

# ENVIRONMENTAL ASSESSMENT WORKSHEET

**Note to preparers:** This form and EAW Guidelines are available at the Environmental Quality Board’s website at: <http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm>. The Environmental Assessment Worksheet provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit or its agents to determine whether an Environmental Impact Statement should be prepared. The project proposer must supply any reasonably accessible data for — but should not complete — the final worksheet. If a complete answer does not fit in the space allotted, attached additional sheets as necessary.

The complete question as well as the answer must be included if the EAW is prepared electronically.

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

1. **Project title:** Matthew Lourey State Trail – ATV and OHM Use in Nemadji/St. Croix State Forests

2. **Proposer:** Minnesota Department of Natural Resources, Division of Parks and Trails

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3. **RGU:** Minnesota Department of Natural Resources (DNR)

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Include phrase “Matthew Lourey State Trail” in subject line

4. **Reason for EAW preparation (check one)**

EIS Scoping  Mandatory EAW  Citizen petition  RGU discretion  Proposer volunteered

Minnesota Rules 4410.4300 Subpart 30 (Natural Areas)

The EAW also is being prepared pursuant to Court Order. In its 2000 Draft System Plan for Pine and Southern Carlton counties, the DNR proposed to change the designation on several segments of the Willard Munger Trail to allow ATV and OHM use. The DNR received a petition for an EAW on the System Plan. In 2002, the Minnesota Court of Appeals determined that the System Plan was not a project and therefore was not subject to environmental review. However, while the System Plan was not subject to an EAW, the Court determined an EAW was mandatory for the changes in designation for the Munger (now Matthew Lourey) trail. The DNR is now proposing to implement the proposed designations and is completing the EAW accordingly.

**5. Project location**

County: Carlton and Pine City/Township: Holyoke (Carlton Co.), Nickerson, Park, New Dosey, & Wilma

TOWNSHIP NAME	TOWNSHIP	RANGE	SECTION
Holyoke	46 North	16 West	33, 34
Nickerson	45 North	16 West	3, 31
Nickerson	45 North	17 West	24, 25, 36
Park	44 North	17 West	1, 13, 24, 25, 36
New Dosey	44 North	16 West	7, 18
New Dosey	43 North	17 West	1, 12, 13, 14, 34, 35
New Dosey	43 North	16 West	6, 7, 18
Wilma	42 North	17 West	10, 14, 15, 22, 27, 34, 35

<u>GPS Coordinates</u> (UTM Zone 15)	<u>Segment</u>	<u>Terminus</u>	<u>Easting</u>	<u>Northing</u>
	Upper NSF (Figure 2.1)	north	548894.728	5142234.116
		south	549118.337	5140406.116
	Middle NSF (Figure 2.2)	north	543393.730	5135543.398
		south	544818.004	5131335.100
	Lower NST (Figure 2.3)	north	544500.287	5127996.002
		south	542734.688	5116463.533
	St. Croix State Forest (Figure 2.4)	north	541162.512	5108410.748
		south	542724.769	5102166.678
	NSF – Nemadji State Forest			

**Tax Parcel Number** Many parcels within project area.

**Attach each of the following to the EAW:**

- **County map showing the general location of the project;**  
Figure 1 – Matthew Lourey State Trail Project Location – County Map
- **U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable);**  
Figure 2.1 – Matthew Lourey State Trail – Upper Segment, Nemadji State Forest  
Figure 2.2 – Matthew Lourey State Trail – Middle Segment, Nemadji State Forest  
Figure 2.3 – Matthew Lourey State Trail – Lower Segment, Nemadji State Forest  
Figure 2.4 – Matthew Lourey State Trail – St. Croix State Forest Segment
- **Site plan showing all significant project and natural features s of project**  
Figure 3.1 – Matthew Lourey State Trail - Upper Segment, Nemadji State Forest National Wetland Inventory  
Figure 3.2 – Matthew Lourey State Trail - Middle Segment, Nemadji State Forest National Wetland Inventory  
Figure 3.3 – Matthew Lourey State Trail - Lower Segment, Nemadji State Forest National Wetland Inventory  
Figure 3.4 – Matthew Lourey State Trail - St. Croix State Forest Segment National Wetland Inventory  
Figure 4 – Matthew Lourey State Trail Project within Nemadji State Forest.  
Figure 5 – Matthew Lourey Trail Project, St. Croix State Forest Recreational Trails

- Additional tables to those of the standard EAW format:

- Table 1. Matthew Lourey State Trail Segments included in the Proposed Project and Intervening Non-project Segments, listed from North to South
- Table 2. Matthew Lourey Trail Segments – Treadway Improvement Estimates
- Table 3. Road and Trail Lengths (Miles) Open to ATV/OHM and to Non-motorized Uses in Nemadji and St. Croix State Forest (Proposed Project Additions in Parenthesis)
- Table 4. Vegetation in the Vicinity of the Proposed Matthew Lourey State Trail Project (DNR Cooperative Stand Assessment Data)
- Table 5. Matthew Lourey State Trail Public Water Crossings with Fisheries Information and Comments
- Table 6. List of Public Waters where Existing Corridor of the Trail within 1000 Feet of Lakes, 300 Feet of Rivers/Creeks, or Segment is within Watersheds of Other Public Waters
- Table 7. Matthew Lourey State Trail Project - Wetland Areas Intersected by Existing Trail, Sorted by Class/Type
- Table 8. Lourey State Trail Project - Wetland Class/Type, Sorted by Trail Segment
- Table 9. Decibel Levels (dB A) of Some Common Noise Sources (Minnesota Pollution Control Agency, 1999)

- Attachments to the EAW:

- Attach. A. Natural Heritage Information System Review of the Vicinity of the Proposed Mathew Lourey State Trail Project
- Attach. B. Minnesota Historical Society State Historic Preservation Office Correspondence (2006)

## 6. Description

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

The Minnesota Department of Natural Resources proposes to designate portions of the existing Matthew Lourey State Trail (MLT) for all-terrain vehicle (ATV) and off-highway motorcycle (OHM) use. The designations and required treadway improvements would occur on about 23.3 miles of the Matthew Lourey State Trail in the Nemadji and St. Croix State Forests.

- b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods, and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal, or remodeling of existing structures. Indicate the timing and duration of construction activities.

The Matthew Lourey State Trail is a natural surface trail, extending approximately 80 miles from County Road 145 in Holyoke Township, southern Carlton County, to Pine County State Aid Hwy (CSAH) 8 in Chengwatana Township in southern Pine County (Figure 1). The trail is located primarily in DNR-administered land units, including the Nemadji, St. Croix, and Chengwatana State Forests, and St. Croix State Park. Non-DNR administered portions of the trail occur on county- and township-administered parcels. The Matthew Lourey State Trail was originally known as the Minnesota-Wisconsin Boundary Trail and later, the Willard Munger Boundary Trail. The trail is an authorized state trail unit of the State Outdoor Recreation system. The legislature authorized the trail as part of the Minnesota-Wisconsin Boundary Trail in 1973, designated it as part of the Willard Munger Trail system in 1988, then in 2010 included it in the Arrowhead Trail system and renamed the trail in honor of Chief Warrant Officer Matthew Lourey, who was killed in Iraq in 2005. The management plan in effect for the Matthew Lourey State Trail is the 1982 Minnesota-Wisconsin Boundary Trail master plan, as modified in the 1994 plan for the Gandy Dancer Trail. The plan provides for ATV and

OHM use on portions of the trail, with other portions limited to non-motorized recreation and snowmobiling (Table 1).

**Past Development and Current Condition and Use of the Trail.** The Matthew Lourey State Trail is statutorily authorized for riding and hiking, which includes motorized use by off-highway vehicles (OHVs) and snowmobiling. The DNR manages the trail for multiple recreational uses in Pine and Carlton counties. The majority of the Matthew Lourey State Trail corridor had been developed by the time the master plan was prepared in 1982. The trail used existing forest and township roads in some areas, and existing snowmobile trails in others. Several segments of the trail were designated for OHV use in state forest and unit trail plans, while segments of the trail on existing roads have always allowed OHV use. The trail segments examined in this EAW were originally developed as snowmobile trails and have not been open to recreational OHV use. As with all DNR trails within State Forests, they may be used as logging roads for accessing forest stands.

The present trail occupies an existing corridor, which has a clearance zone that averages 20-foot wide and ranges from about 18 feet to 26 feet wide to meet safety design standards for two-way snowmobile traffic. Clearing height (e.g., sub-canopy clearing) is typically ten to twelve feet above average snow depth. The condition of the treadway along segments proposed for motorized designation varies as a function of site-specific factors and historic vehicle-use patterns. All four segments have been used by motor vehicles, for both recreational (ATV, OHM) and silvicultural purposes (4x4 trucks, hauling trucks), which influences conditions from year to year.

Grades along the corridor are gently sloping, with some ranging to ten percent, while the trail base is an obstacle-free natural surface that typically maintains grass-type vegetation over the non-winter months. Water crossings along the alignment use existing culverts or bridges. One of the Keene Creek crossings is an at-grade ford, where a new bridge will be constructed. A new bridge or culvert is also proposed at Ox Creek where the trail uses an existing road that does not have a usable crossing structure for OHVs.

Much of the existing OHM use occurs during permitted races and annual motorcycle ‘enduro’ events on previously designated segments. An annual special event for OHMs uses a two-mile segment of the Matthew Lourey State Trail that extends from the Big Tooth Ridge Forest Road to the Yellow Birch Trail in the northern part of the Nemadji State Forest. The enduro attracts an average of 250 to 300 participants and spectators. State permits and bonds are necessary for operating the event. DNR staff provides assistance during all stages of the organized annual events.

The Nemadji and St. Croix State Forests are both classified as “limited” in regards to OHVs, meaning all trails are closed for motor vehicles unless posted open for OHV use. In addition, forest roads are open to motor vehicle use unless posted closed.

Within the defined project area, non-project trail segments located between project segments, are currently open to ATV and OHM use. No changes in use are proposed for these non-project trail segments. Once the proposed changes are implemented, the Matthew Lourey State Trail will provide approximately 44 miles of continuous ATV/OHM use. Additionally, it will provide connections to the existing system of ATV and OHM trails in this area. A brief description of proposed project and non-project segments is included (Table 1).

**Proposed Designation.** The DNR proposes to allow all-terrain vehicle (ATV) and off-highway motorcycle (OHM) use on four additional trail segments and to amend the management plan accordingly after environmental review is complete. All segments are proposed to be open to both Class I and Class II ATVs. Class I ATVs have a total dry weight of less than 1,000 pounds. Class II ATVs have a dry weight between 1,000 and 1,800 pounds. The DNR proposes to designate the segments for ATV/OHM use during the summer and fall, generally extending from May 1 to November 30 (Figures 2.1 – 2.4, Figures 3.1 – 3.4)).

The DNR also proposes to extend the ATV use season to include winter. Winter ATV use will coincide with snowmobile use and will extend onto other existing state or unit trails or roads to connect with the existing Gandy Dancer Trail, which already is open for winter ATV use in conjunction with snowmobile use. The northern segment of the Matthew Lourey State Trail connects to the Yellow Birch Trail (Nemadji State Forest Trail), which currently provides a connection to the Gandy Dancer Trail (Figure 4). From the project terminus near Graces Lake, existing St. Croix State Forest roads and ATV/OHM trails provide a connection to the Gandy Dancer Trail (Figure 5).

Project-related designations will occur in the Nemadji and St. Croix State Forests, with an additional short segment proposed for designation in New Dosey Township. No ATV or OHM designations are proposed for Matthew Lourey State Trail segments that pass through St. Croix State Park. Three corridor segments are proposed for motorized use designation in the Nemadji State Forest. For the purposes of this EAW, the Nemadji State Forest segments are termed the Upper (1.2 mi.), Middle (5.6 mi.), and Lower (10.8 mi.). The Lower Nemadji Segment includes two miles of trail that extend into a track of Pine County land adjacent the Nemadji State Forest in New Dosey Township. The segment proposed for motorized use in the St. Croix State Forest is referred to as the St. Croix State Forest Segment (5.7 mi.) (Figures 2.1 - 2.4; Table 2).

**Proposed Construction Activity.** The existing alignment of the Matthew Lourey State Trail included within the proposed project area has been field surveyed to determine the extent of construction necessary to prepare the treadway for sustaining the addition of motorized uses. Lengths of the treadway have been classified and summarized into three grades of mechanical action necessary to develop a sustainable trail: No Work/No Repair (5.2 mi), Dry Trail Upgrade (12.5 mi.), and Wet Area Repair (5.6 mi.). One new bridge and a crossing designed as a bridge or culvert are proposed where the trail currently crosses streams at-grade. Remedial construction and ongoing maintenance will occur under dry conditions, typically from May to October, and will be accomplished over one to two seasons, depending upon staff, resources, and weather conditions. Table 2 provides a breakdown of how much work on each section is needed to achieve sustainability of the trail segments.

No Work/No Repair. The existing treadway condition of these segments has sufficient strength and stability to sustain the proposed addition of motorized uses. Approximately 22% of the proposed alignment (5.2 mi.) is sustainable as presently constructed and would require no additional mechanical action to support the proposed motorized uses.

Dry Trail Upgrade. The existing treadway condition of segments classified as Dry Trail Upgrade is durable but will require minor to moderate mechanical action to sustain the proposed addition of motorized uses. Approximately 54% of the proposed alignment (12.5 miles) would require minor to moderate mechanical action. Most construction activity would be limited to remedial measures only, i.e., filling ruts and holes and outslope maintenance. Some areas of surface blading is proposed where the treadway needs a more favorable slope configuration to reduce the potential for erosion. Where slopes are present, rolling water bars will be installed using a small Sweco crawler; however, minimal earthmoving is anticipated.

Wet Area Repair. The existing condition of the treadway along the segments comprising the Wet Area Repair class would require more extensive modification to sustain the proposed addition of motorized uses. Approximately 24% of the proposed alignment (5.6 mi.) will require additional modification. Locally more extensive construction will be necessary to improve treadway conditions in the wet areas. The present condition of this section may exhibit ruts or the treadway may be soft or exposed to wetness in places, making it vulnerable to future rutting. Some of the wet areas along the treadway may be classified as wetlands where fill placement was insufficient. This has allowed wetland characteristics to resurface, where additional fill placement would be necessary. Other areas are wet because runoff enters the trail and ponds. Delineation, mitigation, and best management practices (BMPs) when working in these areas is discussed in Items 12 and 16 in the EAW. Measures available include treadway elevation, outsloping, culvert installation, and surface

blading. Modifications will be limited to the existing footprint of the trail, averaging about 20-foot wide throughout the corridor. Equipment necessary to accomplish the work includes, but is not limited to: cargo carriers; small Sweco crawler; backhoe; and posi-track loaders or all-season vehicles (ASVs). Some fill-type activity in low spots may be required. Fill-related requirements will be satisfied using fill obtained from nearby borrow pits on DNR-administered lands.

Construction practices, operations, and maintenance of the proposed project will be consistent with recommended design, guidelines, and Best Management Practices (BMPs) detailed in DNR's Trail Planning, Design, and Development Guidelines (DNR Trails & Waterways, 2007). Completing the work during dry conditions will minimize the potential for runoff during construction.

**Trail Operations and Maintenance.** Under the limited classification for OHV use in the Nemadji and St. Croix State Forests, trail users may only operate OHVs on forest roads, on state trails and DNR-administered unit trails designated for the specific type of OHV use, or on Grant-in-Aid (GIA) trails permitted for specific uses. Travel on trails not specifically signed for ATV/OHM use is prohibited. ATVs and highway licensed vehicles (HLVs) are afforded limited exceptions to this prohibition for certain big-game hunting- and trapping-related activities in accordance with *Minnesota Statutes*, section 84.926.

The proposed project will allow the expenditure of dedicated OHV funds to maintain the trail surface and repair any areas showing excessive wear or erosion, as these funds may only be used on designated trails. All routes proposed for designation for ATV/OHM users will be subject to ongoing trail condition monitoring and maintenance which includes physical inspections and determinations of any specific maintenance needs or conditions-related closures. The DNR staff will conduct inspections three times per year or more, as conditions warrant. Volunteer Trail Ambassadors, organized by trail user clubs and overseen by the DNR Division of Enforcement, will assist the DNR in monitoring trail use and conditions. DNR staff will conduct the trail repair activities.

Seasonal or temporary road and trail closures may be imposed at any time due to treadway repairs, wet soil conditions, logging operations, or other natural resource protection or public safety concerns. Seasonal closures most often occur during spring thaw or following heavy summer rainfall events.

The Minnesota DNR Volunteer Trail Ambassador Program is authorized by the state legislature to promote safe, environmentally responsible operation of OHVs (*Minnesota Statutes*, section 84.9011). Oversight and management of the program is the responsibility of the DNR Division of Enforcement, Safety/Education section with funding provided by the state legislature. The program is sanctioned for specific trails through local clubs, who agree to sponsor a trail and provide volunteer monitors.

The Volunteer Trail Ambassador Program improves the availability of information on trails and would provide opportunities for educating trail riders on responsible riding. As trained volunteers, Trail Ambassadors provide a positive and informative role model and a supportive presence for trail users. Trail Ambassadors carry no law enforcement authority above that of a regular citizen. Trail Ambassadors are trained in many topics including trail monitoring, invasive species identification, first aid, OHV laws, volunteer expectations, and trail use guidelines and policies.

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

The project would provide a sustainable, high quality motorized recreational opportunity along the existing state trail corridor, and provide additional connectivity to existing motorized trails, by creating or enhancing trail linkages or loop systems. A continuous trail system or loop systems would provide a better recreational experience and improve management, maintenance and enforcement capabilities. The proposed project would enable

**Table 1. Matthew Lourey State Trail Segments included in the Proposed Project and Intervening Non-project Segments, listed from North to South<sup>1</sup>.**

	Trail Segment	Length	Trail Use Current/Proposed	Segment Description/Status
N ↑	<b>START OF PROJECT AREA</b>	1.2 mi	Currently open to snowmobile and non-motorized uses	<b>Proposed Summer uses:</b> 0.21 miles Matthew Lourey State Trail; reroute to utilize 1.5 miles forest trail <b>Proposed Winter uses:</b> 1.2 miles Matthew Lourey State Trail
	Nemadji State Forest Upper Segment (project segment) Figures 1, 2.1, 3.1, 4		Proposed addition of ATV/OHM on state trail	
	Nemadji State Forest – north segment (non-project segment) Figures 1, 2.1*, 3.1*, 4	7.8 mi	Currently open for ATV/OHM, snowmobile, and non-motorized uses	7.8 mile Matthew Lourey State Trail (0.25 mile shared corridor with forest road – Big Tooth Road, crossing Hinkle Cr.)
			No changes proposed	
	Nemadji State Forest Middle Segment (project segment) Figures 1, 2.2, 3.2, 4	5.5 mi	Currently open to snowmobile and non-motorized uses	Entire project segment is Matthew Lourey State Trail corridor.
			Proposed addition of ATV/OHM use	
	Nemadji mid-segment (non-project segment) Figure 1, 2.2*, 3.2*, 4	2.9 mi	Currently open for ATV/OHM, snowmobile, and non-motorized uses	Matthew Lourey State Trail corridor shared with Potlatch Forest Road.
			No changes proposed	
Nemadji State Forest Lower Segment (project segment) Figures 1, 2.3, 3.3, 4	10.8 mi	Currently open to snowmobile and non-motorized uses	<b>Proposed Summer Use:</b> 10 miles Matthew Lourey State Trail; reroute to utilize 0.5 mile of Potlatch Forest Road and 0.36 mile of Park Forest Road. <b>Proposed Winter use:</b> 10.8 mi Matthew Lourey State Trail; includes a 2.0 mile segment located on Pine County lands.	
		Proposed addition of ATV/OHM use (10 mi for summer use; 10.8 mi for winter use)		
Southern/Lower Segment between state forests (non-project segment) Figures 1, 2.4*, 3.4*	6.0 mi	Currently open for ATV/OHM, snowmobile, and non-motorized uses	Matthew Lourey State Trail corridor shared with Township Road. (Includes Ox Creek Crossing.)	
		No changes proposed		
St. Croix State Forest Segment (project segment) Figures 1, 2.4, 3.4, 5	5.7 mi	Currently open to snowmobile and non-motorized uses	Matthew Lourey State Trail corridor utilizes County Road 25 bridge crossing McDermott Creek and utilizes County Road 25 ditch and bridge to cross Lower Tamarack River	
		Proposed addition of ATV/OHM use		
S ↓	<b>END OF PROJECT AREA</b>			
	Segment of Matthew Lourey State Trail open to ATV/OHM use in St. Croix State Forest (non-proj. segment) (Fig. 5)	4.7 mi.	No changes proposed	Current ATV/OHM trail system connects from east; Tamarack Forest Road also connects to the Matthew Lourey State Trail near Graces Lake.

<sup>1</sup> Project Area is shown in Figure 1. \*Non-project segments are not fully represented on all maps.

additional treadway improvements, maintenance capabilities, and monitoring sessions to sustain the additional motorized uses.

Beneficiaries of this new designation are primarily ATV and OHM riders in east-central Minnesota. Other forest users may also benefit from this designation by having an improved treadway, additional maps and information available, and a greater presence of individuals that could provide assistance if needed. Additional trail signage, along with increased monitoring provided by volunteers (including Trail Ambassadors) and DNR staff, and access by local law enforcement and the DNR conservation officers, would improve safety and security along the trail.

Proper management of ATV/OHM use is needed within the State Forests. Unauthorized trail use already occurs on these segments with resulting wear on the trail surface. Trails are also used during hunting and trapping seasons as allowed by statute. Establishing the motorized designation for these segments will allow the DNR to expend dedicated funds on trail improvement, maintenance, monitoring, and enforcement. Trail improvements will remove ruts and potholes along the trail and install culverts in wet areas to improve drainage where runoff crosses the trail. These activities will prevent water from standing or flowing across the treadway, thus preventing trail use from damaging the treadway or causing sedimentation into nearby wetlands.

**Table 2. Matthew Lourey Trail Segments – Treadway Improvement Estimates.**

Grades of Mechanical Action Needed To Sustain Additional Motorized Uses	Segment Area (acres) / Length (miles)				
	Nemadji Upper	Nemadji Middle	Nemadji Lower	St. Croix	TOTAL
<b>No Work/No Repair</b>					
Miles	1.2	0.7	3.3	0	5.2
Acres	2.9	1.7	7.8	0	12.4
<b>Dry Trail Upgrade</b>					
Miles	0.0	3.0	5.4	4.1	12.5
Acres	0.0	7.2	13.1	9.9	30.2
<b>Wet Area Repair</b> (some work may be subject to local, state and/or federal wetland regulations)					
Miles	0.0	1.9	2.1	1.6	5.6
Acres	0.0	4.6	5.0	3.9	13.5
<b>Totals</b>					
Miles	1.2	5.6	10.8	5.7	23.3
Acres	2.9	13.5	25.9	13.8	56.1

- d. Are future stages of this development including development on any other property planned or likely to happen?  X  Yes      No  
 If yes, briefly describe future stages, relationship to present project, timeline, and plans for environmental review.

The Matthew Lourey State Trail extends south of the proposed project area through St. Croix State Park and into the Chengwatana State Forest, approximately 18 miles southwest of the project area. Typically, OHVs are not permitted to operate in state parks and no ATV or OHM designations are proposed within St. Croix State Park.



Following the completion and evaluation of the sustainability of this project, the DNR will consider adding ATVs and OHMs as designated uses of the state trail within the Chengwatana State Forest. The DNR would prepare a separate EAW for any future proposed designation.

- e. **Is this project a subsequent stage of an earlier project?**  X  Yes   No  
**If yes, briefly describe the past development, timeline, and any past environmental review.**

Parts of the OHV trail system in the Nemadji and St. Croix State Forests have been in place for several decades, and motorized use, including ATV and OHM riding was statutorily permitted on the Matthew Lourey State Trail when it was authorized as the Minnesota-Wisconsin Boundary Trail in 1973, renamed the Willard Munger Trail in 1988, and statutorily included among the Arrowhead Region State Trails in 2010.

Portions of the Matthew Lourey State Trail are on state forest roads where OHV use is permitted unless the road is posted closed. Another section of the trail overlaps the Klondike Trail, an existing ATV/OHM portion of the Continental Divide trail system. An east-west segment of the trail near the Pine-Carlton border and a segment in the southern St. Croix State Forest were designated for OHV use in the Master Plan for the Gandy Dancer Trail in 1994, which included amendments to the designated uses of the Minnesota-Wisconsin Boundary/Munger State Trail, now the Matthew Lourey State Trail.

Environmental review was not conducted for these previous designations. Trail designations during the legislatively mandated forest classification process that concluded in 2006 were exempted from environmental review by *Minnesota Laws* 2003, chapter 128, article 1, section 167. The Matthew Lourey Trail is a legislatively authorized trail in *Minnesota Statutes*, section 85.015, and is not subject to the classification and designation process required in Laws 2003. The earlier OHV designations for portions of the Lourey Trail (mentioned earlier in this Item) did not meet mandatory environmental review thresholds, nor was review conducted on a discretionary basis. These past designation decisions are now exempt from review pursuant to *Minnesota Rules*, part 4410.4600, subpart 2.

The 2002 Appeals Court decision regarding the System Plan for Pine and Southern Carlton Counties also ordered EAWs for the proposed designation of 4.5 miles of connecting trails in the Nemadji State Forest. The DNR no longer proposes to develop these trail segments or to make any changes to these trails where they were in existence as segments of Grant-in-Aid trails at the time of the Court decision. Because no changes are proposed to these segments, they are not included for review in this EAW.

**7. Project magnitude data**

**Total project acreage:** 56.1 acres (based on the average 20-foot width of the corridor proposed for OHV use)

**Number of residential units:**  none  **unattached**  none  **attached**  none  **maximum units per building**  
**Commercial, industrial, or institutional building area (gross floor space):**  none  **total square feet:**  0

**Indicate areas of specific uses (in square feet):**

<b>Office</b>	N/A	<b>Manufacturing</b>	N/A
<b>Retail</b>	N/A	<b>Other Industrial</b>	N/A
<b>Warehouse</b>	N/A	<b>Institutional</b>	N/A
<b>Light industrial</b>	N/A	<b>Agricultural</b>	N/A

**Other commercial (specify)** N/A

**Building height** N/A **If over 2 stories, compare to heights of nearby buildings**

The width of the project averages 20 feet for the entire length of the trail segments, totaling 23.3 miles. The width of the trail treadway will not exceed its existing footprint, which ranges from approximately 18-feet to 26 feet wide. The existing treadway width will be retained and maintained so the trail corridor remains suitable for other authorized uses, such as snowmobiling or access to manage forest stands. The current width allows adequate room for construction equipment, treadway improvements, safety features, and enables equipment

operators to avoid damaging trees or other natural features during construction. The total project acreage is approximately 56.1 acres.

The construction zone will remain within the existing footprint, or cleared alignment of the trail corridor. Where the trail is narrower than 20 feet, it will remain narrower; where it is wider, it will remain wider. Approximately 5.2 miles (12.4 acres) will need no remedial work. The remaining 18.1 miles (44 acres) of the trail would need construction work to sustain the additional motorized use. In places where culverts are needed, they will span the width of the corridor, and may encroach the immediate edge of the trail.

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

<u>Unit of Government</u>	<u>Type of Application</u>	<u>Status</u>
Pollution Control Agency	NPDES/SDS Permit: Construction Stormwater General Permit	Not Applied For
	Clean Water Act: Section 401 Certification	Not Applied For
DNR	Wetland Conservation Act	Not Applied For
	Public Waters Work Permit	Not Applied For
	State Trail Plan Amendment	Pending
U.S. Army Corps of Engineers	Section 404 Permit	Not Applied For
Township	Approval for Bridges	Not Applied For
County	Change in Lease with Pine County (change in recreational uses)	Not Applied For

This project is funded from dedicated state ATV and OHM accounts. Apportioned gas tax collections based on respective OHV usage levels and ATV and OHM registrations are the primary source of funding for the off-highway vehicle dedicated accounts.

Currently, trail operations and maintenance is funded primarily by the dedicated snowmobile account, along with some funding from the OHV account for non-project segments currently open to such use. Apportioned gas tax collections based on respective snowmobile usage levels, snowmobile trail pass, and snowmobile registrations are the primary source of funding for the snowmobile dedicated account.

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

The project occurs on existing segments of the Matthew Lourey State Trail, primarily within the Nemadji and St. Croix State Forests. The Matthew Lourey State Trail is administered by the DNR, Division of Parks and Trails. The majority of the project is on state lands. One two-mile segment and the Ox Creek crossing are located on Pine County lands.

**Nemadji State Forest (Figure 4).** The Nemadji State Forest is located in northeastern Pine County and southeastern Carlton County, approximately 14 miles east of the town of Willow River. The state forest adjoins the Governor Knowles State Forest at the Minnesota-Wisconsin boundary. The Nemadji State Forest can be reached by traveling east via county highways joining State Highway 23 near the towns of Askov, Bruno, Kerrick, Duquette, and Holyoke. Both graveled and natural surfaced forest roads also provide recreational access throughout the forest. There are 96,270 acres within the statutory boundary of the Nemadji State Forest. The DNR administers nearly 94%, or 90,494 acres. The remaining 6%, or 5,776 acres, are mostly privately owned with some county ownership.

At the start of the 20th century, this area was the scene of heavy logging activity. The Nemadji, Willow, and Tamarack Rivers transported pine logs to saw mills as far away as Superior, Wisconsin and Stillwater, Minnesota. As the pine was depleted, smaller logger camps produced railroad ties, cedar shingles, barrel staves, pulpwood, and fuel wood. Settlers later moved in to farm the land and numerous large fires eventually swept through and burned most of the area. Most of the land was eventually forfeited in the early 1900s for nonpayment of taxes.

The Legislature established the Nemadji State Forest in 1935. The forest landscape varies from gently rolling upland with large swamps in the south to steep stream valleys and elongated swamps protruding into the forest in the northeast. Predominant tree species include quaking aspen, bigtooth aspen, northern hardwoods, paper birch, balsam fir, red oak, and lowland conifers. Smaller acreages are covered with white cedar and red, white, and jack pine. Under agreement with the State, 50% of the gross receipts from the forest are returned to Pine and Carlton Counties. In the northern half of the forest is the 3,500-acre Klondike Trail Grouse Management Area, which includes an access road, parking, and hunter-walking trails. The Black Lake Bog Scientific & Natural Area, which was established in 1990, covers 1,414 acres of land within the Nemadji State Forest along its eastern border. Management activities carried out in the state forest include timber harvesting, reforestation, wildlife habitat improvements, recreational development, and environmental protection.

Recreation in the Nemadji State Forest. Outdoor recreation facilities in the Nemadji State Forest include a campground, a day use area, and a variety of recreational trails. The Nemadji State Forest has 143 miles of signed multiuse trails, many of which are groomed for snowmobile use in the winter, and includes four shelters located along the trail system (Figure 4). The upland portions of the forest trail system can be used for hiking, berry picking, and horseback riding in the summer. These forest trails include portions of the Matthew Lourey State Trail and Gandy Dancer Trail.

The Matthew Lourey State Trail crosses the forest and is currently open for hiking, horseback riding, mountain biking, and snowmobiling. A number of trail segments are also designated for OHV use, including any segments designated as forest, county, or township roads, trail segments that are shared with previously designated adjoining trails, and a segment designated for OHV use by the Gandy Dancer Trail plan (includes the 1994 Amendment to the Munger Boundary Trail) (Table 3). The table does not include snowmobile, cross country ski, hike, or dogsled trails. Note that there is some overlap between the Matthew Lourey State Trail miles and the trail miles listed for the two forests because portions of the Matthew Lourey State Trail already designated for motorized use are reflected in the forest trail numbers.

The Nemadji State Forest also hosts the Gandy Dancer Trail, a multipurpose interstate trail built on an abandoned railroad grade that passes north-south through the eastern portion of the forest. The Gandy Dancer Trail continues into St. Croix State Forest as well as into Polk, Burnett, and Douglas counties in Wisconsin. Primary uses of the trail include snowmobiling and OHV riding, including winter ATV use.

The Gafvert Campground and Day Use Area is located on Pickerel Lake and serves as the trailhead for the state forest's OHV trail system. The campground has 18 campsites, potable water and outdoor toilets. The National Christmas Tree Trail, a three-mile hiking/cross-country ski trail, begins and ends at the campground.

**St. Croix State Forest (Figure 5).** The St. Croix State Forest, located in east-central Pine County, approximately 14 miles east of Sandstone, was established by the Legislature in 1931, but its name was not included in statutes until 1943. The forest can be reached by traveling east from Hinckley on State Highway 48, or from Sandstone via State Highway 123 and County Highway 30. There are approximately 42,105 acres within the statutory boundary of the St. Croix State Forest. The DNR administers 64%, or 26,947 acres, of this total. The remaining 36%, or 15,158 acres, are privately owned. Management activities include timber harvesting, reforestation, wildlife habitat improvement, recreational development and environmental protection.

The St. Croix River, which forms the southeastern border of the forest, carried pine logs from Pine County to sawmills in the Twin Cities area during the late 1800s. Evidence of numerous logging dams can still be found on tributary streams in the St. Croix State Forest. These small dams were constructed to hold back a sufficient volume of water to float logs to the St. Croix. As the pine forests were depleted, settlers arrived and cleared the land for farms. Brush and stumps in the cutover forest were usually burned.

**Table 3. Road and Trail Lengths (Miles) Open to ATV/OHM and to Non-motorized Uses in Nemadji and St. Croix State Forest (Proposed Project Additions in Parenthesis).**

State Forest	System Road	Minimum Maint. Road	ATV/OHM Trail	OHM Only Trail	ORV Trail	Horseback / Bike Trail
<b>Nemadji</b> (93,300ac)	30	27	125 (15) <sup>1</sup>	23	0	32
<b>St. Croix</b> (27,105 ac)	14	7	45 (6)	45	0	25

<sup>1</sup> This does not include an additional two miles of trail proposed for designation on a tract of Pine County lands situated adjacent the Nemadji State Forest.

Following a very dry summer, land clearing fires spread and burned the village of Hinckley and parts of what is now the St. Croix State Forest. The Great Hinckley Fire claimed 418 lives on September 1, 1894. Smaller wildfires repeatedly burned over much of the area until effective fire control and forest protection programs were established in the 1930s. Much of the land owned by settlers and timber companies was eventually forfeited for non-payment of taxes.

Today over 75% of the St. Croix State Forest is classified as commercial forest land. Most of the forest is covered with aspen, birch, oak and other northern hardwood stands. A smaller proportion of the land is covered by coniferous species including red pine, white pine, spruce and tamarack.

Recreation in the St. Croix State Forest. Outdoor recreation facilities include campgrounds, day use areas, and motorized and non-motorized recreational trails. The Boulder Campground and Day Use Area is located on Rock Lake and has 19 campsites, each with a fire ring and picnic table. Potable water, outdoor toilets and parking facilities are available for day-use visitors.

The Tamarack Horse Camp is for horse campers and day use riders using the horse trails in the forest. Facilities include three loops of campsites with 55 campsites, each with a fire ring and picnic tables. Additional facilities include a well (water), outdoor toilets, picnic shelter, and a day-use parking lot. A 25-mile hiking and horseback riding trail can be accessed from the campground. OHVs are not permitted on these trails.

The St. Croix State Forest also has a number of snowmobile trail segments totaling 25 miles within the forest. The trails are signed and groomed for winter use. There are 45 miles of trail maintained for ATV and OHM use within the forest, and four parking areas for motorized trail users (Table 3). In addition to non-motorized

uses identified in Table 3, the northern part of the state forest offers a 17-mile dog sled trail, accessible off County Road 25.

The Matthew Lourey State Trail crosses the forest and is currently open for hiking, horseback riding, mountain biking, and snowmobiling, with some portions available for OHV riding. A portion of the Gandy Dancer Trail is also located within the St. Croix State Forest.

The portion of the St. Croix River located along the St. Croix State Forest boundary is part of the National Scenic Riverway managed by the National Park Service. The proposed ATV and OHM use along the Matthew Lourey State Trail would occur at a distance of more than three miles from the river. There are other existing forest roads and trails for ATV and OHM use within one mile of the river, including the Gandy Dancer Trail, which crosses the river just north of Danbury, Wisconsin.

The DNR manages state forests within the policy guidelines established in state statutes. The statutory policy for state forests is multiple-use, sustained yield management of forest resources. State forests are actively managed to provide a range of goods and services. They host a mix of commercial, industrial, and resource management activities, including timber harvest, motorized recreation, wildlife habitat manipulation, mining, prescribed fire, tree-planting, and fuel-wood and bough harvesting. State Forests include roads and access routes and have traditionally hosted a mix of motorized and non-motorized recreational opportunities. All forest routes, including the Matthew Lourey State Trail, are potentially available for DNR management activities, especially those related to silviculture.

State trails are managed consistent with their statutory authorization, and in accordance with their respective management plans. Motor vehicle and snowmobile use on the surrounding state forest lands are subject to the respective forest’s motor use classification. Both the Nemadji and St. Croix State Forests are classified as ‘limited,’ which means that ATV and OHM operation on forest lands outside the State Trail corridor is restricted to forest roads and trails designated for their use. The Nemadji and St. Croix forest classifications became effective on December 31, 2006. Off-trail travel is prohibited for ATVs and OHMs with certain big game hunting and trapping exceptions, as specified in *Minnesota Statutes*, section 84.926.

Land use outside the state forests in New Dosey Township exhibits rural land uses typical to forested portions of central Minnesota, including small farms, silviculture, logging, and various forest-related utilitarian and recreational activities.

The proposed trail use is consistent with the statutory and administrative uses of the Nemadji and St. Croix state forests, and compatible with land uses in New Dosey Township.

No environmental hazards or contamination areas are known in the project area.

**10. Cover types. Estimate the acreage of the site with each of the following cover types before and after development:**

	<b>Before (acres)</b>	<b>After (acres)</b>		<b>Before (acres)</b>	<b>After (acres)</b>
Types 1-8 wetlands *	---	---	Lawn/landscaping	0.0	0.0
Wooded/forest	0.0	0.0	Impervious surfaces **	56.1	56.1
Brush/Grassland	0.0	0.0	Other (describe)	0.0	0.0
Cropland	0.0	0.0			
<b>TOTAL</b>				<b><u>56.1</u></b>	<b><u>56.1</u></b>

**If Before and After totals are not equal, explain why:** N/A

\*Wetland acreage is unknown at this time. The trail corridor in the project area encompasses approximately 56 acres, which includes some wetlands that have been partially filled but persist under the treadway. The “before” and “after” wetland acres will be determined through delineation prior to permitting and construction. The existing trail alignment intersects approximately 7.5 acres of wetland. However, based on the overlap of the wet area repair segments with the NWI maps, the DNR currently anticipates that there are fewer than 2 acres where wetlands still exist under the treadway and fill will be required to develop a sustainable trail surface.

\*\* Hardened surfaces, especially gravel road or hardened trail treadways, can substantially retard infiltration so they are treated as impervious surface in this EAW. This is consistent with the MPCA NPDES Construction Stormwater (CSW) permit which defines impervious surface as a “constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development...”

#### **11. Fish, wildlife, and ecologically sensitive resources**

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

A multi-disciplinary team of DNR staff has worked together to guide the proposed addition of motor vehicles to these trail segments. These resource specialists will continue to consult and advise facility managers on natural resource issues relating to the trail.

**General Landscape Characteristics.** Ecological land units for the area have been mapped and defined in the Ecological Classification System (ECS), which has been developed for North American landscapes and adopted by the DNR as a statewide planning tool. This project occurs in the Laurentian Mixed Forest Province that extends across northeastern Minnesota and eastward across the Great Lakes Region. Broad areas of conifer forest, mixed hardwood and conifer forests, and conifer bogs and swamps characterize the province. The general landscape consists of rugged lake-dotted terrain with thin glacial deposits over bedrock, hummocky or undulating plains with deep glacial drift, and large, flat, poorly drained peat lands.

The Matthew Lourey State Trail is located within the Mille Lacs Uplands Subsection of the Western Superior Uplands Section. The Mille Lacs Uplands Subsection covers the large area of the Superior Lobe ground moraines and end moraines. The dominant landforms in this ecoregion include gently rolling till plains and drumlin fields. The depressions between drumlin ridges contain peatlands with shallow organic material. A large end moraine in the center of the subsection forms the dam that created Mille Lacs Lake.

According to the Mille Lacs Subsection description, at the eastern end of the subsection, the end moraines and ground moraines have loamy soils. Typically, there is dense glacial till underlying most soils in this subsection. This dense till impedes water movement throughout the soil profile. The soils are described as acid, stony, reddish sandy loams, and loamy sands.

Forestry and recreation are the primary land uses in the central and eastern part of this subsection. Large portions of eastern Pine County are heavily forested and have remained relatively undisturbed since they were last logged, although no sizeable stands of large white pine are known.

**Vegetation.** Representative non-wetland native plant community types include: Mesic Hardwood and Fire-Dependent Systems; Oak-Aspen-Red Maple Forest; Red Oak-Sugar Maple-Basswood-(Large-flowered Trillium) Forest; and Red Oak-Basswood Forest (Calcareous Till). Wetland forest native plant communities on

organic soils include Rich Tamarack Swamp, Poor Black Spruce Swamp; Lowland White Cedar Forest, Black Ash-Yellow Birch-Red Maple-Basswood Swamp; Forested Rich Peatland; Open Rich Peatland; Acid Peatland, Wet Forest; and Wet/Meadow/Carr Systems.

The native plant communities occur as a mosaic across the local landscape in varying stages of succession/maturity. The communities are further classified into forest stands that occur within the greater complex of native plant communities. Cooperative Stand Assessment (CSA) data were used to identify what types of stands are present along the trail to derive the total percentage of trail that occurs in a given CSA stand type (Table 4).

**Table 4. Vegetation in the Vicinity of the Proposed Matthew Lourey State Trail Project (DNR Cooperative Stand Assessment Data).**

Forest Type	State Forest	
	Nemadji	St. Croix
Mature Northern Hardwoods	14%	45%
Mature Oak (mainly red)	0%	25%
Mature Paper Birch	13%	0%
Mature Oak (mainly red with some burr)	15%	0%
Immature Aspen	12%	15%
Mature Black Ash (incl. spruce + other hardwoods)	6%	0%
Mature Aspen	20%	10%
Mature Norway Pine and White Spruce	0%	5%
Mature Black Spruce	4%	0%
Mature Norway Pine	4%	0%
Immature Balsam Fir	4%	0%
Lowland Brush	3%	0%
Lowland Grass	2%	0%
Marsh	2%	0%
Tamarack	1%	0%
Total	100%	100%

Approximately 70% of the trail occurs in the mature northern hardwoods and mature oak types in the St. Croix State Forest. Stand diversity is greater along the Nemadji State Forest part of the corridor; substantial percentages occur in mature and immature aspen (32%), mature oak (mainly red with some burr) (15%), mature northern hardwoods (14%), and mature paper birch (13%). The trail corridor includes eight other CSA vegetative types, but in a much smaller proportion.

**Wildlife Resources.** Wildlife habitat and resources in the project area are typical for those occurring in undeveloped areas of east-central Minnesota. Both large and small game and non-game bird and mammal species can occur; examples include: bear; timber wolf; deer; bobcat; beaver; red squirrel; striped skunk; woodland deer mouse; bald eagle; ruffed grouse; red-shouldered hawk; northern goshawk; wild turkey; wood duck; whip-poor-will; red-headed woodpecker; indigo bunting; and American goldfinch. A number of species of amphibians and reptiles occur in these types of habitats, including: Blanding’s turtle; wood turtle; four-toed salamander; blue-spotted salamander; western chorus frog; spring peeper; leopard frog; snapping turtle; painted turtle; redbelly snake, and common garter snake.

Project-related construction is expected to have little effect on wildlife resources found in the project area since the entire project is located along existing developed corridors. No new forest clearings are proposed. Construction-related activity will generate noise that temporarily displaces species sensitive to human intrusion. Project-related forest fragmentation will not occur. Trimming of the existing canopy openings and understory will be kept to minimum height requirements for meeting safety guidelines. Opportunities for wetland restoration may occur along corridor edges or at specific sites adjoining the trail corridor. The DNR Parks and Trails staff will work cooperatively with other DNR staff to identify potential wetland restoration or habitat improvement opportunities. Impacts can be minimized by controlling erosion and sedimentation potentials during construction, and by ensuring re-establishment of vegetation along the treadway.

Wildlife may be disturbed by human activity and noise associated with trail use. While very little habitat is directly altered by the project, effects on wildlife are possible from traffic generated by regular trail use, maintenance, and usage for other natural resource management purposes. Most of the wildlife species listed already tolerates some measure of human activity along the project corridor. Present distribution and behavior of wildlife represent adjustments that have occurred prior to project development. Further adjustments may occur from increased human activity along the corridor. Other disturbance factors that influence species behavior could cause displacement of some wildlife species. Some species are inherently intolerant to human intrusion, and some species are more sensitive to noise. Some individuals could exhibit increased stress, causing displacement or possibly increased mortality for those less tolerant of the disturbances.

The surrounding vegetation would generally provide ample cover and suitable escape habitat for many common wildlife species. Leafy vegetation that is typically present throughout the operating season helps to moderate sound propagation and wildlife disturbances. Given the current habitat conditions adjoining the existing state trail corridor, there are not likely to be any species that will be affected on a population level for this project. Since no new corridors are being developed and similar-to-only-slightly increased levels of use are expected, existing conditions of biodiversity, habitat and forest fragmentation are not expected to change substantially as a result of this project.

**Species of Greatest Conservation Need (SGCN).** SGCN species are identified by consideration of several criteria: 1) their populations are identified as being rare, declining, or vulnerable in Minnesota; 2) the species depend on rare, declining, or vulnerable habitats; 3) the species are subject to other specific threats, or exhibit certain characteristics that make them vulnerable; or 4) the species have Minnesota populations that are stable, but are declining in a substantial part of their range outside of Minnesota. Species in Greatest Conservation Need (SGCN) in the vicinity of the project were assessed using *Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife* (DNR, 2006).

The Mill Lacs Uplands Subsection includes 128 known or predicted SGCN species. Of these species, 57 are federal or state endangered, threatened or of special concern. The extensive forest lands, riparian forests and open waters of this subsection support bald eagles, common terns, sandhill cranes, ospreys, wood turtles, trumpeter swans, yellow rails, and sharp-tailed sparrows. Sand terraces and rock outcrops along the St. Croix River provide habitat for bullsnakes. This subsection is a major migratory corridor for waterbirds and one of the most important subsections for forest-dwelling salamanders, such as the four-toed and spotted salamanders, which use fishless, seasonal wetlands as breeding habitat. Important areas for SGCN include the Nemadji, St. Croix, and Chengwatana State Forests as well as St. Croix State Park.

Key habitats, considered important to conserving SGCN species populations, are defined for the Mille Lacs Uplands Subsection. Several key habitats are located near the project area: 1) Upland deciduous mixed hardwood-pine forest; 2) Upland coniferous red-white pine forest; 3) Lowland coniferous forest; and 4) Stream habitats. Priority actions are focused on conserving these key habitats. The proposed trail improvements near the key habitats would not encroach into adjacent vegetated areas.



**Fisheries Resources.** The Nemadji Upper segment is within one mile of two trout streams designated under *Minnesota Rules*, part 6264.0050 subpart 4; they are an unnamed tributary of the Net River and the Little Net River. Within the Little Net River watershed, the segment crosses an intermittent stream, which is referred to as a protected tributary. The General Construction Stormwater Permit, as administered by the MPCA, regards trout streams as special waters and specifies that additional BMPs be implemented when the discharge point from a construction area occurs within one mile of a designated trout stream. Although the Nemadji Upper segment traverses the watersheds in proximity of these streams, no construction work or repairs are proposed along this segment. No construction will be necessary because wet portions of this segment are avoided during summer ATV/OHM use. Instead an existing forest trail will be used to circumnavigate the wetlands. The winter route will use the actual Matthew Lourey State Trail alignment used by snowmobiles when the ground is frozen.

The project crosses several small streams and rivers. The contributing watershed contains mixed hardwood-conifer stands upland intermingled with large, peaty wetland complexes. Watercourses crossed by the project include: Keene Creek; Ox Creek, McDermott Creek; and Little Tamarack River (Table 5). Typically brown-stained and moderately acidic, these are warm-water fisheries containing a variety of fish species, including game fish and minnows. The Ox Creek crossing, proposed to be improved along a stretch of the Matthew Lourey State Trail that is on Pine County lands (New Dosey Township) is already open to OHV use. The proposed structure will require their administrative approvals prior to construction.

**Table 5: Matthew Lourey State Trail Public Water Crossings with Fisheries Information and Comments.**

Stream	Crossing/ Position	Type of Stream	Principal Fish (also see Item 12)	Comments
Keene Creek (T43N, R17W, Sec 1)	New Bridge Needed	Warm water	White sucker, blacknose & pearl dace, creek chub, common shiner, central mudminnow, johnny darter, slimy sculpin, brook stickleback, burbot	May run dry during periods of drought; current crossing is on stream bed.
Keene Creek (T43N, R17W, Sec 13/14 and 23)	Two crossings - Existing bridge at both crossings			
Ox Creek (T43N, R17W, Sec 34, 35)	New Culvert or Bridge Needed	Warm water	Likely similar to Keene Creek	On boundary w/ Sec 35; trail currently open to ATV/OHM use.
McDermott Creek (T42N, R17W, Sec 27, 22)	Existing Bridge (County Rd 25)	Warm water	Similar to Keene Cr, plus northern pike, longnose dace	
Lower Tamarack River (T42N, R17W, Sec 26, 27)	Existing Bridge (County Rd 25)	Warm water	blackside darter, chestnut lamprey, redhorse, hornyhead chub, logperch, northern hogsucker, rock bass, slenderhead darter, smallmouth bass, muskellunge young of year	

In addition to the Ox Creek crossing mentioned above, a new bridge will also be needed for the Keene Creek crossing in Section 1, Township 43N, Range 17W. Staff from DNR's Section of Fisheries will determine the appropriate impact avoidance and/or minimization measures necessary to minimize potential stream crossing impacts to fishery resources at the Keene and Ox Creek bridges or near the existing crossings of other waterbodies. Once the project is implemented, standard trail maintenance, accompanied by seasonal and/or temporary closures, will be included (Also see Item 12).

**Invasive Plant Species.** The spread of invasive non-native plant species is a concern for any activity that results in soil disturbance. Trail users could contribute to the spread of invasive species. To minimize the potential of this happening, the trail would be monitored for invasive species during the first year after construction and periodically thereafter by DNR staff as well as by Volunteer Trail Ambassadors.

Operational Order #113 describes the DNR policies for invasive species management and control. The Operational Order contain procedures specific to trail management necessary for reducing the spread of invasive species. The policy was established to prevent or limit the introduction, establishment and spread of invasive species and to implement site-level weed management.

Prevention strategies include the following:

- Identify and map invasive plants on the trail and adjacent lands;
- Minimize vegetation and soil disturbance during trail construction and maintenance;
- If working in an area with invasive species, prevent spreading viable roots and seeds by cleaning equipment;
- Use weed free surface hardening materials on the constructed treadway;
- Re-vegetate disturbances with temporary non-invasive cover crops to avoid erosion and allow native vegetation to re-populate the disturbance; and
- Monitor disturbed sites particularly during the time vegetation is reestablished, and periodically thereafter.
- The use of fill material (soils) from borrow sites could create an opportunity for invasive species to be moved or introduced into new areas. Top organic layers would be removed prior to excavating fill materials so that only mineral soils would be distributed along the treadway.

Existing invasive non-native species are known to exist along the project corridor, but specific sites and species are not inventoried. Design and construction activities will provide opportunities to identify and inventory infested areas and improved treadway surfaces will improve access for DNR staff to treat these areas. Invasive species will be physically removed where practicable or treated with herbicides if necessary. All herbicide applications would comply with labeling, safety protocols and the precautions prescribed in DNR Operational Order 59, which governs the DNR's use of pesticides. The Operational Order specifies that all pesticide applications must be preceded by a heritage database review to insure endangered or threatened species or significant native plant communities are not harmed.

Volunteer Trail Ambassadors are trained to identify invasive plant species and can assist the DNR in identifying potential infestations.

- b. Are any state-listed (endangered, threatened, or special concern) species, rare plant communities, or other sensitive ecological resources on or near the site?      X   Yes           No**

**If yes, describe the resource and how it would be affected by the project. Describe any measures that will be taken to minimize or avoid adverse impacts. Provide the license agreement number (LA-\_\_\_\_) and/or Minnesota Department of Natural Resources, Division of Ecological Resources contact number (ERDB 20030179-0003) from which the data were obtained and attach the response from the MDNR, Division of Ecological Resources. Indicate if any additional survey work has been conducted within the site and describe the results.**

The DNR Natural Heritage Information System database was reviewed in 2003 and again in 2010 to determine whether any rare plant or animal species or other significant natural features were known to occur within a one-mile radius of the proposed project area (Attachment A). The 2003 search included looking at potential impacts from construction of a reroute that has since been eliminated from the proposed project. The current project will utilize existing corridor with no new construction proposed. The decision to remove the reroutes segment from the project was made to reduce the potential environmental effects of the project on rare species and wetland habitats.

Several elements requiring project-related consideration were identified in the DNR Natural Heritage Information System database. Specifically:

**Birds.** Three state-listed birds of special concern have been documented within the search radius of the project. Bald eagles (*Haliaeetus leucocephalus*) have been documented nesting in the area, but there are no known occurrences of nests within ¼-mile of the existing trail. Although there are no known nests near the trail, both bald eagles and red-shouldered hawks (*Buteo lineatus*) have the potential to nest near the trail and could be affected if increased vehicle traffic causes disturbances or abandonment during the nesting season. The Louisiana waterthrush (*Sieurus motacilla*) has been documented in the vicinity of the trail. This species depends on mature riparian forests adjacent to streams. Rare species mitigation protocol recommends that, if tree removal associated with the designation or maintenance of the trail is proposed, the trees should be inspected for nests prior to being cut down. Because the project involves no clearing of mature trees, little direct effect on these species is anticipated.

**Reptiles and Amphibians.** Blanding's turtles (*Emydoidea blandingii*), a state-listed threatened species, and four-toed salamanders (*Hemidactylium scutatum*), a state-listed species of special concern, have been reported in the vicinity of the existing trail and may be encountered on the trail. Maintenance crews and trail monitors are made aware of the possibility that state law and rules prohibit the destruction of threatened or endangered species (Minnesota's endangered species law).

Potential impacts to these species include collision fatalities and habitat degradation. Turtles may be found on land from March to November, but overland movement peaks in June and July and again in September and October. Salamanders are most active during spring and fall months. Although salamander movements often occur at night, they may also move through the forest floor on rainy days. The DNR Blanding's Turtle Fact Sheet and Forest Management Guidelines include additional recommendations that pertain to ATV trail placement and maintenance, which the DNR will implement.

The Blandings turtle fact sheet and salamander protection guidelines will be provided to construction, monitoring, and maintenance crews for use during the construction and operation of the proposed trail project. Some of the recommendations that are applicable are as follows:

- If turtles or salamanders are in imminent danger, they should be moved by hand out of harm's way; otherwise they should be left undisturbed.
- Habitat degradation can occur through surface run-off to wetlands and streams and ruts along the treadway can act as traps to some less mobile species. Effective erosion prevention and sediment control practices must be implemented.
- Graded areas should be revegetated with native grasses and forbs.
- Use and timely removal of silt fencing is beneficial to protecting animals in the construction zone.
- If portions of the trail experience frequent turtle or salamander mortality, temporary trail closures during peak movement may be warranted.
- The avoidance of herbicides for trail maintenance will help minimize potential impacts.
- Use of herbicides for controlling vegetation would require special review and is not recommended along the trail where suitable habitat has been identified or rare animals have been documented.

Impacts to local salamander and turtle populations are minimized by: using the existing treadway; maintaining the treadway at or slightly above the level of the forest floor and repairing ruts along the treadway; and avoiding reroutes or any new construction through areas that were determined to be suitable habitats for these species. The DNR Parks and Trails Division has committed to work with DNR herpetologists to ensure the project does not result in avoidable impacts to turtles, salamanders, or other species of interest.

**Mussels.** The mucket (*Actinonaias ligamentina*) and the elktoe (*Alasmidonta marginata*), both state-listed threatened mussels, have been documented in the Lower Tamarack River at the existing trail crossing. No construction is proposed for this crossing. Mussels are particularly vulnerable to deterioration in water quality, especially increased siltation. The need for erosion prevention and sediment control practices at this crossing would be reviewed during maintenance operations and would be applied to minimize disturbance to mussels. If maintenance or repair activities of the proposed project changes and require disturbing the riverbed, appropriate DNR staff will be notified as a mussel survey would likely be required prior to construction.

**Plants.** Several state-listed plants, including blunt-lobed grapefern (*Botrychium oneidense*), a state-listed endangered plant, and triangle moonwort (*Botrychium lanceolatum*), a state-listed threatened plant, have been documented within the search radius. In 1993, triangle moonwort was documented next to the existing trail in a second growth sugar maple stand (T42N R17W, Sec 22). If any changes occur to the current plans and trail widening in this vicinity is needed, DNR Heritage staff will be notified as a botanical survey may be required. Given that this is an existing treadway, direct impacts to these state-listed plants are not anticipated.

**12. Physical impacts on water resources. Will the project involve the physical or hydrologic alteration – dredging, filling, stream diversion, outfall structure, diking, and impoundment – of any surface waters such as a lake, pond, wetland, stream, or drainage ditch?  Yes  No**

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

**Proposed Stream Crossings in the Project Area.** The proposed trail crosses Keene Creek (three places), Ox Creek, McDermott Creek and the Lower Tamarack River. Two new crossing structures are proposed (Table 6):

- Keene Creek (T43N, R17W, Sec 1, 13/14, and 23) three crossings. The project proposes a new bridge to cross Keene Creek in Section 1, where an at-grade ford is currently in place. Keene Creek has not been surveyed since 1968, when the DNR determined it should not retain a trout stream designation. In the 1968 survey the following species of fish were caught: white sucker, blacknose dace, creek chub, pearl dace, common shiner, central mudminnow, johnny darter, slimy sculpin, brook stickleback, and burbot. Most of these species still probably inhabit the stream. It was also stated in the 1968 report that this stream was known to run dry during periods of drought. Trail bridges at the other crossings will not be modified.
- Ox Creek. This creek crossing currently does not have a bridge or culvert. It is located along non-jurisdictional trail segment outside the Nemadji State Forest boundary. This segment crosses Pine County lands and is currently open to OHVs for local use (see Figures 2.4, 3.4), but a usable crossing structure for OHVs is unavailable. Currently, snowmobiles cross at-grade when the creek is frozen. Ox Creek has not been surveyed, but since it is a tributary to Keene Creek and is not a designated trout stream, the DNR assumes the fish assemblage of this stream would be very similar to that of Keene Creek. A new culvert or bridge is needed at this crossing. Pine County and New Dosey Township approvals are needed for the proposed construction at this crossing.
- McDermott Creek (T42N, R19W, Sec 30). McDermott Creek is a warmwater stream. In 2005 a temperature survey was done to determine suitability for trout. It was found the stream exceeds acceptable

water temperatures for much of the summer and was therefore unsuitable for trout. It was a designated trout stream until 1968 and was removed from designation in 1969. In the 1968 survey the following fish species were found: white sucker, longnose dace, northern pike, burbot, johnny darter, common shiner, central mudminnow, creek chub, and pearl dace. Most of these species still probably inhabit the stream. The trail utilizes existing County Road 25 bridge, which will not be modified.

- Lower Tamarack River (T42, R17, Sec 26, 27) The Lower Tamarack River is a warmwater stream. Fish sampled in this area in a 2004 survey included: blackside darter, burbot, central mudminnow, chestnut lamprey, common shiner, creek chub, golden redhorse, hornyhead chub, johnny darter, logperch, longnose dace, northern hog sucker, rock bass, shorthead redhorse, slenderhead darter, smallmouth bass, smallmouth bass young of the year, and muskellunge young of the year. The trail utilizes the existing County Road 25 bridge, which will not be modified.

**Table 6. List of Public Waters where Existing Corridor of the Trail within 1000 Feet of Lakes, 300 Feet of Rivers/Creeks, or Segment is within Watersheds of Other Public Waters.**

Segment	Public Waters (PWI Number)	Town-Range-Sec.	Relationship
<b>Nemadji Upper</b>			
	Little Net River		Trail traverses through watershed
<b>Nemadji Middle</b>			
	Willow Creek		Trail traverses through watershed
	Unnamed Lake (211P)	T45-R17-S25	Lake within 1000 feet of existing corridor
	Larsen's Creek		Trail traverses through watershed
	Headwaters of Lower Tamarack River		Trail traverses through watershed
<b>Nemadji Lower</b>			
	Headwaters of Lower Tamarack River		Trail traverses through watershed
	Keene Creek	T43-R17-S1, S13/14, and S23	<b>New bridge</b> proposed at crossing in Section 1; two other Keene Creek crossings will use existing bridges
	McDermott Creek		Trail traverses through watershed
<b>Separate from Nemadji Lower Segment</b>			
	Ox Creek	T43-R17-S34/35	<b>New culvert or bridge</b> proposed along segment currently open to OHV's (on Pine County land); usable crossing structure for OHVs is unavailable
<b>St. Croix</b>			
	Lower Tamarack River		Trail traverses through watershed
	McDermott Creek	T42-R17-S30	Trail utilizes County Road 25 Bridge
	Lower Tamarack River	T42-R17-S26/27	Trail utilizes County Road 25 Bridge
	Graces Lake (29P)	T42-R17-S36	Lake within 1000 feet of existing corridor

Work affecting the course, current, or cross section of a public water, and any other waters of the state including non-public waters wetlands and small drainageways or streams, may require state, and federal

permits. The DNR Public Waters Work Permits may be required for replacing or repairing existing crossings of public waters. The project will comply with all DNR Public Waters Permit conditions. Motor vehicles are restricted to approved stream crossings; crossings will be signed or barriers will be installed to prevent motorized vehicles from entering streams.

The DNR’s Fisheries staff will determine the appropriate impact avoidance and/or mitigation measures necessary at the proposed construction of the Keene and Ox Creek crossing structures and at approaches to other existing crossing structures. Bridges will span the natural bankful width with adequate distance to allow for debris and sediment transport rates to closely resemble those of upstream and downstream conditions. Proper bridge placement will minimize impact to fish migration. Work Exclusion Dates below will be incorporated into project scheduling and staging to protect fish spawning and migration. Erosion control BMPs will be employed whenever work is conducted in the vicinity of water resources.

BMPs will include: scheduling work during dry periods; placement of silt fencing, straw bales or other erosion control materials; temporary and permanent seedings; and mulching. Disturbed areas will be mulched and seeded with appropriate native species. Bale check dams will be used to prevent erosion until vegetation is reestablished. Erosion control blankets will be employed on sloped-off trail bank areas near wetlands and streams. Sediment control practices will be established on all down gradient perimeters of the work area prior to construction. Installation of sediment control practices would be timed to accommodate short-term in-water activities. Temporary stockpiles will have silt fence or other effective sediment controls. Vehicle tracking of sediment off the construction site will be minimized. All exposed soil areas will be stabilized as soon as possible but no later than seven days after construction activity has temporarily or permanently ceased. Undisturbed vegetated buffer zone between waterbodies and the construction area will be planned during the construction phasing.

**Wetlands.** In addition to the public waters listed above, the project vicinity includes numerous wetland areas and small drainageways that are waters of the state. National Wetland Inventory (NWI) maps prepared by the U.S. Fish and Wildlife Service show many of the wetlands within the project area but are not deemed to be complete and sometimes do not accurately depict wetland boundaries. Nonetheless, the NWI maps are a very useful source of information and may provide a general indication of whether a wetland is or may be present on a site. NWI wetland areas intersected by the existing trail corridor are summarized in Tables 7 and 8.

**Table 7. Matthew Lourey State Trail Project - Wetland Areas Intersected by Existing Trail, Sorted by Class/Type.**

NWI Wetland Class	Circular 39 Wetland Class (Type)	Estimated Length of Crossing (feet)	Estimated Acreage (20-ft treadway width)
Emergent Marsh	Wet Meadow (2)	105	< 0.05
Emergent Marsh	Shallow Marsh (3)	3,409	1.6
Scrub/Shrub	Shrub Swamp (6)	4,127	1.9
Wooded Swamp	Wooded Swamp (7)	2,373	1.1
Scrub Shrub or Forested Bog	Bog (8)	6,374	2.9
<b>TOTAL</b>		<b>16,398</b>	<b>7.5</b>

The majority of the existing trail treadway has undergone some type of alteration, including but not limited to fill material brought in, grading, shaping or berming to allow for past and present recreational uses or logging access. Most of the natural wetland features have disturbance along the existing trail treadway. Based on the National Wetland Inventory data, approximately four miles of the trail corridor along the four segments cross or intersect type 2-8 wetlands.

Wetland impacts are subject to both state and federal regulatory requirements. The primary trail corridor was established more than a decade before the Minnesota Wetland Conservation Act (WCA) was passed in 1991. WCA does not require mitigation for any wetland fill that occurred before its enactment. Although the trail was developed primarily for recreation, it is possible that some later segments may have been developed post-WCA for silvicultural purposes. If the forestry exemption in *Minnesota Rules*, part 8420.0420 was used to construct these segments, the Board of Water and Soil Resources (BWSR) Guidance Paper 2004-01 provides mitigation requirements if the primary purpose for the road has changed. Specifically, if the road has been in place for more than 10 years, only wetland impacts in excess of the original footprint require replacement when the primary purpose of the road is converted to a non-forestry use. If a road is less than 10 years and its purpose changes, mitigation would be required for all impacts that occurred during construction.

**Table 8. Lourey State Trail Project - Wetland Class/Type, Sorted by Trail Segment.**

Trail Segment	Wetland Class (Type)	Approx. Length (feet)	Est. Acreage (based on 20-ft width)	Mitigation
Nemadji Upper	Shrub Swamp (6)	612	0.28	Summer use will be routed on a forest trail to avoid these wetlands
	Bog (8)	608	0.28	
	<b>Subtotal</b>	<b>1,220</b>	<b>0.56</b>	
Nemadji Middle	Wet Meadow (2)	105	0.05	
	Shallow Marsh (3)	1,574	0.72	
	Shrub Swamp (6)	1,204	0.55	
	Wooded Swamp (7)	904	0.42	
	Bog (8)	171	0.08	
	<b>Subtotal</b>	<b>3,959</b>	<b>1.82</b>	
Nemadji Lower	Shallow Marsh (3)	1,719	0.79	Summer use will be routed on a forest roads and will avoid 2.0 acres of wetlands
	Shrub Swamp (6)	1,620	0.74	
	Wooded Swamp (7)	1,216	0.56	
	Bog (8)	5,047	2.32	
	<b>Subtotal</b>	<b>9,603</b>	<b>4.41</b>	
St. Croix SF	Shallow Marsh (3)	116	0.05	
	Shrub Swamp (6)	691	0.32	
	Wooded Swamp (7)	262	0.12	
	Bog (8)	547	0.25	
	<b>Subtotal</b>	<b>1,616</b>	<b>0.74</b>	

All segments of the trail were constructed over 10 years ago; so even if they were constructed for silvicultural purposes using the forestry exemption, only increases in the original footprint would be subject to mitigation per the BWSR guidance. The DNR does not propose to expand the footprint of the corridor so no mitigation would be required under WCA due to conversion of the primary purpose from silviculture to recreation.

There may be places along the trail where previously filled wetlands are resurfacing, resulting in wet, muddy trail segments. If fill is placed in these areas as part of trail improvements or if fill is placed in portions of the trail that traverse wetlands at grade, wetland mitigation under WCA will be required. WCA regulations do not require mitigation where past fill has removed wetland characteristics, i.e., previously placed fill has sufficiently raised the treadway above-grade. The DNR will comply with all permit conditions and wetland conservation requirements.

To implement Minnesota's no-net loss to wetland directives in place, the DNR will complete field delineations of all wetlands along the trail prior to permit application and construction. If any jurisdictional wetlands are identified in the newly designated trail segments (as well as during maintenance of the remainder of the trail), WCA sequencing requirements (avoid, minimize, and mitigate) will be followed. Where possible, wetland mitigation will be in-place and in-kind to increase likelihood of success, and opportunities to restore previously degraded wetlands will also be considered.

In addition to state WCA and public waters permit requirements, the project is subject to review and permitting to meet federal Clean Water Act Section 401 and 404 requirements as well as *Minnesota Rules*, chapter 7050 requirements administered by the MPCA. Under these regulatory programs past fill in waters of the state may require mitigation in addition to that required for project-specific impacts. Fill in or alteration of small drainageways also may require Section 401/404 review and permitting. To the extent practicable, the DNR will design improvements to restore natural flow patterns where they have been disrupted or intercepted by past construction, including the existing trail treadway. This will restore historic flow patterns, improve water quality by reducing runoff from the treadway, and reduce the potential for wet areas developing on the trail bed. The DNR will consult with MPCA staff during wetland delineation and project permitting to further ascertain regulatory requirements.

- 13. Water use. Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)?**  
     Yes   X   No.      If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity, and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

No surface or groundwater appropriations are planned (including dewatering), nor are any wells known to exist within the project area.

- 14. Water-related land use management district. Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district?**  
  X   Yes      No      If yes, identify the district and discuss project compatibility with district land use restrictions.

Project-related activity will occur in the 300-foot wide shoreland of six public water stream crossings, measured from the stream or from the landward extent of the floodplain, and within the 1000-foot wide shoreland zone of two public water lakes. The new culvert or bridge crossing at Ox Creek will occur in a shoreland zoning district. The crossing is on a township road, outside the state forest boundary, within a shoreland district subject to Pine County shoreland controls. Ox Creek is classified "tributary" in Pine County's shoreland ordinance. Recreational development, including trails, is consistent with the tributary classification. The DNR will design and construct the proposed culvert or bridge to minimize erosion, consistent with the provisions of state shoreland rules (*Minnesota Rules*, part 6120.3300) and as required within the Construction Stormwater General Permit.

Other shorelands in the project area are not in shoreland zoning districts subject to local government land use controls. State shoreland standards apply only in areas subject to local government land use controls (*Minnesota Rules*, part 6120.2800). When working in the vicinity of streams or other water resources, the DNR will use best management practices to minimize erosion or other impacts. Riverine segments and wetlands not classified as public waters are exempt from state and local shoreland rules.

Adherence to erosion control best management practices (BMPs) and permit conditions are designed to avoid and/or minimize potential impacts within the shoreland district.



The Federal Emergency Management Agency (FEMA) has delineated the approximate 100-year floodplain hazard zones for waterways in Pine County. The maps are used for administering the National Flood Insurance Program and do not necessarily identify all potential flood risks. Current FEMA floodplain maps identify narrow approximate A zones associated with Keene, McDermott, and Ox Creeks, and the Lower Tamarack River. The proposed project involves work in the mapped floodplain at two locations: Keene Creek, where a bridge will be constructed to replace the in-stream crossing in T43N, R17W, Section 1, and Ox Creek, in T43N, R17W, Section 34/35 where a new bridge or culvert is needed. The remaining crossings use existing road culverts or bridges so proposed construction will not affect their floodplain areas (Figures 3.3 and 3.4). The two new bridges will be engineered to minimize encroachment and pass the 1% annual flood event (100-year flood).

No development associated with this project will cross a state or federally-designated wild or scenic river land-use district.

**15. Water surface use. Will the project change the number or type of watercraft on any water body?**

Yes  No

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

**16. Erosion and sedimentation. Give the acreage to be graded or excavated and the cubic yards of soil to be moved: 36 Acres; 4,463 cubic yards. Describe any steep slopes or highly erodible soils and identify them on the site map. Describe any erosion and sedimentation control measures to be used during and after project construction.**

Construction activities will temporarily expose the ground surfaces, making them more prone to erode. Some increase in the potential of erosion/sedimentation may occur due to an increase in motorized use proposed for the trail during the growing season.

The estimates of acreage and cubic yards of grading or excavation are deemed necessary to complete the treadway improvements for upgrading the treadway to sustain the proposed summer uses. The calculations are based on field visits to the project area by DNR staff over the entire length of the four segments of the project area. Staff classified the degree of repair work needed, measured the length of the segment needing repair, and calculated the amount of surface area disturbed during grading and soil volumes moved during excavation. No mechanical action is proposed for 5.2 miles of the No Work/No Repair segments; minor to moderate mechanical action is proposed for 12.5 miles of Dry-Trail Upgrade; and more extensive mechanical action is proposed along the existing treadway for 5.6 miles of Wet Area Repair (Table 2). Dry-Trail Upgrade can include actions such as filling ruts and holes, surface blading, or outslope maintenance. The Wet Area Repair will increase the strength and stability of the treadway to address persistent rutting and/or wet conditions. Slopes in the project area are mostly level to gently rolling, and generally range up to ten percent.

Sustainable trails can be created through a combination of good design, treadway placement in relation to slope and side-slope, the proper use of soil materials, and/or treadway hardening techniques that resist compaction, displacement and erosion. Appropriate trail designs and best management practices (BMPs) will be employed to ensure that the trail will sustain all the proposed uses, especially those segments that include slopes greater than six percent. The DNR's Trail Planning, Design, and Development Guidelines (2007) offers a variety of solutions and methods for building a sustainable trail across a variety of slopes, soil types, and erosion hazards.

Standard construction-related BMPs will be applied as necessary. Construction activity will occur under dry conditions, typically from May to October. No excavation outside of the trail corridor is proposed. Planning to minimize disturbed areas has been implemented and further refinements will be made on the ground prior to construction. The full length of the trail alignment traverses forestlands that will provide vegetative buffers.

Site specific conditions will be considered when determining which erosion control techniques to apply during construction. The rapid stabilization method will be employed to achieve the quickest stability of exposed areas. The method includes practices such as the timely placement of: silt fencing; straw bales; temporary or permanent seedings; and mulching, diversion of water from exposed surfaces through temporary downdrains, or other protective measures. Disturbed areas will be seeded with appropriate native species and mulched, and hay bale check dams will be used to prevent erosion until vegetation is reestablished.

Treadway designs that are implemented in erosion-prone areas to configure the treadway to resist erosion include: installing dips and crests or rolling sloped treadways along the existing treadway, and installing water bars. Use of erosion control blankets is also an option, especially on sloped-off trail bank areas near wetlands and streams, until re-vegetation is complete. Some of these erosion control methods have already been employed along segments of the trail. Construction activities near or at stream crossings have a higher risk of affecting surface waters. Precautions are necessary to achieve minimal erosion and sedimentation in these areas. Best management practices would be defined in the permitting process. Less erosive materials such as crushed rock would be applied to approaches if necessary.

Numerous small drainage channels and depressions that carry water during seasonal runoff periods and following major precipitation events intersect the project area (Figures 3.1 - 3.4). Culverts would be placed in areas subject to seepage or runoff. Without culverts, water tends to seep into the trail bed and reduce its strength, causing ponding and potential treadway rutting. Approximately 45 locations have been identified as potentially requiring installation of new, or modification of existing culverts to sustain motorized use of the trail. The actual number of culverts needed (new or replacements) will be confirmed through additional field visits.

Culvert placements in drainage areas will be done when the area is dry. Trail surveying activities conducted according to wetland sequencing requirements (avoidance, minimization, and mitigation) could identify the need for additional culvert placements.

Repair-related fill-type soil and gravel material will be sourced from existing borrow sites or gravel pits on state lands. Hardening materials must meet engineering standards specified for trail developments. One existing DNR gravel pit that may be utilized is approximately 2.4 acres in size. If new borrow sites are necessary, they will be less than one-half (1/2) acre in size and will be located to avoid sensitive resources (e.g., riparian zones; wetlands). Borrow sites will be designed to allow for escape of turtles, amphibians, and other wildlife that may enter them. Once borrow activity is complete, the site will be reseeded with native vegetative species and blocked by natural barriers to restrict access.

Most of the proposed mechanical actions would be implemented to control erosion and increase treadway stability. Although the construction will expose soil temporarily, the treadway will be more stable than at present and will resist erosion. With the proposed Master Plan amendment and implementation of required remediation- and permit-related measures, and ongoing monitoring and maintenance, the project should result in fewer adverse soil and water resource effects.

#### **17. Water quality: surface water runoff**

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

Trail construction and ATV and OHM use have the potential to generate sediment during runoff events. The treadway is more susceptible to runoff during construction when grading and excavation activities expose the ground surface. The project will not create new impervious surfaces. The existing trail surface is impervious, subject to erosion, and could contribute to sedimentation of nearby waterbodies. During routine use,

compaction will tend to deepen heavily traveled portions of the tread. Also, displacement (the sideways shearing force from friction and impact of wheels on the trail surface), will deepen the tread and raise the untraveled edges somewhat. Erosion could follow deepened treads with any grade and deepen them further. With all natural trail types, a certain level of compaction and displacement is expected.

With the implementation of trail hardening and other improvements, the DNR expects the quality of runoff may improve over current conditions. Trail improvements will include the removal of ruts and potholes and the installation of culverts in wet areas to improve drainage. These activities will prevent water from standing or flowing across the treadway, thus preventing trail use from damaging the treadway or causing sedimentation into nearby wetlands. The proposed project has a goal of developing a durable trail surface for sustaining the additional motorized uses. Techniques used for developing sustainable natural surface trails and minimizing erosion are presented in ‘Sustainable Natural Surfaced Trails, Section 6’ of the Trail Planning, Design, and Development Guidelines (DNR 2007). Trails are considered sustainable if the following conditions are met:

- Trail tread is stable and compacted, with a constant outsloped grade;
- Depression on a well-worn trail should average less than 3 inches in most soil types;
- Displacement of soils from the trail tread is minimal relative to the use and soil type (only limited berming on the outside of curves);
- Tread drains well with minimal to no signs of ongoing erosion, especially into water bodies of any kind
- Tread does not restrict site hydrology and impact surface- or ground-water quality
- Effects to surrounding ecological systems is limited to the trail tread and directly adjacent clearance zone, with no bypassing and cross-country travel occurring.

Construction activities will improve muddy sections of the trail, where water accumulates on the treadway. Grading and excavation will be limited in extent, dispersed along a narrow footprint and have a short duration.

The project work will be sequenced so that only small areas of the trail are under construction at any time. Water quality BMPs will be employed during development, including use of silt fence, hay bales, or other measures. Construction in wet areas will take place during dry periods to minimize the potential for soil erosion and runoff. The at-grade ford crossing of Keene Creek will be replaced with a bridge to eliminate vehicle contact with the stream channel. The Keene Creek crossing is not currently open to OHV use. Ox Creek does not have a usable crossing structure for OHVs.

A substantial portion of runoff generated from the trail surface will be captured by adjacent vegetation buffer areas. Construction area treatments will be enhanced in the vicinity of water resources. These BMPs will include work during dry periods, vegetative buffers, soil mulching, soil blankets, rapid establishment of vegetation, minimizing disturbed areas, and diversion of water from exposed surfaces through temporary downdrains. Possible additional measures used to trap sediments include: silt fences, straw bales, fiber logs, grade breaks, and compost or filter bags.

Trail segments with steeper slopes may also need additional or different techniques to control erosion, such as water-bars, drainage ditches, and rolling grades. These techniques help reduce the size of the drainages intersected by the trail, thus preventing excessive flows from accumulating along the trail. Trail sections on gentle slopes are expected to be more stable and require less treatment to control erosion and sedimentation.

Designating new uses of these four segments will allow the DNR to use dedicated OHV funding for maintenance and monitoring of the treadway conditions, which will be necessary once the construction is completed. If increases in trail wear are discovered during maintenance surveys, the DNR will assess which erosion control measures to use and implement remedial actions.

Construction-related disturbance of one acre or more requires a General Stormwater Permit for Construction Activities under the MPCA-administered National Pollutant Discharge Elimination System (NPDES) program.

This permit requires prevention of erosion through implementation of BMPs for erosion control. As required by the MPCA, the DNR's permit application materials will include typical engineering plans showing the BMP details, including an erosion control plan.

This project is focused on reducing the potential negative effects of existing and proposed new motorized uses on water quality through hardening of the treadway surface and other measures that promote a sustainable trail.

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

Runoff discharge is distributed along the entire length of the 23.3 mile corridor of the project area. The North Nemadji State Forest segment traverses the western edge of the Little Net River watershed, a subwatershed of the Net River and later, the South Fork of the Nemadji River. The Nemadji eventually drains into Wisconsin and subsequently into Lake Superior. All other segments of the proposed trail cross streams that lead to tributaries of the St. Croix River. The Middle Nemadji segment crosses through the upper watersheds of Willow Creek, Larsen's Creek, and the Lower Tamarack River. The Lower Nemadji segment of the proposed trail crosses through the Lower Tamarack River, Keene Creek and McDermott Creek watersheds. The St. Croix segment also traverses the Lower Tamarack River and McDermott Creek watersheds. Designation of the existing trail segments is not expected to have any measurable effect on the water quality of receiving waters of the Lake Superior tributaries or those of the St. Croix River. Any construction-related effects should be minor and temporary with application of appropriate water quality BMPs.

Lake St. Croix, the lower 25 miles of the St. Croix Basin between Stillwater, Minnesota and Prescott, Wisconsin, is listed as impaired for phosphorus, and the river as a whole is impaired for mercury, as are most waterbodies in the state. The project is not expected to cause any increases in phosphorus or mercury levels in the receiving waters.

**18. Water quality: wastewaters**

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

A permanent or pit-style toilet is not currently proposed, but it is possible that a self contained vault toilet will be needed at an existing designated parking location at Highway 173 in the St. Croix State Forest.

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

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

**19. Geologic hazards and soil conditions**

**a. Approximate depth (in feet) to ground water: Variable minimum: 0 average: see below**

**to bedrock (feet): 0-300 Minimum: unknown Average:**

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

Sinkholes, shallow limestone formations or karst conditions are absent from the project area. No other special geologic sites or hazards to ground water have been identified in the project area.

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

The site in Pine County is located on a ground moraine formed during the middle and late Wisconsin glacial periods. According to the Mille Lacs Uplands Subsection, Bedrock Geology description, the glacial drift generally ranges from 100 to 300 feet in depth over bedrock. Bedrock is locally exposed throughout the northern portion of the subsection, where depths are 100 feet or less.

The Munger Boundary Trail has been sited predominantly on fine sandy loam and peaty soils in the Nemadji State Forest and on very fine sandy loam, silty clay loam, and alluvial soils in the St. Croix State Forest. Soil types occurring along the trail include: Adolf Silty Clay Loam; Alluvial; Cloquet Fine Sandy Loam; Milaca Very Fine Sandy Loam; and Peat. These soils range from well-to-excessively drained (fine sandy loams) to poorly drained for the silty clay loam, alluvial, and peat soils. The potential for groundwater contamination is greatest with the fine sandy loams and least for the clayey and peaty soils. Slopes in the project area are mostly level to gently rolling but may range up to ten percent. The treadway has been hardened with imported materials (e.g., sand, gravel) over the history of the trail, especially in the peaty soil areas.

The potential for contamination is limited because wastes or chemicals will generally not be stored on site, except for temporary storage necessary for servicing construction and maintenance activities. The DNR does not expect the project to result in contamination. DNR staff has been trained in emergency spill remediation, should a leak or spill occur.

**20. Solid wastes, hazardous wastes, storage tanks**

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

No solid wastes or hazardous wastes will be generated and no such hazards are known in the project area.

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

Although the project does not generate toxic or hazardous materials itself, materials such as fuels, antifreeze, and hydraulic oils will be used in equipment used for construction, operations and maintenance activities. Release of hazardous materials via leaks or spills is expected to be minimal. In the event of a leak or spill during construction or maintenance activities, materials would be contained and cleaned up according to approved guidelines and standards.

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

Construction activity may require the use of temporary fuel tanks for equipment operation. Standard procedures will be followed for handling materials. Construction- and maintenance-related refueling would occur outside stream/wetland areas and away from adjacent sloping areas. The DNR equipment operators are trained in emergency spill remediation. No adverse environmental consequences are anticipated.

- 21. Traffic.** Parking spaces added: Approximately 12 to 15  
Existing spaces (if project involves expansion): Approximately 10  
Estimated total average daily traffic generated:

During construction, work crews would generate minor amounts of traffic. Daily traffic estimates are unknown, but expected to remain similar or slightly increase on weekends.

**Estimated maximum peak hour traffic generated and time of occurrence:** N/A

**Indicate source of trip generation rates used in the estimates:** N/A

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

If trail use warrants, an existing designated parking location at Highway 173 in the St. Croix State Forest may need to expand from its current capacity of approximately 4-5 vehicles with trailers, to accommodate 10-12 vehicles with trailers.

These parking areas along with additional forest road shoulder pull-off sites are expected to accommodate the parking needs of trail users. Pull-off sites may accommodate vehicles with trailers provided they do not block roads, trails or other public and private access routes. Other parking opportunities exist at various forest access points and along other connecting OHV and snowmobile trails in the area.

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

The project will create emissions while the treadway is being upgraded and during its operation (use, monitoring, and maintenance). Construction-related vehicle emissions will be minor and temporary in nature, arising from the use of heavy equipment for trail upgrading. Diesel fuel exhaust emissions include carbon monoxide, nitrogen oxides, reactive organic gases, sulfur dioxide, and suspended particulate matter, all of which are criteria pollutants that carry associated health risks. ATV/OHM and transport vehicles would generate air emissions that reduce air quality. These emissions, which already occur at previously designated segments of the Matthew Lourey State Trail, will increase due to the opening additional segments to OHV use. The operation of these vehicles can create pollutants that linger, especially at intersections or where vehicles congregate. If located near sensitive receptors, emission levels that exceed state and federal ambient air quality standards could result. Local climatic conditions will act to dissipate and dilute vehicle emissions. Deterioration of local or regional air quality is not expected from project implementation.

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

No stationary source air emissions would be created by the proposed project.

24. **Odors, noise and dust.** Will the project generate odors, noise, or dust during construction or during operation?  X  Yes   No

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

**Odors.** The operation of construction machinery and ATV/OHM vehicles generates exhausts that contain odors. Construction-related odors will be temporary in nature. Odors caused by ATV and OHM use would vary as a function of the number and types of vehicles active on the trail and weather conditions at the time of operation. Older ATV/OHM with two-stroke engines will create more odors/fumes than those with newer four-stroke engines. Exhaust-related odors will also be present during maintenance and rehabilitation activities. These odors will dissipate quickly under most circumstances and weather conditions.

**Noise.** Noise will be generated during both project-related construction and normal operation of the trail. Minnesota Pollution Control Agency (MPCA) provides decibel levels of a series of some common noise sources for comparative purposes (Table 9). Construction activities require the operation of small diesel and gasoline powered equipment. Operation of construction equipment would be limited to several weeks at any given location and would occur only during daylight hours. The operation of ATV/OHM vehicles will generate noise, which will vary in amplitude as a function of engine displacement and the presence of vehicular sound-control measures. The MPCA’s Daytime State Noise Standard of L50 = 60 dB(A) and L10 = 65 dB(A) will not be exceeded by operation of these vehicles.

**Table 9. Decibel Levels (dB A) of Some Common Noise Sources (Minnesota Pollution Control Agency, 1999).**

Noise Source	Sound Level in dB A
Jet Aircraft (at 100 meters)	130 dB A
Rock Concert	120 dB A
Car Horn / Snowblower	110 dB A
Joiner / Planer / Blow-Dryer	100 dB A
Chain Saw	90 dB A
Lawn Mower	85 dB A
Garbage Disposal / Vacuum	80 dB A
Alarm Clock / Office	70 dB A
Dishwasher / Conversation	60 dB A
Library	50 dB A
Bedroom / Leaves Rustling	40 dB A
Secluded Woods	30 dB A

Although State Noise Standards will not be violated, some forest users may characterize the ATV/OHM engine sound as “annoying,” especially as a function of low current ambient noise levels. While acknowledging this potential, the levels are not expected to constitute a nuisance as defined in *Minnesota Rules*, chapter 7030. State Noise Standards define “nuisance noise” as noise in residential areas that exceeds MPCA Daytime Standards of L50 = 60 dB(A) (level exceeded 50% of the time or 30 minutes/hour) and L10 = 65 dB(A) (level exceeded 10% of the time or 6 minutes/hour). Nighttime noise levels greater than L50 = 50 dB(A) or L10 = 55 dB(A) are not allowed in residential land use areas. The MPCA will enforce consistent violations of these standards.

When operated on public lands, OHMs must be equipped with a silencer or other device that limits sound emissions to the standards set in state statutes. Sound emissions of OHMs not in a competition must not

exceed 96db(A), if manufactured on or after January 1, 1986, or 99db(A) if manufactured prior to January 1, 1986, when measured from a distance of 20-inches and using testing procedures established by the Society of Automotive Engineers under Standard J-1287 (*Minnesota Statutes*, section 84.789, subdivision 3).

Noise is present along the corridor as a function of existing trail use and forest management. There may be a small increase in noise frequency over current conditions if use levels increase over time. However, the intensity of ATV/OHM noise is expected to decrease (in the aggregate) over time as older, noisier vehicles are replaced with newer, quieter ones. Noise propagation is partially mitigated by the presence of leaves on the trees and understory vegetation. Heavy leaf cover during the growing season will reduce the distance of noise transmission but during the late fall (October and November) and winter periods, deciduous foliage is absent and unavailable to muffle noise transmission. Local topographic changes and distance to receptors are other mitigating factors. Very few residences and seasonal dwellings are located nearby or within one mile of the trail. These dwellings are located along township roads within state forest boundaries, but no dwellings are located on state- or county-forest lands.

**Dust.** Increased motorized use would generate additional fugitive dust along the trail corridor. Fugitive dust is generated under dry conditions from soil abrasion on natural-surfaced or graveled treadways. It can be a nuisance to riders and other forest users. Airborne dust is expected to be localized and generally restricted to a narrow zone along the trail.

**25. Nearby resources. Are any of the following resources on or in proximity to the site?**

<b>Archaeological, historical, or architectural resources?</b>	_____	Yes	_____	X	No
<b>Prime or unique farmlands or land within an agricultural preserve?</b>	_____	Yes	_____	X	No
<b>Designated parks, recreation areas, or trails?</b>	_____	X	Yes	_____	No
<b>Scenic views and vistas?</b>	_____	Yes	_____	X	No
<b>Other unique resources?</b>	_____	X	Yes	_____	No

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

The project’s potential for affecting archaeological, historical, or architectural resources was reviewed by the State Historic Preservation Office of Minnesota. No resources were identified (Attachment B).

**Designated Parks, Recreation Areas or Trails.** Both the Nemadji and St. Croix State Forests include a network of State Forest Roads (open to highway licensed vehicles and OHVs), county and township roads, and permitted GIA snowmobile trails. Both forests have a system of forest roads used by DNR and other land managers, the forest products industry, and the general public. Forest access is also provided by forest trails and access routes, especially in the St. Croix State Forest (e.g., hiking; horse; dogsled). Access routes, created principally for logging access, are also available for non-motorized public use.

The Nemadji State Forest includes 60 miles of designated forest roads, including 29 miles of minimum maintenance roads open year-round to facilitate access to forest stands. Recreation facilities within the Nemadji State Forest include the Gafvert Campground and Day Use Area, state forest trails, and portions of the Matthew Lourey State Trail and Gandy Dancer Trail. The forest also has 143 miles of signed multiuse trails, many of which are groomed for snowmobile use, and includes four shelters located along the trail system. Upland sections of these trails may be used for hiking, berry picking and horseback riding in the summer. This network provides a range of access options for both non-motorized and motorized recreation activities. This project is expected to enhance opportunities in the state forest with little negative impact to the operation or management of roads or other trails in the forest (Table 3).

The Gafvert Campground and Day Use Area is located on Pickerel Lake approximately 0.5 miles from a section of the Matthew Lourey State Trail that is already open to ATV/OHM use and over two miles from the



proposed project area. It serves as a trailhead for the OHV trail system within Nemadji State Forest. The campground has 18 campsites, each with a fire ring and picnic table, and has potable water and outdoor toilets. It also serves as the trailhead for the National Christmas Tree Trail, a three-mile hiking and cross-country ski trail that begins and ends at the campground.

Previous motorized trail development in the Nemadji State Forest includes the Gandy Dancer Trail, the Continental Divide, and Yellow Birch unit trails, and other Grant-in-Aid (GIA) ATV/OHM trails. The Gandy Dancer Trail is a multipurpose, multi-jurisdictional trail built on an abandoned railroad grade that passes north-south through the eastern portion of the forest. This trail also continues into St. Croix State Forest as well as into Polk, Burnett, and Douglas Counties in Wisconsin. Primary uses of this trail include snowmobiling and summer and winter season OHV riding.

Klondike Trail Grouse Management Unit is located in the northern half of Nemadji State Forest and includes about 3,500 acres. Although designated in 2007, this area has a long management history with initial planning of the management unit in 1979. In 1987, the DNR funded the construction of an access road (Grouse Road) and the shearing of aspen (approximately 900 acres) to create forest openings within the management unit. This area will be managed to provide high quality ruffed grouse habitat and recreational experiences for grouse hunters and other area users. Forest habitat management has been initiated, with recent timber harvests implemented in 2006, 2009, and 2010; more harvests are planned. Maintenance practices being implemented on the management unit include seeding clover on disturbed areas along some trails and on log landing and mowing overgrown ground vegetation. Important components of the ruffed grouse management unit plan include a focus on habitat management along with the maintenance and/or development of a main access road (Grouse Road), parking areas and hunter walking trails. About 3.5 miles of the alignment of the Matthew Lourey State Trail in the project area is located within the management unit (see Figures 2.2, 3.2 and 4).

The St. Croix State Forest includes designated forest roads that are open year-round to facilitate access to forest areas. Recreational facilities in the forest include the Boulder Campground and Day Use Area, located on Rock Lake; and the Tamarack Horse Camp, situated about two miles northeast of Boulder Campground. Boulder Campground has 19 campsites, each with a fire ring and picnic table. Potable water, outdoor toilets, and parking facilities are available at the site. The Tamarack Horse Camp contains facilities that include three loops of campsites with 55 campsites, each with a fire ring and picnic table. Additional facilities include a well (water), outdoor toilets, picnic shelter, and a day-use parking lot. A 25-mile hiking and horseback riding trail can be accessed from the Tamarack Horse Camp. OHV use is not allowed on these trails. Both camps are over one mile from the project area. A private campground, St. Croix Haven, is located off Highway 173, adjacent the St. Croix State Forest. The seasonal campground and visitor facilities are open from May 1 through the end of October.

Non-motorized trail activity near the project area may experience minor effects, such as noise resulting from project operations. Additional motorized use resulting from the proposed designation for the St. Croix Segment will be approximately two miles from the hiking trails, three to four miles from the horseback trails, but about 1000 feet from the trailhead of a 17-mile dog sled trail that is accessible from County Road 25.

For the St. Croix State Forest, motorized trails (open to OHV riding and/or snowmobiling) include: Gandy Dancer State Trail, multiple St. Croix ATV/OHM Unit Trails, and portions of the Matthew Lourey State Trail. This network provides a range of access options within the state forest. The proposed project is expected to have little effect on the operation or management of the existing complement of forest roads and trails. About 25 miles of snowmobile trails are maintained and groomed for winter use on the state forest. About 45 miles of trail and four parking areas are available to ATV and OHM riders within the forest (Table 3).

Other unique resources near the project area are the St. Croix State Park and St. Croix River. St. Croix State Park adjoins the southern boundary of St. Croix State Forest. The Matthew Lourey State Trail continues

through the state park and into the Chengwatana State Forest south of the park boundary. St. Croix State Park consists of over 34,000 acres of forests, meadows, marshes and streams. The park was established in 1943 after being developed by the National Park Service as a recreation demonstration area. Today, the park has over 100 miles of multi-use trails, three group centers and over 200 semi-modern campsites. The park is open year-round with annual visitor counts exceeding 185,000. Within the park boundary, the trail is open for non-motorized uses and snowmobiling. The nearest park boundary is about five miles south of the southern terminus of the proposed project.

The St. Croix River is a state designated “Canoe and Boating River” or water trail, and a state and federally designated “Wild and Scenic River.” The Upper St. Croix National Scenic Riverway, managed by the National Park Service, includes the upper 200 miles of river extending from its headwaters near Gordon, Wisconsin, and along the Minnesota-Wisconsin border to Taylors Falls, Minnesota / St. Croix Falls, Wisconsin. The Lower St. Croix National Scenic Riverway, which is also state-designated, extends from Taylors Falls to the confluence with the Mississippi River at Point Douglas, Minnesota / Prescott, Wisconsin, with joint management by the National Park Service, and the Minnesota and Wisconsin Departments of Natural Resources. The Upper riverway is one of eight original rivers designated by Congress when the National Wild and Scenic Rivers Program was established in 1968 and includes 181 miles of “scenic” classification and 19 miles of “recreational” classification under the federal program. The Lower riverway is classified “recreational.” The southern terminus of the project area, located near Tamarack Road, is over three miles from the river.

26. **Visual impacts. Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas, and large visible plumes from cooling towers or exhaust stacks?**     Yes     No

If yes, explain.

27. **Compatibility with plans and land use regulations. Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional, state, or federal agency?**     Yes     No.

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

The management plan for the Matthew Lourey State Trail (originally known as the Minnesota Wisconsin Boundary Trail and later, the Willard Munger Boundary Trail) provides for OHV use on portions of the trail, but not its entire length. The DNR proposes to allow OHV use on additional trail segments, and to amend the management plan accordingly after environmental review is complete.

Management of the Matthew Lourey State Trail is subject to the “Master Plan for the Minnesota-Wisconsin Boundary Trail and West Addition;” (DNR 1982), as amended by the Gandy Dancer Trail Plan in 1994. The Gandy Dancer Trail Master Plan, completed in 1994, amended the Minnesota Wisconsin Boundary Trail Plan to provide for the use of ATVs and OHMs on portions of the trail located within Nemadji and St. Croix State Forests. The master plan established the trail’s purpose, corridor, benefited uses, and maintenance and ongoing management. The Master Plan states, “the primary purposes of this plan are to fulfill the requirements of the Outdoor Recreation Act, and to establish an effective, orderly program for the Minnesota-Wisconsin Boundary Trail and West Addition. This program will ensure that the scenic, historic, scientific and recreational qualities of the trail are properly managed and maintained for the use and enjoyment of the citizens of Minnesota;”

The 2000 Draft System Plan for Pine and Southern Carlton Counties, as referenced under Item 4, was not finalized or adopted and is not in effect in the project area. The system planning process was preempted by the 2003 legislative mandate (Laws 2003, chapter 128, article 1, sections 167 to 168) to inventory forest routes and reclassify state forests as limited or closed relative to OHV use. The Nemadji and St. Croix state forests were classified “limited” as part of this process. The proposed designation of the Matthew Lourey State Trail is

consistent with the “limited” classification, which restricts OHV use to designated trails and to forest and township roads. The project area is not subject to local land use management plans.

**28. Impact on infrastructure and public services. Will new or expanded utilities, roads, other infrastructure, or public services be required to serve the project? \_\_\_\_\_ Yes  X  No.**

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

**29. Cumulative potential effects. Minnesota Rule part 4410.1700, subpart 7, item B requires that the RGU consider the “cumulative potential effects of related or anticipated future projects” when determining the need for an environmental impact statement.**

**Identify any past, present, or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative potential effects. (Such future projects would be those that are actually planned or for which a basis of expectation has been laid.)**

**Describe the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects (*or discuss each cumulative potential effect under appropriate item(s) elsewhere on this form*).**

The project is part of a system of recreational trails that are identified on the maps provided and have been summarized in Item No. 9 of this EAW. A network of existing public roads, designated forest roads and trails, and other minor forest routes provide public access to the Nemadji and St. Croix State Forests. Motorized and non-motorized recreational uses are permitted as follows:

- OHVs may use all System and Minimum Maintenance roads in the two forests, and may use any trails designated for the specific type of OHV.
- Non-motorized users including horseback riders and hikers may travel anywhere in the forest unless the area or trail is specifically signed to prohibit their use.
- Snowmobiles may travel anywhere in the forest unless the area or trail is signed to prohibit their use.

This network of roads and trails has developed over many years, with many smaller, more remote routes developed originally to access timber stands for harvest or other management activities. As ATV technology improved into the 1990s, additional trails were created that were not associated with timber management. Although these newer routes are associated principally with big game hunting and trapping activities, some routes were created to provide more recreation-type access for a variety of other purposes. By 2006, all existing forest routes in the project area were inventoried and either closed to OHV use or designated as trails, regardless of their original purpose. These routes may still exist in the forest, but they may not be used by OHVs except during the limited periods, pursuant to *Minnesota Statutes*, section 84.926.

Collectively, the Nemadji and St. Croix State Forests have the following approximate mileage of forest roads (44 miles), minimum maintenance roads (34 miles), ATV/OHM trails (170 miles), OHM only trails (68 miles) and horseback/bike trails (57 miles) (Table 3). The proposed project would increase the mileage of ATV/OHM trail designations by approximately 14 percent over the two state forests.

Environmental effects related to the proposed project can be summarized into a general list that includes an increase in the potential for: the spread of invasive species; erosion and sedimentation; recreational trail activities; disturbances to wildlife, including SGCN; disturbances to endangered, threatened, and special concern species; and the generation of noise, dust, or fumes generated during construction and operation. With the trail passing near active forest management areas, the environmental effects near the trail corridor could be cumulative.

Cumulative potential effects are identified and defined below within the applicable geographic and temporal context of the proposed project. The landscape through which the trail is proposed is largely managed for the production of wood products and therefore is exposed to disturbances associated with road construction,

transportation, planting, felling, skidding, hauling timber, and other operations associated with the forestry industry. State forest timber and recreation management is an ongoing activity. Whereas motorized public access to the forest is subject to the forest classification and designation process, all routes in the forest are open for ongoing natural resource management activities by DNR, including, but not limited to: non-motorized forest recreation; snowmobiling; timber harvest; non-metallic mineral mining; wildlife and fisheries management; and natural communities and rare species management. Timber harvest in particular can result in creation of new minimum maintenance roads and timber skid trails. However, any of these activities could require the opening of new routes in the future or closure of existing routes, some of which may or may not be subject to public use. Some of the effects of forestry management could be cumulative with the effects described for the proposed project in this EAW.

Past and present timber management prescriptions carried out during the 2005-2011 fiscal year period and proposed during the 2012-2014 fiscal year period, indicates that several thousand acres of even-age regeneration cuts, uneven-age regeneration cuts, and commercial and selective thinning harvests could occur within a one-mile radius of the proposed project. Stands prescribed for thinning treatments are normally entered every 15 to 20 years and natural regeneration stands are entered every 50 to 60 years. A majority (approximately 75 percent) of the forest harvest activity is scheduled during winter months to avoid soil and wetland disturbances. Growing season harvests are allowed on stands located near the Park and Net Lake Forest Roads. According to harvest prescriptions, it is estimated that over a two-year period, the average acreage of forest management activity ranges from five- to seven percent of the buffer zone. In this context, the additional disturbances caused by the construction and use of the Matthew Lourey State Trail would increase the extent and degree of effects associated with forestry operations. Forestry operations can cause compaction, rutting, habitat fragmentation, habitat loss, disturbances to wetlands, exposure to invasive species, etc. Forestry operations would be active in the field for longer periods during the year and would involve larger equipment that consumes larger amounts of fuel. To reduce the need for creating additional access corridors to stands slated for entry, foresters will be using segments of the proposed trail in the project area.

As defined by the Sustainable Forest Resources Act (SFRA) (*Minnesota Statutes*, section 89A.02), it is the policy of the state to pursue the sustainable management, use, and protection of the state's forest resources. The Minnesota Forest Resource Council establishes the best management practices for timber harvesting and forest management (TH/FM) on all forested lands in Minnesota. Implementation monitoring of these TH/FM guidelines has been conducted on public and private forestlands since 2000. The SFRA requires the DNR to develop and administer a program, overseen and directed by the Minnesota Forest Resources Council (MFRC), to monitor implementation of the TH/FM guidelines on public and private forestlands.

The Forest Resource Management Plan for East Central Landscape (FRMP), as published by the MFRC (March 2005), indicates that, with population growth in the region and proximity to the Twin Cities Metro Area, there is increasing demand for recreation in the 10-county East Central landscape region, which includes the Nemadji and St. Croix State Forests. The FRMP has defined goals to promote forestry based recreation tourism in East Central forests, which are attractive to a broad array of recreational and tourism opportunities. There are changing recreation demands on the regional public and private forestlands, with increasing demands on public forestlands by many groups, including OHV users. The FRMP's desired future condition for the management of the regional forests is to manage under multiple use principles to produce a full range of forest products in a sustainable manner, which includes appropriate mitigation for environmental effect of forest management including the harvesting of timber. The Nemadji and St. Croix State Forest landscape is attractive to residents, tourists and outdoor enthusiasts for recreational activities. A broad range of recreational opportunities in the forests will be available to the public consistent with the respect for the protection of the natural resource base.

According to officials contacted in Carlton and Pine Counties, there are no other known or proposed trail projects or other development projects in the vicinity of the proposed project. Some road improvements would

occur along a two-mile section of the Matthew Lourey State Trail between the Nemadji Lower and the St. Croix State Forest segments (Table 1). The work would mainly involve filling potholes and grading the roadbed to improve drainage. In terms of trail development, no future GIA trail is presently planned, nor is a basis of expectation laid for the development of additional motorized and non-motorized routes in the project area. Potential cumulative effects are addressed through the forest's limited classification, which restricts ATVs and OHMs to operating on forest roads that are not posted closed and trails designated and posted open to those uses. Additional incremental transport-related effects incurred while travelling on state and county highways to and from trail entry points are considered quite small compared to regional transportation needs.

The project area has received varying degrees of ATV and OHM use in the past that is inconsistent with the current Master Plan. The Matthew Lourey State Trail is considered a core travel corridor. General recreational riding is expected to be more concentrated (thus less dispersed) than current conditions; this may or may not be the case for more utilitarian-type activities such as hunting, trapping, and berry picking. Because project implementation completes the access network for these forests, increases in destination-type visitation for motorized recreation may occur. The Nemadji and St. Croix State Forests is currently considered a popular destination for OHV riders. The proposed project will increase ATV/OHM mileage by 14 percent and may increase overall use levels to some extent.

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

No other potential environmental impacts have been identified; all have been addressed in Items 1 to 28.

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

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

No additional issues have been identified that require further investigation before this project can begin.

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

I hereby certify that:

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

Signature



Date April 29, 2011

Title EAW Project Manager for the Minnesota Department of Natural Resources

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