register. Specifically, the setting that "conveys a sense" of a historic farmhouse would be disturbed by increased noise. Also, the existing views of rural areas from the front of the house would be replaced by views of a four lane highway. ***Avoidance/Mitigation Strategy***: Adverse effects to the Mueller Farmhouse cannot be avoided given the close proximity of this resource to the new four-lane rural highway. There may be limited potential to minimize these adverse effects with vegetative buffering, however, the context of this historic home on top-of-the-bluff would be adversely changed.
4. Sommer Barn (NL-CTT-024)	***Common Portion of Alternatives W2 & W3***: The Alternative W2/W3 alignment past the Sommer Barn would not require acquisition of the eligible barn nor any of the associated property. However, this alternative would place a new four-lane highway in close proximity to the barn. Based on the resources' eligibility under Criterion A and/or C, the Alternative W2/W3 alignment past the Barn would adversely affect the characteristics that qualify these resources for the National Register. The noise and visual changes the highway would introduce to this rural area would adversely affect the agricultural setting that conveys its associations with German immigration to the rural Minnesota River Valley. ***Avoidance /Mitigation Strategy***: Complete avoidance of the adverse visual and noise effects is not possible; however, there is limited potential to minimize the adverse effect with alignment adjustments and/or buffering.
5. Kohn Barn (NL-CTT-025)	***Alternative W1***: Highway improvements under Alternative W1 would require acquisition of the barn based on proximity. Acquisition and removal of the eligible barn and silo, would result in an adverse effect. There is potential that the house (located on the same parcel as the barn, but not an eligible resource) would also be acquired based on proximity. ***Avoidance/Mitigation Strategy***: It may be possible to adjust the alignment through this area to avoid the eligible barn and silo; as well as the house. This would minimize impacts to both the Kohn Barn and the Heim Farmstead. This approach should allow for avoidance of acquisition of the barn; however, property access details would continue to present challenges in terms of property acquisition and minimizing adverse effects to other resources, including the Heim Farmstead. Consideration was also given to an alternative that would shift the alignment south to avoid use of the barn. (See Appendix A for complete details pertaining to potential for a Section 4(f) use of this resource).
6. Heim Farmstead (NL-CTT-026)	***Alternative W1***: The house and barn of this historic farmstead sit very close to the road; the boundaries of the eligible farmstead straddle both sides of existing US 14, making complete avoidance of this resource impossible under Alternative W1. Regardless of which direction the highway is widened (either to the north or to the south), Alternative W1 would result in the acquisition of a strip of approximately six acres of the farmstead adjacent to US 14. This acquisition will not affect viability of the farming operation; the property has been farmed on both sides of US 14 for many years and will remain viable as long as access to both sides of the highway is maintained. Access to the portion of the farmstead located south of US 14 would be rerouted (to remain consistent with Mn/DOT access guidelines). This new access configuration would result in acquisition of some farmstead acreage. The farmstead acreage south of US 14 is currently accessed by the same driveway that provides access to the eligible Kohn Barn (NL-CTT-025); the rerouted access would also provide access to the Kohn Barn, which is important only if the

TABLE 3-22
Potential Section 106 Adverse Effects to NRHP Eligible and Listed properties

Resource Name (SHPO Inventory #)	Potential Section 106 Adverse Effects and Possible Avoidance/Mitigation Strategies
	Kohn barn is not acquired (see discussion above). The eligible barn (located on the north side of US 14) would be avoided. However, the house (also on the north) would be acquired based on proximity to the road. The house is a contributing element to the eligible farmstead, therefore, removing the house would result in an adverse effect to the farmstead. In addition, acquisition of the house would raise questions regarding the continued maintenance of the farmstead acreage north of the highway, including the barn. Based on its eligibility under Criterion A and/or C, the farmstead acreage required for widening of US 14 to four lanes would adversely affect the property's ability to illustrate farming in this region during the late 19th and early- to mid-20th century by affecting the setting and composition of the farmstead. Additionally, acquisition of the house on the north side of US 14 would result in demolition of this resource which is important for its contribution to the eligibility of the farmstead. ***Avoidance /Mitigation Strategy***: Use of a constrained cross section on the portion of Alternative W1 that passes the Heim Farmstead (and the Kohn Barn) may provide opportunities for avoiding acquisition of the farmhouse. This smaller footprint would minimize (although not avoid) adverse effects to the farmstead. Even if the farmhouse is maintained, the proximity of the road would still adversely affect the setting. Providing access to the north part of the farmstead with the constrained cross section would require construction of a frontage road to provide access to the farmstead, and three residences to the east. The frontage road and the expanded US 14 alignment would result in an adverse effect to the farmstead. However, if access were not provided, it would be necessary to acquire all of the farmstead acreage north of US 14.
7. Zieske Farmhouse and Barn (NL-CTT-028)	***Common Portion of Alternatives W2 & W3***: The common portion of Alternatives W2 and W3 would require acquisition of 26 out of 200 acres farmed and diagonally bisect the associated acreage where the individually eligible Zieske farmhouse and barn are located. Based on the resources' eligibility under Criterion A and/or C, the common Alternative W2 and W3 alignment past the Zieske structures (and the Neumann Farmstead, as discussed below) would adversely affect the characteristics that qualify the farmhouse and barn for the National Register. Specifically, the setting that conveys its associations with late 19th and early 20th century farming in the Minnesota River region. The buildings would not be impacted; however, the Alternative W2/W3 alignment would locate a highway in a rural area, which would adversely affect the visual quality of the rural setting in which the Zieske structures are located. The highway would also add a major noise source to a generally quiet area. Finally, severance of the active farming operation on which the structures are located would raise concerns regarding the future viability of the existing operation. ***Avoidance/Mitigation Strategy***: Moving the alignment south to avoid an adverse effect would lead to additional adverse effects to the eligible Heim Farmstead (NL-CTT-026) located just south of this resource (see discussion above). Given the proximity of the new highway alignment under Alternatives W2 and W3, adverse effects cannot be avoided; however, there is limited potential to minimize the effects with alignment adjustments and/or buffering.
8. Neumann Farmstead (NL-CTT-029)	***Common Portion of Alternatives W2 & W3***: The Alternative W2/W3 alignment past the Neumann Farmstead would not require acquisition of the eligible farmstead or barn. However, this alternative would place a new four-lane highway in close proximity to the southwest corner of the farmstead.

TABLE 3-22
Potential Section 106 Adverse Effects to NRHP Eligible and Listed properties

Resource Name (SHPO Inventory #)	Potential Section 106 Adverse Effects and Possible Avoidance/Mitigation Strategies
	Based on the resources' eligibility under Criterion A and/or C, the Alternative W2/W3 alignment past the Neumann Farmstead and Barn would adversely affect the characteristics that qualify these resources for the National Register. The noise and visual changes the highway would introduce to this rural area would adversely affects the setting that conveys its associations with late 19th and early- to mid-20th century farming in the region. ***Avoidance/Mitigation Strategy***: Complete avoidance of the adverse visual and noise effects are is not possible; however, there is limited potential to minimize the adverse effect with alignment adjustments and/or buffering.
9. Kohn Barn (NL-CTT-033)	***Alternatives W1***: The W1 alignment would require acquisition of 150 feet from the front of the property which includes the Kohn Barn (to accommodate highway right-of-way). The barn would not be acquired. This acquisition would remove trees from the property which buffer the resource form the highway, which is located along the south side of US 14. ***Avoidance /Mitigation Strategy***: With additional design, it is possible that the adverse effect on the barn/silo could be reduced. However, opportunities for avoiding the Kohn Barn (NL-CTT-033) have potential to increase the impacts to the other Kohn Barn (NL-CTT-025) and the Heim Farmstead (NL-CTT-026) located to the west of this resource.
13. Altman Archaeological Site (21NL58)	***Common Portion of Alternatives W1 & W3***: The expansion of US 14 to four lanes along the existing alignment between the Minnesota River bridge and CR 37 would result in highway being located on top of approximately ½ of this site which contains intact, deeply buried (approximately 4-6' deep) artifacts. Based on its eligibility under Criterion A and D, widening of US 14 to four lanes has potential to adversely affect the site's ability to convey association with early occupation of the Minnesota River valley. Additionally, highway widening may adversely affect the site's ability to assist in answering important archaeological research questions. ***Avoidance /Mitigation Strategy***: If adverse effects to the site cannot be completely avoided, data recovery prior to construction will be necessary.
14. New Ulm Conglomerate Archaeological Site (21NL59)	***Common Portion of Alternatives W1 & W3***: This site could be adversely affected by proximity under Alternatives W1 and W3. Specifically, the widening of existing US 14 to four-lanes would locate the highway on top of some buried artifacts (which are not considered important for preservation in place). There is also potential that the interchange proposed at US 14 and CR 37 could infringe upon the geological feature on the site, which is considered important for preservation in place. These impacts have potential to adversely affect this resource's eligibility under Criterion A and D, by affecting the site's association with precontact settlement of the Minnesota River valley; and the site's importance to understanding Minnesota's geology. ***Avoidance /Mitigation Strategy***: Using roadway and interchange design refinements, it would be possible to avoid the New Ulm Conglomerate geological feature. Specifically, this would include revised interchange concepts for Alternatives W1 and W3. If the adverse effect to the buried archaeological artifacts cannot be completely avoided, data recovery or some other mitigation measures (i.e., comparative analysis of chipped stone utilization from surrounding archaeological sites) prior to construction would be necessary.
East Study Section—Includes Alternatives E1, E2, E3, and E4	
10. Hintz Farmhouse (NL-CTT-057)	***Potential Adverse Effect***: Alternatives E1 and E2 bring the highway right of way within closer proximity of the highway. The proximity of the highway will affect the setting of the house by introducing a larger highway to the setting from of the property, which will result in an adverse effect.

TABLE 3-22
Potential Section 106 Adverse Effects to NRHP Eligible and Listed properties

Resource Name (SHPO Inventory #)	Potential Section 106 Adverse Effects and Possible Avoidance/Mitigation Strategies
	Avoidance /Mitigation Strategy: Changes in the proximity of the highway to the house would remain an adverse effect. (See Appendix A for complete details pertaining to the avoidance of a Section 4(f) use of this resource).
11. Thielbar Barn (NL-NCT-033)	***Potential Adverse Effect***: The CR 23 interchange option possible under Alternative E1, E2, and E3 would result in acquisition of approximately 25 feet from the 275 feet that separate the road from the trees that presently buffer the farmstead from the 2-lane county road. Construction of a CR 23/TH 14 interchange option would also result in changes to the setting of the barn, as the interchange will be located approximately 900 feet to the south. Although the areas to the east and north of the barn are already urbanized, the placement of an interchange to the south will introduce a substantial change to the visual setting of this resource. ***Avoidance /Mitigation Strategy***: The MN 99 interchange option that is part of Alternatives E1, E2, and E3 would result in avoidance of an adverse impact to the Thielbar Barn.
12. Johnson Barn (NL-BEL-011)	***Potential Adverse Effect***: The alignment through this area (common to all eastern alternatives) would extend the highway approximately 150 feet into the farmyard and require acquisition of the home (located on the same property as the barn) based on access issues and proximity. While the home is not an eligible resource and while the barn would not be acquired, acquisition of the home would have an adverse effect to the long-term maintenance of the barn. ***Avoidance /Mitigation Strategy***: With additional design, it is expected that the adverse effect on the barn/silo could be reduced. Opportunities for avoiding the home by shifting the alignment to the south may be explored.
15. Winona and St. Peter (WSP)Railroad Courtland Segment (NL-CTT-056) Nicollet Segment (NL-CTT-001), and four stone box culverts (NL-CTT-101, -106, -107, and -108)*	***Potential Adverse Effect***: None of the build alternatives can avoid, at minimum, a crossing of the WSP Railroad line. As supported in Section 2, study area conditions demand community bypasses north of Courtland and south of Nicollet; and the segment of US 14 next to the WSP Railroad line is at the transition point. Also, most of the segment of US 14 next to the Railroad line (between Courtland and Nicollet) corresponds to Alternatives E1 and E2. Therefore, while there is potential for adverse effects under any of the alternatives, Alternatives E1 and E2 would involve more of the WSP line. Alternatives E3 or E4 would cross the WSP line and would have the potential to directly affect culvert structures. The landforms and structures that may contribute to the rail line's eligibility are not continuous in the study area. Therefore, further detailed determinations will be needed as a preferred alternative is selected. While all alternatives have potential to cause impacts, it has not been completely resolved what conditions (specific cultural features and impacts) might constitute an adverse effect. ***Avoidance /Mitigation Strategy***: If the project has an adverse effect on any WSP Railroad line contributing elements, potential mitigation might include the development and display of interpretive information, possibly within the public use areas of the Swan Lake WMA (the WMA is located near the east end of the segment where US 14 and the rail line run in parallel). As previously stated, the conditions that might contribute to resource eligibility and constitute an adverse effect are not completely resolved. Therefore, the need for mitigation is uncertain and will be addressed during more detailed design/environmental investigations.

*A formal determination of eligibility for the WSP railroad line has not yet been made. The line is considered potentially eligible within this DEIS.

Section 106 adverse effects are summarized below in Tables 3-23 and 3-24. The net result is that in the West Study Section, adverse effects would occur under all Build Alternatives.

TABLE 3-23
Comparison of Section 106 Adverse Effects by Alternative—West Study Section

	Alt. W1	Alt. W2	Alt. W3
Section 106 Adverse Effects by Alternative	**4 Resources** - New Ulm Spring roadside parking area (NL-CTT-006) - Kohn Barn (NL-CTT-025) - Heim Farmstead (NL-CTT-026) - Kohn Barn (NL-CTT-033)	**5 Resources** - Wellner Farmhouse (NL-LFT-008) - Mueller Farmhouse (NL-CTT-011) - Sommer Barn (NL-CTT-024) - Zieske Farmhouse and Barn (NL-CTT-028) - Neumann Farmstead (NL-CTT-029)	**4 Resources** - New Ulm Spring roadside parking area (NL-CTT-006) - Sommer Barn (NL-CTT-024) - Zieske Farmhouse and Barn (NL-CTT-028) - Neumann Farmstead (NL-CTT-029)

The comparison of alternatives in Table 3-23 begins to illustrate the relative Section 106 adverse effects and the tradeoffs between alternatives. The discussion below emphasizes resources which are adversely affected under Section 106. The potential for two unavoidable Section 4(f) uses under Alternative W1, and one unavoidable Section 4(f) use under a common portion of Alternative W1 and W3 is also an important finding and would need to be carefully evaluated if W1 is identified as the preferred alternative. (See Appendix A for more information on Section 4(f) use findings).

3.13.2.1 West Study Section Alternatives—Summary of Adverse Effects

Common W1/W3 Alignment [between MN 15 and CR 37 (Minnesota River Alignment)]: Section 106 Adverse Effect New Ulm Spring Roadside Parking Area (NL-CTT-006). Removal of the New Ulm Spring Roadside Parking Area's (NL-CTT-006) gravel pull-off area under the common portion of Alternatives W1 and W3 (between MN 15 and CR 37) results in a Section 106 adverse effect. It would be possible to avoid adverse effects to the two archaeological sites— Altman Site (21NL58) and New Ulm Conglomerate Site (21NL59)—located on this portion of the common W1/W3 alignment (see discussion in Table 3-22). If either Alternative W1 or W3 is identified as preferred after the public/agency comment period, effects to the New Ulm Spring RPA and the two archaeological sites would be studied and coordinated in greater detail to finalize the Section 106 findings.

Alternative W1. Section 106 Adverse Effects on Alignment East of City of Courtland: Kohn Barn (NL-CTT-025, Heim Farmstead (NL-CTT-026), and Kohn Barn (NL-CTT-033). The proximity of the Kohn Barn (NL-CTT-025) and the Heim Farmstead across the highway from each other (see Plate 1 of the Aerial Photo Exhibit) prevents the simultaneous avoidance of both of these two resources under Alternative W1. Alternative W1 would also require acquisition of the Kohn Barn (NL-CTT-025). (Appendix A includes a discussion of the potential Section 4(f) use of the Kohn Barn and the Heim Farmstead). Additionally, acquisition of some land from the

property on which another resource named the Kohn Barn (NL-CTT-033) is located would change the setting of this resource resulting in an adverse effect.

Alternative W2 (Top-of-Bluff Alignment). Section 106 Adverse Effects: Mueller Farmhouse (NL-CTT-011) and Wellner Farmhouse (NL-LFT-008). Compared to the common portion of Alternatives W1 and W3 that use the existing US 14 alignment from the river bridge to CR 37, W2's diversion from US 14 results in more substantial changes to the rural context of the area through which it would pass. This change in context leads to Section 106 adverse effects to the five eligible properties listed in Table 3-23 and discussed in Table 3-22.

With overall reference to Alternative W2 avoidance options, it is notable that the alternatives development process considered various alignments north of W2. These variations were dismissed because W2 provided the most direct and promising top-of-bluff routing, considering the range of expected impacts. Specifically, more northerly alignments would be less efficient, more costly, and would result in increased farmland, ravine, and forest impacts. Like Alternative W2, their development would be constrained by Heyman's Creek, floodplain, county ditches, and other Section 4(f) eligible resources.[33] & [34]

There is little opportunity to avoid Section 106 adverse effects to these two top-of-bluff properties without substantially increasing impacts to other resources. Because the adverse effects to top-of-bluff properties are based on proximity, the alignment would need to be moved away from these resources a considerable distance to avoid all adverse effects. It is not feasible to move the alignment south because of the bluff; and moving the alignment north would result in increased impacts to a variety of other resources—including other/similar, eligible properties. As implied above, neither small nor large shifts of the W2 alignment should be expected to avoid this adverse effect.

Alternative W2 and W3. Section 106 Adverse Effects on Common Alignment between CR 37 and City of Courtland: Sommer Barn (NL-CTT-024), Zieske Farmhouse and Barn (NL-CTT-028), and Neumann Farmstead (NL-CTT-029). The Sommer Barn, the Neumann Farmstead, and the Zieske Farmhouse and Barn would experience adverse effects based on the proximity of the new alignment (see discussion in Table 3-22, and Plate 1 of the Aerial Photo Exhibit). Similar to the adverse effects described above, for the Mueller and Wellner properties, there may be opportunity to minimize the adverse effects by shifting the alignment slightly south and/or through buffering. However, the rural context would likely remain disturbed and so these adverse effects are cannot be avoided.

Alternative W3. River/Bluff Combination Alignment. There is no need for additional detailed discussion of Alternative W3, as the relevant issues are discussed above as part of the common alignments with Alternatives W1 and W2. The resources for which Section 106 adverse effects are found, as referenced above, include: the New Ulm Spring RPA (NL-CTT-006), the Sommer Barn (NL-CTT-024), the Zieske Farmhouse and Barn (NL-CTT-028), and the Neumann Farmstead (NL-CTT-029). The two archaeological sites—Altman Site (21NL58) and New Ulm Conglomerate Site (21NL59)—would also both likely be avoided.

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[33] From the Alternatives Screening Recommendations for the US 14 EIS - New Ulm to North Mankato, MN (S.P. 5200-03) (October 7, 2004), available on the project website.

[34] Additional resources that were recommended as eligible for the NRHP that would potentially be impacted by a more northerly top-of-bluff alignment include: the Klippstein Barn (NL-CTT-017and the Sommer Barn (NL-CTT-024) [*TH 14—New Ulm to North Mankato Archaeological Survey, Nicollet County Minnesota*, (October 2005)].

3.13.2.2 Alternatives from Courtland to Nicollet (East Study Section)

Cultural resources are less concentrated in this area than in the West Study Section. However, the alternatives would still result in the Section 106 adverse effects shown in Table 3-24.

TABLE 3-24
Comparison of Section 106 Adverse Effects by Alternative—East Study Section

	Alt. E1*	Alt. E2*	Alt. E3*	Alt. E4*
Section 106 Adverse Effects by Alternative	**3 Resources** - Hintz Farmhouse (NL-CTT-057) - Thielbar Barn (NL-NCT-033) - Johnson Barn (NL-BEL-011)	**3 Resources** - Hintz Farmhouse (NL-CTT-057) - Thielbar Barn (NL-NCT-033) - Johnson Barn (NL-BEL-011)	**2 Resources** - Thielbar Barn (NL-NCT-033) - Johnson Barn (NL-BEL-011)	**1 Resource** - Johnson Barn (NL-BEL-011)

*A formal determination of eligibility for the Winona and St. Peter (WSP) Railroad line (NL-CTT-056, NL-CTT-001, and associated features) has not yet been made. These resources are treated as potentially eligible for the NRHP in this DEIS. If it is determined that these resources are eligible, all eastern alternatives have potential to result in a Section 106 Adverse Effect.

Because the Eastern Build Alternatives would generally result in impacts to the same resources, the discussion below focuses on these resources, rather than Build Alternative.

Hintz Farmhouse (NL-CTT-057), Impacted by Alternatives E1 and E2). The Hintz Farmhouse would experience adverse effects based on the proximity of the new alignment (see discussion in Table 3-22, and Plate 2 of the Aerial Photo Exhibit). There may be opportunity to minimize the adverse effects by shifting the alignment slightly and/or through buffering. However, the proximity of the highway would affect the setting of the house.

Thielbar Barn (NL-CTT-033), Impacted by Alternatives E1, E2, and E3). This property already has urbanized areas to the north and east of the barn. Construction of the CR 23 interchange option under Alternatives E1, E2, and E3 would result in additional development to the south of the barn, which would impact the setting this resource.

Johnson Barn (NL-BEL-011), Impacted by Alternatives E1, E2, E3, and E4). The barn's proximity to the common portion of all eastern Build Alternatives would result in an adverse effect based on proximity. Additionally, the acquisition of the house located on the same property raises questions regarding continued maintenance of the resource.

Winona and St. Peter (WSP) Railroad Courtland Segment (NL-CTT-056) Nicollet Segment (NL-CTT-001), and four stone box culverts (NL-CTT-101, -106, -107, and -108). The potentially eligible, dismantled railroad corridor's proximity to all eastern Build Alternatives would result in an adverse effect based on proximity, if this resource were to be determined as eligible for the NRHP.

3.13.3 Mitigation Measures

Proposed Build Alternatives will be modified to the extent practicable in order to avoid cultural resources. Additional coordination among involved agencies, including Mn/DOT, FHWA, and

the Minnesota SHPO will be required to finalize the preliminary findings noted above and to develop mitigations for any adverse effects under a preferred alternative. Memorandum of Agreement (MOA) will be developed to address adverse effects to the NRHP-listed or eligible resources affected by the preferred alternative.

3.14 Public Lands and Recreational Resources

3.14.1 Affected Environment

There are a variety of public lands found in the project area which warrant consideration for eligibility under Section 4(f) and under Section 6(f) of the Land and Water Conservation Act. Also, as noted in Section 3.7.1, the Minnesota River in the study area is included on the National Park Services Nationwide Rivers Inventory (NRI) and is designated as a State Canoe and Boating River. After carefully developing and reviewing project alternatives, three such properties required additional investigation to assess a potential for adverse impacts. The subsections below describe details about each resource, including eligibility as a Section 4(f) or Section 6(f) resource.

1) Minnecon Park & Boat Landing

A portion of Minnecon Park, located along the Minnesota River approximately 350 feet downstream of US 14 Minnesota River bridge (at river mile 152 on right bank, when facing downstream), is sited on a section of old US 14 that was turned over to the City of New Ulm in 1962. The park is accessible from 5th Street North in New Ulm. Land acquisition and development of park facilities was done in part with money from the Land and Water Conservation Fund (also known as LAWCON or L&WCF). Therefore, the park is covered by Section 6(f) of the LAWCON Act. Amenities within the park include a shelter building, picnic tables, and restrooms, and a boat launch. The park also includes a public water access to the Minnesota River that is included on Minnesota DNR public water accesses. The landing is maintained by the City of New Ulm.

2) Eckstein Boat Landing

Eckstein Landing is another public water access within the US 14 study area, located at Minnesota River mile 148, on the left bank of the river (when facing downstream). The concrete landing is accessed from CR 37 south of US 14 in Nicollet County (see the Aerial Photo Exhibit), and is maintained by the Minnesota DNR. Because of the recreational function, the landing is considered a Section 4(f) resource.

3) Swan Lake Wildlife Management Area (WMA)

Swan Lake Wildlife Management Area (WMA) is located predominately north of US 14, west of the City of Nicollet; however, several separate relatively small parcels are located south of US 14 (see Plate 3 of the DEIS Aerial Photo Exhibit).This resource is owned and managed by the Minnesota Department of Natural Resources (Mn/DNR). The WMA—a prairie pothole landscape, surrounding Swan Lake—is a special resource in the project area, because it was the largest prairie pothole marsh in America and was once even more abundant with waterfowl.

Originally, the marsh consisted of over 10,000 acres of tall prairie grass with marshlands and woodlots, along with many small wetlands. A Biological Survey conducted in 1917 called Swan Lake the most important resort for ducks and other water birds in the Great Plains Region. Over time the area wetlands were drained for more tillable acreage for row crop farming activities. Swan Lake became a stagnant pond with little vegetation, and nesting and winter habitat areas also began to disappear. In 1985 a Swan Lake Recovery Plan was developed, which identified 108,000 acres of land that would be acquired over time from willing sellers to convert back the area to prairie grasses and satellite wetlands.

The WMA is primarily intended for game and aquatic species management and is used publicly for hunting of waterfowl, pheasants, turkey, and deer. Fishing in Swan Lake is also common. Several small parking lots and boat landings which provide access to Swan Lake are maintained throughout the WMA; there are no designated or maintained trails.

As a whole, the WMA is not considered a Section 4(f) resource because its purpose is not to protect a specific species and because hunting is allowed. Therefore, it is clearly not a refuge. Elements of the WMA, including boat landings, are potential Section 4(f) resources; however, there are no boat landings within close proximity to any build alternative. The recreational use is dispersed in nature and the majority of the resource is not developed for public recreational use. Small/isolated parts of the WMA—principally the boat landings on Swan Lake—are used for recreation and thus may comprise isolated Section 4(f) use areas.

The environmental resource evaluations for the proposed US 14 improvements recognize that the WMA is an important environmental and public resource. As such, the WMA will be afforded protection from adverse impacts and mitigations will be proposed to the extent that wetlands and other features may be affected. Furthermore, as changes to site access are possible under some of the Build Alternatives, and as there should be need for wetland mitigation, Mn/DOT anticipates working closely with the WMA to not only mitigate impacts, but also to provide enhancements to the overall resource. See Section 3.14 of the DEIS for further discussion of the Swan Lake WMA.

3.14.2 Environmental Consequences and Mitigations

All three of the above-noted resources are avoided for purposes of Section 4(f) and 6(f) and are therefore discussed minimally in Appendix A: Draft Section 4(f) Evaluation.

1) Minnecon Park & Boat Landing

This project will not impact Minnecon Park, and as the only LAWCON resource in the project area, Section 6(f) is not formally considered as a part of Appendix A.[35] Also, no adverse effects on canoeing or boating routes are anticipated for any of the Build Alternatives.

Mn/DOT has contacted the Mn/DNR, Regional Trails and Waterway Coordinator regarding the proposed project, specifically, the expansion of the Minnesota River bridge and the CR 37

[35] Section 6(f) resources are recreational areas and natural resource management areas that were planned, developed or improved with funds authorized by Section 6(f) of the Land and Water Conservation Fund Act of 1965 (LAWCON or L&WCF). The applicable regulation is now codified at 16 U.S.C. Section 4602-8(f)(3), and stipulates that 6(f) resources cannot be converted to other than outdoor recreational use unless replacement land of at least equal fair market value and reasonably equivalent usefulness is provided. The review process for Section 6(f) resources is similar to the approach used to evaluate Section 4(f) resources, and both regulations can apply to the same resource.

interchange (see Eckstein Boat Landing discussion below), to discuss concurrence with this finding. The Mn/DNR has concurred that the proposed project will not result in an adverse effect to Minnesota River boating facilities and the River's status as a state Canoe and Boating River.

2) Eckstein Boat Landing

Eckstein Landing (as shown in Aerial Photo Exhibit, plate 1) would not be directly impacted by any of the Build Alternatives. As mentioned above, Mn/DOT has coordinated with Mn/DNR's Regional Trails and Waterway Coordinator. The coordinator concurs that at the CR 37 interchange location, use of land outside the CR 37 right-of-way would be avoided to limit project impacts at Eckstein Landing. Mn/DNR would ultimately address whether there is an adverse effect if land outside existing right-of-way is needed for the project.

There is potential that access to the site from the north (via US 14) may be temporarily disrupted during construction, however, the landing would still remain accessible for vehicles approaching the landing on CR 37.

3) Swan Lake Wildlife Management Area (WMA)

The Build Alternatives are not close enough to the WMA boat landings to create any question regarding potential impacts. The two existing public accesses located on the south and west sides of the management area will be maintained under any of the Build Alternatives.

The Swan Lake WMA includes land adjacent to existing US 14 which would be affected under Alternatives E1 (10 acres) or E3 (3 acres). As with any potential property acquisition impacts, fair compensation for these lands and reasonable access would be components of mitigation for these impacts, if Alternative E1 or E3 were selected. Also, Mn/DOT and Mn/DNR anticipate that wetland impacts for any of the build alternatives could be mitigated in the Swan Lake WMA, which will provide a unique opportunity to further the Recovery Plan efforts (see Section 3.9). Specific wetland impacts and mitigation locations would be identified after identification of a preferred alternative and during the highway design process.

3.15 Contaminated Properties and Materials

The presence of contaminated properties—where soil and/or groundwater is impacted with pollutants, contaminants or hazardous wastes—is a concern in the development of highway projects. This is because of potential liabilities associated with ownership of such properties, potential cleanup costs, and safety concerns associated with construction personnel encountering unsuspected wastes or 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 adversely impact highway projects by increasing construction costs and causing construction delays.

A Phase I Environmental Site Assessment (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, State Minnesota Pollution Control Agency (MPCA) and county/city records, as well as the 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 petroleum or other chemicals or other strong evidence of contamination such as soil staining or storage of large volumes of petroleum or other chemicals. High risk sites include sites enrolled in the MPCA Voluntary Investigation and Cleanup (VIC) program and Leaking Underground Storage Tank program. Medium environmental risk sites are properties where relatively small volumes of petroleum or other chemicals are stored, but no evidence of undocumented spills or releases is noted. Medium risk sites also include properties with documented releases that have been "closed" or declared "inactive" (no further cleanup action deemed necessary) by the MPCA. "Closed" or "inactive" sites are considered medium risks because residual soil or groundwater contamination may exist at the site. Low environmental risk sites include properties where small volumes of chemicals or hazardous materials are/have been used or stored.

3.15.1 Affected Environment

A Phase I ESA in general conformance with the American Society for Testing and Materials standard was completed for the project area in November 2004. Copies of the Phase I report are on file at the Mn/DOT Mankato District office. The Phase I ESA identified 134 known or potentially contaminated properties in the project area: 2 high environmental risk sites, 22 medium risk sites, and 110 low risk sites. Initially, twenty-one of these sites were determined to be of concern based on two criteria: a) they are either high or medium environmental risk sites, and b) they are in relatively close proximity to the proposed project limits. Of these twenty-one sites, two are high environmental risk sites, and 19 are medium environmental risk sites.

A contaminated property with the potential to incur excessive cleanup costs and/or expose the purchaser to unacceptable environmental liability may need to be avoided if possible. One property identified in the Phase I ESA has a potential for excessive cleanup costs and/or environmental liability. However, this site, an active landfill located in New Ulm, south of US 14, is not close enough to any proposed alternative to be directly or indirectly impacted by the proposed project. Based on the proposed project design, none of the twenty-one properties initially identified as sites of concern has potential for excessive cleanup costs and/or environmental liability as a result of this project.

3.15.2 Environmental Consequences

During the fall of 2005, the project alternatives were further refined to those under consideration in this DEIS (see the *Amended Scoping Decision Document*). The twenty-one sites of concern identified in the Phase I ESA were further narrowed to those sites in close proximity to the alternatives retained for analysis in this DEIS. Table 3-25 identifies these sites and discusses whether or not any impacts are anticipated by the proposed alternatives.

TABLE 3-25
Sites Identified in Phase I ESA in Close Proximity to US 14 DEIS Alternatives

Phase I ID	Location	Reason for Concern	Risk Level	Potential Impacts
2	Intersection of US 14/MN 15 (see Plate 1, Aerial Photo Exhibit)	State highway maintenance facility. Petroleum underground storage tanks registered at site. Petroleum underground storage tank release (closed) reported at site.	Medium	Site required under Alternatives W1, W2, and W3. Mn/DOT currently owns facility.
3	Intersection of US 14/MN 15 (see Plate 1, Aerial Photo Exhibit)	Former state highway maintenance facility. Petroleum underground storage tank release (closed) reported at site.	Medium	Site will be acquired under Alternatives W1, W2, and W3.
4	Intersection of US 14/MN 15 (see Plate 1, Aerial Photo Exhibit)	Auto repair business. Petroleum underground storage tanks registered at site.	Medium	Site will be acquired under W1 and W3.
23	US 14 between CR 37 and City of Courtland (see Plate 2, Aerial Photo Exhibit)	School. Petroleum underground storage tank release (open) reported at site.	High	Alternative W1 would pass by, but not encroach upon the site. No impact anticipated.
88	48595 TH 14 Nicollet (see Plate 3, Aerial Photo Exhibit)	John Morrell Wildlife Management Area headquarters. Petroleum underground storage tank formerly located on site.	Medium	Site will be acquired under Alternative E1.
50	South side of US 14 in Courtland on west side of CR 45 (see Aerial Photo Exhibit, Plate 2)	Commercial buildings on site; business unknown. Petroleum underground storage tank observed at site.	Medium	No impact anticipated. Near area where CR 24 extends north to tie into the Courtland northern bypass, which is common to all eastern alternatives.
54	US 14 in Courtland (see Plate 2, Aerial Photo Exhibit)	Active gas station. Petroleum underground storage tanks registered at site.	Medium	No impact anticipated. Near area where CR 24 extends north to tie into the Courtland northern bypass, which is common to all eastern alternatives.
132	Intersection of US 14 and CR 17 (see Plate 4, Aerial Photo Exhibit)	Town of Belgrade highway maintenance facility with above ground storage tanks observed on site. Possible vehicle maintenance site.	Medium	No impact anticipated. Near CR 17 tie-in with US 14 alignment common to all eastern alternatives.

As shown in the table above, the intersection of US 14/MN 15 contains two sites (Phase I ESA ID #2 and #3) that would need to be acquired under all western alternatives, and one site that would need to be acquired under alternatives W1 and W3 (#4). Site 88 would need to be acquired under Alternative E1. The remainder of the sites studied in the Phase I ESA are not in close proximity to the alternatives being studied.

3.15.3 Mitigation Measures

Prior to construction activities, all properties listed in Table 3-25 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 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 project can avoid or minimize impacts to the properties. If necessary, a plan will be developed for properly handling and treating contaminated soil and/or groundwater encountered during construction.

In addition, coordination and consultation with the MPCA VIC Unit, the Petroleum Brownfields Program, the Petroleum Remediation Program, and/or 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.

3.16 Air Quality

3.16.1 Affected Environment

According to the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, a federal agency may not approve or fund a transportation project unless it conforms to the State Implementation Plan (SIP)[36] for air quality as required by Section 176 (c)(4) of the Clean Air Act Amendments (CAAA) of 1990.[37] Section 176(c) (4) of the CAAA covers projects funded under Title 23 U.S.C. (Federal Aid Highways Act). To conform to the SIP, a project cannot cause or contribute to a new violation of any National Ambient Air Quality Standard (NAAQS)[38], increase the frequency or severity of any existing violation of any NAAQS, or delay timely attainment of any NAAQS or any required interim emissions reductions or other milestones.

In 1999, the U.S. Environmental Protection Agency (EPA) redesignated the Twin Cities Seven County Metro Area, portions of Wright County, and the cities of Duluth and St. Cloud to attainment status for carbon monoxide, subject to the requirement to develop a maintenance

[36] Mandated by the CAAA, the State Implementation Plan (SIP) must contain procedures to monitor, control, maintain, and enforce compliance with the National Ambient Air Quality Standards (NAAQS).

[37] The Clean Air Act Amendments (CAAA) are comprehensive legislation, consisting of eleven separate titles that address the key issues of urban air pollution (particularly ozone, carbon monoxide, and PM10), mobile sources, air toxins, acid deposition, and stratospheric ozone protection.

[38] National Ambient Air Quality Standards (NAAQS) are the federal standards that set allowable concentrations and exposure limits for various pollutants.

plan. Those geographic regions are now considered maintenance areas for carbon monoxide.[39] The project area is not located within a maintenance area for carbon monoxide.

EPA rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17235) has identified six priority Mobile Source Air Toxics (MSAT), including benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene. Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. Particularly, the tools and techniques for assessing project-specific health impacts from MSATs are limited and continually changing based on ongoing research in this area. These limitations impede the ability of how to evaluate mobile source health risks from transportation improvement projects.[40]

3.16.2 Environmental Consequences

This project is not located in an area in which the conformity requirements apply.[41] In addition, the scope of the proposed project does not indicate that negative air quality impacts would be expected. Based on FHWA air toxics guidance, this project is considered to have low potential to result in MSAT effects. That is, none of the proposed alternatives are expected to result in meaningful differences in MSAT emissions. As required by FHWA, a qualitative MSAT analysis will be included in the FEIS, upon identification of a preferred alternative, as required by FHWA's Interim Guidance on Air Toxic Analysis.

3.17 Noise

3.17.1 Affected Environment

With the exception of Courtland and Nicollet, the project area is primarily rural with scattered residences. Traffic along US 14 is the primary noise source. Sound from traffic on other local roadways is also audible but does not contribute appreciably to overall noise levels at noise-sensitive locations. A noise analysis was conducted to assess the current and future traffic noise exposure at noise sensitive areas located within the US 14 study area.

3.17.1.1 Regulatory Framework

The sound pressure level created by traveling sound waves is commonly measured in decibels (dB).[42] Sound levels are adjusted, or weighted, to approximate the way an average person hears sound. The adjusted sound levels are "A-weighted decibels" (dBA).

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[39] Maintenance areas are any geographic region the EPA had previously designated as nonattainment under the CAA, and which has since been redesignated to attainment status subject to the requirement to develop a maintenance plan. In Minnesota, the Twin Cities and the cities of Duluth and St. Cloud are maintenance areas.

[40] FHWA Interim Guidance on Air Toxic Analysis in NEPA Documents, February 3, 2006 (available at www.fhwa.dot.gov/environment/airtoxic/020306guidmem.htm).

[41] Conformity is a determination made by the Metropolitan Planning Organizations (MPOs) and the U.S. DOT that transportation plans and programs in nonattainment and maintenance areas meet the purpose of the State Implementation Plan (SIP), which is reducing pollutant emissions to meet the NAAQS criteria.

[42] A 3dB increase in sound is barely perceptible to the human ear; an increase of 5 dB is clearly noticeable; a 10 dB increase is heard twice as loud. If traffic doubles, there is a 3 dB increase in noise, which is just barely noticeable to most people. If traffic increases by 10 times the original amount, there is a 10 dB increase in sound, and it is heard twice as loud as the original traffic levels.

Table 3-26 provides common noise sources, and the typical noise levels of these sources.

Because noise levels vary with time, federal and state standards use noise thresholds to determine when an impact would occur. FHWA guidelines state that a noise impact occurs when L_{10} noise levels approach or exceed 70 dBA at residential receptors and 75 dBA at commercial receptors. That is, noise levels exceed 70 dBA 10 percent of the time in one hour (i.e., six minutes).

The FHWA criteria for evaluating noise impacts are contained in Title 23 Code of Federal Regulations (CFR) Part 772— *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. These criteria are summarized in Table 3-27. The majority of noise sensitive areas within the study area fall under FHWA's Category B criterion which pertains to residences, schools, recreation areas, and similar uses. In order to consider mitigation actions under this activity category L_{10} values must approach or exceed 70 dBA.

TABLE 3-26
Typical Noise Levels in dBA and Noise Level Comparison

Noise Source	Noise Level in dBA
Jet Engine (at 75 feet)	140
Jet Aircraft (at 300 feet)	130
Rock and Roll Concert	120
Pneumatic Chipper	110
Jointer/Planer	100
Chainsaw	90
Heavy Truck Traffic	80
Business Office	70
Conversational Speech	60
Library	50
Bedroom	40
Secluded Woods	30
Whisper	20

Source: *A Guide to Noise Control in Minnesota*, Minnesota Pollution Control Agency; and *Highway Traffic Noise*, FHWA.

TABLE 3-27

FHWA Noise Abatement Criteria (NAC), Hourly A-Weighted Sound Level in Decibels (dBA)

Activity Category	L_{10} (h)[2]	Description of Activity Category
A	60 dBA (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if they are to continue to serve their intended purpose.
B	70 dBA (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	75 dBA (Exterior)	Developed lands, properties or activities not included in Categories A and B above.
D	—	Undeveloped lands.
E	55 dBA (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

In Minnesota, traffic noise is regulated by the Minnesota Pollution Control Agency (MPCA) under Minnesota Statute 116.07 Subdivisions 2 and 4. State of Minnesota standards for noise impacts are more restrictive than federal standards, and are based on land use and time of day (i.e., day or night).

The state criteria for evaluating noise impacts are described below in Table 3-28.

TABLE 3-28
State Noise Standards

Land Use	Day Time Levels		Night Time Levels	
	L_{10} (dBA)	L_{50} (dBA)	L_{10} (dBA)	L_{50} (dBA)
Residential	65	60	55	50
Commercial	70	65	70	65
Industrial	80	75	80	75

In addition to using the L_{10} noise descriptor, Minnesota State Noise Level standards also use a L_{50} descriptors. L_{50} is the sound level that is exceeded 50 percent of the time (i.e., thirty minutes) in one hour of the day and/or night that have the heaviest traffic.

State guidelines note that a daytime noise impact at the L_{10} level occurs as noise approaches or exceeds 65 dBA at residential receptors and 70 dBA at commercial receptors. A daytime noise impact at the L_{50} level occurs when noise approaches or exceeds 60 dBA at residential receptors and 65 dBA at commercial receptors.

In addition to the sound level criteria described above, FHWA and Mn/DOT both define the occurrence of a traffic noise impact if predicted sound levels "substantially" exceed existing noise levels—even if noise levels do not exceed FHWA or state sound level criteria. Mn/DOT defines an increase of 5dbA or more over existing ambient noise levels as "substantial."

3.17.1.2 Monitoring Existing and Modeling Future Noise Levels

Existing and future (2030) noise levels for the No Build Alternative and the Build Alternatives were modeled using the noise prediction program, MINNOISE (Mn/DOT's preferred method). MINNOISE uses traffic volumes, speed, class of vehicle and the physical and geometric characteristics of the roadway and receivers being analyzed.

Noise level measurements and concurrent traffic counts were monitored at five locations (shown on the Aerial Photo Exhibit) along US 14 on November 17, 2004, to aid in model calibration (see the Aerial Photo Exhibit for the monitoring sites). Measurement equipment consisted of a Larson Davis Model 820 Type 1 sound level meter.

TABLE 3-29

US 14 Existing (2004) Peak Hour (Daytime) Noise Levels (in US 14 Study Area from West to East)

	Receptor	Receptor Location	Existing Noise Levels (November 2004)	
			L_{10}	L_{50}
West Study Section Receptors	26	Represent top-of-bluff residences between MN 15 and CR 37.	57	54
	24		59	55
	23		59	55
	1	Represents residences in the Shady Brook Acres/Flecks Subdivision	**67**	**62**
	2	Represents the Minnesota Valley Lutheran High School and a rural residence located on 561st Avenue.	59	56
	18	Represent rural residences located within Courtland City limits	62	58
East Study Section Receptors	3	Represents several residences along US 14 within the City of Courtland.	**72**	**65**
	17	Represent rural residences located within Courtland City limits	54	51
	4	Represents a rural residence located between 511th Ave. and 466th Street.	61	57
	12[7]	Represents one rural residence, located south of US 14, and adjacent to the north side of Alternative E2.	**66**	**61**
	5	Represents several residences along the south side of US 14 in the City of Nicollet	**72**	**64**

Next, twenty-six noise receptors were identified throughout the study area (see the Aerial Photo Exhibit).[43] In many instances, the receptors represent communities (Courtland and Nicollet); neighborhoods (Spruce Haven and Shady Brook Acres/Flecks Subdivision); or specific land uses (Minnesota Valley Lutheran High School). No receptors were included along the common portion of Alternatives E1-E4 at the eastern end of the project area. Because the alternatives use the same alignment in this area, analysis would not have provided information that would have been useful towards comparing alternatives.

Existing noise levels were modeled for the hour of the day that experiences the most traffic on US 14 for the eleven receptors are shown in Table 3-29. The receptors were chosen as representative locations along the existing highway (see notes in Table 3-29). Modeling was done using Mn/DOT year 2000 traffic data and noise data collected in the field. Existing peak hour L_{10} noise levels ranged from 54 dBA to 72 dBA. The L_{50} noise levels varied from 51 dBA to

[43] Receptors are outdoor places where frequent human use occurs and a lowered noise level would be beneficial.

65 dBA. As shown with **highlighted text** in Table 3-29, four receptors along US 14 currently exceed State of Minnesota daytime standards at the L_{10} and L_{50} levels.

3.17.2 Environmental Consequences

Future noise impacts from the No Build Alternative and the Build Alternatives were modeled for the twenty-six receptors using projected future (2030) traffic data.[44] L_{10} noise levels under the No Build Alternative would range from 55 dBA to 74 dBA. The L_{50} noise levels would range from 53 dBA to 68 dBA. All alternatives include receptors that would experience noise levels exceeding the state L_{10} and/or L_{50} levels. None of the alternatives would result in sound levels that substantially exceed existing noise levels, i.e., an increase of 5dBA or more over existing noise levels. Table 3-30 lists the receptors that would exceedL_{10} and/or L_{50} state noise standards for daytime hours, a description of the land use, and the number of first row residences that would experience the increased noise levels.

TABLE 3-30
US 14 Noise Impacts by Alternative (2030)[1]

Receptor & Land Use	# of 1st Row Residences or Businesses[2]	Area Represented by Receptor	NB	W1	W2	W3	E1	E2	E3	E4
R24—Rural/residential	4	Spruce Haven subdivision residences, on top of the bluff.			X					
R19—Rural/residential	2	Properties eligible for the Nat'l. Register for Historic Places (Zieske Farmhouse and Barn (NL-CTT-028 & Neumann Farmstead NL-CTT-029).			X	X				
R1—Residential	7	Shady Brook Acres/Flecks Subdivision; all residences acquired under Alternative W1.	X	X						
R18—Rural/residential	1	One residence located on farm in Courtland city limits.	X	X						
R3—Urban (Courtland)	75	Residences and businesses would experience increased noise under the No Build Alternative. Courtland bypasses would decrease noise at these locations.	X							
R4—Rural/residential	1	Residence located south of a common portion of the Alternatives E1 and E2.					X	X		
R14—Rural/residential	2	Located south of the Alternative E2 alignment.					X			
R12—Rural/residential	2	Located south of US 14, and adjacent to the north side of Alternative E2.	X				X	X		

[44] Complete results of this analysis are documented in the US 14 DEIS New Ulm to North Mankato Noise Modeling Results Technical Memorandum.

TABLE 3-30
US 14 Noise Impacts by Alternative (2030)[1]

Receptor & Land Use	# of 1st Row Residences or Businesses[2]	Area Represented by Receptor	NB	W1	W2	W3	E1	E2	E3	E4
R8—Rural/residential	1	Isolated residence located north of the Alternative E3 alignment.							X	
R9—Rural/residential	2	Located north of the Alternative E4 alignment.								X
R5—Urban (Nicollet)	42	A combination of residences and businesses would experience increased noise under the No Build Alternative. The Nicollet bypass would decrease noise at these locations.	X							

1 An "X" indicates receptors that would exceed state noise standards by 2030, by alternative.

2 Represents the number of first row residences or commercial properties immediately adjacent to a Build Alternative Alignment.

The No Build Alternative would result in the most substantial noise impacts to first row residences and businesses. Overall, the results documented in Table 3-30 illustrate the trade-offs between:

- Developed locations—represented by Receptors R3 (Courtland) and R5 (Nicollet)—that currently experience noise levels that exceed state noise standards would experience noise levels below the state noise standards under the Build Alternatives. This would result from construction of bypasses of Courtland and Nicollet.
- The No Build Alternative would result in noise that exceeds state standards at five locations. Four of these areas currently experience noise levels that exceed state standards (Receptors R1, R3, R12, and R5). However, noise levels would increase even more at these locations. Noise at Receptor R18, which represents one rural residence within the City of Courtland, would increase to the point of exceeding state noise standards under the No Build Alternative.
- Locations (typically isolated rural residences) that currently experience low noise levels would experience noise levels that exceed state noise standards under the Build Alternatives; especially where Build Alternatives divert from US 14. This would occur at the residences represented by Receptors: R24, R19, R18, R4, R14, R8, and R9.

3.17.3 Additional Analysis and Potential Mitigation Measures

Upon identification of a Preferred Alternative, and pending final design and public involvement comments, further analysis of noise mitigation and abatement measures will be conducted in accordance with Mn/DOT standard practice and guidelines. Mn/DOT will also analyze noise impacts associated with construction of the preferred alternative.

3.18 Indirect and Cumulative Impacts

3.18.1 Indirect and Cumulative Impacts—Definitions

A complete analysis of effects under NEPA includes not only the direct impacts, (caused by the action of building the proposed project at the certain time and place), but also indirect and cumulative impacts. The Council on Environmental Quality (CEQ) has defined direct and indirect impacts (40 CFR 1508.7). ***Direct impacts*** are the main subject of this, Section 3, of the DEIS—they are impacts caused by the proposed action and occur at the same time and place. As discussed throughout Section 3, direct impacts are typically those that can be measured immediately after completion of the project—for example, acres of land acquired or wetlands filled.

According to the CEQ, an ***indirect impact*** is caused by a specific project or action, but later in time or farther away, yet still reasonably foreseeable. Indirect impacts may include growth-inducing effects related to changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

A ***cumulative impact*** results from the incremental impacts of a project when added to other past, present, and reasonably foreseeable future actions, regardless of the agency or individual undertaking the action. Cumulative impacts can result from individually minor, but collectively significant actions taking place over time. This definition is also based on CEQ regulations (40 CFR 1500-1508).

Indirect and cumulative impacts are also evaluated considering boundaries—both geographic and timeframe. Exhibit 3-7 shows the location of Brown and Nicollet Counties, which together comprise the primary indirect and cumulative study area for most environmental categories considered in this evaluation. Some very minor indirect effects might also spill over into Blue Earth and Le Sueur Counties located south and east of Nicollet County, respectively. Exhibit 3-7 also shows the area's regional transportation network, which provides a reference for consideration of transportation impacts. The time frames considered for this area, in general, extend about 20 years backward and 20-25 years forward in time. This time frame is consistent with the US Highway 14 project development history (which goes back at least 20 years) and with the travel forecasts out to 2030 as cited in Section 1.3 of this DEIS.

3.18.2 Indirect Impacts

Constructing a four-lane highway on new alignment creates the possibility of indirect impacts as residential, industrial, and commercial development responds to the improved travel time and safety on US 14. These effects will be seen only in eastern Brown County, western Blue Earth County and Nicollet County as traffic patterns farther away are unlikely to change as a result of this project.

Nicollet County's land use regulations are a strongly limiting factor in the potential for indirect impacts. These regulations place strict limitations on rural development. Residential, commercial and most industrial growth would be directed to the incorporated areas of Courtland and Nicollet (see also Section 3.3). While not the only factor in future development, the expanded highway is likely to encourage the following types of development:

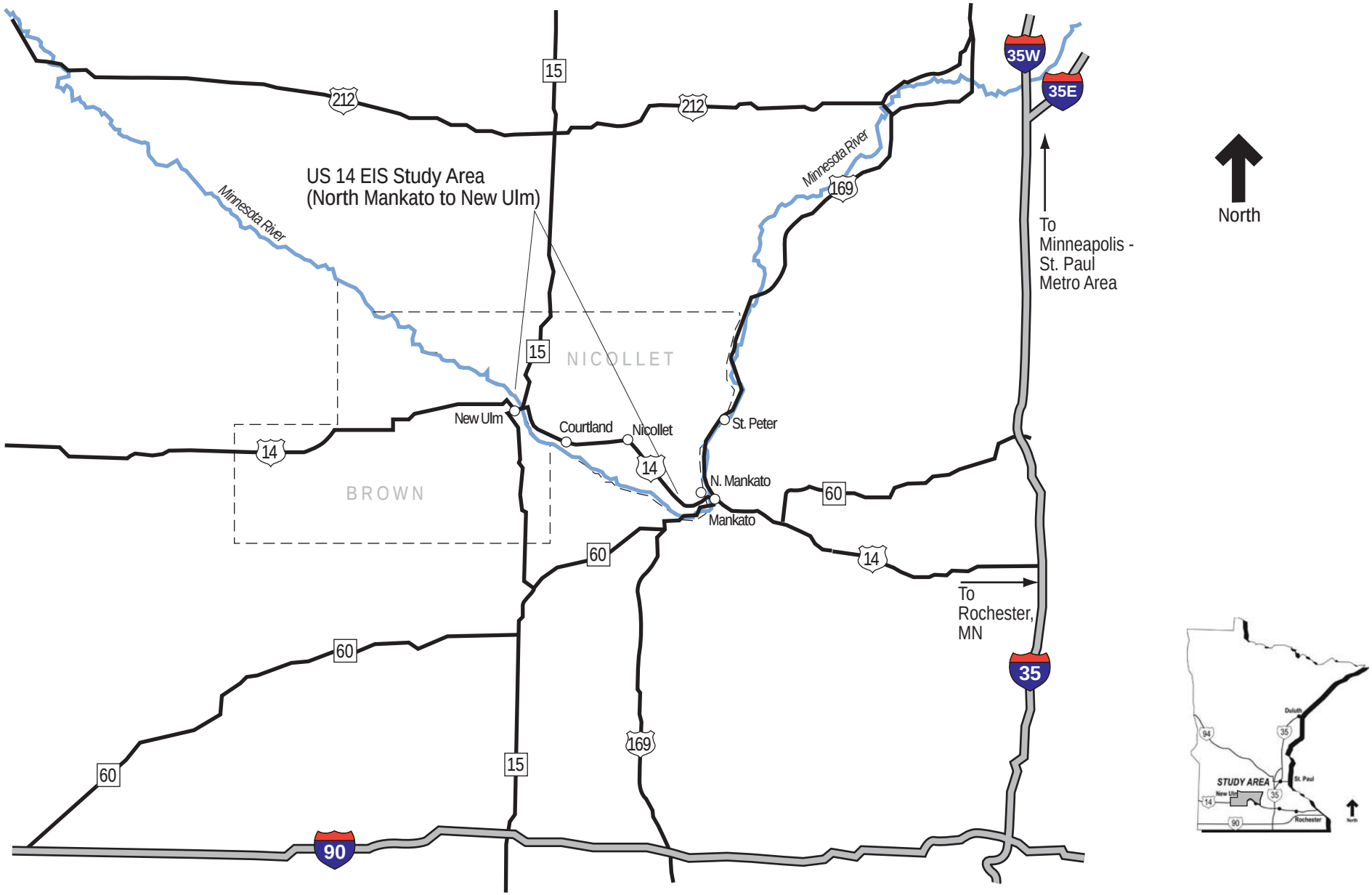

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Exhibit 3-7
Indirect and Cumulative Study Area

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- **Residential**—Courtland and Nicollet are already considered bedroom communities, to some degree, for New Ulm and Mankato. Roughly 90% of Courtland residents have commute times greater than 10 minutes (implying work outside of town), while 70% of Nicollet residents have commute times over 10 minutes. The (now former) City Administrator of Courtland explained that this was due, in part, to housing being more affordable in Courtland than in New Ulm. The improved travel times and safety will support this trend; while increasing gas prices will have the opposite effect.
- **Industrial**—Faster and more predictable travel times as well as the improved safety of a four-lane, divided highway with community bypasses allows for industrial development farther away from products' destinations. This would further encourage use of the JOBZones (areas designated for tax incentives for development by Minnesota law) in New Ulm. Courtland's Comprehensive Plan designates land on the west side of the city for industrial development and Nicollet's identifies land on the south side of the city. Both communities have ample space for industrial growth relative to their current industrial development.
- **Commercial**—Constructing bypasses of Courtland and Nicollet will encourage highway commercial businesses to locate along the highway at the intersections with the county roads that enter the cities. Businesses such as convenience stores and restaurants may develop because of the creation of a new strategic location. Given the small size of the communities such development is likely to be limited to at most one convenience store and restaurant. Other new commercial developments, less dependent on drive-by business, may also build near the highway to take advantage of the increased visibility to highway users; however, the highway would mainly influence the location, not the need for commercial development, due to the minor expected change in overall growth that could be attributed to highway improvements.

Growth in these areas is occurring and will continue to occur regardless of the proposed project. Therefore, only the incremental increase in development that would not have occurred but for the construction of the highway is considered in assessing the following indirect impacts.

Transportation (Section 3.5 addresses the direct impacts)—Potential increases in residential and industrial development attributable to the new highway will increase the traffic on US 14 (induced traffic). Also, improved travel times for existing trips will tend to draw more traffic onto US 14 from nearby parallel roadways such as MN 68 and CR 25 (diverted traffic). Furthermore, some trips that are currently not being taken will be made in the future as the travel time decreases below some peoples' threshold for deciding to make the trip (latent traffic). Together, these causes of additional trips that occur because of the increased highway capacity are known as generated traffic.

Research suggests that generated traffic growth is, over the long term, approximately equal to the percentage reduction in travel time. On US 14, where travel times would be expected to decrease by about 15%, an 8-15% increase in vehicles due to generated traffic would be predicted. This amounts to 500-1,000 vehicles per day. Research further suggests that about one fourth of the generated traffic growth is predicted to be from additional development, with diverted and latent trips comprising the rest. It should be noted that these predictions are based on a limited set of studies in which there is a fair amount of variation and that other regional

economic factors will have a heavy influence on future development, but are not considered in this simple model.

This increased traffic would not have an adverse impact on the level of service on any of the roads because a four-lane US 14 will have adequate capacity and both MN 68 and CR 25 are under capacity.

Induced development would also necessitate construction of local streets. Using the induced traffic predictions of 125-250 vehicles per day and assuming that nearly all of the trips are due to residential development and that each residence accounts for about five of the daily trips, about 25-50 additional housing units in both Courtland and Nicollet over several years may be attributable to the highway construction.

Socioeconomics (3.6)— The effect of the highway on local economics is difficult to predict and likely much smaller than the influence of regional economics. Predictable highway commercial and induced residential growth will result in increased construction activity in the cities along the corridor. This will filter through the local economy as the workers and residents utilize locally available services. The long term effects are likely to include enhanced viability of the local commercial businesses. In any case, a safer and higher-capacity US 14 will bring some economic benefit to the local communities, the region, and businesses (e.g., farming, mining, and freight hauling). However, Nicollet County's strict limitations on development would help to ensure that induced development would be directed primarily to Courtland and Nicollet (see also Sections 3.3 and 3.6).

A safer and higher-capacity US 14 will bring some economic benefit to the local communities, the region, and businesses (e.g., farming, mining, and freight hauling). However, Nicollet County's strict limitations on development would help to ensure that induced development would be directed primarily to Courtland and Nicollet

Land Use (3.3)—In the case of the immediate project area, Nicollet County's restrictive zoning can be assumed to continue, which will maintain the area's limited, low-density and dispersed development and help preserve the local agricultural economy. Meanwhile, the Cities of Courtland and Nicollet can be expected to continue with growth consistent with plans inside their city limits, although at a faster pace with highway improvements than without. Courtland and Nicollet developed 50 and 38 housing units, respectively, between 1990 and 2000. An additional increase of 25-50 units over 10-20 years would convert more land to urban use, but would not exhaust the available space within the municipal boundaries.

Agricultural Resources and Soils (3.4)—Beyond the direct impacts of farmland required for the proposed improvements, the potential for indirect impacts such as land use conversion due to development is very limited (based on Nicollet County's zoning as discussed above). Thus while the commercial and some residential development noted above would impact agricultural land, less than 40 acres would be the anticipated impact in each community. Furthermore, such indirect impacts would be focused on agricultural lands inside the cities' limits and thus already planned long-term for land use conversion.

Also noteworthy is that Mn/DOT District 7's Long Range Plan identifies a measurable increase between 1992 and 2002 of the market value of produced crops and livestock, despite declining population in some areas, and agricultural activities' relative importance to the tax base. Tables

3-4 and 3-5 in Section 3.4, provide a sampling of such data. Thus, while some agricultural productivity would be lost in the lands immediately near the US 14 corridor, the area's overall trend toward increased agricultural productivity—combined with the indirect transportation benefits of the proposed project—would be greater than the adverse effects.

Water Resources and Wetlands (3.7 to 3.10)—Within the areas were induced development may occur, there are water resources and wetland areas to consider. The eastern growth boundary of Nicollet is a drainage ditch. Residential development adjacent to this feature may cause a minor increase in runoff; though it would be minimal because of current practices to capture and treat urban runoff before it enters receiving waters. There are also two delineated wetlands in the Courtland growth area and one in Nicollet that could be affected by development. These are low areas in tilled farmland. These may be impacted by future development, or potentially could be restored for use as stormwater ponds according to the needs of the development.

Cultural Resources—Historic and Archaeological (3.13)—There are no properties eligible for the National Register of Historic Places in the growth areas in Courtland. In Nicollet, the Thielbar Barn (NL-NCT-033) is located within the area zoned for industrial development and is immediately adjacent to already developed land. There is the potential for this barn to be impacted by future development.

Other Indirect Impact Categories—The remaining environmental impact categories, with less weight than those above in the project's environment context, are briefly discussed here with reference to potential indirect impacts:

- **Upland Habitat, Wildlife, and Threatened/Endangered Species (3.11 and 3.12)—** Residential development in Courtland is currently occurring most heavily on the bluffs overlooking the Minnesota River and along tributary ravines. Any induced residential development would add to the conversion of wooded, upland habitat. However, such first row development space is already over 75% developed and is likely to be completely used before the highway is constructed.
- **Public Lands and Recreational Resources (3.14)—**There are none in the growth areas that could be affected.
- **Noise (3.17)—**There would be the minor, short term increase during construction of any induced development.
- **Construction and Excess Material (3.22)—**Construction of any development that can be attributable to the new highway would involve minor impacts. These are expected to be minor as the highway commercial and residential sites would be relatively small in scope.

3.18.1.1 Cumulative Impacts

As noted in Section 3.18.1, a ***cumulative impact*** results from the incremental impacts of a project when added to other past, present, and reasonably foreseeable future actions, regardless of the agency or individual undertaking the action. To complete an analysis of potential cumulative impacts the following points were considered:

- Only resources that will experience a direct impact were reviewed for cumulative impacts.

- For each resource a geographic area and timeframe were identified over which to consider the cumulative impacts.
- The effects of past actions within the study area and time were identified to demonstrate how the resource has been affected over time.
- Reasonably foreseeable future actions were considered to forecast the future state of the resource in the study area.

General Historical Overview of Project Area—Before European settlement, the study area was dominated by tall-grass prairie, woodlands, and wetlands. With settlement came farming, which until the 1960s was diversified with dairy and production of a mix of grains. Between 1940 and the 1980s, much of the area's wetlands were drained and row crops became the dominant landscape feature. Throughout all of this, the communities within the study area were settled; and associated infrastructure, including US 14, was built. The proposed project would result in notable impacts to the landscape and some environmental resources, as documented throughout this DEIS. Aside from this 22.5-mile transportation project, there are no other reasonably foreseeable actions that would result in the substantial changes to the study area's primarily rural and agricultural characteristics (see Table 3-31 below for a summary of development trends).

TABLE 3-31

Development Trends and Projects in the Two-County Study Area

Geographic Area (sources)	Development Projects/Trends	Other Trends
Brown County—Emphasis on New Ulm (David Schobrich, New Ulm Community Development Director)	The US 14 corridor on the west side of New Ulm has been, and will continue to be, the major center for new development projects. Recent projects here include two retail stores, each approx. 200,000 square feet (Wal-Mart and Menards). More commercial development projects are also ongoing and expected in this area, as well as in the nearby New Ulm industrial park.	Current residential development in New Ulm includes a 97-lot affordable housing project. While population growth and development in Brown County is steady, it not expected to be substantial in scale.
Nicolet County—Emphasis on Courtland and Nicolet (Tina Rosenstein, Nicolet Co. Environmental Program Manager; Michael Boulton, City Administrator for Courtland and Nicolet)	Courtland has a stronger trend toward growth and new development than Nicollet, based on better proximity to New Ulm and lower costs/taxes than New Ulm. Courtland is expanding primarily to the south and west (out to the area near Minn. Valley Lutheran High School), with some commercial development interests in lands along US 14. Later phases of development are planned to the north. Nicolet's growth is generally along US 14 and to the south. Truck traffic generated from agriculture and other businesses continues to increase.	Nicolet County's restrictions on residential development in unincorporated areas continue to be well supported and more restrictive rules are now being considered. The County supports proactive planning in anticipation of an improved US Highway 14. There are also substantial amounts of undeveloped lands in Courtland and Nicollet to accommodate the expected pace of development.

Transportation (Sections 3.5 addresses the direct impacts)—The area under review for transportation impacts includes Nicollet, eastern Brown, and western Blue Earth Counties.

The timeframe for consideration of impacts is from 1980 following completion of the four-lane bypass of Mankato to 2030 which is the longest outlook of the Mn/DOT Long Range Plan. Prior to 1980, a fully developed network of rural farm to market and intercity roads had been developed. Since 1980, and, more formally since the 2000 publication the IRC plan, Mn/DOT has been developing US 14 as a four-lane expressway. With construction of a four-lane US 14 between New Ulm and Mankato, the need for rural highway expansion in the study area will be satisfied.

Based on historic rates, traffic is expected to grow 1.9-2.6% annually. The number of trucks is expected to grow somewhat out of proportion to the number of passenger vehicles as farming and product distribution practices evolve.

Socioeconomics (3.6)—Again, the area under review for socioeconomic effects includes Nicollet, eastern Brown, and western Blue Earth Counties and the time frame is from 1980 to 2030. In that time the area has undergone substantial changes as the small farming communities have declined and more of the population is concentrated in the larger regional trade centers. Those small towns near enough to the larger cities have become bedroom communities. With these changes, the local economy has fluctuated along with the larger regional and national economies. Local city and transportation plans have been developed assuming such trends will continue.

Land Use and Visual Quality (3.3)—The area under consideration for land use and visual quality effects is restricted to the immediate project area and considers changes from the time of European settlement until 2030.

Overall, the project area has not experienced a great deal of change since conversion to agricultural lands and the accompanying development. With or without the project, the area is expected to experience some changes in land use, including development activities within Courtland and Nicollet. Other known projects that will occur with or without the project include expansion of the Minnesota Valley Lutheran High School, planned mining activities at New Ulm Quartzite Quarries, and expansion of the Swan lake WMA (as much as available funding and willing land sellers allow).

The landscape in the area has been converted from prairie to farmland and small cities. Continued growth will add more buildings to the visual environment, but no major change in the quality of the experience.

Agricultural Resources and Soils (3.4)—The review of cumulative effects on farmland considers Nicollet County from 1987 until 2030. Although earlier farm history is intriguing, the information does little to establish trends in agriculture. The mid-1980's was considered a crisis for farming as technological advances and economic conditions caused many small farms to fail. What emerged were larger farms with more automation and more corporate control.

In 1987 there were 892 farms in Nicollet County totaling 250,061 acres with 230,111 acres as cropland. In 2002 there were 730 farms totaling 257,101 acres with 234,069 acres as cropland. The trend toward larger farms is expected to continue over the next two decades as the business is very capital intensive and, therefore, difficult for new operators to enter.

With the exception of the proposed project, no other reasonably foreseeable actions are anticipated to occur in the vicinity of the study area that would result in notable conversion of

cropland to other uses. While the proposed project will remove cropland from production, other factors, including continually improving crop productivity, and the increasing demand for corn for ethanol production, may also result in more land being used for agricultural production.

Water Resources and Wetlands (3.7 to 3.10)—The timeframe for consideration impacts to water resources is from the period of European settlement to 2030—a longer timeframe than for other resources because of the magnitude of change. The review focuses on Nicollet county and not the larger MN river basin.

As noted in Section 3.7.1.2, it is difficult to determine the status of the Minnesota River's water quality, specifically, whether it has improved over time due to the seasonal and annual fluctuations and geographic differences. A clear picture of the health of rivers and streams within the Minnesota River Basin will not be possible until long-term and specifically focused studies are completed. However, at this time, improvements in point source pollution control have been documented, as well as continued adoption of conservation and best management practices (BMPs) within the Minnesota River Basin. One major challenge that remains is the reduction in nonpoint source pollutants, such as agricultural and urban runoff. To the extent that major highway construction projects incorporate BMPs and provide for wetland mitigation and other forms of environmental restoration, there is good potential for no adverse effects cumulatively or even cumulative improvements in the overall water resource features.

An analysis of historic data for Nicollet County indicates that about 85,000 acres of wetlands were present in Nicollet County at the time of the original land survey (1847 to 1907).[45] This is the area that comprises "pre-settlement" wetlands. Today, the National Wetlands Inventory (NWI) mapping of wetlands found in Nicollet County, as well as US 14 project field delineation experience, suggests about 18,000 to 20,000 acres of wetlands will be found remaining in Nicollet County.[46] This suggests a Nicollet County loss of pre-settlement wetlands in the range of 75 to 80 percent from the time of the original survey to the NWI mapping effort in the 1980s.

Since the 1980s, available data and regulatory/delineation experience suggest a greatly reduced net adverse effect on wetlands, basically because of major regulatory changes--particularly the federal Clean Water Act (1972) and the Minnesota Wetland Conservation Act, or WCA (1991). These federal and state regulations and programs protect many more acres of wetland than were protected prior to 1991. Until the 1970s, farmers were subsidized to drain wetlands; however, wetlands have since benefited from the referenced protections, as well as federal Executive Orders and local laws. These regulations require wetland sequencing--i.e. avoidance, minimization, and mitigation--to address all wetland impacts, whether the projects are developed with public or private funding.

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[45] Sources and notes: US General Land Office (GLO) Survey Notes (GLO 1847 – 1907), which was used to create a pre-settlement vegetation map; Original Vegetation of Minnesota (Marschner 1930); Interpretation of Francis J. Marschner's Map of the Original Vegetation of Minnesota (Heinselman 1974); Natural Vegetation of Minnesota at the Time of the Public Land Survey 1847-1907 (Wendt and Coffin); Minnesota's Natural Heritage: An Ecological Perspective (Tester 1995). The most modern interpretation of the pre-settlement vegetation has been digitized into GIS format. The modern GIS map of pre-settlement vegetation in Nicollet County shows that 85,029 acres (28% of Nicollet County) were wetlands, including broad wetland classifications of Wet Prairie, Lakes, and River Bottom Forest.

[46] GIS analysis, showing 18,115 acres of wetlands in Nicollet County based on the USGS National Wetlands Inventory. Field experience on this project indicates that additional areas of wetlands are likely to be delineated above the approximate 18,000 acres reflected in the NWI mapping. For example, the remote sensing NWI delineation methods had a high likelihood of missing intensively row-cropped wet depressions; the 2004 wetland delineation effort for this project included field efforts that would not likely miss such wetlands.

The federal and state wetland protection laws further require replacement of impacted wetlands at ratios typically around 2:1. The outlook for wetlands is therefore positive as previously drained wetlands will be restored or new ones created as any are impacted.

Cultural Resources—Historic and Archaeological (3.13)—When private development projects are undertaken and added to the impacts from the proposed project, cumulative effects on cultural resources have potential to increase. Privately funded projects are generally not regulated and, to the extent that there are eligible resources found in the area (for example, timber frame barns), there is potential for adverse effects—and potentially greater effects with completion of the proposed project as this would slightly expand or accelerate private development projects.

Regardless of whether or not the proposed US 14 project is built, the condition of cultural resources in the project area will generally continue to decline, unless private conservation efforts are undertaken. For the most part, responsibility for maintaining and conserving these resources falls upon private property owners, many of whom do not have the resources available to undertake the conservation or restoration. Additionally, the alteration or removal of these resources can also be undertaken at the discretion of private property owners. Therefore, the passage of time and the actions of private property owners are anticipated to contribute more to the cumulative impacts to cultural resources than the proposed project.

Other Cumulative Impact Categories—The remaining environmental impact categories, with less weight than those above in the project's environment context, are briefly discussed here with reference to potential cumulative impacts:

- **Upland Habitat, Wildlife, and Threatened/Endangered Species (3.11 and 3.12)**—As noted in addressing indirect impacts, completion of the proposed project would potentially cause a slightly greater level of development over time thus increasing cumulative impacts.
- **Noise (3.17)**—Similar to other categories, the effects of US 14 and other highways on the area's noise environment are more substantial than noise associated with other sources. For the foreseeable future, noise levels are expected to be proportional to traffic increases.

3.18.2 Indirect and Cumulative Impacts—Conclusion

Considering the impacts of the proposed project in the light of past and future actions indicates that none of the resources analyzed is in any danger of elimination or highly adverse effects due to the project's additive effects. As presented in detail above, this conclusion accounts for reasonably foreseeable activities that may be undertaken by others and the potential for indirect/induced impacts.

3.19 Permits and Related Approvals

Stream and wetland impacts are subject to General permits, Letters of Permission (GP/LOP) or individual permits under Section 404 of the Clean Water Act (CWA) (33 USC 1344). This permit program, administered by the U.S. Army Corps of Engineers (COE), covers the discharge of fill material into waters of the United States, including wetlands. The COE will evaluate the type of permit required under Section 404 based on Mn/DOT's preferred alternative. Issuance of Section 404 permits is contingent on receipt of water quality certification from the MPCA under Section 401 of the CWA. Coordination with the Mn/DNR has occurred and will continue

throughout the design process. Permits and approvals required include those listed in the table below.

TABLE 3-32
Required Permits and Approvals

Permit/Approval	Agency
Section 10/404 Permit	United States Army Corps of Engineers (COE)
MPCA General National Pollutant Discharge Elimination System (NPDES) Permit	Minnesota Pollution Control Agency (MPCA)
DNR Public Waters Permit	Minnesota Department of Natural Resources (Mn/DNR)
Water Quality (401) Certification	Minnesota Pollution Control Agency (MPCA)
Wetland Conservation Act (WCA) process approval	Mn/DOT administers WCA for activities on Mn/DOT R/W or for activities on lands for which Mn/DOT owns an easement
Final Environment Impact Statement	FHWA and Mn/DOT
Adequacy Determination	Mn/DOT
Record of Decision	FHWA
Memorandum of Agreement	As applicable (for mitigation measures)
County Ditch Permit/Approval	Nicollet & Brown Counties

Archaeological and historical surveys were conducted as part of the project in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. Coordination with the State Historic Preservation Officer has occurred and will continue throughout the design process (see Section 3.13 for additional information).

3.20 Relationship of Local Short-Term Uses Versus Long-Term Productivity

As discussed throughout this DEIS, the proposed US 14 improvements are based on Mn/DOT's planning efforts which consider the need for existing and future traffic needs. All highway projects require the investment or commitment of resources that will result in local, short-term impacts and use of resources to accommodate the improvements. These improvements will enhance the long-term productivity that will be brought about by the highway improvements.

3.20.1 No Build Alternative

The No-Build Alternative would avoid all of the short-term and localized construction impacts. However, projected traffic growth in the project area would further reduce the operation of the

existing road, resulting in reduced traffic safety (higher number of crashes), reduced mobility, and the possible loss of economic growth opportunities.

3.20.2 Build Alternatives

All build alternatives would generally result in similar local, short-term impacts, including those impacts discussed throughout Section 3. Short-term impacts would also include inconvenience to residents, business owners/suppliers, employees, and tourists during construction. Benefits that may be realized by the Build Alternatives include:

- Long-term productivity, as planned for by the local communities and the region, increasing the potential for area economic development because of improved transportation links to the regional trade centers and beyond
- Enhanced industrial development and associated employment growth for the region, including increased wages and salaries

Improvements to US 14 are based on comprehensive transportation planning that considers the need for present and future traffic movement within the context of present and future land use development and the environment. Therefore, the local short-term impacts and use of resources by the proposed action are consistent with the maintenance and enhancement of long-term productivity.

3.21 Irreversible and Irretrievable Commitments of Resources

3.21.1 No-Build Alternative

The money, time, and highway user hardships (including an anticipated increase in crashes) caused by increased traffic under the No Build Alternative would be irretrievable. The cost and time associated with the decreasing level of service (LOS) for traffic would also result in an irretrievable commitment of these resources.

3.21.2 Build Alternatives

Construction requires committing a range of natural, physical, human and fiscal resources. Land acquired for constructing the proposed project is considered an irreversible commitment during the time period the land is used for highway purposes. Right-of-way requirements would convert land from residential, agricultural, commercial/mining, and natural environmental resource uses to highway uses.

The New Ulm Quartzite Quarry is one resource located within the project area that includes "irretrievable" resources that would potentially be impacted by Alternative W1 (see the Aerial Photo Exhibit, Plate 1). The quartzite in the mine cannot be moved, unlike some other resources within the project area. Mn/DOT designed the W1 alignment to best balance impacts to the New Ulm Quartzite Quarry (south of existing US 14) and the residential area and the Minnesota Valley Lutheran High School (north of the highway). The W1 alignment generally expands to the north of existing US 14.

All Build Alternatives would involve commitment of considerable amounts of fossil fuels, labor, and highway construction materials such as steel, cement, aggregate, and asphalt material. In addition, considerable labor and natural resources would be used in fabricating and preparing construction materials. Those resources are generally not retrievable, but their use will not have a substantial adverse effect on continued availability. Construction would also involve irretrievable federal, state, and local funding. Land converted from private to public uses would displace local tax revenues.

Committing resources is based on the concept that residents in the project area, region, and state would benefit by the improved capacity and safety that would result from the proposed improvements. The benefits such as improved access to businesses and community services, increased safety, and reduced travel times, and increased economic development are expected to outweigh the commitment of resources in the long term.

3.22 Construction and Excess Material

3.22.1 Environmental Consequences

All Build Alternatives would have minor impacts to traffic traveling on US 14. The Build Alternatives would also result in noise and dust associated with construction activities. No unique concerns have been identified for any of the Build Alternatives.

Noise generated by construction equipment will vary greatly depending on the equipment type, mode and duration of operation, and specific type of work in progress. Typical noise levels at 50 feet from the construction zone will be in the 75-to 95-dBA range. Predictable ranges of noise levels for given distances from the construction zone are listed in Table 3-33.

TABLE 3-33
Construction Noise and Distance Relationship

Distance from Construction Site (feet)	Range of Typical noise Levels (dBA)
20	82-102
50	75-95
100	69-89
200	63-83
400	57-77
1,000	49-69

Source: U.S. Environmental Protection Agency

3.22.2 Mitigation Measures

3.22.2.1 Traffic

A traffic management plan would be developed during the design phase and implemented during construction to ensure continuous and reasonably convenient access to residences, businesses, schools, the Swan Lake WMA, the Minnesota River, and other public and recreational facilities. Existing local roads that would intersect the highway may be closed during construction to minimize local traffic in the work zone. Construction activities, sequencing, and traffic management plans will be coordinated with local fire, police, and emergency rescue services to minimize emergency response delays during the construction period.

3.22.2.2 Noise

Standard noise specifications will be followed, in addition to adherence with levels established by federal and state ordinances. Construction equipment would be fitted with properly operating mufflers of a type recommended by the manufacturer. Construction noise would be controlled by proper maintenance of all construction equipment to ensure that noise is kept to a minimum. The pile driving associated with the project is anticipated to be the noisiest construction activity. The noise associated with this activity would be minimized by limiting construction operations to daytime hours.

3.22.2.3 Dust

Standard dust specifications will be followed, in addition to adherence with levels established by federal and state ordinances. Dust generated during construction would be minimized through standard dust control measures such as watering. After construction is complete, dust levels are anticipated to be minimal because all soil surfaces would be in permanent cover (i.e., pavement or grassed areas).

3.22.2.4 Air

The construction will conform to federal and state regulations. Construction specifications such as 1717 (Air Pollution), 2051.4 (Haul Roads), 2131 (Calcium Chloride), etc. will be applied to achieve compliance with the MPCA 7005.0550 regulation. An Indirect Source Permit is not applicable for this project and mitigation is not required.

3.22.2.5 Excess Material

During construction, if excess material is to be disposed of outside of the project limits, the contractor will develop a disposal plan that must be approved by the Mn/DOT Project Engineer. Disposal of excess material will be in compliance with the guidelines listed in the standard specifications, including Mn/DOT specifications, FHWA policies, and environmental laws and regulations. Disposal will not occur in wetlands, floodplains, or other sensitive areas. The contractor would dispose of unusable excavated material in accordance with state regulations and special provisions to ensure protection of wetlands and waterways. All waste and demolition material from project construction activities will be disposed of in accordance with the standard specifications or special provisions to ensure protection of wetlands and waterways. Erosion and sedimentation will be controlled in accordance with temporary and permanent erosion and sediment control plans, Mn/DOT Standard Plans and standard specifications and local ordinances.

3.22.2.6 Storm Water

The MPCA will serve as the permitting authority for storm water issues related to roadway construction, including a general storm water permit for construction activity under Phase II of the NPDES. Compliance with the NPDES permit will be met through the use of BMPs to mitigate impacts affecting water quality, runoff volumes and discharge rates impacted by roadway construction. Storm water detention ponds will be used for runoff treatment and attenuation, where practical, and determined necessary during more detailed design of the preferred alternative.

As mentioned above, a NPDES permit will be obtained from the MPCA prior to construction. This permit will include an erosion control plan, as well as BMPs contained in Mn/DOT's standard specifications, details and special provisions. After construction, all disturbed areas would be sodded or seeded, leaving temporary erosion control structures in place until vegetation has been established. Erosion and sedimentation of these (and all exposed) soils within the project corridor would be minimized by utilizing the appropriate BMPs during construction. Implementation of BMPs in the final construction and site grading plans greatly reduces the amount of construction-related sedimentation and helps to control erosion and runoff. Ditches, dikes, siltation fences, bale checks and sedimentation basins would be utilized, as needed, as temporary erosion control measures during construction.