ENVIRONMENTAL ASSESSMENT/
ENVIRONMENTAL ASSESSMENT WORKSHEET

Trunk Highway 10
Elk River

State Project: 7102-123
Minnesota Project: To Be Assigned

From: Approximately 1,000 feet west of the Trunk Highway 10/101/169 system interchange
To: Approximately 1,900 feet west of Upland Avenue
in
City: Elk River
County: Sherburne
Section(s), Township(s), Range(s):
Section 3; T32N; R26W
Sections 33-34; T33N; R26W

Submitted pursuant to 42 U.S.C. 4332 and M. S. 116D
By the
U.S. Department of Transportation
Federal Highway Administration and
Minnesota Department of Transportation
For
Conversion of Trunk Highway 10 to a freeway facility within Elk River

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Mn/DOT Cultural Resources Unit
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State Location Map

ENVIRONMENTAL ASSESSMENT
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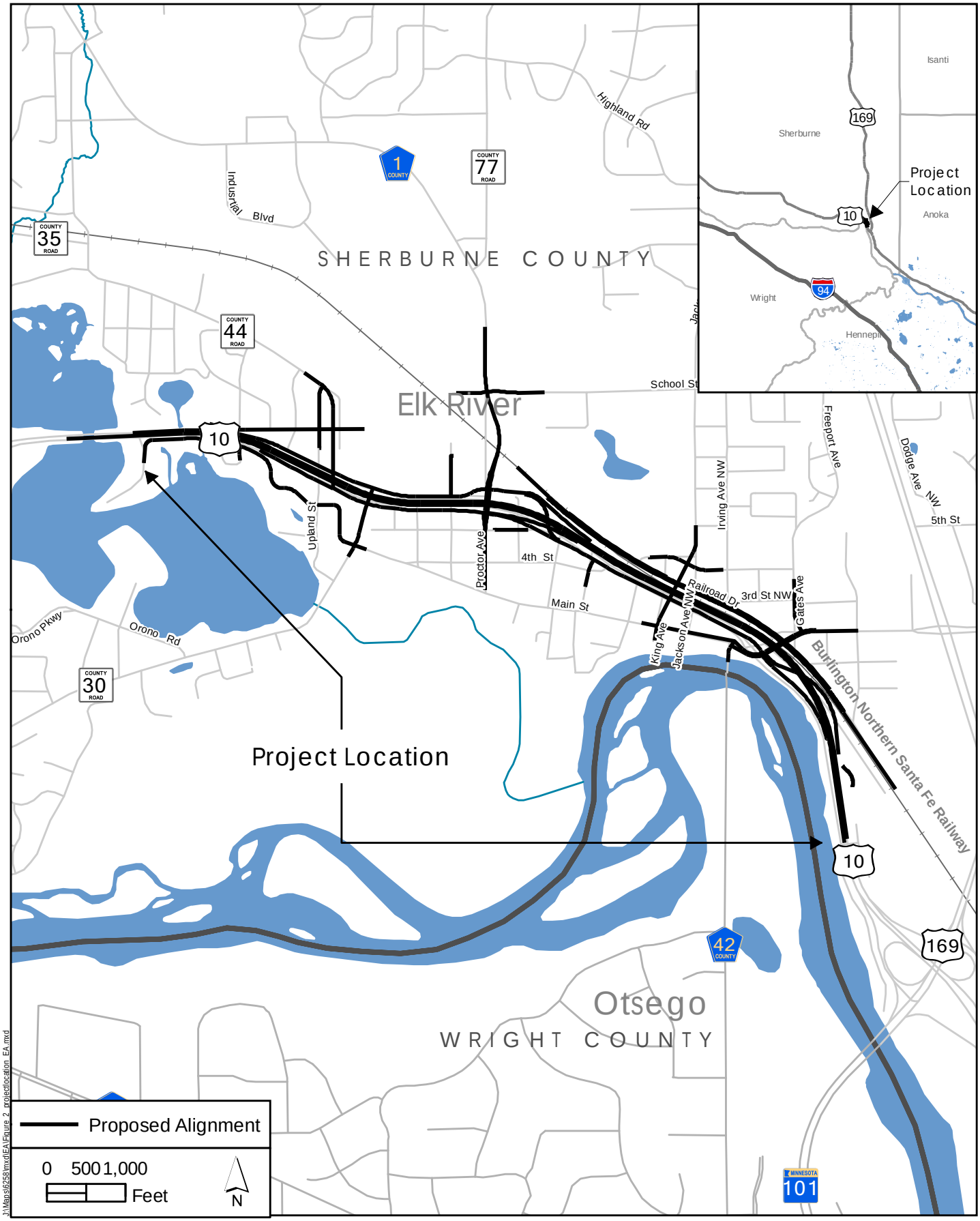
Figure 1



Project Location

ENVIRONMENTAL ASSESSMENT
T.H. 10 - SP 7101-123

Figure 2

I. REPORT PURPOSE

This Environmental Assessment/Environmental Assessment Worksheet (EA/EAW) provides background information including:

- need for the proposed project
- alternatives considered
- environmental impacts and mitigation
- agency coordination and public involvement

This EA/EAW was prepared as a part of the National Environmental Policy Act (NEPA) process and state environmental review process to fulfill requirements of both 42 USC 4332 and M.S. 116D. At the federal level, the EA/EAW is used to provide sufficient environmental documentation to determine the need for an Environmental Impact Statement (EIS) or that a Finding of No Significant Impact (FONSI) is appropriate. At the state level, the EA/EAW is used to provide sufficient environmental documentation to determine the need for a state EIS or that a Negative Declaration is appropriate.

At the state level, this document also serves as an Environmental Assessment Worksheet (EAW). Minnesota Rules 4410.1300 allows the EA to take the place of the EAW form, provided that the EA addresses each of the environmental effects identified in the EAW form. This EA includes each of the environmental effects identified in the EAW form.

The Minnesota Department of Transportation (Mn/DOT) is the proposer and the Responsible Governmental Unit (RGU) for this project. Preparation of an EAW is considered mandatory under the following subsection(s):

> Minnesota Rule 4410.4300 subp 22 (A) – *For construction of a road on a new location over one mile in length that will function as a collector roadway*

This document is made available for public review and comment in accordance with the requirements of 23 CFR 771.119 (d) and Minnesota Rules 4410.1500 through 4410.1600.

The purpose of this EA/EAW is to document the potential impacts to the human and natural environment as a result of the proposed Trunk Highway (Highway) 10[1] improvements in the City of Elk River. As discussed in the project cost and funding section (see Sections V.A. and V.B), the project is not identified in the Mn/DOT District 3 Long-Range Transportation Plan, and there is no funding for construction of the proposed project. The purpose of the project is to identify long-term improvements to Highway 10 in Elk River that will enhance regional mobility, address traffic operations, and preserve local connectivity/accessibility while facilitating comprehensive planning in the City of Elk River. It is anticipated that when funding

[1] Highway 10 is a US Highway. All US Highways in Minnesota are on the state trunk highway (TH) system. The segment of Highway 10 in the study area through Elk River is not on the National Highway System.

for construction of the proposed project, or portions of the proposed project, becomes available, a re-evaluation of the EA/EAW, at a minimum, will be required to update the potential impacts to the human and natural environment.

II. PROJECT DESCRIPTION

A. LOCATION AND SETTING

The proposed project is located in the City of Elk River in Sherburne County, Minnesota (see Figures 1 and 2). The eastern project terminus is located approximately 1,000 feet west of the Highway 10/101/169 system interchange in Elk River. The western project terminus is located approximately 1,900 feet west of Upland Avenue in Elk River. The total length of the project corridor is approximately 2.2 miles.

B. EXISTING LAND USE

The project corridor is characterized by developed land uses including residential, commercial, and industrial uses. Land uses adjacent to Highway 10, as characterized in the *City of Elk River Comprehensive Plan* (August 2004) are summarized below.

Between Highway 10 and the Mississippi River, immediately west of the Highway 10/101/169 system interchange, is the Babcock Memorial Rest Area. North of Highway 10 and immediately west of the Highway 10/101/169 interchange, land uses include light industrial (Great River Energy) and public/semi-public (cemetery) uses. Existing land use through the majority of the project corridor is categorized as "Old Town", which reflects a unique land use mixture in and around downtown Elk River including commercial uses, residential uses, civic features, and public spaces.[2] Between Proctor Avenue and Upland Avenue, land use on the north side of Highway 10 is classified as medium industrial. At the project terminus east of Lake Orono, land use south of Highway 10 is classified as urban residential, which includes both single- and multi-family residential uses.

C. EXISTING CONDITIONS

Functional Classification

Highway 10 plays an important role in the state's transportation network by providing for the movement of people and freight through Minnesota. The importance of Highway 10 is recognized at both the state and federal level as it serves commuters, recreational users, and truck traffic. While the portion of Highway 10 within the project area is not on the National Highway System, it is a medium priority interregional corridor and is on the National Twin Trailer Truck Network. Highway 10 is a principal arterial roadway and is the primary highway providing access and mobility north of the Mississippi River from the Twin Cities to the Fargo/Moorhead region.

[2] City of Elk River. August 2004. City of Elk River Comprehensive Plan. Chapter 5 – Land Use.

Mn/DOT has identified Highway 10 from Highway 24 in Clear Lake to Highway 169 in Elk River as a medium priority interregional corridor (IRC). Additional discussion of Highway 10 as a medium priority corridor is included in Section III.A.1.

Facility Type

From the western Elk River city limits to Highway 169, Highway 10 is classified as a four-lane urban conventional roadway.[3] Posted speed limits on Highway 10 through Elk River range from 55 miles per hour (mph) west of Upland Avenue, 45 mph between Upland Avenue and 4th Street, 30 mph through downtown Elk River, and 60 mph east of Main Street.

Existing Access (Highway 169 to Simonet Drive)

The portion of Highway 10 within the study area is characterized by multiple at-grade roadway and driveway accesses and traffic signals at major intersections. There are currently four traffic signals on Highway 10 in the 2.2 miles through the urban core of Elk River. Existing at-grade access points include both full access intersections (allows all movements) and restricted access intersections (e.g., right-in/right-out only). Local roads, county roads, and businesses have direct, at-grade access to Highway 10 within the study area. There are a total of 16 at-grade intersections within the approximate two-mile study area (Highway 169 to west of Upland Avenue). Table 1 summarizes existing access on Highway 10 within the study area.

TABLE 1
SUMMARY OF EXISTING ACCESS ON HIGHWAY 10
FROM HIGHWAY 169 TO SIMONET DRIVE

Type of Access	Full Access	Right-in/Right-out
Local and County Roads	10	1
Business Access	8	2
TOTAL[(1)]	18	3

[(1)] Several access points may be located at one intersection (e.g., a local road across from a business driveway). These are counted separately in the total for this table, but consolidated as one access point for the total cited in the text.

Local Circulation

The Highway 10 corridor and the BNSF Railway bisect downtown Elk River. Local and county roadways intersect with and provide at-grade access across Highway 10. There are no existing grade-separated crossings of Highway 10 in downtown Elk River to provide local circulation across the highway. There are also three at-grade crossings of the BNSF Railway in downtown Elk River: Main Street, Jackson Avenue, and Proctor Avenue. As noted in the Highway 10

[3] *TH 10 Corridor Management Plan: TH 24 in Clear Lake to I-35W.* May 2002. Section 3.1.1. Functional Classification and Facility Type.

Corridor Management Plan, the lack of grade-separated crossings of Highway 10 and the BNSF Railway impede local circulation within Elk River.[4]

D. PROPOSED ACTION

The purpose of the proposed project is to improve safety and provide for long-term regional mobility on Highway 10 within Elk River's urban core, while also accommodating local connectivity and accessibility to facilities along both sides of Highway 10 in Elk River. In meeting the project purpose, improvements must also provide for long-term local access and mobility for all transportation modes (e.g., motorized and non-motorized modes such as bicycles/pedestrians) on the Elk River and Sherburne County road networks that presently intersect within the study area (e.g., Main Street, Jackson Avenue, Proctor Avenue, etc.).

The proposed project will convert Highway 10 from the existing urban roadway to a freeway design within the downtown core of Elk River. The project includes the removal of at-grade intersections throughout the corridor and the construction of grade-separated interchanges. A system of frontage roads will be constructed to provide local access along Highway 10. New freeway alignment will be moved slightly to the north of the current Highway 10 alignment. The BNSF Railway will also be realigned to the north from east of Main Street to a point east of Proctor Avenue, and grade-separated crossings with local roadways will be constructed.

A detailed description of the proposed Build Alternative is described in Section IV.D.2.

III. PURPOSE AND NEED FOR THE PROJECT

The Highway 10 corridor is an important east-west principal arterial route in central Minnesota connecting Minneapolis-St. Paul to Fargo-Moorhead and beyond. Increasing congestion and traffic volumes along the corridor threaten the ability of Highway 10 to deliver safe and efficient transportation service. The purpose of the proposed project is to address safety, mobility, and operational issues to maintain the functionality of Highway 10 as a principal arterial route, while also addressing and improving local transportation connectivity within Elk River.

The purpose of this report is to identify and address any social, economic, or environmental impacts that may be associated with the proposed design concept and to identify the best alternative to meet the transportation needs of the project as described below.

A. PLANNING HISTORY

Highway 10's importance in the statewide transportation system has been identified in two regional transportation studies completed since 1999 – the Mn/DOT *Statewide Interregional Corridor (IRC) Study* (November 1999) and the Mn/DOT *IRC TH 10 Corridor Management Plan: TH 24 in Clear Lake to I-35W* (May 2002). These documents are discussed below.

[4] *TH 10 Corridor Management Plan: TH 24 in Clear Lake to I-35W*. May 2002. Section 4.2.1. Local and Supporting Road System Issues and Deficiencies.

1. Statewide Interregional Corridor (IRC) Study

The *IRC Study* identified and categorized Minnesota's Interregional Corridors and developed policies to manage them in such a way as to ensure that statewide mobility and traveler safety is maintained. The *IRC Study* defined the IRC system as 2,926 miles, or about 56 percent, of the existing state principal arterial system. The study noted that traffic volumes on the IRC system had risen by 50 percent over the last ten years and were expected to double by 2020. These growth trends further threaten the efficient movement of goods and people between regional centers. Mn/DOT has identified Highway 10 as a Medium Priority IRC between Highway 169 in Elk River and Highway 24 in Clear Lake. The study states that for Medium Priority IRCs, the peak hour speed target is 55 miles per hour (mph) or greater across the length of the corridor.

The Highway 10 corridor has been identified as an Interregional Corridor at Risk by the *IRC Study*. This designation indicates that the route performs below target performance standards and has a medium to high risk for signal proliferation.

2. Highway 10 Corridor Management Plan

The purpose of the *IRC TH 10 Corridor Management Plan: TH 24 in Clear Lake to I-35W (May 2002)* (CMP) was to develop a long-term vision and action plan that focuses on preserving and enhancing the safety and mobility of Highway 10 from Highway 24 in Clear Lake to Interstate 35W (I-35W) in Mounds View. The CMP identified performance goals for the Highway 10 project area corridor based on established corridor performance measures. In order to meet corridor performance goals, the CMP identified that the following corridor deficiencies should be addressed:

- **Roadway Safety:** Due to the proximity of Highway 10 to the BNSF railroad, many of the grade crossings along the rail line are near intersections within the Highway 10 corridor. The CMP documented two fatal railroad crossing crashes at Jackson Avenue and one personal injury crash at Main Street railroad crossing during the period of 1991-2000.[5]

- **Traffic Operations and Mobility:** The segment of Highway 10 through the urban area of Elk River was forecast to have one of the lowest travel speeds of all segments (from Clear Lake to I-35W) evaluated in the CMP.[6] The CMP also identified significant operational problems on Highway 10 within Elk River (i.e., operates at LOS F during the p.m. peak hour under both existing and future (2025) conditions).

- **Highway Access:** One of the key factors affecting the quality of traffic mobility and the safety characteristics of the Highway 10 corridor is highway access. The frontage road system within the project area has been identified as incomplete. Between Proctor Avenue

[5] *TH 10 Corridor Management Plan: TH 24 in Clear Lake to I-35W*. May 2002. Table 4.1-2. Railroad Grade Crossing Crashes in TH 10 Corridor.

[6] Existing travel time speeds represent an average of the eastbound (a.m. peak hour) and westbound (p.m. peak hour) directions. *TH 10 Corridor Management Plan: TH 24 in Clear Lake to I-35W*. May 2002. Section 3.4.3. Existing Peak Hour Travel Speed.

and Highway 101/169, the BNSF Railway mainline on the north and existing residential development on the south of Highway 10 have prevented the construction of frontage roads on both sides of the highway in this area and, as a result, there are 16 at-grade intersections within the Highway 10 project area (see Section II.C).

- **Roadway Design/Geometrics:** The CMP included an evaluation of roadway and intersection geometrics to identify locations along Highway 10 that were inconsistent with current Mn/DOT design guidelines. The segment of Highway 10 through Elk River includes clear zone violations at various locations along the corridor.

B. NEED FOR THE PROJECT

Needs for transportation improvements to Highway 10 through downtown Elk River are based on recent analyses completed as part of this current study; however, findings of previous studies are incorporated where appropriate. The long-term transportation needs for the project are summarized below.

- **Highway 10 Safety Within Elk River:** Over 340 crashes occurred on the Highway 10 mainline between the Highway 10/101/169 system interchange and Upland Avenue (CR 44) between 2003 and 2007. While the crash rates on Highway 10 do not exceed the statewide average for similar facilities, the potential for additional crashes is high due to increasing traffic volumes, the number of local street and business access points, and diversion of more volume to local streets that have higher crash rates.

- **Capacity and Traffic Operations:** Under current (2006) conditions, average annual daily traffic volumes on Highway 10 through Elk River are 29,000-34,000 vehicles per day (vpd). By year 2030, average annual daily traffic volumes on Highway 10 through Elk River are expected to be 52,000-66,000 vpd, exceeding the capacity of the existing four-lane facility.

  Traffic operations analysis results indicate that three intersections within the Highway 10 study area currently operate at an unacceptable LOS E or worse in the p.m. peak hour. One of these is on the Highway 10 mainline at Proctor Avenue. Traffic operations are expected to deteriorate in the future (2030), with all key Highway 10 intersections operating at an unacceptable LOS F in the p.m. peak hour. Both regional and local traffic are experiencing these intersection delays.

  In addition to unacceptable levels of service, both regional and local motorists will also experience greater delays under future 2030 No Build conditions compared to existing conditions. These delays contribute to reductions in average speeds on the Highway 10 corridor. Based on a simulation model, speeds are estimated to be 14 to 20 mph slower than existing conditions in the p.m. and a.m. peak hours, respectively. These operational problems result in an overall corridor performance below the 55 mph target for medium-priority IRCs.

- **Access Considerations:** Frequency of at-grade access points coupled with high mainline travel speeds contribute to increased accidents. Crash data indicates there are a high number of rear end crashes, which indicates congestion or unexpected conditions such as high speeds combined with frequent at-grade access. Existing direct access to Highway 10 needs to be redesigned to reduce existing hazards and increase the efficiency of the main route, while still providing adequate local roadway connections for businesses and residences along the project corridor.

- **Local Connectivity and Accessibility:** The lack of a continuous frontage road system parallel to Highway 10 through Elk River contributes to the level of direct public and private access to Highway 10 and also results in a large number of local trips being diverted to Highway 10. Highway 10 and the BNSF Railway bisect the City of Elk River, resulting in disruptions to both regional and local traffic as local north-south traffic circulating within Elk River across the BNSF Railway and Highway 10 conflicts with through, regional trips on Highway 10. This also contributes to unsafe conditions for non-motorized traffic (e.g., pedestrians, bicycles) crossing Highway 10 and the BNSF Railway.

These needs are described in detail in the following sections.

1. Safety Needs (Highway 10 Safety Within Elk River)

Safety is a primary concern for Mn/DOT and other public agencies. Safety on Highway 10 is a concern due to high traffic volumes and high speeds traveling through at-grade intersections with the mix of large and small vehicles, vehicles pulling trailers, and trains. A safety analysis was performed for the Highway 10 project corridor to identify safety issues along the existing highway. Historical crash records obtained from Mn/DOT roadway segment and intersection crash databases were used to determine the number of recorded crashes for the period between 2003 and 2007. The data includes only those crashes reported to the Minnesota Department of Public Safety (DPS).[7] Results of the safety analyses are summarized below.

Over 340 crashes occurred on the Highway 10 mainline between the Highway 10/101/169 system interchange and Upland Avenue (CR 44) between 2003 and 2007. More than 50 percent of all crashes within the study area occurred at intersections or driveways (186 of 347 crashes) with the majority of crashes being rear end crashes (see Table 2). Large numbers of rear end crashes usually indicate congestion or unexpected conditions such as high speeds combined with frequent at-grade access. While the crash rates on Highway 10 do not exceed the statewide average for similar facilities, the potential for additional crashes is high due to increasing traffic volumes and the number of local street and business access points.

[7] Due to a change in the DPS database maintenance process, it is possible that the 2003 crash database may not be complete. Mn/DOT anticipates that missing data is primarily for property damage only crashes. The underreporting of these types of crashes yields two results: (a) the crash rates reported in this document may be lower than rates using a complete dataset and (b) the severity rates reported in this document may be higher than rates calculated using a complete dataset.

Safety on Highway 10 is a concern due to high mainline traffic volumes along with the proliferation of at-grade access and the mix of large and small vehicles. A significant concern with respect to safety is the increasing traffic volumes which limit the number of gaps available for users accessing Highway 10 at unsignalized intersections. As traffic volumes continue to increase, users will take more risks when entering the traffic stream from side streets and safety problems will likely increase. As such, there is a need to improve safety on Highway 10 through downtown Elk River.

TABLE 2
HIGHWAY 10 SAFETY: KEY FINDINGS

Location	Road Segment or Intersection	No. of Crashes [1]	Crash Severity			Predominant Crash Type
			Fatal	Injury	Property	
Highway 10[2]	Road Segment	347	2	118	227	Rear End (48% of all crashes)
Highway 10 and Upland Ave.	Intersection	37	1	14	22	Rear End
Highway 10 and Proctor Ave.	Intersection	56	0	20	36	Rear End
Highway 10 and Jackson Ave.	Intersection	41	0	11	30	Rear End
Highway 10 and Main Street	Intersection	34	0	11	23	Rear End

[1] Crash analysis for the years 2003 to 2007. Includes vehicle crashes on Highway 10 in Elk River and does not include railroad crashes.
[2] Total of all crashes on Highway 10 from 0.5 miles east of the Highway 10/101/169 system interchange to 0.5 miles west of Upland Avenue for the 2003 to 2007 period. Includes crashes reported at intersections as well as crashes between intersections.

In addition to safety on Highway 10, the BNSF Railway parallels Highway 10 through Elk River. At-grade railroad crossings are located at Main Street, Jackson Avenue, and Proctor Avenue. The Highway 10 CMP included an evaluation of train-vehicle crashes for the ten-year period from 1991-2000. This analysis identified three railroad crashes in Elk River during this time frame, including two fatalities.[8] As traffic volumes increase over time, the risk of crashes at at-grade crossings increases (i.e., increase in vehicle-train exposure rating).

2. Capacity and Traffic Operations

Highway 10 Capacity

Traffic volumes in the study area have grown steadily over the past several years. Between 1998 and 2006, average annual daily traffic (AADT) on Highway 10 in Elk River has increased by an average of more than 7,000 vehicles. Table 3 shows the average annual daily traffic volumes from 1998–2006 on Highway 10 in several locations in Elk River.

Under year 2030 No Build conditions, traffic volumes on Highway 10 are forecast to range from 52,000 vpd west of Upland Avenue to 66,000 vpd east of Main Street, based on the Sherburne County traffic forecasting model (2006), which is the basis for the *Sherburne County Transportation Plan* (December 2007). Traffic volumes on Highway 10 through downtown Elk River (Proctor Avenue to Main Street) are forecast to be 64,000 vpd, exceeding the capacity

[8] *IRC TH 10 Corridor Management Plan: TH 24 in Clear Lake to I-35W*. May 2002. Table 4.1-2. Railroad Grade Crossing Crashes in TH 10 Corridor.

of the existing four-lane urban arterial roadway. Under No Build conditions, the increase in traffic volumes will result in congestion and delays throughout the corridor.

TABLE 3
TRAFFIC VOLUMES ALONG HIGHWAY 10 (1998–2006)

Location	1998 AADT[1]	2000 AADT[1]	2002 AADT[1]	2004 AADT[1]	2006 AADT[1]
Highway 10 (west of US 10/101/169 interchange)	24,100	27,400	32,900	29,000	29,000
Highway 10 (between Main St. and Jackson Ave.)	21,800	28,800	28,700	29,000	29,000
Highway 10 (west of Jackson Ave.)	24,700	25,800	30,100	34,000	34,000

[1] AADT from Mn/DOT traffic flow maps

Highway 10 Traffic Operations

A traffic operations analysis was performed for existing and future No Build conditions as shown in Tables 4 and 5 and detailed in the Traffic Operations Memoranda in Appendix C. This includes updated information from the data presented in the Highway 10 CMP. All signalized intersections were analyzed using the Synchro/SimTraffic software and unsignalized intersections were analyzed using the Highway Capacity Software. Capacity analysis results identify level of service (LOS), which indicates how well an intersection is operating.

The existing (2008) a.m. peak hour analysis indicates that all key intersections operate at an acceptable LOS D or better. The existing p.m. peak hour analysis indicates that two local intersections (Main Street/Evans Avenue NW and Main Street/CR 42) and one intersection along the Highway 10 mainline (Highway 10/Proctor Avenue) operate at an unacceptable LOS E or F.

TABLE 4
EXISTING (2008) PEAK HOUR CAPACITY ANALYSIS
LEVEL OF SERVICE (LOS) RESULTS [1]

Intersection	Intersection Control [2]	Level of Service Results	
		A.M. Peak Hour	P.M. Peak Hour
Highway 10/Main Street	Signalized	C	D
Main Street/Gates Avenue	All Way Stop	B	**E**
Main Street/Evans Avenue NW	Side Street Stop	A/B	B/**F**
Main Street/Wright County 42	Side Street Stop	A/B	**F/F**
Main Street/Jackson Avenue	All Way Stop	B	C
Highway 10/Jackson Avenue	Signalized	B	C
School Street NW/Jackson Avenue	Signalized	B	B
Main Street/Proctor Avenue	All Way Stop	A	C
Highway 10/Proctor Avenue	Signalized	D	**E**
School Street/Proctor Avenue	Signalized	B	B
Highway10/Upland Avenue	Signalized	B	B
Main Street/Tipton Avenue	All Way Stop	A	A

[1] LOS is a measure of congestion. AASHTO defines acceptable LOS to be LOS D or better. LOS E and F are unacceptable.
[2] For side-street stop controlled intersections, the overall LOS is followed by the LOS on the side-street approach.

Under No Build (2030) conditions, most intersections along the Highway 10 corridor report high delays and unacceptable levels of service. The results of the analysis, shown in Table 5, indicate that three local intersections and two intersections along Highway 10 operate at an unacceptable LOS F under future No Build conditions during the a.m. peak hour. However, during the p.m. peak hour, all analyzed intersections are forecast to operate at an unacceptable LOS.

TABLE 5
YEAR 2030 NO BUILD PEAK HOUR CAPACITY ANALYSIS
LEVEL OF SERVICE (LOS) RESULTS

Intersection	Intersection Control [(1)]	Level of Service Results	
		A.M. Peak Hour	P.M. Peak Hour
Highway 10/Main Street	Signalized	D	**F**
Main Street/Gates Avenue	All Way Stop	C	**F**
Main Street/Evans Avenue NW	Side Street Stop	A/C	**F/F**
Main Street/Wright County 42	Side Street Stop	**F/F**	**F/F**
Main Street/Jackson Avenue	All Way Stop	C	**F**
Highway 10/Jackson Avenue	Signalized	D	**F**
School Street NW/Jackson Avenue	Signalized	**F**	**F**
Main Street/Proctor Avenue	All Way Stop	C	**F**
Highway 10/Proctor Avenue	Signalized	**F**	**F**
School Street/Proctor Avenue	Signalized	**F**	**F**
Highway 10/Upland Avenue	Signalized	**F**	**F**
Main Street/Tipton Avenue	All Way Stop	B	**F**

[(1)] For side-street stop controlled intersections, the overall LOS is followed by the LOS on the side-street approach.

BNSF Railway: Influence on Traffic Operations

The BNSF Railway line is located parallel to Highway 10 through Elk River and directly intersects Main Street, Jackson Avenue, and Proctor Avenue. According to Mn/DOT railroad maps, this rail line is one of the busiest lines in Minnesota (average of 46 freight trains per day)[9], and additional traffic from the Northstar Commuter Rail service (additional 12 trains per day).[10] Based on information from BNSF Railway and the Northstar schedule, up to six trains could pass through Elk River during the a.m. and p.m. peak hours. Every time a train passes through Elk River, it interrupts traffic flow on and off of Highway 10 at Main Street, Jackson Avenue, and Proctor Avenue. Depending on the type of train (commuter or freight), the railroad crossing gate arms will remain down for approximately 45 seconds to just under 3 minutes as the trains clear the at-grade crossings. This creates increased delay and long vehicular queues on the Main Street, Jackson Avenue, and Proctor Avenue approaches to Highway 10 that requires several traffic signal cycles to recover.

[9] Minnesota Department of Transportation. 2009. The Minnesota Department of Transportation Web Site (online). Freight Maps, Data, Tools and Resources. Minnesota Train Volumes and Speeds Map accessed 2009-01-14 at **http://www.dot.state.mn.us/ofrw/freightData.html**.

[10] Minnesota Department of Transportation. September 2007. The Minnesota Department of Transportation Web Site (online). Commuter Rail Activities in Minnesota accessed 2009-01-14 at **http://www.dot.state.mn.us/passengerrail/onepagers/northstar.html**

Highway 10 Travel Time Within Elk River

In addition to increased delays and poor levels of service, motorists will also experience lower average speeds and increased travel time under year 2030 No Build conditions. As shown in Table 6, average speeds on Highway 10 through Elk River under a.m. peak hour No Build conditions are forecast to be 20 mph slower than existing conditions, whereas p.m. peak hour No Build conditions are forecast to be 14 mph slower than existing conditions. These decreases in speed translate into increases in a.m. peak hour travel times through Elk River from 3.4 minutes under existing conditions to 29 minutes under future No Build conditions.

TABLE 6
TRAVEL ON HIGHWAY 10 THROUGH ELK RIVER (averages) (1)

Scenario	A.M. Peak Hour (2)			P.M. Peak Hour (3)		
	Speed (mph)	Travel Time (min) (4)	Delay/Veh (min) (5)	Speed (mph)	Travel Time (min) (4)	Delay/Veh (min) (5)
Existing (2008)	27	3.4	1.1	25	4.6	2
No Build (2030)	7	29	26	9	33	31

(1) Average speeds and travel times based on micro-simulation models from Main Street to Upland Avenue. Existing speeds and travel times were not field verified, but operational observations were made to confirm vehicle queues. These operational results should not be used in conjunction with the IRC planning-level performance model.

(2) Eastbound results are used for the a.m. peak hour because a majority of the traffic flows in this direction.

(3) Westbound results are used for the p.m. peak hour because a majority of the traffic flows in this direction.

(4) Travel time represents the hypothetical travel time from Main Street to Upland Avenue based on model results for existing and future No Build conditions.

(5) Delay/vehicle represents the delay compared to free-flow conditions (assuming travel at the posted speed of the roadway with no congestion and no traffic control measures such as stoplights).

3. Highway 10 Access Considerations

Mn/DOT has developed an access management policy (adopted March 2002, effective July 2002) for the access management of the trunk highway system. Mn/DOT's *Access Management Manual* (January 2008) identifies an Access Category System comprised of seven primary categories and five sub-categories. The primary categories are based on the roadway's functional classification, whereas the sub-categories are used for specific facility types and/or adjacent land uses.

Highway 10 is classified as a medium priority IRC, principal arterial roadway, which expresses an intent that the highway serves a primary function of mobility. The Highway 10 corridor through Elk River is divided into three sub-categories: subcategory A (rural – Main Street to Highway 101/169), subcategory B (urban/urbanizing: 4th Street to western project limits) and subcategory C (urban core: downtown Elk River from 4th Street to Main Street). The segments of Highway 10 through Elk River, and their access management category, are listed in Table 7.

TABLE 7
HIGHWAY 10 ELK RIVER: COMPARISON OF EXISTING ACCESS TO EXPECTED ACCESS
(Based on Mn/DOT Access Guidelines)

Segment of Highway 10	IRC Classification (Access Mgmt Category)	Approx. Distance (miles)	Actual # Full Accesses	Actual # Partial Accesses	Actual # Signals	Actual # of Private Accesses	Expected # Full Accesses	Expected # Partial Accesses	Expected # Signals	Expected # of Private Accesses	Access Meets Guidelines (Y or N)
West City Limits (Elk River) to 4th Street[(1)]	Medium (2B)	3.2	22	5	3	6	6	6	0	0	No
4th Street to Main Street	Medium (2C)	0.4	6	10	2	10	1	2	2	2	No
Main Street to Hwy 169[(2)]	Medium (2A)	1.0	4	2	0	2	2	0	0	0	No

Source: *IRC TH 10 Corridor Management Plan: TH 24 in Clear Lake to I-35W*. May 2002. Table 4.1-9. Comparison of Existing Access to Expected Access Based on Mn/DOT Guidelines.

(1) Includes segment of Highway 10 west of the project limits and Lake Orono.

(2) Since completion of the TH 10 CMP, the access management category for the segment of Highway 10 from Main Street to Highway 169 has been revised from 2B (medium priority IRC: urban/urbanizing) to 2A (medium priority IRC: rural/exurban). The number of expected accesses on this segment of Highway 10 reflects this change in access management category. The Main Street intersection and Highway 10/101/169 interchange were counted as the expected number of full accesses. The Highway 10/101/169 interchange was assumed to be one access point for purposes of counting full accesses.

The Highway 10 CMP includes an evaluation of access deficiencies along Highway 10, including the project area. This evaluation includes a comparison of existing accesses to the number of expected accesses based on Mn/DOT's access management guidance. The results of this evaluation are summarized in Table 7, updated based on current conditions and current Mn/DOT guidance. The existing accesses on Highway 10 through the project are not consistent with Mn/DOT access guidelines for medium priority IRCs. As noted in the Highway 10 CMP, highway access is one of the key factors affecting traffic operations, mobility and safety. Therefore, there is a need for improvements to the Highway 10 corridor through Elk River such that it is closer to conformance with current Mn/DOT access spacing guidelines.

4. Local Connectivity and Accessibility

As noted in the Highway 10 CMP, the ability of Highway 10 to meet its performance objectives as a medium priority IRC is dependent on the local and supporting roadway network. The Highway 10 CMP summarizes the role of the local and supporting road system as follows:

> *A fully developed local and supporting road system provides a way for drivers to access TH 10 at designated public road intersections versus having to access the highway directly from a private land parcel. It also allows drivers making short trips to find other alternatives to travel shorter distances within cities and between adjacent cities. Finally, it allows drivers to find ways to travel across TH 10 with minimal disruption to the travels of TH 10 motorists making longer high-speed trips.*[11]

The Highway 10 CMP divides the local and supporting roadway network into three components: frontage roads, city to city connections, and across highway connections. The following summarizes local and supporting roadway network issues as described in the Highway 10 CMP.

- Frontage roads: Existing development to the south of Highway 10 and the BNSF Railway to the north of Highway 10 prevent construction of a continuous frontage road system within the project limits from Upland Avenue to Highway 101/169. This results in a high level of direct public and private access to Highway 10 through Elk River. In addition, the lack of a continuous frontage road system results in a large number of local trips being diverted to Highway 10.

- City-to-city connections: The City of Elk River has other options within the existing transportation network for travel to adjacent cities.

- Across highway connections: As previously noted, Highway 10 and the BNSF Railway bisect the City and downtown. Elk River relies on at-grade crossings of Highway 10 and the BNSF Railway to get from one side of the City to another. There are no existing grade-separated crossings of Highway 10 or the railroad within the project limits. Because there are no existing grade-separated crossings, local north-south traffic circulating within Elk River across Highway 10 conflicts with through, regional trips on Highway 10, resulting in disruptions to both regional and local traffic.

[11] *IRC TH 10 Corridor Management Plan: TH 24 in Clear Lake to I-35W*. May 2002. Section 3.4.7. Local and Supporting Road System.

In addition to those issues raised in the Highway 10 CMP, local connectivity and accessibility is also of concern for non-motorized traffic (e.g., pedestrians, bicycles). Non-motorized traffic must cross Highway 10 and the BNSF Railway at-grade when traveling north-south from residential areas to commercial land uses in downtown Elk River. These pedestrian and bicycle movements conflict with through traffic on Highway 10 and train traffic, contributing to unsafe conditions and limited accessibility for non-motorized travel across the Highway 10 corridor.

C. ADDITIONAL GOALS AND OBJECTIVES

The Elk River Highway 10 corridor includes trains and non-motorized traffic (e.g. bicycles, pedestrians) as well as motorists. Today, pedestrians from the Elk River municipal parking lot and employees from the Bank of Elk River parking contend with Highway 10 traffic. Highway 10 separates a municipal parking lot and the Bank of Elk River parking lot from the Elk River downtown commercial district. This separation causes potential pedestrian conflicts for people attempting to access the businesses, including the bank, south of Highway 10. There are also pedestrian conflicts with the BNSF Railway. The Northstar Commuter Rail service was added in November 2009, bringing total train volume to more than 50 trains per day. Any successful improvements to Highway 10 in the corridor should address bicycle/pedestrian, vehicle, and train conflicts.

As described in Section III.B.2, the BNSF Railway line through Elk River is one of the busiest freight railroad lines in Minnesota. This line also services the Northstar Commuter Rail between Big Lake and downtown Minneapolis. Because of the importance of the BNSF Railway line as a freight and commuter rail corridor, maintaining rail traffic was a key consideration in the project development process.

The Elk River downtown redevelopment plan is not being pursued until the Highway 10 preliminary design is complete. The project design for Highway 10 will be incorporated into the downtown redevelopment plan. The *Elk River Comprehensive Plan* (2004) identifies the land uses adjacent to Highway 10 as “Old Town.” According to the plan, redevelopment in this area “will be oriented to housing, commercial uses and public spaces that support the existing character of the area.” The *Elk River Transportation Plan* (2004) identifies Highway 10 as a “recommended improvement action in the long term (2019-2025).” The community has emphasized that good access to, from, and across Highway 10 is vital to the success of any downtown redevelopment. As such, studied alternatives should provide accessibility between Highway 10 and downtown Elk River, consistent with the vision described in the City’s comprehensive plan.

D. EVALUATION CRITERIA

Measurable qualitative criteria were identified for the evaluation of alternatives. The following evaluation criteria were identified as quantitative and qualitative measurements of addressing the transportation purpose and need for the project:

- Adequate roadway capacity on Highway 10 to accommodate year 2030 average daily traffic volumes (i.e., planning-level capacity thresholds).
- Adequate interchange capacity and geometrics to accommodate year 2030 peak hour traffic volumes at an acceptable LOS D or better (Highway 10 intersections and local road intersections).
- Improvements in a.m. and p.m. peak hour average speed and travel time through downtown Elk River (Main Street to Upland Avenue) in comparison to existing and No Build conditions.
- Conformance/consistency with Mn/DOT access management and access spacing goals for principal arterial, medium priority IRC roadways.
- Ability to reduce or eliminate at-grade conflicts on the Highway 10 corridor.
- Ability to reduce or eliminate at-grade crossings of the BNSF Railway through downtown Elk River.
- Ability to replace direct access to Highway 10 with a system of frontage/backage roads to limit number of local trips on highway.
- Ability to maintain or enhance existing local roadway continuity and connectivity in the Elk River area.

In addition to the transportation needs criteria listed above, it is necessary to consider social, economic, and environmental resource impacts as part of the highway project development process. Qualitative and quantitative measurements of potential social, economic and environmental impacts were identified during the project development process. The following objectives were identified regarding these resources:

- Minimize property impacts (right of way acquisition/relocation and severances)
- Limit right of way and construction costs
- Avoid or minimize and mitigate impacts to wetlands
- Avoid construction at/near potential historic properties/archaeological sites
- Avoid impacts to low income and/or minority communities
- Consistency with land use plans and zoning ordinances

Studied alternatives were first evaluated on their ability to address the purpose and need for the project. Alternatives that did not address the transportation purpose and need for the project were dismissed from further consideration. As described in Section IV.B, not all studied alternatives would address the transportation need. Social, economic, and environmental concerns were less critical in identifying a Preferred Alternative, but rather were more important in refining the Preferred Alternative design as to minimize impacts associated with the proposed project.

IV. ALTERNATIVES EVALUATION

A. PROJECT TERMINI

The project termini are the same for the studied alternatives described below in Section IV.B. The eastern project terminus is located approximately 1,000 feet west of the Highway 10/101/169 system interchange in Elk River. The western project terminus is located approximately 1,900 feet west of Upland Avenue. The project termini were established based on the need for safety, capacity, and operational improvements along Highway 10 within downtown Elk River. Existing Highway 10 through Elk River is an urban arterial roadway characterized by lower speeds (existing Highway 10 speed limit through downtown is 35 miles per hour) and at-grade access (see Section III.B.3). The east and west project termini will match the existing Highway 10 expressway (posted speed limits of 60 mph) on the east and west ends of downtown. The total project corridor length is approximately 11,600 feet (2.2 miles).

B. HIGHWAY 10 DESIGN ALTERNATIVES DEVELOPMENT PROCESS

Two concepts were identified for evaluation as part of this current study: an expressway concept and a freeway concept. Early in the alternative development process, the following design constraints were identified:

- It was not practical to lower the BNSF Railway tracks below the grade of the surrounding land because of winter snow removal concerns.
- The Highway 10 mainline and BNSF Railway should maintain similar elevations to create opportunities for spanning the railroad over or under the local road network (i.e., eliminate existing at-grade crossings).

Before the final concept alignments were determined, several design elements were considered given the constraints identified above. This evaluation focused on minimizing the potential impacts associated with each concept alternative. Critical factors considered included the grade and elevation of Highway 10 and the BNSF Railway as they relate to the surrounding roadway system, environmental impacts, and impacts to adjacent properties. As such, the following design concepts were considered and dismissed:

- Lowering Highway 10 and the railroad through Elk River: This concept was dismissed because of complications with the railroad (i.e., grade changes), groundwater issues at the west end of the corridor, and the desire of the city to maintain the visibility of downtown Elk River for vehicles passing through the City.
- Raising Highway 10 and the railroad through Elk River: This concept was dismissed because the City is opposed to creating a visual barrier through Downtown. The City has expressed a desire for through traffic to see that they are passing through Elk River.

The following includes a brief description of the expressway and freeway alternatives considered.

Highway 10 Expressway Alternative

The expressway alternative included several at-grade intersections, three lanes on Highway 10 in each direction, and a raised median on Highway 10 that would be wide enough to accommodate double left turn lanes at intersections. The concept would maintain the existing Highway 10 south curb line through downtown Elk River. The expressway alternative is illustrated in Figure 3, Appendix A.

The following four at-grade intersections and related adjustments (Main Street, Lowell Avenue, Proctor Avenue, and Upland Avenue) were included in the expressway alternative:

- Main Street would be shifted east to minimize right-of-way impacts to commercial property, and to accommodate a railroad overpass.
- A full access, at-grade intersection at Lowell Avenue would replace the access at Jackson and King Avenues. The Highway 10 access at King Avenue would be relocated, and Jackson Avenue would intersect Main Street at the old King Avenue Intersection. Jackson Avenue would pass under the railroad and Highway 10.
- Proctor Avenue would stay at its current location, but it would go over the railroad as compared to Main Street and Jackson Avenue that pass under the railroad. Because Proctor Avenue would bridge over the railroad, it would require retaining walls both north and south of the railroad. Several businesses and residences (single-family and apartments) between Highway 10 and the railroad would likely be relocated because of the access changes required to accommodate the retaining walls. The accesses to Highway 10 from Morton Avenue, 4th Street, and Oxford Avenue would also be relocated with the expressway alternative.
- Upland Avenue would stay at its current location.

The expressway alternative included construction of a frontage road south of Highway 10 and west of Upland Avenue to Simonet Avenue to maintain access to residential properties. The south frontage road would connect to Tipton Circle and Upland Avenue. A frontage road along the north side of Highway 10 between Upland Avenue and Proctor Avenue would provide access to industrial property north of the highway.

Highway 10 Freeway Alternative

The freeway alternative would have four lanes with shoulders on the outside and a median barrier on Highway 10. The concept provides access between Highway 10 and local streets at three locations:

- Upland Avenue: interchange ramps to and from the west at Upland Avenue
- Proctor Avenue: interchange ramps to and from the east
- Main Street: interchange ramps to and from the east

The concept includes a frontage road system that extends from Upland Avenue to Main Street. Between Upland Avenue and Proctor Avenue the frontage roads are one-way with the eastbound lanes located south of Highway 10 and the westbound lanes located north of Highway 10. Between Proctor Avenue and Main Street, the frontage roads come together on the south side of Highway 10 and become a two-way road. Access to Highway 10 for King Avenue, Lowell Avenue, 4th Street, Norfolk Avenue, Oxford Avenue, Xenia Avenue, and Simonet Avenue will be replaced by frontage roads.

The freeway alternative also includes a Jackson Avenue underpass to maintain local roadway connectivity across Highway 10. Under the freeway concept, Jackson Avenue would pass under the railroad, freeway, and frontage road and would be realigned to intersect Main Street at the former King Avenue intersection.

A frontage road south of Highway 10 and west of Upland Avenue would maintain access to residential properties between Simonet Drive and Upland Avenue.

The freeway alternative is illustrated in Figure 4, Appendix A.

C. ALTERNATIVES CONSIDERED BUT REJECTED

The expressway and freeway alternatives, along with the No Build Alternative, were compared based on the transportation need criteria and additional transportation objectives described in Section III.D. The results of this comparison are summarized in Table 8.

TABLE 8
HIGHWAY 10 THROUGH ELK RIVER: COMPARISON OF ALTERNATIVES

Evaluation Criteria	No Build Alternative	Build Alternatives	
		Expressway Alternative	Freeway Alternative (Preferred Alternative)
Transportation Purpose and Need			
Forecast Demand (Highway 10 Average Daily Traffic volumes) (vehicles per day[vpd])	ADT: 52,000-66,000 vpd (exceeds planning-level capacity of 28,000-32,000 vpd))	ADT: 54,000-71,000 vpd (exceeds planning-level capacity of 42,000-48,000 vpd)	ADT: 34,000-78,000 vpd (within planning-level capacity of 60,000-90,000 vpd))
Traffic Operations			
• Highway 10 Intersections (LOS)	Four Hwy 10 intersections forecast to operate at unacceptable LOS F in p.m. peak hour.	Three of four Hwy 10 intersections forecast to operate at unacceptable LOS E or worse in p.m. peak hour.	N/A (Hwy 10 grade separated)
• Local Intersections (LOS)	Eight of eight key local intersections forecast to operate at LOS F in p.m. peak hour.	Four of eight key local intersections forecast to operate at LOS E or worse in p.m. peak hour.	All key local intersections forecast to operate at acceptable LOS D or better in a.m. and p.m. peak hours.
• Average Speed (mph) [1] – A.M. Peak Hour [2] – P.M. Peak Hour [3]	 7 mph 9 mph	 23 mph 17 mph	 60 mph 60 mph
• Travel Time (min) [1] – A.M. Peak Hour [2] – P.M. Peak Hour [3]	 29 min. 33 min.	 5.4 min. 10.3 min	 2 min. 2 min.
Reduce or eliminate at-grade conflicts on the Highway 10 corridor (i.e., safety and local connectivity across highway)	Maintains existing at-grade access points to Hwy 10.	At-grade signalized intersections at Main Street, Lowell Avenue, Proctor Avenue and Upland Avenue.	Eliminates at-grade conflicts on Hwy 10. Grade separations provide local connections across Hwy 10, eliminating disruptions to regional through traffic.

[1] Comparison of modeled average speed (mph) and travel time (min) based on micro-simulation model from Main Street to Upland Avenue within downtown Elk River. Freeway alternative assumes freeflow conditions at posted speeds. For purposes of this analysis, posted speeds were assumed to be 60 mph. These operational results are not comparable with IRC planning-level performance models.

[2] Eastbound results are used for the a.m. peak hour because a majority of the traffic flows in this direction.

[3] Westbound results are used for the p.m. peak hour because a majority of the traffic flows in this direction.

TABLE 8 continued
HIGHWAY 10 THROUGH ELK RIVER: COMPARISON OF ALTERNATIVES

Evaluation Criteria	No Build Alternative	Build Alternatives	
		Expressway Alternative	Freeway Alternative (Preferred Alternative)
Transportation Purpose and Need continued			
Reduce or eliminate at-grade conflicts on the Highway 10 corridor (i.e., safety and local connectivity across highway)	Maintains existing at-grade access points to Hwy 10.	At-grade signalized intersections at Main Street, Lowell Avenue, Proctor Avenue and Upland Avenue.	Eliminates at-grade conflicts on Hwy 10. Grade separations provide local connections across Hwy 10, eliminating disruptions to regional through traffic.
Reduce or eliminate at-grade conflicts with the BNSF Railway (i.e., safety)	Maintains existing at-grade railroad crossings.	Eliminates at-grade railroad crossings with grade-separated crossings at Main Street, Jackson Avenue, and Proctor Avenue.	Eliminates at-grade railroad crossings with grade-separated crossings at Main Street, Jackson Avenue, and Proctor Avenue.
Consistency with Mn/DOT access guidelines	Maintains existing access. Not consistent with Mn/DOT access guidelines (see Table 7).	Consistent with Mn/DOT access guidelines. Eliminates private access. Maintains four at-grade intersections at Main Street, Lowell Avenue, Proctor Avenue and Upland Avenue.	Consistent with Mn/DOT access guidelines. Eliminates private access and at-grade intersections. Access to Hwy 10 provided at interchanges at Main Street and Upland/Proctor Avenues.
Replaces direct access to Highway 10 with a system of frontage/backage roads	Maintains existing direct access points to Hwy 10.	Eliminates direct private access to Hwy 10. Maintains at-grade intersections with local roads. No continuous frontage road system parallel to Hwy 10.	Grade separates Hwy 10 from local roadways. Frontage road system along Highway 10 provides access to adjacent parcels.
Maintain or enhance local roadway continuity and connectivity in the Elk River area	Maintains existing roadway connectivity in the Elk River area.	Grade separation from BNSF Railway improves local north-south connections. Maintains existing at-grade intersections and conflicts/disruptions between local and regional traffic.	Improves across highway connections with grade separation of local roadways from Hwy 10 and BNSF Railway.

TABLE 8 continued
HIGHWAY 10 THROUGH ELK RIVER: COMPARISON OF ALTERNATIVES

Evaluation Criteria	No Build Alternative	Build Alternatives	
		Expressway Alternative	Freeway Alternative (Preferred Alternative)
Additional Goals and Objectives			
Accommodates multi-modal transportation (trains and non-motorized traffic)	Maintains existing conditions. Hwy 10 separates north and south sides of Elk River. No grade separations of BNSF Railway. Pedestrian conflicts for people accessing businesses south of Highway 10.	Grade separation of BNSF Railway. Grade separated crossing for pedestrians at Jackson Avenue. Pedestrian crossings at signalized intersections. Pedestrians to cross 8-9 lanes of traffic at intersections with local roadways.	Grade separation of BNSF Railway. Improves pedestrian safety and accessibility by providing connections along local roadways. Grade separated crossings from Hwy 10.
Provides accessibility to, from, and across Highway 10, consistent with vision in City's comprehensive plan	Maintains existing conditions. No frontage road system resulting in local trips on Hwy 10. No grade-separations across Hwy 10 (conflicts between local and regional traffic).	Downtown Elk River accessible from at-grade intersections. No frontage road system resulting in local trips on Hwy 10. Grade separation at Jackson Avenue only.	Provides access to and from the west at Upland Avenue and access to and from the east at Proctor Avenue and Main Street. Grade separations provide local accessibility across Hwy 10. Preserves local circulation through continuous frontage road parallel to Hwy 10.

Expressway Alternative

Based on the evaluation criteria identified for Highway 10 alternatives through Elk River, the expressway concept was determined to not fully address the transportation purpose and need for the project as described below. While the six-lane expressway concept meets regional mobility goals, it does not address capacity and traffic operations needs and maintains some of the existing at-grade access. Therefore, it was eliminated from further consideration. Details of the expressway analysis are described below.

- **Highway 10 Safety Through Elk River:** The expressway alternative would eliminate some of the existing at-grade access to Highway 10, although at-grade access would be maintained at Main Street, Jackson Avenue, Proctor Avenue, and Upland Avenue. The expressway alternative includes grade-separation of the BNSF Railway, eliminating vehicle-train exposure.

- **Capacity and Traffic Operations:** Forecast (2030) ADT for the Highway 10 expressway alternative is 54,000 vpd to 71,000 vpd. The planning-level threshold capacity of a six-lane urban expressway facility is approximately 42,000 vpd to 48,000 vpd. As such, the six-lane expressway alternative would be over capacity, resulting in congestion and delays.

  An intersection operations analysis of the expressway alternative shows that under future (2030) conditions, the Highway 10 intersections with Main Street, Proctor Avenue, and Upland Avenue would operate at an unacceptable LOS E or F during the p.m. peak hour. The Highway 10/Proctor Avenue intersection is forecast to operate at an unacceptable LOS E during the a.m. peak hour (see Table 9). Both main line and side street traffic would experience these intersection delays. In addition, local intersections on Main Street and School Street/Proctor Avenue would operate at an unacceptable LOS E or worse during the p.m. peak hour under year 2030 conditions with the expressway alternative.

  Grade-separation of the BNSF Railway under the expressway alternative would improve intersection delays associated with railroad operations. However, the expressway alternative is substantially over capacity such that any benefit observed in intersection operations with the railroad grade separation is overwhelmed by the congestion and delays at the Highway 10 at-grade intersections.

TABLE 9
YEAR 2030 EXPRESSWAY ALTERNATIVE A.M. AND P.M. PEAK HOUR CAPACITY ANALYSIS
LEVEL OF SERVICE RESULTS

Intersection	Intersection Control	Level of Service Results	
		A.M.	P.M.
Highway 10/Main Street	Signalized	C	**F**
Main Street/Gates Avenue	Signalized	B	**F**
Main Street/Evans Avenue NW	Signalized	A	**F**
Main Street/Wright County 42	Roundabout*	Under Capacity	Under Capacity
Main Street/Jackson Avenue	All Way Stop	A	**E**
Highway 10/Lowell Avenue NW	Signalized	C	B
School Street NW/Jackson Avenue	Signalized	B	D
Main Street/Proctor Avenue	All Way Stop	A	B
Highway 10/Proctor Avenue	Signalized	**E**	**F**
School Street/Proctor Avenue	Signalized	B	**E**
Highway 10/Upland Avenue	Signalized	C	**E**
Main Street/Tipton Avenue	All Way Stop	A	A

*Currently, there is no approved level of service criteria for roundabouts; therefore, roundabout operations are reported as either under, near, or over capacity. Under capacity indicates an intersection below the 85th percentile of the roundabout volume over capacity ratio. Near capacity is between the 85th percentile and capacity threshold. Over capacity indicates a roundabout where intersection volume exceeds capacity.

The expressway alternative would result in average speed improvements and travel time improvements to the IRC corridor when compared to year 2028 No Build conditions for the same larger, regional segment.[12] More extensive benefits were demonstrated for the study area with the micro-simulation model. As shown in Table 8, average speeds on Highway 10 through Elk River with the expressway alternative are forecast improve by 16 mph compared to No Build conditions during the a.m. peak hour, whereas p.m. peak hour conditions are forecast to improve by 8 mph compared to No Build conditions. Travel times through Elk River with the expressway alternative improve by 23 to 24 minutes during the a.m. and p.m. peak hours compared to future No Build conditions.

The expressway alternative represents an improvement in average speed and travel times compared to the No Build Alternative. However, the improvement observed with the freeway alternative is substantially greater compared to both the expressway alternative and No Build Alternative (see Section IV.D.2).

- **Access Guidelines:** The expressway alternative is more consistent with Mn/DOT access guidelines than the No Build Alternative. The expressway alternative eliminates direct private access to Highway 10 and redirects local roadways to the local network. Four at-grade intersections are maintained at Main Street, Lowell Avenue, Proctor Avenue, and Upland Avenue. The at-grade full access at Lowell Avenue and at-grade full access at Main Street are consistent with Mn/DOT access spacing guidelines east of 4th Street (access management category 2A and 2C).

[12] Based on the Mn/DOT planning-level IRC performance model. Source: Mn/DOT IRC speed performance model for year 2028 conditions.

- **Local Connectivity and Accessibility:** The expressway alternative includes one grade separation with Highway 10 at Jackson Avenue. At-grade intersections are maintained at Main Street, Lowell Avenue, Proctor Avenue, and Upland Avenue. Highway 10 would continue to separate north and south Elk River as local traffic would have to cross through Highway 10 intersections, resulting in conflicts between local traffic and regional traffic.

  In addition, the expressway concept does not include a continuous frontage road system parallel to Highway 10. As a result, the lack of a continuous frontage road system with the expressway alternative results in a large number of local trips being diverted to Highway 10, contributing to the poor levels of service described above.

Expressway Alternative (Additional Goals and Objectives)

The expressway alternative is also less consistent (compared to the freeway alternative) with multi-modal considerations and goals. While the grade-separation of the BNSF railway from local streets accommodates train travel (both freight trains and passenger rail) by eliminating at-grade conflicts, the expressway alternative maintains the existing at-grade intersection at Main Street, creating a barrier to motorized and non-motorized traffic movements from facilities north of Highway 10 to commercial uses south of Highway 10 in downtown Elk River.

D. ALTERNATIVES REMAINING UNDER CONSIDERATION, INCLUDING THE NO BUILD ALTERNATIVE

1. No Build Alternative

The No Build Alternative would maintain Highway 10 as an at-grade urban roadway with no changes in access from Highway 10/101/169 to west of Upland Avenue. The No Build Alternative would not address the purpose and need of the project as described below, and is not identified as the Preferred Alternative for the project.

- **Highway 10 Safety within Elk River:** The No Build Alternative would perpetuate the 16 full access intersections within the 2.2-mile study area. As such, the No Build Alternative would not address safety issues along Highway 10. Maintaining the number of at-grade access points along the highway would perpetuate turning movement conflicts that contribute to crashes observed on Highway 10. The No Build Alternative also maintains the existing at-grade BNSF Railway crossings at Main Street, Jackson Avenue, and Proctor Avenue.

- **Highway 10 Capacity:** The No Build Alternative would not provide adequate capacity to accommodate future traffic volumes on Highway 10. Forecast ADT on Highway 10 under 2030 No Build conditions is estimated to be 52,000 vpd to 66,000 vpd. The planning-level threshold capacity for a four-lane divided arterial roadway, similar to the existing Highway 10 roadway through Elk River, is approximately 28,000 vpd to 32,000 vpd. As such, the existing four-lane urban arterial roadway would be over capacity, resulting in congestion and delays.

- **Highway 10 Traffic Operations:** The No Build Alternative would not address traffic operations on Highway 169. As shown in Table 4 in Section III.B.2, several key intersections evaluated on Highway 10 in Elk River are projected to operate at an unacceptable LOS E or worse under year 2030 No Build conditions.

  The No Build Alternative maintains the existing at-grade railroad crossings at Main Street, Jackson Avenue, and Proctor Avenue. These at-grade railroad crossings contribute to the intersection delays and congestion associated with the No Build Alternative.

  Average travel speed on Highway 10 from Main Street to Upland Avenue would be 9 mph and average travel time on Highway 10 through Elk River would be 33 minutes under p.m. peak hour conditions with the No Build Alternative. This represents a 16 mph decrease in average travel speed and a 28.4 minute increase in travel time compared to existing conditions.

- **Access Guidelines:** The No Build Alternative is not consistent with Mn/DOT access management guidelines for medium priority IRC, principal arterial routes.

- **Local Connectivity:** The No Build Alternative would not accommodate a frontage road system and would not accommodate grade separations of local routes from Highway 10. As a result, local trips circulating within Elk River would continue to utilize Highway 10, resulting in conflicts with regional traffic.

Although the No Build Alternative would not address the purpose and need for the project, the No Build Alternative is used as the basis for comparison of social, economic, and environmental impacts of the Preferred Alternative described in this EA/EAW.

2. Build (Preferred) Alternative

The freeway concept was identified as the Preferred Alternative for long-term improvements to Highway 10 through Elk River because it best addresses the purpose and need for the project compared to other alternatives considered. The freeway concept was developed to grade-separate Highway 10 from local roadways and to replace local access with a system of continuous frontage roads. The freeway concept also maintains accessibility between Highway 10 and downtown Elk River at Upland/Proctor Avenue and Main Street.

The freeway concept was identified as the Preferred Alternative for the following reasons:

- **Highway 10 Safety within Elk River:** The freeway alternative eliminates all existing at-grade access to Highway 10 through Elk River from the Lake Orono bridge west of Upland Avenue to the Highway 10/101/169 interchange. In general, freeway facilities are safer than expressway facilities because intersecting roadways are grade-separated. The proposed Highway 10 freeway through Elk River will eliminate conflicting movements at at-grade intersections and eliminate at-grade access points. The freeway alternative also includes grade-separation of the BNSF Railway, eliminating vehicle-train exposure.

- **Capacity and Traffic Operations:** Forecast (2030) ADT for the Highway 10 freeway alternative is 34,000 vpd to 78,000 vpd. A planning-level threshold capacity for a four-lanefreeway facility ranges from approximately 60,000 vpd to 90,000 vpd. The Highway 10 freeway alternative is consistent with the planning-level threshold capacity for a four-lane freeway facility.

  The freeway alternative eliminates at-grade intersections on Highway 10 through downtown Elk River. As such, local and regional delays and congestion associated with at-grade intersections would be eliminated with conversion to a freeway facility.

  An intersection operations analysis of the freeway alternative shows that under future (2030) conditions, local roadway intersections are forecast to operate at an acceptable LOS D or better during the a.m. and p.m. peak hours (see Table 10).

- **Access Guidelines:** The freeway alternative is consistent with Mn/DOT access spacing guidelines for a medium priority IRC, principal arterial roadway. The freeway alternative eliminates direct private access to Highway 10 and redirects local roadways to the local network. The freeway alternative also eliminates traffic signals along Highway 10.

TABLE 10
YEAR 2030 FREEWAY ALTERNATIVE A.M. AND P.M. PEAK HOUR CAPACITY ANALYSIS
LEVEL OF SERVICE RESULTS

Intersection	Intersection Control	Level of Service Results	
		A.M.	P.M.
Main Street/TH 10 Frontage Road	Signalized	C	D
Proctor Avenue/North Frontage Road	Signalized	C	C
Proctor Avenue/South Frontage Road	Signalized	D	C
Upland Avenue/North Frontage Road	Signalized	C	B
Upland Avenue/South Frontage Road	Signalized	C	C
Main Street/County Road 42	Roundabout*	Under Capacity	Under Capacity
Main Street/Jackson Avenue	All Way Stop	B	B
Main Street/Proctor Avenue	All Way Stop	A	B
Main Street/Tipton Avenue	All Way Stop	A	B
Main Street/Gates Avenue	Signalized	B	C
Main Street/Evans Avenue	Signalized	A	B
School Street/Jackson Avenue	Signalized	B	B
School Street/Proctor Avenue	Signalized	B	C

*Currently, there is no approved level of service criteria for roundabouts; therefore, roundabout operations are reported as either under, near, or over capacity. Under capacity indicates an intersection below the 85th percentile of the roundabout volume over capacity ratio. Near capacity is between the 85th percentile and capacity threshold. Over capacity indicates a roundabout where intersection volume exceeds capacity.

- **Local Connectivity and Accessibility:** The freeway alternative includes grade-separated crossings of the BNSF Railway at Main Street, Jackson Avenue, and Proctor Avenue, and grade-separated crossings of Highway 10 at Main Street, Jackson Avenue, Proctor Avenue

and Bridge Street/Upland Avenue. These grade-separated crossings eliminate conflicts between local traffic circulating within Elk River and regional traffic on Highway 10. These grade separations also improve local connectivity across the highway between north and south Elk River.

The freeway alternative also includes a continuous frontage road system parallel to Highway 10 from Upland Avenue to Main Street. This frontage road system provides direct access to adjacent parcels and provides a primary route for local trips circulating through downtown Elk River. As a result, local trips would no longer be forced to use Highway 10 under the freeway alternative. The proposed east-west frontage road attracts approximately 20,000 vpd to 30,000 vpd under the freeway alternative.

Additional Goals and Objectives

The freeway alternative is more consistent with multi-modal considerations and goals. The grade-separation of the BNSF railway from local streets accommodates train travel (both freight trains and passenger rail) by eliminating at-grade conflicts. The proposed design includes non-motorized traffic accommodations along local roadways that would be grade separated from the highway, accommodating bicycle/pedestrian movements from facilities and residential land uses north of Highway 10 to commercial uses south of Highway 10 in downtown Elk River. The freeway alternative also provides grade separated crossings of Highway 10 and the BNSF Railway that will improve bicycle and pedestrian safety for north-south movements across Highway 10 and the railroad.

The freeway alternative also maintains accessibility to and from Highway 10, and provides accessibility across Highway 10. Access between Highway 10 and the local roadway system is provided at three locations: Upland Avenue, Proctor Avenue, and Main Street. Interchange ramps at Upland Avenue provide access to Highway 10 to and from the west. Interchange ramps at Proctor Avenue provide access to Highway 10 to and from the east. The Main Street interchange provides access to and from Highway 10 to the east. These three access points are interconnected by the frontage road system parallel to Highway 10. As described above, the grade-separated crossings at Main Street, Jackson Avenue, Proctor Avenue and Bridge Street/Upland Avenue improve local connectivity across Highway 10.

The proposed long-term improvements for Highway 10 through Elk River are illustrated in Figure 4, Appendix A. Typical sections for Highway 10 and the frontage road system are illustrated in Figure 5A (near Upland/Proctor Avenues) and Figure 5B (near Main Street) in Appendix A. The proposed improvements are summarized below.

Preferred Alternative Description

Highway 10 Mainline

The proposed project will reconstruct Highway 10 to a four-lane freeway facility with shoulders along the outside travel lanes and a median barrier along the inside travel lanes. The Highway 10 alignment is shifted to the north from Main Street to Proctor Avenue adjacent to the

BNSF Railway. This alignment shift accommodates a two-way frontage road along the existing Highway 10 alignment through downtown. Highway 10 will be constructed as an urban section roadway (curb and gutter) west of Proctor Avenue. East of Proctor Avenue, Highway 10 will be constructed with an urban section (curb and gutter) to the inside shoulder and a rural ditch section to the outside shoulder. From west of Upland Avenue to east of Proctor Avenue, Highway 10 will be depressed (i.e., lower than the surrounding environment) to pass underneath overpasses at Upland Avenue, Bridge Street, and Proctor Avenue. The extent to which Highway 10 can be depressed at this location is limited by the presence of groundwater (see Section VII.A.19).

Access between Highway 10 and local streets would be provided at Upland Avenue (interchange ramps to and from the west), Proctor Avenue (interchange ramps to and from the east) and Main Street (interchange ramps to and from the east). One-way frontage roads along the north and south sides of Highway 10 would connect the interchange ramps at Upland/Proctor Avenues. The westbound Highway 10 off-ramp at Main Street crosses under the highway to create a new intersection with Main Street and the proposed frontage road south of Highway 10.

Highway 10 Frontage Road System

Direct access to Highway 10 will be replaced with a continuous frontage road system from Upland Avenue to Main Street. The freeway and frontage road system will be constructed as an urban section roadway. Local access to downtown Elk River, businesses, and residences will be provided by these newly constructed interchanges and frontage roads.

The frontage road system includes a two-lane, one-way westbound frontage road from Upland Avenue to Proctor Avenue along the north side of Highway 10, and a two-lane, one-way eastbound frontage road from Upland Avenue to Proctor Avenue along the south side of Highway 10. The frontage roads intersect with interchange ramps to and from the west at Upland Avenue. East of Proctor Avenue, the westbound frontage road crosses over Highway 10 to join the eastbound frontage road. An interchange ramp from westbound Highway 10 merges with the one-way westbound frontage road east of Proctor Avenue, and an interchange ramp to eastbound Highway 10 diverges from the one-way eastbound frontage road east of Proctor Avenue. From this point, the frontage road continues to the east to Main Street as a two-lane, two-way frontage road with a center turn lane. Traffic signals, if warranted, would be constructed at the frontage road intersections with Upland Avenue, Proctor Avenue, and Main Street.

Local Road Connections

Local roads will be reconstructed as needed to accommodate grade separations with Highway 10 and to connect to the frontage road system. Overpass bridges will be built over Highway 10 at Upland Avenue, Bridge Street, and Proctor Avenue. The Upland Avenue design accommodates heavy truck movements and truck movements with beams existing from the Elk River Concrete facility along the north side of Highway 10. At the eastern end of the project area, Jackson Avenue and Main Street will pass under Highway 10. Jackson Avenue will also pass under the proposed frontage road, intersecting with Main Street and King Avenue south of

Highway 10 and the frontage road. A roundabout will be constructed just south of Highway 10 at the intersection of Main Street and CSAH 42. Traffic signals, if warranted, would be constructed at the Proctor Avenue/School Street intersection and the Main Street/Gates Avenue intersection, as well as frontage road intersections with local roadways (Upland Avenue, Proctor Avenue, Main Street). The proposed design also includes sidewalks (5 feet-10 feet wide) along local streets and the proposed frontage road system.

The proposed design includes the realignment of local streets at Highway 10 to improve north-south connectivity across the highway and to accommodate grade separations with Highway 10. At the west end of the project, the Bridge Street overpass improves connectivity with Main Street along Lake Orono. Using the proposed frontage road system, the Bridge Street overpass and Upland Avenue overpass provide north-south connectivity across Highway 10.

Proctor Avenue would be realigned to the east of its existing alignment with the proposed project. This design was identified to minimize right of way impacts associated with the Proctor Avenue grade separation with the BNSF Railway. Constructing the grade separation along the existing Proctor Avenue alignment would result in impacts to three properties, including acquisition of the apartments in the southwest and southeast quadrants of the Proctor Avenue/School Street intersection, acquisition of the residence in the northwest quadrant of the Proctor Avenue/School Street intersection, and loss of school parking in the northeast quadrant of the Proctor Avenue/School Street intersection. Shifting the Proctor Avenue alignment to the east will still require acquisition of apartments in the southeast quadrant of the Proctor Avenue/School Street intersection, but will avoid acquisition of the apartments and residence to the west of Proctor Avenue, and will result in only temporary construction impacts to the school parking lot (see Figures 4 and 12 in Appendix A). The BNSF Railway profile also drops in elevation from west to east at Proctor Avenue. This would require less elevation change on the proposed Proctor Avenue alignment to provide the clearance requirements between the railroad and roadway.

The proposed Jackson Avenue alignment under Highway 10 and the frontage road was identified to maintain access, visibility and on-street parking along the existing Jackson Avenue alignment south of Highway 10. This section of Jackson Avenue is considered part of the core downtown Elk River business district. Providing a grade-separated Jackson Avenue along the existing alignment south of Highway 10 would remove on-street parking and accessibility to adjacent commercial areas. As such, the grade-separated crossing of Jackson Avenue will be to the west of the existing alignment to preserve this area of downtown.

Main Street will be realigned to the east of its existing alignment at Highway 10. The realignment of Main Street is necessary to accommodate the grade separation with the highway and to accommodate an intersection with the proposed frontage road and interchange ramps to and from the east.

BNSF Railway

The BNSF Railway will be realigned to the north of its current location from the Great River Energy (GRE) site to a point east of Proctor Avenue. At Main Street, the proposed

BNSF Railway alignment is located approximately 100 feet north of the existing alignment.[13] The proposed BNSF Railway right of way is 100 feet wide, and has been identified to accommodate a potential future third rail.

Existing at-grade railroad crossings will be replaced with grade separated crossings at Proctor Avenue, Jackson Avenue, and Main Street. Proctor Avenue will bridge over the railroad, whereas the railroad will pass over Jackson Avenue and Main Street. The BNSF Railway grade will be increased by approximately three feet from Jackson Avenue to a point east of Main Street to accommodate the grade separation at Main Street.

Bicycle and Pedestrian Accommodations

The proposed action would improve safety by providing grade-separated crossings of Highway 10 and the BNSF Railway for pedestrians and bicyclists at Bridge Street, Proctor Avenue, Jackson Avenue and Main Street. The proposed design also includes 10-foot paved shoulders along Highway 10. This is the current Mn/DOT design guideline for on-road bicycle accommodations. The City of Elk River has existing sidewalks parallel to Highway 10 along Main Street (to the south) and School Street (to the north). The City also has an existing sidewalk along the existing north frontage road between Upland Avenue and Proctor Avenue. Pedestrians and bicyclists that redirect to local routes may travel additional distances when using local trails and sidewalks parallel with Highway 10.

Identifying the Preferred Alternative layout at this time will allow the City of Elk River to revise and update their transportation plan, including pedestrian and bicycle considerations, based on the Highway 10 improvements described in this document.

3. Build (Preferred) Alternative: Staged Implementation

While the freeway alternative represents the long-term vision for Highway 10 improvements through Elk River, there are components of the proposed project than can be implemented over time as funding becomes available. These elements are described below.

- **BNSF Railway:** Realignment of the BNSF Railway can occur as a separate project prior to conversion of Highway 10 to a freeway facility. The existing tracks will remain while the new alignment is constructed to maintain railroad operations.

- **Interim Expressway:** Prior to construction of Highway 10 as the proposed freeway facility, Highway 10 can be reconstructed as an expressway facility as an interim condition. While the expressway concept does not solve long-term mobility and traffic operations needs for Highway 10 through Elk River (see Section IV.B), it can provide additional time for acceptable traffic operations until funding for construction of the freeway facility can be secured.

[13] Distance as measured at the existing Main Street/Highway 10 intersection from the south tracks of the existing BNSF Railway alignment to the center tracks of the proposed BNSF Railway alignment.

Construction of an expressway facility will not preclude construction of Highway 10 to the proposed freeway facility. Common design elements between the expressway concept and the freeway include grade separations from the BNSF Railway, closure of direct access points to Highway 10, Main Street alignment north and south of Highway 10, grade separation of Jackson Avenue, and local frontage roads at Upland Avenue and Proctor Avenue. Local roadways parallel to Highway 10 will provide local accessibility as accesses on the highway are closed with the expressway concept.

E. BENEFIT/COST ANALYSIS OF BUILD ALTERNATIVE

A Benefit/Cost Analysis (B/C Analysis) was completed for the proposed project in December 2008. The purpose of a B/C Analysis is to bring all of the direct effects of a transportation investment into a common measure (dollars), and to allow for the fact that benefits accrue over a long period of time while costs are incurred primarily in the initial years of the project. The primary elements that can be monetized for transportation projects are travel time, changes in vehicle operating costs, changes in crashes, and remaining capital value. The B/C Analysis can provide an indication of the economic desirability of an alternative, but results must be weighed by decision-makers along with the assessment of other effects and impacts. A B/C ratio of 1.0 is considered the minimum for economically justifying an improvement. The larger the ratio number, the greater the benefits per unit cost.

This B/C Analysis evaluated the difference in transportation costs between the No Build Alternative and Build Alternative and found that the Build Alternative would result in a B/C ratio of 1.6. The proposed project is economically justified, as the B/C ratio is greater than 1.0. Details are provided in the Trunk Highway 10 Elk River B/C Technical Memorandum, dated December 19, 2008, available for review from Mn/DOT District 3.

V. PROJECT COSTS AND FUNDING

A. PROJECT COSTS

The estimated cost of the proposed project (construction, right of way, engineering) is $210 to $230 million (2008 dollars). The right of way cost estimate (approximately $37 million) was based on 2008 assessed values from Sherburne County. The conversion of Highway 10 to a freeway facility through the City of Elk River is not programmed for construction at this time. As such, right of way costs (acquisitions and relocations) would be subject to change as a result of land use changes/redevelopment and future land costs/property values between the present and time of construction.

B. PROJECT FUNDING

The proposed project is not listed in the Mn/DOT *2010-2013 State Transportation Improvement Program (STIP)* (September 2009).

The proposed project is not identified for construction in the Mn/DOT *Ten-Year Highway Work Plan (2010–2019)* (March 2010).

Construction of the proposed improvements to Highway 10 in Elk River are currently identified in the *Mn/DOT District 3 20-Year Highway Investment Plan 2009-2028* (August 2009) as a project that warrants consideration under Policy 5: Statewide Connections (investments that enhance mobility on IRCs) for the 2019-2028 planning period. There is no funding in place for construction of the Preferred Alternative. This EA/EAW process is intended to support the anticipated future use of federal funding and to allow for land use and local transportation improvements, consistent with the Preferred Alternative, to be implemented over time as funding becomes available.

VI. PROPOSED PROJECT SCHEDULE

The anticipated schedule for the proposed action is shown below.

Anticipated Project Schedule

Activity	**Anticipated Date**
• Corridor Study and Preliminary Design Studies	2008
• Public Information Meeting #1	May 2008
• Public Information Meeting #2	November 2008
• EA/EAW	2009-2010
• Public Hearing/Opportunity for Public Hearing	Summer 2010
• EIS Need Determination (Mn/DOT and FHWA)	Fall 2010
• Finding of No Significant Impact (FONSI) (assumed)	Fall 2010
• Environmental Impact Statement (if necessary)	To Be Determined
• Right of Way Acquisition	To Be Determined
• Contract Letting	To Be Determined
• Begin Construction	To Be Determined

VII. SOCIAL, ECONOMIC AND ENVIRONMENTAL IMPACTS (SEE)

This section discusses environmental impacts of alternatives identified in the Alternatives section. It contains two sub-sections:

- State Environmental Assessment Worksheet (EAW)
- Additional Federal Issues

The EAW is a standard format used in Minnesota for environmental review of projects meeting certain thresholds of Minnesota Rule 4410.4300. Federal environmental regulations not addressed in the EAW are addressed in the separate sub-section.

A. ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to preparers: This form and EAW Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm**.** The Environmental Assessment Worksheet provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit or its agents to determine whether an Environmental Impact Statement should be prepared. The project proposer must supply any reasonably accessible data for — but should not complete — the final worksheet. The complete question as well as the answer must be included if the EAW is prepared electronically.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. Project Title**:** Trunk Highway 10 Elk River

2. Proposer:**:** Mn/DOT District 3

Contact Person: Jim Hallgren
Title: Project Manager
Address: 7694 Industrial Park Road
City, state, ZIP: Baxter, MN 56425-8096
Phone: (218) 828-5797
Fax: (218) 828-5815
E-mail: james.hallgren@state.mn.us

3. RGU**:** Mn/DOT District 3

Contact Person: Terry Humbert
Title: Project Development Engineer
Address: 3725 12th St. N.
City, state, ZIP: St. Cloud, MN 56303
Phone: (320) 223-6527

E-mail: terry.humbert@state.mn.us

4. Reason for EAW preparation (check one)

EIS scoping X Mandatory EAW Citizen petition RGU discretion
Proposer volunteered

Preparation of an EAW is considered mandatory under the following subsection(s):

Minnesota Rule 4410.4300 subp 22 (A) – For construction of a road on a new location over one mile in length that will function as a collector roadway

5. Project Location

County:	Sherburne
Cities:	Elk River
Townships:	Not applicable
Sections:	33, 32N, R26W 33-34, 33N, 26W

GPS Coordinates:

Eastern Terminus (approximate):	Latitude: 45.29° Longitude: -93.55°
Western Terminus (approximate):	Latitude: 45.31° Longitude: -93.59°

Tax Parcel Number: Not applicable.

Attach each of the following to the EAW:

- **County map showing the general location of the project**

  Refer to Figure 1 (Area Location Map).

- **U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries**

  Refer to Figure 6 in Appendix A.

- **Site plan showing all significant project and natural features.**

  Refer to Figure 4 in Appendix A.

6. Description

a. Provide a project summary of 50 words or less to be published in the *EQB Monitor*.

The proposed project will reconstruct Highway 10 from an urban arterial roadway to a freeway design within Elk River between Upland Avenue/County Road 44 and the Highway 101/169 interchange. The project includes the construction of a grade-separated interchange at Upland/Proctor Avenues and a half interchange at Main Street (interchange ramps to and from the east). A one-way pair of frontage roads will connect interchange ramps at Upland/Proctor Avenues. At-grade intersections will be removed, and frontage roads along Highway 10 will be constructed to provide local access. The BNSF Railway will be realigned to the north, and grade-separated crossings will be constructed at Proctor Avenue, Jackson Avenue, and Main Street. The proposed project will address long-term regional mobility, traffic operations, and local connectivity across the Highway 10 corridor in Elk River while serving as a guide for comprehensive planning in the City of Elk River.

b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods and features that will cause physical manipulation of the environment or will produce

wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal or remodeling of existing structures. Indicate the timing and duration of construction activities.

Project Description

Refer to Section IV.D.2 for a description of the proposed project.

Project Schedule

Refer to Section VI for the proposed project schedule.

Temporary Construction Impacts

Refer to Section VII.B.7 for a discussion of temporary impacts during construction.

c. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

Refer to Section III (Purpose and Need for the Project).

d. Are future stages of this development including development on any other property planned or likely to happen? __Yes _X_No

If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

Not Applicable.

e. Is this project a subsequent stage of an earlier project? __Yes _X No

If yes, briefly describe the past development, timeline and any past environmental review.

A separate project, Highway 169 from Elk River to Zimmerman (S.P. 7106-71 and S.P. 7106-73), is being planned to the north and east of this project, and is the subject of an EA/EAW published in summer 2009. The Highway 169 Project is the conversion of Highway 169 to a freeway facility from Highway 10 in Elk River to CSAH 4 in Zimmerman. The Highway 169 improvements include reconstruction of the Highway 10/101/169 system interchange.

The Highway 10 Project and the Highway 169 Project address different transportation needs. The timeframe for implementation for each project could differ depending upon transportation needs and funding. Both projects are identified as high priority unfunded needs in the District 3 *2009-2028 Highway Investment Plan* (February 2009 draft). The design for the Highway 10 Project is consistent with the Preferred Alternative design for the Highway 169 Project and the associated Highway 10/101/169 interchange improvements. It is anticipated that the Highway 169 project would be constructed prior

to the Highway 10 Project; however, these projects have been designed so that each could be constructed to match existing conditions or proposed future conditions on Highway 10 and Highway 169.

A discussion of the BNSF Railway realignment associated with the Highway 169 Project and the Highway 10 Project is included in Section VII.A.28.

7. Project Magnitude Data

Total project acreage: 122.4 acres (total area within preliminary construction limits)

Total project length: approximately 2.2 miles

Number of residential units:	N/A	Unattached:	N/A
		Attached:	N/A
		Maximum units per building	N/A

Commercial, industrial or institutional building area (gross floor space): total square feet: N/A

Indicate areas of specific uses (in square feet):

Office:	N/A	Manufacturing:	N/A
Retail:	N/A	Other Industrial:	N/A
Warehouse:	N/A	Institutional:	N/A
Light Industrial:	N/A	Agricultural:	N/A
Other Commercial:	N/A	Building height:	N/A

If over 2 stories, compare to heights of nearby buildings: N/A

8. Permits and Approvals Required

List all known local, state and federal permits, approvals and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. ***All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.***

Refer to Section VIII.B for a list of permits and approvals required. Refer to Section V for a discussion of the proposed cost and funding for the project.

9. Land Use

Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses. Indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazards due to past site uses, such as soil contamination or abandoned storage tanks, or proximity to nearby hazardous liquid or gas pipelines.

Land Uses

The proposed project is located within the urban core of the City of Elk River. Current land use along the project corridor consists primarily of developed land uses such as residential, commercial, and industrial uses.

Potential Environmental Hazards

The presence of potentially contaminated properties (defined as properties where soil and/or groundwater is impacted with pollutants, contaminants, or hazardous wastes) is a concern in the development of highway projects because of potential liabilities associated with ownership of such properties, potential cleanup costs, and safety concerns associated with construction personnel encountering 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 cause adverse impacts to highway projects by increasing construction costs and causing construction delays.

A Phase I Environmental Site Assessment (Phase I) provides information on potentially contaminated properties. These properties are identified through review of historic land use records, aerial photos, Environmental Protection Agency (EPA), Minnesota Pollution Control Agency (MPCA), and county/city records, as well as current property condition. Sites of high potential concern identified by the Phase I include properties that have a documented release of chemicals or other strong evidence of contamination such as soil staining or storage of large volumes of petroleum or other chemicals. Medium potential concern sites may include properties where relatively smaller volumes of petroleum, chemicals, or hazardous materials are stored, but there is no evidence of spills or releases, or properties with documented releases that have been “closed” (no further cleanup action deemed necessary) by the MPCA. A “closed” site is considered a medium risk because it may still have residual soil or groundwater contamination. Low potential concern sites include properties where small volumes of chemicals or hazardous materials have been used or stored. Table 11 provides definitions for properties considered to have a high, medium, or low potential for contamination.

TABLE 11
POTENTIAL FOR CONTAMINATION: DEFINITIONS

High Potential for Contamination	Sites where there are one or more of the following: • Documented releases to the subsurface, such as a leak or spill. • A large amount of chemicals known or inferred to be in use at the facility. • Stains, odors, stressed vegetation, or some other indication that a release has occurred. • Active or inactive dumps/landfills.
Medium Potential for Contamination	Sites where there are one or more of the following: • Known or inferred medium or small quantities of chemicals used or stored. • Underground storage tanks with no documented release. • Indications of poor housekeeping (poor housekeeping can indicate that any leaks or spills that occur may not be handled correctly). • Documented releases that have the potential to migrate to the corridor even though the site is located more than 500 feet from the existing corridor right of way.
Low Potential for Contamination	Sites where there are one or more of the following: • Known or inferred small or very small quantities of chemicals used or stored on the property. • Indications of good housekeeping (good housekeeping indicates that any leaks or spills that occur are more likely to be handled correctly).

Source: Mn/DOT Highway Development Process Handbook. Contaminated Properties, Appendix 1.

A Phase I of the project area was completed in December 2008. Copies of the Phase I report are on file at the District 3–Brainerd office. An appointment can be made to review the documents by calling the Project Manager at 218-828-5797.

The Phase I found 33 sites of documented or potential contamination within the current study area. Eight (8) sites were identified as having high risk potential for contamination, and 18 were identified as medium risk potential sites. Table 12 lists the properties with high or medium potential for contamination, and their locations are shown in Figure 7, Appendix A. Four (4) high potential sites would be affected by right of way acquisition (2 total, 2 partial); 9 medium potential sites would be affected by right of way acquisition (8 total, 1 partial). Medium and high potential properties that are identified as total acquisitions are identified in Table 12.

Mitigation

All potentially contaminated properties identified in the Phase I will be evaluated for their likelihood 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 drilled and sampled if necessary to determine the extent and magnitude of contaminated soil or groundwater in the areas of concern. The results of the drilling investigation will be used to determine if the contaminated materials can be avoided, or the project's impacts to the properties minimized. If necessary, a plan will be developed for properly handling and treating contaminated soil and/or groundwater during construction.

Once actual ponding locations are identified and further investigation of sites is completed, it will be determined whether any ponds should be lined to avoid flushing any existing contaminants into the groundwater. If during construction contaminated soils are encountered, the response will be handled consistent with MPCA requirements.

TABLE 12
KNOWN OR POTENTIALLY CONTAMINATED SITES NEAR HIGHWAY 10 CORRIDOR

Site ID	Site Name	Site Address	Risk Potential	Reason for Concern (Contaminant)[1]
1	Old Town Tavern	506 Main St.	Medium	Spill
2	USTs	Hwy 10 and Main St.	High	USTs
3	**Boelters Union 76**	**600 Hwy 10**	**Medium**	**LUST (Closed), UST**
4	USTs	West of 600 Hwy 10	High	USTs
5	**Sipe Auto Service**	**611 Hwy 10**	**Medium**	**LUST (Closed, Orphan), UST**
6	Nadeau's Cleaners Inc., Bluff Block Site, USTs	621 Main St.	High	RCRA-NonGen, FINDS, VIC, MN List of Sites, SRS
7	USTs	630 Main St.	High	USTs
8	**Amoco SS #5053, Hetricks**	**308 Jackson Place**	**Medium**	**LUST (closed), UST, Spill, AST**
9	**Elk River Flower**	**612 Railroad Dr.**	**Medium**	**Spill**
10	Elk River Section/Burlington Northern	US Hwy 10	Medium	UST
11	**Jackson Express**	**356 Jackson**	**Medium**	**UST**
12	**USTs**	**369 Jackson**	**High**	**USTs**
13	**Grand Rental Station**	**728 Railroad Dr.**	**Medium**	**RCRA-CESQG, FINDS, AST**
14	Napa Auto Parts	800/824 Railroad Dr.	High	LUST, UST
15	Elk River Machine Co.	828 4th St.	Medium	RCRA-SQG, ENF, TIER 2, FINDS, Spills (2), AIRS
16	Cinema Professional Building	657 Main St.	Medium	LUST (closed), UST
17	Elk River Hardware	665 (556) Main St.	Medium	RCRA-NonGen, FINDS, Spill
18	USTs	Hwy 10 and King Ave.	High	USTs
19	First National Bank	729 Main St.	Medium	Spill
20	**City of Elk River**	**307 King Ave.**	**Medium**	**Spill**
21	Charlie Browns Inc./Beaudry Oil	335 (actually 334) Lowell	Medium	LUST (Closed), UST, AST
22	**Beaudry Express/Beaudry Oil Company**	**610, 630 Proctor Ave.**	**High**	**LUST, UST, RCRA-NonGen, FINDS, Spill**
23	Lefebvre & Sons Inc.	615 Quinn Ave.	Medium	RCRA-NonGen, FINDS, LUST (closed), UST, ENF
24	Cretex Concrete Products North	1340 6th St.	Medium	RCRA-CESQG, FINDS, LUST (closed, 2), UST, AST, Spill, TIER 2
25	**Beaudry Oil Bulk Facility**	**720 Quinn Ave.**	**Medium**	**LAST**
26	Elk River Oil, Elk River Bulk Plant (Orphan)	533 6th St.	Medium	AST, LAST

Bolded sites identified for total acquisition based on preliminary design of the proposed project.

[1] Acronyms used: Above Ground Storage Tank (AST); Underground Storage Tank (UST); Leaking Underground Storage Tank (LUST); Leaking Above Ground Storage Tank (LAST); Voluntary Investigation and Cleanup (VIC); Resource Conservation and Recovery Act (RCRA); Small Quantity Generators (SQG); Conditionally-Exempt Small Quantity Generators (CESQG); U.S. EPA Facility Index System (FINDS); MPCA Hazardous Waste Enforcement Summary (ENF), Aerometric Information Retrieval System (AIRS)

Shaded areas represent sites with high risk.

10. Cover Types

Estimate the acreage of the site with each of the following cover types before and after development:

Cover types before and after construction of the proposed project are summarized in Table 13. Reported cover types reflect land use within the project construction limits, not the broader project area.

TABLE 13
COVER TYPES BEFORE AND AFTER PROJECT

	Roadway	
	Before (Acres)	**After (Acres)**
Types 1-8 wetlands (1)	2.4	0
Wooded/forest	2.5	0
Brush/Grassland	0	0
Cropland	0	0
Lawn/landscaping (2)	45.1	46.8
Impervious surfaces (3)	72.4	73.1
Stormwater Pond	0	2.5
TOTAL:	**122.4**	**122.4**

(1) Includes existing stormwater ponds at Upland Avenue (see Section VII.A.12).
(2) Lawn/landscaping identified as boulevard areas along Highway 10.
(3) A majority of the project area is developed as residential, commercial and industrial land uses. The amount of impervious surface in roadway/transportation use would increase from existing to build conditions, while the amount of impervious surface as developed land (residential, commercial, industrial) would decrease as property is converted to highway right of way.

If Before and After totals are not equal, explain why:

Not applicable.

11. Fish, Wildlife and Ecologically Sensitive Resources

a. Identify fish and wildlife resources and habitats on or near the site and describe how they would be affected by the project. Describe any measures to be taken to minimize or avoid impacts.

The proposed project is located within the urban core of Elk River and has been previously disturbed by residential as well as commercial and industrial development. Wildlife in this area is limited to those species that have adapted to live in urban areas. These species likely include whitetail deer, raccoons, squirrels, rabbits, and various birds.

b. Are any state-listed (endangered, threatened or special concern) species, rare plant communities or other sensitive ecological resources on or near the site?

_X_Yes __No

If yes, describe the resource and how it would be affected by the project. Describe any measures that will be taken to minimize or avoid adverse impacts. Provide the license agreement number (LA-___) and/or Division of Ecological Resources contact number (ERDB 20080689**) from which the data were obtained and attach the response letter from the DNR Division of Ecological Resources . Indicate if any additional survey work has been conducted within the site and describe the results.**

State-Listed

The Minnesota Department of Natural Resources (DNR) Natural Heritage and Nongame Research Program was contacted (ERDB 20080689) to determine if any rare plant or animal species or other significant natural features are known to occur within proximity to the proposed project. There are 7 known occurrences of rare species or native plant communities within a one-mile radius of the project area.

Black sandshell mussels (*Lingumia recta*), which are identified by the DNR as a state species of special concern, have been identified in the Mississippi River. The Mississippi River (a Public Waters) runs along the project area, but the project will not have any direct impacts on the Mississippi River.

The project is not anticipated to result in any physical impacts to the Mississippi River; however, reconstruction of Highway 10 east of Main Street is in close proximity to the river. As noted by the DNR in their initial review of the project, mussels in general are vulnerable to decreases in water quality, and in particular, increased siltation. Construction of the project could result in impacts to any mussels within the Mississippi River near the project area as a result of erosion and sedimentation. Temporary construction erosion and sediment control measures in accordance with Minnesota Pollution Control Agency (MPCA) best management practices in place at the time of construction will be followed to minimize any sedimentation impacts. Removal of erosion control measures will not occur until all disturbed areas have been stabilized.

Blanding's turtles (*Emydoidea blandingii*), a state threatened species, have also been identified in the vicinity of the project area. A copy of the Blanding's Turtle Fact Sheet and Flyer (see Appendix B, DNR response dated May 24, 2008) will be included in the project special provisions to make project contractors aware of the possible presence of these turtles, and to help project contractors recognize the turtle in the field. See correspondence from the Minnesota Department of Natural Resources in Appendix B.

Federally-Listed

The Mn/DOT Office of Environmental Services (OES) reviewed the project area for federal threatened and endangered species. There are no federally listed endangered, threatened, or proposed, candidate species or listed critical habitat identified in Sherburne County. However, since the proposed project will not be constructed for several years and because this information is subject to change, any determination of effect made at this time may be premature. It is recommended that the action be reevaluated and consultation reinitiated within three years prior to the start of construction. See correspondence from Mn/DOT OES in Appendix B.

12. Physical Impacts on Water Resources

Will the project involve the physical or hydrologic alteration — dredging, filling, stream diversion, outfall structure, diking, and impoundment — of any surface waters such as a lake, pond, wetland, stream or drainage ditch? X Yes __ No

If yes, identify water resource affected and give the DNR Public Waters Inventory number(s) if the water resources affected are on the PWI. Describe alternatives considered and proposed mitigation measures to minimize impacts.

Wetlands (Figure 4, Appendix A) were assessed by SRF Consulting Group, Inc. in November 2008 using criteria from the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory. 1987. Corps of Engineers Wetland Delineation Manual, Technical Report Y-87-1. U.S. Army Engineers Waterways Experiment Station, Vicksburg, MS). The boundaries were established based on vegetation, soils, and hydrology. Criteria and indicators of these parameters are outlined in the Corps of Engineers (COE) Delineation Manual. All boundaries are approximate and were not formally delineated for this stage of project review. The review was completed outside of the growing season; final delineation will be completed during the growing season in accordance with the COE manual. Formal delineation of wetland edges must be completed with final design and prior to permitting. Identified wetlands are also classified according to descriptions set forth in *Wetland Plants and Plant Communities of Minnesota & Wisconsin - Second Edition* (USCOE Publication; Eggers and Reed. 1997) and *Wetlands of the United States* (USFWS Circular 39, Shaw and Fredine, 1971).

Prior to the onsite inspection, various sources were reviewed to identify potential wetlands in the project area. These data sources include the following:

- The National Wetlands Inventory (NWI)
- The Soil Survey of Sherburne County, Minnesota (SSURGO data)
- The Hydric Soils List for Sherburne County, Minnesota
- The Minnesota Public Waters and Wetlands Inventory (DNR)
- Recent Aerial Photographs
- U.S. Geological Service Quadrangle Maps

In addition, a general assessment of the primary function(s) provided by each of the wetlands was conducted based upon Minnesota Routine Assessment Method (MnRAM)

3.2 analyses of representative wetlands within the project area. While most wetland systems provide some level of all of the potential wetland functions (i.e., hydrologic maintenance, flood/storm water attenuation, water quality, shoreline protection, wildlife habitat, aesthetics/recreation/education, and groundwater interaction), only the function(s) which each wetland provides at least at a moderate level, based on its landscape position and other conditions, are noted in Table 14 below. Those functions provided at a high or exceptional level are highlighted with **bold** type. It should be noted that this functional assessment takes into account conditions present in 2008, and that conditions will likely change in the years prior to final design and permitting. A formal functional analysis should be completed at that time to assess the functionality of existing wetlands and to determine the mitigation needed to address any losses of those functions.

Findings

The project area is located within the Mississippi River Major Watershed. The Mississippi River, a DNR Public Watercourse and a Section 10 water of the U.S. regulated by the COE, flows through the southern limits of the project area. Lake Orono (DNR #13P) is a DNR Public Water at the western limits of the project area. Wetland W-2 (see Figure 4, Appendix A) is DNR public waters wetland #262W. Based on the preliminary design, there are approximately 0.06 acres of fill impacts anticipated to Wetland W-2 (DNR #262W) (see Table 14).

Eight (8) wetlands were identified within the project area as shown on Figure 4, Appendix A and listed in Table 14 below. There are a total of 2.36 acres of wetland impacts due to the proposed project. In general, most of the wetlands are surrounded by developed area consisting of commercial, industrial, and residential uses. The wetland edges are defined by a rise in topography and a noticeable change in vegetation, typically from cattails, reed canary grass, to a mown grass, wooded landscape, or a developed and impervious surface.

In addition to the wetlands discussed below, roadside ditches and stormwater treatment ponds exhibiting wetland characteristics were also identified along the project corridor. Stormwater ponds are labeled with “SP” and a number, and ditches are outlined on the plans but not numbered. The edges of these ponds and ditches were identified for planning purposes and are illustrated in Figure 4, Appendix A. Stormwater ponds and roadside ditches differ from natural wetlands in that they were constructed in non-hydric soils in areas that were not previously wetlands for the purpose of managing and treating stormwater runoff, not for the purpose of creating wetlands. Therefore, impacts are eligible for the Incidental Wetlands exemption under WCA (MN Rules Chapter 8420.0122, Subp. 5) and do not require replacement. The COE, under Section 404 of the Clean Water Act, may determine jurisdictional control over some ditches that have relatively permanent flow or that have a significant nexus to navigable waters. Most ditches and stormwater ponds, however, will not be jurisdictional and will be treated as non-wetland for this analysis.

At the time of permitting, current laws and rules will be used to determine jurisdictional authority.

TABLE 14
PROJECT AREA WETLANDS

Wetland ID*	Township 1/4, 1/4, Sec. (R26W)	Total Wetland Size (ac)	Impact Area/ % of Total Wetland Area	Dominant Vegetation	Type (Eggers & Reed/Circ 39) and Topographic Setting[1]	**Notes**, including primary function(s)[2]
W-1a	T33N NW, NE & NE, NE 32	N/A – Narrow fringe of lake	0 0%	Open water with minimal fringe	Shallow open water/5 **Flow-through**	DNR #13P, Hyrdologic maint, **flood storage**, downstream and wetland water quality, shoreline protection, wildlife habitat, fishery habitat, **aesthetics/recreation/education**
W-1b	T33N SW, NE & SE, NE 32	N/A – Narrow fringe of lake	0 0%	Open water with minimal fringe	Shallow open water/5 **Flow-through**	DNR #13P, Hyrdologic maint, **flood storage**, downstream and wetland water quality, shoreline protection, wildlife habitat, fishery habitat, **aesthetics/recreation/education**
W-2*	T33N NE, NE 32 & NW, NW 33	3.8	0.06 1.6%	Cattails, red osier dogwood, duckweed	Shallow open water/5 & shallow marsh/6 **Tributary**	DNR #262W, Hydrologic maint, flood storage, downstream and wetland water quality, wildlife habitat, fishery habitat, aesthetics/recreation/education
W-3	T33N SE, NE 32 & SW, NW 33	3	0.8 27%	Red osier dogwood	Shrub swamp/6 **Tributary**	DNR #13P, Hyrdologic maint, **flood storage**, downstream and wetland water quality, shoreline protection, wildlife habitat, fishery habitat, **aesthetics/recreation/education**
W-4	T33N NE, NW 33	13	0 0%	Cattails	Shallow marsh/3 Isolated	Hydrologic maint, flood storage, downstream and wetland water quality, wildlife habitat, aesthetics/recreation/education
W-5	T33N SE, NW 33	1.1	1.1 100%	Reed Canary Grass	Wet meadow/2 Isolated	Hydrologic maint, flood storage, downstream and wetland water quality, wildlife habitat, fishery habitat, aesthetics/recreation/education

* Indicates wetland used as a reference wetland under a full MnRAM 3.2 analysis.

(1) Topographic setting included to help determine which wetlands may fall under COE jurisdiction (i.e., non-isolated - in **BOLD**).

(2) Functions listed are those evaluated at a MODERATE level or higher. **HIGH** and **EXCEPTIONAL** functionality are identified in **BOLD**

TABLE 14 continued
PROJECT AREA WETLANDS

Wetland ID*	Township 1/4, 1/4, Sec. (R26W)	Total Wetland Size (ac)	Impact Area/ % of Total Wetland Area	Dominant Vegetation	Type (Eggers & Reed/Circ 39) and Topographic Setting[1]	**Notes**, including primary function(s)[2]
W-6	T33N SE, NW 33	0.4	0.4 100%	Reed Canary Grass	Wet meadow/2 Isolated	Hydrologic maint, flood storage, downstream and wetland water quality, wildlife habitat, fishery habitat, aesthetics/recreation/education
W-7	T33N SE, NE 33	0.1	0 0%	Reed Canary Grass	Wet meadow/2 Isolated	Hydrologic maint, flood storage, downstream and wetland water quality, wildlife habitat, fishery habitat, aesthetics/recreation/education
W-8*	River, see Figure 4, Appendix A	2.8	0 0%	Silver maple	Floodplain Forest/1 **Flow-through**	Mississippi River, Hydrologic maint, **flood storage**, downstream and wetland water quality, shoreline protection, wildlife habitat, fishery habitat, **aesthetics/recreation**
SP-1	T33N SW, NW 33	0.02	0.02 100%	Cattails	Shallow marsh/3 Isolated	Storm pond
SP-2a	T33N SE, NW 33	0.2	0.2 100%	None	Shallow open water/5 Isolated	Storm pond
SP-2b	T33N SE, NW 33	0.1	0.1 100%	None	Shallow open water/5 Isolated	Storm pond
	Total wetland impacts:		2.36 ac [3]			

* Indicates wetland used as a reference wetland under a full MnRAM 3.2 analysis.

(1) Topographic setting included to help determine which wetlands may fall under COE jurisdiction (i.e. non-isolated - in **BOLD**).

(2) Functions listed are those evaluated at a MODERATE level or higher. **HIGH** and **EXCEPTIONAL** functionality are identified in **BOLD**.

(3) Stormwater ponds were treated as non-jurisdictional for purposes of this analysis and are not included in the total wetland impacts.

As indicated previously, primary functions provided by each of the wetlands is provided in Table 14. Representative wetlands of each type of basin were chosen as the basis for functional analysis of all wetlands within the project area. Included are those functions provided at a moderate or higher level, and high and exceptional levels are highlighted in **bold** type.

In addition to wetland descriptions in Table 14, proposed impacts based upon current project layouts are provided. All of the indicated construction limits and proposed impacts are preliminary and represent a worst-case scenario. Reductions of impacts are possible as the project moves through the concept, design, and construction process.

Mitigation Opportunities

Evaluation for this document was completed based on the rules in place at the time of publication. Closer to the time of construction, wetland permitting will take into account the status of federal and state regulations for the assessment of wetland impacts and mitigation.

Federal and state wetland regulations require the use of a sequenced approach when projects have the potential to impact wetlands. Sequencing requires first avoiding wetland impacts if possible, and, if impacts are not avoidable, they must be minimized to the greatest extent practicable. Sequencing also includes repair of temporary impacts and reduction or elimination of impacts over time. After all options for avoidance, minimization, rectification and long term reduction of impacts have been considered and implemented, compensation that will replace lost wetland functions is required for those impacts that are not avoidable.

Efforts to avoid wetland impacts from the proposed project began when potential alternatives were being developed. See Section IV.B for a discussion of the alternatives development process. Concepts were refined during preliminary engineering studies to avoid/minimize wetland impacts. Complete avoidance of wetland impacts was not deemed prudent and feasible in all cases due to the need to balance potential wetland impacts with impacts to the social environment.

Further minimization, rectification, long-term reduction, and compensation of wetland impacts will be addressed in detail in subsequent steps in the environmental process. Additional design modifications will also be considered during the final design to further minimize wetland impacts. Temporary construction access within the areas that impact wetlands will be restored upon completion. In addition, these temporary impacts may be further minimized through best management practices in place at the time of construction.

Unavoidable wetland impacts will be replaced following the current laws and rules at the time of construction. State and federal wetland regulations change frequently as the result of legal challenges, interpretations and new legislation. If this project were to be constructed now, there are several guidance documents that would determine replacement ratios and methods.

Guidance currently available includes COEs Regulatory Guidance Letter 02-2 which discusses methods to achieve replacement of functional losses to achieve no net loss. Additionally, The Wetlands Compensatory Mitigation Rule released by the U.S. EPA and the COE outlines new standards for replacement that utilizes the best available science and uses innovative, results based replacement. Most importantly, the COE released a Draft St. Paul District Wetland Compensatory Mitigation Policy for Minnesota in March of 2007 that established a watershed approach to compensatory mitigation that outlines replacement ratios to achieve no net loss of wetland functions.

In Minnesota there has been a shift from project specific, on-site replacement, which was historically constructed at the same time as the impacts, to the current practice of using a statewide banking system. An Interagency Memorandum of Understanding for the State of Minnesota, Wetland Regulatory Simplification was signed in 1994 by state and federal agencies approving the use of the State Wetland Bank for wetland projects. A public Notice from the COE dated May 28, 1999 outlined mitigation banking and its approval for use for section 404 and section 10 regulatory purposes. Finally, in 2005, Mn/DOT and the Minnesota Board of Water and Soil Resources entered into an agreement to share staff, time and resources to expand the State Wetland Bank to include Mn/DOT projects, known as the Cooperative Wetland Road Program (CWRP). The goal is to cooperate to establish wetland bank sites in targeted areas of the state so that replacement will be available prior to project impacts in "Bank Service Areas" close to the impact.

Replacement for this project is anticipated to come through the CWRP, which should be in place before the impacts occur and be within the watershed or at least within the same Bank Service Area. Compensation ratios for this part of Minnesota are currently at a minimum of 2:1 since less than 80 percent of the pre-settlement wetlands remain. Replacement ratios can also be increased for out of kind, not in place (watershed or Bank Service Area) or not in advance replacement.

If, during project development, a particular replacement site is identified that due to special circumstances must be developed along with the project, a replacement plan will be designed for that site. An example of special circumstances would be if a particular wetland is impacted to such an extent that the basin must be expanded to provide potentially lost functions that are considered unique or rare for the area.

13. Water Use

Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)? Yes X No

If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

Any waterlines that may be impacted by the future construction of the proposed project would be relocated.

Water Wells

Wells adjacent to and within the project area were identified from the Minnesota Geological Survey/Minnesota Department of Health County Well Index database. As the project corridor is located in the urban core of Elk River, land uses throughout the study area are serviced by municipal utilities. However, two wells were identified near the western terminus of the project corridor at Lake Orono. No impacts to the two identified wells are anticipated. If any unused or unsealed wells are discovered in the project area during construction, they will be addressed in accordance with Minnesota Rules, Chapter 4725 or through obtaining an annual maintenance permit.

Drinking Water Management Supply Areas

There are three delineated Drinking Water Management Supply Areas (DWMSA) located within the project area. These DWMSA are illustrated in Figure 9A and 9B, Appendix A. Based on information from the Minnesota Department of Health, all three have very low vulnerability for contamination. According to information from the Department of Health, vulnerability "refers to the susceptibility of a water supply to contamination from activities at the land surface".[15] Additional discussion regarding drinking water supply management areas can be found in Section VII.A.17.

Dewatering

The proposed Highway 10 profiles were designed to maintain a minimum of three feet of clearance between the minimum roadway elevation and the seasonal high groundwater elevation. Drain tile will be placed throughout the proposed Highway 10 roadway subgrade to facilitate subsurface dewatering and discharged to storm sewer that will ultimately drain to Lake Orono. Minimal impact to the existing groundwater table is expected because the proposed subgrade drainage will only affect the seasonal peaks.

Given the proximity of groundwater to the roadway surface within the project area, it is likely that temporary dewatering will be needed during project construction. The appropriate DNR groundwater appropriation permits would be obtained for any temporary dewatering activities.

[15] Minnesota Department of Health. 2008. The Minnesota Department of Health Web Site (online). Wellhead Protection Vulnerability accessed 2009-01-05 at http://www.health.state.mn.us/divs/eh/water/swp/whp/fs/swpvfs.html

14. Water-Related Land Use Management District

Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district?

X **Yes** _**No**

If yes, identify the district and discuss project compatibility with district land use restrictions.

Local Land-Use Management Districts

State highways such as Highway 10 are not subject to local regulations; however, compatibility of the proposed action with local ordinances is an important consideration. The Elk River shoreland overlay and wild and scenic land use districts are discussed below.

Shoreland Overlay District

The City of Elk River has designated a shoreland overlay district adjacent to the Mississippi River and Lake Orono. The boundary of the shoreland overlay district along the Mississippi River corresponds to the Mississippi wild and scenic river land use district (see below). With respect to placement and design of roadways, the Elk River shoreland zoning ordinance is concerned with erosion control and utilizing natural vegetation and topography to screen views from public waters.

Erosion control will follow best management practices in place at the time of final design and construction (see Section VII.A.16). Construction of a stormwater pond and local access road between Highway 10 and Lake Orono (Simonet Drive and Tipton Avenue) at the western project terminus would include re-vegetation of impacted areas. Details of this re-vegetation will be identified prior to construction, consistent with aesthetic enhancements identified for the project and consistent with Mn/DOT practices in place at the time of project implementation.

Mississippi River Wild and Scenic Land Use District

The City of Elk River has designated a wild and scenic river land use district adjacent to the Mississippi River. The wild and scenic river district boundaries within the City of Elk River are defined in Minnesota Rules parts 6105.0910 and 6105.0959. The proposed reconstruction of the Main Street intersection with CSAH 42, and the Main Street connection to the proposed Highway 10 frontage road, are located within the Mississippi wild and scenic land use district boundaries (see Figure 8, Appendix A).

With respect to placement and design of roadways, the Elk River wild and scenic river district ordinance is also concerned with erosion control and utilizing natural vegetation and topography to screen views from public waters. As discussed above, erosion control best management practices are described in Section VII.A.16 (Erosion and Sedimentation).

Vegetation and aesthetic enhancements (i.e., landscaping) will be identified prior to construction, consistent with Mn/DOT practices in place at the time of project implementation.

Floodplains

The proposed Highway 10 improvements will cause an encroachment upon Lake Orono, immediately east of Simonet Drive. Lake Orono is a reservoir created by a dam on Elk River that is located within one mile of the confluence with the Mississippi River. The encroachment is created by the proposed mainline Highway 10 eastbound lane and Tipton Avenue. The following National Flood Insurance Program Flood Insurance Rate Maps, listed in Table 15, were examined for determination of floodplain impacts associated with the proposed project.

TABLE 15
FLOOD INSURANCE RATE MAPS

Map Name	Map Number	Communities Contained
Sherburne County, MN and Incorporated Areas	27141C0390E	Elk River
Sherburne County, MN and Incorporated Areas	27141C0395E	Elk River

The affected floodplain of Lake Orono is transversely encroached upon by the proposed bridge construction as summarized in Table 16. Transverse encroachments represent crossings of streams, rivers, lakes, etc. at angles greater than or equal to 30 degrees. Figure 9A, Appendix A shows the transverse impacts summarized in Table 16.

TABLE 16
FLOODPLAIN IMPACT SUMMARIZATION

Floodplain	Type of Encroachment	Length (feet)
Lake Orono (Elk River)	Transverse	670

An analysis of the floodplain impacts that would potentially occur from the Highway 10 improvements was performed in accordance with Presidential Executive Order – 11988, addressing the following four areas:

- **Area 1: No significant potential for interruption of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route.**

The proposed Highway 10 and Tipton Avenue will be designed to provide 100-year flood protection. Within the vicinity of the proposed encroachment, the 100-year flood elevation is approximately 877 feet. The minimum elevation of the proposed Highway 10 roadway profile located within the delineated floodplain is approximately 880 feet which is a difference of approximately three feet. Similarly, the minimum elevation of the proposed

Tipton Avenue roadway profile located within the delineated floodplain is approximately 879 feet which is a difference of approximately two feet.

- **Area 2: There is no significant impact on natural and beneficial floodplain values.**

Floodplain impacts will occur to Lake Orono as a result of the proposed project. A summary of the impacts, both beneficial and adverse, is as follows:

A. Stormwater treatment from runoff generated from the proposed Highway 10 will occur prior to discharge to Lake Orono.

B. No fisheries impacts are anticipated.

C. Wetlands will be impacted by the roadway improvements.

D. Appropriate turf establishment and erosion control measures will be used.

- **Area 3: There is no significant increased risk of flooding.**

There will be no increased risk of flooding as a result of the proposed project. Design of the proposed roadways and corresponding culverts will be done such that the existing water surface profile is maintained. During final design of the proposed structure, a detailed hydraulic analysis, hydraulic memorandum, and risk assessment will be completed.

- **Area 4: The project will not support and/or result in incompatible floodplain development.**

No incompatible floodplain development will result from the proposed project, as the project does not provide additional access to the floodplain areas. Sherburne County and City of Elk River are members of the National Flood Insurance Program and have floodplain ordinances that restrict development within designated floodplains. Each ordinance is in compliance with the DNR floodplain management guidelines.

<u>Mississippi River (State-Designated Wild and Scenic River)</u>

This segment of the Mississippi River is designated by the DNR as "recreational." Recreational rivers are those rivers that may have undergone some impoundment or diversion in the past and that may have adjacent lands which are considerably developed, but that are still capable of being managed so as to further the purposes of the State Wild and Scenic Rivers Act. This means that bordering lands may have already been developed for a full range of agricultural or other land uses, and may also be readily accessible by pre-existing roads or railroads.

Based on preliminary design of the Preferred Alternative, construction limits are not anticipated to extend into the Mississippi River. No substantial changes to the characteristics of this segment of the Mississippi River are anticipated with the proposed project. Recreational users of the Mississippi River are not anticipated to be affected by project construction activities.

15. Water Surface Use

Will the project change the number or type of watercraft on any water body?

__Yes X **No**

If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

Not applicable.

16. Erosion and Sedimentation

Give the acreage to be graded or excavated and the cubic yards of soil to be moved:

122.4 **acres** 590,160 **cubic yards**

The acreage to be graded or excavated is based on the preliminary construction limits currently identified for the proposed project. The cubic yards of soil to be moved are also based on the preliminary construction limits for the proposed project, and assume grading to a depth of one yard throughout the preliminary construction limits.

Describe any steep slopes or highly erodible soils and identify them on the site map.

Steep slopes are identified as slopes of 12 percent or greater. There are areas of steep slopes throughout the project corridor. Areas of steep slopes were identified using the Natural Resource Conservation Service (NRCS) Soil Survey of Sherburne County.

According to the NRCS, highly erodible land (HEL) and potentially highly erodible land (PHEL) are areas of land that have a high potential for erosion. These classifications are based on soil type and steep slope characteristics. A soil map unit with an erodibility index of 8 or greater is considered to be HEL as set forth in the 7 CFR 610, subp B.

PHEL map units need to be field verified to confirm whether characteristics meet the HEL designation requirements. When disturbed through activities such as development these areas have a high potential for soil erosion. Particular attention should be paid to HEL areas as they can present unstable soil conditions that can result in erosion if not properly managed during construction activities.

According to the NRCS Electronic Field Technical Guide, one soil mapping unit was identified as highly erodible land (HEL) or potentially highly erodible land (PHEL).

- Sandberg loamy coarse sand (12 to 35 percent slope) was identified as HEL. This soil mapping unit is located along Highway 10, where the highway is in close proximity to

the Mississippi River. This area is also characterized by steep slopes associated with the banks of the Mississippi River.

The proposed project impacts areas of HEL/PHEL. Areas of HEL/PHEL are concentrated along the Mississippi River. Due to the close proximity of Highway 10 to the river in this location, avoiding all areas of impact will not be possible. However, the proposed project will shift the alignment of Highway 10 north, farther away from the river, minimizing future impacts to HEL.

Describe any erosion and sedimentation control measures to be used during and after project construction.

The potential for erosion during construction will exist, as soils are disturbed by excavation and grading. As the design of a Preferred Alternative is carried forward, it will be further refined to minimize any impacts to areas of HEL.

Erosion and sedimentation of all exposed soils within the project corridor will be minimized by utilizing the appropriate best management practices (BMPs) during construction. Implementation of BMPs during final construction greatly reduces the amount of construction-related sedimentation and helps to control erosion and runoff. Ditches, dikes, siltation fences, bale checks, sedimentation basins, and temporary seeding will be utilized as temporary erosion control measures during construction grading. Because the immediate purpose of the project is to preserve right of way and the road itself will not be built for many years, these BMPs may change. As new BMPs are developed, they will be incorporated into the construction phase of the project.

Temporary and permanent erosion control plans will be identified in the final site grading and construction plans for each stage as required by the National Pollutant Discharge Elimination System (NPDES) permit. A Storm Water Pollution Prevention Program (SWPP) that includes erosion control and sediment management practices will be submitted with the NPDES permit as part of design and implementation of proposed improvements. Erosion control measures, including requiring erosion control plans and designating a site inspector and enforcer, will be in place and maintained throughout the entire construction period. Removal of erosion control measures will not occur until all disturbed areas have been stabilized.

17. Water Quality; Surface Water Runoff

a. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any stormwater pollution prevention plans.

The existing roadway consists of a four-lane divided highway with a rural drainage system. Stormwater runoff from the existing roadway generally flows toward vegetated ditches, allowing for some degree of infiltration, filtering, and vegetative uptake of nutrients and pollutants before entering the downstream receiving waters.

Stormwater discharge attenuation occurs to a limited extent where ditches are flat and/or controlled by culverts. Although the direct discharge of stormwater runoff to wetlands without primary treatment is detrimental to long-term integrity, wetlands generally provide excellent water quality benefits and stormwater discharge attenuation.

The rules established by the National Pollutant Discharge Elimination System permit program, in place at the time of final design, will be followed to mitigate the water quality and quantity impacts created by the project to the greatest extent practicable. Mn/DOT is not subject to local water quality rules and regulations; however, coordination will occur with local governing bodies, such as the City of Elk River and the Sherburne Soil and Water Conservation District, in order to ensure that local standards and rules are being considered.

The proposed project does not currently fall under the jurisdiction of a watershed management organization or district. The City of Elk River requires that post-development stormwater discharge rates equal existing stormwater discharge rates for the two-, 10- and 100-year storm events. The City of Elk River is classified as a Municipal Separate Storm Sewer System (MS4) under the National Pollutant Discharge Elimination System (NPDES) Phase II program and was classified as a non-degradation city; therefore, best management practices must be implemented such that there is no net increase in stormwater runoff volume, total suspended solids, and total phosphorus. Local road improvements associated with the proposed project would be subject to local water quality rules and regulations in place at the time of final design.

The proposed project will include a combined urban and rural stormwater conveyance system. The urban stormwater conveyance system will feature storm sewer and discharge to designated stormwater treatment facilities; the rural stormwater conveyance system will utilize vegetated ditches. All stormwater generated from the Highway 10 corridor and interchanges will be directed to stormwater detention basins and/or infiltration/filtration basins located throughout the extents of the proposed project as shown in Figures 9A and 9B, Appendix A. The proposed best management practices are expected to mitigate the adverse effects of the increased impervious surfaces and pollutant generation. In addition to providing water quality treatment, the stormwater detention basins will also provide discharge attenuation so that existing discharge rates will be maintained as required by City ordinances. Although the proposed stormwater detention basins and infiltration/filtration basins mitigate for the impervious area associated with the proposed roadways, best management practice locations for frontage roads may be added during final design if required.

The project will be revisited during final design to ensure that the design is consistent with water quality and quantity regulations in place at that time.

b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate impact runoff on the quality of receiving waters.

Stormwater runoff discharged from the proposed project will not likely have a significant negative impact on the water quality of the identified receiving water bodies and may improve it over existing conditions. With only minor exceptions, the existing roadway has a rural drainage system that allows direct discharge of stormwater runoff to receiving water bodies with minimal water quality treatment or rate attenuation. The majority of the proposed project will direct stormwater runoff to stormwater detention basins designed according to National Urban Runoff Program (NURP) standards before discharging to the identified receiving water bodies. Stormwater detention basins designed to NURP standards can achieve water quality treatment rates for total phosphorus and total suspended solids of 60 and 90 percent, respectively. Additional treatment will occur where stormwater detention basins discharge to swales, tributary wetlands, etc. of the identified receiving water bodies. Wetlands and swales positively affect stormwater quality by effectively increasing the residence time of the stormwater within the hydrologic system, allowing additional removal of total suspended solids. In addition, vegetative uptake of nutrients such as total phosphorus further improves water quality. Stormwater ponds (shown in Figure 9A and 9B, Appendix A) are designed based on current treatment standards.

Stormwater runoff generated from the Highway 10 improvements will be directed via storm sewer and/or vegetated ditches to wet detention basins and infiltration/filtration basins. In general, existing flow patterns are expected to be maintained. Stormwater discharges west of Proctor Avenue will be directed toward Lake Orono or Elk River; stormwater discharges east of Proctor Avenue will be directed toward the Mississippi River. Figures 9A and 9B in Appendix A show all receiving waters. According to the 2008 303(d) list of impaired waters published by the Minnesota Pollution Control Agency, the Mississippi River between the Elk River and the Crow River is impaired for aquatic consumption resulting in fish consumption advisories due to excess levels of mercury and PCBs. Elk River is impaired for only mercury. The proposed project should not adversely affect the Mississippi River for these impairments, because limited amounts of these contaminants are associated with project construction and use. Lake Orono is impaired for aquatic recreation due to excess nutrients/eutrophication within the lake, as well as biological indicators. The expected target start of the TMDL is 2010; therefore, no TMDL plan has been implemented at this time.

Two sections of the proposed project are located within two delineated wellhead protection areas and drinking water management supply areas as shown in Figures 9A and 9B, Appendix A. Within these defined areas, the proposed BMPs may need to be limited to wet detention basins so as to minimize the potential for groundwater contamination. Furthermore, storm sewer or lined ditches may need to be used to convey stormwater to the proposed stormwater detention basins instead of typical

vegetated ditches that allow infiltration. During final design, the Minnesota Department of Health should be contacted for verification of the required measures.

18. Water Quality: Wastewaters

a. Describe sources, composition and quantities of all sanitary, municipal and industrial wastewater produced or treated at the site.

Not applicable.

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies (identifying any impaired waters), and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems.

Not applicable.

c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions and discuss the facility's ability to handle the volume and composition of wastes, identifying any improvements necessary.

Not applicable.

19. Geologic Hazards and Soil Conditions

a. Approximate depth (in feet) to ground water 12 feet minimum
21 feet average

Source: Piezometer data collected by Mn/DOT at 12 piezometer locations along the project corridor.

Approximate depth (in feet) to bedrock 150 feet minimum
175 feet average

Source: Minnesota Geological Survey Maps of Gridded Bedrock Elevation and Depth to Bedrock in Minnesota

Given the proximity of the Mississippi River to the Highway 10 project corridor, groundwater elevations reside close to the existing ground surface. The Anoka Sand Plain Regional Hydrogeological Assessment shows the minimum and average depths to groundwater to be much deeper (52 feet and 114 feet, respectively) than the data provided above. However, due to the depressed roadway section proposed for Highway 10 in urban Elk River, several piezometers were installed to determine the average and seasonal high groundwater elevations. Groundwater data were collected from May 2006 through the present at the existing intersections of Highway 10 and Main Street, Proctor Avenue and Upland Avenue. Seasonal groundwater fluctuations were found to range as much as six feet.

Describe any of the following geologic site hazards to ground water and also identify them on the site map: sinkholes, shallow limestone formations or karst conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.

No known sinkholes, shallow limestone formations, or karst conditions are located within the project area.

As discussed in Section VII.A.17, two sections of the Highway 10 corridor are in a wellhead protection area and drinking water management supply area. Construction of the proposed project involves limited use of contaminants and, therefore, results in limited potential for contamination. If a spill were to occur during construction, appropriate actions to remediate would be taken in accordance with MPCA guidelines. See Section VII.A.17 for discussion of the stormwater management within these areas.

b. Describe the soils on the site, giving NRCS (SCS) classifications, if known. Discuss soil texture and potential for groundwater contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.

The City of Elk River is located in Sherburne County. Sherburne County is located within the Anoka Sand Plain, which is characterized by thick surface deposits of sand and gravelly sand. The sand and gravel aquifers provide a ready supply of groundwater irrigation for agriculture and also provide a drinking water supply for much of the county. Important bedrock aquifers underlie the surficial sand aquifers in the eastern portion of Sherburne County. These aquifers serve as water supply for a large portion of east central Minnesota, including the Twin Cities metropolitan area. Table 17 lists the soil types along the corridor.

TABLE 17
SOIL TYPES WITHIN PROJECT AREA

Soil Name*	Soil Symbol	Percent Slope
Hubbard loamy sand	7A	0-2
Hubbard loamy sand	7B	2-6
Hubbard loamy sand	7C	6-12
Sandberg loamy coarse sand	258E	12-35
Duelm loamy sand	260	0-2
Isan sandy loam, depressional	261	0-1
Seelyeville muck	540	0-1
Markey muck	543	0-1
Mosford sandy loam(1)	768	0-2
Elkriver fine sandy loam, rarely flooded(2)	771	0-2
Isan sandy loam	1110	0-2
Elkriver fine sandy loam, occasionally flooded(2)	1255	0-2
Elkriver-Mosford complex(1)	1257	0-6
Fordum-Winterfield complex	1946	0-2

*Soils on the local Hydric Soils list for Sherburne County are highlighted in **BOLD**.
(1 Farmland of statewide importance (Soil Survey of Sherburne County, Minnesota).
(2) Prime Farmland (Soil Survey of Sherburne County, Minnesota). Urban or built up areas of the soils listed are not considered prime farmland.

According to the Anoka Sand Plain Regional Hydrological Assessment (2003), the geologic sensitivity of the uppermost aquifer of the Anoka Sand Plain is generally very high in Sherburne County. A significant number of the soil units in the project corridor have sandy textures. The coarse texture of the soil makes the groundwater especially susceptible to contamination. Due to the relatively high permeability of these soils, a potential chemical or waste spill could infiltrate into the soil and into the groundwater.

It is important to note that high geologic sensitivity does not indicate that groundwater quality has been or will become degraded and low geologic sensitivity does not guarantee that water will remain pristine. Potential for groundwater contamination in the project area can be examined by looking at the following factors: (1) the properties of the contaminant itself, (2) the direction of groundwater movement, (3) permeability of the soils above the water resource, and (4) the presence or absence of a confining layer above the water resource. However, the proposed project involves limited use of contaminants and, therefore, results in limited potential for soil contamination. If a spill were to occur during construction, appropriate actions to remediate would be taken in accordance with MPCA guidelines.

See Section VII.A.16 and Section VII.A.25 for additional soil information.

20. Solid Wastes, Hazardous Wastes, Storage Tanks

a. Describe types, amounts and compositions of solid or hazardous wastes, including solid animal manure, sludge and ash, produced during construction and operation. Identify method and location of disposal. For projects generating municipal solid waste, indicate if there is a source separation plan; describe how the project will be modified for recycling. If hazardous waste is generated, indicate if there is a hazardous waste minimization plan and routine hazardous waste reduction assessments.

No municipal solid waste or hazardous waste will be generated by the proposed project. If a spill of hazardous or toxic substances should occur during or after construction of the proposed project, it is the responsibility of the transport company to notify the Minnesota Department of Public Safety, Division of Emergency Services, to arrange for corrective measure to be taken pursuant to 6 MCAR 4.9005E. Any contaminated spills or leaks that occur during construction would be responded to according to MPCA containment and remedial action procedures.

The excavation of soil materials for the future construction of the roadway will likely be necessary. Removed materials will become the property of the contractor, who may recycle the materials for use in the project or may use the materials for another project. Any contaminated materials identified within the construction area would be treated in accordance with MPCA requirements prior to reuse or disposal. If suitable, topsoil removed for the construction of the project would be salvaged for reuse and placed in areas where turf and landscaping would be located. Any disposal of excess materials would be done in compliance with state and local solid waste regulations. There would be no disposal of excess materials into wetlands, floodplains, or other sensitive areas.

b. Identify any toxic or hazardous materials to be used or present at the site and identify measures to be used to prevent them from contaminating groundwater. If the use of toxic or hazardous materials will lead to a regulated waste, discharge or emission, discuss any alternatives considered to minimize or eliminate the waste, discharge or emission.

Toxic or hazardous materials would not be present at the site, except for fuel and oil necessary for the construction equipment during construction.

c. Indicate the number, location, size and use of any above or below ground tanks to store petroleum products or other materials, except water. Describe any emergency response containment plans.

As discussed in Section VII.A.9, there are 26 properties near the project area that have medium to high contamination risk potential. According to the Phase I ESA study report, these properties contain 27 or more underground storage tanks (USTs),

and 10 of these are leaking underground storage tanks (LUSTs). The majority of the LUSTs have been closed, but there is no record of LUST closure at two sites, including Napa Auto Parts and Beaudry Oil Company. Additionally, these 26 properties contain 7 above ground storage tanks (ASTs), and 2 of these are leaking above ground storage tanks (LASTs). There is no record of LAST closure at Beaudry Oil Bulk Facility and Elk River Oil. If any of these properties are impacted by the Highway 10 project, proper care and precautions will be taken in accordance with MPCA guidelines and regulations.

No permanent above or below-ground storage tanks would be installed in conjunction with this project. Temporary storage tanks for petroleum products may be located in the project area for the purpose of refueling construction equipment during roadway construction. Appropriate measures would be taken during construction to avoid spills that could contaminate groundwater or surface water in the project area. In the event that a leak or spill occurs during construction, appropriate action to remediate the situation would be taken immediately in accordance with MPCA guidelines and regulations.

21. Traffic

Parking spaces added: NA

Existing spaces (if project involves expansion): NA

Estimated total average daily traffic generated: NA

Estimated maximum peak hour traffic generated and time of occurrence: NA

Indicate source of trip generation rates used in the estimates.

If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. **Using the format and procedures described in the Minnesota Department of Transportation's Traffic Impact Study Guidance *(available at: http://www.oim.dot.state.mn.us/access/pdfs/Chapter%205.pdf)* or a similar local guidance, provide an estimate of the impact on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.**

See Section IV.D.2 and the Traffic Operations Memorandum in Appendix C for a complete discussion and analysis of traffic operations under the Preferred Alternative. Existing and No-Build conditions are discussed in Section III.B.2. Access changes are discussed in Section VII.B.1.

22. Vehicle-Related Air Emissions

Estimate the effect of the project's traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts.

Motorized vehicles affect air quality by emitting airborne pollutants. Changes in traffic volumes, travel patterns, and roadway locations affect air quality by changing the number of vehicles in an area and the congestion levels. The air quality impacts from the project are analyzed by addressing criteria pollutants, a group of common air pollutants regulated by EPA on the basis of criteria (information on health and/or environmental effects of pollution). The criteria pollutants identified by the EPA are ozone, particulate matter, carbon monoxide, nitrogen dioxide, lead, and sulfur dioxide. Potential impacts resulting from these pollutants are assessed by comparing projected concentrations to National Ambient Air Quality Standards (NAAQS). In addition to the criteria air pollutants, the EPA also regulates air toxics.

Ozone

Ground-level ozone is a primary constituent of smog and is a pollution problem throughout many areas of the United States. Exposures to ozone can make people more susceptible to respiratory infection, result in lung inflammation, and aggravate preexisting respiratory diseases such as asthma. Ozone is not emitted directly from vehicles but is formed as volatile organic compounds (VOCs) and nitrogen oxides (NOx) react in the presence of sunlight. Transportation sources emit NOx and VOCs and can therefore affect ozone concentrations. However, due to the phenomenon of atmospheric formation of ozone from chemical precursors, concentrations are not expected to be elevated near a particular roadway.

A recent study conducted for the Minnesota Pollution Control Agency (MPCA) titled Sonoma Technology, Inc., Preliminary Assessment of Ozone Air Quality Issues in the Minneapolis / St. Paul Region, (10/10/02) states:

> *Thus, overall trends in ozone show that the numbers of occurrences of higher ozone concentrations are on the rise. While the 1-hr ozone NAAQS level of 0.12 ppm has only been reached twice in the last ten years, the 8-hr NAAQS level of 0.08 ppm is reached on average twice per year at one or more sites. Note that during some years 8-hr ozone levels do not reach 0.08 ppm while in other years 8-hr ozone reaches that level 4 or 5 times. Increasing population and congestion will likely lead to further increases in ozone levels in the future.*

As a result of this trend, the MPCA, in cooperation with various other agencies, industries and groups, has encouraged voluntary control measures to control ozone and has begun developing a regional ozone modeling effort. Ozone concentrations in the lower atmosphere are influenced by a complex relationship of precursor concentrations, meteorological conditions and regional influences on background concentrations. The MPCA staff has begun development of ozone modeling for the Twin Cities metropolitan area. Recent conversations with MPCA staff indicate that the ozone models currently use federal default traffic data and a relatively coarse

modeling grid. As such, ozone modeling in Minnesota is in its developmental state, and therefore, there is no available method of determining the contribution of a single roadway to regional ozone concentrations. Ozone levels in the Twin Cities metropolitan area currently meet state and federal standards and the State of Minnesota is currently classified by the Environmental Protection Agency (EPA) as an ozone attainment area. Because of these factors, a quantitative ozone analysis was not conducted for this project.

Particulate Matter

Particulate matter (PM) is categorized by the size of particles being measured. For example, the $PM_{2.5}$ value is the measurement of particles smaller than 2.5 microns (a micron is a millionth of a meter) in a particular volume of air. Fine particles with very small diameters can move like gases and can be transported hundreds of miles from their source. Larger particles do not remain suspended and tend to settle out of the air relatively near their source.

The following summary of potential health impacts is excerpted from the EPA brochure *Particle Pollution and Your Health* (EPA document 452/F-03-001, September 2003):

> *Particle exposure can lead to a variety of health effects. For example, numerous studies link particle levels to increased hospital admissions and emergency room visits—and even to death from heart or lung diseases. Both long- and short-term particle exposures have been linked to health problems.*
>
> ***Long-term exposures,*** *such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function and the development of chronic bronchitis—and even premature death.*
>
> ***Short-term exposures*** *to particles (hours or days) can aggravate lung disease, causing asthma attacks and acute bronchitis, and may also increase susceptibility to respiratory infections. In people with heart disease, short-term exposures have been linked to heart attacks and arrhythmias. Healthy children and adults have not been reported to suffer serious effects from short-term exposures, although they may experience temporary minor irritation when particle levels are elevated.*

The MPCA states on its web site:

> *Recent data suggests that particles 2.5 microns or smaller may pose the greatest threat to human health because, for the same mass, they absorb more toxic and carcinogenic compounds than larger particles and penetrate more easily deep into the lungs.*

Motor vehicles can influence particulate matter concentrations on a local scale by directly emitting fine particles and from wind turbulence that causes particles to be mixed into the air. On a regional scale, vehicular traffic can influence particle concentrations through emission of precursor compounds (nitrogen oxides, sulfur oxides and VOCs), as well as direct

emissions. Vehicle related particulate matter tends to be smaller than 2.5 microns. The study Transportation-Related Air Toxics: Case Study Materials Related to US 95 in Nevada, March 7, 2003, completed by Sonoma Technology states:

> *With the exception of road dust, essentially all of the particulate matter attributed to vehicles (either as direct emissions or compounds which are emitted as gases and condense into particulate matter in the ambient air) is smaller than 2.5 mm in size (pm2.5).*

The concentration of fine particulates in the atmosphere is a complex function of direct local emissions, meteorological conditions and concentrations of various precursor compounds. Modeling of particulate concentrations is an emerging science and is being done on a regional and nationwide scale. A recent study, Transportation-Related Air Toxics: Case Study Materials Related to US 95 in Nevada, March 7, 2003, completed by Sonoma Technology reviewed the limited data relating road proximity and fine particle concentrations and discussed the extent to which roadways might contribute to exceedances of $PM_{2.5}$ NAAQS:

> *However, these limited findings indicate that, relative to the 24-hour NAAQS of 65 mg/m^3, on-road vehicle $PM_{2.5}$ emissions may be a concern near a road (e.g., within 100 m) if background concentrations are already near the NAAQS. More research is needed to further understand the relationship between $PM_{2.5}$ concentrations and road proximity.*
>
> *There is currently a lack of guidance available to analysts regarding methodological approaches for analyzing the PM impacts of transportation projects at the micro scale.*

Widespread $PM_{2.5}$ monitoring began in Minnesota in 1999. An article published in the MPCA's Minnesota's Environment magazine, Volume 3, Number 3, Summer 2003, indicates that particulate concentrations rise to concentrations considered unhealthy for sensitive people only a few times per year. Based on recent $PM_{2.5}$ monitoring, it appears that the State of Minnesota will be in attainment of recently enacted $PM_{2.5}$ standards.

Based on the relatively low ambient concentrations observed in Minnesota and the lack of analysis methodology, no project level modeling for particulate matter was conducted for this project.

Nitrogen dioxide (Nitrogen oxides)

Nitrogen oxides, or NOx, are the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process. The primary sources of NOx are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels. The MPCA Air and Water Emissions Report, March 2000, indicates that on-road mobile sources account for 31 percent of NOx emissions in Minnesota. In addition to being a precursor of ozone, NOx can cause respiratory irritation in sensitive individuals and contribute to acid rain.

Nitrogen dioxide (NO_2) levels in the Twin Cities metropolitan area currently meet state and federal standards. Appendix C of the MPCA's 2001 Legislative Report Air Quality in Minnesota: Problems and Approaches states:

Monitored NO_2 levels are currently about one third of the annual NO_2 standard. Although NOx emissions have increased and may increase further due to increased vehicle travel and increased fuel combustion, it is unlikely that these increases will pose a threat to the annual NO_2 standard.

The EPA's regulatory announcement EPA420-F-99-051 (December 1999) describes the Tier 2 standards for tailpipe emissions and states:

> *The new tailpipe standards are set at an average standard of 0.07 grams per mile for nitrogen oxides for all classes of passenger vehicles beginning in 2004. This includes all light-duty trucks, as well as the largest SUVs. Vehicles weighing less than 6000 pounds will be phased-in to this standard between 2004 and 2007.*
>
> *As newer, cleaner cars enter the national fleet, the new tailpipe standards will significantly reduce emissions of nitrogen oxides from vehicles by about 74 percent by 2030. The standards also will reduce emissions by more than 2 million tons per year by 2020 and nearly 3 million tons annually by 2030.*

Based on the relatively low ambient concentrations of NOx in Minnesota and the long term trend of reduction in NOx emissions, it is unlikely that NOx standards will be approached or exceeded in the project area. Because of these factors, a specific analysis of nitrogen dioxide was not conducted for this project.

Sulfur Dioxide

Sulfur dioxide (SO_2) and other sulfur oxide gases (SOx) are formed when fuel containing sulfur, such as coal, oil, and diesel fuel is burned. Sulfur dioxide is a heavy, pungent, colorless gas. Elevated levels can impair breathing, lead to other respiratory symptoms, and at very high levels aggravate heart disease. People with asthma are most at risk. Once emitted into the atmosphere, SO_2 can be further oxidized to sulfuric acid, a component of acid rain.

Over 65 percent of SO_2 released to the air comes from electric utilities, especially those that burn coal. The MPCA Air and Water Emissions Report, March 2000, indicate that on-road mobile sources account for just 4.8 percent of SOx emissions in Minnesota. MPCA monitoring shows that ambient SO_2 concentrations are consistently below standards. The MPCA has concluded that long-term trends in both ambient air concentrations and total SO_2 emissions in Minnesota indicate steady improvement.

Emissions of sulfur oxides from transportation sources are a small component of overall emissions and continue to decline due to the desulphurization of fuels. The State of Minnesota is classified by the EPA as an attainment area for sulfur dioxide. Sulfur dioxide levels in the Twin Cities metropolitan area currently meet NAAQS. Because of these factors, a quantitative analysis for sulfur dioxide was not conducted for this project.

Lead

Due to the phase out of leaded gasoline, lead is no longer a pollutant associated with vehicular emissions.

Carbon Monoxide

Carbon monoxide (CO) is a traffic-related pollutant that has been a concern in the Twin Cities Metropolitan Area. It is also the pollutant most likely to be a concern on a project level scale. The MPCA has established state standards (or maximum permissible concentrations) for CO of 30 parts per million (ppm) for a 1-hour period (average concentration), and 9 ppm for an 8-hour period (average concentration). The MPCA 1-hour standard is more stringent than the federal standard of 35 ppm.

This project does not lie in an area where conformity requirements apply. The EPA has approved a screening method to determine which intersections need hot-spot analysis. Mn/DOT demonstrates by the results of the screening procedure that the intersections included in this project are do not require hot-spot analysis.

A qualitative analysis indicates that the proposed design for TH 10, including reconstruction from an expressway to freeway facility, would result in an improvement of air quality conditions. Under existing conditions, there is significant queuing at traffic signals on TH 10. This causes increased levels of carbon monoxide emissions and concentrations in the project area. The proposed design on TH 10 would remove the signals and eliminate queuing on TH 10 resulting in lower carbon monoxide emissions and concentrations in Elk River.

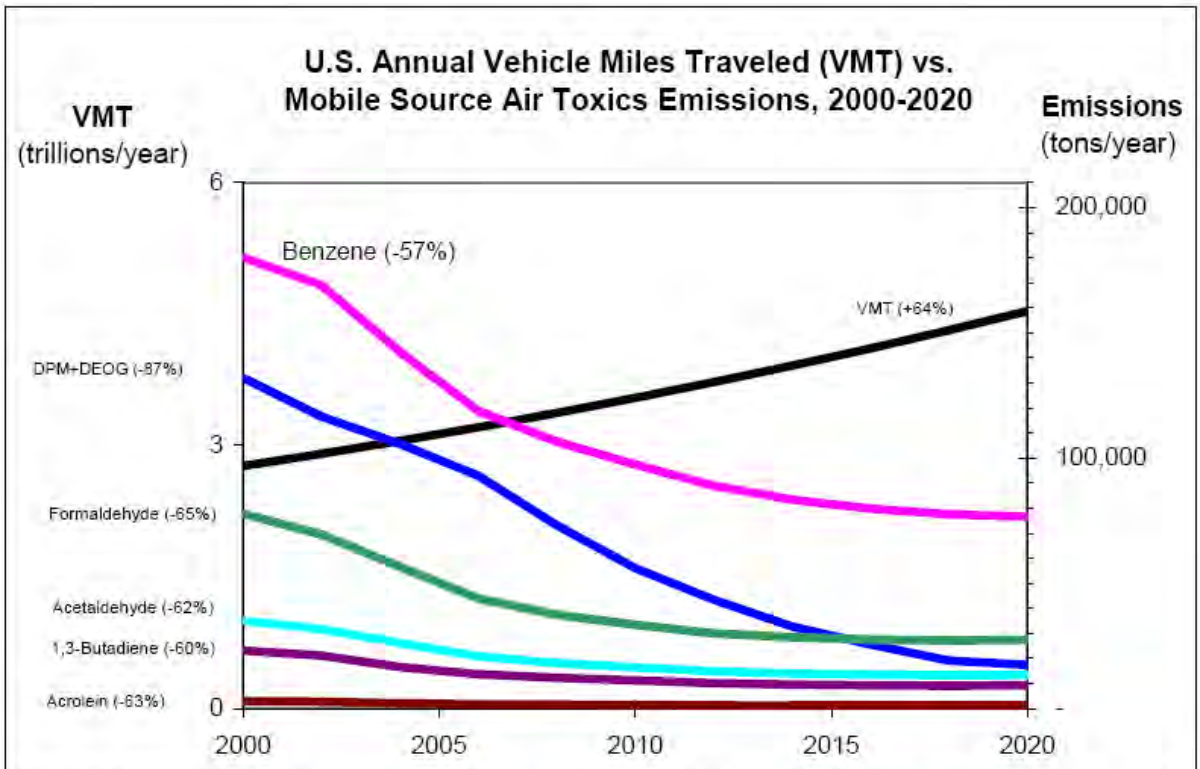
Improvements in vehicle technology and in motor fuel regulations continue to cause reductions in vehicle emission rates. The EPA Mobile 6.2 emissions model estimates that emission rates will fall by at least 15 to 25 percent from 2006 to 2030. Consequently, 2030 vehicle-related CO concentrations in the study area are likely to be lower than existing concentrations even considering the increase in project-related and background traffic.

Mobile Source Air Toxics

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Mobile Source Air Toxics (MSAT) are a subset of the 188 air toxics defined by the Clean Air Act. The MSAT are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSAT. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources. 66 FR 17229 (March 29, 2001). This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in vehicle-miles of travel (VMT), these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent, as shown in the following graph:



Notes: For on-road mobile sources. Emissions factors were generated using MOBILE6.2. MTBE proportion of market for oxygenates is held constant, at 50%. Gasoline RVP and oxygenate content are held constant. VMT: *Highway Statistics 2000*, Table VM-2 for 2000, analysis assumes annual growth rate of 2.5%. "DPM + DEOG" is based on MOBILE6.2-generated factors for elemental carbon, organic carbon and SO4 from diesel-powered vehicles, with the particle size cutoff set at 10.0 microns. Does not include additional benefits from the 2007 MSAT rule.

In February 2007, EPA issued a new rule to reduce hazardous air pollutants from mobile sources. The final standards will lower emissions of benzene and other air toxics in three ways: (1) by lowering the benzene content in gasoline, (2) by reducing exhaust emissions from passenger vehicles operated at cold temperatures, and (3) by reducing emissions that evaporate from, and permeate through, portable fuel containers. EPA expects that the new fuel benzene standard and hydrocarbon standards for vehicles and gas cans will together

reduce total emissions of mobile-source air toxics by 330,000 tons in 2030, including 61,000 tons of benzene. As a result of this rule, new passenger vehicles will emit 45% less benzene, gas cans will emit 78% less benzene, and gasoline will have 38% less benzene overall.

Unavailable Information for Project Specific MSAT Impact Analysis

This EA includes a basic analysis of the likely MSAT emission impacts of this project However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this EA. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information. Note that the language and statistics quoted in this section are derived from "Interim Guidance on Air Toxics Analysisin NEPA Documents," Cynthia J. Burbank published by FHWA on February 3, 2006.

Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSAT on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

- **Emissions:** The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSAT in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model-emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE 6.2 as an obstacle to quantitative analysis.

  These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE 6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

- **Dispersion:** The tools to predict how MSAT disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The NCHRP is conducting research on best practices in applying models and other technical methods in the analysis of MSAT. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

- **Exposure Levels and Health Effects**: Finally, even if emission levels and concentrations of MSAT could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSAT near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location.

  These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSAT.

Research into the health impacts of MSAT is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at http://www.epa.gov/iris. The following toxicity information for the six prioritized MSAT was taken from the IRIS database *Weight of Evidence Characterization* summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary noncancer hazard from MSAT. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes — particularly respiratory problems[16]. Much of this research is not specific to MSAT, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not

[16] South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); Highway Health Hazards, The Sierra Club (2004) summarizing 24 Studies on the relationship between health and air quality); NEPA's Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles, Environmental Law Institute, 35 ELR 10273 (2005) with health studies cited therein.

provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of impacts based upon theoretical approaches or research methods generally accepted in the scientific community.

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

Qualitative MSAT Analysis

In this document, Mn/DOT has provided a qualitative analysis of MSAT emissions relative to the various alternatives, and has acknowledged that some of the project alternatives may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

For the Build alternative, the amount of MSATs emitted would be proportional to the average daily traffic, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for the Build alternative is slightly less than that for the No Build alternative, because the proposed design improves the efficiency of the roadway system and attracts rerouted trips from elsewhere in the transportation network. This shift in VMT would lead to higher MSAT emissions for the action alternative in the Forest Lake area, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions shift is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE 6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions changes cannot be reliably projected due to the inherent deficiencies of technical models.

Emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2030. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The improvements to TH 10 contemplated as part of Preferred Alternative will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under this alternative there may be localized areas where ambient concentrations of MSATs could be higher under the Build alternative than the No Build alternative. The localized increases in MSAT concentrations would likely be most pronounced along the reconstructed roadway sections that would be built on TH 10 under the Build alternative. However, as discussed above, the magnitude and the duration of these potential increases compared to the No Build alternative cannot be accurately quantified due to the inherent deficiencies of current models. In summary, when a highway is widened and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Build alternative could be higher relative to the No Build alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSATs will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

23. Stationary Source Air Emissions

Describe the type, sources, quantities and compositions of any emissions from stationary sources of air emissions such as boilers, exhaust stacks or fugitive dust sources. Include any hazardous air pollutants (consult *EAW Guidelines* for a listing) and any greenhouse gases (such as carbon dioxide, methane, nitrous oxide) and ozone-depleting chemicals (chlorofluorocarbons, hydrofluorocarbons, perfluorcarbons, or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality.

Not applicable.

24. Odors, Noise and Dust

Will the project generate odors, noise or dust during construction or during operation?
X Yes __No

If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at Item 23 instead of here.)

Odors and Dust During Construction

The proposed project would not generate substantial odors during construction. Potential odors would include exhaust from diesel engines. Dust generated during construction will be minimized through standard dust control measures such as applying water to exposed soils and limiting the extent and duration of exposed soil conditions. Construction contractors will be required to control dust and other airborne particulates in accordance with Mn/DOT specifications. After construction is complete, dust levels are anticipated to be minimal because

all soil surfaces exposed during construction would be in permanent cover (i.e., paved or revegetated areas).

Construction Noise

The construction activities associated with implementation of the proposed project may result in increased noise levels relative to existing conditions. These impacts will primarily be associated with construction equipment and pile driving.

The following table (Table 18) shows peak noise levels monitored at 50 feet from various types of construction equipment. This equipment is primarily associated with site grading/site preparation, generally the roadway construction phase associated with the greatest noise levels.

TABLE 18
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS AT 50 FEET

Equipment Type	Manufacturers Sampled	Total Number of Models in Sample	Peak Noise Level (dBA)	
			Range	Average
Backhoes	5	6	74-92	83
Front Loaders	5	30	75-96	85
Dozers	8	41	65-95	85
Graders	3	15	72-92	84
Scrapers	2	27	76-98	87
Pile Drivers	N/A	N/A	95-105	101

Source: United States Environmental Protection Agency and Federal Highway Administration

Noise impacts/mitigation to local communities during construction

Elevated noise levels are, to a degree, unavoidable for this type of project. Mn/DOT will require that construction equipment be properly muffled and in proper working order. Mn/DOT and its contractor(s) are exempt from local noise ordinances. Compliance with these local noise ordinances is left to the discretion of Mn/DOT and its contractors; however, it is the practice to require that the contractor(s) comply with applicable local noise restrictions and ordinances to the extent that it is reasonable. Advance notice will be provided to affected neighborhoods for any abnormally loud construction activities. It is anticipated that nighttime[17] construction may sometimes be required to minimize traffic impacts and improve safety. However, construction will be limited to daytime hours as much as possible. This project is anticipated to be under construction for several construction seasons, and the project may be constructed in phases over time as funding becomes available (refer to Section IV.D.3 and Section V). The duration of construction will be determined during final design.

Any associated high-impact equipment noise such as pile driving, pavement sawing, or jack hammering will be unavoidable with construction of the proposed project. Pile driving noise

[17] The Minnesota Pollution Control Agency (MPCA) defines daytime hours as from 7:00 a.m. to 10:00 p.m. and nighttime hours as from 10:00 p.m. to 7:00 a.m. (Minnesota Rules 7030.0020 Subp. 10).

is associated with bridge construction and sheet piling necessary for retaining wall construction. While pile driving equipment results in the highest peak noise level as shown in Table 18, it is limited in duration to the activities (e.g., bridge construction and retaining wall construction) noted above. The use of pile drivers, pavement saws, and jackhammers will be prohibited during nighttime hours.

Traffic-Related Noise Analysis

The traffic noise analysis for the proposed project is included in Appendix D. This report includes documentation of the potential traffic noise impacts associated with the project. Traffic noise levels were modeled for existing (2008) and future (2030) No Build and Build conditions using the MNTRAIN model, a version of the FHWA "STAMINA" model adapted by Mn/DOT to account for sound generated by freight trains. The noise analysis in Appendix D includes a detailed discussion of the following:

- Discussion of traffic noise analysis methodology;
- Identification of noise modeling receptor locations (see Figure D1 in Appendix D);
- Monitored noise levels at a sample of receptor locations within the project area and estimates of existing noise levels at other noise model receptor locations;
- Predicted noise levels with future No Build and Build conditions; and
- Evaluation of the feasibility and reasonableness (i.e. cost-effectiveness) of noise mitigation measures.

Summary of Noise Analysis Findings

State daytime and nighttime noise standards are exceeded along the project corridor under existing conditions. State daytime and nighttime noise standards are predicted to be exceeded with future (2030) Build conditions. Construction of the project will result in increases in traffic noise due to changes in traffic volumes and changes in the vertical and horizontal alignment of project-area roadways. Cost-effectiveness of noise barriers was calculated; one 15-foot high wall located along the south side of Highway 10 between Proctor Avenue and Bridge Street that achieved a 5 dBA reduction was found to be cost-effective and is proposed.

Traffic noise impacts and mitigation will be re-assessed in the future at the time of project implementation, based on conditions and land uses in place at that time. Decisions on noise mitigation to be included in the project will be based on the results of the future noise impact reassessment. Final mitigation decisions will be subject to community input, input from affected property owners, and final design considerations.

25. Nearby Resources

Are any of the following resources on or in proximity to the site?

Archaeological, historical or architectural resources? _X_ Yes __ No

Prime or unique farmlands or land within an agricultural preserve? _Yes _X_No

Designated parks, recreation areas or trails? _ Yes _X No

Scenic views and vistas? __Yes _X No

Other unique resources? __Yes X No

If yes, describe the resource and identify any project-related impacts on the resource. Describe any measures to minimize or avoid adverse impacts.

Archaeological, historical, or architectural resources

The proposed project has been reviewed pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended), in accordance with 36 CFR 800. The areas of potential effect (APE) for archaeology and for architectural history were determined by the Mn/DOT Cultural Resources Unit (CRU) staff. The area of potential effect (APE) encompasses properties within, and adjacent to, the right of way for the four originally-proposed project alternatives.

The APE for archaeology consists of the construction limits of the four originally-proposed project alternatives (see Section IV.B). Within the APE, the survey area for archaeology includes two locations, one on the eastern end and one on the western end of the APE. The eastern survey area was visually inspected and determined to have low archeological potential. For this reason, no additional work is recommended for the eastern survey area. The western survey area is located near Tipton Circle, northeast of Lake Orono. Landowner permission to access this survey area was denied. Based on the potential for archaeological resources to be present, it is recommended that a Phase I survey of the western survey area be conducted once access is obtained.

Additionally, a literature search was conducted to assess the potential for historical-archaeological sites within the APE. Two areas were identified as having the potential to contain intact and significant historical-archaeological sites, including the location of a historical-period farmstead and the St. Paul and Pacific Railroad Corridor historic district. Access to survey was not granted for either property. Based on the likelihood of both precontact and historical archaeological resources to be present in this area, it is recommended that a Phase I survey be conducted once the project easement is obtained by the City.

The APE for architectural history encompasses the area within the proposed project construction limits, as well as a buffer around the construction limits to account for indirect effects, including changes in visual qualities and noise levels for surrounding properties. The architectural history Phase I survey consisted of 136 properties within Elk River that are older than 45 years; 29 of these properties had previously been inventoried. While most of these properties were recommended as not eligible for listing in the National Register of Historic

Places (NRHP), three properties required further evaluation at the Phase II level.

Upon further evaluation, the Elk River Water Tower (SH-ERC-016) was recommended as eligible for listing on the NRHP. The Graves-Bailey Grain Elevator (SH-ERC-165) was recommended as not eligible for listing in the NRHP due to a lack of historic integrity. The St. Paul and Pacific Railroad Corridor historic district (SH-ERC-188) was previously determined eligible for listing in the NRHP. The proposed boundaries of the railroad corridor historic district are the current railroad right of way. A portion of the St. Paul and Pacific Railroad Corridor historic district has the potential to contain intact archaeological resources associated with the historic operation of the railroad. Access to survey this portion of the APE was not granted. It is therefore recommended that a field survey of this portion of the right of way be conducted once the project easement is obtained. See agency correspondence dated January 5, 2009 and February 5, 2009 in Appendix B.

Determination of Effect

Mn/DOT's Cultural Resources Unit determined, in concurrence with the State Historic Preservation Office (SHPO), that there will be no adverse effect on the Elk River Water Tower due to the proposed project. See agency correspondence in Appendix B

Mn/DOT's Cultural Resources Unit determined, in concurrence with SHPO, that the proposed project results in an adverse effect to the St. Paul and Pacific Railroad Corridor (see agency correspondence dated May 20, 2009 and June 19, 2009 in Appendix B). A Memorandum of Agreement (MOA) has been developed in compliance with the Section 106 process. The MOA will govern mitigation for adverse effects as a result of the proposed project. The mitigation for adverse effects to the St. Paul and Pacific (BNSF) Railroad Corridor will include an interpretive display to be located at the Northstar Commuter Rail Station in Elk River. The display will include information regarding the history of the St. Paul and Pacific (BNSF) Railroad Corridor; the content of the display will be developed in consultation with SHPO at the time of project implementation. A copy of the MOA is included as Appendix E.

<u>Prime or unique farmlands or land within an agricultural preserve</u>

No prime farmland or farmland of statewide importance will be affected by the proposed project. The proposed project area is located in the urban core of Elk River and is characterized by predominately residential and commercial/industrial development. The proposed project will not cause any adverse impact to agricultural land or operations. No agricultural land will be acquired and no farms will be severed or triangulated. The project will not have an effect upon agricultural production in Sherburne County.

<u>Designated parks, recreation areas or trails</u>

There are no designated parks, or recreation areas adjacent to Highway 10 within the study area from Main Street to Upland Avenue. Rivers Edge Commons, a small community park (0.25 acres) is located one block south of Highway 10 near Jackson Avenue. The proposed improvements will not impact this park.

City of Elk River sidewalks/trails are located within the project area along Main Street, Jackson Avenue, Proctor Avenue, and along the north side of Highway 10 between Upland Avenue and Proctor Avenue. Existing sidewalks/trails affected by the project would be closed during construction. The proposed project includes sidewalks/trails along grade separations at Main Avenue, Jackson Avenue, Proctor Avenue and Bridge Street that would improve pedestrian/bicyclist connectivity and safety across Highway 10 as compared to existing at-grade crossings. A sidewalk would also be provided along the south frontage road east of Proctor Avenue and along the north frontage road from Upland Avenue to Proctor Avenue. See Figure 4, Appendix A.

Babcock Memorial Rest Area is located east of the Highway 10 Project eastern terminus. The Highway 10 Project will not affect Babcock Memorial Rest Area. The City of Elk River Parks Master Plan identifies a future trail along the Mississippi River from Main Street/CR 42 through the Babcock Memorial Rest Area property. The proposed project does not preclude construction of a future trail at this location.

26. Visual Impacts

Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas and large visible plumes from cooling towers or exhaust stacks? __Yes _X_No

If yes, explain.

The proposed project will not create adverse visual impacts during construction or operation. The existing project environment includes the BNSF Railway, roadways, traffic signals, as well as the existing built environment within downtown Elk River. The proposed project will alter the existing visual elements with views of additional pavement, new retaining walls, new storm water ponds, and new bridges and interchange ramps. Altered views include the following:

- Interchange ramps at Upland Avenue, Proctor Avenue, and Main Street.
- Frontage roads parallel to Highway 10 from Main Street to Upland Avenue.
- Overpasses and underpasses at Upland Avenue, Bridge Street, Proctor Avenue, Jackson Avenue, and Main Street.
- Highway 10 will be lower than the existing roadway elevation at Upland Avenue and Proctor Avenue to accommodate proposed grade separations.
- Construction of retaining walls along the project corridor. Decisions on noise mitigation to be included in the project will be based on the results of a future noise impact re-evaluation.
- Removal of buildings (homes and commercial businesses) acquired for right of way at several locations along the project corridor.

Mn/DOT will coordinate with the City of Elk River prior to project implementation to identify appropriate aesthetic enhancements for the Highway 10 project corridor, consistent with Mn/DOT policies in place at that time.

27. Compatibility With Plans and Land Use Regulations

Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional, state or federal agency?

__Yes X No

If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

Work on the State Trunk Highway system is not subject to any adopted local plans. However, the following describes local land use and transportation planning activities as they relate to the Highway 10 corridor through Elk River.

Current land use conditions along the Highway 10 corridor within the project area include commercial, residential, and industrial. As the proposed project is not programmed (i.e., not in Mn/DOT's 20-year plan), land use change is expected to occur prior to construction. The Preferred Alternative for Highway 10 was developed in coordination with the City of Elk River. Completion of the EA/EAW at this time will allow the City of Elk River to incorporate the future Highway 10 design described in this document into their comprehensive planning activities.

The *City of Elk River Comprehensive Plan* (August 2004) includes discussion of the recommended actions and projects identified in the *Highway 10 CMP* and recognizes that Mn/DOT intends to limit direct access to Highway 10 in order to meet its primary goal of the safe and efficient movement of vehicles through Elk River. The Comprehensive Plan identifies the project area segment of Highway 10 as an urban parkway design with lower speeds as a design that would be best suited to the objectives described in the plan. However, the Comprehensive Plan also acknowledges that amendments to the plan will be needed as consensus is reached on proposed highway improvement plans.

While the proposed freeway design is different from the parkway design noted in the Comprehensive Plan, the proposed project includes improvements to maintain accessibility to, from, and across Highway 10. The frontage road system and grade-separated crossings are included in the proposed project to improve local circulation. The proposed Highway 10 profile from Main Street to east of Proctor Avenue is similar to the existing roadway profile in order to maintain visibility of the downtown area from the highway. The City of Elk River City Council endorsed the Preferred Alternative at its meeting on November 10, 2008.

The *City of Elk River Comprehensive Plan* calls for "a well defined system of sidewalks and trails to encourage pedestrian and other non-vehicular movement within the area." The proposed

project is consistent with this goal by providing grade-separated crossings of Highway 10 and the BNSF Railway which will improve safety for pedestrians and other non-vehicular modes. The proposed project provides sidewalks along the east-west frontage road, as well as local roadways across Highway 10 and the BNSF Railway.

The *Sherburne County Long-Range Transportation Plan* (June 2007) uses Mn/DOT's classification of Highway 10 as a medium priority interregional corridor. As such, the main transportation function of Highway 10 in the *Sherburne County Long-Range Transportation Plan* is to provide high-speed travel with limited access. This is consistent with the proposed freeway design alternative for Highway 10.

28. Impact On Infrastructure and Public Services

Will new or expanded utilities, roads, other infrastructure or public services be required to serve the project? _Yes X No

If yes, describe the new or additional infrastructure or services needed. (Note: any infrastructure that is a connected action with respect to the project must be assessed in the EAW; see *EAW Guidelines* for details.)

Utilities, Other Infrastructure, or Public Services

New or expanded utilities, other infrastructure, or services would not be needed as a result of the project. All changes in local roadways required because of proposed improvements to Highway 10 are included in the evaluation of project impacts.

BNSF Railway Realignment

Highway 10 Project (S.P. 7102-123)

The proposed project described in this EA/EAW will include realignment of the BNSF Railway to consolidate the Highway 10 corridor and BNSF Railway corridor through Elk River and to accommodate grade-separations at Main Street, Jackson Avenue, and Proctor Avenue. The BNSF Railway runs southeast-northwest through the project area, parallel to Highway 10. A 6,000-foot long segment of the BNSF Railway will be realigned to the north of its existing alignment from the Great River Energy (GRE) site to east of Proctor Avenue, including construction of three new bridges over/under local roadways. The BNSF Railway will bridge over Main Street and Jackson Avenue. Proctor Avenue will bridge over the BNSF Railway. Proposed bridges will meet the minimum railroad or roadway clearance requirements for local streets.

The proposed BNSF Railway alignment is located approximately 100 feet north of its existing alignment at Main Street. The proposed railroad right of way width is 100 feet. The proposed railroad right of way is designed to accommodate a future third track.

Impacts associated with the BNSF Railway realignment within Elk River as part of the Highway 10 Project are summarized below.

- **Right of way:** In total, BNSF railway realignment will require 13.1 acres of new right of way within the project area. The proposed realignment will require the total acquisition and relocation of 4 residential units and the total acquisition of 18 parcels currently in commercial uses. Acquisition of the 18 commercial parcels will result in 17 business relocations. Additionally, partial acquisitions will be necessary from 1 residential parcel and 3 commercial parcels.

- **Train Noise:** Train noise will be evaluated as part of future project documentation based on Mn/DOT practice and methodology in place at that time.

- **Vernon Cemetery:** The Vernon Cemetery was determined not eligible for listing on the NRHP (see SHPO correspondence in Appendix B). Realignment of the BNSF Railway to the north will require minor realignment of an access road within the Vernon Cemetery. Information available at this time indicates that this area of the cemetery does not contain any burial sites. Additional studies will be undertaken during final design to confirm that the access road will not impact any burial sites.

- **Railroad Operations:** Maintenance of railroad operations was a key consideration in project development. Because the BNSF Railway would be constructed on a new alignment, the existing tracks would remain in operation during construction of the proposed alignment. When construction is complete, train traffic would be shifted to the new alignment and construction of the Highway 10 freeway section at Main Street could be completed. The existing tracks could then be removed.

The acquisition and relocation of property due to the BNSF Railway realignment will be conducted in accordance with the Uniform Relocation and Real Property Acquisition Act of 1970, as amended by the Surface Transportation Uniform Relocation Assistance Act of 1987 and 49 C.F.R. 24, effective April 1989 (revised January 2005).

Highway 169 Project (S.P. 7106-73)

Mn/DOT District 3 is proposing reconstruction of Highway 169 to a freeway facility through Elk River (SP 7106-73). An EA/EAW evaluating the impacts of the Highway 169 Project is anticipated to be published concurrently with this EA/EAW. The Highway 169 project corridor is located to the east/northeast of the Highway 10 project corridor. The Highway 169 Project also includes construction of the BNSF Railway on a new alignment to the north of its existing alignment from the GRE Site to 171st Avenue. The BNSF Railway currently bridges over Highway 169 east of the GRE Site. This bridge would need to be replaced to accommodate alignment shifts and expansion of Highway 169. Construction of the BNSF Railway on a new alignment allows the existing tracks and bridge to remain in operation while the new tracks and bridge are under construction. Following construction, train traffic will be shifted to the new tracks and bridge, and the existing BNSF Railway facilities removed.

The BNSF Railway realignment associated with the Highway 10 Project and Highway 169 Project have been designed so that it is feasible for each to be constructed to match existing conditions or proposed future conditions on the BNSF Railway. However, it is likely that construction of the proposed BNSF Railway alignment, grade separations through downtown

Elk River, and new bridge over Highway 169 would occur as one project (see Figure 10, Appendix A).

29. Cumulative Potential Effects

Minnesota Rule part 4410.1700, subpart 7, item B requires that the RGU consider the "cumulative potential effects of related or anticipated future projects" when determining the need for an environmental impact statement. Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative impacts. Describe the nature of the cumulative impacts and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to cumulative impacts *(or discuss each cumulative impact under appropriate item(s) elsewhere on this form).*

In addition to the state definition of cumulative potential effects described above, cumulative impacts are defined by the federal Council on Environmental Quality (CEQ) as "impacts on the environment that result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 158.7). The findings below pertain to both cumulative potential effects and cumulative impacts. In the discussion that follows, the terms "cumulative potential effects" and 'cumulative impacts' are used interchangeably.

Cumulative potential effects are not necessarily causally linked to the Highway 10 in Elk River project. Rather, they are the total effect of all known actions (past, present, and future; public and private) in the vicinity of the proposed project with impacts on the same types of resources. The purpose of cumulative potential impacts analysis is to look for impacts that may be individually minimal, but which could accumulate and become significant and adverse when combined with the effects of other actions.

<u>Scope</u>

Cumulative impacts analysis is limited to those resources, ecosystems, and human communities affected by the proposed Preferred Alternative – e.g. wetlands, storm water quality and quantity (including erosion control/sedimentation), groundwater, traffic noise, and archaeological and/or architectural resources. The direct and indirect effects of the proposed project on these resources are discussed elsewhere in this document.

The geographic scope of this analysis varies by the resource under examination, but in general is limited to an area within downtown Elk River, proximate to the project limits.

The temporal scope of the analysis attempts to consider previous impacts to resources in the past, as well as anticipating events extending to 2030, which is the Build analysis year for traffic operations (see Section VII.A.21).

<u>Actions</u>

Past actions in the project area include decades of residential, commercial and industrial development, as well as roadway, railroad and other infrastructure construction, which has created the existing built environment in downtown Elk River. Portions of downtown Elk River south of Highway 10 were recently redeveloped to include mixed uses (residential and commercial land uses).

Over the planning timeframe for the proposed project, development of open space can be expected to continue, and redevelopment of currently developed land can be expected to occur. The following projects are the currently know future planned projects in the City of Elk River project area:

- Highway 169 freeway conversion project from the Mississippi River to CSAH 4 in Zimmerman.

Sherburne County

- There are no County transportation infrastructure improvements within the project area based on the Sherburne County 2007-2012 Construction Program.

Elk River

The following items are identified in the Elk River Capital Improvement Plan (CIP) for 2009-2013:[18]

- Widening northbound Proctor Avenue at Highway 10 to allow a right-turn lane.
- Improvements to Main Street (resurfacing and repainting).
- Various park improvement projects.

Following completion of the environmental review process for the Highway 10 project, the City anticipates completing a downtown plan study to identify opportunities for redevelopment and future land uses in the downtown area. The timeframe for future redevelopment in downtown Elk River is unknown and specific land use changes, types of development or density of development are also unknown. However, it is reasonable to assume that redevelopment and land use changes could occur in the downtown area within the timeframe of this study (i.e., through year 2030).

The environmental review process is being completed at this time for the proposed project to identify and plan for the long-term improvements to Highway 10 in Elk River that will enhance regional mobility, address traffic operations, and preserve local connectivity/accessibility while facilitating comprehensive planning activities in Elk River. This project is not funded or programmed for construction at this time. For the purposes of this cumulative effects analysis, construction of Highway 10 as a freeway facility through Elk River is anticipated for completion

[18] City of Elk River. January 2008. The City of Elk River Web Site (online). City of Elk River Capitol Improvement Plan 2009 – 2013 accessed 2008-12-30 at http://www.ci.elk-river.mn.us/index.asp?Type=B_BASIC &SEC={88552EC1-215A-446D-BB59-C346A75CE23F}

within the 2009-2028 timeframe based on work completed as part the 2009 Statewide Transportation Plan process and the District 3 2009-2028 Highway Investment Plan (February 2009 draft).

Impacts from the Highway 10 Project are described throughout this document. Impacts resulting from the project include contaminated properties; wetlands; water quality; groundwater; traffic noise; and cultural resources. Cumulative impacts to these resources resulting from the proposed project as well as anticipated future projects listed above are discussed in the following sections.

Evaluation of Potential Cumulative Impacts

Wetlands

Wetlands within the project area are primarily associated with the Mississippi River and Lake Orono. A wetland area is located north of the project area between the BNSF Railway and Upland Avenue. Wetlands in the project area have been previously impacted by the built environment within Elk River.

The proposed project will impact approximately 2.36 acres of wetlands. These impacts will be mitigated following laws and regulations in place at the time of construction (see Section VII.A Item 12).

The project area is adjacent to fully developed areas in downtown Elk River, including residential, commercial, and industrial uses. These past development actions have likely resulted in filling of wetlands, although in the more recent past, federal and state regulations have controlled fill impacts to wetlands. Specific redevelopment plans for the downtown area north of the BNSF Railway have not been identified, therefore future impacts are unknown. However, because this area is already developed, the likelihood for wetland impacts is small.

Wetlands in Minnesota are protected by Federal and State law. Wetland impacts are subject to these laws, which require sequencing with respect to wetlands. Avoidance of wetland impacts is required when possible, and when avoidance is not possible, impacts must be minimized and mitigated. Given these regulations, there is a low potential for cumulative impacts to wetlands.

Stormwater Quality and Quantity

Nearly all of stormwater runoff from the project area is conveyed to Lake Orono or the Mississippi River. Stormwater runoff from the existing Highway 10 roadway generally flows toward vegetated ditches, allowing for some degree of infiltration, filtering, and vegetative uptake of nutrients and pollutants before entering the downstream receiving waters.

The addition of interchange ramps and a frontage road system will increase the amount of impervious surface in the corridor, thereby increasing stormwater runoff from the project corridor. This stormwater runoff will carry pollutants common to roadway corridors. The proposed project includes stormwater management BMPs, such as conveyance of runoff to

stormwater detention ponds, that effectively treat runoff prior to discharge to receiving water bodies. Impacts and proposed mitigation for the project is described in Section VII.A.17.

Erosion and sedimentation of all exposed soils within the project corridor will be minimized by utilizing the appropriate best management practices (BMPs) during construction. Implementation of BMPs greatly reduces the amount of construction-related sedimentation and helps to control erosion and runoff. Proposed mitigation for erosion control is described in Section VII.A.16.

Future redevelopment in downtown Elk River may also result in increased impervious surface area and an increase in stormwater runoff. If not properly managed, stormwater runoff could result in negative impacts (flooding, sedimentation, decreased water quality) to receiving waters. As described in Section VII.A.17, the City of Elk River is classified as a MS4 under the National Pollutant Discharge Elimination System (NPDES) Phase II program. As part of this program, the City of Elk River has developed a stormwater pollution prevention plan (SWPPP) that details six minimum control measures. Any future redevelopment within the project corridor will be subject to the regulatory requirements for land use development, including stormwater management practices in place at the time of development. Therefore, substantial cumulative impacts on water quality are not likely.

Groundwater

As discussed in Section VII.A.19, groundwater elevations within the project area are close to the existing ground surface. Groundwater elevations gathered along the Highway 10 corridor since 2006 indicate that seasonal groundwater fluctuations range as much as six feet. A significant number of the soil units in the project corridor have sandy textures. The coarse texture of the soil makes the groundwater especially susceptible to contamination. Due to the relatively high permeability of these soils, a potential chemical or waste spill could infiltrate into the soil and into the groundwater.

The proposed project will include measures to facilitate subsurface dewatering during periods of high groundwater fluctuations. Proposed BMPs may need to be limited to wet detention basins so as to minimize the potential for groundwater contamination. Furthermore, storm sewer or lined ditches may need to be used to convey stormwater to the proposed stormwater detention basins instead of typical vegetated ditches that allow infiltration.

Groundwater can be affected by residential, commercial, or industrial redevelopment as additional impervious surfaces could reduce infiltration. Stormwater BMPs implemented with any future redevelopment, if not properly designed, can also result in an increased potential of groundwater contamination. However, given the design standards and management controls in place, adverse cumulative impacts to groundwater are not anticipated.

Traffic Noise

The proposed project will result in increases in traffic noise levels along the Highway 10 corridor. Because the noise analysis was based on forecasted 2030 Build traffic volumes, the impacts from other potential future redevelopment in the project corridor have already been accounted for in the results. As such, there is no potential for cumulative impacts with respect to traffic noise impacts.

Archaeological, Architectural, and Historic Resources

No National Register-archaeological properties are located within the project area, although some areas have yet to be surveyed. Two sites recommended eligible or determined eligible for listing on the NRHP are located within the area of potential effect for the proposed project. The Elk River Water Tower was recommended as eligible for listing on the NRHP. The St. Paul and Pacific Railroad Corridor historic district was previously determined eligible for listing in the NRHP.

The proposed project will realign approximately 6,000 feet of the St. Paul and Pacific (BNSF) Railroad Corridor. Adverse effects have been identified for the St. Paul and Pacific (BNSF) Railroad Corridor historic district. A Memorandum of Agreement has been developed in compliance with the Section 106 process. The MOA will govern mitigation for adverse effects as a result of the proposed project.

The Highway 169 Project from Elk River to Zimmerman will also require realignment of the St. Paul and Pacific (BNSF) Railroad Corridor. This project is being reviewed under the federal Section 106 process. Consultation with the SHPO, as required by Section 106, will avoid and/or minimize for potential project impacts to cultural resources, as well as govern mitigation for impacts to the St. Paul and Pacific (BNSF) Railroad Corridor historic district.

Local units of government have the ability to protect historic resources through comprehensive planning and zoning controls. Local communities can also enact further controls to protect historic resources, such as designation of historic properties as well as design reviews. Changes to National Register-eligible or listed properties will be reviewed under the Section 106 process if federal funds, permits, or approvals are required as part of an undertaking. Therefore, adverse cumulative effects on cultural resources in the project vicinity, as well as with respect to the St. Paul and Pacific (BNSF) Railroad Corridor historic district, are not anticipated.

30. Other Potential Environmental Impacts

If the project may cause any adverse environmental impacts not addressed by items 1 to 28, identify and discuss them here, along with any proposed mitigation.

No potential environmental impacts are anticipated other than those discussed above.

31. Summary of Issues

Do not complete this section if the EAW is being done for EIS scoping; instead, address relevant issues in the draft Scoping Decision document, which must accompany the EAW.

List any impacts and issues identified above that may require further investigation before the project is begun. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

The following outlines the impacts and issues that will require further action. Where applicable, mitigation measures have been identified.

Item No. 9: Contaminated Properties

A Phase I Environmental Site Assessment found 33 sites of documented or potential contamination within the current study area. Eight (8) sites were identified as having high risk potential for contamination, and 18 were identified as medium risk potential sites. Thirteen (13) of these properties will be completely or partially affected by right of way acquisition.

Prior to construction, these properties will be drilled and sampled if necessary to determine the extent and magnitude of contaminated soil or groundwater. If necessary, a plan that is consistent with MPCA requirements will be developed for properly handling and treating contaminated soil and/or groundwater during construction. Once actual ponding locations are identified and further investigation of sites is completed, it will be determined whether any ponds should be lined to avoid flushing any existing contaminants into the groundwater.

Item No. 12: Physical Impacts On Water Resources

Approximately 2.36 acres of wetland impacts will result from the proposed project. After design is finalized, a wetland mitigation plan for replacement of the affected wetland areas will be developed. That plan will reassess the areas of wetland impacts (and mitigation needed) based on refined design plans, formal wetland delineations, and the current and applicable wetland mitigation guidelines and regulations in effect at that time. Application for permits for wetland impacts will be submitted to the COE and DNR.

Item No. 16: Erosion and Sedimentation

There is potential for erosion during construction, due to the presence of areas of Highly Erodible (HEL) and Potentially Highly Erodible land within the project area. These areas of HEL/PHEL are concentrated along the Mississippi River. Due to the close proximity of Highway 10 to the river in this location, avoiding all areas of impact will not be possible. However, the proposed project will shift the alignment of Highway 10 north, farther away from the river minimizing future impacts to HEL.

Additionally, impacts to water quality will be minimized by the use of BMPs. Erosion prevention and sediment control during construction will include silt fences and traps, temporary seeding

and mulching, and use of erosion control blankets on slopes. Sedimentation ponds will be constructed as early in the project as practicable in order to trap sediment during construction. Excess fill material will not be deposited in wetlands or other environmentally sensitive areas.

Item No. 17: Water Quality

The project will increase impervious surfaces which will result in additional runoff. The proposed project will include a combined urban and rural stormwater conveyance system. The urban stormwater conveyance system will feature storm sewer and discharge to designated stormwater treatment facilities; the rural stormwater conveyance system will utilize vegetated ditches. All stormwater generated from the Highway 10 corridor and interchanges will be directed to stormwater detention basins and/or infiltration/filtration basins located throughout the extents of the proposed project. The rules established by the National Pollutant Discharge Elimination System permit program (or whatever regulations are in effect at the time of project implementation) will be followed to mitigate the water quality and quantity impacts created by the project to the greatest extent practicable. Coordination will occur with local governing bodies, such as the City of Elk River and the Sherburne Soil and Water Conservation District, as appropriate.

Item No. 24: Odors, Noise, and Dust

State daytime and nighttime noise standards are exceeded along the project corridor under existing conditions. State daytime and nighttime noise standards are predicted to be exceeded with future (2030) Build conditions. Construction of the project will result in increases in traffic noise due to increased traffic, changes in the vertical and horizontal alignment of project-area roadways, and changes in the BNSF Railway alignment.

Cost-effectiveness of noise barriers was calculated; one 15-foot high wall located along the south side of Highway 10 between Proctor Avenue and Bridge Street that achieved a 5 dBA reduction was found to be cost-effective and is proposed. Traffic noise impacts and mitigation will be re-assessed in the future at the time of project implementation, based on conditions and land uses in place at that time. Decisions on noise mitigation to be included in the project will be based on the results of the future noise impact reassessment.

Item No. 25: Archaeological, Historic, and Architectural Resources

The proposed project would result in an adverse effect to the St. Paul and Pacific Railroad Corridor. A Memorandum of Agreement (MOA) has been developed in compliance with the Section 106 process. The MOA will govern mitigation for adverse effects as a result of the proposed project. The mitigation for adverse effects to the St. Paul and Pacific (BNSF) Railroad Corridor will include an interpretive display to be located at the Northstar Commuter Rail Station in Elk River. The display will include information regarding the history of the St. Paul and Pacific (BNSF) Railroad Corridor. The content of the display will be developed in consultation with SHPO at the time of project implementation.

A Phase I archaeological survey was completed for the proposed project. The eastern survey area was visually inspected and determined to have low archeological potential, and no additional work is recommended for this area. The western survey area is located near Tipton Circle, northeast of Lake Orono. Landowner permission to access this survey area was denied. A Phase I survey of the western survey area will be conducted once access is obtained.

Item No. 26: Visual Quality Impacts

Commitment to coordinate with the City of Elk River prior to project implementation to identify appropriate aesthetic enhancements for the Highway 10 project corridor, consistent with Mn/DOT policies in place at that time.

Item No. 28: Impact On Infrastructure and Public Services

Realignment of the BNSF Railway to the north with the proposed project will require minor realignment of an access road within the Vernon Cemetery. The Vernon Cemetery was reviewed as part of cultural resources studies and was determined not eligible for listing on the NRHP. Information available at this time indicates that this area of the cemetery does not contain any burial sites. Additional studies will be undertaken during final design to confirm that the access road will not impact any burial sites.

Section VII.B.6: Right of Way and Relocation

A total of approximately 46.5 acres of right of way (135 affected parcels) will be acquired for the proposed project. Based on preliminary engineering and design, the proposed project would potentially require the total acquisition of 44 individual parcels currently in residential land uses (41 single family residences and one apartment building) and the total acquisition of 47 individual parcels in commercial land uses. Total parcel acquisitions would result in the relocation of 31 single-family residences and one apartment building (21 units) and the relocation of 30 businesses. Partial acquisition would require relocation of residents in one apartment building (8 units) in the southeast quadrant of the Proctor Avenue/School Street intersection.

The acquisition and relocation of property due to the proposed project will be conducted in accordance with the Uniform Relocation and Real Property Acquisition Act of 1970, as amended by the Surface Transportation Uniform Relocation Assistance Act of 1987 and 49 C.F.R. 24, effective April 1989 (revised January 2005) and in accordance with Minnesota State Statute Chapter 117. Because the proposed project is not programmed for construction and may not be constructed for many years, changes in current land use are anticipated and right of way impacts will be reevaluated closer to the time of construction. The acquisition and relocation of property due to the proposed project will be conducted in compliance with state and federal laws and requirements in place at the time of final design, right of way acquisition, and construction.

RGU CERTIFICATION. The Environmental Quality Board will only accept SIGNED Environmental Assessment Worksheets for public notice in the EQB Monitor.

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9b and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Jule Pfeffer **Date** 7/22/10

Title Chief Environmental Officer

Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at the Minnesota Department of Administration, Office of Geographic and Demographic Analysis. For additional information, worksheets or for *EAW Guidelines*, contact: Environmental Quality Board, 658 Cedar St., St. Paul, MN 55155, 651-201-2492, or http://www.eqb.state.mn.us

B. ADDITIONAL FEDERAL ISSUES

Discussed below are additional federal issues not discussed in the EAW.

1. Social Impacts

Access Changes

The proposed project will result in the closure of a substantial amount of access along Highway 10. This includes the closure of all private driveways within the project limits with access to Highway 10. Table 19 documents changes of existing and proposed access to/from Highway 10 within the project corridor. Businesses and residents within the project area will experience changes in access as a result of the proposed project. Under Build conditions, businesses that had direct driveway access to Highway 10 will have traffic redirected to proposed frontage roads and the local road system. Local residents will access Highway 10 via interchange ramps at Upland Avenue (westbound), Proctor Avenue (eastbound), and Main Street (eastbound). Although these access changes result in more circuitous travel routes for some properties, the increased travel distances are offset by improved safety and traffic operations within the study area (compared to the No Build Alternative). Improvements to intersection traffic operations could also reduce travel times for local users.

TABLE 19
HIGHWAY 10 ACCESS CHANGES (LOCAL ROADWAYS)

Location	Existing Access	Proposed Access[1]
Simonet Drive	Right-in/right-out	Closed
Upland Avenue/CR 44	Signalized intersection	Interchange ramps to and from the west
Proctor Avenue	Signalized intersection	Interchange ramps to and from the east
Oxford Avenue	Full access	Closed
Norfolk Avenue	Right-in/right-out	Closed
Morton Avenue	Right-in/right-out	Closed
4th Street	Right-in/right-out	Closed
Lowell Avenue	Right-in/right-out	Closed
Jackson Avenue	Signalized intersection	Underpass, connection to Main Street south of Hwy 10
Main Street	Signalized intersection	Interchange ramps to and from the east
Babcock Memorial Rest Area[2]	Full access	Closed (part of Highway 10/101/169 system interchange reconstruction with Highway 169 Project)

(1) For closed accesses, traffic will be redirected to supporting local road network and proposed frontage road system.
(2) Maintenance access for GRE operations to be provided south of Highway 10. Not a public access.

Community Facilities

The proposed project is not expected to cause any adverse impact to any community or neighborhood. No categories of people uniquely sensitive to transportation (e.g. children, elderly,

minorities, persons with mobility impairments) will be unduly impacted by the proposed project. There are no community facilities located within or adjacent to the project area.

Community facilities in the project vicinity but outside of construction limits include several schools, churches, parks, community/city facilities, and a senior housing facility. These facilities are listed below (not all inclusive):

Schools (including associated athletic and recreational facilities)

- VandenBerge Middle School (948 Proctor Road, Elk River)
- Elk River High School (900 School Street, Elk River)
- Lincoln Elementary (600 School Street, Elk River)
- Ivan Sand Community School (1232 School Street NW, Elk River)
- Parker Elementary School (500 School Street, Elk River)

VandenBerge Middle School is located in the northeast quadrant of the Proctor Avenue/School Street intersection. Realignment of Proctor Avenue would result in temporary impacts to the school parking lot. Following construction of the realigned Proctor Avenue, the parking lot would be repaved to its existing condition. Construction of the realigned Proctor Avenue is not anticipated to affect access to the school parking lot from School Street. Sidewalk facilities along Proctor Avenue and Jackson Avenue will provide connectivity to schools north of Highway 10 for land uses south of the Highway. The proposed grade separations from Highway 10 and BNSF Railway will improve safety for local traffic, pedestrians, and bicyclists accessing the schools from land uses south of the highway and railroad.

Churches

- Alliance Community Church (829 School Street, Elk River)
- Central Lutheran Church (1103 School Street, Elk River)
- Elk River United Methodist Church (1304 Main Street NW, Elk River)
- Elk River Baptist Church (1800 8th Street NW, Elk River)
- Emmanuel Lutheran Church (1506 Main Street NW, Elk River)
- Faith Fellowship (1230 School Street, Elk River)
- The Church of St. Andrew (566 4th Street, Elk River)
- Shiloh New Testament Church (500 School Street, Elk River)
- Solid Rock Church (11800 196th Avenue NW, Elk River)
- Union Church United Church of Christ (1118 4th Street NW, Elk River)
- Holy Trinity Episcopal Church (1326 4th Street NW, Elk River)

Community/City Properties

- Lions Park Center (1104 Lions Park Drive, Elk River)
- Fire Station (415 Jackson Avenue, Elk River)

Senior Dining Facilities

- Guardian Angels Care Center (400 Evans Avenue, Elk River)

Library

- Elk River Public Library (13020 Orono Parkway, Elk River)

Parks

- Lions Park (1104 Lions Park Drive, Elk River)
- Oak Knoll Athletic Complex (999 Proctor Avenue, Elk River)
- Meadow Park (235 Second Street, Elk River)
- Rivers Edge Commons (679 Main Street, Elk River)

2. Considerations Related to Pedestrians and Bicyclists

Existing paved sidewalks along Main Street, Jackson Avenue, and Proctor Avenue will be replaced with pedestrian facilities along Main Street and Jackson Avenue under Highway 10 and at the proposed bridges over Highway 10 at Proctor Avenue and Bridge Street. A sidewalk will also be constructed along the south side of the proposed frontage road from Proctor Avenue to Main Street, as well as along the north side of the proposed westbound frontage road from Upland Avenue to Proctor Avenue. Locations of sidewalks and trails along local roadways are illustrated in Figure 4, Appendix A.

All existing pedestrian and bicycle crossings of Highway 10 and the BNSF Railway are at-grade. The proposed action would improve safety for pedestrians and bicyclists by providing grade-separated crossings of Highway 10 and the BNSF Railway at Proctor Avenue, Jackson Avenue and Main Street. Identifying a future design for Highway 10 within Elk River at this time will allow the City to incorporate this future design into their transportation plans. The proposed project does not preclude the City from identifying and implementing bicycle and pedestrian facility connections to the proposed project.

Proposed trails and sidewalks along local roadways within the project area will be within public right of way. These facilities will serve to connect neighborhoods and residential land uses with other land uses (commercial, business) on both sides of the Highway 10 corridor. The proposed project will be designed to be consistent with ADA accessibility requirements in place at the time of final design and construction.

3. Section 4(f)/Section 6(f)

The project has been reviewed for Section 4(f) involvement. The project will cause an adverse effect to the St. Paul and Pacific Railroad Corridor, a historic district that has previously been determined as eligible for listing in the National Register of Historic Places (see discussion in Section IV.A.25). A Section 4(f) review was completed for this property (see Appendix F).

The project has been reviewed for potential 6(f) involvement. The project will not cause the conversion of any land acquired, planned, or developed with funds from the Land and Water Conservation Fund (LAWCON). Therefore, there is no Section 6(f) involvement on this project.

4. Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," dated February 1, 1994, requires that environmental justice be addressed (to the greatest extent practicable and permitted by law) in all federal planning and programming activities. The purpose of Executive Order 12898 is to identify, address, and avoid disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low-income populations. The proposed project has federal permit requirements and will receive federal funding. As such, it is considered a federal project for the purpose of compliance with this Executive Order.

Executive Order 12898 requires that the proposed actions be reviewed to determine if there are 'disproportionately' high or adverse impacts on these populations. 'Disproportionate' is defined in two ways: the impact is 'predominantly borne' by the minority or low-income population group, or the impact is 'more severe' than that experienced by non-majority or non-low-income populations. The steps for defining environmental justice impacts include the following:

1. Identification of low-income and/or minority populations in the project area;
2. Identification of the impacts of the project upon identified low-income and/or minority populations; and
3. Determination of whether or not the impacts are disproportionately high or adverse.

Mn/DOT published draft guidance for their planning and project development activities in June 1997. The following environmental justice determination for the proposed project is modeled after and consistent with Mn/DOT's Environmental Justice Guidance.

<u>Project Area Demographics</u>

The first step in the environmental justice determination process is to determine whether any minority and/or low-income persons are present within the project area. For the purpose of environmental justice, a low-income population or minority population is defined as a population of people or households located in close geographic proximity that meet the racial and income criteria set forth in Executive Order 12898.

Information on population characteristics of the project area was obtained from year 2000 Census data and discussions with local planning staff. For purposes of this analysis, data were examined at the Census block group level. See Figure 11 in Appendix A.

Data concerning total population and racial composition within the project area is shown in Table 20. Data used for the determination of low-income communities include two variables: (1) persons living below the poverty level; and (2) median household income. These data are summarized in Table 21.

Identification of Minority Populations

The term "minority" is defined using race and ethnicity definitions from Census 2000. Minority populations are identified when the minority percentage in a given block group exceeds the minority percentage of the county. As indicated in Table 20, the 2000 population of the study area is predominantly white. For identified block groups within the project area, Census 2000 reported minority populations of two percent, with Hispanic population levels of one percent or less. The minority percentages for identified block groups within the project area are less than those reported by Sherburne County or the City of Elk River. As such, no minority populations were identified within the project area.

Identification of Low-Income Populations

The term "low-income" is defined for the purposes of the study as persons with incomes below the 1999 poverty level. The responses of households reporting income data are weighted to reflect the entire population. The result is that the weighted total population numbers do not match those numbers used in determining minority populations. Low-income populations are identified when the percentage of low-income persons in a given block group exceeds the percentage of low-income persons in the county.

Census 2000 reported a household median income of $57,014 for Sherburne County with 4.4 percent of persons with income below the 1999 poverty level. In Elk River, the median income is $58,114 with 3.2 percent of persons below the 1999 poverty level.

As indicated in Table 21, Census Tract 305.02, Block Group 3 reported a low-income population of 6 percent, exceeding that of Sherburne County and Elk River. There are two project-based Section 202 senior housing facilities located in Census Tract 305.02, Block Group 3. They are operated by Guardian Angels of Elk River, a comprehensive senior care organization, and offer subsidized housing for income qualifying seniors. They are: Angel Ridge (280 Evans Avenue NW, Elk River) and Guardian Oaks (350 Evans Avenue NW, Elk River). Although these senior housing facilities are located within the Census Tract used to gather income data for this region, they are not located within or adjacent to the project area, and the project would not have a direct impact on these facilities.

The proposed project will result in the acquisition and relocation of the River City Apartments (814 Proctor Avenue and 1179 School Street). Based on information received from City staff, these are market-rate apartment units.

TABLE 20
POPULATION, HOUSEHOLDS, AND RACE – 2000 CENSUS

Demographic Group	Tract 305.02 Block Group 3		Tract 305.01 Block Group 3 (Elk River)		City of Elk River		Sherburne County	
	Number	% of Population	Number	% of Population	Number	% of Population	Number	% of Population
Population	1,673	100.0%	1,316	100%	16,447	100%	64,417	100%
▪ White	1.633	98%	1,289	98%	15,984	97%	62,308	97%
▪ Minorities	40	2%	27	2%	463	3%	2,109	3%
- Black	13	< 1%	5	< 1%	73	< 1%	550	< 1%
- AIAN[1]	7	< 1%	8	< 1%	61	< 1%	287	< 1%
- Asian	1	< 1%	5	< 1%	81	< 1%	372	< 1%
- NHPI[2]	0	0.0%	0	0%	2	< 1%	14	< 1%
- Other Race	4	< 1%	0	0%	79	< 1%	276	< 1%
- Two or More Races	15	< 1%	9	< 1%	167	1%	610	< 1%
▪ Hispanic[3]	24	1%	5	< 1%	219	1%	709	1%

Source: Year 2000 U.S. Census
[1] AIAN = American Indian or Alaska Native
[2] NHPI = Native Hawaiian & Other Pacific Islander
[3] Those of Hispanic origin may also consider themselves white or of another race; therefore, population totals and percentages will be greater than 100 percent

TABLE 21
INCOME AND POVERTY – 2000 CENSUS

Demographic Group	Tract 305.02 Block Group 3		Tract 305.01 Block Group 3		City of Elk River		Sherburne County	
	Number	% of Population	Number	% of Population	Number	% of Population	Number	% of Population
Median household income in 1999 (dollars)	$29,792	NA	$55,583	NA	$58,114	NA	$57,014	NA
Population for whom poverty status is determined – all ages[1]	91	6%	18	1%	514	3%	2,776	4%

Source: Year 2000 U.S. Census
[1] Numbers are less/more than population numbers, as poverty status determined for smaller areas such as block groups use weighted samples.

Environmental Justice Determination

The purpose of Executive Order 12898 is to identify, address, and avoid disproportionately high and adverse human health or environmental effects on minority and low-income populations. If any minority or low-income population concentrations are found in the project area, Executive Order 12898 requires that the proposed action be reviewed to determine if there are disproportionately high or adverse effects on these populations. Disproportionate is defined in two ways: the impact is "predominantly borne" by the minority or low-income population group or the impact is "more severe" than that experienced by non-minority or non-low-income populations.

Based on Census 2000 data, populations within and adjacent to the proposed project area are not considered to be predominantly low-income or minority populations. Based on the location of Section 8 and Section 202 housing facilities, low-income populations are located in Elk River but outside of the project area. Project impacts are distributed evenly throughout the project corridor, and the proposed improvements will provide benefits for all who utilize the corridor. Therefore, the proposed action will not have disproportionately high and adverse human health or environmental effects to any minority or low-income populations.

5. Economic Impacts

The proposed improvements are not anticipated to result in any broad changes in existing land use patterns. However, the Build Alternative will result in the conversion of commercial and residential property to public right of way and access changes to local businesses (discussed in Section VII.B.1). The City of Elk River will be completing its downtown redevelopment plan which will reflect the Highway 10 Preferred Alternative and associated land use changes. Economic impacts due to Preferred Alternative are discussed below.

Fiscal Impacts

Sherburne County

Right of way impacts for the proposed project will result in the total acquisition of 87 properties in Sherburne County. Year 2008 total taxes payable for the properties that would be total acquisitions was less than $350,000. Total year 2007 property tax revenue for Sherburne County was $35.2 million. Total general revenues for 2007 in Sherburne County exceeded $76 million. [19] Tax losses due to property acquisition for the proposed project are less than one percent of the year 2007 property tax revenue and less than 0.5 percent of year 2007 Sherburne County general revenue.

[19] Sherburne County. June 2008. The Wright County Web Site (online). Comprehensive Annual Financial Report for Sherburne County, Minnesota. For the year ended December 31, 2007 accessed 2008-09-03 at **http://www.co.sherburne.mn.us/auditor/default.htm**

City of Elk River

Right of way impacts for the proposed project will result in the total acquisition of 91 properties in the City of Elk River. Year 2008 total taxes payable for total acquisition properties was less than $350,000. Budgeted year 2008 property tax levied for Elk River is approximately $10.8 million.[20] Tax losses due to property acquisition for the proposed project represent approximately 3.2 percent of the property taxes payable in year 2008. Any properties that are made available for redevelopment following right of way acquisition and construction would contribute to future property tax revenue for the City of Elk River.

Impacts to Commercial Businesses

As discussed below, the Build Alternative could result in the relocation of 30 commercial businesses located in Elk River. Because this project is not anticipated to be constructed for several years, it is expected that businesses at these locations will change over time; some of the affected commercial parcels may undergo total redevelopment during the planning timeframe of the project. Where redevelopment does occur, it will provide the opportunity for Mn/DOT to work with the local community to preserve right of way with minimal impact to existing business owners and employees.

6. Right of Way and Relocation

Approximately 46.5 acres of right of way (135 affected parcels) would potentially be required as either total or partial acquisitions for the proposed project. Parcels affected by total or partial acquisition are illustrated in Figure 12, Appendix A.

The proposed project would potentially require the total acquisition of 44 individual parcels currently in residential land uses. Of these 44 parcels, 41 represent single-family residences and one represents an apartment building (814 Proctor Avenue NW) along the east side of Proctor Avenue south of School Street. This apartment building houses 21 units. See Table G-1 in Appendix G.

The realignment of Proctor Avenue would result in partial acquisition of the residential parcel (Parcel ID 75-133-1115) in the southeast quadrant of the Proctor Avenue/School Street intersection. This parcel includes two, eight-unit apartment buildings. Acquisition of right of way to accommodate the proposed Proctor Avenue alignment would require relocation of residents from the westernmost apartment building (1179 School Street). As of January 2009, these units were not fully occupied.

Of the 41 homes that may be acquired as result of the proposed project, three homes are assessed (2008 assessed values) at less than $100,000, 36 homes are assessed between approximately $100,000 and $200,000, and one is assessed greater than $300,000. One home is a mixed commercial/residential use that is assessed near $300,000.

[20] City of Elk River. January 2008. The City of Elk River Web Site (online). City of Elk River 2008 Adopted Budget accessed 2008-12-30 at http://www.ci.elk-river.mn.us/index.asp?Type=B_BASIC&SEC={88552EC1-215A-446D-BB59-C346A75CE23F}.

An adequate, comparable supply of replacement housing can be found within the Elk River area. To determine the availability of replacement housing, a local realtor database was searched for the City of Elk River in January 2009. As of January 2009, more than 199 homes are available for sale in Elk River in the price range of $100,000 to $300,000.

Two apartment buildings may be acquired along the east side of Proctor Avenue south of School Street. One building contains 8 units and the second building contains 21 units. To determine the availability similar to those proposed for acquisition, a rental database was searched for the City of Elk River. As of January 2009, there are 8 apartment buildings with vacancies available in Elk River with rents ranging from $400 to $1,000. In total, these apartments contain over 500 units of rental housing.

The timing of these acquisitions and relocations would be dependent upon funding for the proposed project. As previously noted, the project is not funded or programmed at this time. Because the timing of future acquisition and relocation is unknown, the supply of replacement housing in Elk River may fluctuate over time. However, given the current available housing supply, residential growth patterns in Elk River, and potential redevelopment of downtown Elk River, there is no reason to believe that adequate replacement housing would not be available in the future at the time of project construction.

The proposed project would potentially require the total acquisition of 47 individual parcels in commercial land uses representing 30 businesses. Eighteen of the affected commercial parcels are vacant, and four of the commercial parcels are parking lots (see Table G-2 in Appendix G).

The City of Elk River recently redeveloped a portion of downtown south of Highway 10 with available retail/commercial space. Other commercial/retail space is available within Elk River along the Highway 169 commercial corridor. Future redevelopment of downtown north of Highway 10 will likely create additional commercial/retail opportunities, although no specific plans are in place at this time. Therefore, there is no reason to believe that adequate space would not be available for business relocations in the future at the time of project construction.

Mitigation

The acquisition and relocation of property due to the proposed project will be conducted in accordance with the Uniform Relocation and Real Property Acquisition Act of 1970, as amended by the Surface Transportation Uniform Relocation Assistance Act of 1987 and 49 C.F.R. 24, effective April 1989 (revised January 2005) and in accordance with Minnesota State Statute Chapter 117.

As previously noted, the proposed improvements to Highway 10 in Elk River are not currently identified in the Mn/DOT *District 3 2009-2028 Highway Investment Plan* (February 2009 draft) and there is no funding in place for construction of the Preferred Alternative. The acquisition and relocation of property due to the proposed project will be conducted in compliance with state and federal laws and requirements in place at the time of final design, right of way acquisition, and construction.

It is reasonable to assume that some business changeovers may occur at these locations over time; some of the affected commercial parcels may undergo redevelopment during the planning timeframe for this project. Following completion of the environmental review process for the proposed project, the City of Elk River anticipates completing a downtown redevelopment study. Where redevelopment does occur, it will provide the opportunity to work with local communities to reserve right of way with minimal impact to existing business owners and employees. Negative business impacts are anticipated to be offset by improvements to access and safety within the corridor, which will benefit employees, customers, and the transportation of goods.

7. Construction Impacts

Construction of the proposed improvements will be staged to minimize impacts associated with construction such as traffic and access impacts, air quality, and noise.

Traffic and Access Impacts

Traffic patterns will be affected during construction of the proposed project. There may be temporary roadway closures to accommodate certain construction activities. Temporary access changes may also be necessary during reconstruction. Temporary closures and access changes may disrupt travel patterns to and from businesses and community facilities causing potential decreases in business. These changes may cause driver confusion, particularly for those who do not regularly travel through the area. Temporary access and signage would be provided. Coordination with business establishments (e.g., business liaison) will follow will be conducted in compliance with requirements in place at the time of project construction.

Travelers will be informed of on-going construction activities and traffic conditions. Whenever possible, motorists will be advised of upcoming reconstruction activities that may impact their travel plans.

Air Quality

Construction activities will result in the following temporary air quality impacts:

- Emissions from construction-related equipment and vehicles.
- Construction/grading activities disrupting ground cover, resulting in fugitive dust emissions.

These impacts will be temporary and will be limited by the staging of construction activities. Emissions from construction equipment will be dispersed over relatively large construction areas, and any single piece of equipment will not result in adverse impacts to the project area.

Construction contractors will be required to control dust and other airborne particulates in accordance with Mn/DOT specifications. Contractors will be required to conform with all applicable federal, state, and local regulatory requirements in place at the time of construction.

Noise

See Section VII.A.24 for a discussion of noise during construction.

Railroad Operations

The project includes relocating approximately the BNSF Railway mainline to the north of its existing alignment within Elk River, including grade separations at Main Street, Jackson Avenue, and Proctor Avenue. This railroad relocation is illustrated in Figure 4 and Figure 10 in Appendix A. The existing BNSF Railway mainline would remain in operation during construction of the new alignment. After the new alignment has been constructed, train traffic would be shifted to the new alignment and the existing BNSF Railway mainline tracks would be removed. No other impacts to rail operations are expected during the construction period. Continued coordination with BNSF Railway will be necessary through final design and construction.

Borrow/Disposal of Excess Material

A plan for management and disposal of any excess materials associated with construction of the project will be developed as needed. Recycled materials can be utilized in the roadway reconstruction to minimize the need for use of new mineral resources. This decreases the amount of excess material produced by the roadway reconstruction. Excess materials will be recycled for reuse whenever viable.

Regulated materials/waste will be managed on this project in accordance with Mn/DOT special provisions.

8. Indirect Effects

Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.[21] Indirect effects may include effects related to changes in land use patterns, population density or growth rate, and related effects on natural ecosystems (e.g. water resources, etc.). The project area currently consists of developed land uses including residential, commercial, and industrial. As the improvements to Highway 10 are assumed in Elk River's long-range land use planning documents, as discussed in Section VII.A.27, it is not anticipated that the construction of interchanges and the closure of access along Highway 10 would result in substantial changes to the current or future land use patterns and level or intensity of development.

[21] Council on Environmental Quality (CEQ). 40 CFR 1508.7

VIII. PUBLIC AND AGENCY INVOLVEMENT (AND PERMITS/ APPROVALS)

A. PUBLIC AND AGENCY INVOLVEMENT

1. Public Information Process Summary

Project Management Team

The project management team (PMT) consists of Mn/DOT District 3 representatives and consultant staff. The PMT met periodically to provide input regarding the project development process and to provide contract administration and review throughout the study process.

Local Advisory Committee

A Local Advisory Committee (LAC) was responsible for guiding the study, evaluating input from the public, participating in the technical analysis, and making recommendations to Mn/DOT. Members of these committees included officials representing Mn/DOT, Sherburne County, and the City of Elk River. The LAC met on six separate occasions from February 2008 to October 2008.

Meetings with Key Stakeholders

Small group meetings were conducted with business interests to discuss issues and concerns. These meetings included Great River Energy, BNSF Railway, Elk River Chamber of Commerce, and local businesses. Meetings were also conducted with elected officials in Elk River. The following is a summary of meetings held with local stakeholders during the project development process.

- A meeting with the Elk River City Council was held on April 14, 2008.
- A meeting with the Chamber of Commerce and local businesses was held on May 21, 2008.
- Meetings were held with the Elk River City Council, Chamber of Commerce, and local businesses in November 2008.

Public Involvement Meetings

A public open house was held on May 21, 2008. A second public open house was held on November 19, 2008. Both meetings were held at the Elk River City Hall. The open house was publicized with press releases and notifications on the City of Elk River Web Site. Mn/DOT representatives were available at the meeting to explain the project and answer questions.

Newsletters

A project newsletter was made available at the Elk River City Hall and on the City of Elk River Web Site announcing the May 2008 and November 2008 public involvement meetings. The project newsletter was also available at the public open house meetings.

Press Releases

A press release was distributed announcing the May 2008 and November 2008 public open house meetings. A press release announcing the public hearing will be issued in conjunction with the release of the EA/EAW.

2. Summary of Early Coordination Comments

Copies of agency correspondence are included in Appendix B and are discussed in relevant sections of this EA/EAW. The following agencies were contacted regarding the proposed project:

- Minnesota Department of Natural Resources
- Mn/DOT Office of Environmental Services
- Minnesota State Historic Preservation Office

B. PERMITS AND APPROVAL REQUIREMENTS

Table 22 identifies the permits and approvals anticipated for the construction of the proposed project.

TABLE 22
PERMITS AND APPROVALS

Permit	Agency	Action Required
Federal		
Environmental Assessment	FHWA	Approval
EIS Need Decision	FHWA	Determination
Section 106	Mn/DOT CRU on behalf of FHWA	Determination of Effect
Section 404 – General Permit/Letter of Permission (GP/LOP)	U.S. Army Corps of Engineers	Permit
State		
Environmental Assessment	Mn/DOT	Approval
EIS Need Decision	Mn/DOT	Approval
Public Waters Work Permit (if necessary)	Minnesota Department of Natural Resources (DNR)	Permit
Wetland Conservation Act (Replacement Plan) for new roads and capacity expansion projects	Mn/DOT with review by Board of Soil and Water Resources, and Minnesota Department of Natural Resources	Approval/Review
Temporary Water Appropriation Permit (if needed for dewatering)	DNR	Permit

Permit	Agency	Action Required
National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit	Minnesota Pollution Control Agency (MPCA)	Permit
Section 401	MPCA	Certification
Section 106 (Historic / Archeological)	Minnesota State Historic Preservation Officer (SHPO)	Concurrence
Local		
Municipal Consent	City of Elk River	Approval
Other		
Railroad Agreement	Mn/DOT and BNSF Railway	Written Agreement
Railroad Permit	Mn/DOT and BNSF Railway	Permit (stand-alone or part of Agreement)

C. PUBLIC COMMENT PERIOD AND PUBLIC HEARING

A public hearing will be held during the public comment period for the EA/EAW.

D. REPORT DISTRIBUTION

Copies of this document have been sent to agencies, local government units, libraries and others as per Minnesota Rule 4410.1500 (Publication and Distribution of an EAW).

E. PROCESS BEYOND THE EA/EAW PUBLIC COMMENT PERIOD

Following the comment period, Mn/DOT and FHWA will make a determination as to the adequacy of the environmental documentation. If further documentation is necessary it could be accomplished by preparing an Environmental Impact Statement (EIS), by revising the EA/EAW, or clarification in the Findings of Fact and Conclusions, as appropriate.

If an EIS is not necessary, as currently anticipated, Mn/DOT will prepare a "Negative Declaration" in accordance with state environmental requirements. Mn/DOT will also prepare a request for a "Finding of No Significant Impact" (FONSI) that will be submitted to FHWA. If FHWA agrees that this finding is appropriate, it will issue a FONSI.

Notices of the federal and state decisions and availability of the above documents will be placed in the Minnesota *Environmental Quality Board (EQB) Monitor*. Mn/DOT will distribute the Negative Declaration and FONSI, or send notification of their availability, to the Environmental Assessment Worksheet (EAW) distribution list. Public notices will be placed in local newspapers notifying the public of the environmental and project decisions that were made.

APPENDICES

APPENDIX A

Figures

APPENDIX B

Agency Correspondence

- Mn/DOT Office of Environmental Services
- Minnesota Department of Natural Resources
- Mn/DOT Cultural Resources Unit
- Minnesota State Historic Preservation Office

APPENDIX C

Traffic Analysis Technical Memorandum

APPENDIX D

Traffic Noise Analysis

APPENDIX E

Section 106
Memorandum of Agreement

APPENDIX F

Draft Section 4(f) Evaluation

APPENDIX G

Right of Way Impacts