

3.16 AIR QUALITY

3.16.1 Introduction

The Travel Management Project (TMP) Decision Notice signed on December 16, 2008 was appealed under 36 CFR 215 appeal regulations. The Appeal Deciding Officer, Regional Forester Kent Connaughton, stated in the Appeal Deciding Officer Letter that:

I reverse Forest Supervisor James W. Sanders' DN/FONSI of December 16, 2008, on the narrow issue of air quality effects to the BWCAW. I found no violation in law, regulation, or policy related to any of the other issues.

This Supplement to the Environmental Assessment (EA) for the Travel Management Project addresses this reversal by disclosing air quality effects to the BWCAW. In addition, the Supplement includes sections on potential for effects from illegal use and effects to wildlife other than threatened and endangered species in order to further address public issues and disclose effects of the proposed action and alternatives.

The purpose and need, alternatives, effects disclosure and other information in the December 2008 Travel Management Project Environmental Assessment apply to this Supplement. The only modification is that Alternative 2 Modified includes one additional change: a portion of the Lima Grade (Forest Road (FR) 152) would be closed to Off Highway Vehicles (OHV) use. This additional modification provides still allows for a loop riding experience which includes other portions of the Lima Grade open to OHV use (see section 3.18.9 for a map and further information).

3.16.2 Summary

Under any of the alternatives the size of effects to visibility in the Boundary Waters Canoe Area Wilderness (BWCAW) would be a fraction of 0.005% of total effects and thus would be very minor. The difference between alternatives would be very small. There would be very little effect to wilderness character from effects to air quality under any of the alternatives.

3.16.3 Analysis Methods

It is important to understand the regulatory framework for Forest Service responsibilities for managing air quality in the BWCAW. The Wilderness Act requires that the Forest Service preserve wilderness character. The analysis in this Supplement will inform the public and the Deciding Official on the effects to wilderness character caused by effects to air quality in the BWCAW.

In addition, the BWCAW is a Class I Airshed. This classification has relevance for a number of Clean Air Act programs. The main programs are:

- Prevention of Significant Deterioration (PSD) permitting program for new industrial sources of air emissions including:
 - Class I increment analysis
 - Air Quality Related Values (AQRV) analysis
- Visibility Protection Program

Under the PSD program AQRVs are identified for every Class I area. They are important values of the Class I area that poor air quality can degrade. For the BWCAW the key AQRVs are visibility,

nitrogen and sulfur deposition as they relate to acidification, species shifts, and mercury deposition. The PSD program and related components *only apply to industrial point sources*. The Travel Management Project includes actions designating motorized use on Forest roads and trails and does not include any action building, modifying, or otherwise affecting industrial point sources (see the TMP EA Chapter 1, Purpose and Need along with Proposed Action).

The Visibility Protection Program has two parts. One part is within the PSD program and it assesses the impacts of the air emissions from new sources on visibility in the form of either a distinct plume, or well-mixed haze. Again the PSD program only applies to industrial point sources. Accordingly, the PSD program and its related components will not be discussed further¹.

The second part of the Visibility Protection Program is the requirement for each state to submit a regional haze State Implementation Plan (SIP) to the Environmental Protection Agency (EPA). This SIP sets goals and describes how visibility will be improved at Class I areas in its state and also how emissions from man made sources in its state impact Class I areas in other states². The states determine which sources impact visibility and which should be controlled. All emission sources are included in the analyses (natural and anthropogenic) and any human-caused source is potentially subject to controls.

The Regional Haze Rule directs states to improve the 20% worst visibility days in the Class I areas. Appendix 3.1, Figure 1 of the draft SIP and the website (<http://vista.cira.colostate.edu/views/>) shows that the main contributors to visibility impairment at the BWCAW for the 20% worst visibility days (the pie chart on the right) on an annual basis are: sulfate (“ammso4” from SO₂ emissions) ~ 40%, nitrate (“ammno3” from NO_x emissions) ~30%, and organic carbon (“omc” attributed primarily to natural emissions from trees and wildfires, see page 12) ~20%, and dust (PM₁₀ emissions or coarse matter, “cm”) ~4%. OHVs emit air pollutants that can form sulfate, nitrate and dust emissions and this analysis will display the effects of OHV use on visibility from these pollutants on routes designated in the Travel Management Project.

¹ The Superior National Forest does address potential effects from industrial point sources to the Class I Airshed through an ongoing and active air quality management program. For further discussion see the 2007 Monitoring and Evaluation Report. Management of industrial point sources is beyond the scope of the Travel Management Project.

² It is noted that the Forest has operated a visibility monitor 20 miles east of Ely since 1992. This monitor provided baseline data for the Minnesota regional haze SIP and continues to monitor progress as the plan is implemented.

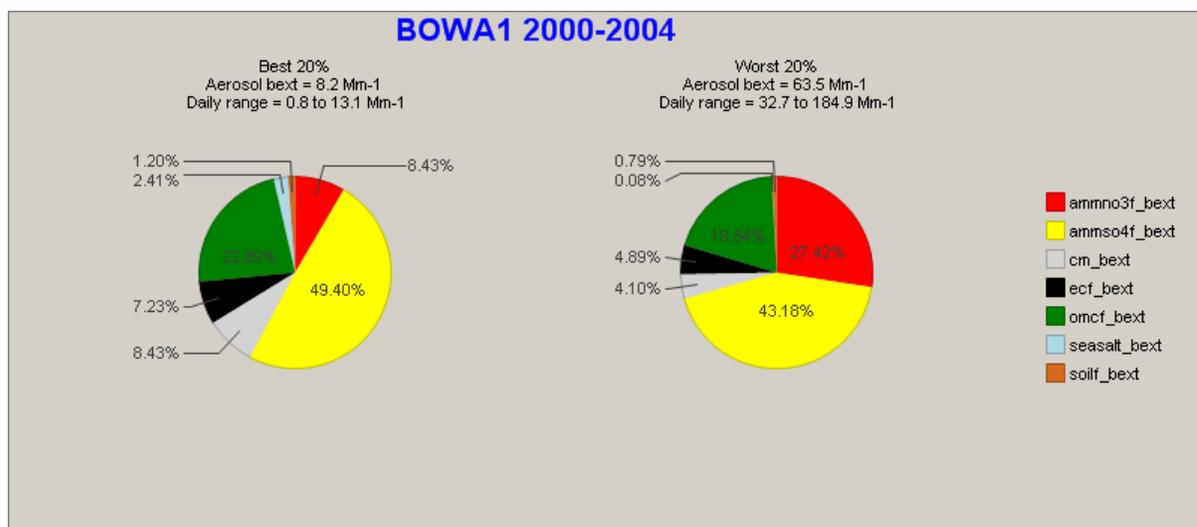


Figure 1 Draft SIP.

3.16.4 Analysis Area

The analysis area is the Airshed of the BWCAW (the airspace above the BWCAW). This analysis area was selected because it is the area designated as a Class I Airshed where the Forest Service has the management responsibilities described above. Past, present and reasonably foreseeable OHV, snowmobile and resource management equipment use in the four Northeastern Counties of Minnesota (St. Louis, Cook, Lake and Koochiching) use will be considered for cumulative effects to the BWCAW airshed since these parameters are of relevance to the proposed action and location of the Travel Management Project.

The available data used is from 2000-2005. This data can be used to assess impacts over a long analysis timeframe (from 2000 to 2035) because as will be shown the relative contribution of the emissions from the project to the total impacts from all sources are so small.

3.16.5 Affected Environment

The BWCAW is a Class I Airshed and wilderness area that is enjoyed by recreationalists and contains a variety of ecosystems and plant and animal communities. As discussed in the 2007 Superior NF Monitoring Report, air quality on the Superior National Forest and the BWCAW is high except for the areas of mercury deposition and visibility. These problems are caused by a variety of sources across the state and region, including: coal fired power plants, industrial boilers and motor vehicles (see Table 7.1 from the Minnesota regional haze plan below). Monitoring has shown that the Superior NF management activity that has been identified as a potential concern is prescribed burning (2007 Monitoring Report p. 13), while other management activities are of a nature and magnitude that they have not indicated concerns for air quality.

Environmental Consequences

3.16.6 Direct, Indirect and Cumulative Effects

The State of Minnesota has developed a draft SIP under the federal regional haze rule. As discussed in the Analysis Methods section, the draft SIP contains key data that illustrates the sources that affect visibility in the BWCAW and their location. Figure 8.5 of the draft SIP shows that for the top contributing pollutants (sulfate and nitrate) Minnesota contributes 28% of the visibility impairment while other nearby states and farther distant regions contribute the balance.

Figure 8.5: Nitrate, Sulfate, Ammonium Contributions to Extinction (Mm^{-1}) in BWCAW by Region for W20% Days

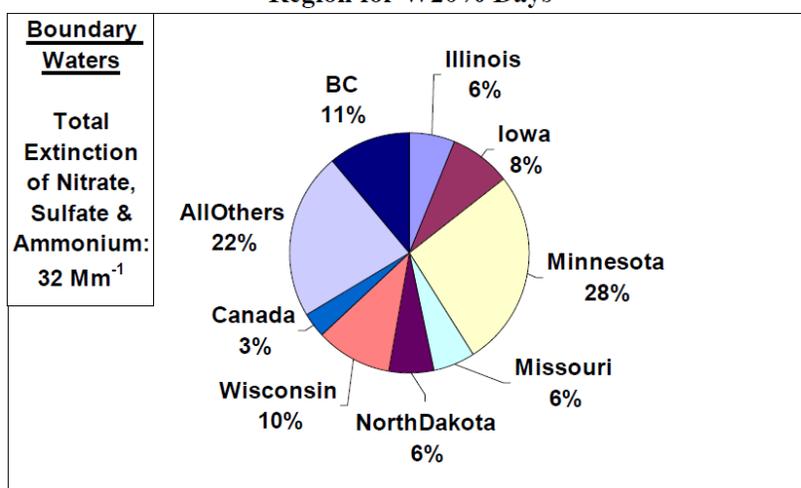


Table 7.1 of the draft SIP shows that Non-Road Mobile sources statewide are 20% (103,000 tons), 6% (9070 tons), 1% (9670 tons) of the total statewide inventory for NO_x , SO_2 , and PM_{10} respectively.

Table 7.1: Minnesota 2002 Baseline Emissions Inventory Summary (tpy)

	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$	NH_3
Point Sources	29,465	153,363	130,519	31,473	12,535	1,273
Area Sources	161,358	57,013	17,455	734,109	145,248	172,225
Mobile Sources						
On-Road	90,972	171,627	3,010	3,801	2,752	5,362
Non-Road	84,278	103,084	9,071	9,671	8,851	97
TOTAL	366,073	485,087	160,055	779,054	169,386	178,957

Information was taken from the latest emission inventory prepared by Minnesota Pollution Control Agency (MPCA) which was for 2005 (Wu, 2009) to estimate the contribution of the sources of concern to the total for the emission 'Non-Road Mobile' category (i.e. OHVs, snowmobiles, logging equipment, etc). The information was prepared by the MPCA on a county basis. For the counties of Cook, Koochiching, Lake, and Saint Louis emissions (tons per year) of NO_x , SO_2 , and PM_{10} from the sources described above were calculated to be:

	NO _x	SO ₂	PM ₁₀
Recreational Equipment ³	156	24	16
Logging Equipment ⁴	83	3	112
Total (tons per year)	239	27	128
Percentage of total statewide Non-Road Mobile (both)	0.2%	0.3%	1.3%

Table SUP-1. Emissions in Cook, Koochiching, Lake and Saint Louis Counties

All this information can be put together to draw some conclusions. Sulfate is the dominant pollutant impairing visibility at the BWCAW (40%), yet Minnesota contributes only 28%, and statewide Non-Road Mobile sources are 6% of the statewide emissions inventory, so statewide Non-Road Mobile sources contribute roughly $(0.4 \times 0.28 \times 0.06)$ 0.7% of the sulfate to the BWCAW. The Logging and Recreational Equipment categories in the Northeastern Minnesota counties contribute 0.3% of the statewide Non-Road Mobile total so their contribution to sulfate visibility impairment is (0.007×0.003) 0.002%.

For nitrate, it is responsible for 30% of the impairment, again Minnesota contributes only 28%, and statewide Non-Road Mobile is 20% of the statewide emissions inventory, so statewide Non-Road Mobile sources contribute roughly 1.7% of the nitrate. The Logging and Recreational Equipment categories in the Northeastern Minnesota counties contribute 0.2% of the statewide Non-Road Mobile total so their contribution to nitrate visibility impairment is 0.003%.

Dust is responsible for 4% of the impairment, again Minnesota contributes only 28%, and statewide Non-Road Mobile is 1% of the statewide emissions inventory, so statewide Non-Road Mobile sources contribute roughly 0.01% of the dust. The Logging and Recreational Equipment categories in the Northeastern Minnesota counties contribute 1.3% of the statewide Non-Road Mobile total so their contribution to particulate visibility impairment is 0.0001%.

Putting this all together, *Logging and Recreational Equipment in the four Northeastern Minnesota counties contribute $(0.002 + 0.003 + 0.0001)$ roughly 0.005% of the current visibility impairment in the BWCAW.*

The 0.005% figure displays direct, indirect and cumulative effects since it encompasses all resource management and recreational equipment operation in the four Northeastern Minnesota counties, including the cumulative actions displayed in Appendix B to the EA and projects that have become reasonably foreseeable since the Decision Notice of the Travel Management Project on December 18, 2008 (including the Forest-wide Minerals Exploration Project, the Birch Lake Plantation Thinning Project and the Hoyt Lakes to Babbitt Project).

³ This includes OHVs and snowmobiles.

⁴ This includes equipment used in logging such as fellerbunchers, skidders and trucks.

Note that the 0.005% figure includes emissions from snowmobiles and resource management equipment. These are not affected by the action alternatives in the Travel Management Project. Thus, the direct and indirect effects to visibility in the BWCAW from OHV use on routes designated by the Travel Management Project are substantially smaller than 0.005%.

The above analysis describes the very minor context of OHV emissions in the four northeastern Minnesota counties for visibility impairment in the BWCAW. In further examining the potential effects from the Travel Management Project, Table SUP-2 displays the mileage of roads and trails open to OHVs and passenger vehicles under each alternative. There are less miles open under any of the action alternatives than the no action alternative. However, the difference is minor and this change would result in very little difference in overall passenger vehicle usage in northeastern Minnesota or emissions from passenger vehicles in the Superior National Forest under any of the alternatives (see project file for further information).

<i>Access effects indicator - Road mileage open to motorized vehicles providing forest access</i>				
	Alt. 1 No Action	Alt. 2 Modified Proposed Action	Alt. 3	Alt. 4
Total road miles open to passenger vehicles and OHVs including ATV/OHM*	2328	2178	2243	2128
Road and trail mileage available for ATV/OHM	1573	1603	1781	1473
Road mileage available for OHV	1138	1075	1192	993
*Total road miles open includes OML2-5 roads open to all vehicles, OML1 roads open to ATV/OHM, open unclassified roads and ATV/OHM trails.				

Table SUP-2.

For OHVs, the Travel Management Project creates loops and connections to improve the riding experience. Table SUP-3 shows that the action alternatives increase loop riding opportunities above the no action alternative, with Alternative 3 providing the most loops, followed by Alternative 2 Modified, Alternative 4 and Alternative 1.

<i>Motorized recreation effects indicator - Miles of Loop Riding Opportunities</i>				
	Alt. 1 No Action	Alt. 2 Modified Proposed Action	Alt. 3	Alt. 4
Loops open to ATV/OHMs	69	371	397	336
Loops open to all OHVs	52	337	352	311
Loop miles on State Road	21	28	28	28

Table SUP-3.

The action alternatives may result in a change in the number of OHV users on Superior National Forest roads and trails as some users may be drawn to the loop riding opportunities created by the action alternatives, while other users may prefer to ride in areas outside the Superior National Forest if an action alternative is implemented (see project file for further information). However, the visibility in the BWCAW would be affected (to a very minor degree as discussed above) whether OHV users are riding on national forest system roads and trails or on other ownerships. OHV use is projected to

rise in Minnesota (Minnesota Department of Natural Resources 2005 OHV Study, p. 33), and use could switch to a different location if opportunities are not available on the Superior National Forest. Conversely, if there are greater opportunities on the Superior National Forest then use might switch from areas outside the Forest. It is anticipated that there would be very little if any difference in OHV use levels in northeastern Minnesota between any of the alternatives and therefore little if any difference in effects to visibility in the BWCAW between alternatives. In any case, the level of effect of any of the alternatives would be very small (much less than 0.005% of the visibility degradation for the reasons discussed above).

Effects to Wilderness Character

Given the very small effect of OHV and motor vehicle use on routes designated under any of the alternatives on wilderness air quality, there would be very little effect to wilderness character from effects to air quality in the BWCAW under any of the alternatives.

3.16.8 Conclusion

The size of effects to air quality in the BWCAW would be a fraction of 0.005% of effects under any of the alternatives and thus would be very minor. The difference between alternatives would also be very small. There would be very little effect to wilderness character from effects to air quality under any of the alternatives.

3.17 WILDLIFE-GENERAL

3.17.1 Summary

The consolidation and reduction in mileage of roads on the Forest would reduce effects to wildlife under the action alternatives. The addition of OHV use to roads under the action alternatives would create minor effects since the increase is not much greater than the no action alternative, the additional use is on existing (not new) roads and motorized use already exists on most of these roads. Alternative 4 would reduce effects to wildlife below the existing condition (Alternative 1) to the greatest extent, followed by Alternative 2 Modified. Alternative 3 would increase effects to wildlife above Alternative 1.

3.17.2 Introduction

The Travel Management Project Environmental Assessment (EA) released in December 2008 disclosed effects to Threatened, Endangered and Sensitive (TES) species (see Section 3.11 of the December 2008 EA). This section of the Supplement to the EA contains additional disclosure of effects to wildlife other than TES species.

3.17.3 Analysis Methods

The Forest Plan Final Environmental Impact Statement (FEIS) contains disclosure of effects to wildlife from motorized recreation use (see Forest Plan FEIS Section 3.3.8). The Travel Management Project EA tiers to the Forest Plan FEIS and that discussion will not be repeated herein. This analysis is still current since the TMP alternatives propose similar amounts of overall motorized use as analyzed for the different alternatives in the Forest Plan FEIS. It includes discussions on public access on roads, motorized summer (ATV) trails, motorized winter (snowmobile) trails, cross country ATV, snowmobile use and water access.

The wildlife categories discussed in the Forest Plan FEIS include birds, amphibians and reptiles, small mammals, ungulates, and carnivores. It summarizes broad impacts on wildlife from general recreation use, including OHVs. Potential wildlife impacts from human activities and disturbance can include: physical alteration of habitat; removal of vegetation or replacement of beneficial native species by disturbance-tolerant non-native species and noxious weeds; disturbance such as increased noise and emissions and other disturbance from the sight and sound of people.

Other impacts to wildlife could come from possible increases in non-native invasive species (NNIS). Please see the NNIS section of the December 2008 EA of the Travel Management Project for the discussion on this.

In addition to the information in the Forest Plan FEIS, the effects to wildlife species other than TES will be analyzed using the following indicators:

Indicator 1: Total roads and motorized trails open to motorized use (passenger vehicles and OHVs, including ATV and OHM)

Indicator 2: Total Roads and trails open to OHVs

Indicators 1 and 2 display the overall potential effects from roads, OHVs and motor vehicles on wildlife and wildlife habitat since the amount of roads open to motorized use delineates the extent of potential effects from these sources. These effects are discussed in the Forest Plan FEIS and summarized above.

Indicator 3: Travelways open to motorized vehicles in large, mature upland patches greater than 300 acres

Indicator 3 displays potential effects to wildlife and wildlife habitat in large, mature upland patches. Travelways open to motorized vehicles may cause edge effects and disturbance to wildlife in large, mature upland patches. These effects are discussed in the Forest Plan FEIS and summarized above.

Indicator 4: Travelways open to OHV use in nearbank riparian areas

Indicator 5: Number of stream crossings on travelways open to any OHV use

Indicators 4 and 5 display potential effects to wildlife that utilize riparian and aquatic habitat. This is because effects such as removal of riparian vegetation or sediment transport to riparian areas or streams may occur near riparian areas or stream crossings. These effects are discussed in the Forest Plan FEIS and summarized above.

Management Indicator Habitats and Management Indicator Species

Management Indicator Habitats (MIH) will not be analyzed since the Travel Management Project does not involve vegetation management actions, and the other indicators above serve to disclose effects to wildlife and wildlife habitat from transportation system actions considered in the alternatives. See the Biological Evaluation for disclosure of effects to Management Indicator Species including the bald eagle, northern goshawk and grey wolf and section 3.11 of the TMP December 2008 EA for effects to TES species.

3.17.4 Analysis Area

The area covered by the analysis of direct and indirect effects includes all national forest system lands of the Superior National Forest and includes the Kabetogema and Pigeon River Purchase units and the BWCAW. This project does not propose activities inside the BWCAW, but effects to the wilderness will be considered as part of this analysis. The area covered by the cumulative effects analysis includes lands of all ownerships within the same extent because the Forest's large size contains enough habitat of wildlife to evaluate the effects of the project.

The time scale used for the analysis of direct and indirect effects is 10 years. This time scale is chosen because it is reasonable to assume that all proposed projects would be implemented by this time and expected effects have occurred. The time scale for cumulative effects is 15 years, looking back 10 years into the past, and 5 years forward. This is also an appropriate time scale for cumulative effects because it allows for the most realistic prediction of reasonably foreseeable future projects.

3.17.5 Affected Environment

The affected environment includes the national forest lands of the Superior National Forest. This area is the same geographic extent as that described in the Affected Environment sections of the Forest Plan FEIS. It includes upland and lowland forest, extensive water resources such as lakes and streams, and a

variety of wildlife habitat. There are also towns, major roads, forest roads, a variety of motorized and non motorized recreation use and resource management use.

Environmental Consequences

3.17.6 Direct and Indirect Effects

Indicators 1 and 2: As shown in Table SUP-4, the mileage of roads open to passenger vehicles and OHV (including ATV/OHM) is highest in Alternative 1, followed by Alternative 3, Alternative 2 Modified and Alternative 4. This shows that the action alternatives would reduce road density through the decommissioning of roads and this would decrease effects to wildlife. Further discussion on road density is contained in the Biological Assessment (see project file). Alternative 1 would have the greatest effect to wildlife, followed by Alternative 3, Alternative 2 Modified, and Alternative 4.

Road and trail mileage open to ATV/OHM is highest in Alternative 3, followed by Alternative 2 Modified, Alternative 1 and Alternative 4. Effects to wildlife would be greatest under Alternative 3, followed by Alternative 2 Modified, Alternative 1 and Alternative 4. Road mileage open to OHV is highest in Alternative 3, followed by 1, Alternative 2 Modified and Alternative 4. Effects to wildlife would be greatest under Alternative 3, followed by Alternative 1, Alternative 2 Modified and Alternative 4. Most of the roads that are designated for new OHV use under the action alternatives already have motorized vehicle use on them. This would not increase disturbance (noise, emissions, sights) effects to wildlife as much as adding OHV use to roads that do not have any public motorized vehicle use.

	Alt 1.	Alt 2 Modified	Alt. 3	Alt. 4
Total road miles open to passenger vehicles and OHVs including ATV/OHM*	2328	2178	2243	2128
Road and trail mileage available for ATV/OHM	1573	1603	1781	1473
Road mileage available for OHV	1138	1075	1192	993
*Total road miles open includes OML 2-5 roads open to all vehicles, OML1 roads open to ATV/OHM, open unclassified roads and ATV/OHM trails.				

Table SUP-4

Indicator 3: The mileage of roads and trails open to motorized vehicles in large, mature upland patches is greatest in Alternative 3 and Alternative 1, followed by Alternative 2 Modified and Alternative 4 (Table SUP-5). Thus, effects to wildlife and wildlife habitat in large, mature upland patches are greatest in Alternative 3, followed by Alternative 1, Alternative 2 Modified and Alternative 4.

	Alt 1.	Alt 2 Modified	Alt. 3	Alt. 4
Travelway miles open to motorized vehicles in large, mature upland patches greater than 300 acres	468	443	470	367

Table SUP-5

Indicators 4 and 5: For both Indicators 4 and 5, there is the greatest amount of travelway miles in nearbank riparian areas and stream crossings open to OHV use in Alternative 1, followed by Alternative 3, Alternative 2 Modified and Alternative 4 (Table SUP-6). Thus, effects to aquatic and

riparian wildlife and wildlife habitat are greatest in Alternative 1, followed by Alternative 3, Alternative 2 Modified and Alternative 4.

	Alt 1.	Alt 2 Modified	Alt. 3	Alt. 4
Travelway miles open to OHV use in nearbank riparian areas	26.3	10.8	17.2	7.4
No. of stream crossings on travelways open to any OHV use	317	121	200	73

Table SUP-6

3.17.7 Cumulative Effects

Please see Appendix B to the 2008 EA of the TMP for past, present and reasonably foreseeable future projects considered for cumulative effects. In addition to these projects, the Minerals Exploration Project, the Birch Lake Plantation Thinning Project and the Hoyt Lakes to Babbitt Project (led by St. Louis County) are also considered in this Supplement.

Spatial framework: The analysis of cumulative effects considers the impact of past, present, and reasonably foreseeable future management activities on wildlife and wildlife habitat on all land ownerships in the analysis area. Opportunities for consolidating off highway vehicle use on ownerships other than National Forest were included in this proposed action. Consultation with the State, Counties and Tribes occurred (see Chapter 1 in EA) to try and mesh our travel planning as much as possible. Other agencies do have different regulations about seasonal use of motorized vehicles but overall, between public landowners, road miles open to motor vehicles declines.

Time frame: Cumulative effects analysis considers a 15 year period, which includes the accomplishments of the past 10 years, and reasonably foreseeable activities within the next 5 years. The next 5 years is a realistic timeframe for estimating what projects may be proposed in the vicinity.

Past impacts: The project area is fragmented because of timber harvesting, mixed ownership patterns, development, and road construction. The quantity of roads has remained relatively stable in the last 5 years. Road density has stabilized, but the quality and standard of roads on the Superior has increased because of timber harvest and recreational activities. Increased road miles and road usage have lowered the amount of remote habitat available to species. Increased human access may result in disturbance during the breeding season, illegal shooting and trapping, introduced parasites and diseases, and competition with other species

Present impacts: Since 2004, many miles of road have been identified for decommissioning. Road decommissioning from previous resource management projects is making progress at reducing the road density, and consolidating road usage on the Superior National Forest.

Future impacts: Off highway vehicle use is expected to increase over the next 10 years, due to increasing public demand for this type of outdoor leisure activities. The total Minnesota off highway vehicles registered has increased dramatically, from 56,706 in 1994 to 222,594 in 2004 (p. 33, Minnesota Department of Natural Resources 2005 OHV Study). As more land that is private is posted with no trespassing signs, more pressure is placed upon Federal, State, County, and other jurisdictions to designate trail routes for off highway vehicles. Although many species may benefit from the action alternatives on Federal Lands, the off highway vehicle project may shift the demand for access to State and County lands within the Superior National Forest. Forest Plan objective O-RMV-2 would allow up to

90 miles of designated off highway vehicle trails, some from this project and some from future projects that would be considered in future NEPA analysis.

Also, in the reasonably foreseeable future, there is continued vegetation management on all ownerships (see Appendix B to the TMP EA). Federal projects will increase the miles of temporary roads to access harvest units but these roads will be closed and decommissioned when the harvest is completed, and this is also generally the case on other ownerships (see Appendix B to the EA). Some of the Forest Service projects will also decommission existing system roads. Thus, in the long-term, these projects will not increase miles of roads open to motorized vehicles. Forest Plan and Minnesota Forest Resource Council standards and guidelines and project-specific mitigation measures will reduce effects from these vegetation management projects (for examples, see Monitoring Reports FY 2005-2007; wildlife, Recreational Motor Vehicles (RMV) and transportation sections). Effects from Forest Service vegetation management projects will also be reduced through project design conducted through the NEPA process and consultation with the US Fish and Wildlife Service. Overall, the decrease in road density from this project will help offset effects from timber harvest and the associated roads.

There are also a number of proposed minerals management projects on the Forest, including the Minerals Exploration Project that was recently scoped. These projects may affect vegetation, could lead to more disturbance and could require additional temporary roads. Effects to wildlife from road density should be minimal due to the small acreage involved in these projects compared to the Forest as a whole. Overall, the decrease in road density from this project will help offset effects from minerals projects and the associated roads.

The Hoyt Lakes to Babbitt project would construct a highway-level road that would not be open to OHVs and thus would not add to cumulative effects from OHV use on the Forest. Effects to road density would depend on the route selected, if an action alternative is selected for the Hoyt Lakes to Babbitt project. This route is mostly located near developed areas and thus is less likely to affect areas with low road density. As for the resource management projects, the Travel Management Project would help offset effects to road density from the Hoyt Lakes to Babbitt project.

3.17.8 Conclusion

The consolidation and reduction in mileage of roads on the Forest would reduce effects to wildlife under the action alternatives. The addition of OHV use to roads under the action alternatives would create minor effects since the increase is not much greater than the no action alternative, the additional use is on existing (not new) roads and motorized use already exists on most of these roads.

Alternative 4 would reduce effects to wildlife below the no action alternative (Alternative 1) to the greatest extent, followed by Alternative 2 Modified. Alternative 3 would increase effects to wildlife above Alternative 1.

3.18 ILLEGAL USE

3.18.1 Summary

While there has been and continues to be illegal use of OHVs on the Superior National Forest, the potential for effects are anticipated to be less than the existing condition under all of the action alternatives. The elimination of short spur routes and user created routes by decommissioning unclassified roads, the creation of connected authorized routes, the reduction of open routes near the BWCAW, riparian areas, and areas with sensitive soils, would reduce the potential for effects from illegal use to wildlife, vegetation, soils, air quality, watershed, Non-Native Invasive Plants (NNIP) spread, heritage and wilderness character. Effects would be further reduced due to the effectiveness of closure and decommissioning techniques, ongoing education and law enforcement efforts. Alternative 4 would have the greatest reduction in the potential for negative effects from the current situation (Alternative 1), followed by Alternative 2 Modified and Alternative 3.

3.18.2 Introduction

Environmental effects from illegal use from OHVs were indicated as an issue of concern by some public commenters. This section of the Supplement to the TMP EA contains additional disclosure of the potential for effects from illegal use of OHVs.

3.18.3 Analysis Methods

The Superior National Forest provides for the legal and safe use of OHVs as one of multiple uses on the Forest. The Travel Management Project includes this goal in the purpose and need to provide riding opportunities for OHV use (see EA Chapter 1, Purpose and Need). Thus, the alternatives do not produce any direct effects of illegal use. However, the alternatives have the potential for indirect and cumulative effects to the environment from illegal use. This analysis complements the analysis in the December 2008 EA and is consistent with the disclosure of effects in the wildlife, NNIP, watershed, recreation, wilderness and heritage sections.

Illegal use occurs when OHVs travel cross country since cross country use by OHVs is prohibited in the 2004 Forest Plan. Illegal use may also occur when OHVs travel on roads and trails that are closed to such use (which may also serve as a starting point for cross country use). This may occur when there is a junction between a road or trail open for OHV use and one that is closed for such use. Potential effects from illegal OHV use may include disturbance of recreationists; removal or destruction of vegetation; spread of non-native invasive species (NNIS); disturbance (noise and emissions) to wildlife; physical effects to wildlife habitat; effects to air quality⁵; erosion, sedimentation and compaction of soils; damage to heritage resources; and effects to the solitude, untrammeled and natural wilderness character qualities in the BWCAW.

The following indicators are used to assess effects to the resources discussed above from potential illegal use:

Indicator 1: Roads and Trails open to OHV use

The amount of open roads and trails indicate the amount of potential for cross-country travel or travel onto a closed road or trail since the open road or trail provides a starting point. Accordingly, this is a

⁵ See the Air Quality section of the Supplement for details on effects to air quality.

good indicator for the potential for illegal use to affect the multiple resources discussed above (vegetation, soils, watershed, NNIS, wildlife, air quality, recreation, heritage and wilderness character).

Indicator 2: Unclassified roads to be decommissioned

This indicator displays the potential for the use of unclassified roads as a starting point for illegal use. A number of unclassified roads are short spurs and some were user-created, so the potential for illegal use with unclassified roads as a starting point is generally higher than from system roads. This is also a good indicator for the potential for illegal use to affect the multiple resources discussed above (vegetation, soils, watershed, NNIS, wildlife, air quality, recreation, heritage and wilderness character).

Indicator 3: Miles of connected OHV routes

This indicator displays miles of connected routes open to OHV use. This indicator estimates the likelihood of illegal OHV use on routes closed to OHV in between segments of open OHV routes.

Indicator 4: Roads and Trails open to OHV use within 1 mile of the BWCAW recreation use areas

Indicator 5: Number of BWCAW lake/river use areas within 1 mile of road/trail open to OHVs

Indicator 6: Number of BWCAW campsites within 1 mile of road/trail open to OHVs

Indicators 4-6 provide an assessment of the potential for illegal use in and effects to the BWCAW and wilderness character since roads and trails open to OHV use within 1 mile of the BWCAW provide a potential starting point for illegal incursions into the BWCAW. This is because monitoring has shown that roads and trails more distant than 1 mile are less likely to be starting points for illegal use that ends up inside the BWCAW. The natural, untrammled, and outstanding opportunities for solitude aspects of wilderness character would be potentially affected since illegal OHV use in the BWCAW could cause physical alteration of the landscape, remove vegetation, disturb wildlife, affect water quality and soils, generate air emissions and generate noise and sights. OHV use is prohibited in the BWCAW (S-RMV-3, p. 2-44 Forest Plan).

Indicator 7: Travelway miles open to OHV use in nearbank riparian areas

Indicator 8: Number of stream crossings on travelways open to any OHV use

Indicator 9: Miles of ATV travelways in soils more susceptible to erosion or compaction

Indicators 7-9 provide an assessment for the potential of OHVs to damage riparian, aquatic and soil resources and aquatic wildlife since illegal use near or in riparian areas, stream crossings, and soils more susceptible to erosion or compaction would have a greater likelihood of damaging these resources than other areas.

3.18.4 Analysis Area

The area covered by the analysis of direct and indirect effects includes all national forest system lands outside the BWCAW as well as all lands within the BWCAW within 1 mile of the wilderness boundary. The area covered by the cumulative effects analysis includes lands of all ownerships within the same limits. This area covers possible locations of illegal use, including in the BWCAW.

The time scale is 10 years in the past to 5 years into the future. This timeframe represents the time when the effects of potential for illegal use in the Travel Management Project may overlap with the effects of past, present and reasonably foreseeable future actions.

3.18.5 Affected Environment

The affected environment includes lands of all ownerships in the Superior National Forest . This area was described in the Affected Environment sections of the Forest Plan FEIS. It includes upland and lowland forest, extensive water resources such as lakes, wetlands and streams, and a variety of wildlife habitat. There are also towns, state and county highways, forest roads, a variety of motorized and non motorized recreation use and resource management use. OHV use is an ongoing activity in the area and some illegal use has been documented on the Forest since 2001. In recent years illegal use has been managed by implementing improved closure and decommissioning techniques (see FY2005 to FY2007 Monitoring Reports, RMV and Transportation sections) signing, enhanced public education, and law enforcement.

Environmental Consequences

3.18.6 Direct and Indirect Effects

As stated in the analysis methods section, there are no direct effects from illegal use under any of the alternatives. This section describes indirect effects to the environment from illegal use.

Indicator 1: Roads and Trails open to OHV use

Indicator 1	Alternative 1	Alt. 2 Modified	Alternative 3	Alternative 4
Roads & Trails open to all OHVs (miles)	1138	1075	1192	993

The amount of roads and trails open to OHVs serve as an overall indicator for potential illegal use since these locations serve as a starting point for illegal use. Alternative 3 would increase the miles of open roads and trails relative to the current situation (Alternative 1). Hence the potential starting points would be greater and increase the potential for negative effects. Alternative 4 would decrease the open miles relative to the current situation and reduce the potential for negative effects the most, followed by Alternative 2 Modified. See the maps accompanying the EA for locations of roads and trails open to OHV use under each alternative.

Indicator 2: Unclassified roads to be decommissioned

Indicator 2	Alternative 1	Alt. 2 Modified	Alternative 3	Alternative 4
Decommission (miles)	0	157	78	183

Decommissioning unclassified roads would reduce the potential for illegal use since many unclassified roads are short spurs that may serve as starting points for illegal use. Alternative 4 would reduce the potential for negative effects most compared to the current situation (Alternative 1), followed by Alternative 2 Modified and Alternative 3. See the maps accompanying the EA for locations of unclassified roads and spurs to be decommissioned under each alternative.

Indicator 3: Miles of connected OHV routes

Indicator 3	Alternative 1	Alt. 2 Modified	Alternative 3	Alternative 4
Connected OHV routes (miles)	486	870	953	844

An increase in miles of connected OHV routes would reduce potential illegal use since connected OHV routes provide for a riding experience that might otherwise be fulfilled by riding on routes closed to OHV use. Due to less connected routes, Alternative 1 would have the greatest potential for illegal use, while the action alternatives would reduce the potential for illegal use. Alternative 3 would result in the greatest reduction in potential for illegal use, followed by Alternative 2 Modified and Alternative 4. See the maps accompanying the TMP EA for connected OHV routes under each alternative.

Indicator 4: Roads and Trails open to OHV use within 1 mile of the BWCAW recreation use areas

Indicator 5: Number of BWCAW lake/river use areas within 1 mile of road/trail open to OHVs

Indicator 6: Number of BWCAW campsites within 1 mile of road/trail open to OHVs

Indicators 4-6	Alternative 1	Alt. 2 Modified	Alternative 3	Alternative 4
Miles of road/trail open to OHVs w/in 1 mile of BWCAW recreation use areas	13	11	17	9
Number of BWCAW lake/river use areas within 1 mile of road/trail open to OHVs	25	21	27	16
Number of BWCAW campsites within 1 mile of road/trail open to OHVs	22	12	22	10

Indicators 4-6 display the amount of OHV use within 1 mile of the BWCAW. The greater amount of roads and trails open to OHV use within 1 mile of the BWCAW, the greater potential there is for effects to the wilderness and wilderness character since these locations are a potential starting point for illegal cross country travel or the creation of user trails into the wilderness. The likelihood of illegal use into the wilderness would be reduced or eliminated in areas with dense vegetation. Areas where problems arise would be monitored and addressed as documented in the Travel Management Project Monitoring and Evaluation Plan (Appendix B to the December 2008 Decision Notice). Alternative 3 would have the potential for greater negative effects to the natural, untrammled and outstanding opportunities for solitude aspects of wilderness character in the BWCAW than the current

situation (Alternative 1). Alternative 4 would have the greatest reduction in the potential for negative effects from Alternative 1, followed by Alternative 2 Modified. See the maps accompanying the TMP EA for locations of routes open to OHV use near the BWCAW under each Alternative. See the Wilderness, NNIS, TES, and Watershed sections of the December 2008 TMP EA and Air Quality section of the Supplement for further discussion on effects to the BWCAW.

Indicator 7: Travelway miles open to OHV use in nearbank riparian areas

Indicator 8: Number of stream crossings on travelways open to any OHV use

Indicator 9: Miles of ATV travelways in soils more susceptible to erosion or compaction

Indicators 7-9	Alternative 1	Alt. 2 Modified	Alternative 3	Alternative 4
Number of stream crossings on travelways open to any OHVs	317	121	200	73
Miles of travelways open to any OHVs within 100 ft. of open water wetland or lake.	26	11	17	7
Miles of ATV travelways in soils more susceptible to erosion or compaction	558	156	253	78

A reduction in the number of stream crossings on travelways open to OHVs, miles of travelways open to OHVs within 100 feet of open water wetland or lake, and miles of ATV travelways in soils more susceptible to erosion or compaction, would reduce effects to water and soil resources from illegal use since these locations serve as a potential starting point for illegal use in areas that would more likely affect these resources. Alternative 4 would have the greatest reduction in the potential for negative effects compared to the current situation (Alternative 1), followed by Alternative 2 Modified and Alternative 3. See Section 3.10 of the TMP EA for further discussion on effects to watershed.

Mitigation Measures

Road Closures and Decommissioning

A mitigation measure for reducing the potential for illegal use is implementing effective road closures and decommissioning of roads. Direction in the Forest Plan for decommissioning roads is contained at G-TS-16 on p. 2-50. The Superior National Forest has paid close attention to implementing effective road closures and decommissioning in recent years and has improved techniques based on lessons learned. Data in the FY2005 to FY2007 Monitoring Reports (RMV and Transportation sections) in the project file documents effective closure and decommissioning efforts. In addition, monitoring has indicated that illegal use has been observed starting from roads constructed before 2004 (such as unclassified roads) and not on temporary roads⁶ constructed after 2004 (FY 2007 Monitoring Report, p. 87). Accordingly, the action alternatives that decommission unclassified roads would be effective in reducing illegal use where it has been observed to occur. This monitoring will continue in the future as discussed in Appendix B to the December 2008 Decision Notice for the Travel Management Project. Additional mitigation measures for reducing effects from illegal use include outreach and education efforts in cooperation with OHV use groups and additional law enforcement capacity on the

⁶ See Chapter 4 of the TMP EA, page 2 for definitions of temporary roads and unclassified roads.

Forest (4 Law Enforcement officers and 53 Forest Protection Officers). There will continue to be some illegal use when OHVs travel on closed or decommissioned roads and trails, or use these closed routes as a starting point for cross country travel. However, the potential for illegal use is expected to be less than the existing condition under all the action alternatives and will be further reduced due to the mitigation measures discussed above.

Cross Country Travel

As discussed above, potential cross country use in areas not blocked by vegetation is reduced through limiting starting points by effective road closures and road decommissioning, as well as education and law enforcement.

Conclusion-Direct and Indirect Effects

When the indicators and mitigation measures above are considered, effects would be less than the existing condition under all of the action alternatives. Alternative 4 would have the greatest reduction in the potential for negative effects from the current situation (Alternative 1), followed by Alternative 2 Modified and Alternative 3.

3.18.7 Cumulative Effects

Please see Appendix B to the December 2008 TMP EA for past, present and reasonably foreseeable future projects considered for cumulative effects. In addition to these projects, the Minerals Exploration Project, the Birch Lake Plantation Thinning Project and the Hoyt Lakes to Babbitt Project (led by St. Louis County) are also considered. Federal cumulative actions would result in the construction of temporary roads. These temporary roads would be closed to public use and would be decommissioned when use is complete. The Superior National Forest Monitoring Program is tracking the fate of temporary roads to ensure decommissioning is effectively carried out when use is complete (see Appendix B to the 2008 Decision Notice). While there would likely be the potential for some illegal use of these temporary roads and resulting effects, effective road closures and decommissioning would mitigate effects as discussed in the FY2005 to FY2007 Monitoring Reports (RMV and Transportation sections). Cumulative federal actions also include additional decommissioning of roads which would reduce the potential for illegal use. The Hoyt Lakes to Babbitt Project does not propose creating routes that would be open to OHV use since the project would construct a highway road, and illegal use is not anticipated to occur on a highway road.

The State of Minnesota is completing OHV planning which is also described in Appendix B to the EA. This action would restrict OHV travel to existing state forest roads, and efforts have been made to ensure seamless riding opportunities between federal and state roads. This would reduce potential illegal use by consolidating open road segments between which illegal riding on closed road segments might occur. The Superior NF would work with MN DNR and other governmental organizations to promote and apply mitigation measures including education, outreach, and improving effectiveness of closures and decommissioning to reduce effects.

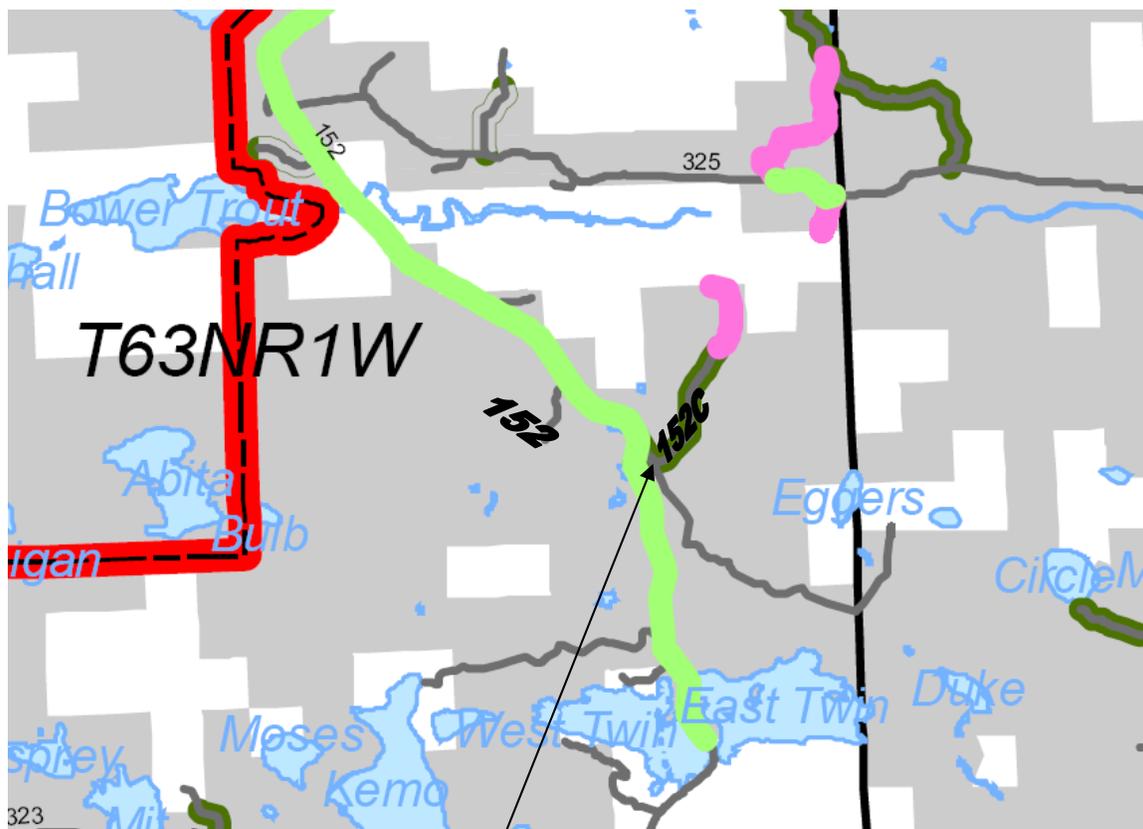
The analysis in this section of the Supplement complements the analysis in the other sections of the EA (TES Species, General Wildlife, NNIS, Watershed, Recreation, Air Quality, Heritage and Wilderness). The analysis for illegal use does not change the substance or conclusions of these other sections since effects from illegal use would be less than the existing condition under all of the action alternatives as discussed above.

3.18.8 Conclusion

While there has been and continues to be illegal use of OHVs on the Superior National Forest, the potential for effects would be less than the existing condition under all of the action alternatives. The elimination of short spur routes and user created routes by decommissioning unclassified roads, creation of connected authorized routes, reduction of open routes near the BWCAW, riparian areas and areas with sensitive soils, would reduce the potential for effects from illegal use to wildlife, vegetation, soils, air quality, watershed, NNIP spread, heritage and wilderness character. Effects would be further mitigated due to the effectiveness of closure and decommissioning techniques, ongoing education and law enforcement efforts. Alternative 4 would have the greatest reduction in the potential for negative effects from the current situation (Alternative 1), followed by Alternative 2 Modified and Alternative 3.

3.18.9 Change to Alternative 2 Modified

Map SUP-1. Additional Change to Alternative 2 Modified.



South of the intersection of 152 and 152 C, Alternative 2 Modified would close the Lima Grade (Forest Road 152) to OHV use. This would still provide for a loop riding opportunity that includes a portion of FR 152. There are four campsites in a MN DNR campground south of the closure at the Twin Lakes that would not be able to be driven to on OHVs. There is a gravel pit area off FR 152 north of the closure that would be accessible by OHV and would allow for a camping opportunity. This modification does not change the substance or conclusions of the Environmental Assessment or this Supplement since it would result in decreased effects to the environment, and fulfill the Purpose and Need to create loop riding opportunities.