

Highway 371 North Improvement Project Supplemental Final Environmental Impact Statement (SFEIS) Key Dates

- March 8, 2010 – Draft SFEIS Availability Notice Published in the Minnesota Environmental Quality Board (EQB) Monitor and Begin Official 30-Day Comment Period
- Week of March 29, 2010 – Draft SFEIS Public Open House
- April 16, 2010 – Draft SFEIS Comment Period Ends.
- May 2010 – Final SFEIS Distribution and Comment Period
- June 2010 – Federal Record of Decision /State Adequacy Determination

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1.0 EXECUTIVE SUMMARY

1.1 BACKGROUND INFORMATION: PROCESS LEADING TO THE CREATION OF THIS DOCUMENT

The proposed expansion of Trunk Highway 371 (Highway 371) to a four-lane facility between the cities of Nisswa and Pine River, Minnesota, is a Federal Class I action because of its potential for significant impacts on the natural and physical environment.

The purpose of the overall Highway 371 project remains unchanged from the original Draft Environmental Impact Statement (DEIS) and Final Environmental Impact Statement (FEIS). The project is being proposed to provide transportation system improvements designed to solve existing and forecasted future travel safety and capacity problems.

In 2002, a DEIS was prepared for the project that identified the following alternatives for expanding Highway 371 between Nisswa and Pine River.

1. Alternative 1 – No-Build Alternative
2. Alternative 2 – Existing Alignment
3. Alternative 3 – Existing Alignment with a Pequot Lakes Bypass
4. Alternative 4 – Existing Alignment with Pequot Lakes and Jenkins Bypasses
5. Alternative 5 – Existing Alignment with a Jenkins Bypass

The FEIS was prepared and published in January 2005. The evaluation process considered all comments received from the public and agencies, and weighed the project goals against the technical analysis and potential effects of each alternative. Through this process, Alternative 2 (Existing Highway 371 Alignment) was identified as the preferred alternative. A detailed description of Alternative 2 can be found beginning on page 9 of the 2005 FEIS.

In 2005, the Federal Highway Administration (FHWA) issued the federal Record of Decision (ROD) and Mn/DOT issued an Adequacy Determination identifying Alternative 2 as the preferred alternative for Highway 371 between Nisswa and Pine River. The findings concluded the environmental documentation process required by State and Federal regulations.

After the ROD was signed, in-depth negotiations began with each of the affected communities in order to further develop the project details from conceptual level drawings, used in the FEIS, to detailed layouts suitable for use during the municipal consent process.

During these negotiations with the City of Pequot Lakes, it became increasingly difficult for the City and the Minnesota Department of Transportation (Mn/DOT) to agree on the details of the future through-town configuration of Highway 371. Most of the discussion related to 1) implementation of required access management controls and 2) safety

concerns expressed by the City related to projected traffic levels of a through-town alignment.

In June 2006, the Pequot Lakes City Council adopted resolution 06-23 in support of re-routing Highway 371 to a corridor east of town (bypass) along an alignment similar to Alternative 3 identified in the DEIS. This decision was in contrast to city resolution 04-002 adopted during the DEIS phase that identified Alternative 2 (through-town alternative), as the City's preference.

Concerned by the two contrasting City resolutions, Mn/DOT asked the Pequot Lakes City Council to clarify their position regarding their preferred route of Highway 371. The City Council was asked to adopt another motion that would rescind the two conflicting resolutions and provide Mn/DOT with a clear understanding of the City's intentions.

In January 2007, the City Council commissioned the Highway 371 Alternate Route Study Group consisting of members of the City Council and the Planning Commission. This group was established for the expressed purpose of studying the issues and impacts of a Highway 371 bypass of Pequot Lakes.

This study group met ten times between February and August 2007 to hear expert testimony and receive public feedback regarding a community bypass alignment. During these proceedings, Mn/DOT participated by developing conceptual bypass alignments, providing general guidance related to highway design standards, and participating in a public forum to discuss a possible bypass alignment.

During this process, Mn/DOT advised the City Council that a change in the preferred alternative would require an official supplement to the already completed environmental review and documentation process.

As Mn/DOT considered the proposal to change the preferred alternative, it was determined that in order to make such a route acceptable, the original Pequot Lakes Bypass (Alternative 3) studied during the DEIS would have to be modified to reduce cost and provide other benefits. These modifications primarily related to the elimination of three grade-separated interchanges and their replacement with standard at-grade intersections.

The concept of removing the interchanges and limiting the number of access points was presented to the City Council in the fall of 2007. After some negotiation, the City accepted the removal of the interchanges and that only three access points would be allowed along the bypass route. On October 2, 2007 the City and Mn/DOT entered into an official Memorandum of Agreement (MOA) that established a clear understanding of the conditions under which Mn/DOT could consider changing the preferred alternative to the Pequot Lakes Bypass option. This MOA can be found in Appendix A.

Following the City-initiated study of the bypass route, the Highway 371 Alternate Route Study Group issued its final report to the City Council entitled Highway 371 Alternate Route Study Group Report. This report captured the

discussion and testimony that occurred during the ten meeting sessions. The findings of the report stated “the Alternate Route Study Group identified no issues or impacts that would cause the City to alter the decision to route Hwy. 371 east of downtown and, in fact, found many factors that favor an alternate alignment.” See Appendix B for a copy of the Executive Summary from the Report. A full copy of the report is available for review at the Mn/DOT District 3 Office in Baxter and at the Pequot Lakes City Hall.

On December 18, 2007, the Pequot Lakes City Council passed resolution 07-32 that accepted the findings of the Highway 371 Alternate Route Study Group. It also rescinded previous resolutions 04-002 and 06-23 and reaffirmed the City's preference for a Highway 371 bypass around Pequot Lakes. All three resolutions can be found in Appendix C.

On January 14, 2008, the District 3 Engineer sent a letter to the Mayor of Pequot Lakes stating Mn/DOT's position regarding City Resolution 07-32. It expressed that improving the safety and capacity of Highway 371 remains a priority for Mn/DOT and that a solution acceptable to both parties should be pursued. The letter also stated that Mn/DOT will move forward with the evaluations necessary to update the existing environmental documentation and seek approval for the proposed Pequot Lakes Bypass layout.

Since January 2008, Mn/DOT has been assessing the environmental impacts related to the proposed Pequot Lakes Bypass and has identified the new alternative as Alternative 3MOD. The results of these evaluations are contained within this document and are the basis for this Supplemental FEIS (SFEIS). A notice of intent to prepare a SFEIS was published in the EQB Monitor on October 1, 2009 and distributed as required in Minnesota Rules 4410.3000, Subp. 5.B.

After the completion and approval of this SFEIS, it is the intention of Mn/DOT to initiate the Minnesota Municipal Consent process with the municipalities located along the corridor. Mn/DOT views Municipal Consent as a project endorsement that cannot be easily changed by shifts in City officials. This is an important consideration given the length of time it takes to develop large scale projects such as the Highway 371 North Improvement Project.

Currently, the expansion of Highway 371 is scheduled to begin construction in 2018. The project schedule has changed since the completion of the 2005 FEIS, which identified the first year of construction as 2011. Construction of this project could experience further delays given challenges related to limited transportation funding and the focus on system preservation projects rather than those proposing expansion of the existing system.

1.2 PURPOSE OF THE HIGHWAY 371 IMPROVEMENT PROJECT

The purpose of the Highway 371 project remains unchanged from the original DEIS and FEIS. This project is being proposed to provide transportation system improvements designed to solve existing and

forecasted future travel safety and capacity problems. Identified transportation needs include:

- Improve safety
- Reduce congestion
- Correct design deficiencies

1.3 PURPOSE OF THIS REPORT

Since the FEIS was completed and the ROD released in 2005, changes to the original preferred alternative have been proposed by the City of Pequot Lakes. During the DEIS a different bypass configuration (Alternative 3) was considered. This option was subsequently rejected primarily due to its high cost and lack of support by the City Council. Because the original Pequot Lakes Bypass alternative was not carried forward from the DEIS phase, in-depth analysis of this option was not completed to the level required for formal endorsement as the preferred alternative. Figure B10 in Appendix H provides a graphical representation of the design differences between the Alternative 3 bypass and the Alternative 3MOD bypass alignments.

This SFEIS is primarily intended to analyze the potential social, economic, and environmental effects related to the new Pequot Lakes Bypass configuration. Additionally, this document is intended to provide updated information regarding the entire project corridor (Alternative 3MOD) since the completion of the original environmental documentation process.

Since developing the conceptual project layout for the FEIS, further coordination has occurred with each of the affected communities that have caused minor changes to the findings of the original EIS evaluation. In most cases these changes have resulted in a decrease to previously identified impacts and are outside of the area directly associated with the Pequot Lakes Bypass. These changes will be captured in this document to the extent possible. All other findings identified in the DEIS and FEIS are considered valid and will not be specifically addressed in this document.

This SFEIS also includes a revision to the Final Section 4(f) Evaluation completed during the original environmental documentation process. The evaluation (see Appendix D) includes additional impacts to the Paul Bunyan Recreational Trail and the Brainerd and Northern Minnesota Railway Corridor.

The DEIS, FEIS and ROD/Adequacy Determination remain unchanged and are incorporated by reference herein and made a part of this SFEIS. Previous documents will be re-issued to individuals or agencies specifically requesting a copy. Combined with the SFEIS, these documents intended to help public officials make decisions with a complete understanding of the environmental consequences and proposed mitigation commitments associated with the proposed action.

1.4 DESCRIPTION OF THE PREFERRED ALTERNATIVE

As stated above, since completion of the Highway 371 North Improvement Project FEIS in 2005 changes to the original preferred alternative have been proposed by the City of Pequot Lakes. The primary change involves relocating the highway alignment east of downtown on a bypass. Mn/DOT considered several bypass alignments both during the DEIS process and as a result of the City more recent request for a bypass. The preferred alternative being considered in this SFEIS is Alternative 3MOD (Existing Alignment with a Pequot Lakes Bypass). This alignment, illustrated in Figures A1 through A15 in Appendix I, is a modification of Alternative 3 identified in the DEIS. See Figure B10 in Appendix H. Other bypass alternatives were dismissed from consideration due to additional social (residential/industrial developments) and environmental (wetlands, vegetation) impacts and higher costs. The primary difference between Alternative 3 from the DEIS and Alternative 3MOD is elimination of the grade-separated interchanges at the north and south connections of the Pequot Lakes Bypass back to the existing Highway 371 alignment. Each of these connections would be built as at-grade intersections under Alternative 3MOD. Only the junction of Crow Wing County State Aid Highway (CSAH) 11 and the new bypass alignment is projected to meet signal warrants at the time of construction.

Alternative 3MOD also proposes location modifications for the connections to the existing Highway 371 alignment. The southerly connection incorporates Crow Wing County Roads (CR) 107/168 and is proposed to intersect the existing alignment approximately one mile south of that proposed by Alternative 3.

The northerly connection of the Alternative 3MOD bypass back to the existing alignment incorporates CR 112 and is approximately 1.5 miles south of the connection proposed by Alternative 3. Additionally, the northerly connection no longer incorporates the CSAH 16 intersection. Under Alternative 3MOD, the junction of CSAH 16 and Highway 371 will remain at-grade. Since the completion of the FEIS, a signal has been installed at the junction of CSAH 16. This system will be perpetuated during the construction of this project.

Analysis contained in this document includes the area for right-of-way preservation associated with a future interchange at CSAH 11. It is anticipated that of the three cross-street connections proposed in conjunction with the new bypass, this location will be first to see traffic volumes increase beyond a level that can be safely controlled by a standard traffic signal system. Although an interchange at this location is not proposed during the initial construction of Alternative 3MOD, because of funding constraints, the environmental impacts associated with the right-of-way footprint of this future facility are documented in this SFEIS. It is the intention of the FHWA and Mn/DOT to use this SFEIS as the primary source of environmental documentation if a CSAH 11 interchange is determined to be necessary and adequate funding becomes available.

1.5 REASONS FOR CHANGING THE PREFERRED ALTERNATIVE

The reasons for the City's action are documented in a Highway 371 Alternative Route Study Group Report, dated September 17, 2007. A copy of the Executive Summary from the report is located in Appendix B. The Alternative Route Study Group, established by the City of Pequot Lakes, considered thirty-one questions in their study process that were split into six categories that included technical issues, city engineering issues, design issues, financial issues, land use planning issues, and environmental issues. The Study Group received testimony and solicited comments from technical experts to development answers to the questions. Following the completion of this study process the Pequot Lakes City Council passed resolution 07-32 in December 2007, reaffirming its preference for a bypass option and requested a change in the original preferred alternative.

The MOA, signed in October 2007, includes specific parameters that would allow for the reduction of project cost; a primary reason why the Pequot Lakes Bypass option was not carried forward from the DEIS phase.

Preliminary estimates show that the elimination of the three interchanges originally included in Alternative 3 would lower the cost of Alternative 3MOD to a level comparable to that of Alternative 2; the original preferred alternative. The bypass alternative provides user benefits by reducing conflict points and increasing mobility through this segment of Highway 371.

In summary, Alternative 3MOD was selected as the preferred alternative since it: 1) meets the project purpose and need (increases corridor safety and mobility), 2) has reduced costs compared to DEIS Alternative 3, 3) does not introduce substantial social, economic, or environmental impacts, and 4) has local support (Pequot Lakes Council resolutions and MOA).

1.6 POTENTIAL ENVIRONMENTAL EFFECTS

A summary of the potential beneficial and adverse environmental effects associated with Alternative 3MOD is presented in Table 1. Although the focus of this SFEIS is the Pequot Lakes Bypass portion of the Highway 371 corridor, Table 1 also includes a column summarizing the segment of Alternative 2 through Pequot Lakes that corresponds to the termini for the Alternative 3MOD bypass. The original FEIS describes the impacts of the entire Alternative 2 corridor, based on the preferred alternative at that time.

Table 1 also includes Alternative 3MOD impacts for the entire Highway 371 corridor, to allow comparison with the impacts shown on page 4 of the DEIS.

Impacts shown in Table 1 are based on projected right-of-way needs and preliminary construction limits. This assessment is intended to represent a worst case scenario in terms of potential impacts. Avoidance and minimization measures will be further applied during the detailed design phase. For a more in-depth description and discussion of the potential effects listed in Table 1, please refer to Section 4.0 of this document.

Table 1- Summary of Impacts

| SUBJECT | ALTERNATIVE | | |
|-------------------------------------|--|---|---|
| | Alternative 2 (Pequot Lakes Through-Town only) ¹ | Alternative 3MOD (Pequot Lakes Bypass only) ² | Alternative 3MOD – Existing Alignment with Pequot Lakes Bypass ³ |
| Right-of Way/Relocation | All right-of-way calculations are estimates based on the preliminary design and are subject to change during final design. | | |
| Total Number of Potential Takings | 3 | 6 | 15 |
| Potential Residential Takings | 0 | 5 | 10 |
| Potential Commercial Takings | 3 | 1 | 5 |
| Total R/W Required (acres) | Approximately 35 acres | Approximately 190 | Approximately 345 |
| Economics | <ul style="list-style-type: none"> Beneficial regional economic effects as mobility and connectivity of regional trade centers are improved. Access control measures designed to improve the safety may cause minor adverse effects to existing traffic-serving businesses. Construction activities and detours may cause losses in revenue due to temporary changes in access to existing commercial establishments. | | |
| | <ul style="list-style-type: none"> Provides benefits for several businesses located in downtown Pequot Lakes that rely on the ability to capture revenue from drive-by traffic (spontaneous customers). Does not provide for the implementation of planned development east of downtown. | <ul style="list-style-type: none"> Traffic currently passing through Pequot Lakes would have the option of bypassing downtown and could adversely affect traffic dependant commercial businesses. Potential for loss of property tax revenue for the City, school district, and Crow Wing County, through the conversion of private property to non-taxable public property. Long-term positive economic effects may include opportunities for implementation of planned development, the accessibility of new land for business opportunities on the Pequot Lakes Bypass and improved traffic flow. Additionally, the reduction of truck traffic and overall congestion in downtown Pequot Lakes will provide for a more accessible and pedestrian-friendly environment that may result in economic benefits. | <ul style="list-style-type: none"> Positively affect traffic dependant commercial (traffic -serving) businesses in Nisswa, Jenkins, and Pine River. Utilizing the current highway alignment in these areas provides for retention of nearly all existing businesses. |
| Benefit-Cost Analysis | <ul style="list-style-type: none"> N/A | <ul style="list-style-type: none"> N/A | 3.5 (at-grade intersection configuration at CSAH 11) 3.7 (interchange configuration at CSAH 11) |
| Social and Community Impacts | <ul style="list-style-type: none"> Pedestrian safety would be enhanced along the entire corridor by creating a refuge between the northbound and southbound lanes; allowing pedestrians to cross one direction of travel at a time. | | |

| SUBJECT | ALTERNATIVE | | |
|------------------------------------|---|---|---|
| | Alternative 2 (Pequot Lakes Through-Town only) ¹ | Alternative 3MOD (Pequot Lakes Bypass only) ² | Alternative 3MOD – Existing Alignment with Pequot Lakes Bypass ³ |
| | | <ul style="list-style-type: none"> The bypass will minimize community cohesion impacts by removing the peak traffic volumes from downtown and reducing the effects of the physical barrier (existing highway) between the east and west sides of town. Pedestrian safety, mobility and local circulation would be improved by moving the peak traffic volumes out of the downtown district and away from the Pequot Lakes High school. The bypass route will cause traffic pattern shifts on the State, County and local road systems. This may require modification of school busing routes. R/W taking from the City's proposed (unoccupied) public cemetery. Potential impact to the City Drinking Water Supply Management Area. Impact to the Pequot Lakes wastewater spray irrigation facility requiring minor system modifications. | <ul style="list-style-type: none"> Nisswa, Jenkins, and Pine Rive will continue to have the Highway 371 corridor bisect some of the developed areas of these communities. Expansion to a four-lane facility coupled with increased traffic volumes and access changes will contribute to a reduction in community cohesion. The proposed highway improvements may alter accessibility to community resources such as the Jenkins City Park, Pine River Chamber of Commerce and the Cass County Fairgrounds. |
| Land Use | <ul style="list-style-type: none"> The proposed highway improvements have the potential to affect existing land uses along the entire corridor; primarily as a result of the expansion of right-of-way and changes in access. | | |
| | | <ul style="list-style-type: none"> The Pequot Lakes Bypass is compatible with the Pequot Lakes Comprehensive Plan and Downtown Plan. Land use in the vicinity of the bypass is expected to change as commercial enterprises look to relocate near the new highway alignment. | <ul style="list-style-type: none"> Additional development in the project area is anticipated to occur. However, construction by itself does not cause new development if there are not market forces that support new development and changes in land use. |
| Park and Recreational Areas | <ul style="list-style-type: none"> Alternative 3MOD will directly impact the Paul Bunyan Trail in several locations throughout the project area. Impacts to this resources have been categorized as Section 4(f) impacts. Runoff controls and BMPs would benefit water quality and long-term recreational uses of water resources adjacent to the project area. | | |

| SUBJECT | ALTERNATIVE | | |
|---|---|--|---|
| | Alternative 2 (Pequot Lakes Through-Town only) ¹ | Alternative 3MOD (Pequot Lakes Bypass only) ² | Alternative 3MOD – Existing Alignment with Pequot Lakes Bypass ³ |
| | <ul style="list-style-type: none"> Construction on the existing alignment through downtown Pequot Lakes would result in indirect impact to Bobberland Park including the widening of the highway into green space (highway right-of-way) that lies adjacent to the park. Other impacts would include changes in access to Bobberland Park and increased noise levels. | <ul style="list-style-type: none"> The Pequot Fire Lookout Tower will be indirectly impacted by the Pequot Lakes Bypass alignment. No right-of-way will be required from this site and therefore is not categorized as a Section 4(f) 'use' impact. Construction of the bypass would reduce indirect impacts to Bobberland Park in Pequot Lakes. Evergreen Park will directly be impacted by the Pequot Lakes Bypass. These impacts are not categorized as Section 4(f) impacts because it is not publicly owned. | |
| Pedestrian and Bicycle Movements | <ul style="list-style-type: none"> Alternative 3MOD will directly impact the Paul Bunyan Trail in several locations throughout the project area. During construction this may cause temporary disruptions and/or detours for users of this facility. Pedestrian safety would be enhanced along the entire corridor by creating a refuge between the northbound and southbound lanes; allowing pedestrians to cross one direction of travel at a time. | | |
| | | <ul style="list-style-type: none"> Pedestrian safety, mobility and local circulation would be improved by moving the peak traffic volumes out of the downtown district and away from the Pequot Lakes High school. The bypass will increase pedestrian and bicycle safety in downtown Pequot Lakes by removing the peak traffic volumes and reducing the effects of the physical barrier (existing highway) between the east and west sides of town. | <ul style="list-style-type: none"> Pedestrian and bicycle safety will be enhanced in Jenkins by creating a paved facility that links the Paul Bunyan Trail with the Paul Bunyan National Scenic Byway (CSAH 16). |
| Environmental Justice | <ul style="list-style-type: none"> The changes associated with Alternative 3MOD will not result in a disproportionately high or adverse effect to minority or low-income populations. There are no readily identifiable minority or low-income groups within the project area. | | |
| Transit/School Busing | <ul style="list-style-type: none"> Improved traffic operations would result in shorter transit and school busing travel times on routes that use roadways within the project area. Access management controls implemented throughout the entire corridor may require modifications to existing school bus routes. Long-term changes in access to Highway 371 may require minor modification to existing transit and school bus routes. | | |
| | <ul style="list-style-type: none"> Alternative 2 through Pequot Lakes will improve single occupant vehicle travel times over the No-Build Alternative, so increases in transit ridership would not be affected. | <ul style="list-style-type: none"> Alternative 3MOD will improve single occupant vehicle travel times so the improvements are not likely to increase transit ridership directly. Construction of the Pequot Lakes Bypass may make longer transit and school bus trips more efficient by providing an alternate route through the urban areas of Pequot Lakes. | |

| SUBJECT | ALTERNATIVE | | |
|---|---|--|--|
| | Alternative 2 (Pequot Lakes Through-Town only) ¹ | Alternative 3MOD (Pequot Lakes Bypass only) ² | Alternative 3MOD – Existing Alignment with Pequot Lakes Bypass ³ |
| Utilities | <ul style="list-style-type: none"> Construction of Alternative 3MOD will potentially impact utilities and may require the relocation and disruption of some local and regional utility services. No changes to the Pequot Lakes spray irrigation system/fields would occur under this alternative. | <ul style="list-style-type: none"> The Pequot Lakes Bypass is proposed to pass through the City's existing wastewater spray irrigation field. This will cause the reconfiguration of this facility and may cause temporary disruptions to this system. Reduction in size of the City's wastewater spray irrigation field will require increased application rates on the remaining portion of the site. | |
| Secondary and Cumulative Effects | <ul style="list-style-type: none"> Potential for cumulative and secondary impacts exists related to the entire Highway 371 expansion project. None of the build alternatives considered are anticipated to add substantially to the overall impacts related to land consumption; land development, agricultural land, wetlands, water quality, vegetation, and wildlife. These potential impacts are typically considered through local and county comprehensive planning efforts and can be avoided and/or minimized through land use controls and roadway access restrictions. Through the implementation of regulatory controls and mitigation strategies, the overall cumulative effects to natural resources are expected to be minimal. | | |
| Architectural and Archaeological Resources | <ul style="list-style-type: none"> Alternative 3MOD would have directly impacted the historic location of the Pine River Depot. This impact has been categorized as a Section 4(f) impact. Mitigation for this impact (including Depot relocation) has been initiated and will be completed in 2010. No other known impacts associated with only the through town segment of Alternative 2. | <ul style="list-style-type: none"> The Pequot Lake Bypass will directly impact the Brainerd and Northern Minnesota Railway Corridor and Paul Bunyan Trail near the southern termini of the bypass alignment. The Pequot Fire Lookout Tower will be indirectly impacted by the Pequot Lakes Bypass alignment. No right-of-way will be required from this site and therefore is not categorized as a Section 4(f) impact. Alternative 3MOD would have directly impacted the historic location of the Pine River Depot. This impact has been categorized as a Section 4(f) impact. Mitigation for this impact (including Depot relocation) has been initiated and will be completed in 2010. | <ul style="list-style-type: none"> Alternative 3MOD will directly impact the Brainerd and Northern Minnesota Railway Corridor and Paul Bunyan Trail in several locations throughout the project area. Impacts to both resources have been categorized as Section 4(f) impacts. The Pequot Fire Lookout Tower will be indirectly impacted by the Pequot Lakes Bypass alignment. No right-of-way will be required from this site and therefore is not categorized as a Section 4(f) impact. Alternative 3MOD would have directly impacted the historic location of the Pine River Depot. This impact has been categorized as a Section 4(f) impact. Mitigation for this impact (including Depot relocation) has been initiated and will be completed in 2010. |
| Contaminated Properties | <ul style="list-style-type: none"> The through town segment of Alternative 2 would have potentially impacted seventeen medium or high-risk sites. | <ul style="list-style-type: none"> The updated Phase I ESA completed for the proposed Pequot Lakes Bypass identified nine potential impacts to medium or high risk sites | <ul style="list-style-type: none"> Information gathered for the 2003 Phase I ESA and the updated ESA (2008) identified 53 impacts to medium or high risk sites associated with Alternative 3MOD. This includes three sites not inventoried in 2003. |
| Air Quality | <ul style="list-style-type: none"> The Highway 371 improvements are not anticipated to have substantial air quality and/or MSAT impacts or cause air quality related concerns. This project is not located in an area where conformity requirements apply, and the scope of the project does not indicate impacts would be expected. | | |

| SUBJECT | ALTERNATIVE | | |
|---|---|--|---|
| | Alternative 2 (Pequot Lakes Through-Town only) ¹ | Alternative 3MOD (Pequot Lakes Bypass only) ² | Alternative 3MOD – Existing Alignment with Pequot Lakes Bypass ³ |
| Noise | <ul style="list-style-type: none"> The noise analysis from the 2005 FEIS for the through town segment of Alt. 2 included 17 receptor representing approximately 67 properties. Results indicate three receptors are approaching (69 dBA) the federal Noise Abatement Criteria (NAC) and eight receptors exceed the NAC. | <ul style="list-style-type: none"> Pequot Lakes Bypass noise analysis conducted at 29 receptor sites, representing 59 individual properties. Results indicated that no values are approaching or exceeding federal NAC. State daytime noise standards for L10 exceeded at six residential properties. State daytime noise standards for L50 exceeded at 11 residential properties. State nighttime noise standards for L10 exceeded at 37 residential properties State nighttime noise standards for L50 exceeded at 38 residential properties. Seven noise barriers were analyzed; none were found to be cost effective. | <ul style="list-style-type: none"> Updated noise analysis was only completed for the Pequot Lakes Bypass portion of Alternative 3MOD. The findings of the noise study conducted for Alternative 2 in the 2005 FEIS remains valid for the remainder of the project corridor. |
| Water Quality and Surface Water Drainage | <ul style="list-style-type: none"> The urban highway section proposed for a through town route would include curb and gutter and a storm water catch basins that would outlet to storm detention basins. | <ul style="list-style-type: none"> The Pequot Lakes Bypass will create 20 acres of impervious surface; adding to the amount and velocity of storm water runoff. | <ul style="list-style-type: none"> The expansion of Highway 371 from a two-lane to a four-lane facility will result in an over 100 acre increase in impervious surface; adding to the amount and velocity of storm water runoff. Construction of Alternative 3MOD would provide an opportunity to collect, hold and treat surface runoff throughout the entire corridor. Most of the runoff from the expanded roadway would be directed to grassed medians, roadside ditches, or storm water treatment ponds. |
| Floodplains | <ul style="list-style-type: none"> The through town alignment would not affect any known floodplains. | <ul style="list-style-type: none"> The Pequot Lakes Bypass will not affect any known floodplains. | <ul style="list-style-type: none"> The Construction of Alternative 3MOD has the potential to affect two crossings of the Pine River, Cullen Brook, and Hay Creek. |
| Geology/Groundwater | <ul style="list-style-type: none"> The through town route involves roadway improvements located within the Pequot Lakes Drinking Water Supply Management Area (DSWMA). However, the improvements are not anticipated to | <ul style="list-style-type: none"> The Pequot Lakes Bypass involves roadway improvements located within the Pequot Lakes Drinking Water Supply Management Area (DSWMA). However, the improvements are not anticipated to create adverse effects on any public water supply system. | <ul style="list-style-type: none"> There are no know unique geological sites that will be impacted by Alternative 3MOD. Alternative 3MOD proposes roadway improvements located within the Pine River Drinking Water Supply Management Areas (DSWMA). Construction of this |

| SUBJECT | ALTERNATIVE | | |
|--|---|---|--|
| | Alternative 2 (Pequot Lakes Through-Town only) ¹ | Alternative 3MOD (Pequot Lakes Bypass only) ² | Alternative 3MOD – Existing Alignment with Pequot Lakes Bypass ³ |
| | create adverse effects on any public water supply system. | | alternative is not anticipated to create adverse effects on this public water supply system. |
| Wetlands | <ul style="list-style-type: none"> The Pequot Lakes through town route would result in impacts to wetland basin 20 (0.18 acres) and wetland basin 21 (0.06 acres) or a total of 0.24 acres of wetland impact. | <ul style="list-style-type: none"> The Pequot Lakes Bypass alignment introduces new impacts to three additional wetland basins with a combine impact area of 0.17 acre. When compared to Alternative 2 (through town only), Alternative 3MOD (Bypass only) results in a net decrease of 0.07 acres of wetland impact. Alternative 3MOD (Bypass only) is the least environmental damaging practical alternative because it has less wetland impact and it avoids impacts to two basins located adjacent to Sibley Lake that likely provide water quality, wildlife, and fisheries benefits. | <ul style="list-style-type: none"> For Alternative 3MOD the total area of wetland impacts is expected to be approximately 17.78 acres; an 0.04 acre increase from the 2005 FEIS. Layout refinements in the vicinity of Crow Wing County Roads 29/107 have resulted in additional peripheral impacts to wetland basin 2A totaling 0.18 acre; an increase of 0.12 acre over that identified in the FEIS. Layout refinements since the completion of the FEIS have also resulted in the total avoidance of wetland basin 8, decreasing the wetland impact area by 0.01 acre compared to the 2005 FEIS alternative. |
| Vegetation | <ul style="list-style-type: none"> Approximately 35 acres of land, primarily urban landscaping, grassland/open space, and impervious surfaces will be impacted. | <ul style="list-style-type: none"> Approximately 116 acres of current vegetation is proposed to be disturbed by the Pequot Lakes Bypass alignment; 58 acres of this is considered to be forested areas. | <ul style="list-style-type: none"> There are no State or National forests, large tree farms, or other unique vegetative features that are potentially affected by Alternative 3MOD. An old growth stand of conifers referenced in the DNR Natural Heritage Information System database located on the southwest side of the City of Pine River will not be affected. Approximately 421 acres of current vegetation is proposed to be disturbed by Alternative 3MOD; 190 acres of this is considered to be forested areas. |
| Fish & Wildlife Habitat | <ul style="list-style-type: none"> Fish passages to and from spawning habitat do exist within the project area. All fish passages including Cullen Brook and two crossings of the Pine River will be maintained. There are no DNR Designated Trout Streams crossed or within close proximity of the project area. No in-lake fish habitat impacts are expected due to dredge and fill activities from the construction of Highway 371 improvements. There are no known wildlife concentrations (i.e., wintering deer yards), colonial nesting bird colonies or rookeries, or other unique wildlife resources within the vicinity of the project area. There are no designated State Wildlife Management Areas (WMAs), Scientific & Natural Areas (SNAs), DNR designated Shallow Game Lakes, federal National Wildlife Refuges (NWR), or Waterfowl Production Areas (WPAs) are within the vicinity of the project area. | | |
| State/Federal Threatened & Endangered (T & E) Species | <ul style="list-style-type: none"> An evaluation of the Minnesota Natural Heritage Database completed during the DEIS revealed 28 State and Federally listed T & E species occurrences within a one-mile radius of the project area. The project area is within the breeding range of the Blanding's turtle, bald eagle, gray wolf, and the Canada lynx. Formal Section 7 consultation with the USFWS regarding the Canada lynx was initiated in 2004 after it was determined that the project would not effect the other three species. The Biological Opinion concluded that the proposed project would not likely jeopardize the continued existence of the Canada lynx in the project area. | | |

| SUBJECT | ALTERNATIVE | | |
|---|--|---|--|
| | Alternative 2 (Pequot Lakes Through-Town only) ¹ | Alternative 3MOD (Pequot Lakes Bypass only) ² | Alternative 3MOD – Existing Alignment with Pequot Lakes Bypass ³ |
| | | <ul style="list-style-type: none"> In 2008 a re-evaluation of the Minnesota Natural Heritage Database was requested. This review identified no new concerns related to the Alternative 3MOD. In 2008 the FHWA requested a voluntary re-initiation of Formal Section 7 Consultation regarding the Canada Lynx. Both the FHWA and USFWS concluded that the 2004 Biological Opinion remains valid and changes proposed by Alternative 3MOD would not adversely effect any federally listed species in a manner not already contemplated. | |
| Prime and/or Statewide Important Farmlands | <ul style="list-style-type: none"> No Prime or Unique farmlands will be disturbed by the through town route associated with Alternative 2. | <ul style="list-style-type: none"> No Prime or Unique farmlands will be disturbed by the Pequot Lakes Bypass. | <ul style="list-style-type: none"> Two statewide important farmland (731 Sanborn loamy sand, 0-3%) locations would be encountered along Alternative 3MOD. Both occurrences are found within Cass County. There is the potential of 7.3 acres of state important farmland being converted to a transportation use. |
| Visual Resources | <ul style="list-style-type: none"> Throughout the entire Highway 371 corridor, the highway expansion related improvements will have an effect on the existing visual scene and resources for both travelers and neighbors. The proposed highway improvements will require additional pavement and clearing of some natural areas. Improvements along the corridor could also adversely and beneficially affect views of lakes, wetlands, and woods for the traveler, as well as neighbors residing in the project area. | | |

¹Summarizes environmental impacts associated with the Pequot Lakes Through Town Route (2005 FEIS Preferred Alternative) only. This includes areas exclusive to the existing alignment where the bypass (Alt 3MOD) diverges from the existing Highway 371 alignment south of the intersection of CR 107/168 to where Alt 3MOD converges back to the existing Highway 371 alignment; just south of CSAH 16.

²Summarizes environmental impacts associated with the Pequot Lakes Bypass (current Preferred Alternative) only. This includes areas exclusive to the proposed bypass alignment from where it diverges from the existing Highway 371 alignment south of the intersection of CR 107/168 to where it converges back to the existing Highway 371 alignment; 1.5 miles south of CSAH 16. Detailed discussion regarding these potential impacts is located in section 4.0.

³Summarizes environmental impacts of the entire corridor from Nisswa to Pine River including the additional area associated with the Pequot Lakes Bypass. Detailed discussion regarding these potential impacts is located in section 4.0.

1.7 PROJECT COST, BENEFIT/COST RATIO AND FUNDING SOURCE

Construction of the Highway 371 North Improvement Project will be funded from federal, state and local resources. It is anticipated that federal funds would be the primary source of funding (80 percent) with a 20 percent match provided by the state and local units of government.

Construction cost estimates for Alternative 3MOD are presented in Table 2 below. These estimates are based on following major components:

- Right-of-way acquisition including relocations
- Construction of Alternative 3MOD
- Roadway improvements required prior to turning back the portion of existing Highway 371 through Pequot Lakes to Crow Wing County.

Table 2 - - Preliminary Cost Estimate and Benefit/Cost Ratio

| Alternative | Construction Costs Without Interchanges ¹ | Construction Costs With Interchanges ² | Right-of-Way Acquisition Costs ³ | Total Costs Without Interchange Construction | Total Costs With Interchange Construction | Benefit/Cost Ratio Without CSAH 11 Interchange | Benefit/Cost Ratio With CSAH 11 Interchange |
|-------------------------------|--|---|---|--|---|--|---|
| Alternative 3MOD ⁴ | \$76.9 | \$86.9 | \$17.7 | \$94.6 | \$104.6 | 3.5 | 3.7 |

All figures are in millions of dollars and represent costs in 2008 (\$2008).

¹Includes all State, County and City construction costs directly related to the expansion of Highway 371 including: grade separated trail crossing in Pequot Lakes, cost of the existing Highway 371 turn-back and program delivery and contingency.

²In addition to those items listed in note¹, construction costs include those required to construct a diamond interchange at CSAH 11 associated with the Pequot Lakes bypass.

³Acquisition of right-of-way required for interchange at CSAH 11 will be completed during this project.

⁴Encompasses the entire length of the project from Nisswa to Pine River including the Pequot Lakes Bypass.

1.8 COORDINATION

The development of the Pequot Lakes Bypass, resulting in the development of Alternative 3MOD, has been coordinated primarily with the City of Pequot Lakes and two committee groups commissioned by the City Council (see Section 1.1). On October 25, 2007 a public open house meeting was held in collaboration with the Brainerd Lakes Area Chamber of Commerce. This open forum was attended by nearly 100 people and included a formal presentation of the proposed Pequot Lakes Bypass layouts by Mn/DOT. A question and answer session provided an opportunity for those in attendance to give input about the proposed bypass route. This program was video recorded and later broadcast over the local public access TV channel for several weeks.

Additionally there has been ongoing project coordination with the Minnesota Department of Natural Resources (DNR), Minnesota Pollution Control Agency

(MPCA), Minnesota Department of Health (MDH), Crow Wing County, U.S. Army Corps of Engineers (USACE) and the U.S. Fish and Wildlife Service (USFWS).

A public comment period will be provided for this SFEIS document. During this period, Mn/DOT will conduct another public forum to engage the public and address their comments, questions, and concerns.

Mn/DOT is committed to public and agency involvement at all levels in decision-making related to the Highway 371 North Improvement Project. Mn/DOT will continue to engage community organizations, area property owners, business owners, residents, and local, county, regional, state, and, federal agencies in the development of this project.

1.9 MAJOR PROPOSED ACTIONS BY OTHER AGENCIES

Since the completion of the FEIS, only one major project has been identified that has the potential to affect the proposed Pequot Lakes Bypass alignment.

Beginning in 2010, Minnesota Power plans to install a 115kV power distribution line between Pequot Lakes and Park Rapids. Minnesota Power has completed their environmental review process and has been granted a route permit by the Minnesota Public Utilities Commission. The proposed route would create one transverse crossing of the bypass route west of the current Pequot Lakes Substation (see Appendix E).

Coordination is ongoing between the MP design team and Mn/DOT in order that the location and arrangement of the support structures are placed in a way that would not cause a major service disruption during construction of the highway improvements or compromise the proposed alignment of the Pequot Lakes Bypass.

Although no official projects have been scheduled or have received in-depth analysis, anticipated traffic growth in the area will likely affect other portions of the transportation system within the project area. This is particularly true for CSAH 11 between the proposed Pequot Lakes Bypass and the existing Highway 371 alignment. The traffic study completed during this SFEIS provides a brief assessment of this roadway segment and recommends upgrading it to a multi-lane facility. If this potential project or others that may affect Highway 371 are considered in the future, Mn/DOT will coordinate with the appropriate responsible units of government.

1.10 UNRESOLVED OR CONTROVERSIAL ISSUES

Similar to other communities that have been faced with the issue of a highway bypass, this project has proven to be a very controversial and divisive issue for the community of Pequot Lakes.

Many concerns have been raised, primarily by the existing business community, about the long term economic health of the City related to the construction of a bypass. The potential of lost business, reduced property

values and a lower tax base are among the concerns that have been raised. However, others have stated that the bypass may improve the 'quality' of downtown Pequot Lakes by removing the through traffic, which may potentially benefit downtown businesses.

During the preparation of the Highway 371 Alternative Route Study Group Report, dated September 17, 2007 and through public open house meetings held in 2007 by the Pequot Lakes City Council and Highway 371 Alternate Route Study Group, the economic impacts of a bypass alignment were discussed on several occasions and included two presentations by a financial analyst. Although the Highway 371 Alternate Route Study Report identified no substantial social or economic impacts related to the bypass alternative, the local business community and the Brainerd Lakes Area Chamber of Commerce have strongly disagreed with these findings. A copy of the Executive Summary from the Study Report is located in Appendix B. A full copy of the report is available for review at the Mn/DOT District 3 Office in Baxter and at the Pequot Lakes City Hall.

2.0 PROJECT BACKGROUND

2.1 DESCRIPTION OF PROJECT

Project Location

The Highway 371 project corridor is located in central Minnesota approximately 125 miles northwest of the Minneapolis and St. Paul Metropolitan Area. The project corridor traverses the western border of Crow Wing County and the southeastern section of Cass County (Figure 1). The project limits extend from the intersection of Crow Wing CSAH 18 in Nisswa, to the intersection of Cass CR 2/42 in Pine River. The total length of the project corridor is approximately 16 miles (Figure 2). The southern limits of the project corridor were selected at a point where existing Highway 371 transitions from a rural four-lane divided highway to a two-lane highway. The northern limits of the project are located just north of Pine River at a location where forecasted traffic volumes drop to a level acceptable for a two-lane highway.

Project Setting

Highway 371 is a major north/south route on the Minnesota trunk highway system. Locally and regionally, Highway 371 connects citizens and communities to jobs, retail centers, and recreational/tourist destinations. Tourist travel along this segment of Highway 371 creates high seasonal traffic peaks during the summer months and commonly causes increased delays and congestion. The Highway 371 corridor passes through the cities of Nisswa (population 2,047), Pequot Lakes (1,980), Jenkins (316) and Pine River (935).

The land use characteristics within the project area include urban areas with commercial and residential development, rural/agricultural areas with scattered single-family residences, commercial businesses, resorts, and open space. The highway corridor abuts many important natural and recreational resources including the Paul Bunyan Regional Trail, numerous lakes, streams, wetlands, and other natural features.

Project Background

In Mn/DOT's Statewide Interregional Corridor (IRC) Study, completed in November 1999, Highway 371 was identified as a Medium Priority IRC because it connects regional trade centers, such as Brainerd/Baxter and Bemidji, to other centers including St. Cloud and the Twin Cities. In addition to the role of providing regional access, the road serves to provide access to residential, commercial, light industrial, and agricultural properties located along the corridor.

2.2 PURPOSE OF THIS SUPPLEMENTAL FINAL ENVIRONMENTAL IMPACT STATEMENT

Since the FEIS was completed and the ROD released in 2005, changes to the original preferred alternative have been proposed, based on further study and discussions with the City of Pequot Lakes. The bypass concept agreed to between Mn/DOT and the City is identified as Alternative 3MOD. It differs slightly from the bypass alternative (Alternative 3) studied in the DEIS. [Figure B10 in Appendix H provides a graphical representation of the design differences between the Alternative 3 bypass and the Alternative 3MOD bypass alignments.] Alternative 3 was not chosen as the preferred alternative in 2005 primarily due to its high cost and lack of support by the City Council. Because the original Pequot Lakes Bypass alternative was not carried forward from the DEIS phase, in-depth analysis of this alternative was not completed to the level required for formal identification as the preferred alternative in an FEIS.

This SFEIS focuses on documenting the environmental impacts and proposed mitigation for the areas affected by the new Pequot Lakes Bypass alternative. Where appropriate, some sections of this document also include a discussion of how the bypass area impacts change the total Highway 371 corridor impacts, (e.g., wetland impacts); however the majority of the discussions focus on the Pequot Lakes Bypass area.

This SFEIS also includes a revised Final Section 4(f) Evaluation. The revised evaluation (see Appendix D) includes a discussion of additional impacts to the Paul Bunyan Recreational Trail and the Brainerd and Northern Minnesota Railway Corridor resulting from Alternative 3MOD – Pequot Lakes Bypass.

The DEIS, FEIS and ROD/Adequacy Determination remain unchanged and are incorporated by reference herein and made a part of this SFEIS. Previous documents will be reissued to individuals or agencies specifically requesting a copy. Combined with the SFEIS, these environmental review documents are intended to help public officials make decisions with a complete understanding of the environmental consequences and proposed mitigation commitments associated with the proposed action.

This SFEIS has been prepared as part of the federal National Environmental Policy Act (NEPA) process and state Minnesota Environmental Policy Act (MEPA) environmental review process to fulfill requirements of both 42 USC 4321 *et seq.* and Minnesota Statute 116D. Consistent with the requirements (Minnesota Rules 4410.3000, Subp. 5, C.), a draft version of the SFEIS will be circulated for public comment. Following the state Draft SFEIS comment period, a final SFEIS will be issued, consistent with both state and federal environmental review process requirements.

Highway 371 EIS Re-Evaluation

As noted previously, the focus of this SFEIS document is to describe the changes in project design, impacts and mitigation for the Pequot Lakes

Bypass area of the Highway 371 corridor (Alternative 3MOD). However, since more than three years has passed since the 2005 ROD, a re-evaluation of the remainder of the Highway 371 corridor was performed, consistent with 23 CFR 771.129.

This re-evaluation considered changes to the project area, the project design, anticipated impacts and proposed mitigation, and to the regulatory requirements that have occurred since the 2005 ROD.

Based upon the original project record and this re-evaluation of environmental issues, Mn/DOT and FHWA found that, with the exception of the changes related to Alternative 3MOD which are documented in this SFEIS, the findings in the Highway 371 2005 Final Environmental Impact Statement and ROD remain valid. The project design has been modified slightly in one area resulting in a 0.12 acre increase in wetland impacts. No other substantial changes in the project or regulatory requirements were identified during the re-evaluation. Therefore, it is concluded that no additional environmental analysis is needed for the Highway 371 EIS project corridor, beyond the Alternative 3MOD – Pequot Lakes Bypass area that is the subject of the SFEIS.

Since developing the conceptual project layout for the FEIS, further coordination has occurred with each of the affected communities that have caused minor changes to the findings of the original EIS evaluation. In most cases these changes have resulted in a decrease to previously identified impacts and are located along Highway 371 in areas not directly associated with the Pequot Lakes Bypass.

- Layout refinements in the vicinity of Crow Wing County Roads 29/107 have resulted in additional peripheral impacts to wetland basin 2A totaling 0.18 acres; an increase of 0.12 acre over that identified in the FEIS. These layout refinements are related to the removal of the proposed bridge structures over wetland basins 2A and 2B and the proposed use of the existing Highway 371 roadbed in this area. Further analysis of this area showed that the bridges proposed by Alternative 2 would have introduced sight distance deficiencies and would be cost prohibitive due to design criteria (substructures and foundations). It was also determined that activities associated with the actual bridge construction would potentially create greater temporal wetland impacts than those anticipated. Peripheral impacts to the basin are anticipated to be less damaging than the medial impacts of bridge construction.
- Layout refinements since the completion of the FEIS have also resulted in the total avoidance of wetland basin 8 with an impact area of 0.01 acre.

2.3 RESPONSIBLE GOVERNMENTAL UNITS

Mn/DOT is the State Responsible Governmental Unit (RGU) for the development of the Highway 371 project and the environmental documentation for this project. Mn/DOT is managing the project with the FHWA as a federal lead agency. The contact persons for the project are:

Minnesota Department of Transportation

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2.4 FUNDING AND SCHEDULING

Funding

The Highway 371 North Improvement Project is listed in the Mn/DOT (District 3 - Baxter) Long Range Plan. It is anticipated that federal funds would be the primary source of funding (80 percent) with a 20 percent match provided by the state and local units of government. Preliminary construction cost estimates for Alternative 3MOD are included in Section 3.3.

Schedule for Environmental Review

Table 3 provides a summary of the anticipated schedule for completing the supplemental environmental review for the TH 371 North Improvement Project.

Table 3 - Proposed Schedule for Environmental Review

| Completion Date | Task/Activity |
|------------------------|---|
| March 8, 2010 | State Draft SFEIS Notice of Availability/Agency Distribution and start agency/public comment period |
| Week of March 29, 2010 | Draft SFEIS Public Information Meeting |
| April 16, 2010 | Draft SFEIS comment period expires |
| May 17, 2010 | Prepare and distribute Final SFEIS |
| May 31, 2010 | SFEIS Comment Period |
| June 2010 | FHWA Record of Decision |
| June 2010 | Mn/DOT Adequacy Determination |

2.5 NEED FOR PROPOSED ACTION

The purpose and need for the expansion of Highway 371 remains unchanged from that identified in the original environmental study. Please refer to Section 2.5 in the DEIS for a detailed discussion. Project purpose and need objectives identified in the DEIS include:

- Improve Safety – Crash rates and crash severities in several areas of the study corridor are much higher than average for similar-type roadways. Pedestrian and bicycle safety is also an issue, particularly in the communities of Pequot Lakes, Jenkins, and Pine River.
- Reduce Congestion – Daily traffic demand at times reaches capacity for the segment of roadway between Nisswa and CSAH 16 in Jenkins. Traffic increases dramatically during the summer peak periods, resulting in substantial congestion throughout much of the corridor. Traffic demand is predicted to nearly double by 2030; far exceeding the highway's capacity and severely degrading travel conditions.
- Correct Design Deficiencies – The roadway's present geometric design is deficient given the current use of the roadway. The deficiencies substandard curves, limited sight distance, and locations with substandard shoulders and turn lanes.

3.0 ALTERNATIVES

This section reviews the Highway 371 alternatives studied in the DEIS and describes the SFEIS preferred alternative: Alternative 3MOD. Updated cost estimates for Highway 371 alternatives are also provided, for comparison.

Section 4.0 of the DEIS addresses the potential environmental consequences of the build alternatives studied during the DEIS. Section 4.0 of this document discusses the potential environmental consequences of Alternative 3MOD – the Pequot Lakes Bypass.

3.1 ALTERNATIVES STUDIED IN THE DRAFT EIS

Alternative 1 – No-Build Alternative

The No-Build Alternative would involve no improvements being made to the existing Highway 371 corridor. Under the No-Build Alternate, Highway 371 would continue to operate as a two-lane highway between Nisswa and Pine River. The No-Build Alternate does not preclude ongoing maintenance work.

As noted in the Amended Scoping Decision Document, Alternative 1 is not a suitable solution for addressing the purpose and need objectives of this project. However, in accordance with federal and state regulations, the No-Build Alternative will be retained throughout the analysis process to serve as a baseline for comparison of the build alternatives.

Alternative 2 – Capacity Expansion on Existing Alignment

Figure 3 shows the location of Alternative 2. This build alternative, identified as the preferred alternative in 2005, would have reconstructed Highway 371 as a four-lane divided roadway on its existing alignment from CSAH 18 in Nisswa to CR 2/42 in Pine River (see Figure 3 and Appendix A of the DEIS).

Alternative 3 – Existing Alignment with Pequot Lakes Bypass

Figure 3 shows the location of Alternative 3. This build alternative was not carried forward from the DEIS phase due to the projected high cost and lack of support by the Pequot Lakes City Council at the time of the 2005 FEIS.

This alternative would have reconstructed Highway 371 as a four-lane roadway on its existing alignment from CSAH 18 in Nisswa to approximately one mile north of CR 107/168 south of downtown Pequot Lakes. At that point, Highway 371 would have been reconstructed on a new alignment extending along the east edge of the downtown Pequot Lakes area; intersecting CSAH 11 approximately one-half mile east of the existing Highway 371/CSAH 11 intersection. The bypass would have continued north and crossed County Road 16 approximately one third of a mile east of the existing Highway 371/CSAH 16 intersection. The bypass alignment then would have returned to the existing Highway 371 corridor on the south edge of downtown Jenkins and continue along the existing alignment through the Jenkins and Pine River areas (see Figure 3 and Appendix H of this SFEIS).

The Pequot Lakes Bypass segment of Alternative 3 from north of CR 107/168 to north of CSAH 16 would have been access controlled with interchanges planned at the south end of the bypass, CSAH 11, and CSAH 16. It is anticipated that this alternative would have included a turn-back of the existing Highway 371 alignment, through Pequot Lakes, to the jurisdiction of Crow Wing County.

Alternative 4 – Existing Alignment with Pequot Lakes and Jenkins Bypass

Figure 3 shows the location of Alternative 4. This build alternative was not carried forward from the DEIS phase due to the projected high cost and lack of support by both the Pequot Lakes and Jenkins City Councils at the time. Discussion about this alternative can be found in Section 3.0 of the DEIS. No further discussion regarding this alternative will be included in this SFEIS.

Alternative 5 – Existing Alignment with Jenkins Bypass

Figure 3 shows the location of Alternative 5. This build alternative was not carried forward from the DEIS phase due to the projected high cost and lack of support by the Jenkins City Council at the time. Discussion about this alternative can be found in Section 3.0 of the DEIS. No further discussion regarding this alternative will be included in this SFEIS.

3.2 ALTERNATIVE STUDIED BY THIS SUPPLEMENTAL FINAL EIS

Alternative 3MOD – Existing Alignment with Pequot Lakes Bypass

Figure 3 shows the location of Alternative 3MOD. This build alternative proposes the expansion of Highway 371 to a four-lane divided roadway on its existing alignment from CSAH 18 in Nisswa to just south of CR 107/168 in Pequot Lakes. At that point, Highway 371 will be reconstructed on a new alignment extending along the east edge of the downtown Pequot Lakes area; intersecting CSAH 11 approximately one-half mile east of the existing junction of Highway 371 and CSAH 11. The bypass would continue north and converge with the existing Highway 371 alignment approximately 1.5 miles south of the existing Highway 371/CSAH 16 intersection and continue north along the existing alignment through Jenkins to CR 2/42 in Pine River. (see Figures A4 through A8 in Appendix I).

The Pequot Lakes Bypass segment of Alternative 3MOD from south of CR 107/168 to approximately 1.5 miles south of CSAH 16 would be access controlled with only three at-grade access points planned for the entire length of the bypass. The proposed access points include the junctions of CR 107/168 at the south end of the bypass, CSAH 11, and CR 112. Only the CSAH 11 intersection is planned to be signalized at the time of construction.

Alternative 3MOD also includes the purchase of right-of-way needed for the construction of a future interchange at the junction of the bypass and Crow Wing CSAH 11.

The segments of highway between the communities would generally be rural in design with grass medians and ditches used for drainage. Typical right-of-way width in the rural areas would be 300 feet. Through each of the communities, Highway 371 would utilize an urban design including raised medians, drainage conveyed through storm sewer, and a typical minimum right-of-way width of 150 feet (see Figure 4).

Efforts will be made to maximize use of existing Mn/DOT right-of-way where practical with the exception of the area that includes the actual Pequot Lakes Bypass. The existing right-of-way width varies throughout the Highway 371 corridor from 80 feet to over 225 feet. It is anticipated that this alternative would include a turn-back of the existing Highway 371 alignment through Pequot Lakes to Crow Wing County.

The reasons for selecting Alternative 3MOD as the preferred alternative are described in Sections 1.1 and 1.5 above.

3.3 PRELIMINARY COST ESTIMATES

As noted previously, funding for construction of the Highway 371 North Improvement Project will be supplied by federal, state and local sources.

Although the focus of this SFEIS is to document the affects of Alternative 3MOD and Pequot Lakes Bypass, updated cost estimates for all of the build alternatives are presented in Table 4. These figures are included to provide clarity and identify the relative cost relationship between all of the studied alternatives. All estimates are represented in 2008 dollars (\$2008).

Table 4 - Preliminary Cost Estimates

| Alternative | Construction Costs <u>Without</u> Interchanges ¹ | Construction Costs <u>With</u> Interchanges ² | Right-of-Way Acquisition Costs ³ | Total Costs <u>Without</u> Interchange Construction | Total Costs <u>With</u> Interchange Construction |
|----------------------------|---|--|---|---|--|
| Alternative 1 ⁴ | - | - | - | - | - |
| Alternative 2 ⁵ | \$78.0 | - | \$17.3 | \$95.3 | - |
| Alternative 3 | \$85.3 | \$105.3 | \$20.9 | \$106.2 | \$126.2 |
| Alternative 3MOD | \$76.9 | \$86.9 | \$17.7 | \$94.6 | \$104.6 |
| Alternative 4 | \$88.0 | \$113.0 | \$21.8 | \$109.8 | \$134.8 |
| Alternative 5 | \$79.8 | \$94.8 | \$19.2 | \$99.0 | \$114.0 |

All figures are in millions of dollars and represent costs in 2008 (\$2008).

¹Includes all State, County and City construction costs directly related to the expansion of TH 371 including: grade separated trail crossing in Pequot Lakes, cost of the existing Highway 371 turn-back and program delivery and contingency.

² In addition to those items listed in note¹, construction costs include those required to build interchanges at specific locations identified by each alternative. This includes the option to construct a diamond interchange at CSAH 11 associated with Alternative 3MOD.

³ Includes acquisition of right-of-way for interchanges.

⁴ There are no construction costs related to the No-Build Alternative because no specific improvements have been identified.

⁵ There are no interchanges proposed by Alternative 2.

4.0 SOCIAL, ECONOMIC, AND ENVIRONMENTAL IMPACTS

This section discusses the potential social, economic, and environmental (SEE) affects anticipated as a result of construction Alternative 3MOD. For comparison purposes, several SEE sections below include updated information for the entire Alternative 3MOD corridor between Nisswa and Pine River. The original FEIS described potential SEE impacts for Alternative 2, which has also been summarized above in Table 1.

4.1 SOCIAL AND COMMUNITY IMPACTS

Right-of-Way and Relocation

Affected Environment

Section 4.1 of the DEIS provides a complete description of the affected environment within the project area.

The right-of-way evaluation contained in this section is focused on potential property acquisition related to the Pequot Lakes Bypass; however, to allow comparison with impacts described in the DEIS and FEIS, assessment of impacts for the entire project corridor (Alternative 3MOD) is also included. To the maximum extent possible, Alternative 3MOD utilizes existing state and local government owned right-of-way with the exception of that which will be required for the Pequot Lakes Bypass alignment. The following guidelines were used in determining the needs for right-of-way acquisition.

- Right-of-way acquisition figures were calculated by taking the total amount of land within the proposed Alternative 3MOD corridor and subtracting the amount of existing right-of-way.
- A 300-foot corridor was assumed in rural sections and a 150-foot corridor was assumed in urban sections.
- Where no current right-of-way exists (bypass) the Highway 371 concept was developed utilizing a 300-foot wide roadway corridor.
- A diamond interchange configuration was used to calculate the right-of-way needed for the future grade-separated crossing at CSAH 11.
- Existing Highway 371 right-of-way ranges from approximately 80 feet in downtown Pine River to 225 feet in rural areas north of Nisswa.
- In locations where the Paul Bunyan trail corridor is to be disturbed, Mn/DOT is required to perpetuate the width of the existing trail corridor to the maximum extent possible.
- An 80-foot right-of-way corridor was assumed for frontage roads, but may be less in constrained areas.
- An existing 66-foot right-of-way was assumed and applied to all segments of Alternative 3MOD that utilizes an existing local roadway.

Environmental Consequences

Alternative 3MOD will require a substantial amount of new right-of-way to accommodate the proposed expansion to a four-lane divided highway. An estimate of right-of-way exclusive for the Pequot Lakes Bypass and the entire Alternative 3MOD is presented in Table 5.

Properties listed in the “relocations” columns of this table include only those that are anticipated to require a total acquisition and relocation impact to an existing home or business.

Throughout the project corridor, it is anticipated that there will be a large number of minor property acquisitions. These are defined as those purchases that do not substantially impact the existing use of the affected property or require an existing resident or business to be displaced. These will range from small strips of land equaling less than one acre, to several acres in the case of some property owners.

The total amount of right-of-way needed shown in Table 5 represents the sum of all property acquisition including minor acquisitions and those that will require relocation.

Table 5 - Potential Right-of-Way Acquisition

| Alternative | Additional Right-of-Way Needed (acres) | Number of Relocations | | |
|---------------------|--|-----------------------|------------|-------|
| | | Residential | Commercial | Total |
| Pequot Lakes Bypass | 190 | 5 | 1 | 6 |
| Alternative 3MOD | 345 | 10 | 5 | 15 |

¹Right-of-way impacts for the preferred alternative are based on the preliminary layout and are subject to change as a result of the right-of-way acquisition process.

²Includes the whole project corridor including figures exclusive to the Pequot Lakes bypass presented above.

Residential Relocations

As indicated in Table 5, Alternative 3MOD will require the total acquisition and relocation of ten residential properties. Five of these impacts are associated with the area exclusive to the Pequot Lakes Bypass. Please refer to Appendix I for specific property locations.

Upon review of the properties affected and the general condition of the residential real estate market, it is anticipated that adequate replacement housing opportunities will be available at the time right-of-way activities are initiated for this project. This process typically begins two years in advance of actual construction.

Commercial Relocations

As indicated in Table 5, Alternative 3MOD will require the total acquisition and relocation of five commercial properties. One of these impacts is

associated with the area exclusive to the Pequot Lakes Bypass. Please refer to Appendix I for property locations.

The sections below describe all of the commercial right-of-way acquisition/relocation impacts of Alternative 3MOD. However, only the Pequot Lakes and Wilson Township Area impacts differ from those described in the 2005 Final EIS preferred alternative.

■ Nisswa Area

The construction of the new CSAH 18 connection south of downtown Nisswa will impact Dick Parks Gas Company; a propane sales and delivery business that employs approximately five to seven people from the local area (see Figure A1 in Appendix I). The existing property contains two buildings and two large propane storage tanks. The level of impact to this property is anticipated to require complete acquisition and relocation of this business.

■ Pequot Lakes Area

The construction of the Pequot Lakes Bypass will impact a commercial property that previously functioned as the Sibley Township Hall. This building is currently vacant and is located near the future junction of Highway 371 and CR 112. See Figure A7 in Appendix I. The level of impact to this property is anticipated to require complete acquisition and relocation.

The bypass alignment is also anticipated to impact the Lakes Area Crafters Market located near the junction of Highway 371 and CR 107/168 (see Figure A4 in Appendix I). The level of impact is not anticipated to require the complete acquisition or relocation of this existing business. Potential impacts include the purchase of approximately four acres of property including a maintenance building and the current vehicle access location.

Additionally the proposed alignment will impact a portion of the existing waste water spray irrigation field.

■ Jenkins Area

The proposed Highway 371 alignment and the creation of a frontage road in the downtown area of Jenkins will require the complete acquisition and relocation of Jenkins Auto Sales which employs one person from the local area. See Figure A9 in Appendix I.

■ Wilson Township Area

Since the ROD was issued in 2005, the creation of an improved Highway 371 connection at 20th Avenue, south of the Pine River crossing, will require the total acquisition and relocation of a commercial building currently occupied by Macalister Realty. See Figure A13 in Appendix I. This business has operated at this location for five years and employs four to six people from the local area.

The existing Mn/DOT truck station located northwest of the junction of Highway 371 and CR 44 will be impacted to a level requiring relocation. See Figure A12 in Appendix I. This impact is required to accommodate the proposed Alternative 3MOD alignment and to reduce impacts to existing residential and commercial properties located on the east side of Highway 371. This location employs three to five Mn/DOT employees and is a base for snow plowing and maintenance operations. This facility will be relocated prior to the construction of this project. However, since it is already owned by Mn/DOT, it is not included in the total relocations outlined in Table 5.

■ Pine River Area

One additional commercial business is expected to be affected by this project; however it is not considered to be a commercial acquisition or relocation. Mn/DOT currently holds a property lease with Gilchrist Real Estate for a building that is located immediately south of the Pine River Depot and on Mn/DOT owned right-of-way. Provisions of the lease stipulate it will terminate and the business be removed from state owned property prior to construction of Highway 371 in that area. It is likely that this business, that employs three people from the local area, will relocate in the area upon termination of this lease.

Mitigation

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and 49 CFR Part 24 provides that assistance be granted to persons, businesses, farms, and non-profit organizations that are displaced by public improvements such as this project.

Mn/DOT will provide relocation assistance for persons displaced by the project without discrimination. Advisors are available to explain relocation details, policies and procedures with all potentially displaced individuals. The advisors will work with those displaced (displacee) to locate comparable replacement property and will work directly with property occupants to assist with their specific relocation plans.

Residential displacees are entitled to advisory services and the reimbursement of certain costs associated with relocation. These may include moving expenses, replacement housing costs, increased rental or mortgage payments, closing costs, and other valid relocation costs.

The replacement dwelling to which a displacee relocates must be “decent, safe, and sanitary”. This means that the new dwelling must meet all the minimum requirements established by federal regulations and conform to all housing and occupancy codes.

If necessary, Last Resort Housing provisions will be implemented to ensure comparable replacement housing is available to each displacee. These provisions may include increased replacement housing payments or other alternate methods based on reasonable costs.

Relocation costs will also be made available to all acquired businesses. In addition to the advisory services, payment may be made for certain expenses pertaining to:

- Actual, reasonable and necessary moving costs
- Reestablishment expenses including items such as advertising, signage and utility hookups
- Loss of tangible personal property as a result of relocation or discontinuance of a business
- Costs incurred in searching for a replacement site
- Fixed payment in lieu of moving and re-establishment costs

A review of the study area finds that there are adequate areas currently planned/zoned for commercial development, which will provide options for acquired businesses to be relocated in the area.

Economic Environment

Affected Environment

Please refer to Chapter 4.1 of the DEIS.

Economic Consequences

Pequot Lakes Bypass

The potential economic impacts of a by-pass versus a through-city Highway 371 alternative were evaluated as part of the studies summarized in the Highway 371 Alternate Route Study Group Report (Sept. 17, 2007, see Appendix B for a copy of the Executive Summary from the report.) As described in Section 1.1 above, the findings of this report were accepted by the Pequot Lakes City Council and on December 18, 2007, (after being made aware of the potential economic impacts) the Pequot Lakes City Council passed resolution 07-32 that identified the Highway 371 bypass as the City's preferred alternative. See discussion in Section 1.1.

The findings of the studies indicate the proposed Pequot Lakes Bypass has the potential to result in both beneficial and adverse effects to the local economy of Pequot Lakes. These impacts will occur primarily as a result of changes in traffic patterns and right-of-way acquisitions.

The bypass alignment would remove a large portion of the through traffic from the downtown area where the Highway 371 currently exists. The economic impacts to the business community are dependent on several factors including:

- Location of the existing business
- Type of business (traffic-serving vs. destination oriented)
- Future community land use decisions

- The community and individual business action to proactively address changes

Additionally, the studies indicate that adverse economic impacts associated with the Pequot Lakes Bypass may include the potential loss of property tax revenue for the City, school district, and Crow Wing County, through the conversion of private property to non-taxable public property. These property tax losses may be offset as land adjacent to the bypass redevelops after the Highway 371 improvements are made. A complete tax-base analysis was included in the September, 2007 Alternate Route Study Group Report.

The studies also concluded that long-term positive economic effects may include opportunities for implementation of planned development adjacent to the bypass, the accessibility of new land for business opportunities, and improved traffic flow. Additionally, the reduction of truck traffic and overall congestion in downtown Pequot Lakes will provide a more accessible and pedestrian-friendly environment that may result in economic benefits.

Mitigation

No mitigation is proposed.

Traffic Assessment

The corridor operational analysis of Alternative 3MOD is based on the Highway Capacity Manual (2000) and facilitated by traffic simulation using Synchro/SimTraffic. This software package is a common traffic analysis tool that allows for rapid evaluation of many transportation alternatives.

This traffic assessment focuses on traffic operations in the Pequot Lakes Bypass area that differ from the DEIS traffic assessment. A general assessment of Highway 371 volumes for the entire Alternative 3MOD corridor is also included for comparison against the original DEIS analyses. An Intersection Control Evaluation (ICE) report was prepared for the portion of the corridor that includes the Pequot Lakes Bypass. This report also includes analysis for the proposed CSAH 29/CR 107 intersection north of Nisswa. Since the FEIS, the bridges proposed at this location have been removed since the roadway will remain on the existing alignment. This design change will reduce temporal wetland impacts and provide better sight distance at the intersection. The intersection configuration resulting from these changes has also been included in this traffic assessment.

The ICE report in Appendix Q contains the technical data and analysis that is the basis of the updated traffic assessment. It includes traffic volume forecasts, Level of Service (LOS) analysis, signal warrant evaluations, and proposed intersection configurations. Turning movement volumes were also developed for the key intersections along the study corridor including the proposed Pequot Lakes Bypass alignment. These turning movement volumes were based on peak hour counts and were balanced to forecast levels expected in 2030. The design and evaluation used the June weekday peak

hour condition and was determined to be approximately 10 percent greater than the annual average daily (AADT) volumes.

Summary of Existing Traffic Conditions

Please refer to Chapter 4.1 of the DEIS.

Summary of Forecast (Year 2030) Traffic Conditions

Alternative 3MOD

One of the main purpose and need objectives of the proposed project is to reduce congestion along the Highway 371 corridor. Table 6 shows the estimated 2030 total annual vehicle hours of travel and total annual delay for Alternative 1 – No Build, Alternative 2, and Alternative 3MOD.

Table 6- Estimated 2030 Annual Vehicle Hours of Travel and Delay

| Alternative | Annual Vehicle Hours of Travel (million hours) | Annual Delay (million hours) |
|---|---|-------------------------------------|
| Alternative 1 – No Build | 4.91 | 2.21 |
| Alternative 2 | 3.18 | 0.56 |
| Alternative 3MOD (signal at CSAH 11) | 3.03 | 0.44 |
| Alternative 3MOD (interchange at CSAH 11) | 3.00 | 0.35 |

By 2030, the estimated total annual travel time for Alternative 3MOD is expected to be 3.03 million hours, with 2.59 million hours being movement time and 0.44 million hours being delay time. These travel times represent a 35 percent decrease in total travel time compared to the No-Build Alternative. The delay component of the travel time shows about an 80 percent decrease in user delay can be achieved by building Alternative 3MOD compared to the No-Build Alternative.

If funding becomes available, it is proposed under Alternative 3MOD that the Highway 371/CSHA 11 intersection be upgraded from a signalized at-grade intersection to a grade-separated interchange. If this upgrade is made, the estimated 2030 total annual travel time is expected to be 3.00 million hours, with 2.65 million hours being movement time and 0.35 million hours being delay time.

The Pequot Lakes Bypass is forecast to receive approximately two-thirds of the Highway 371 traffic. The remaining third are expected to utilize the segment of existing Highway 371 through Pequot Lakes that will be turned back to the jurisdiction of Crow Wing County. The reduction of traffic along this existing segment will provide traffic operations that are adequate and are well within capacity of the roadway's current configuration. By 2030, traffic volumes on this segment are expected to be approximately 33 percent to 40 percent less than existing traffic volumes.

These findings are different that those presented in the DEIS for Alternative 3 (bypass) where volumes on this segment were predicted to approach existing levels by 2030. The primary reason for these forecast changes is related to the proposed configuration of the south connection with the bypass at CR 107 and 168. The un-signalized intersection proposed by Alternative 3MOD is expected to reduce traffic demand and future development of the existing corridor compared to the interchange configuration proposed by DEIS Alternative 3.

The operation of Alternative 3MOD and Pequot Lakes Bypass under 2030 traffic conditions is expected to reduce congestion and improve safety, consistent with the project goals. A brief overview of the roadway segments and intersections studied during the SFEIS traffic assessment are presented below. For a more in-depth discussion regarding this traffic assessment, please see the ICE report located in Appendix Q.

- **Highway 371 at CSAH 29/CR 107:** Currently, this intersection is controlled by two-way stop control (no control on the Highway 371 approaches and stop sign control on the CSAH 29/CR 107 approaches). It is recommended that two-way stop control be continued at this intersection with the proposed project. It is also recommended that the widest practical median be installed on Highway 371 in this location within the constraints of cost and environmental impacts.
- **Highway 371 at CR 168/CR 107:** This is a new intersection that will be created on the south end of the proposed Pequot Lakes Bypass. It is recommended that two-way stop control (no control on the Highway 371 approaches and stop sign control on the CR 107/CR 168 approaches) be installed at this intersection. It is also recommended for safety and traffic operation purposes that the widest possible median be installed and free-right turn islands be provided on the approach from southbound Highway 371 and the entrance to southbound Highway 371.
- **Highway 371/CSAH 11:** This is a new intersection that will be created at the mid-point of the proposed Pequot Lakes Bypass. It is recommended that a traffic control signal be installed at this location and that a free-right turn island be added to the approach from northbound Highway 371 and the eastbound and westbound approaches from CSAH 11.

There is a long-term potential need to provide a grade-separated interchange at this location and the right-of-way required for a diamond interchange will be purchased as part of the acquisition for the bypass. It was determined that a standard diamond interchange configuration, with CSAH 11 passing over Highway 371, would adequately accommodate the 2030 traffic demand at this location.

As part of the traffic assessment, the entrance and exit ramp terminals of this future interchange were analyzed to determine the intersection control needed at each location. The analysis showed that stop control (stop signs at the top of each exit ramp) would not accommodate the projected demand of traffic exiting from Highway 371. Likewise, it was determined that a left turn lane with a yield condition at the entrance ramps would not adequately accommodate traffic demand from CSAH 11. Under these conditions, it is anticipated that 2030 traffic demand would cause unacceptable vehicle queuing at both ramp termini.

Therefore, it is recommended that if funding becomes available for an interchange at this location, that a traffic signal or roundabout intersection control be provided at each of the ramp terminal intersections. The right-of-way footprint for the interchange is sufficient to accommodate this type of intersection control.

- **Highway 371/CR 112:** This is a new intersection that will be created at the north end of the proposed Pequot Lakes Bypass. It is recommended that two-way stop control (no control on the Highway 371 approaches and stop sign control on the CR 112 approaches) be installed at this intersection. It is expected that this intersection configuration will function adequately under the traffic conditions expected in 2010. However, under 2030 conditions, it is predicted the traffic signal control may be needed at this intersection. Traffic volume and safety should be periodically monitored to determine when, or if, this intersection should be upgraded to traffic signal control.
- **Highway 371/CSAH 16:** Currently this intersection is controlled by a traffic signal system. It is recommended that traffic signal control be continued at this location with the proposed project.
- **CSAH 11 in the Vicinity of the Pequot Lakes Bypass:** In 2030, traffic volumes on CSAH 11 between existing Highway 371 and the proposed Pequot Lakes Bypass are expected to be over 80 percent greater than the existing condition. The traffic levels on CSAH 11 east of the bypass are expected to be about 140 percent greater than existing traffic volumes. With the forecasted 2030 volumes, it is recommended that Crow Wing County consider upgrading this segment of CSAH 11 to a multi-lane facility.

Safety and Crashes

The primary purpose and need objectives of the proposed project is to improve the overall safety on Highway 371 in the project area. The safety analysis performed for the DEIS was updated for the entire Alternative 3MOD corridor, as described below.

A new four-lane roadway can improve safety by reducing both crash frequency and crash severity. Based on trends developed from analyzing crash data collected from the existing highway corridor, over 100 crashes are expected to occur annually by 2030, under the No-Build Alternative. Approximately four percent of these may be fatal or incapacitating injury crashes if no improvements are made to Highway 371. The division between the five crash severity types is presented in Table 7 and indicates the total number of crashes that can be expected in 2030 associated with the No-Build Alternative and Alternative 3MOD.

Table 7 - Estimated 2030 Crashes by Severity Type

| Crash Severity | Number of Crashes Expected in 2030 by Alternative | | |
|---------------------------|---|------------------|--|
| | No Build | Alternative 3MOD | Alternative 3MOD (CSAH 11 Interchange) |
| Fatal | 1.1 | 1.2 | 1.1 |
| Incapacitating Injury | 3.4 | 1.5 | 1.4 |
| Non-Incapacitating Injury | 10.8 | 8.3 | 7.4 |
| Possible Injury | 24.3 | 23.0 | 20.6 |
| Property Damage | 63.1 | 60.7 | 54.4 |
| Total | 102.7 | 94.7 | 84.9 |

Through the analysis of historical crash data, it has been determined that Alternative 3MOD may reduce the frequency of crashes by about 8 percent, compared to the No-Build Alternative. In addition to reducing the overall crash frequency, the proposed improvements reduce the severity of those crashes. The construction of a four-lane divided roadway is estimated to reduce fatal and incapacitating injury crashes by 40 percent, compared to the No-Build Alternative. If an interchange were constructed at the CSAH 11 intersection in the future, there would be additional improvements in corridor safety.

Benefit/Cost Analysis

An updated benefit/cost (B/C) analysis was conducted as part of this SFEIS to quantify the relative transportation-related benefits and costs associated with this project. Although the focus of this SFEIS is to document the effects of the Pequot Lakes Bypass, an updated benefit/cost analysis was conducted for the entire Alternative 3MOD corridor vs. the No-Build Alternative. The results of this analysis are presented in Table 8. A detailed B/C technical memorandum describing the methodology and assumptions used in the B/C analysis is located in Appendix R.

Analysis Results

For all projects requiring a B/C analysis, quantified benefits greater than or equal to the quantified costs (benefit/cost ratio greater than one) represent an economically viable alternative. The results of the analysis indicate that Alternative 3MOD is economically viable from a B/C perspective.

Table 8 - **Benefit/Cost Ratio**

| | Alternative 3MOD | Alternative 3MOD (CSAH 11 Interchange) |
|---|------------------|---|
| Vehicle Miles Traveled and Vehicle Hours Traveled (VMT & VHT) Benefit | 222.1 | 230.9 |
| Crashes Benefit | 7.2 | 22.6 |
| O&M Benefit | (4.9) | (4.9) |
| Total Benefit | 224.4 | 248.6 |
| Total Costs (\$2008) | 94.6 | 100.6 |
| Total Costs (Present Value \$2010) | 89.0 | 94.6 |
| Remaining Capital Value (2030) | 24.9 | 26.5 |
| Total Cost - RCV | 64.1 | 68.1 |
| Benefit-Cost Ratio | 3.5 | 3.7 |

Notes: Discount Rate = 3.1%

All figures, except the B/C Ratio, are in millions of dollars.

Social and Community Environment

Affected Environment

Please refer to Chapter 4.1 of the DEIS.

Environmental Consequences

This section focuses on the Pequot Lakes Bypass area. Please refer to Chapter 4.1 of the DEIS for a discussion of social and community impacts to Alternative 3MOD areas beyond the Pequot Lakes area.

The Pequot Lakes Bypass would improve community cohesion in downtown Pequot Lakes. Pedestrian mobility and local circulation would be improved by moving the peak traffic volumes out of the downtown district. Additionally, a Pequot Lakes Bypass would avoid potential direct impacts (e.g. right-of-way, access restrictions) and indirect impacts (e.g. noise, visual) to community resources such as the Pequot Lakes Baptist Church, Gloria Dei Lutheran Church, and Bobberland Park.

The realigned highway (bypass) would have direct impacts to three properties owned by the City of Pequot Lakes. The Old Sibley Township Town

Hall, a parcel of land reserved for a future community cemetery, and a portion of the City wastewater spray irrigation field will all be impacted through right-of-way acquisition.

Mitigation

Mitigation measures for acquisition and relocations of city owned property are described under the Right-of-Way and Relocation section of this document.

Mitigation for effects caused by the bypass alignment on the City's wastewater spray irrigation field will be completed by Pequot Lakes. In October 2007, Pequot Lakes and Mn/DOT entered into a Memorandum of Agreement (MOA) outlining the City's obligation regarding affects on this system. In this document, the City agreed to dedicate the right-of-way needed for the 300-foot wide Highway 371 corridor and to accomplish any reconfiguration or reorientation of the spray irrigation infrastructure. See MOA in Appendix A.

Land Use

Affected Environment

Please refer to Chapter 4.1 of the DEIS.

Environmental Consequences

Potential Impacts to Existing Land Uses

The purpose of this section is to summarize potential impacts to the built and natural environment as they relate to land use; focusing on the Pequot Lakes Bypass area. A more detailed discussion of specific land use impacts can be found throughout the social, economic, and environmental impact sections, such as Right-of-Way and Relocation, Vegetation, Wetlands, Economics, Social and Community Impacts and several others.

Alternative 3MOD will require the acquisition of a new 300-foot wide right-of-way corridor associated with the Pequot Lakes Bypass. The acquisition of property along the Pequot Lakes Bypass alignment will convert woodlands and farmlands to highway right-of-way and may create a higher demand for development on parcels adjacent to the new corridor. The [Highway 371 Alternate Route Study Group Report](#) contains current zoning classification maps in the vicinity of the proposed Pequot Lakes Bypass. The current zoning classifications for this area include, but are not limited to, agricultural, commercial, forest management, rural residential, and recreational.

Along the Pequot Lakes Bypass alignment, access to Highway 371 will be limited to three at-grade intersections with enough right-of-way being preserved for a future grade-separated interchange at CSAH 11. Access to potential development sites adjacent to the new alignment would need to be provided from local or regional roadway networks which are not associated with this project. The City ultimately has control over the type and density of

development that occurs in the vicinity of the highway, through its comprehensive planning and zoning regulations.

Mitigation

No mitigation is required.

Parks and Public Recreational Areas

Affected Environment

The public recreational facilities located in close proximity to the Highway 371 improvements are illustrated on Figure 14 in the DEIS. These resources are described in Section 4.1 of the DEIS. Updated or additional information on public recreational facilities related to the Pequot Lakes Bypass is included in this section.

Section 4(f) Resources

Section 4.1 of the DEIS and the Draft and Final Section 4(f) Evaluations describe the Section 4(f) resources and potential project impacts to those resources. The Revised Final Section 4(f) Evaluation located in Appendix D of this SFEIS provides updated information on project impacts to Section 4(f) resources including the Paul Bunyan Regional Trail and Northern Minnesota Railroad Corridor.

Trails

The Paul Bunyan Regional Trail and other pedestrian/bicycle recreational facilities are discussed in the Pedestrian and Bicycle Movements section of this document and in the Revised Final Section 4(f) Evaluation located in Appendix D.

Public Boat Landings

There is an unofficial boat landing located on West Twin Lake that is situated within the existing Highway 371 right-of-way. The site is merely a pull-off from the highway where boats have historically gained access to the lake. No public funds have been used to establish or maintain this site; currently viewed as a potential safety concern.

Parklands

Evergreen Park is a small neighborhood park located in the Evergreen residential development south of CR 107 in Pequot Lakes. It contains recreational facilities, such as a play area, tennis courts, playground equipment, and open space. Since it is situated on private property that is not maintained or under the jurisdiction of any public entity, this recreation area is not a Section 4(f) resource.

The Pequot Fire Lookout Tower is located approximately one-half mile east of downtown Pequot Lakes and immediately north of CSAH 11. The structure, which is owned by the DNR, has been identified as eligible for the National

Register of Historic Places. The City of Pequot Lakes has collaborated with DNR in the installation of a parking facility and a small picnic area at this location.

Environmental Consequences

This section focuses on impacts associated with the Pequot Lakes Bypass section of Alternative 3MOD.

Trails

Alternative 3MOD in the Pequot Lakes Bypass area will impact the Paul Bunyan Recreational Trail including the realignment of a short segment of trail near the southern end of the bypass. A new highway crossing of the trail is proposed to be grade separated. These impacts are described in greater detail in the Pedestrian and Bicycle Movement section of the document as well as the Revised Final Section 4(f) Evaluation located in Appendix D.

The Pequot Lakes through town segment of Alternative 2 would not directly impact the Paul Bunyan Regional Trail.

Public Boat Landings

The unofficial boat access to West Twin Lake located on the existing highway right-of-way will be impacted by Alternative 3MOD and will not be perpetuated in its current location due to safety concerns. The Trails and Waterways division of the DNR has indicated a desire to maintain a low-use boat access to West Twin Lake. The location of this potential site will require further investigation by the DNR and will not be associated with this project.

Parklands

Evergreen Park will be directly affected by Highway 371 improvements associated with Alternative 3MOD. The new Pequot Lakes Bypass alignment begins to diverge from the existing highway alignment in the vicinity of this privately-owned park and would require right-of-way acquisition from a portion of the open space associated with this facility. See Figure A4 in Appendix I. No physical impacts to the play area, tennis courts or playground equipment are anticipated. Indirect impacts for Evergreen Park may include changes in access and noise.

The Pequot Lakes Bypass portion of Alternative 3MOD would not directly impact Bobberland Wayside Park located in Pequot Lakes.

The Pequot Fire Lookout Tower site will not be directly affected by Highway 371 improvements associated with Alternative 3MOD. Indirect impacts caused by relocating Highway 371 one-half mile closer to this resource potentially include increased auditory and visual effects on site visitors. This is discussed in greater detail in the Architectural and Archaeological Resources sub-section below.

Mitigation

Mitigation measures for impacts to the Paul Bunyan Regional Trail are discussed in the Revised Final Section 4(f) Evaluation located in Appendix D. Mitigation measures for the indirect impacts to the Pequot Fire Lookout Tower property are discussed in the Architectural and Archaeological Resources Section of this document. No other recreational resources would be affected by the project, therefore, no other mitigation is proposed.

Pedestrian and Bicycle Movements

Section 4.1 of the DEIS provides a complete description of Pedestrian and Bicycle Movements in the project area.

Affected Environment

Bicycle Facilities

Section 4.1 of the DEIS provides a description of the Paul Bunyan Trail, which parallels Highway 371 throughout the entire project corridor and in several places is immediately adjacent to the highway.

Pedestrian Facilities

The Paul Bunyan Trail serves as the only continuous pedestrian facility within the Highway 371 project corridor.

Several high pedestrian traffic areas exist along the Highway 371 project corridor, including downtown Pequot Lakes, within the Pequot Lakes Bypass portion of the corridor that is the focus of this SFEIS.

Environmental Consequences

Alternative 3MOD will directly impact the Paul Bunyan Trail. Figures A3 through A8, located in Appendix I, illustrate the locations in the Pequot Lakes area where the trail would be impacted and relocated. Additionally the Revised Final Section 4(f) Evaluation document, located in Appendix D, contains detailed information regarding impacts to the Paul Bunyan Regional Trail.

The removal of Highway 371 through downtown Pequot Lakes would improve bicycle/pedestrian mobility and safety through this area by reducing the peak and through traffic volumes from the existing highway alignment. The installation of a signalized intersection at the junction of the Highway 371 bypass and CSAH 11 east of downtown Pequot Lakes will create an opportunity for pedestrians and bicyclist to traverse Highway 371 at a protected crossing.

The Pequot Lakes through town segment of Alternative 2 would maintain the existing trail conditions, but would introduce potential bicycle/pedestrian mobility and safety concerns due to increased traffic volumes along the existing highway alignment and cross streets.

Mitigation

Improving bicycle and pedestrian movements and overall safety throughout the project area is a goal identified to be accomplished by this project. Efforts to further enhance pedestrian and bicycle accessibility, circulation, and safety within the project area has been considered during the preliminary design phase of this project (see correspondence letters from the DNR in Appendix F) and will continue throughout the final design phase. Improvements will include adding advisory signage or constructing controlled crossing locations (pedestrian bridge or underpass). All pedestrian facility enhancements will be designed and constructed in accordance with the Americans with Disabilities Act (ADA) and may require increased cost participation by each of the local communities. Ongoing coordination efforts with the DNR and local communities will continue during the detailed design phase.

Environmental Justice

Chapter 4.1 of the DEIS describes the analysis of potential for environmental justice impacts. There are no readily identifiable minority and/or low-income populations within the project area for any of the project alternatives. The proposed Pequot Lakes Bypass is not substantially different from Alternative 3 (Bypass) in the DEIS; therefore, Alternative 3MOD would not result in disproportionately high or adverse effects to minority or low-income populations.

Transit Services and School Busing

Affected Environment

As described in Section 4.1 of the DEIS, currently, Crow Wing County, Cass County, and each of the affected communities along the Highway 371 corridor have limited public transit services.

The communities of Pequot Lakes and Breezy Point each have schools that provide busing services for its students. A large number of these busing activities include routes that both directly use and traverse Highway 371 during the school year.

Environmental Consequences

Alternative 3MOD has the potential to have positive and negative impacts on transit and school bus services. Most impacts are related to the ability of the transit or busing provider to efficiently and economically deliver their services.

The improved traffic operations over the existing conditions will result in an improvement in transit and busing travel times for routes that use roadways within the project area. The Pequot Lakes Bypass will make the slightly longer transit trips more efficient by providing an alternative to bypass the urban areas of Pequot Lakes.

Short-term adverse impacts to transit and school bus services may result from construction activities associated with the Highway 371 improvements. Minor detours or delays are expected during the actual construction phase of this project and could lead to temporary disruption of transit and busing services. Long-term changes in access to Highway 371 may require minor modification to existing transit and school bus routes.

Mitigation

During the final design phase of this project, transit and busing providers will be supplied with the updated access configuration of the project area and construction staging plans. These can be used to anticipate possible impacts during the construction phase and effectively plan future transit and bus routes to maximize their efficiency of service.

Utilities

Affected Environment

There are several local and regional utility lines and distribution and/or transmission facilities that can be found within the project area. These utilities include local electric and telephone distribution lines, natural gas pipelines, and fiber optic communication lines.

Beginning in 2010, Minnesota Power plans to install a 115KV power distribution line between Pequot Lakes and Park Rapids. Minnesota Power has completed their environmental review process and has been granted a route permit by the Minnesota Public Utilities Commission. The proposed route would create one transverse crossing of the Pequot Lakes Bypass alignment west of the current Pequot Lakes substation. See Appendix E.

The Pequot Lakes Bypass alignment proposes the partial use of the City's existing wastewater spray irrigation facility; located south of the City's industrial park. This facility currently contains three center pivot irrigators that apply treated water on approximately 104 acres of well drained soils with a cover crop of alfalfa.

Approximately twenty acres of City-owned property will be required from this site in order to accommodate the proposed bypass alignment and associated 300-foot right-of-way corridor. This will physically split the spray field in half, and cause modifications to the existing irrigation system in order to maintain the required capacity. See Figure A5 in Appendix I.

Environmental Consequences

Alternative 3MOD will potentially impact utilities and may require the relocation and temporary disruption of some local and regional utility services.

Removing 20 acres from the existing Pequot Lakes wastewater irrigation facility will require modification of the current permit issued by the Minnesota Pollution Control Agency (MPCA). Reduced acreage will result in higher

application rates on the remaining portions of the spray irrigation field. Physically separating the site with the 300-foot Highway 371 corridor will require relocation of the three center pivot irrigation mechanisms and the possible reconfiguration of the associated piping system. There are no impacts anticipated to the two wastewater treatment lagoons located north of the spray irrigation field.

At the request of the City of Pequot Lakes, the MPCA completed an assessment of the current wastewater treatment system. This was done in order to determine the initial feasibility of reducing the area of the current facility and ultimately using a portion of it for the proposed Pequot Lakes Bypass alternative.

On January 22, 2007 the MPCA sent a letter to the City of Pequot Lakes detailing the results of the assessment and provided a number of conclusions and recommendations. The MPCA recommended that a maximum application rate of 16 inches per acre per year be allowed and concluded that a minimum of 59 acres is needed for proper irrigation. The assessment also found that it is highly unlikely that an increased irrigation rate on a reduced area will result in elevated groundwater nitrate concentrations. See the MPCA correspondence in Appendix N. Therefore, the reduced area available for the spray irrigation field will not result in adverse impacts on the operation of the City's wastewater treatment facility.

Mitigation

As the development of this project progresses, minimization measures will be considered to reduce potential impacts to local and regional utility systems. These efforts may include minor shifts in the alignment or alterations to the typical roadway cross-section.

Coordination is ongoing between Mn/DOT and the design team from Minnesota Power for the final configuration of the proposed 115 KV transmission line. This will ensure that the location and arrangement of the support structures are placed in such a way to not cause a major service disruption during construction or compromise the proposed Pequot Lakes Bypass alignment (e.g. minimize overlap of the road right-of-way and utility blow down zones).

Mitigation measures associated with the City's waste water spray irrigation system will be the responsibility of Pequot Lakes. On October 2, 2007 the City and Mn/DOT entered into an MOA that established that Pequot Lakes will be responsible for all relocation, reorientation or other mitigation measures required to maintain the function and capacity of this system. The details of this mitigation plan will be developed closer to the final design phase of this project and must be implemented prior to construction of the Pequot Lakes Bypass (see MOA in Appendix A).

Secondary and Cumulative Impacts

Chapter 4.1 of the DEIS discusses secondary and cumulative impacts associated with the Highway 371 project – including all alternatives. Alternative 3MOD is not substantially different from Alternative 3 in the DEIS, and existing and anticipated future conditions in the project area have not changed substantially since the DEIS. Therefore, no additional assessment was performed for this SFEIS.

Architectural and Archaeological Resources

Consultation

Please refer to Chapter 4.1 of the DEIS and Chapter 4.2 in the Final EIS.

Affected Environment

Architecture

Chapter 4.1 of the DEIS and Chapter 4.2 in the Final EIS describe the methodology and findings regarding historic structures in the Highway 371 project area. The architectural Area of Potential Effect (APE) established during the DEIS did not encompass a small area that would be affected by the Pequot Lakes Bypass. This area, which lies north of CR 107, was not initially included because the original Pequot Lakes Bypass option (Alternative 3) diverged from the existing alignment nearly one mile north of the Alternative 3MOD bypass alignment.

Associated with Alternative 3MOD, two additional sites were added to the architectural APE. These two properties are located adjacent to CR 107 east of the existing Highway 371 alignment. The first property is a modern house and garage and the second is a single metal shed. Neither is considered eligible for listing on the National Register of Historic Places (refer to letter in Appendix G).

Alternative 3MOD brings the Pequot Fire Lookout Tower, located adjacent to CSAH 11 east of Pequot Lakes, into the area of potential effect. The proposed bypass alignment and the intersection of CSAH 11 and Highway 371 will be located approximately one quarter mile west of the tower site.

Archaeology

Chapter 4.1 of the DEIS and Chapter 4.2 in the Final EIS describe the methodology and findings regarding archaeology in the Highway 371 project area. The archaeological APE established during the DEIS was reviewed in June 2008. The determination was made that there are no previously recorded archaeological sites along the new Pequot Lakes Bypass alignment. The new area of potential effect associated with Alternative 3MOD has been assessed as having low potential for the presence of unknown pre-contact archaeological sites. This is related to the distance from water sources and findings of a previous survey entitled Phase I Archaeological Reconnaissance Survey of TH 371, Pine River to Nisswa, Cass and Crow Wing Counties.

Minnesota (2004). This survey did not locate any sites in the previous Pequot Lakes Bypass (Alternative 3), even though these areas are higher in site potential compared to those included in Alternative 3MOD (refer to letter in Appendix G).

Environmental Consequences

Alternative 3MOD

Architecture

Chapter 4.1 of the DEIS and Chapter 4.2 in the Final EIS describe the methodology and findings regarding potential impacts to historic structures in the Highway 371 project area. The Pequot Lakes Bypass adds one impact that was not discussed in the previous project documents. Although the bypass in Alternative 3MOD will not physically impact the Pequot Fire Lookout Tower or the associated property, the proposed bypass alignment and the intersection of CSAH 11 and Highway 371 will be located approximately one quarter mile west of the tower site. This would result in an adverse effect determination, based on potential impacts to the tower's rural setting, including potential visual and auditory impacts. However, since the project will not result in acquisition of the Tower property, these impacts are not considered to be a Section 4(f) use.

Selection of Alternative 3MOD as the preferred alternative will continue to result in adverse impacts to the Pine River Depot and the Brainerd and Northern Minnesota Railway. The impacts to the Pine River Depot remain unchanged from the DEIS. As discussed below, several mitigation stipulations have already occurred in accordance with the original Section 106 MOA. Increased impacts to the Brainerd and Northern Railway are a result of Alternative 3MOD. These impacts constitute Section 4(f) resource use. A Revised Final Section 4(f) Evaluation has been prepared (see Appendix D) that further discusses the Section 4(f) impacts of Alternative 3MOD on these resources.

The Phase I Archaeological Survey was reviewed for the APE associated with the revised Pequot Lakes Bypass alignment. The results of this review indicate there are no known archaeological sites within the APE of Alternative 3MOD.

Mitigation Measures

In 2004, mitigation measures regarding the Pine River Depot and the Brainerd and Northern Minnesota Railroad Corridor were incorporated in a Section 106 MOA. This MOA was developed and approved by Mn/DOT, FHWA, the U.S. Army Corps of Engineers (USACE), Minnesota State Historical Preservation Officer (SHPO), City of Pine River, City of Pequot Lakes, Pine River Chamber of Commerce, and Heritage Group North. Details of the mitigation commitments are contained in the executed MOA, which is located in Appendix G.

Mitigation for the effects to the Pequot Lakes Lookout Tower will consist of compiling the documentation needed for an official nomination of the Pequot Fire Lookout Tower to the National Register of Historic Places (NRHP).

The mitigation stipulations defined in the MOA for the effects to the Pine River Depot are in the process of being fulfilled. The Depot has been relocated and improvements to the structure and relocation site have been made in accordance with the MOA. Mitigation for all effects to the Brainerd and Northern Minnesota Railroad Corridor, including those proposed by Alternative 3MOD, have been completed in accordance with the 2004 MOA stipulation 4 (see Appendix G for the updated Section 106 MOA).

Contaminated Properties

Affected Environment

Section 4.1 of the DEIS provides a complete description of the affected environment for contaminated properties within the project area.

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 cleanup costs and safety concerns associated with construction personnel encountering unexpected 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.

An updated Phase I Environmental Site Assessment (Phase I ESA) was completed in June 2008 for the additional area associated with the proposed Pequot Lakes Bypass. The initial project Phase 1 ESA, encompassing the entire corridor, was completed in 2003. Both documents provide information on potentially contaminated properties related to Alternative 3MOD. These properties are identified through review of historic land use records, aerial photographs, federal and state regulatory agency databases, county/city records, and observation of current property conditions.

Sites of potential concern identified by the Phase I ESA can be categorized into three risk areas: high, medium and low environmental risk for soil and/or ground water contamination to exist at the site.

In general, high environmental risk sites are properties that have a documented release of petroleum or other chemicals or other strong evidence of contamination such as soil staining or a history of storage of large volumes of petroleum or other chemicals. High risk sites include dry cleaners, sites with non-petroleum contamination enrolled in the MPCA Voluntary Investigation and Cleanup (VIC) program, dumps, sites with petroleum contamination being actively investigated through the MPCA Petroleum Remediation program and sites with historic storage of large quantities of petroleum or other chemicals.

Medium environmental risk sites are properties where relatively small volumes of petroleum or other chemicals are stored with no evidence of undocumented spills or releases. Medium risk sites also include properties with documented releases that have been "closed" or declared "inactive" (no further cleanup action deemed necessary) by the MPCA. "Closed" or "inactive" sites are considered medium risks because residual soil or groundwater contamination may exist at the site.

Low environmental risk sites include properties where small volumes of chemicals or hazardous materials are/have been used or stored, such as residences, schools, churches and small manufacturing facilities with no reported chemical releases.

Both the initial and the updated Phase I ESA were prepared in general conformance with the American Society for Testing and Materials standard. A copy of the Phase I reports are on file at the Mn/DOT offices in Baxter. The updated Phase I ESA conducted in the vicinity of the Pequot Lakes Bypass identified a total of ten known, or potentially contaminated, properties that are of potential concern to the project based on two criteria; they are either high or medium environmental risk sites and they are within or in close proximity to the proposed project limits. These sites are identified in Table 9, and their locations are shown on Figures 2A through 2I in Appendix J.

A contaminated property with the potential to incur excessive cleanup costs should be avoided if possible. Based on the proposed project design, one of the properties listed in Table 9 has this potential.

This property, Site 33, the former Rathke unpermitted dump site, has a potential to incur very high cleanup cost if impacted by the project. However, the property is located far enough away from likely construction limits for the proposed alignment that no portion of the parcel is likely to be impacted by construction of the proposed project.

Another property, Site 26, the former Pfeiffer property borrow pit, could be associated with some cleanup costs if fugitive, unpermitted dumping at the site was extensive. However, information from the site's current owner indicates that dumping at the site was not extensive. Therefore, the site appears to have a low risk of excessive cleanup costs and/or long-term environmental liability if impacted by the project.

Pequot Lakes Bypass

Construction of the Pequot Lakes Bypass has the potential to affect nine medium or high-risk sites not previously identified in the initial Phase I ESA. However, selection of Alternative 3MOD as the preferred alternative will also allow for the avoidance of seventeen medium or high-risk sites located in the downtown portion of Pequot Lakes.

Table 9 - Contaminated Properties Identified in the Updated Phase I ESA

| Site ID ¹ | Environmental Risk | Reason for Contaminated Soil/Ground Water Concern |
|----------------------|--------------------|--|
| 10 | Medium | A vehicle repair shop (boats) is located at the site. |
| 12 | Medium | A vehicle repair shop (snowmobiles, ATVs and boats) is located at the site. |
| 18 | Medium | The facility historically caused groundwater at the site to become contaminated with nitrate. |
| 25 | Medium | A petroleum above ground storage tank is located at the site. |
| 26 | Medium | An inactive gravel pit with reported unpermitted fugitive dumping is located at the site. |
| 29 | Medium | Petroleum underground storage tanks are reportedly located at the site. |
| 33 | High | An unpermitted inactive dump is located at the site. |
| 38 | Medium | Vehicle repair may have historically occurred at the site. |
| 40 | Medium | Vehicle repair may have historically occurred at the site. Two above ground petroleum storage tanks are located at the site. |
| 41 | Medium | A vehicle repair shop and auto body shops are located at the site. |

¹The site identification numbers correspond to the site numbers in the updated Phase I ESA document on file at the Mn/DOT District office in Baxter. Not all of the sites in the Phase I ESA search area are included in the table because not all sites are judged likely to be potentially impacted by the proposed project.

Mitigation

Prior to construction activities, all properties identified in the initial and updated Phase I ESA will be evaluated for their potential to be impacted by construction and/or acquired as right-of-way for the project. Any property with a potential to be impacted by the project will be investigated (through detailed review of regulatory agency project files, and collection and laboratory analysis of soil and groundwater samples, if necessary) to determine the extent and magnitude of contaminated soil or groundwater in the areas of concern. The results of the investigation will be used to determine if the project can avoid or minimize impacts to the properties. If necessary, a plan will be developed for properly handling and treating contaminated soil and/or groundwater encountered during construction in accordance with all applicable state and federal regulations.

4.2 NATURAL ENVIRONMENT

Air Quality

Section 4.2 of the DEIS provides a complete description of the affected environment for air quality within the project area.

The improvements associated with Alternative 3MOD are not anticipated to have substantial air quality impacts or cause air quality related concerns. This project is not located in an area where conformity requirements apply, and the scope of the project does not indicate that air quality impacts would be expected. Additionally, the United States Environmental Protection Agency (EPA) has approved a screening method to determine which intersections need hot-spot analysis. Mn/DOT demonstrated by the results of the screening procedure that there are no signalized intersections included in this project area that require hot-spot analysis. Therefore, no further air quality analysis is necessary.

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). There was no discussion of mobile source air toxics (MSATs) in the DEIS or FEIS; however, discussion of this issue has become a standard practice in EA and EIS documents prepared for FHWA. Therefore, the following discussion has been added, as additional information, for the Highway 371 corridor EIS.

MSATs are a subset of the 188 air toxics defined by the Clean Air Act (CAA). MSATs 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.

This SFEIS includes a qualitative analysis of the likely MSAT emission impacts of this project. Available technical tools do not enable a prediction of the project-specific health impacts of the emission changes (quantitative measure) associated with the preferred alternative identified by this document. Due to these limitations, the following discussion is included in accordance with the Council on Environmental Quality (CEQ) regulations (40 CFR 1502.22) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions

associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. The EPA is the lead authority for administering the CAA and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. EPA maintains the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, <http://www.epa.gov/ncea/iris/index.html>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable. The results produced by the EPA's MOBILE6.2 model, the California EPA's Emfac2007 model, and the EPA's DraftMOVES2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 substantially underestimates diesel particulate matter (PM) emissions and substantially overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of EPA's guideline CAL3QHC model was conducted in a National Cooperative Highway Research

Program study (http://www.epa.gov/scram001/dispersion_alt.htm#hyroad), which documents poor model performance at ten sites across the country - three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location.

There are 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 (<http://pubs.healtheffects.org/view.php?id=282>). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (<http://www.epa.gov/risk/basicinformation.htm#g>) and the HEI (<http://pubs.healtheffects.org/getfile.php?u=395>) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine a "safe" or "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million. In some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is

likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Qualitative Assessment of MSATs

In this document, Mn/DOT has provided a qualitative assessment 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.

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project. However, even though reliable methods do not exist to accurately estimate the health impacts of MSATs at the project level, it is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative analysis cannot identify and measure health impact from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions – if any – from the various alternatives.

For each of the Highway 371 build alternatives, the amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT). This assumes that other variables such as fleet mix are the same for each alternative. The VMT estimated for Alternative 3MOD is slightly higher than that of the No-Build Alternative. The primary reason for this is related to the increased length proposed by the Pequot Lakes Bypass and the attraction of rerouted trips due to the additional capacity and the efficiency of the new roadway. The Traffic Assessment section of this SFEIS further describes the estimated VMT for Alternative 3MOD. An increase in VMT would lead to slightly higher MSAT emissions for the build alternatives along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to reduced congestion and increased speeds; according to EPA's MOBILE6 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 increases cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated VMT under each of the build alternatives are nearly the same, it is expected there would be no appreciable difference in overall MSAT emissions. Also, regardless of the alternative chosen, emission 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 72

percent from 1999 and 2050. 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 virtually all cases.

The construction of additional travel lanes on Highway 371 will, in some cases, move traffic closer to nearby homes, schools and businesses. There may be localized areas where ambient concentrations of MSATs could be higher than the No-Build Alternative. The localized increases in MSAT concentrations would most likely occur in the urban areas of the alignment. Other locations such as segments with an increased number of access points or signal systems may also experience localized increases. However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

The expansion of Highway 371 will result in the roadway moving closer to a number of potential receptors. The localized level of MSAT emissions for Alternative 3MOD could be higher relative to the No-Build Alternative. These localized increases in emissions could be offset by increases in speed 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. On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions in MSAT emissions.

In sum, under all Build Alternatives in the design year it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No-Build Alternative, due to EPA's MSAT reduction programs.

Noise

Affected Environment

Section 4.2 of the DEIS provides a complete description of the affected environment for noise within the project area.

Alternative 3MOD

The selection of Alternative 3MOD as the preferred alternative required additional analysis to assess the impacts related to roadway noise since the proposed Pequot Lakes Bypass alignment was not fully studied in the FEIS. The new alignment has the potential for substantial noise level increases at some locations because it will be located off the existing Highway 371 alignment and, therefore, will be located closer to some new sensitive noise receptors.

The new analysis only encompasses the changes in noise levels along the Pequot Lakes Bypass alignment and does not assess the potential future decreases in future noise levels at receptors along the existing Highway 371 corridor in Pequot Lakes that would result from construction of the bypass. The findings of the noise study conducted for Alternative 2 in the 2005 FEIS

remains valid for the remainder of the project corridor (see Noise summary in Table 1).

State of Minnesota Noise Regulations

State noise standards are related to a one-hour period and apply to outdoor areas only. The standards are in terms of the L₁₀ and L₅₀ noise descriptors. L₁₀ is the sound level exceeded ten percent of the time, or six minutes out of an hour. L₅₀ is the sound level exceeded 50 percent of the time, or 30 minutes out of an hour.

Table 10 provides the Minnesota State Noise Standards for day and nighttime L₁₀ and L₅₀ for three Noise Area Classifications (NAC). The standards for NAC-1 apply primarily to residential areas and other uses intended for overnight sleeping. For this reason the NAC-1 standard includes values for daytime and nighttime noise levels. NAC-2 and NAC-3 classifications (commercial and industrial areas) do not have a different daytime and nighttime noise standard.

Table 10 - Minnesota State Noise Standards

| Noise Area Classification (NAC) | General Land Use Type | Sound Level Decibel (dBA ¹) | | | |
|---------------------------------|-----------------------|---|-----------------|--------------------------------|-----------------|
| | | Daytime (7:00 am – 10:00 pm) | | Nighttime (10:00 pm – 7:00 am) | |
| | | L ₁₀ | L ₅₀ | L ₁₀ | L ₅₀ |
| 1 | Residential | 65 | 60 | 55 | 50 |
| 2 | Commercial | 70 | 65 | 70 | 65 |
| 3 | Industrial | 80 | 75 | 80 | 75 |

¹ A-Weighted sound levels relate to frequencies that are detectable to the human ear

Federal Noise Abatement Criteria

In the Federal Noise Abatement Criteria, a noise impact is defined as an occurrence when predicted traffic noise levels:

- Approach or exceed the noise abatement criteria (Table 11)
- Substantially exceed the existing noise levels.

The Federal Noise Abatement Criteria (23 CFR, Procedures for Abatement of Highway Traffic Noise and Construction Noise) are in terms of the L_{eq} or L₁₀ descriptor. In Minnesota, the L₁₀ descriptor is used to identify impacts and has been used to identify impacts in this analysis. Activity Categories Band C (Table 11) would apply to the receptors in the Highway 371 corridor. Mn/DOT has defined “approaching or exceeding” Federal Standards as a noise level within one dBA or less of the activity category, and “substantially exceed” as an increase of five dBA or more over existing noise levels.

Table 11 - FHWA Noise Abatement Criteria

| Activity Category | L ₁₀ | Description of Activity Category |
|-------------------|----------------------|---|
| A | 60 dBA (Exterior) | Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. |
| B | 70 dBA (Exterior) | Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals. |
| C | 75 dBA (Exterior) | Developed lands, properties, or activities not included in Categories A or B above. |
| D | No Limit | Undeveloped Lands not included in Activity A above. |
| E | 55 dBA (Exterior) | Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums. |

Noise Mitigation Requirements

On projects where expected levels exceed the Federal Noise Abatement Criteria and/or the State Noise Standards, noise mitigation strategies are required to be considered. An analysis to determine the cost effectiveness of a proposed noise mitigation measure ensures that only fiscally responsible alternatives are employed. A noise abatement measure is considered to be cost effective if it results in a minimum 5 decibel reduction in noise and does not exceed \$3,250 per decibel of reduction per unit (residence, business, etc.) within the receptor group.

Traffic-Related Noise Analysis

A detailed noise analysis was conducted as part of this SFEIS and a preliminary noise mitigation analysis was carried out. Several residences and other NAC areas are located adjacent to the project area. The twenty-nine locations chosen for this analysis are intended to be representative of all the affected noise receptors along the proposed bypass corridor.

Methodology

Existing (2008) and future (2030) noise levels were modeled using the FHWA noise prediction model STAMINA 2.0, as modified for use by Mn/DOT (MINNOISE). Noise projections for this analysis represent only the exterior conditions and were based on the following:

- 2008 traffic volumes
- 2030 forecasted peak- hour traffic volumes
- Time of day
- Vehicle speeds

- Mix of vehicle types
- Roadway grades
- Horizontal and vertical distances from the roadway center-of-lanes to each receptor

Environmental Consequences

Noise Analysis Results

The noise analysis considered the following scenarios in the Pequot Lakes Bypass area for comparison of noise levels in order to determine noise impacts.

- Existing conditions (2008)
- No-Build Alternative (2030)
- CSAH 11 signal configuration
- CSAH 11 interchange configuration

A noise analysis was conducted at twenty-nine receptor sites adjacent to the proposed Pequot Lakes Bypass alignment. They correspond to the locations shown in Figures A4 thru A7 in Appendix P. Although 3 receptors sites have been included that may be removed due to right-of-way acquisition activities, they remain a part of the noise analysis.

The analysis associated with a CSAH 11 interchange is limited to seven receptors and represents sites that will result in noise impacts. The fact that CSAH 11 is elevated (bridge over Highway 371) is the primary reason for increased noise levels.

Twenty-three receptors are considered to be within residential areas or other NAC-1 areas. Six are located within commercial or industrial areas (NAC-2 and NAC-3).

Table 12 summarizes the results of the analysis for nighttime L_{10} and L_{50} noise levels associated with a CSAH 11 signal configuration. Table 13 summarizes the nighttime noise levels for seven receptor sites associated with a CSAH 11 interchange configuration. Table 14 summarizes the results of the analysis for daytime L_{10} and L_{50} noise levels associated with a CSAH 11 signal configuration. Table 15 summarizes the daytime condition associated with a CSAH 11 interchange.

All four tables compare the results to the Minnesota State Noise Standards and the Federal Noise Abatement Criteria. No values were found to be approaching or exceeding Federal Noise Abatement Criteria, however with the new bypass alignment, some receptors are predicted to experience noise that substantially exceeds existing levels due to the new roadway alignment.

Table 12 - Peak Nighttime Noise Levels (CSAH 11 Signal Configuration)

| Receptor # | Land Use Activity | Modeled Existing | No Build 2030 | Build 2030 | dBA Increase | Modeled Existing | No Build 2030 | Build 2030 | dBA Increase |
|------------|--------------------------|------------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|
| | | L ₁₀ | L ₁₀ | L ₁₀ | L ₁₀ | L ₅₀ | L ₅₀ | L ₅₀ | L ₅₀ |
| R1 | Residential | 62.4 | 64.7 | 64.2 | 1.8 | 54.8 | 58.0 | 57.8 | 3.0 |
| R2 | Residential | 58.6 | 60.7 | 60.4 | 1.8 | 52.1 | 55.2 | 55.0 | 2.9 |
| R3 | Residential | 53.9 | 55.9 | 55.5 | 1.6 | 48.5 | 51.5 | 51.1 | 2.6 |
| R4 | Residential | 54.7 | 56.7 | 56.5 | 1.8 | 49.1 | 52.1 | 52.1 | 3.0 |
| R5 | Residential | 53.3 | 55.3 | 55.2 | 1.9 | 48.1 | 51.0 | 51.0 | 2.9 |
| R6 | Residential | 56.6 | 58.7 | 59.1 | 2.5 | 50.6 | 53.6 | 54.1 | 3.5 |
| R7 | Residential | 53.8 | 55.9 | 56.2 | 2.4 | 48.5 | 51.4 | 51.9 | 3.4 |
| R8 | Residential | 49.7 | 51.7 | 56.4 | <u>6.7</u> | 45.1 | 47.9 | 51.9 | <u>6.8</u> |
| R10 | Church ¹ | 51.1 | 53.1 | 53.9 | 2.8 | 46.1 | 49.0 | 50.3 | 4.2 |
| R11 | Industrial | 44.8 | 46.7 | <u>59.9</u> | <u>15.1</u> | 41.2 | 43.8 | <u>54.3</u> | <u>13.1</u> |
| R12 | Industrial | 47.2 | 49.1 | <u>55.7</u> | <u>8.5</u> | 43.0 | 45.8 | <u>51.2</u> | <u>8.2</u> |
| R13 | Industrial | 45.0 | 46.9 | <u>57.3</u> | <u>12.3</u> | 41.3 | 44.0 | <u>52.3</u> | <u>11.0</u> |
| R14 | Industrial | 47.7 | 49.6 | <u>53.4</u> | <u>5.7</u> | 43.4 | 46.1 | <u>49.7</u> | <u>6.3</u> |
| R15 | Residential | 44.6 | 46.5 | 55.4 | <u>10.8</u> | 41.1 | 43.7 | 51.0 | <u>9.9</u> |
| R16 | Residential | 46.9 | 48.9 | 51.7 | 4.8 | 43.0 | 45.7 | <u>48.5</u> | <u>5.5</u> |
| R17 | Residential | 42.8 | 44.7 | 61.1 | <u>18.3</u> | 39.8 | 42.4 | 55.2 | <u>15.4</u> |
| R17a | Commercial | 39.7 | 41.6 | <u>53.5</u> | <u>13.8</u> | 37.0 | 39.5 | <u>49.2</u> | <u>12.2</u> |
| R18 | Residential | 48.2 | 50.2 | 64.1 | <u>15.9</u> | 43.2 | 46.1 | 57.4 | <u>14.2</u> |
| R19 | Residential | 56.9 | 59.2 | 60.3 | 3.4 | 49.1 | 52.4 | 54.4 | <u>5.3</u> |
| R20 | Commercial | 56.0 | 58.3 | 59.0 | 3.0 | 48.6 | 51.8 | 53.1 | 4.5 |
| R21 | Picnic Area ¹ | 57.0 | 59.4 | 60.1 | 3.1 | 49.1 | 52.4 | 53.7 | 4.6 |
| R22 | Residential | 50.3 | 52.4 | 61.0 | <u>10.7</u> | 44.5 | 47.5 | 55.1 | <u>10.6</u> |
| R23 | Residential | 48.0 | 50.0 | 58.1 | <u>10.1</u> | 43.1 | 46.0 | 53.0 | <u>9.9</u> |
| R24 | Residential | 43.2 | 45.1 | <u>54.5</u> | <u>11.3</u> | 40.2 | 42.7 | 50.1 | <u>9.9</u> |
| R25 | Residential | 42.9 | 44.9 | 55.6 | <u>12.7</u> | 39.9 | 42.5 | 50.8 | <u>10.9</u> |
| R26 | Residential | 44.7 | 46.7 | <u>52.3</u> | <u>7.6</u> | 41.5 | 44.1 | <u>48.4</u> | <u>6.9</u> |
| R27 | Residential | 43.6 | 45.5 | 57.4 | <u>13.8</u> | 40.1 | 42.8 | 52.0 | <u>11.9</u> |
| R28 | Residential | 52.3 | 54.4 | 56.4 | 4.1 | 47.1 | 50.1 | 51.4 | 4.3 |
| R29 | Residential | 55.2 | 57.4 | 57.8 | 2.6 | 48.0 | 51.2 | 52.0 | 4.0 |

Bold - Values exceeding State Residential Noise Standards. (L₁₀ greater than 55 dBA) (L₅₀ greater than 50 dBA)

Underlined - L₁₀ and L₅₀ values which increased by 5 dBA or more compared to the existing No-Build condition.

There are no values exceeding State Commercial or Industrial Standards for L₁₀ or L₅₀.

There are no values approaching or exceeding Federal Noise Criteria.

¹No overnight sleeping, Daytime standards apply. (L₁₀ greater than 65 dBA) (L₅₀ greater than 60 dBA)

Table 13- Peak Nighttime Noise Levels (CSAH 11 Interchange Configuration)

| Receptor # ² | Land Use Activity | Modeled Existing | No Build 2030 | Build 2030 | dBA Increase | Modeled Existing | No Build 2030 | Build 2030 | dBA Increase |
|-------------------------|--------------------------|------------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|
| | | L ₁₀ | L ₁₀ | L ₁₀ | L ₁₀ | L ₅₀ | L ₅₀ | L ₅₀ | L ₅₀ |
| R18 | Residential | 48.2 | 50.2 | 64.5 | <u>16.3</u> | 43.2 | 46.1 | 57.0 | <u>13.8</u> |
| R19 | Residential | 56.9 | 59.2 | 58.4 | 1.5 | 49.1 | 52.4 | 52.2 | 3.1 |
| R20 | Commercial | 56.0 | 58.3 | 56.9 | 0.9 | 48.6 | 51.8 | 50.5 | 1.9 |
| R21 | Picnic Area ¹ | 57.0 | 59.4 | 57.7 | 0.7 | 49.1 | 52.4 | 50.7 | 1.6 |
| R22 | Residential | 50.3 | 52.4 | 59.6 | <u>9.3</u> | 44.5 | 47.5 | 53.5 | <u>9.0</u> |
| R23 | Residential | 48.0 | 50.0 | 58.2 | <u>10.2</u> | 43.1 | 46.0 | 53.1 | <u>10.0</u> |
| R29 | Residential | 55.2 | 57.4 | 55.7 | 0.5 | 48.0 | 51.2 | 49.4 | 1.4 |

Bold - Values exceeding State Noise Standards. (L₁₀ greater than 55 dBA) (L₅₀ greater than 50 dBA)

Underlined - L₁₀ and L₅₀ values which increased by 5 dBA or more compared to the existing No-Build condition.

There are no values exceeding State Commercial or Industrial Standards for L₁₀ or L₅₀.

There are no values approaching or exceeding Federal Noise Criteria.

¹No overnight sleeping, Daytime standards apply. (L₁₀ greater than 65 dBA) (L₅₀ greater than 60 dBA)

²Noise levels for receptors 1-17a, 24-28 same as those listed in Table 11 and are not dependant on the configuration of CSAH 11 intersection.

Table 14 - Peak Daytime Noise Levels (CSAH 11 Signal Configuration)

| Receptor # | Land Use Activity | Modeled Existing | No Build 2030 | Build 2030 | dBA Increase | Modeled Existing | No Build 2030 | Build 2030 | dBA Increase |
|------------|-------------------|------------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|
| | | L ₁₀ | L ₁₀ | L ₁₀ | L ₁₀ | L ₅₀ | L ₅₀ | L ₅₀ | L ₅₀ |
| R1 | Residential | 66.4 | 68.5 | 68.6 | 2.2 | 60.3 | 63.4 | 63.9 | 3.6 |
| R2 | Residential | 62.4 | 64.4 | 64.4 | 2.0 | 57.4 | 60.3 | 60.7 | 3.3 |
| R3 | Residential | 57.5 | 59.4 | 59.3 | 1.8 | 53.6 | 56.3 | 56.4 | 2.8 |
| R4 | Residential | 58.3 | 60.2 | 60.4 | 2.1 | 54.2 | 56.9 | 57.4 | 3.2 |
| R5 | Residential | 56.9 | 58.8 | 59.0 | 2.1 | 53.1 | 55.8 | 56.2 | 3.1 |
| R6 | Residential | 60.3 | 62.2 | 63.0 | 2.7 | 55.8 | 58.6 | 59.6 | 3.8 |
| R7 | Residential | 57.4 | 59.4 | 60.0 | 2.6 | 53.5 | 56.2 | 57.1 | 3.6 |
| R8 | Residential | 53.2 | 55.1 | <u>60.0</u> | <u>6.8</u> | 49.9 | 52.5 | <u>56.8</u> | <u>6.9</u> |
| R10 | Church | 55.1 | 57.0 | 56.6 | 1.5 | 51.3 | 54.0 | 53.9 | 2.6 |
| R11 | Industrial | 48.6 | 50.5 | <u>63.3</u> | <u>14.7</u> | 45.9 | 48.4 | <u>59.2</u> | <u>13.3</u> |
| R12 | Industrial | 51.0 | 52.9 | <u>58.8</u> | <u>7.8</u> | 48.0 | 50.5 | <u>55.6</u> | <u>7.6</u> |
| R13 | Industrial | 48.8 | 50.7 | <u>60.5</u> | <u>11.7</u> | 46.1 | 48.6 | <u>57.0</u> | <u>10.9</u> |
| R14 | Industrial | 51.5 | 53.4 | 56.4 | 4.9 | 48.3 | 50.9 | <u>53.7</u> | <u>5.4</u> |
| R15 | Residential | 48.3 | 50.2 | <u>58.6</u> | <u>10.3</u> | 45.7 | 48.2 | <u>55.5</u> | <u>9.8</u> |
| R16 | Residential | 50.7 | 52.6 | 54.6 | 3.9 | 47.7 | 50.2 | 52.3 | 4.6 |
| R17 | Residential | 46.3 | 48.2 | <u>64.5</u> | <u>18.2</u> | 44.0 | 46.5 | 60.2 | <u>16.2</u> |
| R17a | Commercial | 42.6 | 44.6 | <u>56.9</u> | <u>14.3</u> | 40.7 | 43.2 | <u>53.9</u> | <u>13.2</u> |
| R18 | Residential | 49.2 | 51.2 | 67.5 | <u>18.3</u> | 45.2 | 47.9 | 62.4 | <u>17.2</u> |
| R19 | Residential | 57.2 | 59.5 | 61.5 | 4.3 | 49.8 | 53.0 | <u>56.8</u> | <u>7.0</u> |

| Receptor # | Land Use Activity | Modeled Existing | No Build 2030 | Build 2030 | dBA Increase | Modeled Existing | No Build 2030 | Build 2030 | dBA Increase |
|------------|-------------------|------------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|
| | | L ₁₀ | L ₁₀ | L ₁₀ | L ₁₀ | L ₅₀ | L ₅₀ | L ₅₀ | L ₅₀ |
| R20 | Commercial | 56.5 | 58.8 | <u>64.3</u> | <u>7.8</u> | 49.5 | 52.7 | <u>55.0</u> | <u>5.5</u> |
| R21 | Picnic Area | 57.1 | 59.5 | 61.0 | 3.9 | 49.3 | 52.6 | <u>55.4</u> | <u>6.1</u> |
| R22 | Residential | 51.1 | 53.1 | <u>61.3</u> | <u>10.2</u> | 46.0 | 48.9 | <u>59.8</u> | <u>13.8</u> |
| R23 | Residential | 49.1 | 51.1 | <u>57.8</u> | <u>8.7</u> | 45.2 | 48.0 | <u>57.5</u> | <u>12.3</u> |
| R24 | Residential | 46.4 | 48.4 | <u>59.0</u> | <u>12.6</u> | 44.2 | 46.7 | <u>54.7</u> | <u>10.5</u> |
| R25 | Residential | 46.2 | 48.2 | <u>54.7</u> | <u>8.5</u> | 44.0 | 46.4 | <u>55.7</u> | <u>11.7</u> |
| R26 | Residential | 48.1 | 50.1 | <u>60.8</u> | <u>12.7</u> | 45.8 | 48.2 | <u>52.2</u> | <u>6.4</u> |
| R27 | Residential | 47.0 | 48.9 | <u>59.2</u> | <u>12.2</u> | 44.5 | 47.0 | <u>57.1</u> | <u>12.6</u> |
| R28 | Residential | 55.9 | 57.9 | 58.7 | 2.8 | 52.1 | 54.8 | 55.6 | 3.5 |
| R29 | Residential | 56.0 | 58.2 | 60.0 | 4.0 | 49.6 | 52.7 | 53.7 | 4.1 |

Bold - Values exceeding State Noise Standards. (L₁₀ greater than 65 dBA) (L₅₀ greater than 60 dBA)

Underlined

- L₁₀ and L₅₀ values which increased by 5 dBA or more compared to the existing No-Build condition.

There are no values exceeding State Commercial or Industrial Standards for L₁₀ or L₅₀.

There are no values approaching or exceeding Federal Noise Criteria.

Table 15 - Peak Daytime Noise Levels (CSAH 11 Interchange Configuration)

| Receptor # ¹ | Land Use Activity | Modeled Existing | No Build 2030 | Build 2030 | dBA Increase | Modeled Existing | No Build 2030 | Build 2030 | dBA Increase |
|-------------------------|-------------------|------------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|
| | | L ₁₀ | L ₁₀ | L ₁₀ | L ₁₀ | L ₅₀ | L ₅₀ | L ₅₀ | L ₅₀ |
| R18 | Residential | 49.2 | 51.2 | 71.6 | <u>22.4</u> | 45.2 | 47.9 | 66.7 | <u>21.5</u> |
| R19 | Residential | 57.2 | 59.5 | <u>63.1</u> | <u>5.9</u> | 49.8 | 53.0 | <u>59.3</u> | <u>9.5</u> |
| R20 | Commercial | 56.5 | 58.8 | 61.1 | 4.6 | 49.5 | 52.7 | <u>57.0</u> | <u>7.5</u> |
| R21 | Picnic Area | 57.1 | 59.5 | 62.0 | 4.9 | 49.3 | 52.6 | <u>57.3</u> | <u>8.0</u> |
| R22 | Residential | 51.1 | 53.1 | 66.0 | <u>14.9</u> | 46.0 | 48.9 | 62.3 | <u>16.3</u> |
| R23 | Residential | 49.1 | 51.1 | 65.2 | <u>16.1</u> | 45.2 | 48.0 | 61.5 | <u>16.3</u> |
| R29 | Residential | 56.0 | 58.2 | 59.6 | 3.6 | 49.6 | 52.7 | <u>55.3</u> | <u>5.7</u> |

Bold - Values exceeding State Noise Standards. (L₁₀ greater than 65 dBA) (L₅₀ greater than 60 dBA)

Underlined - L₁₀ and L₅₀ values which increased by 5 dBA or more compared to the existing No-Build condition.

There are no values exceeding State Commercial or Industrial Standards for L₁₀ or L₅₀.

There are no values approaching or exceeding Federal Noise Criteria.

¹Noise levels for receptors 1-17a, 24-28 same as those listed in Table 11 and are not dependant on the configuration of CSAH 11 intersection.

The results of the analysis indicate that there are expected to be substantial increases in daytime and nighttime noise levels for some receptors adjacent to the Pequot Lakes Bypass. This includes both proposed configurations of the CSAH 11 intersection.

Areas that are currently located away from the existing Highway 371 and CSAH 11 alignments are expected to see the largest increases. Receptors

that are near these existing roadways will have smaller increases because they already experience a level of roadway noise.

Nighttime L₁₀ (CSAH 11 Signal Configuration)

Of the 21 residential noise receptors, 18 locations are expected to experience nighttime L₁₀ levels above the state standard of 55 dBA. Five of these are located in close proximity to Highway 371 or CSAH 11 and already experience noise levels above the state nighttime standard for L₁₀.

The daytime and nighttime standards for L₁₀ are the same for the church and picnic areas because they are not intended for overnight sleeping. Neither receptor is expected to experience noise levels over the state daytime/nighttime standard of 65 dBA.

None of the six commercial or industrial receptors identified in this analysis are expected to experience L₁₀ noise levels over the state nighttime standard of 70 dBA or 80 dBA respectively.

Fifteen of the 29 residential receptors are expected to experience substantial increases in nighttime L₁₀ highway noise ranging from 6.7 to 18.3 dBA.

Nighttime L₁₀ (CSAH 11 Interchange Configuration)

All five residential noise receptors associated with the interchange configuration are expected to experience nighttime L₁₀ levels above the state standard of 55 dBA. Two of these receptors are located in close proximity to CSAH 11 and already experience noise levels above the state nighttime standard for L₁₀.

The daytime and nighttime standards for L₁₀ are the same for the picnic area because it is not intended for overnight sleeping. This receptor is not expected to experience noise levels over the state daytime/nighttime standard of 65 dBA.

The commercial receptor is not expected to experience L₁₀ noise levels over the state nighttime standard of 70 dBA.

Three of the five residential receptors are expected to experience substantial increases in nighttime L₁₀ highway noise ranging from 9.3 to 16.3 dBA.

Nighttime L₅₀ (CSAH 11 Signal Configuration)

Of the 21 residential noise receptors, 19 locations are expected to experience nighttime L₅₀ levels above the state standard of 50 dBA. Three of these are located in close proximity to Highway 371 and already experience noise levels above the state nighttime standard for L₅₀.

The daytime and nighttime standards for L₅₀ are the same for the church and picnic areas because they are not intended for overnight sleeping. Neither receptor is expected to experience noise levels over the state daytime/nighttime standard of 60 dBA.

None of the six commercial or industrial receptors identified in this analysis are expected to experience L_{50} noise levels over the state nighttime standard of 65 dBA or 75 dBA respectively.

Seventeen of the 29 receptors are expected to experience substantial increases in nighttime L_{50} highway noise ranging from 5.3 to 15.4 dBA.

Nighttime L_{50} (CSAH 11 Interchange Configuration)

Four of five residential noise receptors associated with the interchange configuration are expected to experience nighttime L_{50} levels above the state standard of 50 dBA.

The daytime and nighttime standards for L_{50} are the same for the picnic area because it is not intended for overnight sleeping. This receptor is not expected to experience noise levels over the state daytime/nighttime standard of 65 dBA.

Commercial receptor 20 is not expected to experience L_{50} noise levels over the state nighttime standard of 70 dBA.

Three of the five residential receptors are expected to experience substantial increases in nighttime L_{50} highway noise ranging from 9.0 to 13.8 dBA.

Daytime L_{10} (CSAH 11 Signal Configuration)

Of the 21 residential noise receptors, two locations are expected to experience daytime L_{10} levels above the state standard of 65 dBA. Receptor 1 is located in close proximity to Highway 371 and already experiences noise levels above the state daytime standard for L_{10} .

The daytime and nighttime standards for L_{10} are the same for the church and picnic areas because they are not intended for overnight sleeping. Neither receptor is expected to experience noise levels over the state daytime/nighttime standard of 65 dBA.

None of the six commercial or industrial receptors identified in this analysis are expected to experience L_{10} noise levels over the state daytime standard of 70 dBA or 80 dBA respectively.

Fifteen of the 29 receptors are expected to experience substantial increases in daytime L_{10} highway noise ranging from 6.8 to 18.3 dBA.

Daytime L_{10} (CSAH 11 Interchange Configuration)

Three of five residential noise receptors associated with the interchange configuration are expected to experience daytime L_{10} levels above the state standard of 65 dBA.

The daytime and nighttime standards for L_{10} are the same for the picnic area because it is not intended for overnight sleeping. This receptor is not

expected to experience noise levels over the state daytime/nighttime standard of 65 dBA.

Commercial receptor 20 is not expected to experience L₁₀ noise levels over the state daytime standard of 70 dBA.

Four of the five residential receptors are expected to experience substantial increases in daytime L₁₀ highway noise ranging from 5.9 to 22.4 dBA.

Daytime L₅₀ (CSAH 11 Signal Configuration)

Of the 21 residential noise receptors, four locations are expected to experience daytime L₅₀ levels above the state standard of 60 dBA. Receptor 1 is located in close proximity to Highway 371 and already experiences noise levels above the state daytime standard for L₅₀.

The daytime and nighttime standards for L₁₀ are the same for the church and picnic areas because they are not intended for overnight sleeping. Neither receptor is expected to experience noise levels over the state daytime/nighttime standard of 60 dBA.

None of the six commercial or industrial receptors identified in this analysis are expected to experience L₅₀ noise levels over the state daytime standard of 65 dBA or 75 dBA respectively.

Eighteen of the 29 receptors are expected to experience substantial increases in daytime L₅₀ highway noise ranging from 5.4 to 17.2 dBA.

Daytime L₅₀ (CSAH 11 Interchange Configuration)

Three of five residential noise receptors associated with the interchange configuration are expected to experience daytime L₅₀ levels above the state standard of 60 dBA.

The daytime and nighttime standards for L₅₀ are the same for the picnic area because it is not intended for overnight sleeping. This receptor is not expected to experience noise levels over the state daytime/nighttime standard of 60 dBA.

Commercial receptor 20 is not expected to experience L₅₀ noise levels over the state daytime standard of 65 dBA.

All five residential receptors are expected to experience substantial increases in daytime L₅₀ highway noise ranging from 5.7 to 21.5 dBA.

Application of State and Federal Regulations

Future roadway noise levels associated with Alternative 3MOD are expected to exceed State Noise Standards. Although no Federal Noise Abatement Criteria thresholds are expected to be exceeded, substantial increases in noise (i.e., ≥5dBA increases) for some receptors classifies them as noise

impacted according to federal standards. For this reason, noise abatement measures are required to be considered and analyzed on this project.

A noise mitigation analysis was done for both configurations (at-grade and elevated) of the CSAH 11 intersection. Both were analyzed to determine if noise barriers are feasible and cost effective.

Feasibility of noise mitigation relates to the determination as to whether it is physically possible to construct or implement acoustically effective mitigation techniques. A noise mitigation measure is determined to be cost effective if its final cost does not exceed \$3,250 per decibel of reduction per residence. Even if a mitigation measure is found to be cost effective, it is possible that noise standards may still be exceeded.

Noise Mitigation Plan

To mitigate the effects of noise associated with this project, seven noise barriers (walls) have been considered between the twenty-nine receptor groups and the Pequot Lakes Bypass alignment.

Noise barriers (walls) are the type of mitigation measure most commonly used throughout Minnesota. Figures A4 through A7 in Appendix P illustrate the seven noise wall locations analyzed for effectiveness.

Other noise mitigation measures that were considered, as listed in 23 CFR 772.13(c), are discussed below:

- **Traffic management measures:** The level of noise generated by a roadway is directly related to the types of vehicles and the speeds in which they use the facility. Restricting the use of the roadway by certain types of vehicles (No Truck Zones) or lowering the overall speed limit may contribute to lower levels of roadway noise.

Highway 371 has been classified as a Medium Priority Interregional Corridor (IRC) and is a vital link that connects regional trade centers, such as Brainerd/Baxter and Bemidji, to other centers including St. Cloud and the Twin Cities. Highway 371 also provides access to residential, commercial, light industrial and agricultural properties located along the corridor.

Restricting the movements of commercial vehicles or lowering the overall speed of the proposed four-lane expressway, is contrary to the functional classification of Highway 371. Imposing these types of noise mitigation measures would also detract from the purpose of the project to increase traffic mobility.

- **Alteration of horizontal and vertical alignments:** The horizontal and vertical alignments chosen for a roadway contribute to the number of receptors affected and the level of noise that is detected at each location. The horizontal alignment is related to the actual location of the roadway, its lane configuration and curvature.

Alignments that place the traveled lane farther away from potential receptors may reduce the impacts of noise at these locations.

The vertical alignment, in this context, relates to the degree in which the roadway is placed above or below the adjacent ground elevation or earth berm. Elevated roadways have the potential to increase the amount of noise impacts. Conversely, roadways with an elevation lower than the adjacent ground may reduce the impacts of roadway noise.

The location of the Pequot Lakes Bypass alignment was considered carefully. Its configuration was chosen based on balancing factors, including reduced environmental impacts, existing topography, and the desire to keep it in close proximity to the existing downtown area.

Alterations of the horizontal alignment that would substantially lower the impacts of highway noise are limited and may create an unacceptable departure from the balance previously described. During the final design phase of this project, the vertical alignment will be developed to closely match the existing ground elevations. Opportunities to lower the roadway or create earth berms may be considered, however it is unlikely that this can be accomplished to a degree that will substantially lower the effects of roadway noise within the cost effectiveness criteria. Earthen berms require a considerable amount of right-of-way width to achieve the heights required to effectively reduce sound. To be effective, berms should be constructed high enough to block the line of sight to the noise receptor.

- **Vegetation:** Vegetation buffers can have some limited effectiveness in reducing the impacts of sound. A very dense area of vegetation that is 20 feet high and 100 feet wide can reduce the level of noise by approximately 5 dBA; however they often require a large amount of right-of-way and time to become established. For this reason, vegetation buffers were not considered for noise mitigation associated with this project.
- **Acquisition of real property or interests therein:** In some cases, properties that are severely impacted by the effects of roadway noise may be considered for purchase or relocation. These situations are rare and are only considered after an exhaustive effort has been given to mitigate the effects of roadway noise.

Three residential receptor sites that will likely be acquired during this project's land acquisition activities have been included in the noise analysis. These potential acquisitions are related to the physical land area needed to construct the Pequot Lakes Bypass corridor and are not a result of the findings of this noise analysis.

By identifying the location of the proposed bypass now, it will give the City time to plan land uses adjacent to the new highway corridor that are appropriate, to minimize noise impacts to potential future receptors.

- **Noise insulation of public use or nonprofit institutional structures:** This abatement measure may be a consideration in situations where impacts are so severe that noise standards are exceeded even in the interior of a structure.

FHWA guidelines and Mn/DOT policy recommend that only public buildings, such as schools and hospitals, be considered for acoustical insulation. No public buildings are located adjacent to the corridor, so this mitigation approach is not applicable to this project.

There are also other noise mitigation and abatement strategies that may be considered by local units of government; particularly those with planning and zoning authority over the impact area. These opportunities are most likely to be employed after the construction of the roadway facility and have a greater effect on future rather than existing development.

- **Buffering via Zoning Ordinance:** Right-of-way width and building setback requirements can be used in zoning ordinances to increase the distance between the roadway and potential noise receptor.
- **Acoustical Site Planning:** Site planning can be used for the arrangement of newly constructed (commercial) buildings to shield areas with more sensitive land uses from potential noise impacts.

Methodology for Mitigation Measure Analysis

The following assumptions were used to evaluate the acoustic effectiveness and cost effectiveness of the potential use of noise walls for mitigation. The evaluation is summarized in Table 16 for a signal configuration at CSAH 11 and Table 17 for an interchange configuration.

- Daytime L_{10} noise levels (Tables 14 & 15) were used for the evaluation and were chosen because they reflect the highest levels of predicted roadway noise.
- The proposed interchange at CSAH 11 is configured to have the county road pass over Highway 371. The elevated condition of CSAH 11 creates differing results compared to an at-grade signal configuration.
- A wall height of 20 feet was used for all calculations.
- A unit cost of \$15 per square foot was used to calculate the total cost of the analyzed noise walls. This is based on Mn/DOT's standard wood plank and concrete post noise wall design.
- The length of each noise wall was determined by grouping together receptor sites in close proximity to one another and providing a configuration that would result in the largest benefit for each group.

- The noise wall configurations took into account the curvature of the proposed alignment to accommodate for both direct and lateral effects of roadway noise.

Table 16 - Pequot Lakes Bypass Noise Barrier Analysis Summary (CSAH 11 Signal)

| Noise Barrier Number ¹ | Receptor (# of Homes) | Land Use Activity | Modeled Existing L ₁₀ | No-Build 2030 L ₁₀ | Build 2030 | | dBA Decrease L ₁₀ | Barrier Length (feet) | Average Noise Reduction of Residences Expected to Experience 5 dBA or More Reduction | Cost Effectiveness Calculation (Cost/dBA/Res) | Cost Effective? |
|-----------------------------------|-----------------------|--------------------------|----------------------------------|-------------------------------|---------------------------------|------------------------------|------------------------------|-----------------------|--|---|-----------------|
| | | | | | L ₁₀ Without Barrier | L ₁₀ With Barrier | | | | | |
| 1 | R1 (5) | Residential | 66.4 | 68.5 | 68.6 | 64.7 | 3.9 | 1,238' | N/A ² | | |
| | R2 (4) | Residential | 62.4 | 64.4 | 64.4 | 61.5 | 2.9 | | | | |
| | R3 (4) | Residential | 57.5 | 59.4 | 59.3 | 57.8 | 1.5 | | | | |
| | R4 (2) | Residential | 58.3 | 60.2 | 60.4 | 57.9 | 2.5 | | | | |
| | R5 (3) | Residential | 56.9 | 58.8 | 59.0 | 56.8 | 2.2 | | | | |
| | R6 (2) | Residential | 60.3 | 62.2 | 63.0 | 59.2 | 3.8 | | | | |
| | R7 (5) | Residential | 57.4 | 59.4 | 60.0 | 57.6 | 2.4 | | | | |
| 2 | R8 (1) | Residential | 53.2 | 55.1 | 60.0 | 56.4 | 3.6 | 1,154' | N/A ² | | |
| 3 | R10 (1) | Church ¹ | 55.1 | 57.0 | 56.6 | 56.1 | 0.5 | 2,713' | 5.4 | \$75,350 | No ³ |
| | R11 (1) | Industrial | 48.6 | 50.5 | 63.3 | 57.5 | 5.8 | | | | |
| | R12 (1) | Industrial | 51.0 | 52.9 | 58.8 | 55.9 | 2.9 | | | | |
| | R13 (1) | Industrial | 48.8 | 50.7 | 60.5 | 55.5 | 5.0 | | | | |
| | R14 (1) | Industrial | 51.5 | 53.4 | 56.4 | 53.5 | 2.9 | | | | |
| | R5 (1) | Residential | 48.3 | 50.2 | 58.6 | 56.6 | 2.0 | | | | |
| | R16 (1) | Residential | 50.7 | 52.6 | 54.6 | 53.1 | 1.5 | | | | |
| R17 (1) | Residential | 46.3 | 48.2 | 64.5 | 61.1 | 3.4 | | | | | |
| 4 | R17a (1) | Commercial | 42.6 | 44.6 | 56.9 | 54.4 | 2.5 | 2,010' | N/A ² | | |
| 5 | R18 (1) | Residential | 49.2 | 51.2 | 67.5 | 58.1 | 9.4 | 1,003' | 9.4 | \$32,014 | No ³ |
| | R19 (1) | Residential | 57.2 | 59.5 | 61.5 | 60.4 | 1.1 | | | | |
| | R29 (3) | Residential | 56.0 | 58.2 | 60.0 | 59.1 | 0.9 | | | | |
| 6 | R21 (1) | Picnic Area ¹ | 57.1 | 59.5 | 61.0 | 60.6 | 0.4 | 1,302' | N/A ² | | |
| 7 | R20 (1) | Commercial | 56.5 | 58.8 | 64.3 | 58.4 | 5.9 | 4,192' | 5.9 | \$213,173 | No ³ |
| | R22 (1) | Residential | 51.1 | 53.1 | 61.3 | 56.7 | 4.6 | | | | |
| | R23 (1) | Residential | 49.1 | 51.1 | 57.8 | 54.8 | 3.0 | | | | |
| | R24 (1) | Residential | 46.4 | 48.4 | 59.0 | 55.9 | 3.1 | | | | |
| | R25 (1) | Residential | 46.2 | 48.2 | 54.7 | 53.2 | 1.5 | | | | |
| | R26 (1) | Residential | 48.1 | 50.1 | 60.8 | 57.4 | 3.4 | | | | |
| | R27 (1) | Residential | 47.0 | 48.9 | 59.2 | 59.1 | 0.1 | | | | |
| R28 (1) | Residential | 55.9 | 57.9 | 58.7 | 58.1 | 0.6 | | | | | |

Bold - Noise reductions expected to be over 5 dBA as a result of noise barrier construction

Height of all analyzed barriers is 20 feet and represents the maximum allowed by State Guidelines

Cost of all noise barriers is assumed to be \$15 per square foot

¹ See Appendix P for location of analyzed noise barriers

² Analyzed barrier will not result in individual noise reductions over the 5 dBA minimum required by State and Federal guidelines.

³ Cost of the barrier is over \$3,250 per dBA reduction per location

Table 17 – Pequot Lakes Bypass Noise Barrier Analysis Summary (CSAH 11 Interchange)

| Noise Barrier Number ¹ | Receptor (# of Homes) | Land Use Activity | Modeled Existing L ₁₀ | No Build 2030 L ₁₀ | Build 2030 | | dBA Decrease L ₁₀ | Barrier Length (feet) | Average Noise Reduction of Residences Expected to Experience 5 dBA or More Reduction | Cost Effectiveness Calculation (Cost/dBA/Res) | Cost Effective? |
|-----------------------------------|-----------------------|--------------------------|----------------------------------|-------------------------------|---------------------------------|------------------------------|------------------------------|-----------------------|--|---|-----------------|
| | | | | | L ₁₀ Without Barrier | L ₁₀ With Barrier | | | | | |
| 5B | R18 (1) | Residential | 49.2 | 51.2 | 71.6 | 57.5 | 14.1 | 1,100' | 14.1 | \$23,404 | No ³ |
| | R19 (1) | Residential | 57.2 | 59.5 | 63.1 | 61.1 | 2.0 | | | | |
| | R29 (3) | Residential | 56.0 | 58.2 | 59.6 | 58.5 | 1.1 | | | | |
| 6B | R21 (1) | Picnic Area ¹ | 57.1 | 59.5 | 62.0 | 61.3 | 0.7 | 1,300' | N/A ² | | |
| 7B | R20 (1) | Commercial | 56.5 | 58.8 | 61.1 | 59.6 | 1.5 | 4,200' | 8.9 | \$70,787 | No ³ |
| | R22 (1) | Residential | 51.1 | 53.1 | 66.0 | 55.7 | 10.3 | | | | |
| | R23 (1) | Residential | 49.1 | 51.1 | 65.2 | 57.7 | 7.5 | | | | |

Bold - Noise reductions expected to be over 5 dBA as a result of noise barrier construction

Height of all analyzed barriers is 20 feet and represents the maximum allowed by State Guidelines

Cost of all noise barriers is assumed to be \$15 per square foot

¹ See Appendix P for location of analyzed noise barriers

² Analyzed barrier will not result in individual noise reductions over the 5 dBA minimum required by State and Federal guidelines.

³ Cost of the barrier is over \$3,250 per dBA reduction per location

Feasibility and Acoustic Effectiveness of Chosen Mitigation Measures

Each of the ten noise walls considered for this project (including 5B, 6B and 7B) have been determined to be feasible in terms of their ability to be built with normal construction practices.

Tables 16 and 17 summarize the acoustic effectiveness of each noise wall by comparing the existing daytime L₁₀ levels with those predicted after construction of the associated noise barrier. The results show that:

- Anticipated noise reductions for the CSAH 11 signal configuration range from 0.1 dBA to 9.4 dBA for individual locations within the 29 receptor groups.
- Anticipated noise reductions for the CSAH 11 interchange configuration range from 0.7 dBA to 14.1 dBA for the seven receptor groups within the proximity of the proposed interchange.
- With the CSAH 11 intersection configuration, only four individual sites are expected to achieve reductions over the 5 dBA minimum. Of the four receptors, three are categorized as industrial or commercial.
- With the CSAH 11 interchange configuration, three residential sites are expected to achieve reductions over the 5 dBA minimum.

- With the CSAH 11 intersection configuration, only Noise Barriers 3, 5, and 7 provide noise reductions that average over the minimum of 5 dBA and therefore were further analyzed for cost effectiveness.
- With the CSAH 11 interchange configuration, Noise Barriers 5B and 7B provide reductions that average over the minimum of 5 dBA and were further analyzed for cost effectiveness.

Cost Effectiveness of Noise Mitigation Measures

Table 16 summarizes the cost effectiveness of Noise Barriers 3, 5 and 7 for the CSAH 11 intersection configuration. Table 17 summarizes the cost effectiveness of Noise Barriers 5B and 7B for the CSAH 11 interchange configuration. The remaining walls under both configurations were determined not to be acoustically effective and therefore, they were not analyzed for cost-effectiveness.

The results of the cost effectiveness calculation show that:

- None of the noise barriers determined to be acoustically effective were determined to cost effective.
- The cost effectiveness figure for walls ranged from \$23,404 to \$213,173; several times higher than the allowable value of \$3,250 per dBA reduction per resident.
- No noise barriers will be proposed for the Pequot Lakes Bypass.

Noise Mitigation Measures Conclusion

None of the ten noise barriers analyzed met the established criteria allowing for their actual implementation. Although there is expected to be substantial noise increases adjacent to the Pequot Lakes Bypass, noise barriers will not be proposed for this project. The primary factor that contributed to these results was the low levels of development density in the area of effect. This resulted in a high cost for the benefit of very few receptors.

Water Quality and Surface Water Drainage

Affected Environment

Please refer to section 4.2 of the DEIS

Environmental Consequences

Section 4.2 of the DEIS provides a discussion of overall water quality and surface water drainage impacts for the Highway 371 project. The discussion below focuses primarily on changes associated with the Pequot Lakes Bypass area.

Alternative 3MOD

The entire Alternative 3MOD corridor will result in an increase of 100 acres of impervious surface related to the expansion of Highway 371 from a two-lane to a four-lane facility. The Pequot Lakes Bypass itself will contribute 20 acres to the overall increase. The impervious surfaces of the existing Highway 371 alignment through Pequot lakes would also remain in place. The result of these highway improvements will be an overall increase in the amount and discharge rate of surface runoff.

The increased amount of surface runoff associated with Alternative 3MOD will require the implementation of surface water management and water quality treatment, consistent with National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit and other regulatory requirements. The construction of the four-lane divided highway will create new opportunities to collect, hold, and treat roadway runoff. Most of the surface water generated from the expanded roadway will be directed to grassed medians, roadside ditches, or stormwater treatment ponds.

Mitigation

Section 4.2 of the DEIS provides a discussion of overall mitigation for water quality and surface water drainage impacts for the Highway 371 project. The discussion below focuses primarily on changes associated with the Pequot Lakes Bypass area.

The proposed rural four-lane design of the Pequot Lakes Bypass will include roadside ditches, as well as a grassed median between the northbound and southbound lanes. Some of the low points along the corridor will serve as points of discharge to the surrounding areas. Topographic and hydrographic information will be analyzed in detail and drainage structures across the proposed highway (culverts) will be planned.

As part of the requirements of the NPDES Construction Stormwater Permit, a stormwater management plan will be completed that identifies the type and location of best management practices (BMPs). Mn/DOT will continue to coordinate efforts with the appropriate regulatory agencies to ensure water quality and surface water drainage concerns are addressed in the final design of Alternative 3MOD.

Any future improvements to the existing alignment of Highway 371 through Pequot Lakes that may be required prior to transferring jurisdiction back to Crow Wing County will be determined at a later date. These improvements would be subject to the water quality requirements of a separate MPDES Construction Stormwater Permit.

Floodplains and Water Body Modifications

Affected Environment

Please refer to section 4.2 of the DEIS and FEIS.

Environmental Consequences

There are no additional known floodplain or water body modifications associated with the new configuration of the Pequot Lakes Bypass.

Potential floodplain and water body modification impacts associated with Alternative 3MOD are the same as those identified in the 2005 FEIS for Alternative 2. Please refer to Chapter 4.2 in the DEIS and FEIS.

Mitigation

Please refer to section 4.2 of the DEIS and FEIS.

Geology/Groundwater

Affected Environment

Please refer to section 4.2 of the DEIS and FEIS. The discussion below focuses on information that is new or has changed since the 2005 FEIS.

Wellhead Protection Zones, Sole Source Aquifers, Wells

In April, 2002, the Minnesota Department of Health (MDH) approved a Wellhead Protection Plan for the City of Pequot Lakes which included a delineation of the Wellhead Protection Area (WHPA) and the Drinking Water Supply Management Area (DWSMA). This process was not complete at the time of the FEIS, and was not included in the original analysis of the proposed alternatives.

As a result of the two part protection plan, the city's wells #3 and #4 have been determined to be relatively vulnerable to contamination from surface land uses and moderately vulnerable throughout the DWSMA. The wells are approximately 140 feet in depth and are overlain by a clay rich till of varying depths up to 90 feet. Generally groundwater flow is to the southeast. Please see Appendix M.

Both the existing Highway 371 and the Pequot Lakes Bypass alignments pass through the WHPA and DWSMA, but are outside of the Emergency Response Area. The clay rich till appears to diminish in thickness to the east based on limited well data, however, groundwater flows to the southeast should minimize potential impacts related to the Pequot Lakes Bypass alignment.

Communication with the MDH Hydrogeologist involved with the Pequot Lakes plan indicated that the bypass alignment is at an approximate seven-year time of travel at its closest point. That distance/time of travel indicates that stormwater runoff from the expanded highway should pose little concern for the city's wells in terms of short-lived contaminants such as pathogens. Major spills of contaminants such as accidents involving large petroleum tanker trucks are a concern because of the potential for long-lived contamination in the subsurface soils.

There are no known unique geological sites that will be impacted by Alternative 3MOD.

Environmental Consequences

There will be no direct effects to geology or groundwater resources as a result of Alternative 3MOD. The proposed Pequot Lakes Bypass alignment will traverse through the City's designated WHPA, however, the roadway improvements will not affect the public water supply system. The potential for groundwater contamination resulting from transportation accidents was discussed above.

Mitigation

Please also refer to section 4.2 of the DEIS and FEIS.

In the event of a major spill that could result in release of materials that could eventually contaminate groundwater, Mn/DOT has an emergency response protocol. First, a call to 911 will be made to activate local emergency response personnel. The State Duty Officer (Department of Public Safety Homeland Security Division) must be notified of any type of emergency that may threaten public safety, including petroleum spills of over five gallons or those that may cause pollution. The State Duty Office then notifies the proper local, regional, state or federal agencies for effective response to the incident to protect life and property.

As the Pequot Lakes Bypass alternative is further refined, communication with the MDH will be ongoing, mostly through the project review process. If it is determined that mitigation measures are necessary, they will be coordinated prior to the final design phase of this project so they can be incorporated into the construction plans.

The abandonment of any wells will be conducted in accordance with MDH requirements and in coordination with MDH staff. Stormwater conveyances and treatment system locations will be evaluated to determine if special precautions are needed to prevent stormwater from entering groundwater in potential WHPAs and near wells classified by MDH as vulnerable. Given the local confining layer and groundwater flow it is not anticipated that any special construction techniques will be required beyond current BMPs that are used for construction of these facilities.

Wetlands

Affected Environment

Please refer to section 4.2 of the DEIS.

Environmental Consequences

Pequot Lakes Bypass Compared to Pequot Lakes Through Town Alignment

The Pequot Lakes Bypass alignment (associated with Alternative 3MOD) impacts three wetland basins with a combined wetland impact area of 0.17

acres. The Pequot Lakes through town alignment (associated with Alternative 2) would result in impacts to four wetland basins for a combined wetland impact of 0.24 acres. Alternative 3MOD (Pequot Lakes Bypass Alignment) is the least environmental damaging practical alternative (LEDPA) because it results in a net decrease of 0.07 acres of wetland impact compared to Alternative 2 (Pequot Lakes Through Town Alignment) and because it avoids impacting two basins located adjacent to Sibley Lake that likely provide water quality, wildlife, and fisheries benefits.

Alternative 3MOD Compared to Alternative 2

It is anticipated the Alternative 3MOD improvements would necessitate the filling of approximately 17.78 acres of wetland throughout the entire project corridor. Alternative 2, identified in the original FEIS as the original preferred alternative, proposed an estimated 17.74 acres of wetland impacts.

The net increase of wetland impact of 0.04 acre associated with Alternative 3MOD is due to the following:

- The Pequot Lakes Bypass alignment avoids Alternative 2 wetland basins 20, 21, 24 and 25 (previous combined impact area of 0.24 acre), but introduces new impacts to wetland basins 19, 27 and 28 with a combined impact area of 0.17 acre (a 0.07 acre decrease from the 2005 FEIS wetland impacts).
- Layout refinements in the vicinity of Crow Wing County Roads 29/107 have resulted in additional peripheral impacts to wetland basin 2A totaling 0.18 acre; an increase of 0.12 acre over that identified in the FEIS. These layout refinements are related to the removal of the proposed bridge structures over wetland basins 2A and 2B and the proposed use of the existing Highway 371 roadbed in this area. Further analysis of this area showed that the bridges proposed by Alternative 2 would have introduced sight distance deficiencies and be cost prohibitive. It was also determined that activities associated with the actual bridge construction would potentially create greater wetland impacts than those identified by evaluating its in-place configuration.
- Layout refinements since the completion of the FEIS have also resulted in the total avoidance of wetland basin 8 decreasing the impact area by 0.01 acre, compared to the 2005 FEIS.

Wetlands were identified during the DEIS and FEIS phase of the project by reviewing aerial photography, United State Geologic Survey (USGS) 7.5 minute quadrangle maps, National Wetlands Inventory maps, soil survey maps and field investigations. Public waters were identified using the DNR Protected Waters Inventory maps.

Because the Pequot Lakes Bypass alignment proposed by Alternative 3MOD is slightly different than Alternative 3 studied in the DEIS and Final EIS, the

published resources were reviewed and additional field verification was performed where possible. There are no additional wetland basins identified on the National Wetlands Inventory maps or DNR Protected Waters Inventory maps. Some of the privately owned parcels were not accessible and therefore could not be completely field verified. However, enough information was obtained through remote sensing to determine that any other basins that may be found later will not substantially alter the wetland determination.

Jurisdictional wetland delineations will be performed prior to applying for permits. The delineations will provide accurate wetland location and acreage, which, along with detailed design plans, will determine the final wetland impacts.

Table 18 below shows an updated estimate of impacts for the entire Alternative 3MOD corridor. It is organized by wetland type and topographic setting. Appendix O provides a more complete accounting of wetland types, location, and expected impacts to each affected area.

Table 18 - Wetland Impact by Type and Topographic Setting

| Wetland Type ¹ | Topographic Setting of Wetland | | | | | |
|---------------------------|--------------------------------|-------------|--------------|-------------|-------------|--------------|
| | Isolated | Tributary | Flow Through | Riverine | Floodplain | Total |
| Type 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Type 2 | 1.13 | 0.00 | 0.00 | 0.00 | 0.37 | 1.50 |
| Type 3 | 1.18 | 0.00 | 0.13 | 0.00 | 0.00 | 1.31 |
| Type 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Type 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Type 6 | 6.70 | 4.29 | 0.55 | 0.00 | 3.43 | 14.97 |
| Type 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Type 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lake | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TOTAL | 9.01 | 4.29 | 0.68 | 0.00 | 3.80 | 17.78 |

All figures are in acres

¹Wetlands of the United States, Circular 39. (Shaw and Fredine, USF&WS, 1956.

Wetland Sequencing

Avoidance

The No-Build Alternative is the only alternative that can avoid all wetland effects; however it would not be consistent with the identified purpose and need of the project. Build alternative alignments were designed to avoid as many wetlands as possible while still meeting design standards.

Minimization

Minimization measures have been incorporated into the Alternative 3MOD alignment including reduced centerline spacing, extended urban sections and

shifted alignments. As the design is refined, additional measures will be considered such as lowered profile grade and broken back or steepened in slopes.

Compensation

A combined Wetland Permit Application and Replacement Plan will be prepared and submitted for the preferred alternative prior to construction. Replacement of lost wetland functions and values will be in accordance with current Minnesota Wetland Conservation Act (WCA) criteria, DNR Public Waters requirements (where applicable) and federal Clean Water Act (CWA) Section 404 regulations. Currently, pre-approved bank sites are the preferable replacement method since credits are already certified and approved by the permitting agencies. However, if viable replacement sites are identified within the Highway 371 corridor, they will also be pursued as potential mitigation sites, subject to regulatory approval.

In accordance with the USACE Minnesota policy, wetland replacement sites are sought first within the area of effect (project specific), next within the same watershed, and finally within the same Bank Service Area before considering options beyond the project's Bank Service Area. Mn/DOT's existing bank system may meet these conditions to provide eligible credit. The specific method(s) for mitigating impacts to wetlands will be determined during the final design phase and permitting of the project.

Only Practicable Alternative Finding

The wetlands analysis and documentation has been prepared (following the FHWA Technical Advisory TA6640.8A (October 1987) and in compliance with Executive Order 11990. During the DEIS, FEIS and this SFEIS, a full range of alternatives have been considered, and the least environmentally damaging alternative that meets the project purpose and need objectives has been selected. Based on the above considerations, it is determined there is no practicable alternative to the proposed construction in wetlands, and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

Vegetation

Affected Environment

Please refer to section 4.2 of the DEIS.

Environmental Consequences

The estimated effects on vegetative communities for the Pequot Lakes Bypass, and for the entire Alternative 3MOD corridor, are shown in Table 19. There are no State or National forests, large tree farms, or other unique vegetative features within the Highway 371 project construction area. Please refer to Section 4.2 of the DEIS for more discussion of the cover types within the Highway 371 project area.

Table 19 - Potential Impacts to Vegetation

| Vegetative Cover Type | Alternative 2 ¹ | Alternative 3MOD | Pequot Lakes Bypass Only ² |
|--|----------------------------|------------------|---------------------------------------|
| Deciduous Forest | 76 | 57 | 8 |
| Coniferous Forest | 72 | 53 | 28 |
| Mixed Forest | 104 | 80 | 12 |
| Cultivated Land | 3 | 2 | 2 |
| Grassland | 156 | 140 | 62 |
| Wetlands: Herbaceous Marshes or Shrub Carr | 7 | 6 | 0 |
| Farmsteads and Rural Residences | 9 | 7 | 2 |
| Other Rural Developments | 51 | 39 | 1 |
| Urban/Industrial | 67 | 35 | 0 |
| Gravel Pits/Open Mines | 0 | 1 | 1 |
| Open Water | 2 | 1 | 0 |

All figures are in acres and include the area for the future CSAH 11 interchange.

¹ Acres are estimate of impact based on the construction limits for Alternative 2 from the Draft EIS.

²Estimated impacts are based on the area that is exclusive to the Pequot Lakes bypass and are shown separately to provide clarity regarding the changes proposed by Alternative 3MOD. These figures are also included in the overall figures describing Alternative 3MOD.

Source: MNDNR: Manitoba Remote Sensing Land Use/Land Cover Database and SEH

Mitigation

As described in the DEIS, during the final design phase of the project, Mn/DOT and the DNR regional forestry staff will coordinate to determine the locations and the scope of project effects on any state-owned timber parcels. If necessary, Mn/DOT and DNR staff will also consider and coordinate plant salvage of important and/or rare native vegetation that could be affected by the proposed improvements. Private timber resources will be addressed in accordance with Mn/DOT policy on tree salvage, valuation, and compensation. Aesthetic treatments to minimize impacts to or enhance vegetation quality may also be considered and applied when appropriate during the final design phase.

Fish & Wildlife

Affected Environment

Please refer to Chapter 4.2 of the DEIS for a detailed discussion of fish and wildlife resources.

Environmental Consequences

Please refer to Chapter 4.2 of the DEIS for a detailed discussion of fish and wildlife resource impacts.

Fisheries

There are no new impacts to fish migration or habitat associated with the Pequot Lakes Bypass alignment. Also, no dredge or fill impacts to lake or stream fish habitat would result from this alternative.

There are no DNR designated trout streams to be crossed or within close proximity to the project area.

Wildlife

There are no known wildlife concentrations such as wintering deer yards, colonial nesting bird colonies, or other unique wildlife resources associated with the Pequot Lakes Bypass alignment. This includes privately owned wildlife resources, such as Nature Conservancy owned parcels and private hunting preserves. No known nesting concentrations of federally protected migratory birds have been identified within the project area.

Mitigation

Please refer to Chapter 4.2 of the DEIS – no additional mitigation is needed/proposed for Alternative 3MOD.

State/Federal Threatened & Endangered (T & E) Species

Affected Environment

Please refer to Chapter 4.2 of the DEIS and Final EIS.

State Listed T & E Species

On May 21, 2008, Mn/DOT requested an updated search of the Minnesota Natural Heritage Database. This was initiated to determine if changes associated with the Pequot Lakes Bypass would raise concerns over State Listed T & E Species or whether any new discoveries had been made since the FEIS was completed and ROD was issued in 2005.

The results of the request produced no additional concerns for State Listed T & E Species (see Appendix L). The initial Natural Heritage Database evaluation identified 28 State Listed occurrences within a 1-mile radius of the Highway 371 project and includes the area to be affected by the Pequot Lakes Bypass alternative.

Federal Listed T & E Species

In 2004, during the FEIS process, the USFWS and FHWA had entered into formal consultation due to the potential impacts to the Canada Lynx (*Lynx canadensis*). The USFWS issued a Biological Opinion on the Canada Lynx and concurred with the FHWA determination that the proposed project would not likely adversely affect either the bald eagle (*Haliaeetus leucocephalus*) or the gray wolf (*Canis lupus*).

Since the ROD was issued in 2005, there have been some notable changes to the Federal list of T & E species and Designated Critical Habitat.

- On March 12, 2007, the Department of Interior (DOI) announced the removal of the gray wolf in the Western Great Lakes Region from the Federal List of Endangered and Threatened Wildlife and Plants.

- On June 28, 2007, the DOI announced the removal of the bald eagle from the Federal List of Endangered and Threatened Wildlife and Plants. The bald eagle remains protected under several federal laws including the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.
- On December 11, 2008, Section 7 protections for the gray wolf in the Western Great Lakes Region were reinstated in compliance with a court order.
- On February 28, 2008, the DOI issued the Proposed Rule Revising Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx.
- On January 20, 2009, the current administration issued an order to review the protection status of the gray wolf in the Western Great Lakes Region.
- On February 25, 2009, the DOI issued the Final Rule Revising Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of the Canada Lynx.
- On September 16, 2009, reinstatement of protections for the Gray Wolf in the Western Great Lakes Region occurred in compliance with settlement agreement and court order.

On July 16, 2008, a field review of the Pequot Lakes Bypass alignment was conducted by FHWA, Mn/DOT, and various reviewing agencies, including the USFWS and the USACE. Both the FHWA and the USFWS concluded that the 2004 Biological Opinion remains valid and that changes proposed by the Pequot Lakes Bypass alignment do not meet any of the criteria for re-initiation of Section 7 consultation. To provide clarity in the administrative record however, the FHWA determined that it would voluntarily reinitiate Section 7 consultation with the USFWS.

On September 3, 2008, the FHWA made a request to the USFWS to re-initiate formal consultation in accordance with Section 7 of the Endangered Species Act of 1973 (see letter in Appendix K). This was done to document the determination of whether changes associated with the Pequot Lakes Bypass would result in concerns regarding Federally Listed T & E Species or whether any new discoveries had been made since the Highway 371 EIS ROD was issued in 2005.

In a letter to the FHWA dated December 19, 2008, the USFWS outlined the results of the voluntary re-initiation of Section 7 consultation (see letter in Appendix K). The letter concurred with the FHWA determination that changes associated with the Pequot Lakes Bypass alternative would not result in any additional impacts to federally listed T & E species, nor result in any deviation to the implementation of the terms and conditions of the original Biological Opinion. It likewise concurred with the FHWA determination that the Pequot

Lakes Bypass would not adversely affect any federally listed species in any manner not already contemplated in the 2004 Biological Opinion.

Environmental Consequences

Please refer to Chapter 4.2 of the DEIS and FEIS.

Mitigation

Please refer to Chapter 4.2 of the DEIS and FEIS.

Prime and Statewide Important Farmland

The Pequot Lakes Bypass portion of Alternative 3MOD will cause no additional impacts to Prime and Statewide Important Farmland.

Please refer to section 4.2 of the DEIS for additional discussion of farmland resources and impacts for the Highway 371 project.

Visual Quality

Affected Environment

Please refer to section 4.2 of the DEIS.

Environmental Consequences

Alternative 3MOD

Visual Quality

Alternative 3MOD will have an effect on the existing visual scene and resources for both travelers and neighbors. The proposed highway improvements will require additional pavement and clearing of some natural areas. Improvements along the Bypass corridor could also adversely and beneficially affect views of lakes, wetlands, and woods for the traveler, as well as neighbors residing in the project area. The clear zones adjacent to the four-lane highway will be wider and some of the existing vegetation will need to be removed to ensure safe conditions for highway users. In various locations, existing vertical and horizontal curves may need to be minimized to improve safety conditions. This may also result in the removal of existing vegetation.

Some of the area's built environment will also be impacted by Alternative 3MOD. Buildings and structures that are close to the existing road or that may be affected by the proposed alignment may need to be relocated. These effects could be viewed as both an adverse and beneficial visual impact. The removal and/or relocation of old deteriorated structures could be viewed as a beneficial impact, while the relocation of other buildings may be considered adverse by the travelers and neighbors. Alternative 3MOD travels through areas that are more rural in nature because it bypasses the downtown district of Pequot Lakes. This may be viewed as a benefit for the traveler and result in fewer impacts on buildings and structures; however it may also have greater adverse visual impacts on vegetation. Overall, the type of traveler or

neighbor will determine if the visual impact is perceived as being either adverse or beneficial.

Mitigation

Please refer to Chapter 4.2 of the DEIS and FEIS. No mitigation is required for visual impacts associated with Alternative 3MOD. However, prior to the final design phase, Mn/DOT will engage stakeholders and conduct a Visual Quality Management (VQM) process. This will assist designers to avoid or minimize potential adverse impacts to visual resources and to enhance visual resources associated with the project.

4.3 CONSTRUCTION IMPACTS

Please refer to section 4.3 of the DEIS.

It is expected that completion of the entire 16-mile corridor will take two to four years of total construction time. Availability and timing of funding sources may now require the project to be divided into multiple stages (Stage 1 – Nisswa to Jenkins, Stage 2 – Jenkins to Pine River) separated by one or several years.

It is anticipated that the Pequot Lakes Bypass will reduce the potential effects associated with construction on the residents and businesses within the City of Pequot Lakes, compared to Alternative 2 – the through-City alignment. Because the Bypass will be built on a completely new alignment and existing Highway 371 is to remain in place, it is anticipated that construction activities will not cause major impacts to traffic congestion, involve lengthy detours, require business access modifications or create major utility disruptions in the downtown portion Pequot Lakes.

During construction of the intersections at CR 168/107, CSAH 11 and CR 112, it is anticipated that users of these local roads will experience minor delays due to temporary lane closures, lane shifts and short detours as these at-grade connections are made. Construction of a CSAH 11 interchange may result in greater delays or the use of lengthy detours to facilitate the placement of bridges needed for a grade-separated configuration.

The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The temporary adverse use of resources and long-term gains in productivity from construction of the Pequot Lakes Bypass portion of Alternative 3MOD will not cause additional impacts to these resources as described in Section 4.3 of the Draft EIS. Please refer to Section 4.3 of the DEIS for additional discussion of the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity.

Irreversible and Irretrievable Commitment of Resources

The Pequot Lakes Bypass portion of Alternative 3MOD will cause no additional commitment of resources beyond those discussed in Section 4.3 of the DEIS. Please refer to Section 4.3 of the DEIS for additional discussion of irreversible and irretrievable commitment of resources.

5.0 PERMITS AND APPROVALS

It is anticipated that federal, state, and other local permits and approvals will be required for the proposed action. The following permits and approvals may be required for construction of the proposed action.

- Section 404 Permit – USACE
- Section 401 Water Quality Certification – MPCA
- Public Waters Work Permit – DNR
- Approval for 4(f) Property Conversion – FHWA
- NPDES Construction Stormwater Permit – MPCA
- Section 106– SHPO
- WCA Approval – Mn/DOT
- Municipal Approval – Nisswa, Pequot Lakes, Jenkins, and Pine River
- Section 7 Concurrence - USFWS

6.0 PREPARERS

| Agency/Organization and Name | SFEIS Responsibility |
|--|--|
| Federal Highway Administration | |
| Cheryl Martin Phil Forst | Review of Supplemental Final EIS; assure compliance with Federal regulations |
| Minnesota Department of Transportation – District 3 | |
| Jim Hallgren Timothy Bray | Mn/DOT District 3 Project Managers |
| Craig Robinson | Review of Supplemental Final EIS, Noise Study, Traffic Analysis, and Forecasting |
| John Mackner | Wetlands, Groundwater, Water quality, Fish & Wildlife, State/Federal threatened and endangered species |
| Peter Wasko | Noise Analysis |
| Troy Skarolid | Detailed and Conceptual Layouts |
| Minnesota Department of Transportation – Central Office | |
| Jennie Ross | Review of Supplemental Final EIS, Assure compliance with Mn/DOT guidance and procedures |
| Craig Johnson | Archaeological Resources, Assure compliance with Section 106 regulations |
| Jackie Sluss | Historical and Architectural Resources, Assure compliance with Section 106 regulations |
| Jason Alcott | Federal Threatened and Endangered Species |
| Short Elliott Hendrickson Inc. | |
| Mark Benson | Consultant Principal-in-Charge/Project Manager |
| Chris Hiniker | Consultant Assistant Project Manager |
| Bob Rogers | Environmental Documentation Coordination |
| George Calebaugh | Traffic Analysis and Forecasting |
| Samuel Turrentine | Benefit/Cost Analysis |

7.0 LIST OF AGENCIES and ORGANIZATIONS to WHOM COPIES of the SUPPLEMENTAL FIANL EIS ARE SENT

7.1 FEDERAL AGENCIES

- U.S. Environmental Protection Agency
- U.S. Fish & Wildlife Service
- U.S. Army Corps of Engineers
- U.S. Department of the Interior
- Advisory Council on Historic Preservation

7.2 STATE AGENCIES/ORGANIZATIONS

- Environmental Quality Board
- Board of Water & Soil Resources
- Minnesota Department of Commerce
- Minnesota State Historic Preservation Officer
- Minnesota Department of Natural Resources
- Minnesota Legislative Reference Library
- Technology & Science – Minneapolis Public Library
- Minnesota Department of Health
- Minnesota Department of Agriculture
- Minnesota Pollution Control Agency
- Minnesota Indian Affairs Council
- Minnesota Waters

7.3 LOCAL AGENCIES/ORGANIZATIONS

- City of Nisswa
- City of Pequot Lakes
- City of Jenkins
- City of Pine River
- Cass County
- Cass County Natural Resource Conservation Service
- Crow Wing County
- Crow Wing County Natural Resource Conservation Service
- Wilson Township
- Pine River Township
- Region 5 Development Commission
- Brainerd Public Library
- Pequot Lakes Public Library
- Kitchigami Regional Library – Pine River
- Brainerd Lakes Area Chamber of Commerce
- Pine River Chamber of Commerce

8.0 COORDINATION and PUBLIC INVOLVEMENT

Mn/DOT has incorporated extensive public involvement and outreach at all levels in decision making during the development of the Highway 371 North Improvement Project, as described in the DEIS, FEIS, and below. Mn/DOT will continue to engage community organizations, area property owners, business owners, residents, and local, county, regional, and state agencies as the development of this project continues.

8.1 COMMUNITY MEETINGS

Since the FEIS was completed in 2005, several coordination meetings have been conducted with each of the affected communities and Crow Wing and Cass Counties. Although the majority of these revolved around the Highway 371 alignment in Pequot Lakes, the Cities of Nisswa, Jenkins, and Pine River have all been engaged in discussions with Mn/DOT. Primarily, these meetings were held to negotiate the details of the final layouts in order to refine them to a point suitable for municipal consent.

A large portion of these meetings were conducted in an open format where the public was encouraged to attend and provide feedback to MN/DOT and City officials. Several coincided with regularly scheduled city council or planning & zoning meetings; some were special meetings to specifically discuss the Highway 371 project.

The development of the Pequot Lakes Bypass has been coordinated primarily through the City of Pequot Lakes and two committee groups commissioned by the city council. A Highway 371 committee, made up of members of the City Council, City staff members, and other concerned citizens have been meeting regularly since the completion of the FEIS in 2005. Initially the focus of this group was to finalize the details of Alternate 2 or the through-town configuration. After the City adopted resolution 06-23 in June 2006, the focus of this group shifted to the evaluation of a bypass alternative.

In January of 2007, the City Council established the Highway 371 Alternate Route Study Group that met with a more formal and open format. This group, consisting of members of the City Council and the Planning Commission, was established for the expressed purpose of studying the impacts of a bypass on the City of Pequot Lakes.

This study group met ten times between February and August 2007 to hear expert testimony and receive public feedback regarding a bypass alignment. During these proceedings Mn/DOT actively and objectively participated by developing conceptual bypass drawings and provided general guidance related to highway design standards.

Following these ten meetings the Highway 371 Alternate Route Study Group issued its report to the Pequot Lakes City Council entitled Highway 371 Alternate Route Study Group Report (see Appendix B for a copy of the

Executive). A copy of the full report is available for review at the Mn/DOT District Office in Baxter and at the Pequot Lakes City Hall).

On October 25, 2007 a public open house meeting was held in collaboration with the Brainerd Lakes Area Chamber of Commerce. This open forum was attended by nearly 100 people and included a formal presentation of the proposed Pequot Lakes Bypass layouts by Mn/DOT. A question and answer session provided an opportunity for those in attendance to give input about the proposed bypass route. This program was video recorded and later broadcast over the local public access TV channel for several weeks as part of the public outreach and education efforts. Several comments were made by attendees regarding both adverse and beneficial effects of the bypass alignment.

During the state public comment period for the draft SFEIS document, Mn/DOT will conduct another public forum to engage stakeholders and address their comments, questions, and concerns.

8.2 AGENCY COORDINATION

Mn/DOT has involved State and Federal resource and regulatory agencies throughout the development of this project and SFEIS. On July 16, 2008, representatives from the U.S. Fish and Wildlife Service, FHWA and USACE participated in a field walk in the vicinity of the proposed Pequot Lakes Bypass. Coordination meetings with the various resource agencies and departments are anticipated to continue throughout the planning and design phase of the proposed project.

8.3 PROJECT WEB PAGE

A new informational project web page has been established on the World Wide Web at <http://www.dot.state.mn.us/d3/projects/hwy371/index.html>

This site provides an additional means of gathering and distributing information about this project. It also contains an email reply feature that allows for direct communication with the Mn/DOT Project Manager.

List of Acronym

| | |
|--|---|
| AADT – Annual Average Daily Traffic | MEPA – Minnesota Environmental Policy Act |
| ADA – Americans Disability Act | Mn/DOT – Minnesota Department of Transportation |
| APE – Area of Potential Effect | MOA – Memorandum of Agreement |
| B/C – Benefit-Cost | MPCA – Minnesota Pollution Control Agency |
| BMPs – Best Management Practices | MSAT – Mobile Source Air Toxics |
| CAA – Clean Air Act | NAAQS – National Ambient Air Quality Standard |
| CEQ – Council on Environmental Quality | NAC – Noise Area Classification |
| CR – County Road | NEPA – National Environmental Policy Act |
| CSAH – County State Aid Highway | NPDES – National Pollutant Discharge Elimination System |
| CWA – Clean Water Act | NRHP – National Register of Historic Places |
| dba - Decibel | PM – Particulate Matter |
| DEIS – Draft Environmental Impact Statement | RGU – Responsible Governmental Unit |
| DNR – Minnesota Department of Natural Resources | ROD – Record of Decision |
| DOI – Department of Interior | SFEIS – Supplemental Final Environmental Impact Statement |
| DWSMA – Drinking Water Supply Management Area | SHPO – State Historic Preservation Officer |
| EIS – Environmental Impact Statement | T & E – Threatened, Endangered, and Special Concern Species |
| EPA – Environmental Protection Agency | USACE – U.S. Army Corps of Engineers |
| ESA – Environmental Site Assessment | USFWS – U.S. Fish & Wildlife Service |
| EQB – Environmental Quality Board | USGS – United States Geological Service |
| FEIS – Final Environmental Impact Statement | VHT – Vehicle Hours Traveled |
| FHWA – Federal Highway Administration | VIC – Voluntary Investigation and Cleanup |
| HEI – Health Effects Institute | VQM – Visual Quality Management |
| ICE – Intersection Control Evaluation | VMT – Vehicle Miles Traveled |
| IRC – Interregional Corridor | WCA – Wetland Conservation Act |
| IRIS – Integrated Risk Information System | WHPA – Wellhead Protection Area |
| LEDPA – Least Environmental Damaging Practical Alternative | |
| LOS – Level of Service | |
| MDH – Minnesota Department of Health | |