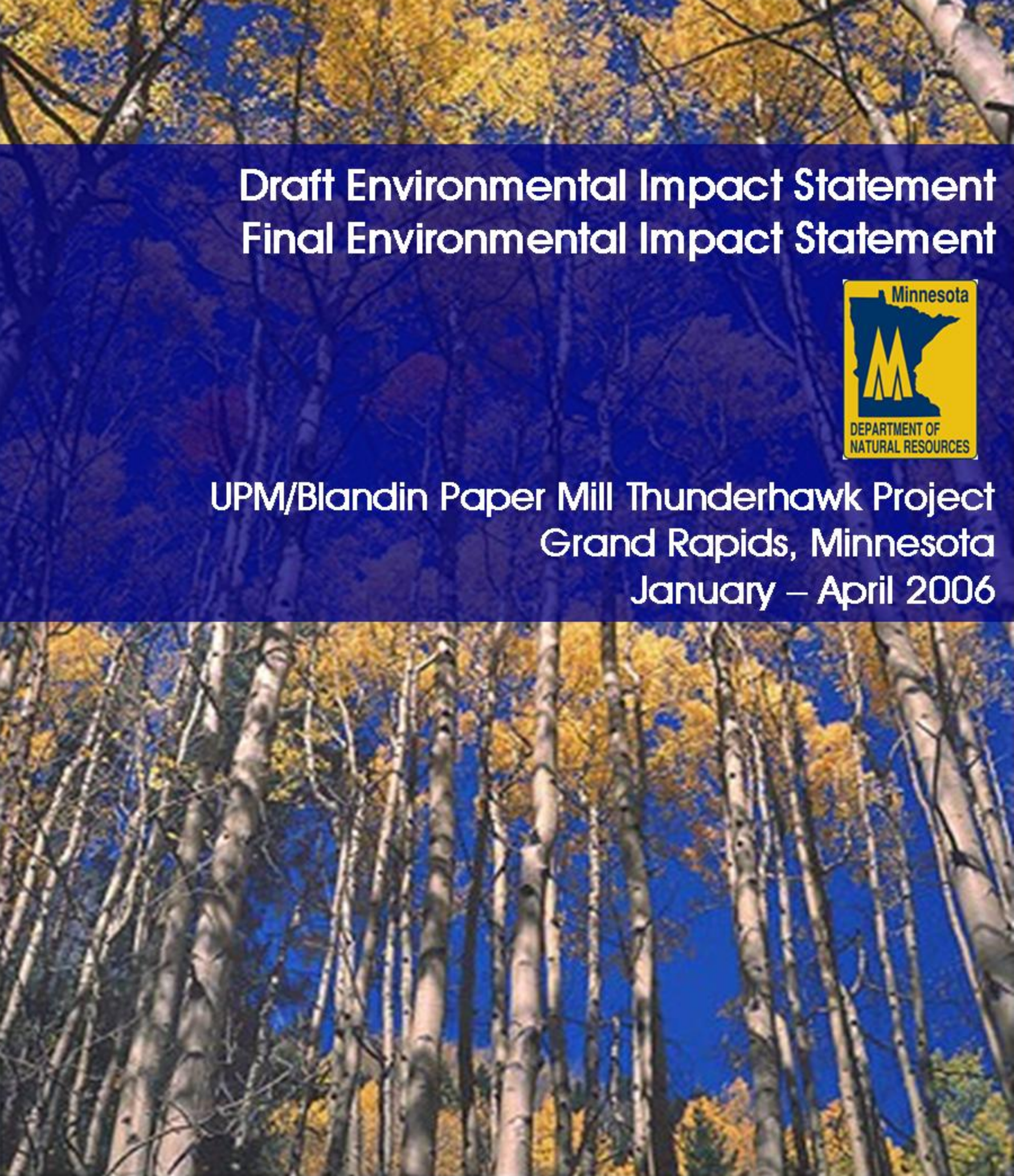

Draft Environmental Impact Statement
Final Environmental Impact Statement

Minnesota
DEPARTMENT OF NATURAL RESOURCES

UPM/Blandin Paper Mill Thunderhawk Project
Grand Rapids, Minnesota
January – April 2006

UPM/Blandin Paper
Thunderhawk Project
Grand Rapids, Minnesota

Final Environmental Impact Statement

April 2006

Prepared by

Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155-4025

with assistance from

HDR Engineering, Inc.
6190 Golden Hills Dr.
Minneapolis, MN 55416

Final Environmental Impact Statement
for the
UPM/Blandin Paper Mill Expansion
Thunderhawk Project
Grand Rapids, Minnesota

Responsible Government Unit	**Minnesota Department of Natural Resources**
Contact Person	Bill Johnson Minnesota Department of Natural Resources 500 Lafayette Road St. Paul, Minnesota 55155-4025 (651) 259-5157 Fax (651) 297-1500
Proposer	UPM-Kymmene/Blandin Paper Mill 115 First Street, SW Grand Rapids, Minnesota 55744-3699 (218) 327-6200
Proposer's Contact Person	Bill Spreeman Manager, Environmental Affairs (218) 327-6306
Abstract	The Final EIS responds to timely substantive comments on the Draft EIS, and corrects errors in the Draft EIS. Together, the Final EIS and the Draft EIS comprise the complete EIS, which documents the analysis of potential impacts associated with the UPM/Blandin Paper Mill Thunderhawk project.
Certification of Responsible Government Unit	I hereby certify that the information contained in this document is true and complete to the best of my knowledge, and that copies of the completed FEIS have been made available to all persons and parties on the official EQB distribution list or requesting to be copied on the document.

Bill Johnson — April 21, 2006
Natural Resources Program Consultant
DNR Division of Ecological Services

Table of Contents

FEIS APPENDIX

NEW DEIS APPENDIX

CHAPTER 1.0
INTRODUCTION

UPM-Kymmene/Blandin Paper Company (UPM/Blandin Paper) proposes to expand and modify its paper mill located in Grand Rapids, Minnesota; see DEIS Figures 1.1 through 1.6. The existing mill produces lightweight, coated publication-grade paper through two paper machines designated respectively as paper machine No. 5 (PM5) and paper machine No. 6 (PM6). The mill's annual output is approximately 380,000 short tons. The Project's main feature is the addition of a complete paper manufacturing line that is designated as paper machine No. 7 (PM7). The Project also includes increasing pulp producing capacity, optimization of the PM6 paper line and the addition of warehouse facilities. Should the Project occur, the existing PM5 line would be shut down permanently in conjunction with start-up of the new operations. The facility's wood use would increase approximately 197,000 cords annually, to a total estimated wood consumption at the mill of 400,000 cords/yr.

The proposed Project would use wood as the primary raw material to produce publication-grade rolled paper. Both hardwood (e.g., aspen) and softwood (e.g., spruce, balsam) species supply the mill. For the purpose of impact assessment, the increase in wood usage is assumed to come from timber harvesting activities in Minnesota only.

The Minnesota Department of Natural Resources (DNR) has prepared an Environmental Impact Statement (EIS) on the Project pursuant to Minn. Rules part 4410.2000, subpart 3B, which directs the preparation of an EIS when a Project Proposer and Responsible Government Unit (RGU) agree that an EIS be prepared. The DNR is the RGU for the EIS. In accordance with the Minnesota Environmental Quality Board (EQB) rules, the DNR scoped potentially significant issues and has prepared this EIS to determine in depth how construction and operation of the Project could affect the following potentially significant issues:

- Noise
- Traffic
- Rail
- Socioeconomics
- Cumulative Timber Harvest

Regarding the issue of "Cumulative Timber Harvest," the DEIS is to compare the findings of the proposed Project's timber harvest analysis with the findings of the Final Generic EIS Study on Timber Harvesting and Forest Management (GEIS). The DEIS discusses the Project-specific cumulative timber harvest effects in relation to all other related activity as examined in the GEIS. RGUs are required to consider information from an available GEIS by tiering according to Minn. Rules part 4410.3800,

subpart 8. The EQB determined that the GEIS did not remain adequate for use in project-specific review in accordance with Minn. Rules part 4410.3800, subpart 8. The EQB also noted, "while the Timber Harvesting GEIS is no longer adequate as a whole, nor as accurate as it was when completed, it still contains useful information." While a project-specific EIS typically examines environmental impacts within a limited geographic area, a GEIS analyzes the cumulative impacts associated with a number of separate, yet related, activities. In the case of the GEIS on timber harvesting and forest management, cumulative impacts are those resulting from the hundreds of individual logging activities occurring in the state each year – in effect, the collective impacts of these individual operations on the state's overall environmental quality.

This Final Environmental Impact Statement (FEIS) responds to timely substantive comments on the DEIS consistent with the scoping decision. The FEIS also contains corrections to the DEIS. Corrections and Revisions are in Chapter 2.0 of the FEIS. Chapter 3.0 provides information on the public meeting held in Grand Rapids to: 1) provide information on the DEIS, 2) allow questions to be answered, and 3) have DNR receive comments from the public. Chapter 4.0 contains the responses to comments arranged by topic; all responses provide a cross-reference designation that identifies the letter and comment that corresponds to the response. Chapter 5.0 consolidates all mitigation discussions that were in the DEIS. Appendix A contains copies of the timely comment letters submitted with the cross-reference designation for each comment.

The FEIS and DEIS together comprise the complete EIS for the proposed Project.

The DNR will receive public comments on the adequacy of the FEIS during a fourteen-day period commencing with publication of the Notice of Availability of the FEIS in the EQB *Monitor* on April 24, 2006. The Minnesota Environmental Review Program rules indicate the EIS shall be found adequate if it:

- addresses the potentially significant issues and alternatives raised in scoping so that all significant issues for which information can be reasonably obtained have been analyzed in conformance with Minn. Rules part 4410.2300, items G and H;
- provides responses to the substantive comments received during the DEIS review concerning issues raised in scoping; and
- was prepared in compliance with the procedures of the Minnesota Environmental Policy Act and Minn. Rules parts 4410.0200 to 4410.6500.

CHAPTER 2.0
DRAFT EIS REVISIONS

Note the following corrections, revisions and additions to the Draft Environmental Impact Statement prepared for the UPM/Blandin Paper Thunderhawk Project, in Grand Rapids, Minnesota.

Page ES-1, EIS Process, Paragraph 2 – Sentence 1

Revision: Change "4410.200" to "4410.2000."

Page ES-2, Project Actions, Paragraph 1 – After last sentence

Text insertion (from DEIS page 3-17): "Approximately 110,000 cords, or 56 percent of this increase, is anticipated to be aspen, with the remaining 87,000 cords consisting of the softwoods spruce and balsam."

Page ES-13, Lowland Spruce Forest Cover Type – Sentence 1

Word insertion: "This forest type has large areas of older forest that do not undergo much harvest in the model projection or historically."

Page ES-14, Implications of Modeling Results, first bullet – Sentence 2

Deletion: Delete "very" from sentence to read: "The 2.21 million-cord level is ~~very~~ close to the …."

ES-15, Harvest Volumes – Sentence 1

Word insertion: "The Project-related increase in annual statewide harvest volume for the study period is projected to be less than 197,000 cords/yr…."

ES-15, Harvest Volumes – Sentence 2

Word insertion: "This means that aspen harvest is projected to increase an average of 76,000 cords/yr rather than 110,000 cords/yr."

ES-16, Table ES-4, Timber Volumes Harvested for No-Build Alternatives – Column Heading, Far Right

Revision: Change "Average 1990-2004" to "Average 2000-2040"

ES-18, Table ES-6, Comparison of Silvicultural Types… – Table title

Word insertion: "Comparison of Silvicultural Types Assigned to Forest land (thousand acres) by the Scheduling Model for the No-Build and Build Alternatives over 2001 – 2041 Study Period"

ES-28, Impact 8, Final Phrase – Last sentence

Text insertion: "…the University of Minnesota, with assistance from the DNR and the MFRC, is ~~are~~ conducting such a study that may result in improved practices."

Page ES-30, Impact 10 – Sentence 2

Text insertion at end of sentence: "…see the *Guidelines*, Forest Roads, pages 1-49~~7~~."

Page ES-30, Impact 10 – Last sentence

Word insertion: "Specific measures being employed by UPM/Blandin Paper to implement the applicable guideline include, but are not limited to, the following:"

Page ES-30, Impact 15 – Last sentence

Word insertion: "Specific measures being employed by UPM/Blandin Paper to implement the applicable guideline include, but are not limited to, the following:"

Page ES-31, Impact 16 – Existing Text

Revision: Replace existing text "No Project-specific mitigation is proposed for this impact area" with new text "Continued Proposer participation in landscape-based road and trail planning is the mitigation for this impact. The Proposer is committed to engage in such planning as appropriate opportunities arise."

Page ES-31, Impact 17 – Sentence 2

Text insertion at the beginning of sentence: "…see the *Guidelines*, Cultural Resources, pages 1-25."

Page ES-31, Impact 17 – Last sentence

Word insertion: "Specific measures being employed by UPM/Blandin Paper to implement the applicable guideline include, but are not limited to, the following:"

Page 1-2, Paragraph 2 – Last sentence

Text insertion: "As set forth in the Final Scoping Decision, DNR determined that the following issues were not relevant or were so minor that they would not be addressed in the DEIS, but would be examined at the detail provided in the EAW:"

Page 3-19, Section 3.5.3, Sources of Wood, second paragraph – Sentence 5

Correction: Replace "Please not" with "Note." Sentence should read: "Note that for the purpose of impact assessment (modeling the worse case scenario) ..."

Page 3-33, Section 3.12.2.2 – Add additional paragraph at end of section

Text insertion: "A comment was received during scoping concerning the use of wood chips recovered from harvesting residue at the Blandin Paper Mill. This source was not considered feasible by the Proposer since it would not be likely that such chips could meet quality requirements."

Page 3-40, Section 3.12.4.2 – After Paragraph 1

Text insertion: "Comments were received during scoping and on the DEIS requesting analysis of impacts outside Minnesota. Minnesota environmental review requirements produce information for decision makers, agencies and others for permits and approvals for the proposed action in Minnesota. Minnesota agencies do not have jurisdiction over activities outside of the state. As to impacts of producing products or raw materials outside the state which are purchased on the open market, since their precise origin over the next 40 years is not known, effects analysis would be speculative and unwarranted."

Page 3-40, Bullet 2 – Sentence 2

Correction: The most recent data is for the year ending in 2002.

Page 3-41, Bullet 3 – Sentence 3

Correction: The amount for this alternative is the sum of total wood harvested in 2002 and the Project-related increase of 197,000 cords/yr.

Page 4-50, Section 4.4.2.6, Second to last paragraph – After Sentence 2

Revision to read: "The 2005 Downtown Master Redevelopment Plan (Final Plan, December 2005) indicates that development has been limited in the downtown area as new development shifts further south along Highway 169."

Page 4-50, Section 4.4.2.7 – After Paragraph 1

Text insertion: "The Blandin Paper Mill has expanded over the years as the operations have grown and additional paper machines were added. The last major expansion was in 1990 when PM6 was added. Additional residences and other properties will be acquired for the current proposed expansion."

Page 4-53 – Footnotes #22 and #23

Change to reference Final Plan. Make appropriate change in Chapter 10. Identify release date of December 2005.

Page 5-4, Figure 5-2, Area of Timberland in Minnesota in 1990 and 2003 by Forest Type – Table footnote

Text Insertion: Add table footnote: "Note: Rows in Figure 5-3 are presented in the same order as they appear in the key to the figure. Axis order is top to bottom with 1990 appearing on top and 2003 appearing below for each forest type."

Page 5-10, Relationship of the GEIS to the DEIS – Last sentence

Correction: See Appendix B: Final Scoping Decision Document and Appendix H: Executive Summary on Final GEIS.

Page 5-12, STEMS Model Strengths – Bullet 5

Correction: Addition of the NPC classes for FIA plots allowed for more complete habitat modeling.

Page 5-18, Section 5.1.3.2 – New End Bullet

Bullet insertion under Dualplan Model Limitations: "Dualplan does not project potential change in the spatial distribution of forest patches. The arrangement of similarly typed, aged, and sized forest patches on the landscape influences the degree to which plant or animal populations can be sustained."

Page 5-21, Limitations – Bullet 3, Sentence 1

Deletion: Delete "easily" from the sentence to read: "The model does not ~~easily~~ capture population trajectories for all bird species equally."

Page 5-22, Strengths – Bullet 3, Sentence 1

Deletion: Delete "also" from the sentence.
Correction: Change "models" to "approaches".
Sentence to read: "The model ~~also~~ is a logical way to make use of limited knowledge of mammals, reptiles, and amphibians use of habitats on a statewide basis: the model makes a minimal number of assumptions compared to more complex approaches."

Page 5-23 – First full sentence

Text insertion: "Assessments were conducted at the scale of individual vegetative growth stage (VGS**)** that constitute native plant communities (NPC), with comparisons at the 10-, 20-, 30-, and 40-year intervals used in the forest management model."

Page 5-27, Section 5.1.4.5 – Add to end of Paragraph 2 (Levels of Harvest)

Text insertion: "Information on 2003 harvest levels has become available (Minnesota Forest Resources, MDNR, 2005). An estimated 3.598 million cords was harvested in Minnesota in 2003."

Page 5-32, Table 5.5, Harvest Volume Projection Comparison by Land Ownership… – Table title

Text insertion: "Harvest Volume Projection Comparison by Land Ownership for the DEIS No-Build Alternative (Scenario A)"

Page 5-36 – Footnote #31

Correction, replace existing text with: "This is not the maximum rotation age, but the maximum rotation age suggested by the DNR for forest cover types evaluated in the DEIS, as sourced from the DNR's Subsection Forest Resource Management Planning (SFRMP) process."

Page 5-53, Table 5-7, Projected Increase in Harvest Volume by Ownership Group for the No-Build (Scenario A) and Build Alternatives (Scenario A&P) – Title

Change title to: "Average Annual Increase in Harvest Volume by Ownership for Years 2001-2041 under the Build Alternative (Scenario A&P)"

Page 5-62, Section 5.2.2.1 (Box text), Significance criteria – Sentence 1

Missing a footnote citation, insert text: **"**The GEIS used a 50-year study period from 1990-2040."

Page 5-67, Table 5-12, Actual Timberland Area and DEIS Projections of Timberland Acreage, Column 4 – Heading

Text insertion: "Actual Change
1990-2001"

Page 5-69 – Footnote #35

Add reference for MFRC Monitoring Program:

Baseline Monitoring for Implementation of Timber Harvesting and Forest Management Guidelines on Public and Private Forest Land in Minnesota: Combined Report for 2000, 2001, 2002. Go to MFRC Link: http://www.frc.state.mn.us/Info/MFRCdocs.html for report #MP-0904.

Add this to Chapter 10, DEIS references.

Page 5-70 – Footnote #37

Correction, replace existing text with: "The GEIS used a 50-year study period from 1990-2040."

Page 5-70, Summary of GEIS Findings, Paragraphs 1 and 2 – Sentence 1

Correction, replace in the first sentence of both paragraphs: "Base Harvesting Scenario" with "Base Harvest Scenario."

Page 5-71, No-Build Alternative Analysis, last paragraph – Sentence 1

Correction, replace "Base Harvesting Scenario" with "Base Harvest Scenario."

Page 5-72 – Footnote #38

Correction, replace existing text with: "The GEIS used a 50-year study period from 1990-2040."

Page 5-75, First full paragraph – Last sentence

Text insertion: "…including applications of the appropriate *Voluntary Site-level Forest Management Guidelines* and implementation of MFRC landscape planning recommendations."

Page 5-81, First paragraph – First full sentence

Correction, replace "Base Harvesting Scenario" with "Base Harvest Scenario."

Page 5-100 – Footnote to Significance Criteria text box

Add footnote: "The GEIS used a 50-year study period from 1990-2040."

Page 5-104, Final paragraph – Last sentence

Text insertion: "…published by the MFRC in 1998, revised and republished by the MFRC in 2005."

Page 5-111, Section 5.3.2.1, Origin and Current Status of the Voluntary Guidelines, Paragraph 2 – Sentence 1

Text correction: (See Appendix I, Executive Summary of the GEIS Report Card Summary).

Page 5-111, Section 5.3.2.1, Origin and Current Status of the Voluntary Guidelines – Last paragraph

Paragraph insertion after final paragraph: "Guidelines development is an iterative process, where guidelines are modified as new information on the effectiveness of specific guidelines becomes available. Since publication of the original guidelines in February 1999, the MFRC has sponsored three peer reviews and two public reviews of the guidelines. Based on these reviews, various MFRC committees and the full MFRC agreed on numerous guideline revisions, and a revised set of guidelines was published in June 2005. Logger and land manager training sessions on use of the revised guidelines are being planned."

Page 5-113, Section 5.3.3.1, Paragraph 2 – Last sentence

Insert new footnote: "MFRC landscape planning includes consideration of RNV-type perspectives."

Page 5-114, Impact 8 – Last sentence

Text insertion: "The University of Minnesota, with assistance from the MFRC and DNR is ~~will be~~ conducting a review of the logging residue and coarse woody debris literature…"

Page 5-114, Impact 8, Last sentence – New Footnote

Insert new footnote at the end of last sentence: "The study is titled: 'Research Assessment for the Development of Principles for the Removal of Woody Biomass from Forests and Brushland.'"

Page 5-124, Impact 10 – Sentence 2

Text insertion at end of sentence: "…see the *Guidelines*, Forest Roads, pages 1-49~~7~~."

Page 5-127, Impact 16 – Existing Text

Revision: Replace existing text "No Project-specific mitigation is proposed for this impact area" with new text "Continued Proposer participation in landscape-based road and trail planning is the mitigation for this impact. The Proposer is committed to engage in such planning as appropriate opportunities arise."

Page 5-127, Impact 17 – Sentence 2

Text insertion at beginning of sentence: "…see the *Guidelines*, Cultural Resources, pages 1-25."

Page 5-129, Section 5.4.4 – After Paragraph 1

Text Insertion: "The state conducts ongoing gypsy moth trapping in Minnesota. Results indicate there is an expanding gypsy moth infestation in northeastern Minnesota. The USFS and Minnesota Department of Agriculture have proposed an aerial treatment of 100,000+ acres with gypsy moth pheromone as a measure to 'slow the spread' of this species."

Page 5-131, Section 5.4.5 – Section numbering

Incorrect section numbering, renumber to 5.4.6

Page 5-131, Renumbered Section 5.4.6 – Paragraph 1

Deletion: Remove Paragraph 1 and replace with Paragraph 1, renumbered Section 5.4.7. Retain Paragraphs 2 and 3.

Page 5-131, Paragraph 3 – Last sentence

Word correction: Replace "extend" with "extent."

Page 5-131 – Section 5.4.5.1 – Section numbering

Incorrect section numbering, renumber to: 5.4.7

Page 5-132, Renumbered Section 5.4.7 – Habitat Typing Approach

Deletion: Remove Paragraph 1, this belongs in Section 5.4.5.

Page 5-138, Section 5.5.1.5, Paragraph 2 – Last sentence

Word correction: Replace "popular" with "poplar."

Pg 6-44, Section 6.4.3.1, Current GRPUC Landfill Capacity

Change paragraph to read: "The GRPUC Landfill is operated according to the MPCA approved Solid Waste Management Facility Permit No. SW-210 issued on August 23, 2001 and effective through August 23, 2006. The 43-acre site has a permitted area of 15 acres with remaining landfill capacity of 1,461,044 cubic yards. The estimated remaining life is 25 years at current disposal rates and 19 years at projected disposal rates. An application for reissuance of Permit No. SW-210 is currently being completed for review and approval by MPCA within the required timeframe."

Page 8-1, Section 8.1, Paragraph 3 – Sentence 1

Correction: "A minimum 35-day comment period…"

Page 8-1, Section 8.1, Paragraph 3 – Sentence 2

Deletion: Delete "30-day" from the sentence to read: "…comments during the comment period…"

Page 10-5, References – After reference #12 (Pastor)

Insert Reference: "Perala, 1971. Growth and yield of black spruce on organic soils in Minnesota. NC-56. North Central Experiment Station. USDA, Forest Service."

Page 10-5, References – After reference #14 (Progressives Consulting Engineering, Inc)

Insert Reference: "Schlaegel, 1975. Estimating Aspen Volume and weight for individual trees, diameter classes, or entire stands. NC-20. North Central Experiment Station. USDA, Forest Service."

Page 10-7, References – Last reference

Insert Reference: "Zasada, Hubbard, Adams, 1947. A Study to Determine The Variation in Volume and Costs of Black Spruce Cut to Different To Diameters. MN DNR Report, St. Paul, MN."

Appendices, Appendix A, Page A-18, Paragraph 6 – After last sentence

Text insertion: "Previous historic mill site expansions included the acquisition of adjoining residences and/or small businesses; however, no such expansions have occurred since 1990."

Appendices, Appendix J, Executive Summary on Wastewater Treatment Mod Study, Section 2.5, Page J-5, Current GRPUC Landfill Capacity

Change first paragraph to read: "The GRPUC Landfill is operated according to MPCA approved Solid Waste Management Facility Permit No. SW-210 issued on August 23, 2001 and effective through August 23, 2006. The 43-acre site has a permitted area of 15 acres with a remaining landfill capacity of 1,461,044 cubic yards. The estimated remaining life is 25 years at current disposal rates and 19 years at projected disposal rates."

Appendices, Appendix K

Add new Appendix to the DEIS: "Appendix K: Executive Summary of the MFRC Reports"

CHAPTER 3.0
PUBLIC INFORMATION MEETING

On February 21, 2006, the DNR held a Public Information Meeting regarding the Draft EIS. The meeting was held at the Robert J. Elkington Middle School, 1000 NE 8th Avenue, Grand Rapids, Minnesota, from 7:00 pm to 9:00 pm.

Approximately 85 people attended the meeting, including a number of representatives from the DNR, UPM/Blandin Paper, and the EIS consultant and its subconsultants.

Staff from the DNR outlined the EIS process and the information contained in the Draft EIS. The meeting was opened for questions or comments on the Draft EIS. Meeting participants were encouraged to submit comments on the Draft EIS in writing, but were also invited to submit their comments as testimony at the meeting.

The comments and responses provided at the public meeting are summarized below. A transcript of the public meeting is available for review at:

Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155
651-259-5157

Copies of the transcript may be purchased from:

Braden, Undeland
Registered Professional Reporters
P.O. Box 131
Virginia, MN 55792-0131
218-741-7624

The DNR opened the floor first to questions on the Draft EIS and its findings.

Public Question 1: Mr. Paul Bigwall asked, “Just in regards to the air emissions study that was done, was the smell associated looked at with the Kraft pulping process and the use of the sodium sulfide?”

Reply 1: Ms. Libbie Henderson responded, “I'm Libbie Henderson. I'm with Wenck Associates. We are working with the MPCA. We prepared an air emissions permit application for Blandin. I'm pointing

here; that's bad. But we're a consultant for Blandin. And the pulping process that's at the mill currently is not a Kraft pulping process, and the proposed additional pulping process is not a Kraft pulping process. They will add another pulp mill that uses -- right now they just use a mechanical means to pulp. They will add heat to that, but they will not add pulping chemicals like you would have with the Kraft process. The Sappi mill in Cloquet is the same type of a Kraft mill, but there will not be Kraft made at this mill."

Public Question 2: Mr. Rick Horton asked, "I'm Rick Horton from the Ruffed Grouse Society. I live here in Grand Rapids. I'm wondering why the timber models didn't predict any additional cordage from the federal lands, given that the USDA-Forest Service will draft another forest plan within the 40-year planning window that the EIS covers?"

Reply 2: Mr. Bill Johnson replied, "Rick, it's my understanding that the modeling operates from the projections that came out of this current round of forest planning, and that those -- that the most recent forest plans for both the Chippewa and Superior National Forests, those assumptions were put directly into the projection that we did. To the degree that future harvest activity, the future -- or additional acres might be coming off the federal ownerships, I don't think that it did go any further."

The DNR then opened the floor to comments on the Draft EIS and its findings.

Public Comment 1: Mr. Steve Arbour commented, "Bill, I want to thank you for putting on the program tonight and getting us up to date, and putting together a ton of information. I'm just going to kind of read a statement from Steve Arbour, co-chair of the Blandin Expansion and Retention Team, 2020 IDC.

'Bill Johnson, as a committee of concerned citizens supporting UPM/Blandin Paper Company, we'd like to publicly state that we have reviewed the draft Environmental Impact Statement, and offer the following comments: One, the DEIS sufficiently answers the questions in areas brought up in the scoping document; two, the impact on the community in terms of noise and traffic are acceptable; three, the economic impacts on our community on the build option are significant. These benefits include approximately 96 million dollars in local construction benefits. The additional 27 new good paying jobs and the continued employment of 250 present employees who could be shifted from PM Number 5 to Number 7. Blandin has been a mainstay of the local area economy for over 100 years, and this will continue for the foreseeable future under the build option. Four, it seems to us that the science and assumptions used in the modeling of fiber supply are based on the best available information. Historical review of the previous GEIS demonstrate that those values are relatively close to reality. Thus the findings are sound. IDC Jobs 2020 and Blandin Retention and Expansion Committee supports and accepts the DEIS as written.' Thank you."

Response 1: Comment noted. See also Comment Letter #3 in FEIS Appendix A.

Public Comment 2: Mr. Bud Stone commented, "Thank you. My name is Bud Stone. I am the president of the Grand Rapids Area Chamber of Commerce, who represents 600 members in the Grand Rapids area from the edge of St. Louis County to the east, to Cass Lake, and from Effie down to Remer, to give you an idea how big the area is. We agree with everything that Mr. Arbour just said. I'm not going to spend a lot of time here going through a big letter. We have a resolution that was passed long ago supporting the project Thunderhawk, and we have reviewed the EIS and find that there is no significant negative impact. I would encourage you to issue permits in expediency. Thank you."

Response 2: Comment noted. See also Comment Letter #45 in FEIS Appendix A.

Public Comment 3: Mr. Jim Hoolihan commented, "Good evening. My name is Jim Hoolihan. I live in Grand Rapids. I'm here this evening representing the Blandin Foundation as its president. The foundation is not connected to UPM/Blandin Paper Company in a legal or a corporate way, but we do share a long history and roots to Mr. Blandin.

The Blandin Foundation's mission is to strengthen communities in rural Minnesota, especially the Grand Rapids area. Our vision is that healthy rural communities are grounded in strong economies where the burdens and benefits are widely shared.

The strategy of the Foundation is what we call an economic advantage strategy, and that is to build on community assets.

We recognize eight dimensions of a healthy community that include economic viability, valuing diversity, safety and security, environmental stewardship, recreational and cultural opportunities, infrastructure, healthcare and human services, lifelong learning, and community leadership.

We support the expansion of UPM/Blandin Paper Company and the retention of jobs because we believe it is consistent with the Foundation's mission and vision and strategy in that it will help to strengthen the Grand Rapids area in part by strengthening the local economy.

Additionally, I'd like to say that we are confident that all other dimensions of a healthy community, in addition to the economy, are indeed under careful consideration, and we urge their careful additional consideration and balancing."

Response 3: Comment noted. See also Comment Letter #15 in FEIS Appendix A.

Public Comment 4: Mr. Dan Erkkila commented, "Bill, my name is Dan Erkkila. I'm a resident of Grand Rapids. I'm a member of the Grand Rapids City Council, and I'm the interim head of the University of Minnesota's North Central Research & Outreach Center. Having said that, the views that I'm expressing tonight are my own and not meant to officially represent either the City of Grand Rapids, its city council or the University of Minnesota.

I just have to make a side comment because it goes to a point that you made when you were kind of doing the summary points. While in the last 15 years I've spent most of my time working in the field of tourism, I am a professionally trained forester with my degrees from the University of Minnesota. And I hate to say it, but more than 25 years ago I was a consultant on an LCMR plan study, then commonly known as the Bands Act study, looking at analyzing the timber supply situation in Minnesota. Shortly thereafter I served as an analyst on the Chippewa National Forest, on the first planning team post NFMA, National Forest Management Act, forest level strategic planning effort.

Today I note that while the natural resource decision-making seems to have gotten only more complicated than those days, there's no question that the quality of the data and the modeling techniques that are behind this document that I've taken a look at are light years ahead of what we had in the late '70s and early '80s, so I commend the DNR and its consultants for the work. They did an outstanding job with this DEIS.

I can say that timber and tourism as we say here are an important way of life, pillars of our economy, and they can continue to coexist, provide jobs and income to our region. One doesn't need to be a historian to understand the significance of Blandin in this community, the enterprise to this city. It has and it continues to be a major economic driver for the county. We are again in the past at a critical and important time at this time, for this city, for this company. It's a time in which we hope to see continued investment and success in the mill. As it will always has -- as it has in the past, directly translate to investment and success in Grand Rapids.

Relative to the city issues that I saw highlighted in the report, noise, traffic, rail and so on, I agree that all are either minimally impacting the city or certainly within acceptable limits from this councilor's point of view, considering the huge socioeconomic benefits we will receive immediately with the construction or over the long haul with the renewed investment in UPM.

I believe the city's actions already speak louder than my words tonight in support of the Thunderhawk project. Many of the issues have already been covered in this report, and we've talked about them. Some examples, the city along with some other partners is already and continues to address traffic and rail issues, whether it's a complete renew of Highway 2 that has gotten pushed ahead because of MN DOT's lack of funding, rail issues, either because of speed of the trains, trying to get the speed up, or crossing issues, which are vitally important. We do it not just to help this project, but because our efforts are necessary for the safety of the people who live here and pass through this community.

As I speak, one of our own council members is in Washington, D.C. seeking grant support for the city's Public Utilities Commission's efforts to upgrade our wastewater treatment capabilities as you so noted and have spoken about in the EIS. We have created a job zone on and adjacent to the UPM site to facilitate the expansion. And at the last council meeting, the city council meeting, we authorized a new franchise agreement with Allete-Minnesota Power, for their electric distribution system serving the UPM mill. These are just some of the examples that the city has already taken action on, to see that we can do all that we can do as a minor player for this major employer and taxpayer, not just to survive, but to thrive in a competitive global economy.

Finally, let me just say that I'm very pleased on the cumulative effects to see that the mitigation and significant adverse effects is needed in only 6 of the 17 potential impact areas. As you said, and I think it's an important point to reiterate, this impact, the harvest level is only four to five percent of the total harvest in the state. I look at that as saying, this is really manageable.

All in all, I believe that the programmatic project specific measures outlined in the DEIS will be more than sufficient to offset any negative impact. This is a very positive report on a very positive project. I support this project. And it is my opinion that the past behavior as a guide, you will find that the city council of Grand Rapids will continue to do what it can to support this positive project. This includes, for example, and I think it's a great example, supporting legislative action for continued funding of the Minnesota Forest Resources Council in doing the mitigation that you've recommended in this document that can help. Thank you."

Response 4: Comment noted.

Public Comment 5: Mr. Bob Olson commented, "Good evening, my name is Bob Olson. I live in Grand Rapids. My kids and I, we hunt and fish up here. We want to see everything kind of stay the way it is. But I also want income. I work at Blandin Paper Company. I'm one of 401 hourly employees at Blandin, and this is all about jobs. This is for us to keep our jobs and to continue to bring our families to learn and grow here in Northern Minnesota. My tax dollars go to pay teachers, they go to build roads they pay your wages. My medical benefits pay the doctors in this town, pay the dentists. A lot of people in this town are dependent on our jobs at Blandin Paper Company. And I appreciate all the work that you guys have done on this. Thank you."

Response 5: Comment noted.

Pubic Comment 6: Dr. Mike Johnson commented, "My name is Mike Johnson, and as provost of Itasca Community College, I strongly support the Environmental Impact Statement process and the preliminary assessment. I'm a lifelong resident of the Itasca area, and have seen the significant socioeconomic impact

Blandin Paper Company has had on the families of this area. It has impacted our college greatly. In fact, our college is already in the process of implementing a pulp and paper science program for incumbent workers as well as those seeking future employment at Blandin Paper Company.

This project is not the complete answer to the economic challenges in Northeastern Minnesota, but it is certainly a critical factor for the future of the Itasca area and specifically Grand Rapids. Higher education plays a significant role in the future workforce of the area. It is our intent to continue the strong partnership that's been established with Blandin to help the revitalization of our area economy.

Blandin has been a good steward of our natural resources and a good corporate partner. They help our college complete part of its own mission in giving us the opportunity to provide academic and career related education, which contributes to the social and economic health of our region. It has been said nationally, as the community goes, so goes the community college, and vice versa.

I'm here to say that I -- I'm here tonight to say that I support the EIS and the thorough process that has taken place to protect the future economic, social and environmental vitality of the Itasca area. Thank you."

Response 6: Comment noted.

Public Comment 7: Mr. Rusty Eichorn commented, "I'm Rusty Eichorn from Grand Rapids. I'm the Itasca County board chair. And first of all, I'd like to start out by saying that the Itasca County board wholeheartedly supports the project Thunderhawk. Itasca County lands are FSC Smartwood certified, helping to ensure a sustainable fire supply for decades to come.

And on a personal note, as a matter of economic development and a viable local economy, I personally feel that the no-build option for Blandin is not an option. This company, along with the local community, must continue to grow to ensure its competitiveness and success in a global economy. Thank you."

Response 7: Comment noted. See also Comment Letter #11 in FEIS Appendix A.

Public Comment 8: Ms. Catherine Mclynn commented, "I'll just follow Commissioner Eichorn. Katherine McLynn, Itasca County Commissioner. And as Commissioner Eichorn said, we have passed a resolution in support of the project. I'd like to add that after hearing tonight's presentation, I feel we can both confidently speak on behalf of our fellow board members. We reaffirm our support for the project, especially now that the impacts have been studied and mitigation measures have been offered. The four top things, the timber, the noise, the traffic and the socioeconomic issues, have been impressively addressed by your study, so we thank you for your thoroughness on this."

Response 8: Comment noted. See also Comment Letter #26 in FEIS Appendix A.

Public Comment 9: Mr. John Zasada commented, "My name is John Zasada. I'm a retired forester. And I guess the question I have with regard to the EIS is I see a continuation of a very simple type of silviculture in forestry that I'm not sure does justice to the quality of the forest lands that we have in Northern Minnesota. And I would like to see the EIS look at more alternatives to improving, and not just ending up with more aspen, young aspen.

With regard to that comment, I guess, we're looking out 40 years. And I'm not sure I believe totally in climate change, but a lot of people do. What considerations does this planning process give to change, future change in environment and introduce pests and diseases? And is the outcome in forest types what we want in this timeframe?"

Response 9: Mr. Bill Johnson responded, "Thank you. I'll treat this as part comment and part question. For the question part, the Department during scoping determined that the issue of climate change is one that's beyond the scope of any individual project. It was an issue that was examined in the generic Environmental Impact Statement. The Department acknowledges that this is something that requires study and consideration to manage our, not only our forest resources, but our natural resources across the board in a way that benefits future generations. So based on the scoping decision, climate change was not considered.

On your last point, in terms of the types of values that might be assigned to the harvest projected here, again, our scoping decision directed us to consider not just the forest in terms of fiber productivity, but in terms of other important features, such as, you know, recreation and aesthetics, wildlife habitat, value, again, as a protector of water quality.

In many respects the impact areas covered by the GEIS, those 17 impact areas that I referenced earlier, that is almost, you know, by itself the intent to think of our forest resources in the broadest sense possible. So the draft EIS does lay out as well potential consequences of forest pests and disease. But again, in some respects this is beyond Blandin and their proposal. This would be a situation that would be present regardless of whether Thunderhawk goes present or not.

We'll examine the comment that you've offered in total, and it will be addressed as part of the final EIS."

See Responses to Comments, Section 4.13: Forest Modeling – Assumptions; Section 4.15: Forest Pests; Section 4.35: Non-monetary Forest Values; and Section 4.50: Scoping Comments.

Public Comment 10: Mr. Rick Horton commented, "Thank you. Rick Horton again from Grand Rapids representing the Ruffed Grouse Society, reserving the right to provide more formal and lengthy written comments in the future, but wanted to point out at this point that we do support this action, and we think that it's important in providing the tools in maintaining forest habitat, young forest habitats that can be very valuable for wildlife species.

While active forest management may have some negative effects on some species that need older forests, they do create important habitats for species that like young forests and thrive in forest disturbance, and among that suite of species are very important game animals that are important to the social fabric of Northern Minnesota, providing habitat for whitetail deer, ruffed grouse, woodcock, bear, moose and many other game species that are important to the people that live up here, and many people who don't live up here but do like to come north for hunting seasons. And I would like to point out, too, that there is an economic impact to that sport-hunting component.

So it's very important to the way of life of people in this part of the world, and we feel that without the expansion it would be very difficult to maintain those habitats as well as we do now. Thank you."

Response 10: Comment noted. See also Comment Letter #52 in FEIS Appendix A.

Public Comment 11: Mr. John Brown commented, "My name is John Brown. I'm a student at the Grand Rapids High School and a member of our local youth leaders. I'd just like to speak shortly to show you the scope of support for Project Thunderhawk.

According to the summary of the Environmental Impact Statement that's been provided by the DNR, only minor impact, such as small local traffic increase and slight rail traffic noise -- or traffic increase are worth meaning, and the noise does not seem to be an issue, either. The socioeconomic impact, however, is another matter. And the local construction expenditures are expected to be more than 96 million dollars, and the total economic impact of the project could be as much as 77 million dollars.

I hope you will consider this positive impact on our community and do everything that you can to make sure that this project is successful. Thank you."

Response 11: Comment noted. See also Comment Letter #7 in FEIS Appendix A.

This concludes the public testimony provided to DNR on February 21, 2006 regarding the findings of the Draft EIS prepared for UPM/Blandin Paper's Thunderhawk Project.

CHAPTER 4.0
RESPONSES TO COMMENTS

4.1 ALTERNATIVES

Comment 12.i – C. Hanson (Sierra Club North Star Chapter)

Comment noted. Review of the studies cited in the letter attachments does not identify use of agricultural fibers in the market sector where UPM/Blandin Paper's Grand Rapids mill operates. The mill produces high-quality paper used typically in magazine-type publications. The cited references, while offering that success is being generally realized in some instances, does not refute the view that use of such fiber sources with this project is technically infeasible. The Proposer, who has the greatest expertise regarding the types of paper produced at the mill, informs DNR that it is not aware of publication paper being produced with agricultural crop residue in the Midwest.

In considering whether an alternative should be evaluated in an EIS, the RGU must consider whether: 1) an alternative does not meet the underlying need or purpose of the Project, 2) it would not likely have any significant environmental benefit compared to the Project as proposed, or 3) another alternative (of any type) that will be analyzed in the EIS would likely have similar environmental benefit but substantially less adverse economic, employment, or sociological impacts; see Minn. Rules part 4410.2300, subpart G. Using a fiber source that will not allow the mill to produce paper that meets the requisite quality standards does not meet the underlying need or purpose of the project.

Furthermore, DEIS Section 5.5.1 examines alternative sources of wood fiber, which is a situation analogous to use of agricultural residue in that substitutes for the targeted tree species, specifically aspen, balsam, and spruce-fir, are considered. To the degree that non-target tree species might be used in the mill could result in less overall impact to forest resources, especially if the non-target species are already being harvested under even-aged systems in the aspen forest type, this is considered in DEIS Section 5.5.1. Such a situation could provide superior environmental benefit over the use of agricultural crop residue given that the mill is not located in an agricultural area (e.g., additional transportation impacts), and agricultural crop residue affords benefits of its own, including soil protection and providing forage and nesting habitat, on fields where it is retained (and not marketed as suggested in the comment).

DNR agrees that opportunities are present for alternative fiber sources to be used in a variety of commercial enterprises, including the forest products industry. Given the cumulative nature of the impacts in question, further generic-type review does make sense. Detailed examination of the issue in the context of UPM/Blandin Paper's Thunderhawk Project is not supported.

Comment 12.j – C. Hanson (Sierra Club North Star Chapter)

The comment is not correct. DEIS Section 5.5.1.5 includes a discussion of poplar and aspen plantations, including hybrid poplar. The marginal environmental benefits of substituting hybrid poplar for native trees also depends on what the previous land use was for the land planted to hybrid poplar. Further, hybrid poplar has failed to gain widespread interest in Minnesota since its introduction well over a decade ago. At least part of that lack of interest is due to the cost of growing such material.

The Proposer indicates it has evaluated the feasibility of using hybrid poplar as a fiber source in its papermaking operations and fiber sourced from hybrid poplar does not meet quality control specifications. Various clones have been subject to extensive testing, and while the fiber is similar in some ways to aspen, it is not the same. Use of this fiber is infeasible under currently available technologies.

Comment 12.k – C. Hanson (Sierra Club North Star Chapter)

Comment noted. DEIS Section 3.12.2.2 notes that DNR received comment on the use of recycled fiber during EIS scoping and determined that this issue would not be an alternative examined in the EIS. As the DEIS notes, the future paper machine will be designed to accommodate the introduction of recycled paper fiber subject to customer demand.

In examining what types of alternatives are to be considered in the EIS, Minn. Rules part 4410.2300, subpart G provides the criteria for the RGU to use in accepting or dismissing alternatives for consideration in the EIS. Although use of recycled paper fiber can meet the underlying need and purpose of the project, DNR does not believe significant environmental benefit will be gained compared to the project as proposed because the amount of recycled fiber that might be used in the mill is small. Further, because the Build Alternative assumes that all wood will be sourced from Minnesota's forests, the DEIS impact and mitigation assessment encompasses the maximum project-related effects. The actual project will in all likelihood use less wood than modeled with accordingly less impact. In summary, the examination of a recycled fiber alternative will not substantially improve the information available to the public, Proposer, and decision-makers compared to what is available through the EIS under the adopted scope.

Comment 12.l – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The Proposer indicates that it does not expect wood chips (used by the Project) to be procured from wood debris as stated in the comment. The Proposer expects any such chips to be sourced from either: 1) existing sawmills' byproduct of "chip 'n saw" operations, which use sawbolt material, or 2) traditional pulpwood material found logged with either conventional or cut-to-length logging equipment, then debarked and chipped for shipment to the mill site. This is because the quality specifications will be high for this part of the wood stream. Examination of the issue as described in the comment is not warranted because it does not meet the underlying need or purpose of the project.

The DEIS does not note DNR's consideration of this topic during scoping. The Final EIS modifies Section 3.12.2.2 to include a discussion of this issue.

Comment 12.m – C. Hanson (Sierra Club North Star Chapter)

Comment noted. DNR examined the information appended to the comments and notes that information is not supplied indicating that the alternative type of material has been used in the market sector occupied by UPM/Blandin Paper's Grand Rapids Mill.

In considering the issue, the Proposer notes that when sourcing fiber from wood, all wood is not the same. Even wood in a single, given species can vary in pulp fiber characteristics. In terms of relying on construction and demolition waste, the ability to control pulp quality would be very unpredictable. DNR agrees with the Proposer that the underlying need or purpose of the project is not met through use of this type of material.

4.2 ASPEN HARVEST LEVELS

Comment 12.y – C. Hanson (Sierra Club North Star Chapter)

The GEIS assumed that by year 2010, approximately 25 percent of the demand for aspen would shift to other species. The DEIS did not make that assumption because this shift has not occurred, and as such the DEIS represents an update on current and possible future conditions. DNR considers this as an important aspect of compensating for known limitations of the GEIS (for tiering purposes in the DEIS).

For the No-Build alternative, the DEIS used the estimated statewide harvest level for aspen in 2002 as the baseline harvest level for aspen in all 40 years of the planning horizon. Increases in aspen prices since 2002 have caused some shifts from aspen to other species. More shifts are likely in the future, but a cumulative shift of 25 percent by 2010 seems unlikely.

As with most projections into the future, the results of the DEIS are due to both analysis and assumptions. Appendix C reports derivative results of analyses of the Build and No-Build Alternative where key assumptions were varied to see how the modeling results changed.

Comment 12.hh – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The forest projection modeling reflects the best estimate of future public land management priorities and related goals. DNR has no reason to expect that public land management entities will be less protective of the forest resource base in the future than now. Allowable harvest levels on public lands do not depend on mill expansions, but are the result of planning processes that take into consideration forest stand characteristics (e.g., age, condition, access) and landscape conditions, as well as other related forest values (e.g., habitat, aesthetic, recreation).

Analyses suggest that aspen supplies are tight and that supplies will likely remain tight for the next 40 years unless aspen demand shifts to other species. Statewide harvest levels for hardwood species other than aspen are low compared to harvest levels assumed for these species in the GEIS analyses.

With the Project, it is projected that 70 percent of the additional increment of statewide harvest will come from private lands. DEIS analyses also suggest that additional aspen volumes are possible from public lands with the Project without increasing the total acres harvested in the aspen forest cover type. To accomplish this will require sequencing of stands for harvest with more emphasis on realizing aspen growth potentials. Additional aspen harvest volumes are also projected to be sourced from harvest of other forest types. The birch forest cover type is a good example.

4.3 BLANDIN – COPORATE CITIZEN

Comments 7.b – J. Brown, and 40.g – M. Ritter (Grand Rapids Area Chamber of Commerce)

Comments noted.

4.4 BLANDIN LAND MANAGEMENT

Comments 5.c – L. Bondhus, 14.d – C. Hill, and 37.e – L. Pittack

Comments noted.

4.5 BUILD ALTERNATIVE – ECONOMIC IMPACT

Comments 3.c and 3.d – S. Arbour, 4.c – N. and R. Axtell, 13.d – D. Hanson, 14.b – C. Hill, 22.b – R. Lemonds (Lake County Power), 25.b – P. McDermott (Itasca Development Corp.), 28.e – J. Millis (Grand Rapids Area Chamber of Commerce Board of Directors), 36.d and 36.g – P. Petersen, 43.c – M. Seaberg, 44.b – L. Solberg (State Representative), and 47.f – S. Zeige and E. Treska (Mayor and City Administrator, respectively, City of Grand Rapids)

Comments noted.

4.6 COMMUNITY EFFECTS

Comments 29.c and 29.f – H. Mills

The DEIS examined several aspects of the Thunderhawk project, which included the Project's economic impacts, its impact on traffic and noise, and the impact on local business and residences. The study did not find substantial negative consequences related to the Project. During the construction phase there will be impacts and stresses on local services as discussed in the EIS. However, over the lifecycle of the Project, sustained negative consequences were not projected.

4.7 CONIFERS – CONCERNS

Comment 12.ww – C. Hanson (Sierra Club North Star Chapter)

Comment noted. DEIS Section 5.2.2.13 considers the potential for the Project to affect forest types with a substantial conifer component.

Comparisons of the 1990 and 2001 statewide inventories need to be done with caution. As pointed out by Miles et al. (2005) and emphasized by the GEIS Report Card Study, the difference in the acreage in the conifer cover types between 1990 and 2001 is likely a result of changes in the cover type and stocking algorithms used for the respective FIA inventories. In both 1990 and 2001, roughly 31 percent of the state's growing-stock volume was in softwood tree species.

Comments 8.b and 8.d – S. Conrad

Comment noted. Table C-32 in DEIS Appendix C compares the projected harvest area by forest cover type for the No-Build Alternative with projections for the GEIS Base Harvest Scenario. Figures C-14 and C-15 also indicate spruce harvests for the No-Build and Build Alternatives are very similar. The average area harvested in the lowland spruce forest cover type group is substantially less under the DEIS projection for the Build Alternative than the GEIS Base Harvest Scenario. The Build Alternative is projected to result in little harvest in the lowland spruce cover type. Total harvest area increased with the Project by only 15,000 acres over the study period, which is a very small proportion of the 1.65 million acres estimated in this cover type. The Project is not likely to produce significantly adverse impacts on mature lowland conifer forests.

Further, the amount of lowland spruce acres harvested will likely be less than projected because some of the lowland spruce will come from upland spruce-fir and other forest cover types. For example, stands in the aspen cover type average 65 percent aspen and 35 percent other species, including spruce.

4.8 CULTURAL RESOURCES

Comment 12.lll – C. Hanson (Sierra Club North Star Chapter)

The commenter suggests that pre-logging surveys are needed prior to harvest to prevent the loss of cultural and historic resources. This is precisely the mitigation strategy that was recommended in the GEIS to address the potential destruction of historical and cultural resources by logging equipment. The DEIS estimates that up to 3,000 acres each year would be harvested without these surveys. This estimate is based on guideline implementation monitoring field results that evaluated the frequency by which these surveys are conducted prior to harvest.

In terms of the potential impact to cultural resources noted in DEIS Section 5.2.2.17, the document indicates this estimate is a worst case estimate for the following reasons:

1. nearly two-thirds of all timber harvesting activity occurs in Minnesota when the ground is frozen; frozen soil significantly reduces the likelihood that below-ground cultural or historical resources would be damaged from machinery traffic;
2. riparian forests, which are known to have a high incidence of cultural and historic resources, are subject to less harvesting activity than their counterpart upland forests; Minnesota's site-level guidelines recommend establishing riparian management zones within which only partial harvesting activity and minimal soil disturbance is recommended; and
3. forester and logger training will continue to raise awareness of the need to conduct pre-harvest surveys for historic and cultural resources.

Additionally, the advancement of logger certification and forest land activity in the state is expected to also increase the use of pre-harvest site inventories for historic and cultural resources.

The Minnesota Forest Resources Council (MFRC) is charged with guideline implementation monitoring to further clarify this impact and identify refinements of the guidelines as needed.

Comment 51.e – D. Zumeta (Minnesota Forest Resources Council)

DNR concurs with the comment that the estimate of potentially affected resources is conservative, or high.

Comment 51.f – D. Zumeta (Minnesota Forest Resources Council)

DNR agrees with the comment that the potential impact is derived from the most recent Guideline Implementation Monitoring findings for 2000-2002.

4.9 DEMOLITION PROJECT

Comment 29.d – H. Mills

Comment noted. The RGU is required to assess the Proposer's full set of potential actions in determining what elements should constitute the project to be evaluated in an EIS. One factor to be considered by the RGU is whether a proposed action is exempt from State Environmental Review as provided in Minn. Rules part 4410.4600. Because the proposed demolition of the structure that housed PM3 and PM4 has received the necessary permits and approvals, it is exempt from State Environmental Review under the standard exemption provided in Minn. Rules part 4410.4600, subpart 2B.

Although exempted actions do not undergo the State Environmental Review process, it is appropriate for them to be noted in the review of another project. Accordingly, Item 6e of the Scoping EAW identified this potential activity at the mill site and provided information on the structures to be removed from the site. No further analysis is necessary.

4.10 DEIS PUBLIC MEETING

Comments 5.a – L. Bondhus, and 16.a – R. Hoyum (JDI Contracts, Inc.)

Comments noted.

4.11 ECONOMIC BENEFITS – CALCULATING

Comment 8.c – S. Conrad

Comment noted. The project involves shutting down older technology machinery and replacing it with newer technology capable of almost doubling the production at the mill with modest employment gains. The impacts reported in the DEIS represent county level effects and include direct, indirect and induced economic activity. The total jobs estimated to arise from the expansion are 173.

Comments 25.b and 25.e – P. McDermott (Itasca Development Corp.)

The job estimates are for the county area only.

4.12 FOREST IMPACTS – MITIGATION

Comment 12.xx – C. Hanson (Sierra Club North Star Chapter)

DNR agrees with the comment that "balancing the age class and cover type structure of the state's forest resources" is not part of the purpose and need for the Project. However, DNR disagrees with the comment that the DEIS presents the proposed mill expansion as a means "to further intensify and de-naturalize Minnesota's forests." Rather, the DEIS evaluates the proposed Project and alternatives, and identifies mitigation measures available to avoid or minimize impacts, as required by State rules.

The comment's characterization that "'balancing' is not forest restoration but further degradation" is noted. However, the DEIS's reference to "balancing the age class and cover type structure of the state's forest resources" is directly tied to tiering the project-specific review from an available GEIS where the latter identified this measure as one of the core landscape-scale responses to the projected impacts; see Final GEIS Section 5.7.2, page 5-110. As such, it is entirely appropriate for the EIS and related analyses to consider this issue where necessary.

Managing the distribution of forest cover types and age classes within each cover type is a fundamental and widely accepted technique for perpetuating a range of forest resource values. However, achieving the desired age class distributions does not necessarily result in equal acreages in each age class. As noted in the GEIS…

> "The future age and/or size class and cover type structure of the state's forests will have important implications for forest wildlife habitat, biodiversity, timber production, recreation and aesthetics, and forest health. Significant impacts such as those projected for forest health,

> biodiversity (tree species mix), and wildlife populations were associated with changes to the age class structure for some key cover types and cover type acreage itself…Maintaining a proportion of the forest in each age class in each cover type will provide on-going habitat for the full range of plant and animal species…Aside from large-scale natural disturbance, timber harvesting and forest management are the only tools available natural resource managers have to influence large-scale changes to forest age class and cover type structure, and these changes can only occur over a very long time." [See Final GEIS Section 5.7.2, page 5-110]

A key aspect is the need to maintain an adequate portion of a cover type in all age classes for the desired management goal (e.g., biodiversity retention). This concept of age class distributions is central to cover types managed under even-aged silvicultural systems, and is also relevant to some extent in uneven-aged silvicultural systems.

Finally, it is important to note that forest harvesting is not, by itself, degrading or enhancing in its effect. Its importance and effectiveness depends on forest land ownership objectives.

Comment 12.mmm – C. Hanson (Sierra Club North Star Chapter)

This comment states that "the DEIS fails to evaluate the impact of major landowner forest plans (current) on future RNV and the incremental impact of the proposed Project over the long term (200+ years) when such impacts can be measured and most significant." The DEIS modeled out to 40 years at decadal intervals. Modeling to 200 years would foster a level of error propagation that would render the results meaningless. For example, the GEIS Report Card Study notes that even after a single decade there are, for various reasons, substantial differences between the GEIS model predictions and the current forest conditions based on the most recent forest inventory. It would also be inappropriate to assume that major landowner plans, and associated harvest rates, remain constant over such an extended timeframe. In terms of the USFS, its management has undergone significant changes in harvest patterns over the past 15-20 years. In brief, 200-year projections of a complex scenario offer the illusion of detail, but actually provide little or no discernable substance.

The DEIS tiers from an available GEIS as required under State rules. The GEIS had a 50-year study period that modeled statewide forest condition between 1990-2040. Because the Final Scoping Decision required comparison between the GEIS Base Harvest Scenario and the No-Build Alternative, this was accomplished in the DEIS by specifying a 40-year study period over 2001-2041.

Comment 12.nnn – C. Hanson (Sierra Club North Star Chapter)

The Minnesota Sustainable Forest Resources Act (MSFRA, Minnesota Statutes Chapter 89A) establishes a voluntary, programmatic approach to mitigating the cumulative environmental effects associated with statewide timber harvest. In terms of achieving the intent of the Act, the MFRC study *Baseline Monitoring for Implementation of the Timber Harvesting and Forest Management Guidelines on Public and Private Forest Land in Minnesota: Combined Report for 2000, 2001, and 2002* reports variable

success in the adoption and implementation of the MFRC's *Voluntary Site-level Forest Management Guidelines*. DNR concurs that further progress is necessary to ensure that the state's policy under MSFRA is indeed effective. When considering the impacts attributable to the Project, the progress under the MSFRA that has been made to date, and Proposer commitments to conduct sustainable forestry on its own lands and through its open-market purchases, imposition of mitigation specific to the Project is not recommended.

Comment 12.rrr – C. Hanson (Sierra Club North Star Chapter)

The comment is incorrect regarding public transparency. DEIS Section 5.3.2.3 notes that to maintain membership in the American Forest and Paper Association (AF & PA), the company must operate according to specific guidelines embodied in the Sustainable Forestry Board's SFI Standard. Records must be maintained that are subject to independent, third-party audit. Report summaries are available to the public upon request.

Regarding other assertions contained in the comment, they are noted.

Comment 12.ttt – C. Hanson (Sierra Club North Star Chapter)

DNR concurs with the comment that the Project has a small effect on wildlife, such as birds requiring big conifer patches, relative to the total effects of statewide timber harvest. Only three bird species show differences of at least 5 percent between the Build and No-Build Alternatives. Two of these three show positive changes (see DEIS Table 5-17, last three lines) and all three differences are not significant. Overall, the magnitudes of the largest differences between the Build and No-Build Alternatives among the 134 species are quite small.

Regarding assertions on the need for effective Project-specific mitigations to address native plant community (NPC) statewide distribution, site-level composition and vegetative growth stage (VGS) that are below or above RNV, the decision to harvest any given stand rests with the landowner, not the Proposer, unless as in this case the stand is owned by UPM/Blandin Paper. The landowner has complete control over pre- and post-harvest prescriptions, including consideration of the perspectives offered in the comment. Given that timber procurement occurs in an open market, imposition of such a measure on one procuring entity (in isolation) offers no guarantee that the desired outcome will be achieved. This is because it is the seller that ultimately controls who buys its timber and under what conditions it is harvested.

Greater success is more likely to occur through landscape-scale efforts that coordinate harvest planning activities across multiple ownerships that reflect consideration of desired future NPC/VGS conditions. Such consideration is a component of the MFRC-sponsored Landscape Program as authorized under the MSFRA. It is also worthy to note that the Proposer is an active participant in the MFRC Landscape Program for its timberland ownerships, along with federal, county, other industry, and tribal timberland owners.

Further analysis of the issue is not warranted given: 1) the Project's very small contribution to the impact in question, including no significantly adverse impacts to forest birds, 2) the ongoing activities of the MFRC Landscape Program, and 3) the Proposer's commitments to participate in the MFRC Landscape Program regarding management on its own timberlands.

Comment 21.c – B. Lee

The commenter's assertion that, "…the genetic diversity problems with forestry harvest practices in Minnesota are well known" is debatable. DNR notes that through continuing inventory and research, information regarding the status and management practices for the perpetuation of rare plant species and natural communities in turn continues to evolve. It is important that harvest-related planning consider this information as it becomes available.

The GEIS's evaluation of potential mitigation for genetic variability identified the following measures as being applicable to this impact, specifically: 1) complete the DNR county biodiversity inventory; 2) develop blocks of extended rotation forest, including riparian corridors; and 3) use of modified silvicultural systems (e.g., uneven-aged management and thinning) and retention of key habitat requirements. Regarding the effectiveness of these measures, the GEIS concluded that: "Combinations of these mitigations will likely be effective at reducing significant impacts by providing a range of age classes in each cover type and linkages for transfer of genetic materials:" see Final GEIS pages 5-135 and 5-136.

The data contained in the Minnesota County Biological Survey (MCBS) are an important and essential tool for the state's forest land managers. These surveys provide resource managers with information about the known occurrence and location of sensitive plant and animal species within a county. The availability and application of improved knowledge of the location and association of sensitive species in forest cover types will enable resource managers, loggers, and landowners to more readily identify these important resources and protect them. This latter outcome includes both avoiding sites that contain rare plant communities and, in some cases, mimicking sometimes required natural disturbance through timber harvesting or forest management.

The MFRC *Voluntary Site-level Forest Management Guidelines* note that "[i]t is important to gather information and contact individuals or agencies with knowledge of [endangered, threatened, and special concern] ETS species, and sensitive communities and sites while planning management in upland areas. Consult experts if ETS species and sensitive communities are suspected to occur on site. Timber harvest activities should be scheduled or designed to avoid disturbing ETS or sensitive species." See the *Guidelines*, Rationale for Guidelines/Wildlife Habitat, page 19.

The comments regarding the mitigation measures applicable to Impacts 5, 8, 10, 15, 16, and 17 are noted.

Comment 23.e – R. Libbey

Comment noted. The DNR incorporated relevant information from the GEIS in the DEIS as provided under Minn. Rules part 4410.3800, subpart 8. Both statewide- and (more limited) ecoregion-scale analyses of potential Project-related effects are provided in the DEIS consistent with the GEIS.

Whether impacts will be differentially greater in the cited "Northern Landscapes" as offered in the comment, this cannot be derived from DEIS-related modeling because it is not spatially explicit. Such "localization" to the forested, northern half of the state could be expected as a function of the target species for the Project, however this harvest would still occur in the context of all other timber harvest activity in the "region." The GEIS does however provide insight on the issue; it did not identify such a "concentration" of effect relative to total harvest activity; see Final GEIS Figure 5.2. As the GEIS notes:

> "The projected harvesting patterns indicate that harvesting is projected to occur in virtually all forested regions of the state. This pattern reflects the well-developed road network in Minnesota and the decentralized nature of the timber industry, meaning that few stands in Minnesota are ruled out for harvesting because of their location." See Final GEIS, page 5-9.

Regarding the issue of mandatory and enforced BMPs, the policy of the state is to employ a voluntary, programmatic approach to mitigate the cumulative environmental effects of statewide timber harvest; (see MS § 89A.05, subd. 3). UPM/Blandin Paper has committed to follow the MFRC's *Voluntary Site-level Forest Management Guidelines* in its own management activities, and to the degree possible, with wood purchased on the open market. The Proposer also participates in the MFRC Landscape Program.

Comment 40.e – M. Ritter (Grand Rapids Area Chamber of Commerce)

Comment noted. DNR agrees with the comment that increasing the productivity of the state's forests is an important strategy for mitigating many of the impacts identified in both the GEIS and DEIS. Greater forest productivity translates into producing the same volume of wood fiber from fewer acres. Doing so has important implications for those environmental impacts that are associated with the number of acres subject to timber harvesting. With Minnesota's forests growing an average of only 0.33 cords/acre/yr, there is substantial opportunity to increase forest productivity across several ownership classes. Research has demonstrated that attention to stand establishment, release, and intermediate treatments (e.g., periodic thinning) can produce up to 1.0-1.5 cords/acre/yr in Minnesota (Lundgren, 1983).

Comment 53.l – M. Norton (MCEA)

The commenter states there is essentially no discussion of deer browse either alone or in conjunction with non-native invasive species on the health of Minnesota's forests. On page 5-129, the DEIS states: "[e]xcessive deer browsing can impede tree regeneration to damaging levels, even to potentially eliminating native plants important to biodiversity retention or limiting success in post-harvesting regeneration efforts. The latter, reduced regeneration success, can affect DEIS assumptions about the

regeneration of harvested conifer types, especially upland conifers such as jack pine and white pine." Furthermore, the GEIS Report Card Study, which is cited in the DEIS, discusses deer browsing and its effects on the forest. The GEIS Report Card Study addresses this issue in the *Old and Old Growth Forest and Biodiversity Assessments* chapter, and acknowledges the negative effects of deer herbivory that has resulted from an increasing deer population. Thus the DNR through the DEIS does acknowledge that deer herbivory affects forest resources.

Regarding discussing the effects on deer browsing in conjunction with non-native invasive species, the DNR does acknowledge that these two issues were discussed in the DEIS separately. DNR takes the opportunity to note that implementation of the Project *per se*, and its aggregate increase in statewide timber harvest demand, results in little or no change to the vast majority of the state's timberland. This is true in terms of projected cover type and age class distributions and change in RNV between the Build and No-Build Alternatives. It is also important to note that at least in most of northern Minnesota at the present time, deer herbivory issues are at the site level and not the landscape level (as implied in the comment); deer herbivory is a landscape issue in portions of the North Shore Highlands, thus setting it apart from the rest of the region. DNR thus concludes deer populations (and subsequent impacts) will not be affected by the Project.

Regarding mitigation to address potential negative impacts to the forest resulting from excessive deer populations, DNR believes that the principle burden rests with the landowner's willingness to consider deer population-related perspectives in their forest management activities. The MFRC's Landscape Program and the DNR's Subsection Forest Resources Management Planning (SFRMP) are examples of programmatic measures that are attempting to address the issues raised by the commenter. In addition, the DNR is currently reassessing deer population goals across the state through a public participatory process. This is in part a response to the DNR's concerns regarding high deer populations and their effects on all forest resources.

4.13 FOREST MODELING – ASSUMPTIONS

Comment 3.e – S. Arbour

Comment noted. Both the GEIS and DEIS are projections of potential future conditions; they are not predictions of future conditions. Caution is therefore necessary because one should not expect that model projections are necessarily precise and/or accurate predictions of future conditions. Of greatest value in the assessment of impacts as required in the Final Scoping Decision are comparisons of model projections under differing assumptions, which can lend insight into the underlying influence of those assumptions on various model outputs. For the DEIS, emphasis in modeling was on comparing differences between the No-Build Alternative and the Build Alternative, with multiple model runs used to examine how slight changes in key base assumptions likewise change model results (e.g., sensitivity analysis).

Comment 12.c – C. Hanson (Sierra Club North Star Chapter)

The comment is incorrect. Analyses for the DEIS are not based on the assumption that Reserved Areas will be increased.

The reference on DEIS page 5-68 to Table 1.4b is incorrect; the correct citation is Table 5.12. The text in DEIS Section 5.2.2.1 is modified in the Final EIS to reflect the correct table citation.

Comment 12.bb – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The cited Project does not propose to use roundwood as a biomass source.

It is correct that projected harvest demands were not increased because of recent increases in energy prices. It is highly likely that any additional wood used as industrial fuel in the foreseeable future would be obtained from residues of logging and wood manufacturing operations, which would have no effect on timber harvest levels.

Comment 12.gg – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The DEIS projections of future timberland area and levels of timber availability do embody important assumptions. Private landowner interests and subdivision of private forest land have been studied in various states over several decades. Numerous studies have confirmed patterns of interest and timber availability. On the basis of these studies, the DEIS assumed that much of the private timber gradually becomes available for harvest over time.

This means that some older stands in the aspen forest cover type are assumed to age and lose volume over time before being available for harvest. For hardwood types other than aspen and birch, even-aged management (e.g., clearcutting) was not used. Only for the aspen forest type is the assumption about the availability of timber for harvest a potential concern. The forest projection indicates the area of mature forest increases substantially over the planning horizon for the Build and No-Build Alternatives and all derivative scenarios modeled, including scenarios with assumptions of different levels of availability for private lands; see Tables C-38 and C-39 in DEIS Appendix C. Multiple scenarios were analyzed to specifically consider how varying the assumptions on the availability of private lands for harvest could alter model projections.

The commenter's observation about potential future threats to biodiversity on public lands is noted. DNR has no reason to expect that public land management entities will be less protective of the forest resources, including forest biodiversity, in the future than now.

Comment 12.ii – C. Hanson (Sierra Club North Star Chapter)

Under both the No-Build and Build Alternatives, the Proposer's lands are projected to be managed under a mix of generally accepted, sustainable forest practices, with timber production being a primary management objective. As noted in the DEIS, opportunities to increase timber production on the

Proposer's lands are limited. It is noteworthy that under the Build Alternative the Proposer has greater incentive to maintain ownership of forest land and invest in forest management, which constitutes a measure that assists in mitigating potential harvest pressure on public and other private lands. DEIS Section 5.4.5.1 identifies the Proposer's management profile for its fee lands.

Regarding the "incremental push to NIPF lands," DNR supports the conclusion offered in the DEIS that additional aspen volume is available on NIPF ownerships. In terms of the forest projection *per se*, assumptions regarding timber availability for the aspen forest type restricted new acreages coming into production on public lands. However, the DEIS did note that increased volume may be realized from public lands with adjustments to management (i.e., as a function of improved scheduling).

Comment 41.f – T. Ryan (Ainsworth Group of Companies – Timberlands Alberta)

Comment noted. For both state and county lands, the model included constraints that limited harvest area to the estimated allowable cut for each ownership in each forest cover type that uses even-aged management. For state-managed lands, the level of these constraints recognized current DNR plans to manage some acres using extended rotation lengths.

Comment 41.g – T. Ryan (Ainsworth Group of Companies – Timberlands Alberta)

A number of additional constraints were applied in the model to limit harvesting on state and county lands to less than the 95 percent of timberlands that were assumed to be available for harvest. For state and county lands, 5 percent of the timberland area represented by each FIA plot was considered not available for harvest. In addition, a portion of the area represented by each FIA plot was assumed to fall within a riparian area. Those areas were assumed to have limited harvesting as described by riparian area management guidelines. Allowable cut limits for each forest cover type also limited harvesting on state and county lands. Extended rotation objectives also limited area harvested on state lands.

Overall, the area scheduled for regeneration harvesting under the Build and No-Build Alternatives and all derivative scenarios for either state or county lands over the planning horizon was far below the 95 percent level on either state or county lands. This suggests availability for timber management was not a limiting factor. Of the approximately 5.3 million acres of state and county forest lands modeled, over 4 million acres were not scheduled for harvest by the model over the 40-year planning horizon; see Table C-35 in DEIS Appendix C.

Comments 41.i – T. Ryan (Ainsworth Group of Companies – Timberlands Alberta), and 49.d – J. Wallingford (Norbord Minnesota)

The comment is correct in that the DEIS analyses did not use the GEIS assumption that 25 percent of the aspen demand would shift to other species. Projected harvest levels for all future years of the No-Build Alternative are based on the estimated statewide aspen harvest level in 2002. Neither the No-Build nor Build Alternatives assumed that species substitution will occur to lower aspen demand.

However, the DEIS does address this issue in Section 5.5.1 which notes: "Substituting species other than Minnesota aspen is considered one means to lessen the impacts associated with the state's heavy industry reliance on aspen." The rest of this section then identifies measures available to the Proposer consistent with this observation, including use of imported wood, mix flexibility, non-target species marketing, species substitution, and poplar and aspen plantations.

Comment 49.e – J. Wallingford (Norbord Minnesota)

Actual supply of timber to the marketplace is the result of interplay between a complex set of factors, including biological supply, landowner goals and policies, logging industry capacity, and demand. The DEIS analysis shows that, under the assumptions used, sufficient biological supply to support the Project is present. Comment-identified factors affecting supply of timber actually reaching the marketplace, such as rising fuel costs, value of the Canadian dollar and Canadian provincial forest policies, are market-related variables that are not an appropriate subject of project-specific review.

Regarding the data used, the DEIS used the most recently published datasets that were available when the study was conducted. These included the 2001 FIA forest inventory data, 2002 USFS mill survey harvest data, and 2003 DNR Public Stumpage Price Review data.

Comment 53.e – M. Norton (MCEA)

Comment noted. Table C-35 (DEIS Appendix C) summarizes and compares how the approximately 16 million acres of forest land are scheduled by the projection model to be managed under the Build and No-Build Alternatives. Under both alternatives, over 10 million of 16 million acres of forest land are not scheduled for harvest over the 40-year planning horizon.

Even-aged management is, by far, the predominant silvicultural system used under both alternatives. Uneven-aged management is projected to increase from 188,000 acres under the No-Build Alternative to 246,000 acres under the Build Alternative.

These harvests do not assume that only aspen volumes are removed during any harvest. All uneven-aged management activities were assumed to remove tree species in proportion to the estimated basal area present of each species. For example, if 40 percent of the stand's basal area is in aspen, then 40 percent of the basal area removed with the thinning is also aspen. This is likely a conservative estimate because thinning activities would probably tend to favor removal of aspen. Similarly, even-aged management assumed some trees would be left on site after harvest as leave trees and the species left were assumed to be in proportion to the composition of the stand prior to harvest. In other words, the model was not allowed to selectively choose which trees to leave based on market values of the tree species or products.

Compared to the No-Build Alternative, the Build Alternative does harvest 198,000 additional acres over the 40-year planning horizon; see Table C-35 in DEIS Appendix C. By harvesting some of these additional acres relatively early in the planning horizon, harvesting of other acres are delayed (as

compared to the No-Build Alternative). This delay allows trees on those acres to grow longer, yielding, on average, more volume at time of harvest.

4.14 FOREST MODELING – METHODS

Comment 12.q – C. Hanson (Sierra Club North Star Chapter)

The comment incorrectly asserts that "modeling for both [D]ualplan and the RNV studies assume a random spatial distribution." Harvesting location in the model results is not random. Overall, demand for aspen tends to drive the model where the model harvest nearly all acres assumed available for harvest in the aspen forest type; the model does this under both the Build and No-Build Alternatives. The timing and location of harvests is influenced by the availability and allowable cut assumptions for each associated forest landowner group. For example, relatively less harvesting is scheduled on National Forest lands. Overall, southern Minnesota contains relatively little aspen and the model does not suggest that the Project will increase harvesting in southern Minnesota. The model suggests that the greatest impact of additional harvesting will come on the paper birch forest cover type because this type also contains substantial volume of aspen; see DEIS Table 5-13.

The commenter's assertion that "actual impacts will be much more concentrated" is not supported. Proximity to industrial wood-using facilities *per se* may drive certain aspects of the timber market in Minnesota. However, the decision to harvest any given stands rests on the land management objectives of the landowner, who in turns considers issues such as ease of access, guidelines, or other considerations. Available evidence suggests that harvest in Minnesota is driven more by planned management than proximity to a given wood-using facility.

Comment 12.cc – C. Hanson (Sierra Club North Star Chapter)

Comment noted. DNR is satisfied that the DEIS's forest projection modeling, serves as an adequate basis for other derivative modeling and the associated impact assessment. The modeling allows for reasoned consideration of the Project and alternatives in terms of potential impacts and available mitigation as required under State rules. It is similar to that used in the GEIS, which met the highest standards.

Dualplan, and models like it, is used extensively in forest planning to learn more about specific forest management situations. Although Dualplan is based on optimization methods, it also includes constraints that reflect policies and practices of specific forest landowner groups. For example, in use for forest planning for Minnesota's National Forests, detailed constraints were included for ecological areas to examine the potential of alternative desired future conditions for the forest in terms of future stand age class distributions and potential for shifts in area within major forest cover type groups. For the DEIS, constraints were included to help describe the management situation for each major forest landowner group, which constitutes an improvement over the modeling conducted for the GEIS.

Model results are not predictions of future conditions but projections of future conditions under specific imbedded assumptions that indicate potential forest management policies and practices. Comparing results from multiple model runs can be insightful about the potential of achieving future forest conditions through forest management activities and policies. For the DEIS, emphasis was on comparing potential impacts of harvesting both "with" and "without" the Project. Additional, derivative model runs were also included to examine impacts of assumptions related to availability of private lands for harvest, potential species substitution for aspen demand, and overall aspen supply potential.

Comment 12.jj – C. Hanson (Sierra Club North Star Chapter)

Comment noted. DNR disagrees with the assertion that the forest projection model's treatment of the spruce-fir harvest volume constitutes an "error" affecting other parts of the impact assessment. Under the No-Build Alternative, the model harvests more spruce-fir than is assumed to be minimally required because of: 1) the higher relative value of spruce-fir compared to other timber species groups, and 2) the potential to sustain spruce-fir harvest levels at the minimal level over the planning horizon. Under the Build Alternative, the model harvests approximately 2 percent less spruce-fir in the first decade. This occurs generally in anticipation of the increased demand for spruce-fir in later periods because of the Project.

Overall, spruce-fir supply does not appear to be a major concern at current harvest levels. The Base Harvest Scenario of the GEIS assumed a statewide harvest of 427,000 cords/yr for spruce-fir. The Medium Harvest Scenario of the GEIS assumed a statewide spruce-fir harvest level of 643,000 cords/yr and projected that level to be sustainable. The No-Build Alternative for the DEIS assumes a harvest level of 468,000 cords/yr. DNR is confident that spruce-fir harvest volumes have received adequate treatment in DEIS-related modeling and assessment of potential Project-related effects. Note further that the 197,000 cord incremental demand was assumed, for the purposes of the EIS, to be sourced entirely from within the state's borders. In reality, the Proposer states that a substantial part of the Project's added demand will come from out of the state.

This comment also suggests potential concerns about using averages over a 40-year planning horizon when the Project is assumed to be started later within Decade 1 of the analysis. Forest conditions were analyzed throughout the DEIS as snapshots at decadal intervals. Age class projections also show 10-year age classes with emphasis on area treated by decade.

Comment 12.kk – C. Hanson (Sierra Club North Star Chapter)

Comment noted. An important facet of DEIS-related tiering from the GEIS is DEIS reliance on the FIA as the principal data on the past and current status of Minnesota's forest resources. Because the GEIS relied on the 1990 FIA and the DEIS relied on the 2001 FIA, it was appropriate to use the 40-year study period for the DEIS modeling to provide the best "fit" between the two sets of modeling.

DNR believes it is reasonable for the DEIS modeling to account for the fact that the Project under the Build Alternative does not come online until a few years into the study period. The average annual harvest volumes over the 40-year planning horizon, as shown in DEIS Table 5-7, reflect the fact that the planning horizon started in year 2001 (the year of the latest statewide forest inventory). For the Build Alternative it was assumed that the Project would not come on-line until year 2007. The total annual increase is 197,000 cords/yr after the Project comes on-line. In reality, the Proposer states that a substantial part of this added demand will come from outside the state.

Comment 12.mm – C. Hanson (Sierra Club North Star Chapter)

Comment noted. Table C-38 (DEIS Appendix C) compares the amount of mature forest over time for the Build and No-Build Alternatives. Overall, the trend for both alternatives is for substantially more mature forest to be present over time with the Build Alternative slightly slowing this trend. The trend for mature forest on private lands (DEIS Table C-39) is similar to the trend for all ownerships combined (DEIS Table C-38). The trend for the aspen forest cover type group (DEIS Table C-40) is different, with a substantial reduction in mature aspen forest over time. Yet under the Build and No-Build Alternatives, and all derivative scenarios, there are nearly 1 million acres or more of mature aspen at the end of the 40-year planning horizon.

Regarding appropriate definitions for mature forest, these certainly differ depending on the facet of the problem to be addressed. Using younger age break points has the potential advantage of helping identify potential concerns resulting from an imbalanced age class distribution. Such a situation has mature acres being harvested while relatively few acres are entering the mature class because of the age class imbalance.

Age class distributions were tracked over time for all major forest cover types and those are shown in Appendix C. Such distributions were considered in detail for the Wildlife and Biodiversity analyses described in Appendix E. Also important to note is that age classes as measured by age of the overstory do not equate to "time since disturbance" measures as used to describe estimates of historical RNV "age class" distributions.

DNR agrees that the utility of any forest metric varies in the degree that it reports and characterizes forest resources and the many values assigned to them. In terms of the comment and its assertions that the "mature forest data are misleading," DNR views the considerable analysis of present and projected forest changes as appropriate for conveying forest change in several instructive ways with differing metrics.

Regarding the "secular trend" noted in the comment, it is not necessarily a constant and should not be assumed to be so. The model integrates the progression of forests from the current condition with change induced by natural processes and assumed management activities.

Comment 53.j – M. Norton (MCEA)

Comment noted. The DEIS tiers from an available GEIS as required from State rules. The GEIS had a 50-year study period that modeled statewide forest condition between 1990-2040. Because the Final Scoping Decision required comparison between the GEIS Base Harvest Scenario and the No-Build Alternative, this was accomplished in the DEIS by using a 40-year study period over 2001-2041. See Responses to Comments, Section 4.12: Forest Impacts – Mitigation.

4.15 FOREST PESTS

Comment 53.k – M. Norton (MCEA)

The DEIS addresses potential insect and disease issues in several places, including forest tent caterpillar (FTC). In considering these issues during scoping, DNR did not require detailed analysis of potential future FTC outbreaks upon the state's forest resources. The decision to not conduct detailed analysis on this issue is supported by the DEIS analysis. Specifically, model runs for the DEIS primary Build and No-Build Alternatives, and the associated derivative analyses, project that the average age of the aspen forest type will be reduced from 41 years in 2001 to 34 years in 2041. Therefore, a positive impact on aspen forest type susceptibility to mortality from FTC outbreaks is projected due to harvesting activity associated with the Project.

This conclusion is consistent with the findings of the GEIS, which concluded that younger stands of aspen are less vulnerable to damage from outbreaks of FTC. Since the aspen forest type was projected by the GEIS to become significantly younger due to projected harvest levels in all three harvesting scenarios, impacts on aspen forest type susceptibility to mortality from FTC attacks were anticipated to be positive.

Regarding assertions of potential landscape-scale effect as a function of projected harvest activity, DEIS Figure 5-22 shows very little change in the acreage of aspen forest present in 2041 as a result of the Project. As such, the susceptibility to FTC outbreak is approximately the same whether the Project is built or not strictly in terms of potentially affected acreage. DNR acknowledges, however, that other factors unrelated to the Project could influence the likelihood, severity, and duration of FTC outbreaks, which in turn could result in adverse impacts not captured in the current analysis. DNR forest health monitoring, including for FTC, is designed to provide the best available information to anticipate what constitutes the appropriate management response to pest-type threats to forest health.

Comment 53.m – M. Norton (MCEA)

The commenter states the DEIS should address the primary and secondary consequences that non-native invasive species may have on statewide timber availability over the 40-year study period. DEIS Section 5.4 does address potential invasive insect and plant specie risks, as well as other related factors such as deer browsing or off-highway vehicles. The DEIS findings do not support further detailed analysis of these issues relative to the Project because it does not have any appreciable influence on the presence of non-native species or their potential impacts on timber supply. The study offered in the comment is not

consistent with the purpose of an EIS, which is to evaluate the potential environmental impacts of the proposed Project.

DNR does concur that overall forest health, and how it can be affected by native and non-native species, is an important consideration. The issue of forest health is addressed in the DEIS. DNR also agrees that it is appropriate to offer reasoned speculation on an issue in the absence of a definitive, factual prediction. It is not known in detail how Minnesota forest resources will respond to future establishment of non-native invasive species. If the result is a reduction in the types and amounts of wood now available, the forest-products industry will have to adjust their business model. Likewise, land managers will have to adjust their management strategy as new information becomes available, recognizing that the potential resource-related risk could be great or not depending on how the forest responds.

Significant resources are applied statewide to monitor the condition of Minnesota's forests, including potential threats from non-native invasive species. Forest conditions are monitored through the FIA program as well as through individual landowner management inventories, such as the Forestry Inventory Module (FIM) system on DNR-administered lands. Further analysis of the issue is beyond the scope of this Project-specific review.

4.16 FOREST PLANS – NATIONAL FOREST

Comment 12.z – C. Hanson (Sierra Club North Star Chapter)

Substantial effort was made in developing the DEIS model to use the best available growth and yield information. Both the DEIS and Superior National Forest (SNF) yield models are based on the STEMS growth model.

The SNF growth-modeling efforts were based on average yields within specific forest cover type, site index and age class groupings. The SNF modified parameters of the STEMS in an effort to address conditions specific to the SNF. Based on later ground checks of the modified model, the SNF concluded that their model underestimated harvest volumes substantially. Correction factors were then developed and used by the SNF in their planning process. Growth and yield information, as developed and corrected for the SNF, was then used for all SNF lands modeled in the study. However, using the growth and yield information as developed for the SNF would not be defensible for a statewide analysis.

For the DEIS to address the rest of the state, the STEMS model was used directly, thereby making it possible to recognize specific species mix differences present in the FIA data.

4.17 FOREST PLANS – STATE/COUNTY

Comment 12.aa – C. Hanson (Sierra Club North Star Chapter)

The comment incorrectly asserts that state management plans are proposing intensified harvests. It is also partially incorrect in stating the modeling does not reflect state and county forest management plans. Plans for the management of state forests are reflected in the model. The DNR does not have detailed information regarding such plans for county managed ownerships, and such plans were not considered (as well) in earlier analyses for the GEIS. The DEIS modeling does, however, reflect many of the best management practices and silviculture prescriptions commonly applied to state and county-administered tax forfeited lands. Having the model reflect DNR plans and now common forest practices was deemed appropriate to compensate for known GEIS limitations in this area.

Natural succession, although not modeled directly, is addressed qualitatively through examination of the 10-year age class distributions by forest cover type (i.e., acres of cover types that are aged well beyond their normal life expectancy by the model can be assumed to have succeeded to another growth stage). Native plant communities are ecological characteristics of the landscape. They are not a factor that public land management agencies are attempting to change *per se*. Public land management agencies are working to help restore some cover types in some native plant communities where current levels are substantially below historic levels. Although that level of detail was not modeled, given these efforts it is reasonable to expect some increases in the areas of those forest cover types over time.

The use of genetically engineered trees is not part of the proposed Project and are not considered in the DEIS. However, common forest management practices, e.g., thinning, regeneration, are considered in the modeling and/or analysis.

4.18 FOREST ROADS – EROSION

Comment 12.eee – C. Hanson (Sierra Club North Star Chapter)

The commenter's interpretation of the extent of soil erosion that would occur as a result of implementing the Project is incorrect. The correct interpretation is that significant erosion (e.g., surface erosion > T value) was projected to occur only in the moderate and heavily trafficked areas within a timber sale such as skid trails and haul roads; see DEIS Section 5.2.2.10, Summary of GEIS Findings. Based on the guideline implementation monitoring data, skid trails and haul roads typically comprise only 3 percent of the entire timber sale, and not a loss of 3.1 square miles of soil over 40 years as suggested in the comment. Based on field monitoring results, the extent of skid trails and haul roads is in line with the MFRC *Voluntary Site-level Forest Management Guidelines*, which recommends that basic infrastructure (e.g., roads and landings) occupy no more than 3 percent of the harvest area.

It is important to note that the DEIS estimate of soil erosion impacts is likely conservative (i.e., worst case). When examined on a statewide basis, soil erosion potential is found to be greatest where the

steepest forested slopes and highest rainfall are found, which is principally in southeastern Minnesota. Given the types of tree species needed for the Project, specifically aspen, balsam, and spruce-fir, and the location of the mill in Grand Rapids, very little of the Project's wood fiber is expected to be sourced from southeast Minnesota. The Project may procure a small portion of its wood fiber from the Glacial Lake Superior Plain Ecological Subsection, which contains similar topography to that found in southeast Minnesota. Additionally, the predominance of winter harvesting activity (roughly two-thirds of all Minnesota timber is harvested in the winter) further reduces soil erosion occurrence.

4.19 FOREST ROADS – ROS

Comment 12.kkk – C. Hanson (Sierra Club North Star Chapter)

Regarding assertions in the comment on the nature of the Recreation Opportunity Spectrum (ROS), this land classification scheme was developed by the USDA-Forest Service as a means of describing the recreational opportunity of a given site based on site characteristics recorded on the FIA survey. It is not a political designation, as suggested by the commenter, but one that is based on the site's physical characteristics. Relative to the FIA, the primary characteristics defining an ROS class are the distance from a particular site (e.g., study plot) to a maintained road and the extent to which the site is characterized as natural (e.g., no structures, presence of human activity). Consequently, the Primitive ROS class does not occur exclusively in the BWCAW or state unroaded areas as suggested by the commenter. In fact, all six different ROS classes (including Primitive) are found in both Timberland and Reserved Forest land and all six ROS classes are present on all major forest landowner groups.

Only 9 percent of all FIA plots designated as Primitive are found on lands owned by the USDA-Forest Service. The majority (53 percent) of all Primitive ROS plots are found on Native Indian lands, although state, county, private industrial and private non-industrial forest lands all contain forest land classified in the Primitive ROS class. Across these ownerships, it is the landowner and not the Proposer that determines whether permanent forest roads will be constructed or not in the areas of concern. All things being equal, the DEIS offers an estimate of potential road building consistent with the land management objectives of the landowner.

In terms of land classification for recreational opportunities and understanding potential Project-related effects to recreation resources, the ROS identification of such areas is a helpful addition to available information.

Comment 53.h – M. Norton (MCEA)

The comment stated that Project-specific mitigation should be proposed for Impact 16 and notes the DEIS does not identify why mitigation is not proposed. DEIS Section 5.3.2.2 identifies programmatic mitigation being available for Impact 16 through adoption and implementation of landscape-based road and trail plans. The DEIS also notes the recently adopted forest management plans are one vehicle to avoid or minimize impacts occurring on federal ownerships.

The DEIS finding in Section 5.3.2.2 regarding Impact 16 is consistent with the GEIS, which noted that mitigation could take two principal forms, specifically: 1) develop landscape-based road and trail plan(s); and 2) develop guidelines for management of road construction. Regarding the former, such plans operate through the collaborative efforts across public land managers and road authorities beyond the control of the Proposer. For the latter, the Proposer is committed to employing the MFRC *Voluntary Site-level Forest Management Guidelines*, including those involving forest roads and recreation, on its own lands and to the degree possible through its open market wood purchases. The Proposer has also participated with road planning with the DNR and Itasca County consistent with the recommended mitigation. Consistent with the comment, DEIS Section 5.3.2.4, Impact 16, is modified in the Final EIS to recognize the need for continued Proposer participation in road and trail planning as an available mitigation measure.

It should also be noted the Proposer has limited control on what stands will be harvested to supply wood for the mill expansion outside its ownerships, including stands that contain characteristics consistent with those used to define ROS Primitive or Semi-Primitive Non-Motorized classes. Harvest in these locations is subject to mitigation either through the forest management efforts of the landowner and/or the provisions of the Proposer's timber sale agreement.

Finally, the Proposer indicates it does not own land that meets the definition for these two ROS classifications.

4.20 FOREST SUCCESSION

Comments 12.v – C. Hanson (Sierra Club North Star Chapter) and 52.d – R. Horton (The Ruffed Grouse Society)

Comment noted. In conducting an EIS, RGUs are directed that "there should be a thorough but succinct discussion of potentially significant direct or indirect, adverse, or beneficial effects generated;" see Minn. Rules part 4410.2300, subpart H. The cited rule also states: "…the RGU shall consider the relationship between the cost of data and analyses and the relevance and importance of the information in determining the level of detail of information to be prepared for the EIS." DNR believes the DEIS and supporting analyses meet both the letter and intent of the stated rule, especially in the evaluation of potential Project-related impact upon the state's forest resources.

The comment correctly notes that DEIS-related modeling does not explicitly project forest succession over the 40-year study period. Although modeling tools are available to accomplish this, their use provides little benefit to the analysis because: 1) the 40-year study period is short; 2) succession is not likely to influence stand availability over the study period; and 3) the stands are too young to exhibit significant succession. These are appropriate factors for DNR to weigh in considering the level of treatment forest succession should receive in the DEIS analysis.

The potential for forest succession, however is considered qualitatively in the DEIS where relevant. The DEIS reports that with or without the Project, substantial areas in the older jack pine, aspen and birch forest cover types will succeed to the northern hardwoods and the upland spruce-fir forest cover types. Public agencies are monitoring the situation and are moving to restore some forest types in certain areas through management. Further efforts to address the future potential mix of forest cover types are receiving considerable attention in forest planning for public lands. Also, changes in statewide harvest levels and associated regeneration efforts as proposed through this Project are unlikely to make a significant difference in the mix of future forest cover types.

In addition, the RNV analysis by definition provides insight into successional processes over the study period; such insight is an asset to potential project-related management decisions. Finally, the GEIS did model forest succession, which is incorporated into its determination of what constituted a potentially significant impact (that was tiered into the DEIS in the form of the 17 GEIS impacts).

Regarding the "artificially short completion date for the work," all state EISs are time bound by rule; see Minn. Rules part 4410.2800, subpart 3. The Final Scoping Decision included a proposed schedule that targeted August 2005 as the target date for DEIS public notice. DNR's consultant prepared the RNV analysis consistent with the schedule provided in the Final Scoping Decision.

4.21 FORESTS – GENERAL CONCERNS

Comments 8.a – S. Conrad, and 21.b – B. Lee

Comments noted.

Regarding the assertions of impacts to genetic diversity and nutrients, see Responses to Comments, Section 4.12, for genetic diversity perspectives, and Responses to Comments, Section 4.53, regarding site nutrients.

Regarding assertions of "localization" of effect to the Grand Rapids area, such a localization is not anticipated. Industrial wood procurement, including activity by the Proposer occurs statewide and beyond. The company has not identified a specific procurement zone because open-market wood purchases will be made wherever economically feasible. The company expects that imports will remain an important source of wood for the Project; see DEIS Figure 3-6, Project-Related Wood Sources: Minnesota and Imports.

4.22 GENERAL IMPACTS – NO CONCERNS

Comments 1.a – G. S. Adams III (Grand Rapids State Bank), 2.b – R. Alstead (Teamsters Local 346), 7.c – J. Brown, 10.c – J. Dimich (Itasca County Commissioner – District 3), 15.c – J. Hoolihan, 16.c – R. Hoyum (JDI Contracts, Inc.), 19.c – M. and M. Ives (Mike Ives

Realty), 20.e – D. Kellin (David A. Kellin Financial Services), 24.b – D. McCormack (Grand Itasca Clinic & Hospital), 27.c – D. McMillan (Minnesota Power), 28.d – J. Millis (Grand Rapids Area Chamber of Commerce Board of Directors), 32.b and 32.c – J. Oberstar (US House of Representatives), 34.a – T. and C. Osborn, 37.b – L. Pittack, 38.e – D. Prochazka (Rapids Rental & Supply Moving & Storage), 39.c – M. Rima, 40.b – M. Ritter (Grand Rapids Area Chamber of Commerce), 43.b and 43.e – M. Seaberg, 45.b – B. Stone (Grand Rapids Area Chamber of Commerce), and 48.b – P. Walker (Walker & Associates)

Comments noted.

4.23 HOUSING IMPACTS

Comment 42.b – B. Sanders (Itasca County HRA Board of Commissioners)

Comment noted.

4.24 IMPLAN

Comment 12.o – C. Hanson (Sierra Club North Star Chapter)

The IMPLAN model was utilized in the study to estimate the direct, indirect and induced employment and economic output impacts of the Project. IMPLAN was originally developed by the USDA-Forest Service and is now maintained by the Minnesota IMPLAN Group and is specifically designed to assess the economic impacts for projects such as Thunderhawk. IMPLAN does utilize generalized relationships to determine these impacts, but the results should be considered representative of the size and scale of impacts of the Project. The alternative to using a pre-existing tool such as IMPLAN would have been to develop and conduct extensive surveys of businesses and residences in the county to develop the relationships and economic impacts from the bottom-up. Such an approach would be have been extremely time consuming and costly and would have likely yielded results comparable to that generated by IMPLAN.

4.25 INDUSTRY COMPETITIVENESS

Comment 49.j – J. Wallingford (Norbord Minnesota)

Comment noted. In recognizing the importance of a healthy forest industry and the "fundamental issues" that underlie future competitiveness, Governor Pawlenty convened an "Advisory Task Force on the Competitiveness of Minnesota's Primary Forest Products Industry" in 2003. The Task Force made a number of recommendations to address fundamental issues of industry competitiveness. Since the Task Force report was published in July of 2003, progress has been made to implement the recommendations generated by the Task Force. Specifically:

The first Task Force recommendation was to "[I]ncrease wood and fiber availability, quality, and production from public and private lands while continuing to protect the environment." The specific sub-recommendations and actions taken are listed below:

- Increase the volume of timber offered for sale on DNR- and county-administered lands, within sustainable harvest levels (DNR and county boards).

  Status: The comment suggests that DNR is not achieving sustainable harvest levels. Specifically, for the four fiscal years 2002 through 2005, DNR has offered an average of 857 thousand cords of timber for sale. This figure is very close (within 3 percent) to DNR's estimated long-term sustainable harvest level of 880 thousand cords. To suggest that DNR is offering timber volumes significantly below sustainable levels is inaccurate.

- Retain and enhance tax incentives for forestry investments by private forest land owners by maintaining funding for the Department of Revenue to implement the Sustainable Forestry Incentives Act (SFIA).

  Status: SFIA has been continued. Revisions and improvements to SFIA are being studied and considered.

- Strongly urge the Superior and Chippewa national forests to increase their allowable timber harvest levels (also called allowable sale quantity) and actually attain their full sustainable potential.

  Status: The state of Minnesota has actively engaged the Chippewa and Superior National Forests in order to encourage their offering of full sustainable timber harvest potential.

- Support research targeted at increasing forest productivity and supplementing existing wood and fiber supplies. For example, researchers should investigate forest regeneration and management practices that foster productivity, use of short rotation tree crops, use of agricultural crop residues, use of technologies for increasing paper recovery and recycling rates, and policy tools including incentives that would foster such efforts.

  Status: As one example of this commitment, the legislature committed $400,000 to NRRI to fund short rotation woody crop research for the FY 2006-07 biennium.

- Maintain adequate investments in forest sustainability to mitigate significant environmental impacts of increased timber harvesting and forest management.

  Status: A Forest Management Investment Account was created to help ensure a more diverse funding mix for the DNR Division of Forestry (approximately $10 million/yr). This facilitates more reliable funding of forest management activities.

Additional efforts in the past three years to increase fiber supply in Minnesota include:

- DNR increasing the private landowner forestry assistance budget for FY 2006-07.
- DNR making continuing improvements in quality of nursery stock.
- DNR increasing use of multiple-entry silvicultural systems in order to "capture" a larger portion of timber lost to mortality.
- DNR developing improved forest management information systems.
- DNR increasing the use of ecological classification systems in order to improve forest management.

In addition to public policy actions, industry options for helping to address timber supply issues could include hiring more procurement foresters to focus on timber from NIPF parcels, research into alternative fiber (agricultural residues in particular) suitability for use as a partial raw material input, and planting of fast-growing hybrids on marginal agricultural sites.

4.26 INVENTORY DATA

Comment 12.dd – C. Hanson (Sierra Club North Star Chapter)

Comment noted. Preparation of relevant DEIS-related analyses reflected the schedule proposed in the Final Scoping Decision.

RGUs are to weigh the respective value of available datasets in accomplishing the purposes of conducting an EIS on a project. The DEIS analysis, and the data it used, is sufficient to understand the Project and its potential environmental consequences for the purposes of project-related decisions.

Comment 12.uu – C. Hanson (Sierra Club North Star Chapter)

Substantial effort was made to use the best inventory information for Proposer lands. Federal regulations prevent the USDA-Forest Service from releasing specific forest ownership information to identify which FIA plots are located on industrial lands. The DEIS could not change these policies.

4.27 LANDSCAPE-LEVEL MITIGATIONS

Comment 12.h – C. Hanson (Sierra Club North Star Chapter)

The comment incorrectly states that landscape plans are incomplete. All MFRC landscape plans in the forested parts of the state have been completed and approved by the MFRC.

The commenter's characterization of the GEIS Report Card Study findings with respect to the MFRC's Landscape Planning and Coordination Program is incorrect. The GEIS Report Card Study documented that 32 percent of the forest land is managed by organizations that report perceiving the program to be

extremely effective in identifying and addressing landscape-level forest resource issues and coordinating forest management activities across large landscapes and multiple ownerships. This is not the same as the commenter's assertion that 68 percent of the forest land is managed by organizations that don't support the program.

The report also states that 38 percent of the forest land base is managed by organizations that believe the program is only minimally or not effective in addressing landscape-level issues and facilitating coordination. This is not the same as the commenter's interpretation that those managing 38 percent of the timberland admit they have not changed their forest management to implement the landscape recommendations recommended in the GEIS. The former is a measure of the effectiveness of the MFRC's Landscape Planning and Coordination Program, whereas the latter is a statement about organization-specific initiatives to address landscape-level forest management issues.

The commenter's assertion that the GEIS Report Card Study did not ask if forest managers were implementing landscape mitigations is incorrect. In that study, forest land managers were asked to characterize their involvement in all stages of the MFRC's Landscape Planning and Coordination Program, including: assessing regional forest resource conditions, identifying desired future forest resource conditions, identifying strategies needed to achieve landscape-scale forest resource goals, participating in landscape-based coordination activities, and evaluating progress towards meeting the goals established for each landscape region. Further, each organization was asked to describe other landscape-level planning and coordination efforts it had undertaken since 1994 beyond those conducted under the auspices of the MFRC's Landscape Planning Program. Both of these characterizations are provided in the GEIS Report Card Study as well as the DEIS.

The commenter's opinions regarding the Superior National Forest plan and MFRC landscape planning program effectiveness are noted. The GEIS Report Card Study does state that perceptions of the MFRC's landscape program effectiveness vary among the forest land managers who have participated in the program, with public organizations generally finding the program to be more effective than do private organizations. It also notes the relatively modest influence the MFRC Landscape Program has had on an organization's forest planning and management activities. Organizations and regions with well-developed plans incorporating landscape concepts will be less influenced than others.

Finally, landscape planning is not a new concept (i.e., it was not developed from the GEIS); rather it is an approach to forest management that is evolving along with the supporting science and land management experience.

Comment 51.b – D. Zumeta (Minnesota Forest Resources Council)

Comment noted. The upcoming ecological classification and assessment of the Northern region cited in the comment should provide information useful for a number of purposes, including recommendations for balancing age classes and cover types.

Comment 53.a – M. Norton (MCEA)

Comment noted. An EIS is not a planning document. Rather, it is an examination of a project's potential impacts and what mitigation is available to address project-related environmental effects, especially significant impacts. The reproduction of the contents of various management plans that may occur within the DEIS study area is not a stated purpose of an EIS.

Regarding the request to conduct analysis to how Project implementation will advance or impede progress toward the Desired Future Forest Conditions (DFFCs) contained in the MFRC regional landscape plans, such an analysis is not required under the Final Scoping Decision. Information generated in the DEIS, specifically how the Project may affect certain NPCs at a respective VGS, will be available to land managers responsible for considering how their management actions, including harvest of forest types which could potentially supply the Proposed project, could affect an NPC of interest or concern.

DNR also agrees that as one of many land managers participating in the MFRC Landscape Program and its initiatives, it is appropriate for RNV-type perspectives to be reflected in DNR's forest planning, including the SFRMP process. This is indeed the case because both DNR and MFRC planning exercises use the RNV tool to assist in determining desired future conditions, and just as important, the associated goals and strategies necessary to move towards those desired future conditions. For the MFRC landscape plans, RNV is used as a benchmark against which to measure change from current conditions (e.g., moving towards or away from RNV over time). As the MFRC plans note, achieving the MFRC-identified DFFCs (i.e., moving towards RNV) is a long-term endeavor (e.g., 100+ years) that will only be achieved by moving in incremental steps, and more importantly, by implementing the goals and strategies that are expected to result in the desired outcome.

Regarding a discussion of mitigation, there is no authority to direct DNR, or any other land manager, to use RNV as a goal in their land management planning as a function of any Project-related decisions. The landowner, and not the Proposer, controls how their land will be managed, including determining the application of long-term management objectives relating to the type and mix of NPCs and underlying VGSs that may be present now or in the future.

Mitigation as noted in the comment is described in DEIS Section 5.3, which was required under the Final Scoping Decision. In particular, Section 5.3.2.1.b notes that "[l]andscape plans are now finalized and approved by the MFRC for all six landscape regions and plan coordination groups actively meet in all regions." The DEIS further notes that the MFRC established broad goals, including:

- Within forested landscapes, healthy, resilient, and functioning ecosystems will be maintained within appropriate mixes of forest types and age classes to promote timber production, biological diversity and viable forest-dependent fish and wildlife habitats.

The DEIS also identifies ongoing Proposer participation during development of the North Central Landscape Plan, including having the firm's Forest Ecologist ensure that all UPM/Blandin Paper site level harvest and silvicultural plans take into account neighboring ownerships and ecologically important landscape features.

DNR agrees however that the DEIS should have noted that RNV-type perspectives are considered in the MFRC landscape planning process. DEIS Section 5.3.3.1 is modified in the Final EIS to recognize the role played by RNV in the MFRC landscape planning efforts.

DNR notes that implementation of the Project *per se*, and the associated aggregate increase in statewide timber harvest demand, results in little or no change to the vast majority of the state's timberland. Implementation of the Build Alternative is unlikely to have a significant effect on moving toward or away from DFFCs relative to the No-Build Alternative. As detailed in DEIS Appendix D, RNV-related effects of the Build Alternative range from positive to negative to neutral for forest-type NPCs depending upon the forest type in question.

4.28 LOCAL BUSINESS IMPACTS

Comment 33.a – T. Osborn (Computer Enterprises)

DNR notes and acknowledges this information.

Comments 47.e – S. Zeige and E. Treska (Mayor and City Administrator, respectively, City of Grand Rapids) and 50.b – E. Zabinski (Grand Rapids Economic Development Authority)

Comments noted.

4.29 MATURE FOREST IMPACTS

Comment 8.e – S. Conrad

Comment noted. Analyses for the No-Build Alternative suggest the area of mature forest will increase by approximately 2.1 million acres, from approximately 7 million acres to 9 million acres over the 40-year planning horizon; see Table C-38, DEIS Appendix C. If fewer acres of private land are indeed available for harvest, this increase will be even larger. Under the Build Alternative, the projected increase in mature forest is still almost 2 million acres.

4.30 MILL EXPANSIONS

Comment 12.t – C. Hanson (Sierra Club North Star Chapter)

Regarding lack of analysis in the DEIS for expansion plans for other mills, DNR is not aware of future expansion plans for any other wood-using mills in Minnesota.

The comment notes there is no analysis of use of wood as an industrial fuel in the DEIS. The comment is correct. This is because it is highly likely that any additional wood used as industrial fuel in the foreseeable future would be obtained from residues of logging and wood manufacturing operations, which would have no effect on statewide timber harvest levels.

Comment 36.f – P. Petersen

Comment noted.

4.31 MFRC

Comments 51.a, 51.c, 51.d, 51.g-m – D. Zumeta (Minnesota Forest Resources Council)

Comments noted and corrections have been included in Chapter 2.0.

4.32 NIPF LANDS

Comment 12.ee – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The GEIS did not predict a price level that makes private lands available for harvest.

The recent FIA inventory shows that substantial volumes of wood are physically present in the state on private lands. Higher aspen prices will make it economically attractive to harvest smaller-sized stands and mixed-species stands that contain aspen. Higher timber prices also make more costly uneven-aged management more economical.

In the past, procurement foresters for forest industry have tended to concentrate their efforts on the accessible and larger stands. This tended to emphasize sales from public lands. The DEIS addresses the stated concern by examining the relative effect of assumptions about the availability of private lands for harvest in derivative modeling scenarios. Also, detailed assumptions were used recognizing that private lands will likely only gradually become available for harvest over time.

It is also important to note that public land managers have looked carefully at long-term impacts of their forest management plans for public lands. Plans for state lands are being developed today based on ecological subsections of the state; moving the forest towards desired future forest conditions is a clear and important objective of this planning.

Comment 53.d – M. Norton (MCEA)

Comment noted. The DEIS does reference the three-year guideline implementation monitoring report prepared by the MFRC (*Baseline Monitoring for Implementation of the Timber Harvesting and Forest Management Guidelines on Public and Private Forest Land in Minnesota: Combined Report for 2000, 2001, and 2002*). The DEIS also references the low level of compliance with specific guidelines; see DEIS Section 5.3.2.1 for a discussion of the 52 percent rate of compliance with riparian management zone guideline recommendations for zone width and residual basal area.

The commenter's statement that guideline compliance levels on NIPF lands are lower than other lands is noted.

The Final EIS amends the Draft EIS by adding a new appendix (DEIS Appendix K – Executive Summary of the MFRC Reports) that includes the executive summary of the MFRC report: *Baseline Monitoring for Implementation of the Timber Harvesting and Forest Management Guidelines on Public and Private Forest Land in Minnesota: Combined Report for 2000, 2001, and 2002*.

4.33 NO-BUILD ALTERNATIVE – ECONOMIC IMPACTS

Comments 10.d – J. Dimich (Itasca County Commissioner – District 3), 13.e – D. Hanson, 25.b and 25.c – P. McDermott (Itasca Development Corp.), 28.c – J. Millis (Grand Rapids Area Chamber of Commerce Board of Directors), 36.h and 36.i – P. Petersen, 38.d – D. Prochazka (Rapids Rental & Supply Moving & Storage), 41.c – T. Ryan (Ainsworth Group of Companies – Timberlands Alberta), 50.c – E. Zabinski (Grand Rapids Economic Development Authority), and 56.b – D. McMillan (Minnesota Power)

Comments noted.

4.34 NOISE

Comment 13.c – D. Hanson

Comment noted.

Comment 29.e – H. Mills

The noise analysis performed for the DEIS was not intended to evaluate how noise levels vary with the speed of the paper machines or how the facility *can be constructed* to reduce potential noise emissions from venting systems and fans. The purposes of this noise analysis were to evaluate: 1) the compliance status (relative to Minnesota Rules Chapter 7030) of existing 24-hour noise levels at a location representative of the nearest noise-sensitive land uses; 2) how proposed changes at the facility affect ambient noise levels at the nearest noise-sensitive land uses; and 3) to determine if future noise levels at the nearest noise-sensitive land uses are predicted to comply with MPCA noise rules under the Build Alternative.

Regarding the acoustical properties of the proposed facility, the noise analysis was performed with input from mill staff. One principal assumption of the analysis was that walls of the new paper machine structure will be constructed using materials that provide, at a minimum, acoustical transmission loss comparable to that provided by the current mill walls. No further analysis is required. The proposed facility will be subject to the noise limits in Minnesota Rules Chapter 7030. If the proposed facility is constructed and placed into operation, and noise complaints are filed with MPCA, the Proposer may be required to evaluate existing noise levels by performing noise monitoring.

It would be inappropriate and unnecessary for the noise analysis to discuss meteorological-induced noise propagation and attenuation because the nearest noise-sensitive land uses are close to the facility. While meteorological conditions can influence noise propagation, those affects are minor over short distances.

Comment 29.h – H. Mills

Existing noise levels comply with MPCA noise limits in Minnesota Rules Chapter 7030. Results of the noise analysis performed for the DEIS indicate that future noise levels are also predicted to comply with Minnesota Rules Chapter 7030. MPCA noise rules do not contain spectral or tonal limits.

Comment 36.c – P. Petersen

Typically the MPCA air emissions permit requires compliance with Minnesota Rules Chapter 7030, not necessarily annual noise monitoring.

Comments 38.c – D. Prochazka (Rapids Rental & Supply Moving & Storage), 39.a – M. Rima, and 40.d – M. Ritter (Grand Rapids Area Chamber of Commerce)

Comments noted.

4.35 NON-MONETARY FOREST VALUES

Comments 12.n and 12.x – C. Hanson (Sierra Club North Star Chapter)

The DEIS considers the full range of forest values through its tiering from the GEIS. Specifically, the GEIS identified important attributes and characteristics of Minnesota's forests in terms of:

- Maintaining productivity of forests for timber production;
- Forest resource base;
- Forest soils;
- Forest health;
- Plant and animal diversity in forest ecosystems;
- Forest wildlife and fish;
- Forest recreation;

- Economics and management; and
- Aesthetics and unique historic and cultural resources.

These issues were collectively defined as "forest resources" for the GEIS. They were examined very closely through the development of nine technical papers, with a focus on cumulative impacts at a statewide scale. All GEIS perspectives can be characterized in terms of this broad view of forest resources synonymous with "ecological and non-consumptive human use values" offered in the comment. For the DEIS, consideration of these values occurs through analysis of the Project in terms of the 17 GEIS impacts and MSFRA programmatic mitigations, which by definition represent a broad, inclusive view of forest resource functions and values. As required in the Scoping Decision Document, both adverse and beneficial impacts are addressed in the EIS through use by tiering of metrics (e.g., impacts; mitigation) developed for the GEIS. The DEIS provides both a quantitative and qualitative interpretation of impacts, but does not develop monetized estimates of either consumptive or non-consumptive values. Such an analysis does not inform required governmental decisions or assist in the consideration of alternatives.

DNR agrees that Minnesota's forest resources exhibit a wide range of consumptive and non-consumptive values as detailed in the cited Sierra Club document. It is the policy of the state to balance the range of values attributable to the state's forest resources. Harvest-related activity, and how it affects the full set of forest values, may or may not be permitted as a function of the management philosophy(ies) of the landowner. On lands under state control, this is accomplished through the system of state forests, wildlife management areas, scientific and natural areas, state parks and recreation areas, and the state trail system, many of which exhibit a forested condition. Analogous situations are present to varying degrees on other county and federal ownerships. For NIPF ownerships, it is up to the individual landowner to determine what mix of consumptive and non-consumptive values are produced on their property. It is worthy to note that uncertainty surrounds the availability of privately owned timberlands for harvest.

4.36 OLD FOREST AND DESIGNATED OLD GROWTH

Comment 12.d – C. Hanson (Sierra Club North Star Chapter)

Comment noted. Since the GEIS was adopted, public forest land management agencies are generally more aware of the importance of old growth forests and address this value in their forest management planning. The DNR has been active in helping identify and more clearly define old growth forests in Minnesota. Although less protective than efforts on state lands, the recent EIS for the Chippewa and Superior National Forests projects that over 100,000 acres of management areas on the Chippewa National Forest, and over 1 million acres of the Superior National Forest, will be managed to promote or contribute to old growth forests in Minnesota. The principal difference between state and federal efforts is that state-designated old growth is protected from logging in the future, which is not the case for the national forests.

The DEIS projects increases in mature forest for all forest cover types other than the aspen type. The aspen forest cover type is not a forest cover type generally associated with old growth forests. This is typically the case for the aspen species group too, although aspen is a seral state or VGS of several native plant communities that may become old growth, which is addressed in the growth stage discussion in the DEIS. Regardless, total statewide harvest levels, even with the Project, are well below the harvest levels of the GEIS Base Harvest Scenario.

Comment 53.f – M. Norton (MCEA)

The commenter is correct that the assumed 50,000 acres of old growth reserved as such outside the Boundary Waters Canoe Area Wilderness (BWCAW) was never met. Old growth is forest that is old (generally >120 years) and has never been logged (i.e. primary forest). Statewide, 401,869 acres of old forest in the red-white pine, black spruce-tamarack, northern white cedar, oak-hickory, river bottom, and northern hardwood types, existed on timberlands in 1990 (120+ years old, Frelich 1995). It is unknown how much of this may have been harvested since 1990, or how much of it would have qualified as old growth. The acreage older than 120 years in the same forest types fell to 367,138 by 2002 (GEIS Report Card Study).

DNR's definition of old growth does not require a stand to be primary forest, or forest that has never been logged. DNR's definition includes forest with little or no significant human disturbance greater than 120 years old. DNR identified 44,800 acres of old growth and future old growth in 2004, although only 23,550 acres of this was newly reserved, the remainder having been on already reserved lands such as Itasca State Park, and State owned lands within the BWCAW. This leaves a deficit of 26,450 acres of reserved old growth as compared to what was assumed by the GEIS.

The BWCAW contained about 139,217 acres of old growth prior to the 1999 blowdown, and 15,500 acres of that went down in the storm, leaving 123,717 acres of standing old growth in the white pine, red pine, lowland conifer, and lowland hardwood forest types.

Note that the acreage for primary forest (never logged, regardless of stand age so that jack pine forest types that frequently burn are included) is much larger. The BWCAW has 385,774 acres of standing primary forest and 44,422 acres of blowdown primary forest. All forest lands in Minnesota classified as Timberland, Unproductive, or Reserved exhibited about 652,137 acres of primary forest in 1990. The 221,931 acres of primary forest outside the BWCAW is distributed among all major forest types and is partly a subset of the 401,869 acres of old forest mentioned above; part of it is also unproductive black spruce, tamarack and northern white cedar forest found in northern Minnesota. These acres provide some compensation for the reserved old growth deficit relative to the GEIS recommendation.

Since the Project would use mainly aspen, it is unlikely to contribute to any loss of old growth as compared to other harvesting activities, since aspen is not an old-growth forest type. It is possible that

there is some primary aspen forest outside the BWCAW that is not reserved. There is no data to estimate the exact acreage, but the numbers indicate that if it exists, it is very small.

Finally, as noted by the numbers provided above, the comment incorrectly asserts that much of the BWCAW old growth was leveled by windstorms.

4.37 OPPOSE PROJECT

Comments 8.g – S. Conrad, 21.a and 21.e – B. Lee

Comments noted.

4.38 OTHER

Comment 15.a – J. Hoolihan (Blandin Foundation)

DNR notes the Blandin Foundation's mission and Economic Advantage Strategy. No further comment is necessary.

Comments 17.a – C. Huffman, 19.a – M. and M. Ives (Mike Ives Realty), and 37.d – L. Pittack

Comments noted.

4.39 PARCELIZATION

Comment 53.n – M. Norton (MCEA)

The DEIS addresses this issue in Section 5.4.5. DNR recognizes that parcelization of NIPF lands is a source of concern. However, the Project's potential impact on NIPF parcelization is expected to be negligible. If there is any effect, it is most likely to be slightly positive. This is because maintenance of timber markets for forest products should result in improved land values (without parcelization).

4.40 PERMITS – MITIGATION

Comment 13.f – D. Hanson

Comment noted. In terms of the granting or denial of future permits, it should be noted that the State Environmental Review process *per se* is not a Project approval. It is correct, however, that the RGU can recommend permit conditions to be imposed on the Project through necessary approvals. DNR is not recommending the imposition of specific permit conditions on the proposed Project. It is the agency's determination that the DEIS documents known impact avoidance and/or minimization measures, or mitigation, of Project-related effects likely to be conditions of the permits and approvals identified in DEIS Chapter 2.0 and FEIS Chapter 5.0. The impacts can be addressed through measures likely to be

contained in, but not limited to: the Project design, standard permit conditions, existing land use restrictions, the Proposer's forest management and wood procurement practices, and statewide programmatic measures authorized under the MSFRA.

Comment 32.d – J. Oberstar (US House of Representatives)

Comment noted.

Comment 35.a – D. O'Toole

Comment noted. The DEIS documents the Project's environmental, sociological, and economic consequences as required by the Final Scoping Decision.

Regarding the commenter's characterization of the Build Alternative, the significance of the impacts resulting from Project implementation varies. For noise-, traffic-, and rail-type impacts, the DEIS analysis identifies very little change from current conditions. For the socioeconomic effects, potential losses of affordable housing stock and small businesses, coupled with stresses on public services during the construction phase, merit concern and further consideration by local governments. The DEIS economic analysis shows that building the Project will generate substantial short- and long-term economic activity. Regarding cumulative timber harvest effects, the Project will result in impacts, some of which are significant or important, but the scale of change is very small relative to all activity and is subject to both programmatic and Proposer-specific mitigation measures. All other impacts identified by the DEIS are thought to be manageable through the proposed design in concert with regulatory impact avoidance and/or minimization requirements.

DNR concurs with the observation in the comment that the socioeconomic consequences of the No-Build Alternative are significant compared to current conditions.

In terms of the granting or denial of future permits, it should be noted that the environmental review process *per se* is not a project approval. Decisions on required permits and approvals will be made by the respective governmental entities under their respective authorities. DEIS Chapter 2.0 lists the governmental approvals that must be secured prior to Project implementation. The findings of the EIS, including measures that are available to apply to the Project to mitigate impacts, are available for all governmental units to consider in making their respective decisions on the Project.

Comment 43.d – M. Seaberg

Comment noted.

Comment 53.c – M. Norton (MCEA)

DNR disagrees with the comment that the DEIS avoids analysis and consideration of mitigations that are not simply speculative or voluntary. The DEIS and supporting documentation provide substantial evidence regarding mitigation measures, both programmatic and Proposer-specific, that are being, and

will be, applied to address the impacts identified in Section 5.2. See DEIS Section 5.3 and Appendices G, H, I; new DEIS Appendix K – Executive Summary of MFRC Reports; and, Final GEIS Section 5.7. The FEIS also appends the DEIS with a section detailing all Project-related mitigation measures identified in the document, not just those designed to address the environmental consequences of statewide timber harvest.

Regarding the commenter's request for imposition of permit conditions, it should be noted that the State Environmental Review process *per se* is not a project approval. It is correct, however, that the RGU can recommend permit conditions to be imposed on the Project through necessary approvals. DNR has considered this issue. It is the agency's determination that the DEIS documents known impact avoidance and/or minimization measures, or mitigation, of Project-related effects that can be addressed through measures likely to be contained in, but not limited to: the Project design, standard permit conditions, existing land use restrictions, the Proposer's forest management and wood procurement practices, and voluntary programmatic measures authorized under the MSFRA.

The policy of the state of Minnesota is to employ a voluntary approach to mitigating the cumulative environmental effects of statewide timber harvest as directed by M.S. Chapter 89A. As the DEIS notes, the effects attributable to the Project do not occur in isolation, but are cumulative in nature. The provisions of the Act apply to all timberland owners and industrial wood users in Minnesota, not just the Proposer, in mitigating the cumulative effects associated with statewide timber harvest.

In conducting the EIS process, it is also permissible for RGUs to identify voluntary measures undertaken by the Proposer to avoid or minimize potential adverse environmental effects. One of these measures identified in the DEIS is the Proposer's commitment to participate in the MFRC programs and activities authorized under MSFRA, which represent tangible action undertaken by UPM/Blandin Paper to provide mitigation for the cumulative effects of the Project *and* the impacts associated with all other industrial activity. It is entirely appropriate for an RGU to provide standing in its decision-making to voluntary commitments made by the Proposer to address potentially adverse cumulative environmental impacts, especially when this commitment is consistent with state policy.

In considering what alternatives are to be evaluated in an EIS, Minn. Rules part 4410.2300, subpart G, directs that an RGU may exclude an alternative where "it would likely not have any significant environmental benefit to the Project as proposed." DNR notes that the Proposer's commitments represent mainstream forest management practices in Minnesota and are present for both the Build and No-Build Alternatives.

Imposition of permit-related conditions "requiring Blandin to achieve mitigation targets," while contrary to state policy, could also make the firm less competitive in Minnesota because no other industry player would be subject to such provisions. If this resulted in less economic return such that the Build Alternative was infeasible, the No-Build Alternative analysis clearly documents significantly adverse

economic and sociological impacts would result. Examination of a "permit-conditioned alternative" could therefore likely have similar environmental benefit to the Build Alternative but substantially more adverse economic, employment, and sociological effects.

In establishing a voluntary policy to mitigate the cumulative environmental effects of statewide timber harvest, the State considered the nature of timber markets in Minnesota. These impacts, which were evaluated in detail in the GEIS, originate from the individual forest management decision of multiple landowners to harvest timberland under their control any given year. The timber generated from these decisions to harvest is then sold on an open market, of which the Proposer is but one of many participants. The Proposer exhibits direct control only over harvest occurring on its own land, and has some control over *how* harvest occurs through its open market purchases, but not whether harvest *will* actually occur. Imposition of the recommended provisions on one procuring entity (in isolation) offers no guarantee that the desired outcome will be achieved because the decision to harvest rest with the landowner, not the Proposer. Rather, the State employs a collaborative, voluntary approach to provide greater overall assurance that impacts will be addressed across the board.

DNR's evaluation of the Project indicates that its profile of wood use is typical of industry in Minnesota. The programmatic mitigations and the measures identified in the Proposer's commitments are specifically designed to address the impacts examined in the GEIS and DEIS. In considering the entire record before the agency, DNR believes that mitigation is indeed available to address the Project's consequences without imposition of permit-related provisions. This offered, the Proposer is free to engage in "binding commitments" under the State's voluntary approach, and has done so but not through regulatory processes. The information generated in the EIS is also available to all potential regulators to address potential impacts and mitigation under their respective authorities.

DNR agrees that regulating agencies have the authority to impose permit conditions as noted in the comment.

Comment 53.e – M. Norton (MCEA)

Comment noted. DEIS Section 3.5.3 details how the Proposer intends to source roundwood for the proposed Project. The vast majority of potential supply, or approximately 83 percent, is expected to be procured from open-market purchases. Whether or not any given purchase results from the application of uneven-aged harvest prescriptions rests with decisions made by the landowner in putting their timber to market, not the Proposer.

The comment implies that the forest projection model assumptions, specifically those related to whether even-aged or uneven-aged treatments are applied to stands that are "harvested," have independent standing outside the analysis. This is not the case. These assumptions reflect the best estimate of future forest practices as reflected in currently available public management plans or industry standards. Furthermore, there is no authority to impose a Project-related permit condition on non-Proposer

timberland owners regarding how timber is harvested on their ownerships, which is the point of control tied to the issues raised in the comment. The Proposer does have some control; however, it applied only to how the timber is harvested through its purchase agreements, including provisions that harvest occur subject to the MFRC *Voluntary Site-level Forest Management Guidelines*. UPM/Blandin Paper has committed to support application of the *Guidelines* through its open market purchases.

In terms of the modeling itself, Table C-35 (DEIS Appendix C) summarizes and compares how the approximately 16 million acres of forest land are scheduled by the projection model to be managed under the Build and No-Build Alternatives. Under both alternatives, over 10 million of 16 million acres of forest land are not scheduled for harvest over the 40-year planning horizon.

Even-aged management is, by far, the predominant silvicultural system used under both Alternatives. Uneven-aged management is projected to increase from 188,000 acres under the No-Build Alternative to 246,000 acres under the Build Alternative.

These harvests do not assume that only aspen volumes are removed during any harvest. All uneven-aged management activities were assumed to remove tree species in proportion to the estimated basal area present of each species. For example, if 40 percent of the stand's basal area is in aspen, then 40 percent of the basal area removed with the thin is also aspen. This is likely a conservative estimate, as thinning activities would probably tend to favor removal of aspen. Similarly, even-aged management assumed some trees would be left on site after harvest as leave trees and the species left was assumed to be in proportion to the composition of the stand prior to harvest. In other words, the model was not allowed to selectively choose which trees to leave based on market values of the tree species or products.

Compared to the No-Build Alternative, the Build Alternative does harvest 198,000 additional acres over the 40-year planning horizon (Table C-35, DEIS Appendix C). By harvesting some of these additional acres relatively early in the planning horizon, harvesting of other acres is delayed (as compared to the No-Build Alternative). This delay allows trees on those acres to grow longer, yielding, on average, more volume at time of harvest.

Regarding imposition of a permit condition to ensure the projected increase in use of uneven-aged silvicultural systems, this comment is noted. DNR concurs that increased application of uneven-aged silvicultural systems is desirable; however, the decision to conduct this type of harvest activity rests with the landowner, not the Proposer. Because the point of control does not rest with the Proposer for its open-market wood purchases, imposition of such a condition is inappropriate.

Comments 12.sss – C. Hanson (Sierra Club North Star Chapter) and 53.g – M. Norton (MCEA)

Comments noted. Section 5.3 of the DEIS identifies both programmatic and Proposer-specific measures that can lead to avoidance or minimization of Project-related effects. These measures are consistent with

the definition of mitigation as provided in Minn. Rules part 4410.0200, subpart 51, which states mitigation to be: A) avoiding impacts altogether by not undertaking a certain project or parts of a project; B) minimizing impacts by limiting the degree of magnitude of a project; C) rectifying impacts by repairing, rehabilitating, or restoring the affected environment; D) reducing or eliminating impacts over time by preservation and maintenance operations during the life of the project; E) compensating for impacts by replacing or providing substitute resources or environments; or F) reducing or avoiding impacts by implementation of pollution prevention measures.

The DEIS also notes that the impacts to the state's forest resources resulting from statewide timber harvest are cumulative in nature. These impacts, which were evaluated in detail in the GEIS, originate from the individual forest management decision of multiple landowners to harvest timberland under their control any given year. The timber generated from these decisions to harvest is then sold on an open market, of which the Proposer is but one of many participants. The Proposer exhibits direct control only over harvest occurring on its own land, and has some control over how harvest occurs through its open market purchases, but not whether harvest will actually occur. Imposition of the recommended provisions on one procuring entity (in isolation) offers no guarantee that the desired outcome will be achieved. This is because it is the seller in Minnesota that ultimately controls who buys their timber under what management prescriptions; the timber can still be sold to another party not subject to the proposed wood purchasing stipulations.

Consistent with the recommendations of the GEIS, the state of Minnesota enacted the MSFRA as the principal response to mitigate the cumulative impacts of statewide timber harvest; see Minnesota Statutes Chapter 89A. This mitigation is voluntary and programmatic by law. The DEIS considers the programmatic mitigations in the context of the Project and alternatives as required under Minn. Rules part 4410.2300, subpart I. Also consistent with the cited rule, the DEIS considers those measures to be undertaken by the Proposer on its own lands and through its open market purchases.

DNR's evaluation of the Project indicates that its profile of wood use is typical of industry in Minnesota. The programmatic mitigations and the measures identified in Proposer commitments are specifically designed to address the impacts examined in the GEIS and DEIS. In considering the entire record before the agency, DNR believes that mitigation is indeed available to address the Project's consequences without imposition of permit-related provisions. This offered, the Proposer is free to engage in "binding commitments" under the State's voluntary approach (and has done so), and the information generated in the EIS is available to all potential regulators to address potential impacts and mitigation under their respective authorities.

Finally, it is noteworthy that the Proposer and a significant number of timberland owners have undergone third-party certification procedures designed to ensure the application of sustainable forest practices, management, and planning, as requested in the comment. For example, the state has recently completed the third-party certification process for management of forest resources under DNR stewardship. The

result is approximately 4.8 million acres of state lands being certified, with UPM/Blandin Paper expecting to source approximately 25 percent of its wood from certified state sources. The Proposer is certified under the Sustainable Forestry Initiative (SFI) standard, but not the Forest Stewardship Council (FSC) standard; DNR lands are certified under both SFI and FSC, and several counties have certified their forests under the FSC or SFI systems. Overall, it is reasonable to expect that the proportion of the state's forest land third-party certified as being managed sustainably will increase over the study period.

4.41 PROJECT IMPACTS – GENERAL

Comments 3.b – S. Arbour, 4.b – N. and R. Axtell, 5.d – L. Bondhus, 7.d – J. Brown, 10.b – J. Dimich (Itasca County Commissioner – District 3), 14.c – C. Hill, 19.b – M. and M. Ives (Mike Ives Realty), 20.b and 20.e – D. Kellin (David A. Kellin Financial Services), 27.b – D. McMillan (Minnesota Power), 28.b – J. Millis (Grand Rapids Area Chamber of Commerce Board of Directors), 44.c – L. Solberg (State Representative), 45.c – B. Stone (Grand Rapids Area Chamber Commerce), and 47.b – S. Zeige and E. Treska (Mayor and City Administrator, respectively, City of Grand Rapids)

Comments noted.

Comment 29.b – H. Mills

The comment references the potential for cumulative effects in a number of areas. DNR responds specifically as follows:

Truck traffic. The analysis of potential traffic effects was based upon addition of incremental traffic arising from the Project to existing traffic levels; therefore, it reflects cumulative effects.

Air pollution. Increases in emissions from the proposed Project are added to existing emissions levels from the facility so it reflects the cumulative effect of emissions from the existing and new facility related modifications. DNR is not aware of any existing air quality problems in the City of Grand Rapids; current air quality appears to be in attainment with air quality standards.

Noise. The DEIS collected new existing noise level data in the vicinity of the facility. Because future changes in facility equipment and operations were modeled and then added to existing monitored levels, the analysis reflects the cumulative effects of facility-related noise. There does not appear to be any other major noise sources in the area that would warrant additional noise analysis.

Structural visual impacts. The visual impact of the new mill-related facilities occurs in the context of existing buildings and structure. It is therefore essentially a cumulative impact.

Sunlight loss in winter from vapor clouds. DNR acknowledges that under certain winter meteorological conditions and facility operating conditions vapor clouds can produce shadows over adjoining areas north of the facility. The modified facility will also have the potential to produce vapor plumes under such

meteorological conditions, although due to changes in equipment location on the site the plumes may occur in somewhat different locations. The cumulative effect of such occurrences will likely be similar to existing occurrences.

4.42 PROJECT-RELATED WOOD USE

Comments 12.r – C. Hanson (Sierra Club North Star Chapter), 41.j – T. Ryan (Ainsworth Group of Companies – Timberlands Alberta),and 49.g – J. Wallingford (Norbord Minnesota)

Comment noted. Information supplied by the Proposer indicates that the mill usage rates vary up and down significantly depending upon markets for the mill's output products, wood quality and yields, and other factors. The ten-year average was used as the best representation of the mill's "current usage" for the purposes of estimating future demand versus historical demand. According to the most recent information, this method is reliable because the 2005 mill consumption was approximately 189,000 cords, and projections for 2006 consumption are estimated to be 197,000 cords. This new information generated since the EIS scope was adopted supports the estimated 197,000 cord incremental volume as a proper estimate for DEIS-related modeling.

Comment 12.s – C. Hanson (Sierra Club North Star Chapter)

DEIS-related forest projection modeling relied on the best available information. DNR reports annually on the condition of the State's forest resources, including the estimate of statewide timber harvest. At the time of EIS Scoping in late 2004 and early 2005, the best estimate of statewide timber harvest was for the year 2002. The 2-year difference represents the lag interval imbedded in developing this estimate. The next estimate for 2003 became available in December 2005; DNR reported a statewide harvest level of 3.598 million cords/yr, which represented a slight reduction from 2002.

DNR concurs with the comment's recommendation that the DEIS should reflect consideration of newer information if available. Section 5.1.4.5, Levels of Harvest, is modified in the Final EIS to reflect the new information for 2003 contained in the DNR's report *Minnesota's Forest Resources 2005*.

Regarding the need to develop an estimate of total state cut for 2004, DNR can reasonably speculate that harvest that year was similar to that for 2002 and 2003. DNR is confident that the results of the forest projection and related modeling offered in the DEIS is a reasonable presentation of potential Project-related effects upon the state's forest resources.

The comment asserts that use of a ten-year average as the baseline for mill-related wood consumption constitutes data "manipulation." DNR disagrees with the assertion. As noted in DEIS Section 3.5.2.1, mill-related wood consumption varies from year-to-year as a function of several factors; such variability will likely be present under the proposed Project. Use of an average value to characterize mill-related inputs or outputs, when these factors can vary considerably up or down from year to year, is a reasonable

practice, especially when considering the issue arises from evaluation of the Project's contribution to the aggregate consequences of statewide timber harvest.

The comment also suggests that it is improper to include the current wood use levels in the DEIS analysis. DNR disagrees with the assertion because both the Build and No-Build Alternatives include the continued operation of PM6.

It is also noteworthy that the DEIS assumes that all wood is sourced from Minnesota, thus discounting the projected level of imports likely to be used to supply the mill. This was done to ensure that the maximum potential effect of the Project upon Minnesota's forest resources is considered. This means that the DEIS modeled approximately 53,000 more cords/yr being harvested in Minnesota and used by the mill than predicted by the Proposer. It is DNR's opinion that the modeling assumption of all wood being sourced in Minnesota represents a reasonable presentation of maximum Project-related wood use consistent with intent of the comment.

4.43 PROJECT SITE – HISTORY

Comment 29.a – H. Mills

Item 9 of the Scoping EAW provided a summary of the history of the Project site as well as providing a context in terms of adjacent land uses. It is not intended to be an exhaustive inventory of all historic change, however DNR concurs it is reasonable for this description to reference the degree to which the mill site may have expanded with "just a few years ago." Scoping EAW Item 9 is modified in the Final EIS to discuss the changes noted in the comments.

Although not explicitly noted in the Draft EIS, the greater issue of business community viability is addressed in the *Final Downtown Redevelopment Plan (2005)* prepared by the City of Grand Rapids. Specifically, the plan notes that the Downtown Business District is susceptible to "blight" if concerted redevelopment efforts do not unfold. This plan, and the vision for Downtown Business District redevelopment it presents, considers the effect that the UPM/Blandin Paper mill expansion project may have on the local business climate. DNR believes this planning effort represents a significant measure in addressing the historic decline of the Downtown Business District as well as provide mitigation for any adverse socioeconomic effects. DEIS Section 4.4.2.6 is modified in the Final EIS to acknowledge this historic decline in the local business climate for the Downtown Business District.

Regarding losses of residences associated with previous property acquisitions, DEIS Section 4.4.2.7 is modified in the Final EIS to reflect previous losses of these properties.

4.44 PROPOSER COMMITMENTS

Comment 12.ooo – C. Hanson (Sierra Club North Star Chapter)

Minn. Rules part 4410.2300, subpart I requires an EIS to identify those mitigation measures "that could reasonably eliminate or minimize any adverse environmental, economic, employment, or sociological effects of the proposed Project." Consistent with the rule and the Final Scoping Decision, Section 5.3 of the DEIS documents measures available to address Project-related impacts upon forest resources under programs authorized by the Minnesota Statutes Chapter 89A and Proposer commitments through its own land management and wood procurement policies.

In conducting the EIS process, it is permissible for RGUs to identify voluntary measures undertaken by the Proposer to avoid or minimize potential adverse environmental effects. Given that the issue of concern raised in the comment pertains to the cumulative environmental effects resulting from statewide timber harvest, consideration of voluntary commitments as offered by the Proposer are completely in line with the State's policy to employ voluntary, programmatic strategies to deal with this area of impact.

The comment notes it is possible for the Proposer to withdraw from its commitments if desired. DNR agrees that such a situation is possible but unlikely. The commitments offered by the Proposer represent mainstream forest management actions in Minnesota and operate in concert with the state's programmatic mitigations.

DNR as RGU can recommend incorporation of reasonable mitigation measures into the proposed Project (or alternative) under Minn. Rules part 4410.2300, subpart G. DNR has considered the findings of the Draft EIS, and the comments submitted on it, and does not recommend incorporation of additional reasonable mitigation measures beyond those identified in the Draft and/or Final EIS.

Comment 12.ppp – C. Hanson (Sierra Club North Star Chapter)

The comment is incorrect regarding independent verification by the public of Proposer commitments. DEIS Section 5.3.2.3 notes that to maintain membership in the American Forest and Paper Association (AF & PA), the company must operate according to specific guidelines embodied in the Sustainable Forestry Board's SFI Standard. Records must be maintained that are subject to independent, third-party audit. Report summaries are available to the public upon request.

The comment is partially correct regarding uncertainty of where the Proposer is buying wood outside its own timberlands. Because timber harvest occurs at the discretion of the landowner, and wood is sold on an open market, it is impossible to identify precisely what stands will be sold/bought to supply any industrial wood user, including UMP/Blandin Paper's Grand Rapids mill. Although the precise locations cannot be known, the DEIS does provide information on the anticipated patterns of procurement in terms of Minnesota timberland ownership; see DEIS Figure 3.7, Current Blandin Paper Company Wood

Sources by Owner. The DEIS considers this anticipated procurement pattern where necessary in considering the Project's potential impacts and need for mitigation.

Comment 12.qqq – C. Hanson (Sierra Club North Star Chapter)

Comment noted. DNR concurs that permitting entities have the authority to impose mitigation to avoid or minimize the impacts associated with a project. Information generated over the entire EIS, including mitigation measures, is available for consideration by the Proposer and all agencies with regulatory authority over the Project.

Comment 23.a – R. Libbey

Comment noted. The state has adopted a voluntary approach in the application of MFRC's site-level Project as dictated in statute; see MS § 89A.05, subd 3. Imposition of mandatory measures as offered in the comment for a single company is counter to statutory direction and raises issues of equity among firms in a competitive market. DEIS Section 5.3 details both programmatic and Proposer-specific measures designed to avoid and/or minimize potential Project-related impacts. See Responses to Comments, Section 4.40: Permits – Mitigation.

4.45 PULPWOOD COSTS

Comments 49.b and 49.i – J. Wallingford (Norbord Minnesota)

Comments noted. The state of Minnesota does not control pulpwood costs. UPM/Blandin Paper, and all other Minnesota wood consumers, must compete for their pulpwood supply in a competitive open market. Prices of pulpwood on the open market are the result of interplay between a complex set of short and long-term market factors, including weather, logging and trucking capacity, biological timber supply, landowner goals and policies, public forestry agency budgets, and demand for wood fiber and finished products. Most market factors affecting the price of pulpwood actually reaching the marketplace are not attributable to an individual project, but more important are not subject to State (or other) control and are thus inappropriate for consideration in project-specific review.

Factors within at least partial state control would include transportation factors such as maximum truck weights, and offerings of timber from DNR lands. For these two factors, the state of Minnesota has done the following to address concerns regarding timber supply and industry competitiveness:

- For the four fiscal years 2002 through 2005, DNR has offered an average of 857 thousand cords of timber for sale. This figure is very close (within 3percent) to DNR's estimated long-term sustainable harvest level of 880 thousand cords.
- The state of Minnesota increased maximum log truck weights in 2005 as a way to assist industry competitiveness.

Competitiveness of primary forest industry continues to be of key importance to the state, as evidenced by continuing efforts to implement recommendations from the *Governor's Advisory Task Force on the Competitiveness of Minnesota's Primary Forest Products Industry*.

4.46 RNV ANALYSIS

Comment 12.a – C. Hanson (Sierra Club North Star Chapter)

The RNV analysis was based on the outputs of the forest condition model (e.g., projected change in the acreages of various forest types and age classes). To allow for comparisons with an available GEIS, and given the time constraints and nature of the model, the forested conditions were derived from forested FIA plots. Coupling the RNV analysis to the FIA-based projections allowed for more information to be available is assess potential project-related impact upon habitat and forest wildlife resources than would otherwise be possible. DNR believes the analysis contained in the DEIS and associated appendices is of a depth and scope sufficient to inform Project-related decisions.

Comment 12.vv – C. Hanson (Sierra Club North Star Chapter)

Comments regarding the findings of DEIS Appendix D are noted; references to information contained in the DEIS are self-evident. Regarding mitigation to address potential Project-related changes in vegetative growth stages for particular native plant communities, DNR concurs that the principal burden rests with the landowner's willingness to consider RNV-related perspectives in their parochial forest management activities. Whether the listed conditions will be met or not is not known. Examples of programmatic measures to address these impacts include, but are not limited to, the MFRC's Landscape Program and site-level guidelines, and the Minnesota Logger Education Program (MLEP).

Comment 12.qq – C. Hanson (Sierra Club North Star Chapter)

The DEIS modeled out to 40 years at decadal intervals to tier to an available GEIS. Modeling to 200 years would allow a level of error propagation rendering the results meaningless. See Responses to Comments, Section 4.13: Forest Modeling – Assumptions.

The comment also states: "…the forest cover type analysis is flawed, which corrupts the forest wildlife modeling of the DEIS…" The DNR disagrees with this comment and notes that the science behind forest resource management in the broadest possible sense is constantly evolving, and this applies to modeling approaches as well. For the forest projection modeling, DNR considered current assessments of the GEIS and its supporting analyses in developing the models for the DEIS. Furthermore, the RNV-based perspectives were considered in some parts of the habitat analysis; such analysis was not available when the GEIS was conducted.

RGUs are not required to carry out every type of available analysis in evaluating a project and its potential environmental consequences. DNR believes the DEIS relies on a robust, balanced mix of modeling approaches to serve as the basis of the required impact assessment.

Comment 53.b – M. Norton (MCEA)

Comment noted. The RNV analyses indicate that NPCs in northern Minnesota are generally moving toward RNV conditions in terms of the relative frequency of underlying NPC growth stages. DEIS Section 5.2.2.4 identifies those NPCs that are projected to move away from RNV under the Build Alternative relative to the No-Build Alternative. Whether these changes actually occur will depend on the parochial decisions by timberland owners to actually conduct harvest where these native plant communities are present. Regarding prevention of these losses, the DEIS notes that creating multi-aged stands of late successional types (as a part of their future land management activities) can ameliorate any potential losses. The MFRC Landscape Program was created specifically to address this type of concern.

DEIS Appendix D provides a quantified assessment of how Project implementation may affect the acreage of a given NPC, with its respective VGSs, within the Northern Superior Uplands or Drift and Lake Plains sections.

Comment 53.i – M. Norton (MCEA)

Comment noted. Project-specific mitigation is not proposed for Impact 4, which is examined in DEIS Section 5.2.2.4, because the Project is not expected to result in a replacement age class structure insufficient to provide replacement of mature stand acreage for forest types affected by the Project. The DEIS does note that concern is present for sunlight-demanding and pioneer species that depend on major disturbance for regeneration, such as jack pine (fire) and paper birch (windstorms, clearcutting).

Regarding potential affects to NPCs, as the DEIS Section 5.2.2.4 notes, "RNV analyses indicate that NPCs in northern Minnesota are generally moving toward RNV conditions in terms of the relative frequency of growth stages of NPCs… Whether these NPCs in particular undergo the projected change depends on the degree to which multi-aged stands of late successional types, which are currently below their RNV population level, are created as a feature of future forest management…" In other words, harvest-related changes to forest-type NPCs may or may not be substantial over the study period (and beyond) depending upon the collective actions of all timberland owners in Minnesota. Whether these changes are positive or negative depends on the objectives of the land manager or owner.

Regarding the discussion of RNV-type mitigation, there is no authority to direct DNR, or any other land manager, to use RNV as a goal in their land management planning as a function of any Project-related decisions. The landowner, and not the Proposer, controls how their land will be managed, including long-term management objectives. Mitigations, however, have been described extensively in DEIS Section 5.3 as required under the Final Scoping Decision. In particular, DEIS Section 5.3.3.1 notes that MFRC has engaged in broad scale landscape planning. However the DEIS does not indicate that the planning includes RNV-based management direction. DEIS Section 5.3.3.1 is modified in the Final EIS to recognize the role played by RNV in forest management planning efforts.

4.47 RARE NATIVE PLANT COMMUNITIES

Comment 12.bbb – C. Hanson (Sierra Club North Star Chapter)

Comment noted. Consistent with the Final Scoping Decision the DEIS evaluates the Project's potential to affect rare plant communities in Section 5.2.2.5, with potential mitigation identified in Sections 5.3.2.2, 5.3.2.3, and 5.3.2.4. As the DEIS notes, any loss of rare plant communities is important and the best strategy to address this issue is to ensure consideration of these plant communities in timber harvest planning. The potential for Project-related increase in statewide aggregate demand to affect these resources is very small. Thus, expenditure of further resources as requested in the comment is not warranted.

4.48 GEIS REPORT CARD STUDY

Comment 12.f – C. Hanson (Sierra Club North Star Chapter)

Comment noted. DNR sanctioned the GEIS Report Card Study as a means to update the current status of the voluntary programmatic mitigations authorized under the MSFRA under the stewardship of the MFRC. The GEIS Report Card Study supplements other information available to DNR regarding monitoring for compliance with, and the effectiveness of, the voluntary site-level guidelines. The GEIS Report Card Study is not intended to be a substitute for this other information and it is not treated as such in the DEIS.

DNR notes the GEIS Report Card Study documents the methods and data sources, including the limitations of each that were used in evaluating the application of site-level practices recommended in the GEIS as well as the MFRC's Landscape Planning and Coordination Program.

Comment 53.f – M. Norton (MCEA)

The comment notes completion of the state-sanctioned review of the performance of the GEIS and its recommendations. This is accomplished in the GEIS Report Card Study, whose findings are incorporated by reference in the DEIS; see Appendix I, Executive Summary of the GEIS Report Card Study. The findings of the study are self-evident and no further response is necessary.

4.49 SCALE OF ANALYSIS

Comments 8.f – S. Conrad, and 23.f – R. Libbey

The DEIS tiers from an available generic EIS as required under Minn. Rules part 4410.3800, subpart 8. The GEIS Study for Timber Harvesting and Forest Management evaluated the environmental, economic, and social consequences of statewide timber harvest. This scale of analysis was used because the timber industry in Minnesota procures wood in an open, statewide and beyond market across multiple ownerships. Because the Project will operate under statewide wood procurement conditions similar to those examined in the GEIS, it is appropriate for the Final Scoping Decision to have the DEIS to consider

and report impacts at a statewide scale. This offered, the DEIS provides sub-state scale perspectives (just like the GEIS) where possible.

Regarding assertions of "localization" of effect to the Grand Rapids area, such a localization is not anticipated. Industrial wood procurement, including activity by the Proposer, occurs statewide with the procurement extending 150+ miles from the mill. The GEIS did not identify such a "concentration" of effect relative to total harvest activity; see Final GEIS Figure 5.2. As the GEIS notes:

> "The projected harvesting patterns indicate that harvesting is projected to occur in virtually all forested regions of the state. This pattern reflects the well-developed road network in Minnesota and the decentralized nature of the timber industry, meaning that few stands in Minnesota are ruled out for harvesting because of their location." See Final GEIS, page 5-9.

The reality is that wood markets in Minnesota are dynamic with each industrial wood user procuring wood wherever possible.

Comment 12.u – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The DEIS offers substantial insight into the potential for harvest-related activity under the Build and No-Build Alternatives, as projected under the modeling assumptions, to result in adverse and/or beneficial habitat change for Minnesota's forest wildlife species. Given the nature of timber markets in Minnesota, it is not possible to define with any greater specificity of exactly where timber harvesting associated with the Project will actually occur. This is why the state employs a programmatic approach to mitigating the cumulative environmental effects of statewide timber harvest that emphasizes use and application of the best available information in harvest planning. In this respect, information generated in the DEIS on potential harvest-related habitat effects is available for use by forest land managers in their management decisions, including how harvest might affect the habitat of a particular species of forest wildlife.

Comments 12.w and 12.aaa – C. Hanson (Sierra Club North Star Chapter)

DNR disagrees with the comment. The EIS examines the impacts attributable to the Project as required by State rules.

The DEIS does provide information on the impact of remaining fragments of functioning native plant communities contrary to the comment assertion; see DEIS Section 5.2.2.5. The DEIS specifically reports the approximate 2.5 percent increase in even-aged management harvesting likely to be associated with the Project-related increase in aggregate demand may affect the tree and plant species listed in Final GEIS Tables 5.22 and 5.23.

Although the RNV analyses indicates that NPCs in northern Minnesota are generally moving toward RNV conditions in terms of the relative frequency of growth stages of NPCs, the DEIS also notes that specific vegetative growth stages for six NPCs could lose acreage due to the aggregate increase in statewide timber harvest attributable to the Project. This means they will move "away" from their historic RNV acreage amount on that section. Assuming natural resource value to this change is subjectively a function of the land management objectives assigned to the stand, what may be viewed as a positive harvest-related change in RNV for one aspect of the resource may be negative for another.

DNR and others are continuing work to develop appropriate silvicultural regimes that help maintain functioning NPCs consistent with landowner or other goals and objectives as applied during harvest planning. Ultimately, this potential area of impact is mitigated through use of appropriate information during harvest planning, which may result in complete avoidance, minimal disturbance, or remediation that ensures continuation of the community/species on the landscape.

Regarding characterizations of current industrial logging and forest management "simplifying forests," the base of knowledge on the forest's underlying natural systems and their response to natural resource management is continually improving. This is especially important as the functions and values that society assigns to its forest resources also change to reflect a greater diversity of forest outputs. The trend in Minnesota is one of increasing emphasis on biodiversity retention and/or restoration in forest management decision-making, not a reduction as implied in the comment.

DNR agrees with the commenter that loss of genetic variability of rare natural communities and/or plants that occur at the edge of their range is an important issue. The significance criterion upon which the findings of Section 5.2.2.5 are based indicates *any* loss of genetic diversity is important. However, relative to the overall context of statewide timber harvest, and that mitigation is available to address this concern, the Project's overall potential effect on loss of genetic variability of rare natural communities and/or plants occurring at the edge of their range is considered to be extremely minor.

4.50 SCOPING COMMENTS

Comments 3.a – S. Arbour, 10.a – J. Dimich (Itasca County Commissioner – District 3), and 25.a – P. McDermott (Itasca Development Corporation)

Comments noted.

Comment 12.uuu – C. Hanson (Sierra Club North Star Chapter)

The Final Scoping Decision requires for the DEIS to consider measures to increase forest productivity in Final Scoping Decision Section 2.4.3, with specific emphasis applied to the degree such measures could address potentially unmitigated impacts as detailed in Section 4. This is accomplished in DEIS Section 5.5.2.5.

Regarding the assertion that forest productivity measures "only mitigate logging volume impacts," the DEIS notes that thinning and selective harvest measures conducted on Proposer-owned lands for red pine and white spruce "…creates opportunities to promote characteristics of older growth stages of plant communities other than northern hardwoods, lowland hardwoods, and lowland conifers…[plantation white spruce multiple-thinnings promote] natural regeneration along with other species in the process (to develop a multi-aged structure)…" These management outcomes address both ecological and non-consumptive human use value concerns.

Comment 12.vvv – C. Hanson (Sierra Club North Star Chapter)

Regarding consideration of a smaller project, the PM7 design specifications were developed with the "best available" estimate of needed capacity for predicted market conditions at Project completion as well as the Proposer's experience with successful past projects. The paper machine's specifications are based on the existing infrastructure to support the manufacturing process and the introduction of appropriate proven processes and equipment. The investment would not be justified for a smaller paper machine and future potential capacity upgrades would not be cost effective or timely in the specified product market. It is not feasible for the Proposer to implement a smaller scale project because the underlying need or purpose of the Project would not be met.

DNR as RGU, however, cannot allow economic considerations alone to preclude the consideration of reasonable Project alternatives in an EIS. In this respect, it is further noted that because the Proposer procures wood from its own lands or on the open market, examination of a smaller-scaled project has limited application because normal demand fluctuations in statewide timber harvest can reasonably account for the difference between the proposed Project and a hypothetically smaller project. This is further complicated by the increasing role being played by roundwood imports for the Minnesota-based pulp and paper industry. Examination of a smaller project *per se* does not necessarily translate into significant environmental benefit over the proposed Project given the dynamic nature of timber markets.

RGUs are to weigh the importance of the impact and the relevance of information in making reasoned choices among alternatives and considering mitigation measures. RGUs are also to consider the relationship between the cost of data and analyses and the relevance and importance of the information and level of detail to be prepared for the EIS. DNR has determined greater value is attained in the EIS for project-related decisions by evaluating the Project as if all wood were procured in Minnesota (e.g., no imports), which examines the maximum Project impact to Minnesota forest resources. Because the Project will in all actuality use less wood from Minnesota forests than is actually being assessed, significant environmental benefit is not gained by examining a lower wood use scenario as proposed in the comment.

DNR disagrees with the commenter regarding assertions that the "type" of fiber required by the expansion does not match the forest (aspen shortage). On the contrary, DEIS Section 5.1.6.8 reports that the

modeling results suggest the Project-related increase can be sustained over the study period. See Responses to Comments, Section 4.1, regarding the issue of alternative fiber use.

Comment 12.xxx – C. Hanson (Sierra Club North Star Chapter)

DEIS Sections 5.2.2.11 and 5.2.2.12 examine projected harvesting impacts to wildlife found in Minnesota's forests, including the listed species noted in the comment. The impact assessment is based on comprehensive wildlife population modeling, the results of which are explained in DEIS Appendix E.

Comment 12.yyy – C. Hanson (Sierra Club North Star Chapter)

The comment requests the EIS to evaluate impacts to non-Minnesota forest resources. The EIS evaluation is limited to Minnesota because State Environmental Review is conducted to inform Minnesota project-related permits and approvals, and no such authority exists for any project-related actions outside Minnesota. It is also noted that the GEIS, from which the analysis in the EIS is tiered, confined its analysis to Minnesota forest resources.

Regarding the comment on analyzing impacts for non-Minnesota jurisdictions, DEIS Section 3.12.4.2 is modified in the Final EIS to reflect DNR's consideration of this issue.

Regarding Project-related use of kraft pulp, the Proposer indicates that its kraft pulp purchases are principally from non-Minnesota sources (e.g., Canada), thus harvest impacts are not attributable to Minnesota timber harvest. The DEIS, however, does include *de facto* recognition of the generation of kraft pulp from Minnesota timberlands under both the Build and No-Build Alternatives and derivative scenarios because such activity is embedded in the annual statewide timber harvest level as modeled. No further analysis is warranted.

Comment 12.zzz – C. Hanson (Sierra Club North Star Chapter)

The commenter suggests that DNR should assign a dollar value to the various natural resource values associated with forests in calculating economic costs and benefits of the Project. Such analysis is beyond the Final Scoping Decision. The DNR concurs that there are intangible economic benefits inherent with forest resources. However, the EQB rules require the RGU to identify only those potentially significant issues relevant to the proposed Project, stipulating that data and analyses shall be commensurate with the importance of the impact. The Project represents a 4-5 percent increase in statewide timber harvest; an analysis of the intangible values of Minnesota's forest resources is more appropriate for generic review. It is also noted that for the values of wilderness and wild forests, timber harvest is likely not a permissible activity on the ownerships that provide these values. No change is made to the DEIS.

Comment 12.aaaa – C. Hanson (Sierra Club North Star Chapter)

The DEIS considers the full range of forest values through its tiering from the GEIS. Specifically, the GEIS identified important attributes and characteristics of Minnesota's forests in terms of:

- Maintaining productivity of forests for timber production;
- Forest resource base;
- Forest soils;
- Forest health;
- Plant and animal diversity in forest ecosystems;
- Forest wildlife and fish;
- Forest recreation;
- Economics and management; and,
- Aesthetics and unique historic and cultural resources.

These issues were collectively defined as "forest resources" for the GEIS. This broad set of natural resource values were examined very closely in the GEIS through the development of nine technical papers, with a focus on cumulative impacts at a statewide scale. All GEIS perspectives can be characterized in terms of this broad view of forest resources synonymous with "ecological and non-consumptive human use values" offered in the comment.

It is also noteworthy that MSFRA (MS 89A.0901, subd. 8) defines Forest resources as: "'Forest resources' means those natural assets of forest lands, including timber and other forest crops; biological diversity; recreation, fish and wildlife habitat; wilderness, rare and distinctive flora and fauna; air; water; soil; and educational, aesthetic, and historic values." All DEIS reporting is consistent with this statutorily-based definition of forest resources.

Comment 12.bbbb – C. Hanson (Sierra Club North Star Chapter)

The comment lists a series of "other factors" that should be examined in the EIS. The listed items that have been addressed in the DEIS are as follows:

- Gypsy moth; see Section 5.4.4. The Final EIS modifies the gypsy moth discussion in DEIS Section 5.4.4 to include information on existing Minnesota infestations and proposed treatment.
- OHVs; see Sections 5.2.2.10, 5.2.2.16, and 5.4.3.
- RNV; see Appendix D: Habitat Analysis-RNV.
- Native Plant Communities; see Appendix D: Habitat Analysis-RNV, Sections 5.2.2.4, 5.2.2.5, 5.2.2.7, 5.2.2.11, and 5.2.2.12.
- MCBS/Natural Heritage and Nongame Research Program (NHP); see Section 5.2.2.5 and 5.3.3.2; see Section 1.1.3.2 GEIS Report Card Study.

The following issues are not addressed in the DEIS. All of these issues are beyond the scope of the EIS, as per the Final Scoping Decision. Specifically:

- Global climate change. DNR concurs potential change in Minnesota's climate is an important issue and would contribute to alterations in the composition and configuration of the state's forest resources from current conditions. However such an analysis is beyond the scope of Project-specific review (e.g., appropriate for generic review), and any potential impacts the Project would have on global climate change is too small to be measurable within the context of an environmental review document.

- Public demand for protection of state and federal wilderness and wild forests and old growth. Such an issue is a core responsibility under state and federal land manager's respective missions. Decisions to protect these resources occur irrespective to the implementation of an individual project. This is not an environmental, sociological, or economic effect attributable to an individual project. Rather, this is an issue parochial to meeting the land management responsibilities of the respective state or federal land manager. Note that Minnesota does not have any state land designated as wilderness.

- Definition of lowland conifer old growth and its protection. Comment noted. The DEIS relies on the best available information, including the outputs from the most recent federal forest plans for the Superior and Chippewa National Forests and DNR's SFRMP plans. DNR will be initiating a process this year to define and designate lowland conifer old growth on DNR lands.

- Threats from genetically engineered trees. DNR is not aware of plans to release genetically modified organism (GMO) tree species in Minnesota forest lands. Absent such plans, further analysis is not warranted for this Project-specific review.

4.51 SIGNIFICANCE THRESHOLDS

Comment 12.p – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The significance thresholds used in the DEIS come from those used in the GEIS. As specified in the Final Scoping Decision, the 17 significant impacts projected in the GEIS Base Harvest Scenario were used to assess the environmental impacts associated with project-related timber harvesting. Each of the 17 impact areas has an associated specific threshold (or thresholds) for determining the significance of impacts. These thresholds were developed and adopted by the EQB as part of the GEIS preparation process. They were developed using a process that included extensive consultation with a variety of forest resource interests and scientists. Moreover, they represent the only significance thresholds that have been developed to assess timber harvesting-related impacts in Minnesota.

Note that the DEIS assessed marginal environmental impacts by comparing impacts identified in the GEIS at the Base Harvest Level to those that would exist without the Project, as well as comparing environmental impacts associated with the Project to those that would exist absent the Project. Given that the impacts do occur at a statewide scale, and the Final Scoping Decision requires the DEIS to evaluate the environmental consequences of the potential Project-related increase in statewide harvest levels, use of the GEIS's significance criteria is supported.

Comment 12.yy – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The commenter incorrectly states how this impact area is to be evaluated. Impact Area 3 – Changes to Minnesota Forests – Tree Species Mix, states: "An impact is considered significant if projected gross changes in the relative portion of any tree species exceed 25 percent of the respective cover types over the 40 year planning period." This significance threshold comes from the GEIS. As specified in the Final Scoping Decision, the 17 significant impacts projected in the GEIS Base Harvest Scenario were used to assess environmental impacts associated with timber harvesting. Each of the 17 impact areas has associated with it a specific threshold(s) for determining the significance of impacts. These thresholds were developed and adopted by the EQB as part of the GEIS preparation process. They were developed using a process that included extensive consultation with a variety of forest resource interests and scientists. Moreover, they represent the only significance thresholds that have been developed to assess timber harvesting-related impacts in Minnesota.

Note other impact areas of the DEIS address native plant communities, which is the focus of the commenter's concern; this specifically occurs in Sections 5.2.2.5, 5.2.2.6, 5.2.2.13, and 5.2.2.14.

Regarding consideration of RNV as a type of "metric" in the DEIS, the DEIS includes analysis of the Project and alternatives in an RNV context. Although not specifically required under the Final Scoping Decision, DNR in consultation with its consultant determined that inclusion of RNV-based perspectives could aid the analysis of potential impacts to plant and animal habitat. Where appropriate, the DEIS does identify where the RNV analysis indicates departure from current RNV that can be attributed to the Project. This information is available to the public, Proposer, and governmental units for Project-related decision-making consistent with state rules.

Comment 12.fff – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The significance threshold used to evaluate changes in populations of forest dependent wildlife and ETS species comes directly from the GEIS. As specified in the Final Scoping Decision, the 17 significant impacts projected in the GEIS Base Harvest Scenario were used to assessing environmental impacts associated with timber harvesting. Each of the 17 impact areas has associated with it a specific threshold(s) for determining the significance of impacts. These thresholds were adopted by the EQB as part of the GEIS preparation process. They were developed using a process that included extensive consultation with a variety of forest resource interests and scientists. Moreover, they represent the only significance thresholds that have been developed to assess timber harvesting-related impacts in Minnesota.

Regarding comment about invasive insect and disease outbreaks, the topic was considered in detail in the GEIS and addressed in the DEIS; see Section 5.4.4. Also noteworthy is that changes in forest habitat that may occur through the introduction of exotic pests, such as the gypsy moth, is not related to activity associated with the Project *per se*. The risk that pests become permanently established in Minnesota is present regardless of whether the Project is implemented or not.

Comment 12.iii – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The DEIS tiers from an available GEIS as required under Minn. Rules part 4410.3800, subpart 8. The significance threshold used to evaluate changes in populations of ETS species comes directly from the GEIS. As specified in the Final Scoping Decision, the 17 significant impacts projected in the GEIS Base Harvest Scenario were used to assessing environmental impacts associated with timber harvesting. Each of the 17 impact areas has associated with it a specific threshold(s) for determining the significance of impacts. These thresholds were adopted by the EQB as part of the GEIS preparation process. They were developed using a process that included extensive consultation with a variety of forest resource interests and scientists. Moreover, they represent the only significance thresholds that have been developed to assess timber harvesting-related impacts in Minnesota.

4.52 SITE-LEVEL MITIGATIONS

Comment 12.g – C. Hanson (Sierra Club North Star Chapter)

The commenter incorrectly states that 35 percent of the forest land management organizations do not have formal policies governing the use of voluntary guidelines. As is indicated in the DEIS, the GEIS Report Card Study found that 96 percent of the public and corporate forest landowners surveyed report adopting formal policies committing the organization to using Minnesota's *Voluntary Site-level Forest Management Guidelines*. The commenter is correct in stating that 35 percent of the surveyed organizations do not report specifically referencing the guidelines in their timber sale contracts. This 35 percent represents 8 percent of all forest land managed by the organizations responding to the survey.

Comments on the information provided in the MFRC Report to the Legislature noted. However, the assertion that the baseline monitoring report is a sign of failure of the voluntary guideline approach is incorrect. The baseline report evaluated harvesting practices on timber sales that were contracted before the MFRC *Voluntary Site-level Forest Management Guidelines* were developed.

As for the use of 1994 as a benchmark in the GEIS Report Card Study, the purpose of the study was to evaluate mitigation implementation progress since the GEIS was completed in 1994. Hence, mitigation implementation was assessed at two points in time: 1994 and 2005. The GEIS Report Card Study documents the methods and data sources (including the limitations of each) that were used in evaluating the application of site- and landscape-level practices recommended in the GEIS.

Comment 23.b – R. Libbey

The commenter incorrectly characterizes the degree to which the GEIS Report Card Study reported the retention of leave trees as recommended in the guidelines. Table 4.13c (page 61) of the GEIS Report Card Study indicates that > 99 percent of the acres managed by the organizations surveyed characterized their leave tree practices in 2005 as being consistent with or exceeding the guidelines, not 50 percent as indicated by the commenter. Similarly, greater than 99 percent of the acres managed by the organizations

surveyed in the GEIS Report Card Study characterized their snag and cavity tree retention practices in 2005 as being consistent with or exceeding the guidelines; see GEIS Report Card Study Table 4.12c.

The comment regarding the 52 percent compliance rate for RMZ residual basal area recommendations is noted. Importantly, the guidelines are just that; they provide flexibility to accommodate complex field situations as well as a range of forest land management objectives.

Comment 23.c – R. Libbey

Comment noted. The majority of the harvesting in Minnesota will continue to be clearcutting of stands in the aspen forest cover type. The projected increase in harvesting with the Project suggests little increase in harvesting of the aspen forest cover type because aspen stands will likely be harvested regardless of whether the Project is implemented. With the Project, much of the increase in cutting will likely involve mixed-species stands that include aspen as a subspecies component. Uneven-aged management will likely be utilized on some of these sites. Decisions on which specific silvicultural systems to utilize will depend on the stand's species mix and the objectives of the landowner.

Comment 53.f – M. Norton (MCEA)

Comments are noted. The EIS now includes a new appendix, DEIS Appendix K: Executive Summary of the MFRC Reports, that contains the executive summary of the MFRC report: *Baseline Monitoring for Implementation of the Timber Harvesting and Forest Management Guidelines on Public and Private Forest Land in Minnesota: Combined Report for 2000, 2001, and 2002*.

4.53 SITE NUTRIENT CAPITAL

Comment 12.ccc – C. Hanson (Sierra Club North Star Chapter)

The DEIS modeled out to 40 years at decadal intervals to tier to an available GEIS; as such, use of a 40-year analysis period is not arbitrary.

The projected cumulative and Project-related impact of soil nutrient depletion resulting from harvesting timber to meet the Project's wood fiber needs over the 40 year study period is specified in the DEIS; see DEIS Section 5.2.2.8.

With respect to the commenter's remark that multi-state wood procurement is unsubstantiated, see DEIS Figure 3.7, which identifies all current wood fiber sources of the Project Proposer, including 5.5 percent imported roundwood. Note this figure does not include kraft pulp imported by the Proposer, which was 92,109 AD short tons in 2003 and sourced entirely from Canada. See Responses to Comments, Section 4.49: Scale of Analysis.

4.54 SOIL COMPACTION

Comment 12.ddd – C. Hanson (Sierra Club North Star Chapter)

Comment noted. Given the significance criteria and results of Guideline Implementation Monitoring conducted jointly by the MFRC and DNR, the estimate offered in DEIS Section of soil compaction attributed to the Project appears correct.

The comment is incorrect in stating that 22 percent of inspected logging sites had more than 5 percent of their area rutted over 6 inches or deeper. The MFRC baseline monitoring report states that 6 percent of more than 2,000 locations had rutting 6 inches or deeper and that of these 6 percent, 78 percent had less than 5 percent of their surface area in ruts. So the correct depiction is 22 percent of 6 percent, or about one percent of the inspected locations had rutting on more than 5 percent of their surface area.

4.55 SPATIAL ANALYSIS

Comment 12.b – C. Hanson (Sierra Club North Star Chapter)

The comment indicates that new GIS software tools and databases are available to examine the spatial impacts of Project-related logging. DNR agrees that such new tools are available, however the reliability of the outputs have not been subject to long-term, longitudinal study in Minnesota. Further, the completeness, availability, accuracy, and compatibility of the underlying spatial databases have not been fully assessed. DNR weighed these factors during EIS scoping, as well as the time and cost needed to pursue it, and did not order this type of assessment in the Final Scoping Decision.

The DNR agrees that the spatial distribution of both natural and human sources of disturbance is an important feature in maintaining viable habitat for both plant and animals species. However, it is not possible to attribute what stands will be specifically harvested for Project, which is a critical feature in assessing the potential change in forest patch distribution attributable to an individual project. DNR could have conducted an assessment using random (or other) harvest assignments; however, such an analysis is more appropriate as support for landscape-planning initiatives, such as the activity conducted by the MFRC Landscape Program. In this respect, the MFRC conducted the Spatial Assessment Project to provide information on the spatial distribution of forest types and conditions in Minnesota for use in landscape-scale forest planning. Goals developed in these landscape plans are to be implemented across ownerships in concert with other timberland owners; this is the means to address this issue.

Note that spatial ramifications are not ignored because the DEIS; this occurs on a limited basis as a function of GEIS tiering. The GEIS analysis did consider forest cover changes and habitat-related impacts at both the statewide and ecoregion scales. The DEIS adopts a similar approach where possible recognizing that changes in FIA methodologies between the 1990 and 2001 FIA complicates potential comparisons. Lack of a spatial assessment component is also acknowledged in DEIS Section 5.1.3.3 and 5.1.3.4.

Minn. Rules part 4410.2300, subpart H directs RGUs to balance the analysis of impacts where "the data and analyses shall be commensurate with the importance of the impact and the relevance of the information to a reasoned choice among alternatives and to the consideration of the need for mitigation measures." In considering all available information, DNR believes that spatial analysis as requested for examining the consequences of an individual project is not justified given the analysis that has been conducted in total. However, the spatial distribution of forest patches is increasingly recognized as an important consideration in forest management generally. The Final EIS amends the DEIS Section 5.1.3.2 to acknowledge this limitation of the available data and forest projection modeling.

Comment 12.ll – C. Hanson (Sierra Club North Star Chapter)

Consistent with the Final Scoping Decision, the DEIS identifies potential change under the Build and No-Build Alternatives in terms of change in acres, and in the cover type and age class distributions, for forest types occurring in Minnesota.

The comment references information contained on DEIS page 5-53. According to model projections, 198,000 acres will be subject to some type of harvest activity over the 40-year study period. Minnesota had an estimated 14.8 million acres of timberland in 2003; see DEIS Section 5.1.1.

4.56 STATUS OF PROGRAMMATIC MITIGATIONS

Comment 53.f – M. Norton (MCEA)

Comment noted. While the GEIS indicated the recommended mitigations should be implemented "relatively soon," no specific timeline (e.g., within a year or two) was given. The GEIS Executive Summary contains the following note regarding harvest sustainability, mitigation, and significant impacts:

> "The most important differences between the scenarios are those related to the long-term sustainability of the levels of harvesting. An analysis of long-term sustainability indicates that, with some modifications, the levels of demand specified under the base and medium scenarios are sustainable in the long-term. *However, harvest at these levels would need to implement the recommended mitigations relatively soon to avoid or mitigate the significant impacts described under these scenarios.* In contrast, the levels of harvesting specified under the high scenario could not be sustained for timber assuming the levels of productivity investments and net increments (forest growth) used in the GEIS analysis. Additionally, there is concern that some significant impacts to forest resources at that level of harvest could not be fully mitigated." [Final GEIS Executive Summary, page xxix]

Interpreting the GEIS today needs to include the following considerations:

- The type, extent, and application of mitigation measures today relative to what was recommended and contemplated in the GEIS (the GEIS Report Card Study and Guideline Implementation Monitoring results are important documents in this respect);
- Findings from research on mitigation since the GEIS was completed (e.g., studies of riparian zone management, soil productivity, silvicultural and harvesting practices);
- Actual versus assumed harvest levels (the GEIS Base Harvest Scenario assumed 4.172 cords annually; actual harvest has averaged 300,000+ cords less per year since the GEIS was completed);
- Actual versus projected forest conditions (e.g., the impact of major natural disturbances on forest composition and structure).

These considerations individually have variable and possibly opposite effects. However, when considered in aggregate, the impacts identified in the GEIS at the Base Harvest Scenario are a reasonable approximation of what is likely to occur.

The comment discusses several important assumptions that were built into the GEIS that have been proven inaccurate over time. Specific issues are addressed in other responses. Regarding the validity of the GEIS analysis (and underlying assumptions), DNR sought a determination from the EQB regarding the current adequacy of GEIS-related information for use in this Project-specific review. DNR noted to EQB a number of factors that would be addressed in the DEIS, including use of new:

- Base forest data
- Forest projection modeling
- Forest practices information
- Programmatic mitigation information
- Wildlife population data
- Reports and studies completed since the GEIS

The Final Scoping Decision incorporates each of these factors into the DEIS analysis.

Finally, DEIS Section 5.1.3 and Appendices C, D, and E provide extensive information on DEIS-related modeling, including the underlying assumptions. The GEIS Report Card Study, which is incorporated into the DEIS by reference, also provides substantial insight into the limitations of the GEIS's modeling. DNR is confident that the DEIS appropriately considers the limitations of the GEIS, including the limitations of its underlying assumptions.

The EIS now includes a new appendix, DEIS Appendix K: Executive Summary of the MFRC Reports, that contains the executive summary of the MFRC report: *Baseline Monitoring for Implementation of the*

Timber Harvesting and Forest Management Guidelines on Public and Private Forest Land in Minnesota: Combined Report for 2000, 2001, and 2002.

4.57 STORMWATER RUNOFF

Comment 47.d – S. Zeige and E. Treska (Mayor and City Administrator, respectively, City of Grand Rapids)

Comment noted

4.58 SUPPORT DEIS

Comments 3.f – S. Arbour, 14.a – C. Hill, 16.d – R. Hoyum (JDI Contracts, Inc.), 19.d – M. and M. Ives (Mike Ives Realty), 22.a – R. Lemonds (Lake County Power), 24.a – D. McCormack (Grand Itasca Clinic & Hospital), 27.a and 27.e – D. McMillan (Minnesota Power), 40.f – M. Ritter (Grand Rapids Area Chamber of Commerce), 44.a and 44.d – L. Solberg (Minnesota House of Representatives – District 3B), 47.a – S. Zeige and E. Treska (Mayor and City Administrator, respectively, City of Grand Rapids) 48.a – P. Walker (Walker & Associates), 54.a – R. Eichorn (Itasca County Board of Commissioners), 55.a – C. Pettersen and member of the South Central Itasca County Intergovernmental Planning Board, and 56.a and 56.c – D. McMillan (Minnesota Power)

Comments noted.

4.59 SUPPORT PROJECT

Comments 2.a – R. Alstead (Teamsters Local 346), 4.a and 4.d – N. and R. Axtell, 5.b and 5.e – L. Bondhus, 6.a – J. Bonner, 7.a – J. Brown, 9.a – M. Czeck (Hidden Haven Resort), 10.f – J. Dimich (Itasca County Commissioner – District 3), 11.a – R. Eichorn, 14.e – C. Hill, 15.a-c – J. Hoolihan, 16.b – R. Hoyum (JDI Contracts, Inc.), 18.a – M. Iaizzo, 20.a – D. Kellin (David A. Kellin Financial Services), 22.d – R. Lemonds (Lake County Power), 24.c – D. McCormack (Grand Itasca Clinic & Hospital), 25.c and 25.d – P. McDermott (Itasca Development Corp.), 26.a – C. McLynn, 28.a and 28.c and 28.f – J. Millis (Grand Rapids Area Chamber of Commerce Board of Directors), 32.a – J. Oberstar (US House of Representatives), 33.b – T. Osborn (Computer Enterprises), 37.a – L. Pittack, 39.d – M. Rima, 40.a – M. Ritter (Grand Rapids Area Chamber of Commerce), 41.a – T. Ryan (Ainsworth Group of Companies – Timberlands Alberta), 42.a – B. Sanders (Itasca County HRA Board of Commissioners), 43.a – M. Seaberg, 45.a – B. Stone (Grand Rapids Area Chamber of Commerce), 46.a – G. Taylor, 47.g – S. Zeige and E. Treska (Mayor and City Administrator, respectively, City of Grand Rapids), 48.c – P. Walker (Walker & Associates), 50.a and 50.d – E. Zabinski (Grand Rapids Economic Development Authority)

Comments noted.

4.60 SUSTAINABILITY

Comment 12.nn – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The wording on page 5-40 is explicit in referring only to sustainable harvest levels. By tracking forest age class distributions over time for specific cover types in each ecological subsection, modeling results add insight regarding sustainability concerns involving forest conditions.

Regarding assertions on DNR's characterizations of "sustainability" in terms of the full range of forest values, DNR's use of the term is meant in the same context as provided in the GEIS. Given that statewide timber harvest is occurring at a level below even the GEIS Base Harvest Scenario, and given the Project's relatively small contribution in terms of harvest, DNR does not view the Project to significantly diminish the broad-sustainability of statewide timber harvest. This view applies whether the project is implemented or not.

Comments 27.d – D. McMillan (Minnesota Power), and 36.e – P. Petersen

Comments noted.

Comment 38.a – D. Prochazka (Rapids Rental & Supply Moving & Storage)

Comment noted. The EQB conducted the Generic EIS Study on Timber Harvesting and Forest Management to evaluate the cumulative environmental effects of statewide timber harvest; see DEIS Appendix G. The GEIS examined three levels of statewide harvest, which were at 4.0 million (Base Harvest Scenario), 4.9 million (Medium Harvest Scenario), and 7.0 million (High Harvest Scenario) cords/yr. The GEIS concluded that statewide harvest at the base and medium levels was sustainable. Harvest levels modeled for the DEIS No-Build and Build Alternatives are below the 4.0 million cord per year level examined under the GEIS Base Harvest Scenario.

Comment 52.a – R. Horton (The Ruffed Grouse Society)

The comment correctly notes that aspen harvest levels are near sustainable levels based on the silvicultural growth and systems projection model used for DEIS-related analyses.

Regarding the implications of aspen forest type-conversion, in some native plant communities the area of aspen forest cover type is well above estimates for RNV for that plant community. If the land manager or owner considers this to be a concern, then management objectives may be applied to restore some aspen-type stands to other, non-aspen forest cover types. This could simply be accomplished by allowing natural succession of older stands currently in the aspen forest cover type. On the other hand, it should be noted that substantial acreages in forest types other than aspen may regenerate as aspen after harvest, thus offsetting the reason for concern offered in the comment.

In terms of the percentage of different species that typically occur in the aspen forest type, it should be noted that the 65 percent value attributed to aspen proper is an *average* value. The percentage of aspen

volume in the aspen forest cover type does vary substantially between stands. Some stands are 90 percent or more aspen by volume, while many others are less than 50 percent aspen by volume.

The net change in forest cover types are monitored by public land management agencies in Minnesota. The appropriate mix will likely continue to be a subject addressed carefully by the public agencies in their forest plans. Public agencies have the ability to influence that mix through forest management.

4.61 TIMBER HARVEST – NO CONCERNS

Comments 10.e – J. Dimich (Itasca County Commissioner – District 3), 13.a – D. Hanson, 22.c – R. Lemonds (Lake County Power), and 56.c – D. McMillan (Minnesota Power)

Comments noted.

4.62 TIMBER SUPPLY

Comments 20.c – D. Kellin (David A. Kellin Financial Services), and 37.c – L. Pittack

Comments noted.

Comment 23.g – R. Libbey

Comment noted. The commenter is correct that the availability of timber from small woodlot owners is not guaranteed. Assuming the wood is made available, based on the assumptions made regarding the availability of private lands for harvest, harvest levels can be sustained. Higher timber prices may hurt some other wood users, yet benefit forest landowners.

Comments 30.a and 30.b – W. E. Mitton, 41.b, e, h and k – T. Ryan (Ainsworth Group of Companies – Timberlands Alberta), and 49.a – J. Wallingford (Norbord Minnesota)

Actual supply of timber to the marketplace is the result of interplay between a complex set of short and long-term factors, including weather, logging and trucking capacity, biological supply, landowner goals and policies, public agency budgets, and wood raw material demand. The DEIS analysis shows that, under the assumptions used, sufficient biological supply to support the Project is present. Many market factors affecting supply of timber actually reaching the marketplace are beyond the control of the state of Minnesota, and are outside the scope of the DEIS.

DNR has no control over, and little influence on, supply from other public land managers, including county land departments and the USDA-Forest Service. DNR has only a very modest influence on supply from private landowners, mainly through its private lands assistance program. Market factors beyond the proposed Project are influencing actual availability of timber from non-state ownerships.

DNR continues to offer timber at planned harvest levels. Specifically, for the four fiscal years 2002 through 2005, DNR has offered an average of 857 thousand cords of timber for sale. This figure is very

close (within 3 percent) to DNR's estimated long-term sustainable harvest level of 880 thousand cords. To suggest that DNR is offering timber volumes significantly below sustainable levels is inaccurate.

Regarding harvest levels on DNR lands, it is important to note that DNR timber offering levels are determined through a rigorous SFRMP process, not through the DEIS modeling or in response to specific mill wood fiber quantity or quality requirements.

Comment 49.h – J. Wallingford (Norbord Minnesota)

Comment noted. The timber supply situation includes imports from Canada and the potential for shifts by some users to other species. Modeling results suggest that Minnesota forests can sustain harvest levels for aspen at 2002 statewide harvest levels.

Comment 52.b – R. Horton (The Ruffed Grouse Society)

The timber supply analysis in the DEIS is conservative in that it assumes all additional harvesting associated with the Project will occur in Minnesota even though the Proposer indicates that a substantial volume of timber will be imported to supply the Project's wood fiber needs. The analysis does not project increased production from national forests. Use of fiber from hybrid poplar, species substitution, use of smaller tree tops and use of different log lengths are all discussed as ways to reduce aspen use or more effectively use timber supplies. Kraft pulp quantities used are projected to increase, but are expected to be sourced from non-state sources (e.g., Canada). See DEIS Section 5.5.

4.63 TRAFFIC / RAIL

Comments 13.b – D. Hanson, 20.d – D. Kellin (David A. Kellin Financial Services), 36.a and 36.b – P. Petersen, 38.b – D. Prochazka (Rapids Rental & Supply Moving & Storage), 40.c – M. Ritter (Grand Rapids Area Chamber of Commerce)and 47.c – S. Zeige and E. Treska (Mayor and City Administrator, respectively, City of Grand Rapids)

Comments noted.

4.64 USE OF GEIS

Comments 41.d – T. Ryan (Ainsworth Group of Companies – Timberlands Alberta) and 49.c – J. Wallingford (Norbord Minnesota)

Comment noted. Regarding the Department's reliance on the GEIS, the agency sought and received a determination of adequacy for use of the GEIS in a project-specific review as required under Minn. Rules part 4410.3800, subpart 8. DEIS Appendix G, Application of Generic Environmental Impact Statement Tiering Process Summary, details how the GEIS was used as required by both state rule and the Final Scoping Decision. DNR is confident that the DEIS appropriately considers the limitations of the GEIS.

4.65 VGS CHANGES

Comment 12.zz – C. Hanson (Sierra Club North Star Chapter)

Comment noted. See Responses to Comments, Section 4.14: Forest Modeling – Methods.

4.66 VISUAL IMPACTS – HARVEST

Comment 12.jjj – C. Hanson (Sierra Club North Star Chapter)

Comments noted. Minnesota's resort and tourism industries were instrumental in the development of visual management guidelines that have been incorporated in Minnesota's *Voluntary Site-level Forest Management Guidelines*. Resort and tourism industries initiated the development of visual quality guidelines in the early 1990s. They also participated along with several other stakeholder groups and resource management organizations in their development.

Contrary to the commenter's claim, the visual quality guidelines do contain provisions for timber sale layout in areas adjacent to visually sensitive corridors.

As for the commenter's suggestion to make these guidelines mandatory, Minnesota Statutes Section 89A.05, subd. 3 specify that the application of these guidelines is voluntary.

Comment 21.d – B. Lee

Comment noted.

4.67 VISUAL IMPACTS – LOCAL

Comment 39.b – M. Rima

Comment noted.

Comment 29.g – H. Mills

See Responses to Comments, Section 4.41: Project Impacts – General.

4.68 WWTF

Comment 31.a – D. Moynihan (Minnesota Pollution Control Agency – MPCA)

It is the DNR's understanding that the Modifications Study represented an initial evaluation of what facility modifications may be feasible to process the altered discharge characteristics from the UPM/Blandin Paper mill with the addition of PM7 and associated mill modifications.

The Modifications Study is conceptual in nature presenting recommended treatment alternatives with previously demonstrated treatment technologies capable of meeting discharge limitations and water quality standards for the Mississippi River. The recommended treatment alternative described in the Modifications Study appears to be a viable alternative based upon the initial work completed to this point. The Department understands that additional study needs to be conducted and is planned to occur during the preliminary and detailed design phase of the Wastewater Treatment Facility Improvements Project (WWTF Improvements Project). The goal of this work is to further demonstrate the viability of the recommended treatment alternative.

The additional work tasks contemplated by the Grand Rapids Public Utilities Commission (GRPUC) and UPM/Blandin Paper during preliminary design may include, but is not limited to: additional data gathering, BioWin™ and temperature modeling, pilot testing, and equipment field testing, the purpose of the latter to establish the actual design parameters for treatment unit process sizing as well as verify the preliminary findings documented in the Modifications Study. The GRPUC reports it is in the process of installing additional temperature monitoring equipment to allow improved documentation of actual temperature dissipation through unit processes, especially the pumping and piping systems.

In addition, the GRPUC is committed to an expanded sampling and testing regiment to better document the efficiency and effectiveness of unit processes as well as the characteristics of the industrial wastewater flow throughout the treatment process. The final extent and nature of the additional work will not be completely determined until a decision is made by UPM/Blandin Paper to actually proceed with the Project.

DNR understands that the GRPUC and UPM/Blandin Paper will be required to submit additional data and supporting documentation during the required NPDES permitting process. Both the GRPUC and UPM/Blandin Paper have stated that their goal is to stay within the discharge limits, conditions, and requirements of the current NPDES Permit # MN0022080 that expires on May 31, 2008. In addition, it is stated that the treatment alternative will meet the requirements of the MPCA Solid Waste Management Facility Permit SW-210, Ten State Standards and other applicable requirements.

The DNR respectfully notes that an EIS is not required to provide all information necessary for project permitting. Should it find that additional data are needed the MPCA may impose additional information requirements as part of its permitting process.

Comment 31.b – D. Moynihan (Minnesota Pollution Control Agency)

Regarding comments on the activated sludge and aerobic selector and aeration basins, DNR recognizes MPCA's concerns regarding management of wastewater temperature at the GRPUC's WWTF. Both the Proposer and GRPUC are committed to supplying adequate temperature dissipating facilities at the mill and/or the WWTF to avoid and/or minimize potential adverse effect upon the WWTF and the Mississippi River. Tangible measures already offered include installation of a non-contact water cooling system and

cooling towers (for the vacuum pump cooling water). The new system (with these elements in place) will cool wastewater to an 110^0 F design maximum under a worse case scenario.

Therefore, the temperature data in Table 6-21 of the DEIS is correct and reflects the projected temperature impact on unit processes. Since UPM/Blandin Paper has made a firm commitment to a 110^0 F maximum effluent temperature, the data for the 115^o F Industrial Wastewater Influent scenario can be disregarded since it is not being considered at this time. It is also noted that the conclusions for the Recommended Alternative are based upon 110^0 F maximum Industrial Wastewater Influent.

As stated in the DEIS and Modifications Study, the preliminary Talati & Stenstrom temperature modeling conducted by HDR Engineering, Inc. (HDR) models the temperature depletion under worse case conditions. This is where the WWTF is receiving peak day industrial flow and low domestic flow, with maximum ambient temperature and minimal cooling. Under this event, the temperature in the aerobic selector may peak at 104.8^0 F with a 103.9^0 F peak at the aeration basin influent. In additional modeling performed, it was noted that taking into account the lower temperature of the RAS flow lowered the selector temperature to about 103.9^0 F. Also important to note is that the range of aeration basin temperatures is 95^0 F to 100.9^0 F even under the above scenario, which is well within the mandated 104^0 F "operating activated sludge process temperature limit" stipulated by the MPCA.

The temperatures noted in the analysis, which ranged from 95^0 F to 100.9^0 F, were developed by modeling under various operating modes that will be available to the GRPUC operating staff. As ambient and wastewater temperatures rise, operating staff will be able to put an additional aeration basin on-line and turn on surface aerators for additional cooling. This configuration will increase the aeration basin capacity with no decrease in the hydraulic detention time. As presented in the DEIS and Modifications Study, it is important to note this modeling represents a short duration event that <u>may</u> occur under certain summer weather conditions coincident with the above unusual operational conditions, not normal operating conditions.

The GRPUC reports that the existing WWTF has experienced temperature conditions comparable to those described above and has not observed an adverse effect on the biology established in the aeration basins. Should it be determined through additional modeling and pilot testing that additional cooling facilities are required to maintain permit compliance and water quality standards, or the integrity of the biological process and/or secondary clarifier capture efficiency, addition of such measures will be considered by the GRPUC and UPM/Blandin Paper as necessary to meet MPCA permitting requirements.

Comment 31.c – D. Moynihan (Minnesota Pollution Control Agency)

Regarding comment submitted on secondary clarification, available information suggests adequate clarifier performance is possible recognizing that establishment of appropriate temperature levels for the biological unit processes will be based on additional modeling and pilot testing. If necessary, additional available measures include replacement of two of the existing final clarifiers to a deeper and more

efficient design. Regardless of whether such a replacement is necessary, as an added precautionary measure, a permanent polymer addition system is proposed for the final clarifiers to assure there will be no solids carry-over to the polishing ponds.

The Proposer and GRPUC recognize that the proposed pilot testing will need to demonstrate to MPCA's satisfaction how the biology will react to Project-related change in flow and load conditions. They are prepared to consider imposition of additional measures as needed to comply with MPCA permit conditions.

Comment 31.d – D. Moynihan (Minnesota Pollution Control Agency)

DNR concurs that data relative to unit process performance and any potential thermal loading to the Mississippi River requires further development. Collection of such data is projected to occur during the preliminary and detailed design phase once a decision to implement the Project has been made. Absent this information, it is uncertain whether there is a potential for permit modifications relative to effluent temperature. Based on currently available information, there does not appear to be a need for permit modification.

Based on historical treatment plant data, aeration basin effluent temperatures have exceeded those predicted by the initial modeling, and thus it is not anticipated that the current temperature limits of the water quality standards will be exceeded. It is important to note that both the GRPUC and UPM/Blandin Paper are committed to supporting WWTF improvements that meet all the current MPCA/NPDES conditions, including the Mississippi River Water Quality Standards. Therefore, if it is determined through additional modeling and pilot testing that additional cooling measures are required to maintain permit compliance and the integrity of the biological process, the Proposer indicates such additional measures will be added at the Mill or in the WWTF Improvements Project.

The DNR respectfully notes that an EIS is not required to provide all information necessary for project permitting. Should it find that additional data are needed, the MPCA may impose additional information requirements as part of its permitting process.

Comment 31.e – D. Moynihan (Minnesota Pollution Control Agency)

Concerns over historic management of mill-generated sludge are noted. The GRPUC's sludge landfill is subject to MPCA regulation under permit SW-210, which is currently under review. Both current and future sludge disposal is subject to the requirements of the Federal Part 503 Rule as well as the requirements of MPCA's permit SW-210 and State Rules under Chapter 7041. The GRPUC and UPM/Blandin Paper are committed to complying with all regulatory requirements.

Present sludge management has primary industrial sludge and secondary or waste activated sludge (WAS) commingled at the primary facility, with dewatering and disposal in the GRPUC's sludge landfill. Sludge currently being generated at the WWTF does meet paint filter test requirements. Future activities are

proposed to be operationally more flexible than present to insure improved sludge management, including potential sources of instability. Facility operators will be able to commingle Primary and WAS prior to dewatering as currently practiced, dewater separately and commingle prior to landfill disposal, or separate primary industrial sludge from combined industrial/domestic WAS sludge for future separate disposal scenarios. DNR also understands that in order to assure compliance with landfill disposal requirements, both belt and screw presses will be tested on current primary and secondary sludge to determine their capability of properly dewatering the potential similar future WWTF sludge.

The GRPUC and UPM/Blandin Paper are committed to full compliance with MPCA permit conditions. This may include adding new procedures and/or project elements as a function of future pilot and related testing.

Comment 31.f – D. Moynihan (Minnesota Pollution Control Agency)

Based on input from the GRPUC, DNR concurs that the remaining landfill capacity of 1,461,044 cubic yards, 110,282 cubic yards in Kettle D and Phases 1-4 and 1,350,722 cubic yards in Phases 5-8 when constructed, as stipulated by Julie Henderson, MPCA – St. Paul, is accurate and is the number being used in the new permit application process. Based upon this expanded capacity, the operating landfill life at current and projected disposal rates are 25 and 19 years respectively. DEIS Section 6.4.3.1, Water Quality – Wastewater, Existing Conditions, is modified in the FEIS to provide the correct remaining landfill capacity value as provided in the comment.

4.69 WHITE PINE

Comment 12.oo – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The Border Lakes SFRMP stand selection process identified 1,723 acres of the 5,138 total timberland acres of white pine on DNR lands in the subsection to be evaluated for timber harvest. This is 33 percent of the white pine *acres*, not 1/3 of the white pine *volume*. The plan states that white pine stands will be treated through uneven-aged management (i.e., group or single tree harvest) or thinning. Typically, approximately 1/3 of the stand volume is harvested in these methods of harvest. Only stands that meet the criteria (e.g., stand density greater than 120 square feet of basal area) for a selective or thinning harvest will be treated. This will be determined during the on-site stand examination.

It is estimated than 50 to 75 percent of the 1723 acres of white pine identified will be suitable for partial harvest treatment. Based on an estimate of 1/3 of the volume being removed from less than 1/3 of the white pine acres, the volume of white pine harvested in the 10-year plan will be much less than 1/3 of the white pine volume in the subsection stated in the comment.

According to the white pine cover type management recommendations on Page 4.10 in the Border Lakes Subsection *Issues, Strategies, Desired Future Forest Composition and Stand Selection Criteria* Document

(December 2001), the white pine cover type will be managed through uneven-aged management and thinning. It states: *"Stands of merchantable size and basal area > 120 will be thinned at 10 - 25 year intervals, reducing basal area to 60 - 90 square feet. Every third thinning will be a group selection harvest, with the goal of establishing a new age class within the stand. The long-term goal is to create stands with layered age classes (3 or more). Timing of the first group selection harvest will depend on stand condition and seed production. Representatives (10 percent) of the oldest cohorts in the stand will be retained at all times with no final harvest."*

Based on these recommendations, a portion of the oldest trees in the stand will always be retained after harvest treatments. In addition, according to DNR white pine management policy (1998), all white pine stands will be managed according to Extended Rotation Forest (ERF) Guidelines to increase the acreage and distribution of older white pine stands and trees on the landscape. The minimum ERF ages for white pine is 150 years old for white pine stands with a site index of 55-65 and 180 years old for site index greater than 65. Based upon the above information, white pine stands on state lands will be managed to obtain ages of 150 years or more.

Comment 12.pp – C. Hanson (Sierra Club North Star Chapter)

The comment references Page 3.11 of the Border Lakes SFRMP. This document states in paragraph 2.a.: *All of the white pine cover type will be managed under an extended rotation of 150 years or more* (emphasis added). According to DNR's white pine management policy, the *minimum* ERF ages for white pine is 150 years old for white pine stands with a site index of 55–65, and 180 years old for a site index greater than 65.

The North Shore Highlands, Toimi Uplands, and Laurentian Uplands Subsections SFRMP *Strategic Direction Document* (2004 Draft), Page 4.37, 4.7C, 2., states: *"Due to the current acreage in older age classes, no final harvest is planned in the white pine cover type during the next 10 years. Final harvest in the white pine cover type will occur in the future after a stand reaches 180 to 240 years old."* As in the Border Lakes SFRMP, all white pine stands are managed under ERF Guidelines to increase the acreage and distribution of older white pine stands on the landscape.

Based on the above information from these two SFRMPs, with ERF rotation ages extending from 150 to 240 years old, the use of a 200-year old rotation age in the DEIS analysis is an appropriate estimate for state lands. No change in the DEIS is necessary.

4.70 WILDLIFE – IMPACTS / ASSESSMENTS

Comment 12.e – C. Hanson (Sierra Club North Star Chapter)

The comment correctly notes the findings from the GEIS Report Card Study regarding the accuracy of the GEIS's predictions regarding forest bird populations. One of the outgrowths of conducting the GEIS Report Card Study was a means to ensure the DEIS reflected consideration of the accuracy of the GEIS

predictions in its own respective impact assessments. As such, the analysis in the DEIS recognizes that the GEIS predictions were, at times, in error because: 1) either species densities (e.g., populations) changed over time, or 2) the forest changed in a different way than what was predicted.

The DEIS further notes the difficulty in assessing future wildlife populations in that it is not possible to predict how species densities will change in the future. See DEIS Appendix E, page E-4, which states: "Although bird densities are not static, no information is or was available that would allow prediction changes (magnitude or direction (e.g., increase or decrease)) in species densities over 40 the next 40 years. Given this practical restriction, interpretation of population trajectories loses reliability with time, notably beyond 15 years."

The commenter's assertion that mammal, amphibian, and reptile populations were not estimated in the GEIS is, in part, correct. The GEIS estimated the area of available habitat by use of a habitat index that weighed habitat suitability for each species by forest type and size class. This methodology was used because of a lack of detailed knowledge of population abundance for most species groups, which is a situation that continues to persist today. For those few species where reliable population count data was available, the GEIS Report Card Study found that population trends were not strongly correlated with changes in the habitat index between 1992 and 2002. However, habitat index only reflects habitat availability. It does not indicate whether the species is using that habitat to the maximum potential. Predation, hunting and trapping patterns and intensity, diseases, and climate change are among those factors that may influence the actual differences in population more directly than habitat availability. Along lines similar to the bird analyses, predicted changes in forest acreage also lead to changes in estimates of habitat availability today as compared to that predicted by the GEIS.

Comment 12.rr – C. Hanson (Sierra Club North Star Chapter)

Comment noted. The DEIS assessment of potential Project-related effects on forest wildlife populations relies on a combination of GEIS-borne and RNV-based methodologies. For the GEIS component, this is appropriate because the DEIS is tiered from an available GEIS. The RNV-based component represents an additional dimension of analysis, especially in terms of RNV-based estimates of historic population levels for forest bird species occurring in Minnesota. As a result, the DEIS impact assessment is more informative than it would be relying on either approach exclusively.

In terms of the expertise behind the DEIS's impact assessment, DNR is confident in the standard of analysis that was applied in the underlying modeling and interpretations. Regarding the recommended "expert panel of wildlife experts" needing to be used, such a panel indeed was used during the GEIS process, thus the DEIS reflects such expertise in its reliance on the 17 GEIS impacts and recommended mitigations (as established under the MSFRA). More important, the purpose of the DEIS is to evaluate the Project's impacts to forest resources, and this is accomplished in DEIS Sections 5.2.2.11 and 5.2.2.12 for forest wildlife species, with all supporting analysis detailed in Appendix E.

The comment is correct that the modeling is not spatially explicit in the sense of relying heavily on map-focused data and processes for analysis. The FIA dataset, which is the underlying basis for both the GEIS and DEIS modeling exercises, does not allow for spatially explicit modeling as recommended in the comment; see Response to Comments, Section 4.55: Spatial Analysis. Regardless, as DEIS Appendices C, D, and E note, any modeling has its respective strengths and weaknesses; this situation applies as well to spatially explicit approaches.

Comments 12.ss and 12.hhh – C. Hanson (Sierra Club North Star Chapter)

Comment noted. DEIS Appendix E lists RNV impacts for all species. The RNV number, which is characterized as a species' current percent RNV value, is of greatest value in assessing potential impacts, not whether the species is a specialist or generalist.

The comment suggests the DEIS is deficient in detailing how the aggregate increase in statewide timber harvest attributable to the Project would affect specialist-type bird species that require large blocks of VGS forest. However, the technical capabilities and the data to conduct such an analysis is limited.

The GEIS does provide insight on the issue of forest fragmentation raised in the comment. Final GEIS Section 5.2.4, Forest Fragmentation, notes that fragmentation of forests changes the structural diversity of forests in ways that affect biodiversity. In terms of the Project, harvest-related activity may change the juxtaposition of forests of different types and ages on the landscape, which in turn can change the availability and suitability of habitat for any species, including specialist-type bird species requiring large blocks of similar-type forest. However, given the relatively small Project-related contribution to statewide timber harvest, the potential for the Project to have substantial adverse effect on bird populations appears low.

Finally, forest managers are increasingly sensitive to the needs of the range of forest bird species in their forest planning, thus some degree of mitigation is possible through ongoing and future planning efforts, especially under the MFRC Landscape Program and its initiatives, DNR's SFRMP process, and federal and county forest planning.

Comment 12.ggg – C. Hanson (Sierra Club North Star Chapter)

DNR notes the comment reiterates information contained in the DEIS.

Comment 23.d – R. Libbey

Comment noted.

Comment 23.h – R. Libbey

Comment noted. It is not possible to identify with any specificity the degree to which harvest-related activity may result in wildlife mortality. Probably of greater overall impact is whether suitable habitat is present once disturbance has occurred, whether natural (e.g., wind, fire) or human (e.g., harvest) in origin.

The Final Scoping Decision included a determination the timber harvesting analysis should be done on a statewide basis since the GEIS was done that way.

Comment 52.c – R. Horton (The Ruffed Grouse Society)

Comment noted. The comment accurately reports the findings of the DEIS. Whether the indicated change is positive or negative depends on the mix of natural resource management goals assigned to a particular location in the state. In terms of RNV, most early successional bird species have current populations that are above their RNV-midpoint while most late successional bird species are below their RNV population midpoint. The degree to which this situation persists or changes rests with the objectives of the respective landowners, both public and private. The Project itself is expected to have little or no effect; see DEIS Appendix E for the results of wildlife-population modeling.

4.71 WILDLIFE MODELING

Comment 12.tt – C. Hanson (Sierra Club North Star Chapter)

The comment incorrectly asserts that "modeling for both [D]ualplan and the RNV studies assume a random spatial distribution." Harvesting location in the model results is not random. Overall, demand for aspen tends to drive the model with the model harvesting nearly all acres assumed available for harvest in the aspen forest type under both the Build and No-Build alternatives. The timing and location of harvests is influenced by the availability and allowable cut assumptions for each associated forest landowner group. For example, relatively less harvesting is scheduled on national forest lands. Overall, southern Minnesota contains relatively little aspen and thus the model does not suggest that the Project will increase harvesting in southern Minnesota. The model suggests that the greatest impact of additional harvesting will be on the paper birch forest cover type because this type also contains substantial volume of aspen; see DEIS Table 5-13. See Response to Comments, Section 4.51: Significance Thresholds.

4.72 WOOD IMPORTS

Comment 49.f – J. Wallingford (Norbord Minnesota)

Comment noted. DEIS Appendix F provides general information on wood markets in Minnesota, including recognition of the role played by wood imports and exports in Section F-1.1.3.3. DNR has confidence in the DEIS analysis of timber supplies, fully recognizing that there are variables that cause uncertainty in any analysis.

The timber market is very competitive and dynamic in Minnesota. Wood imports from Canada are one part of this very complex, dynamic and evolving picture. Imports from Canada are indeed one market indication of a tight timber supply in Minnesota, especially for aspen, but they do not indicate that adequate supply is unavailable in the state.

Regarding commenter characterizations of the DEIS's treatment of why imports from Canada may be occurring, the DEIS offers a perspective based on 2001 market conditions. At that time, raw material cost differentials between Minnesota and Canadian stumpage was indeed a primary driver of imports. The DEIS suggestion that Canadian imports have been less costly than procuring large volumes of additional timber from small-lot NIPF sources is also true. The financing of logging equipment has also changed in recent years and may have adversely affected the capability of small loggers who work with small private landowners more than others in the logging business.

DNR acknowledges that market conditions have changed since 2001, and will change continually over time. It is difficult to predict accurately future import and export balances.

CHAPTER 5.0
MITIGATION CHAPTER

5.1 MITIGATION MEASURES

The EIS analysis of potential effects of the proposed mill facilities and improvements considers reasonable mitigation measures to reduce any potentially significant adverse impacts. Mitigation is defined under Minn. Rules part 4410.0200, subpart 51 to mean:

- Avoiding impacts altogether by not undertaking a certain project or parts of a project;
- Minimizing impacts by limiting the degree of magnitude of a project;
- Rectifying impacts by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating impacts over time by preservation and maintenance operations during the life of the project;
- Compensating for impacts by replacing or providing substitute resources or environments; or,
- Reducing or avoiding impacts by implementation of pollution prevention measures.

Mitigation measures are typically evaluated in detail for significant adverse impacts caused by the proposed Project. The DEIS identifies mitigation measures that are available for consideration as a means of avoiding or minimizing project-related adverse environmental impacts. Project-specific measures are those actions available to the Proposer to avoid or minimize direct and indirect impacts, whether instituted on a voluntary or regulatory basis. Because the impacts to forest resources are cumulative in nature, both programmatic and Proposer-specific measures are available for consideration. Programmatic measures are available as a result of the enactment of the MSFRA (M.S. Chapter 89A).

5.1.1 TOPICS WHERE SIGNIFICANT IMPACTS ARE NOT ANTICIPATED

The Scoping decision identified topics for which significant impacts were not anticipated but which were evaluated in additional detail in the EIS. The following summarizes findings relative to mitigation as to these topics.

5.1.1.1 Land Use and Zoning Mitigation

Significant land use and zoning impacts are not anticipated by the proposed Project, thus additional mitigation beyond the standard provisions of required permits and approvals is not necessary. Both local warehouse options would require acquisition of land and rezoning to an industrial classification. As stated in the City's Comprehensive Plan, industrial facilities should be located adjacent to existing facilities or in an industrial park. In addition, the area west of the woodyard was identified as an area UPM/Blandin Paper may expand towards. Any adverse impacts are expected to be controlled through local permits and approvals; no additional measures are recommended. All mitigation measures that

address the acquisition of properties and displacement of businesses and residences are discussed in the Socioeconomic section.

5.1.1.2 Land Cover Mitigation

The proposed Project is not anticipated to cause adverse cover type conversion or a large amount of conversion, thus no additional mitigation is recommended. Any adverse impacts are expected to be controlled through features incorporated in the Project design, local permits and approvals, and standard provisions of MPCA's General Stormwater Permit for construction and/or industrial activities.

5.1.1.3 Wildlife and Fisheries Resources Mitigation

The proposed Project is not expected to cause adverse effects on any terrestrial wildlife; therefore, no mitigation would be required.

The new intake structure will be designed using best available technologies. This includes meeting the EPA-recommended criteria of 1) limiting the approach velocity of water through the screens at the new inlet to less than 0.5 feet per second and 2) constructing the screen parallel to the riverbank at the inlet (Progressive Consulting Engineers 2004). Because of the reduction of flow through the existing intake, design of the new structure with best available technologies and DNR water appropriation amendment permitting, little adverse effect beyond the current conditions for impingement and entrainment of aquatic resources are anticipated from the proposed Project.

Impingement and/or entrainment-related impacts are regulated under DNR's Public Waters Works Permit and Water Appropriation Permit Amendment. Measures available to reduce Project-related impingement/entrainment include conducting an impingement study, application of best available technologies (BAT) to the new intake, and using appropriate intake screen sizes, flows, depths, and pipe size to reduce velocities.

Regulations do not specifically identify the BAT. The BAT used will depend on the density, species composition, and timing of the spawn. The EPA is keeping this flexible and identifying BAT for each specific facility. Examples of the technologies in use include:

- Fish diversion or avoidance systems designed to divert fish away from intakes
- Passive intake systems such as non-mechanical screens
- Mechanical screen systems that prevent organisms from entering the intake system
- Fish return systems that transport live organisms away from the intake system

Regarding screening systems, EPA guidance also recommends that the inscreen velocity be less than 0.5 feet/second.

UPM/Blandin Paper has committed to meet all DNR and MPCA permit conditions assigned to both intake structures to avoid, minimize, and mitigate Project-related impingement and/or entrainment effects. For the new structure, measures include meeting EPA's recommended inscreen velocity of 0.5 ft/sec, orienting the screening intake parallel with the riverbank, and locating the structure itself as close as possible to the existing intake.

Permit-related conditions to control runoff, sedimentation and thermal impacts, with the associated water quality protections, should be protective of the fisheries and their instream habitat. With proper design and operation, impacts to aquatic resources are expected to be minimal. Aside from adhering to standard DNR, MPCA, and USACE permit conditions and erosion and sedimentation BMPs during construction, no other mitigation measures are recommended.

5.1.1.4 Water Resources Mitigation

The Project will comply with the requirements of the DNR water appropriation permit amendment and the MPCA NPDES permit. Regarding the warm water discharge from the new non-contact cooling system, it is essentially equivalent to the warm water discharge from cooling turbine No. 6 at the Allete-Minnesota Power facility. Because that discharge will be terminated and replaced with the new discharge, effects on the river are not anticipated to change substantially from the current condition while the discharge is present. Therefore, no additional mitigation is recommended; the NPDES discharge permit is expected to set monitoring requirements and temperature limits at levels protective of the potentially affected resources.

5.1.1.5 Water Quality – Surface Water Mitigation

The increased stormwater generated at the site will be addressed in accordance with the existing/future Storm Water Pollution Prevention Plan (SWPPP) as well as NPDES Phase II regulations. Erosion and sedimentation in the construction area would be minimized using accepted construction methods, including directing construction-related runoff into the existing stormwater system. Stormwater generated within the area of the demolition site would be directed into the process sewer system during construction activity and treated as wastewater. Stormwater system inlets will be protected by inlet protection devices in order to reduce silt-laden direct runoff from entering the system untreated. Where surface runoff could potentially flow directly into the Mississippi River, the site Best Management Practices (BMPs) would include temporary surface drainage ditches with sedimentation barriers designed to intercept these flows and direct them into the stormwater system. Imposition of additional measures is not recommended.

Best Management Practices

The MPCA has designated the Mississippi River as a Special Water in this location. A general NPDES stormwater construction permit is required for projects that disturb one or more acres. Furthermore, the permit requires that the project plan provide for one inch of temporary and permanent "water quality volume" treatment and detention of runoff for the net increase in impervious surfaces; if the total project increase in impervious surface exceeds one acre. Permit compliance requires that additional Special

Waters BMPs be followed, such as slope protection, temporary sediment basins, buffer zones, and rate controls, in addition to stormwater inlet protection, silt fences, bale checks, and temporary and permanent revegetation. The NPDES permit also requires a plan that details the specific measures to be implemented, construction phasing, vehicle tracking of sediment, and erosion control inspection measures.

DEIS Figure 6-10 depicts the erosion control plan for the site for the modified facility, Warehouse Options 2 and 5. DEIS Figure 6.11 shows additional plans for Warehouse Option 4.

In an effort to reduce, eliminate, or otherwise mitigate the effects of the additional impervious surface areas under Warehouse Option 4, runoff from the site will be directed into stormwater ponds. The pond volumes will be adequate for one inch of runoff for every additional acre of impervious surface created. Given that the preventative measures will be followed, no significant impact upon stormwater quality is anticipated.

Installation of stormwater ponds should attenuate increases in surface water runoff. Given that the requirements for stormwater detention ponds will be followed, no significant impact upon surface water runoff quantity is anticipated. Imposition of additional mitigation measures is not recommended.

5.1.1.6 Water Quality – Wastewater Mitigation

Several modifications to the WWTF are planned as part of the process improvements associated with the Build Alternative. The existing facilities have adequate capacity for future average loading conditions, but lack adequate capacity to treat future peak loading conditions. To mitigate future peak TSS loads, the addition of flow equalization and increased sludge dewatering capacity is proposed. To mitigate future peak BOD loads, additional oxygen for the aeration basins is proposed. To mitigate future peak temperature loads, non-contact water cooling at the mill and supplemental surface aeration at the Secondary Plant is proposed. Some additional improvements are also required due to the age and condition of the existing facilities. These mitigative actions, along with other standard water quality protective measures, will be required in the MPCA NPDES/SDS permit.

5.1.1.7 Solid Wastes, Hazardous Wastes, Storage Tanks Mitigation

All solid wastes will be re-used to the extent practical and the balance landfilled in compliance with existing regulations. The WWTF disposal facilities are sized to handle an increased load from the mill. The proposed Project is not expected to create adverse impacts resulting from generation of solid wastes, and no additional mitigation beyond measures currently permitted are required.

As currently occurring, any hazardous waste generated by the mill would be collected, stored, and a licensed operator would transport for disposal in compliance with existing regulations. In addition, UPM/Blandin Paper has an approved Spill Prevention Control and Countermeasure Plan in-place. The purpose of the Plan is to identify potential sources of oil and hazardous substance discharges and facilities

and methods to prevent and contain a spill. UPM/Blandin Paper will remain a Small Quantity Generator and will follow the requirements as stated in their existing license.

5.1.1.8 Stationary Source Air Emissions Mitigation

As part of the Prevention of Significant Deterioration (PSD) program review, an air quality impact analysis is required for the pollutants that trigger PSD. Because VOC emissions are associated with the creation of ozone, which is a regional issue rather than a localized issue, air quality modeling is not performed for VOCs in connection with PSD reviews. However, the facility will be required to model the impacts of SO_2 and NO_x for comparison to NAAQS, MAAQS, and the PSD increment consumption limits. A summary of the modeling analysis, obtained from the PSD Permit Application, is presented in DEIS Table 6-32, Summary of Air Quality Modeling Analysis. Because compliance with these standards will be required prior to issuance of a modified facility permit authorizing construction of the proposed Project, no additional need for mitigation measures to address air quality impacts is anticipated.

5.1.1.9 Designated Parks, Recreation Areas or Trails Mitigation

According to the City's Park Facility Analysis (2001), the City has recognized that UPM/Blandin Paper may expand their facility and acquire the surrounding areas. The City and the Proposer will need to discuss potential mitigation options. A probable mitigation option would be to help the City replace Syndicate Park with a more accessible park facility. The 2001 Analysis made the following recommendations:

- Obtain land for a neighborhood park in western Grand Rapids, possibly in the to-be-annexed area west of Forest Lake.
- A small play lot park to directly serve children in the area in the northwest.
- Assist the City with their desired development of the various aspects of the proposed riverfront plan to create a year-round community focal point.
- Improve Isaak Walton Park as a public river access facility.
- Assist the City with the acquisition of Sylvan Point.
- Assist with development of the Itasca County Fairgrounds and associated Crystal Lake

If Warehouse Option 4 is not selected, then the proposed Project is not considered to cause adverse effects on Syndicate Park, therefore no additional mitigation measures are required.

The proposed Project is not anticipated to cause direct adverse impacts upon the Showboat Landing aside from noise during construction, warehouse operation, and increased truck traffic and railroad activity. No mitigation measures are required. As an effort to alleviate noise-related issues, UPM/Blandin Paper may be able to halt warehouse operations during the performances and performance practice.

The proposed Project is not considered to cause adverse effects on the designated Mississippi River Canoe and Boating Route and the North County National Scenic Trail. Therefore, no mitigation is required.

5.1.1.10 Visual Resources Mitigation

The proposed Project would not result in a significant change when compared to historic water vapor plume levels. The length and persistence of these plumes would be influenced by the prevailing weather conditions such as temperature, relative humidity, and wind speed and would be most persistent and visible during cold and cool weather, principally during the mid-winter months. On most days of the year, however, visible steam or vapor plumes, if present, would disperse and evaporate after traveling only a moderate distance aloft. No mitigation would be required because steam plumes would disperse and evaporate after traveling only a moderate distance and would not result in a visual impact requiring mitigation.

Where practical throughout plant operations, steam energy would be reclaimed through the application of energy-reclamation technology. Best engineering practices (i.e., stack height, stack configuration) would be used for the design of the proposed Project's energy / water vapor systems to reduce the instances of fogging conditions. The precipitated calcium carbonate (PCC) facility's cooling towers would use drift protection to minimize the amount of water vapor escaping the towers.

Warehouse Option 2 would have minor visual impacts on the downtown area. Potential buffering options include fencing, seating, structural planting (e.g., raised beds or planter boxes), lighting and fixtures, and color and texture that blend into the area. Since space is a constraint, landscape-style buffering is not practicable. Lighting options would not want to introduce stray nighttime lighting, thus shielded, cut-off fixtures, or lowering of lighting masts may reduce this effect. The City of Grand Rapids approved a design guide for the downtown area, called Grand Rapids Downtown Redevelopment Design Standards (2003). In addition, the City is preparing a Downtown Redevelopment Master Plan to help establish, enhance, and sustain the downtown area as the City wants. Building design and applications should attempt to mimic these principles.

Due to its location, Warehouse Option 4 would be better served by landscape buffering as a mitigation measure. Maintaining vegetative buffers, such as trees, shrubs, and planter beds around mill and warehouse facilities, would serve to dampen noise from development activities such as commotion from equipment and traffic. Vegetative buffers along Third Street NW and residences along the Mississippi River would both dampen noise and provide a visual barrier for people using the road and living in the area. In addition, warehouse activities could be temporarily halted during Showboat performances to prevent an impact. All warehouse options would follow local zoning ordinance.

5.1.1.11 Geologic Hazards and Soil Conditions Mitigation

No impacts are anticipated, thus no mitigation is needed.

5.1.2 DETAILED ANALYSIS TOPICS

The scoping decision identified topics that were to be analyzed in detail. To the extent significant impacts are identified potential additional mitigation must be evaluated. The following discussion summarizes findings as it relates to these topics.

5.1.2.1 Roadway Mitigation/Conclusions

The expansion of the UPM/Blandin Paper mill is unlikely to cause excessive delays to drivers along the existing roadway network. Annual delay costs for Warehouse Options 2 and 4 ranged between approximately $42,000 and $64,000. Warehouse Option 5 resulted in annual delay costs ranging from approximately $58,000 to $85,000. The increases in delay of individual lane groups could be mitigated to acceptable levels of service by adjusting the signal timing at the study area intersections. It may also be possible to change a particular travel route to improve individual turning movements if delays are encountered. Implementation of existing, approved transportation plans that anticipate the potential for the Project also provide mitigation for potential impacts.

5.1.2.2 Rail Mitigation

The expansion of the UPM/Blandin Paper mill is unlikely to cause delay to the degree that mitigation is required. However, closing the 12th Avenue NW crossing and diverting traffic to the 18th Avenue NW crossing, which was recommended by the Arrowhead Regional Development Commission (ARDC), would eliminate most of the delay caused by trains switching tracks to service the paper mill. The additional traffic at the 18th Avenue NW crossing would experience less delay versus the 12th Avenue NW crossing because trains are less frequent and move at a higher speed. Closing 12th Avenue NW could save $1,520 per year in delay costs; two to four times this amount could be saved in public maintenance costs. No other mitigation is proposed.

5.1.2.3 Noise Mitigation

No significant noise impacts were identified; therefore, no mitigation is necessary; therefore, no additional mitigation is recommended. Existing noise control measures, including noise fence and stacked roundwood piles, assist in reducing noise levels in compliance with state noise standards.

5.1.2.4 Socioeconomic Mitigation

The 2005 Downtown Redevelopment Master Plan discusses circumstances for the case of potential paper mill expansion that would mitigate the negative effects of Warehouse Option 2. The proposed strategy includes the construction of offices along First Avenue West (south of Third Street NW), possibly combined with an extended rail facility along the north side of Third Street NW. The latter variation would also involve retail or office developments on Block 18 that require proximity to the plant and construction of housing related to UPM/Blandin Paper.[1]

[1] See "Downtown Redevelopment Master Plan," Draft #1, July 2005, report prepared by Hoisington Koegler Group, Inc., pages 17-18.

Construction of offices along First Avenue West is intended to provide a buffer between the warehouse and the commercial uses in Block 18. The extended rail facility is intended to capitalize on business development opportunities in the Central Business District (CBD) that may be created by the UPM/Blandin Paper mill expansion.

The 2005 Downtown Redevelopment Master Plan also suggests that steps should be taken to prevent truck traffic from using Second Street East of Pokegama and First Avenue East as shortcuts to eastbound Highway 2. Some of the possible steps pointed out in the Plan include specific regulations on truck traffic in the area adjacent to Block 19 as well as physical street improvements or layouts.[2]

Similar restrictions on truck traffic could also be used in all of the Downtown area and even under other warehouse options so as to ensure a balance between easy access to the CBD by cars, pedestrians, and bikes, and good access to Highway 2 by trucks and other highway users.

Other mitigation strategies may include general street improvements, crosswalk enhancements, and perhaps speed limitations. These strategies may help ensure a good sense of safety as well as generate an appealing visual effect of a well-maintained and managed Downtown that, in turn, would attract people despite increased traffic.

5.1.2.5 Forestry/Biodiversity and GEIS-Related Mitigation

The Final Scoping Decision requires the DEIS to assess the No-Build and Build Alternatives in terms of projected change in Minnesota forest conditions at decade intervals from the present to the year 2040. The projection of forest condition is to be characterized in terms of forest extent and diversity as measured by cover type and age class structure. Changes in forest condition under the No-Build Alternative are to be compared to the GEIS Base Harvest Scenario (e.g., harvest of approximately 4 million cords of wood per year). Changes under the Build Alternative are to be compared to those changes projected for the No-Build Alternative.

Mitigation under the Final Scoping Decision is to be assessed for the Build Alternative in terms of the progress in implementing the GEIS's Strategic Programmatic Responses, which are authorized under the MSFRA. The analysis is to consider the long-term ability of potentially affected resources to sustain forest outputs and values. Measures being implemented by the Proposer on its ownerships or through its open-market purchases are also to be detailed.

The Final Scoping Decision also requires identification of potential unmitigated impacts for the Build Alternative. Where such impacts are noted alternatives are to be examined regarding: 1) alternative sources of wood fiber for the Project, and 2) investments to increase forest productivity and utilization. See DEIS Appendix B, Final Scoping Decision (February 2005) for further information.

[2] See "Downtown Redevelopment Master Plan," Draft #1, July 2005, report prepared by Hoisington Koegler Group, Inc., page 15.

GEIS Study on Timber Harvesting and Forest Management

In 1994, the EQB completed a GEIS on timber harvesting and management in Minnesota. The study examined the effect expanded timber harvesting might have on the environment. The GEIS assessed environmental and related impacts at three different levels (Base, Medium, and High Scenarios) of statewide timber harvesting intensity. Mitigation strategies were suggested to address the potential impacts identified as being significantly adverse. These recommendations included site-level responses, landscape-level responses, and forest resources research.

The DEIS incorporates by reference and tiers information from the GEIS Base Harvest Scenario analysis to assess the potential environmental effects associated with implementation of the No-Build and Build Alternatives. This is done in accordance with Minn. Rules parts 4410.2400 and 4410.3800, subpart 8; see DEIS Appendix G, Application of Generic Environmental Impact Statement Tiering Process Summary, for further discussion. The DEIS references the GEIS Base Harvest Scenario because that is the level of timber harvest examined (e.g., 4 million cords/yr) that best matches current and projected future statewide timber harvest levels.

Mitigation measures are typically evaluated for significant adverse impacts caused by the proposed Project. This section of the DEIS identifies mitigation measures that are available for consideration as a means for avoiding or minimizing Project-related adverse impacts.

Mitigative Measures for the 17 GEIS Impact Areas

In accordance with the Final Scoping Decision, potentially significant impacts are taken from the DEIS's evaluation of the 17 GEIS impact areas; see DEIS Section 5.2 for the analysis of these impacts. It should be noted that these impacts are cumulative in nature, or in other words result from the interaction of the Project's impacts with the impacts from other past, present, or reasonably foreseeable future projects. Therefore both programmatic and Project-specific mitigation measures are available for consideration.

Programmatic measures are available as a result of the enactment of the MSFRA (Minnesota Statutes Chapter 89A). This legislation established the MFRC and a series of other related initiatives. These measures are typically voluntary, with implementation targeted across the entire forest products industry and supporting institutions on all forest land ownerships. They take the form of site-level, landscape-level, and research-based responses. The current status of programmatic measures is detailed in the GEIS Report Card Study, which is available concurrent with the DEIS; see Appendix I for the Executive Summary of the GEIS Report Card Study.

Project-specific measures are those actions available to the Proposer, whether instituted on a voluntary or regulatory basis. These measures can be applied on its own lands, or through controls present from its open-market roundwood purchases.

Mitigation – Programmatic Measures

The impacts of the Project can be addressed through the ongoing implementation of the strategic statewide programmatic responses as required under the MSFRA. Both site-level and landscape-level responses apply to the Project. General information will be discussed first, which will be followed by those responses that apply to each of the specific impact areas.

A. General Information – Site Level Guidelines

Origin and Current Status of the Voluntary Guidelines

The MFRC was charged with coordinating the development of site-level timber harvesting and forest management guidelines to address the cumulative significant effects of statewide timber harvest. The guidelines were developed over a two-year period and adopted as the *MFRC Voluntary Site-level Forest Management Guidelines* in February 1999; the *Guidelines* have since been updated with new revisions adopted in 2005.

There is extensive survey result information included in the GEIS Report Card Study regarding current guideline implementation, training and monitoring (see Appendix I, Executive Summary of the GEIS Report Card Study). Overall the report card reports a high level of adoption of the *Guidelines* in policy and in practice by public and corporate forest land managers. Forest managers' perceptions regarding the overall effectiveness of the *Guidelines* vary but are seen as useful by the larger majority of survey respondents.

Implementation and Monitoring of the Voluntary Guidelines

In 1998, the MFRC developed four goals for the implementation of the *Guidelines* as mandated in the MSFRA.

The goals are:

- Develop organizational support for the guideline development through letters of support.
- Ensure user awareness and understanding of the guidelines.
- Obtain user commitment to apply the guidelines.
- Measure the actual application of specific practices set forth in the guidelines.

The MLEP established guideline training as a continuing element of logger education. Additionally, the Center for Continuing Education (CCE) at the University of Minnesota has the objective of promoting excellence in natural resource management through educational opportunities. The CCE has organized or sponsored many of the annual educational workshops that train resource managers and landowners in the use of the guidelines. Additionally there is some internal industry and agency training sessions on guideline use.

By 2004, more than 90 percent of the timber harvesting statewide was done by loggers who had received guideline training. Sixty-three percent of organizations have sent all of their staff to training and 93 percent have sent at least most of their staff to training. The GEIS Report Card Study indicates that 92 percent of survey respondents representing 97 percent of the public and industrial owners stated they require application of guidelines. It is unclear from this response if industrial owners require application of the guidelines on NIPF lands from which they receive wood.

The MFRC convened a committee to oversee the development of the procedures and protocols for monitoring the application of the guidelines on public and private forest land. Independent contractors conducted the field monitoring of 334 harvest sites from 2000-2002. Monitoring findings are summarized in the three-year guideline implementation monitoring report summary, *Baseline Monitoring for Implementation of the Timber Harvesting and Forest Management Guidelines on Public and Private Forestland in Minnesota: Combined Report for 2000, 2001, and 2002.*

In the GEIS Report Card Study, results from the MFRC monitoring effort was to be compared to that of report card survey findings; however, the report card assessment concluded that comparisons of guideline implementation monitoring data and the results of the survey of GEIS mitigation implementation progress were very limited, as the two evaluations were greatly different in scope and specificity. For example, retention of snags varies on a site-by-site basis based on safety concerns, visual quality concerns, and other management objectives.

One area of concern in the monitoring effort was in riparian areas. It was found that 52 percent of the riparian areas were in compliance with the guidelines where as all organizations surveyed in the report card indicated as having riparian management zone (RMZ) practices consistent with the guidelines. Note that surveyed managers in the GEIS Report Card Study repeatedly mention the need to tailor site-specific prescriptions (including the use of guidelines) to the conditions and management objectives associated with a site. The two-year monitoring results suggested that a very small portion of the state's riparian forests (0.4 percent per year) is affected by timber harvest. In 2003, the DNR and MFRC concluded that land use decisions that result in the loss of productive forest land may have more enduring effects than timber harvesting in riparian areas. Therefore, the DNR Resource Assessment Unit began focusing its monitoring efforts on forest land use changes, using change detection methods and satellite imagery similar to those used in riparian monitoring.

B. General Information – Landscape-Level Planning and Coordination

The GEIS recommends the development of landscape-level responses to address potential problems that may occur on a statewide level across landowner types. The MSFRA codified the landscape-level goals and objectives recommended in the GEIS and directed the establishment of regional committees. The overarching landscape-level goal of the MFRC as established by the MSFRA is to "establish a framework that enables long-term strategic planning and landscape coordination to occur."

Regional forest resource committees are the mechanism by which landscape-based forest resource planning occurs. Committees have been established in each of the six landscapes identified by the MFRC as major forested landscapes. Landscape plans are now finalized and approved by the MFRC for all six landscape regions and plan coordination groups actively meet in all regions.

The MFRC established the following broad goals for use by regional committees as they carry out their landscape-level planning and coordination responsibilities:

- Land area covered by forests within a region's landscape will be the same or larger.
- Forests within a region's landscape will be in a variety of ownerships, serving both public and private interests.
- Within forested landscapes, healthy, resilient, and functioning ecosystems will be maintained within appropriate mixes of forest cover types and age classes to promote timber production, biological diversity and viable forest-dependent fish and wildlife habitats.
- Forests within a region's landscape will be providing a full range of products, services, and values, including timber products, wildlife, and tourism, that are major contributors to economic stability, environmental quality, social satisfaction and community well-being.
- Forests within a region's landscape will be viewed by citizens as integral contributors to the quality of life enjoyed by current as well as future generations. The citizenry will be knowledgeable about forest conditions and opportunities within the region and actively engaged in their stewardship.

The GEIS Report Card Study survey found organizational involvement in MFRC landscape planning program has varied. Organizations were modestly to moderately involved in the MFRC's landscape planning process. The greatest level of organizational involvement was planning strategies to achieve future forest conditions, while involvement was the least in the assessment of regional conditions. See the GEIS Report Card Study for additional information.

Perceptions of effectiveness of the MFRC's landscape program vary. While 32 percent of the forest land is managed by organizations who perceive the program to be very effective in identifying and addressing landscape-level forest resource issues and coordinating forest management activities across large landscapes and multiple ownerships, 38 percent is managed by organizations that believe the program minimally effective or not effective in addressing landscape-level issues and facilitating coordination. Public organizations generally find the program to be more effective than do private organizations.

The MFRC landscape program has modestly influenced forest management activities. Thirteen of the 21 responding organizations indicated they have made some to extensive change in their management practices as a result of the landscape program, while eight stated the program has resulted in few to no changes.

C. Strategic Statewide Programmatic Responses – Specific Impact Areas

The DEIS evaluated the Project in the context of the 17 GEIS impact areas and was determined to have an effect for six of the 17 impacts.

Impact 5 Projected harvesting affecting genetic variability of plant or animal species.

The principal programmatic strategy to address this impact is to ensure that information on sensitive natural communities and sites is available to land managers early in the harvest planning process. This is accomplished through the MCBS and its related information systems. The MCBS, which is a systematic survey of rare biological features, has been completed for the significant portions of the state and is underway in several northern-forested counties. Continued funding of the MCBS on-the-ground surveys is necessary to ensure that full coverage of the state is developed. Funding will also be required in the future to maintain and make accessible MCBS-type information, including the addition of new sites and features as new occurrences are identified. Logger-education efforts should also continue. The MFRC *Voluntary Site-level Forest Management Guidelines*, Wildlife Habitat, pages 18-35, address this issue of plant species occurring near or at the edge of their range.

Impact 8 Projected harvesting affecting site nutrient capital.

This impact area is addressed through the application of site-level measures to address soil nutrient impacts as offered in the MFRC *Voluntary Site-level Forest Management Guidelines.* Continued funding of MFRC efforts to ensure continued improvement in the site-level guidelines and logger education are the most effective programmatic strategies to deal with this impact area. Funding an accelerated guideline implementation and effectiveness monitoring program is also an available mitigative strategy; the results of this activity feed into the ongoing guideline and education program refinement processes. The MFRC and DNR will be conducting a review of the logging residue and coarse woody debris literature, which may result in revisions to the coarse woody debris portions of the site-level guideline. This new interest in the use of additional logging residue is independent of the Project, but if conducted may result in improved practices that better mitigate potential impacts.

Impact 10 Projected harvesting causing accelerated erosion from forest roads.

This impact area is addressed through the application of site-level measures to address soil erosion as offered in the MFRC *Voluntary Site-level Forest Management Guidelines;* see Forest Soil Productivity, pages 13-16, and Forest Roads, pages 1-49. *Guidelines* for riparian management are also applicable to avoiding or minimizing these types of impacts; see Riparian Areas, pages 1-12. Continued funding of MFRC efforts to ensure continued improvement in the site-level guidelines and logger education programs are the most effective programmatic strategies to deal with this impact area. Funding an accelerated guideline implementation and effectiveness monitoring program is also an available mitigative strategy; the results of this activity feed into the ongoing guideline and education program refinement processes.

Impact 15 Projected harvesting in the absence of visual management guidelines (VMGs) on visually sensitive areas.

This impact area is addressed through the application of site-level measures to address adverse visual impacts as offered in the MFRC *Voluntary Site-level Forest Management Guidelines;* see Visual Quality, pages 1-9. *Guidelines* for riparian management are also applicable to avoiding or minimizing these types of impacts. Continued funding of MFRC efforts to ensure continued improvement in the site-level guidelines and logger education programs are the most effective programmatic strategies to deal with this impact area. Funding an accelerated guideline implementation and effectiveness monitoring program is also an available mitigative strategy; the results of this activity feed into the ongoing guideline and education refinement processes. Visual Sensitivity Classification Maps have been developed for 16 Minnesota counties and are available for consideration in harvest-related planning. Coordinated road and trail planning is another mitigative strategy, where consistent use and application of VMGs along visually sensitive corridors that cross multiple ownerships.

Impact 16 Projected development of permanent roads in primitive and semiprimitive nonmotorized areas.

The adoption and implementation of landscape-based road and trail plans is the best programmatic mitigation strategy that is available to address this area of impact. Efforts to do this planning should be encouraged and funded as opportunities arise. For impacts that occur on federal ownerships, the recently adopted forest management plans are one vehicle to avoid or minimize impacts. Support for the continued development and application of visual management guidelines is also a potential measure.

Impact 17 Projected harvesting affecting unique cultural and historical resources.

The principal programmatic strategy to address this impact is to ensure that information on cultural and historic sites is available to land managers early in the harvest planning process. There are specific site-level measures that have been developed to avoid or minimize impacts that are found in the MFRC *Voluntary Site-level Forest Management Guidelines;* see Cultural Resources, pages 1-25. *Guidelines* for riparian management are also applicable to avoiding or minimizing these types of impacts; see Riparian Areas, pages 1-12. Continued funding of: 1) inventory lists of known sensitive cultural and historical resources, 2) logger education programs, and 3) MFRC efforts to ensure continued improvement in the site-level guidelines, are the most effective programmatic strategies to deal with this impact area. Funding an accelerated guideline implementation and effectiveness monitoring program is also an available mitigative strategy; the results of this activity feed into the ongoing guideline and education program refinement processes.

D. Mitigation – Project-Specific Measures

The impacts of the Project can be addressed through actions currently being implemented or potentially available to the Project Proposer. Both site-level and landscape-level measures are available to the Proposer. UPM/Blandin Paper's ongoing commitments to conduct sustainable forestry practices and

planning will be discussed first, which will then be followed by specific measures that apply to each of the impact areas listed.

UPM/Blandin Paper's Ongoing Commitments to Mitigate Timber Harvest Impacts

The following is a listing of the Proposer's existing commitments to mitigate the cumulative environmental effects of statewide timber harvest.

1. UPM/Blandin Paper is an active member of the American Forest and Paper Association (AF&PA). To maintain its membership in good standing, the company is required to operate according to specific guidelines that are embodied in the Sustainable Forestry Board's SFI® Standard. The following is a list of applicable objectives:

   Objective 1: To broaden the implementation of sustainable forestry by ensuring long-term harvest levels based on the use of the best scientific information available.

   Objective 2: To ensure long-term forest productivity and conservation of forest resources through prompt reforestation, soil conservation, afforestation, and other measures.

   Objective 3: To protect water quality in streams, lakes and other water bodies.

   Objective 4: Manage the quality and distribution of wildlife habitats and contribute to the conservation of biological diversity by developing and implementing stand- and landscape-level measures that promote habitat diversity and the conservation of forest plants and animals, including aquatic fauna.

   Objective 5: Manage the visual impact of harvesting and other forest operations.

   Objective 6: Manage company lands of ecological, geologic, cultural or historic significance in a manner that recognizes their special qualities.

   Objective 7: To promote the efficient use of forest resources.

   Objective 8: To broaden the practice of sustainable forestry through procurement programs.

   Objective 9: To improve forestry research, science and technology upon which sound forest management decisions are based.

Objective 10: To improve the practice of sustainable forest management by resource professionals, logging professionals, and contractors through appropriate training and education programs.

Objective 11: Commitment to comply with applicable federal, provincial, state or local forestry and related environmental laws and regulations.

Objective 12: To broaden the practice of sustainable forestry by encouraging the public and forestry community to participate in the commitment to sustainable forestry, and publicly report progress.

Objective 13: To promote continual improvement in the practice of sustainable forestry and monitor, measure and report performance in achieving the commitment to sustainable forestry.

The Proposer maintains a record of activities that are taken to achieve these objectives. This record is subject to independent third-party audit procedures and reporting. Report summaries are available upon request.

2. UPM/Blandin Paper is committed to applying the MFRC's *Voluntary Site-level Forest Management Guidelines* principles and practices to all of its own forest lands, and with rare exceptions, to all non-industrial private forest lands and government lands where it controls the stumpage. The *Guidelines* embody numerous Best Management Practices (BMPs) related to forest management that have been developed through the participation of various stakeholders and are implemented through voluntary commitment to sustainable forestry. Various components of the *Guidelines* were updated in 2005.

3. UPM/Blandin Paper adheres to the voluntary Water Quality BMPs and requires contractors and its staff foresters to be trained in BMP application, which is accomplished through training offered by the MLEP. These training sessions are taught by qualified, knowledgeable industry foresters, environmentalists, and state personnel.

4. UPM/Blandin Paper applies voluntary visual quality practices on company-owned lands and lands harvested in its non-industrial private land program, as guided by County Visual Quality standards and as part of its company-wide standard operating practices. Visual Quality BMPs for forest management reduce the apparent size of harvest units, or create harvest site design features that are visually appealing. These were developed cooperatively by DNR, Minnesota Forest Industries, Minnesota Resort Association, and the USFS. The practices include the use of commercial thinning, multiple-stage cuts, leaving patches of trees, creating narrow openings into the harvest area, and utilizing natural terrain and vegetative features, all designed to produce natural forest stands.

5. VMGs have been developed by a number of the forested counties in northern Minnesota that are consistent with the goals of Visual Quality BMPs. For example, some counties have classified some of their roads by visual sensitivity. These VMGs also help minimize visual impacts and are implemented on UPM/Blandin Paper-owned timberlands. The company is signatory to the Minnesota Forest Resources Partnership's Memorandum of Understanding for Visual Quality.

6. UPM/Blandin Paper's ecologically based management regime identifies biodiversity features and sensitive areas during its inventory process on company, and when appropriate, on other ownerships. For example, UPM/Blandin Paper has cooperated with The Nature Conservancy in the development of a management plan for the Sand Lake/ Seven Beavers Area based on Native Plant Communities of Minnesota.

7. Minnesota's Legislative Commission on Minnesota Resources (LCMR) has funded the Minnesota Forest Bird Diversity Initiative. The status of migratory bird populations, especially neo-tropical species, is an issue of national importance. UPM/Blandin Paper cooperated in this program to study the potential effects of timber management on forest bird populations.

8. UPM/Blandin Paper maintains a state-of-the-art forest inventory system, which includes monitoring age class and cover type structure of forests. The system contains current stand information for day-by-day management of the forest by company forestry staff, and this information is supplied into the forest management planning process. Information compiled in the system includes: age of the stands; stand type; stand composition; soil information; and geographic information. Stand-level information is collected by foresters using hand-held field data recorders that is incorporated into the geographic information system (GIS) database to use in determining site-level modifications to management prescriptions. Basic prescriptions are modified to reflect each stand's needs. As large databases become available to the company, (i.e., region wide identification of cultural and historic areas), they will be incorporated into the data system. UPM/Blandin Paper has a license with the NHP for access to its Endangered, Threatened, and Species of Special Concern database; this data layer is incorporated into the company's GIS. UPM/Blandin Paper also agrees to notify the NHP of any new locations for listed species or natural communities.

9. The company maintains and continually upgrades a listing of known cultural, unique, and historical sites and protects all sites as required by law.

10. UPM/Blandin Paper has participated extensively in developing the North Central Landscape Plan, mandated by the MSFRA. The company's Forest Ecologist is responsible for ensuring that all UPM/Blandin Paper site level harvest and silviculture plans take into account neighboring ownerships and ecologically important landscape features.

11. In support of protecting sensitive sites, the company maintains an inventory of sites (e.g., peatlands and state-listed protected waters).

12. UPM/Blandin Paper has participated through the MFRC in developing site-level guidelines for forest management activities, and will continue to participate as improvements are made periodically.

13. UPM/Blandin Paper continues to look for methods to increase wood fiber productivity of timberlands. The company has increased utilization by going from a four-inch (4") top diameter to a three-inch (3") top diameter for 100-inch (100") long wood. UPM/Blandin Paper contracts for cut-to-length timber harvesting that retains slash onsite and minimizes soil impacts. When conventional harvest systems are used on Proposer lands, logging debris is used to stabilize skid trails and the remainder is returned and spread on site. The company has expanded wood storage capabilities to increase winter harvesting that will minimize impacts.

14. The company requires onsite inspection of each individual stand as harvest preparation plans are being made. At this time, professional assessment is made of entry requirements, area to be treated, special requirements, and if needed harvesting guidelines and regeneration methods.

15. UPM/Blandin Paper has actively promoted and supported funding for conservation easements that permanently protect forest land from non-forest development and fragmentation.

16. UPM/Blandin Paper has worked extensively with the MLEP director to develop a Minnesota Master Logger Certification program, which will document and raise to new standards of excellence the performance of participating loggers, ensuring their harvesting practices on all ownerships follow guidelines and standards very similar to the SFI objectives.

17. The Proposer grows many species on company lands that cannot be used for mill-related papermaking. Roundwood harvested in this instance is sold to other mills, along with sub-standard aspen, balsam fir and spruce, which is not also used. UPM/Blandin Paper has a Marketing Forester whose job is to find a market to sell wood from company lands and controlled stumpage sources to other mills in the area. This is a means of promoting use of alternate species. As the other mills, which are able to use these species and lower quality wood, buy these products, the company is supplied with additional higher quality aspen, balsam fir, and spruce roundwood needed for its operations.

E. Project-specific Measures – Specific Impact Areas

The DEIS evaluated the Project in the context of the 17 GEIS impact areas and was determined to have an effect for six of the 17 impacts. What follows is the mitigation available to address these impacts.

Impact 5: Projected harvesting affecting genetic variability of plant or animal species

The use of information regarding sensitive communities and sites, and tree species, located at the edge of their range during harvest is the mitigative measure for this impact; see *Voluntary Site-level Forest Management Guidelines*, Wildlife Habitat, pages 18-35. The Proposer is committed to following this guideline for harvest occurring on its own lands, and with rare exceptions, and is following it also for all non-industrial private forest lands and government lands where it controls the stumpage.

The driving factor behind the guideline is to employ measures designed to identify and protect rare habitats and/or genetic diversity. This is done be accessing available databases and considering the information during harvest planning. Specific measures being employed by UPM/Blandin Paper to implement the applicable guideline include, but are not limited to, the following:

Forests of Exceptional Conservation Value (FECV)

UPM/Blandin Paper employs a standardized planning process to address the identification of known viable occurrences on company-managed lands of G-1 and G-2 species and communities, and for collecting information in cooperation with the Minnesota DNR's NHP[3]. The FECV planning process has two stages:

Stage 1. Identifying Threatened and Endangered Species and Critically Imperilled or Imperilled Ecological Communities

The company conducts a search of the NatureServe database across its leased lands to identify any known occurrence of critically imperilled or imperilled forest species and ecological communities. This search will be conducted online by accessing the NatureServe Explorer at www.natureserve.org.

From the NatureServe database, the company will retain the list of viable forest species and ecological communities identified as Global Heritage Rank G-1 and G-2. The company will check the viability of the record to ensure that the historical record is accurate and reliable.

The company will then consult the Natural Heritage Network Directory for known element occurrences of G-1 and G-2 forest species and ecological communities that are geographically located on its ownership. If the forest species and ecological communities are not located within the controlled lands of the company, they will be removed from consideration.

[3] The forests of northern Minnesota have very few species and communities that have G1 and G2 rank.

Stage 2. Develop Conservation Strategies

Prior to developing a Conservation Strategy for forest communities identified as FECVs, the company will conduct an assessment of the historical disturbance patterns and successional processes, including the risk of fire and other disturbance regimes.

If a known occurrence of an aquatic species or community is identified, the company will implement appropriate water quality BMPs. It is assumed that BMPs will be sufficient to provide protection to any identified species or communities.

As new information and mechanisms are developed to identify and protect Forests of Exceptional Conservation Value, the company will adjust and refine its plans. The company will proceed with the expectation that mechanisms will be available to provide economic return for the societal values provided by the company's forests including: conservation easements, rental payments, land trades, tax policy, direct purchases or other equitable forms of securing economic return.

The company will evaluate the overall costs to implement a conservation strategy. If the protection of an individual species or community carries exceptionally high costs or carries with it disproportionate impacts on the company, the company is free to implement other management or operational alternatives that are more appropriate from an economic and sustainability standpoint.

The Forest Ecologist conducts appropriate ongoing training in the identification and protection of threatened and endangered species, as well as critically imperilled and imperilled species and ecological communities.

Sites locations are included in the GIS database. Collection of additional information on imperilled and critically imperilled sites is being developed through participation in the NCASI led cooperative project with NatureServe. Results of the NCASI project will be monitored and used to incorporate additional measures for the conservation of biologic diversity.

Baseline Plant Data

The Proposer established baseline plant data during habitat typing of forest inventory plots in 1998 and 1999. Information was collected for all plant species found on the plot, not just those needed for habitat type identification. The data is maintained in an existing company GIS. Since the coordinates of all the plots are in the GIS, they can be resampled at any time to evaluate changes in species composition due to management activities. UPM/Blandin Paper does not maintain a specific plan for managing biodiversity due to ongoing emphasis for managing habitat types for their successional stages, which emulates maintenance of all the components of a habitat type and thus providing for biodiversity.

Life-cycle Forests

UPM/Blandin Paper conducts harvest to emulate nature. Small gaps or patches, selection harvest, commercial thinning, shelterwoods, and seed tree harvests are used to mimic wind events and fires that would have naturally occurred in the various habitat types. The timing for commercial thinning will be at intervals that natural thinning would occur. A variety of species, ages, and vertical structure will be common with a variety of successional stages across the landscape.

Exotic Species and Species Mixes

The Proposer minimizes the planting of exotic tree species that are introduced from outside their natural range. A company goal is to regenerate areas with the same species or species mixes that occur naturally on the site. Many sites are being brought back to their natural species mixes using the Habitat Typing system. Foresters are working with the mill to utilize more species and species mixes so that all commercial species can be managed and maintained.

Site Protection

UPM/Blandin Paper has identified sites that contain unique biological and/or ecological attributes. These sites are managed to conserve their local or regional importance and to protect their unique attributes. The company works in cooperation with the NHP when appropriate to protect special sites, and may also work with other experts to identify unique biological and ecological sites across its lands in Minnesota, and manage them for their unique features.

Local knowledge and/or the assistance of knowledgeable organizations are utilized in the identification of unique and special sites. Management and protection strategies are developed for sites that require conservation or protection measures to promote the site's unique character. Known sites are identified in the GIS and appropriate designations, restrictions, and management needs are identified. Management activities that are needed to protect and perpetuate the unique characteristics of the site are prescribed on an annual basis. The location of newly discovered sites are catalogued and recorded in the GIS. For all practices, the forester must identify any special areas, and threatened and endangered plant and animal species or habitats, and show them on project plan map. Special features are to be marked on the ground with paint or ribbon as appropriate so that operator thoroughly understands and can locate them.

Impact 8 Projected harvesting affecting site nutrient capital

The use of information regarding the nutrient content and sustainability of a site's soils, and then applying the appropriate management actions, is the mitigative measure for this impact; see *Voluntary Site-level Forest Management Guidelines*, Forest Soil Productivity, pages 16-21. The Proposer is committed to following this guideline for harvest occurring on its own lands, and with rare exceptions, and is following it also for all non-industrial private forest lands and government lands where it controls the stumpage.

The driving factor behind the guideline is to identify sites where roundwood harvest can result in nutrient "mining" of the site and apply the correct mix of prescriptive measures to minimize impact potentials.

Once the potential for impact is identified, site-level measures can include: retaining or redistributing slash on the site; avoiding full-tree harvesting or full-tree skidding that piles slash without redistributing it; adding nutrients to the site; and/or avoiding shortened rotations. Specific measures being employed by UPM/Blandin Paper to implement the applicable guideline include, but are not limited to, the following.

Planning for Soil Productivity

UPM/Blandin Paper includes soil conservation planning as part of its ongoing management activities. Declines in forest productivity as a result of management practices are an undesirable outcome. The company conducts harvesting activities and mechanical site preparation that protects existing soil physical and chemical properties. Habitat-type characterization is used to assist in determining site productivity potential and evaluating appropriate silvicultural prescriptions and harvesting operations. Minimizing loss of nutrients on nutrient-sensitive soils is an explicit planning goal.

Measures to Protect Soil Resources

The company conducts the following measures consistent with the applicable *Voluntary Site-level Forest Management Guideline*:

- Review habitat type, soil and site conditions to determine timing of harvest, harvest methods and equipment and weather related seasonal closure of the operation.
- Avoid harvest activities on fine or medium-textured soils and poorly drained soils when soils are saturated, immediately after heavy rains, and during very wet autumns, when transpiration has ceased. To protect site productivity, forester may suspend operations on sensitive soils to prevent excessive rutting and compaction.
- Encourage use of low ground pressure equipment and use of slash mats to extend operating seasons or times; e.g., for summer cut black spruce, use temporary mats, bundles of pvc pipe, etc. to cross the typical “moat” at edge of swamp, and cut only where timber stand is of sufficient density that harvesters will generate a suitable slash travel mat to support weight of equipment.
- Employ erosion control that maintains or establishes vegetation on slopes that contain high proportions of fine sand and silt, low organic matter, and slow permeability.
- Employ harvest techniques that minimize the need to operate equipment on steep slopes. Where operation on steep slopes is necessary employ appropriate equipment.
- Reduce volume, velocity and distance of water flows on roads and skid trails by building water diversion structures consistent with appropriate water quality BMPs.
- Reserve natural site nutrients by leaving slash fairly evenly distributed on site to avoid any reduction to tree growth or any change in vegetative composition of the site.

Site Inspections and Harvest Management

Area foresters should conduct pre-harvest inspections by walking over cutting blocks at least twice before any work is done. Foresters are to review all of the above with the contract logger during pre-work field session. At the same time, they are instructed to make sure the logger understands the map and written instructions and that he will review same with all appropriate crew employees, explaining clearly that no work is to be done within the protected area.

The forester signs the check-off sheet as required acknowledging discussion and understanding of harvest plan and site specific considerations. Check-off sheets will be either UPM/Blandin Paper's Site Harvest Plan or generic Site Requirements Checkoff, or various government sign-off forms.

Contractors are to obtain approval from the company forester prior to commencing harvest activities. Any changes to harvest regulations or cutting area must be approved by forester.

If during field operations the contractor reports previously unidentified features and forester deems them to be significant, the site plan maps are to be updated accordingly.

Impact 10 Projected harvesting causing accelerated erosion from forest roads

The application of the appropriate *Voluntary Site-level Forest Management Guidelines* regarding forest roads and riparian areas are the mitigation for this impact; see the *Guidelines*, Forest Roads, pages 1-49, Forest Soil Productivity, pages 13-16, and Riparian Areas, pages 1-13. The Proposer is committed to following this guideline for harvest occurring on its own lands, and with rare exceptions, and is following it also for all non-industrial private forest lands and government lands where it controls the stumpage.

The principal approach under these guidelines is to provide safe and efficient access to harvest sites while disturbing the smallest amount of the site possible. With proper planning, construction, and maintenance, the amount of erosion and resulting sedimentation from the creation of new forest roads can be minimized. Measures applied must be configured to the specifics of the site and include considerations on design, alignment and location, water crossings, and drainage. Specific measures being employed by UPM/Blandin Paper to implement the applicable guideline include, but are not limited to, the following.

Contract Provisions

Blandin contracts require contractors to comply with Minnesota BMPs for water quality protection, including road-related measures, in all of their activities.

Contractors providing road-building services that contract directly with UPM/Blandin Paper are supervised by Company Foresters. Contractors performing such services receive on-the-job training in applicable Minnesota BMPs and the Company's procedures.

Forest Roads – Design Considerations

UPM/Blandin Paper requires that roadway planning should:

- Examine existing access routes to determine whether they are the best routes to improve, and consider whether relocation would provide a better long-term access route.
- Consider future management activities that may utilize common roads for adjacent stands or ownership.
- Minimize total road mileage and ground disturbance required to meet landowner objectives.
- Limit the area disturbed by roads to less than 1-2 percent of the management area.
- Establish appropriate stabilization, drainage and erosion control measures, to be applied on a daily basis during all phases of an operation.
- Minimize road width consistent with road safety and design considerations.
- Recognize that if road closure is anticipated, the road approaches should be designed to facilitate effective closure after completion of management activities.

Forest Roads – Alignment and Location

UPM/Blandin Paper requires that roadway planning should:

- Identify prior to construction locations for construction of new roads, borrow areas, and gravel pits that avoid cultural resources and sensitive areas.
- Locate roads to minimize the amount of cut-and-fill and the number of wetland crossings.
- Locate roads away from lakes, streams, open water wetlands, wetland inclusions, seasonal ponds, seeps and springs wherever possible, to provide adequate filter strips.
- Wherever practical, locate roads outside of filter strips or the riparian management zone, whichever is wider.
- Locate roads to avoid concentrating runoff and reduce the potential for non-point source pollution.
- Avoid locating roads below the high water mark of lakes, streams, wetlands and seasonal ponds whenever possible.
- Avoid locating roads on unstable slopes subject to slumping or creep whenever practical.
- Avoid constructing roads with grades in excess of 10 percent; on highly erodible soils, maximum grades of 5 percent are recommended.
- Minimize down-road flow and ponding by constructing roads with a slight grade of 1 percent or 2 percent and with appropriate ditches where practical.
- Plan forest roads to be a minimum distance of 4,000 feet apart and a maximum of 5,000 feet.

Forest Roads – Maintaining Water Quality and Minimizing Erosion

The company requires the following actions be made to maintain the effectiveness of erosion control measures:

- Regularly inspect drainage and erosion control structures.
- Keep debris clear from culverts, ditches, dips, and other structures to prevent clogging.
- Move debris away from water and stabilize if necessary.
- Maintain natural surface drainage patterns during each phase of maintenance.
- Control subsurface drainage consistent with natural drainage patterns.

Forest Roads – Monitoring

UPM/Blandin Paper will conduct monitoring of water quality BMP implementation on all fee and purchased stumpage tracts.

Impact 15 Projected harvesting in the absence of visual management guidelines (VMGs) on visually sensitive areas

The application of the appropriate *Voluntary Site-level Forest Management Guideline* regarding application and use of VMGs is the mitigation for this impact; see the *Guidelines*, Visual Quality, pages 1-9. The Proposer is committed to following this guideline for harvest occurring on its own lands, and with rare exceptions, and is following it also for all non-industrial private forest lands and government lands where it controls the stumpage.

The basic tenet of mitigating adverse harvest-related impacts to sensitive visual resources is to ensure such features are recognized in harvest planning and taking steps to reduce impacts from harvest-related activity (e.g., road development; site preparation). Specific measures being employed by UPM/Blandin Paper to implement the applicable guideline include, but are not limited to, the following.

Visual Quality and Aesthetics Program

The Proposer is committed to considering the visual impacts of its management activities and managing appropriately. The visual quality and aesthetics program is designed to create a pleasant managed forest landscape and also address special requirements indicated by sensitive view sheds. Program goals are achieved by utilizing a comprehensive system that addresses aesthetic considerations in concert with recognition of the interaction and trade-offs between this program and other landowner objectives for forest productivity, and wildlife habitat dynamics.

The basis of the company's aesthetic guidelines is MFRC's *Voluntary Site-level Forest Management Guidelines*. The Sustainable Forestry Initiative's performance measures and core indicators also provide additional aesthetics standards and metrics.

Until UPM/Blandin Paper acquires route sensitivity data for the GIS, foresters are directed to use their best judgment to classify sites and routes as most sensitive, moderately sensitive or less sensitive according to Minnesota *Voluntary Site-level Forest Management Guidelines* and plan cutting blocks accordingly. Layout of the harvest is to include design features from *Guidelines* where practical.

Additional visual quality techniques include:

- Reduce apparent size of clearcuts by using patches of leave trees, topographic features, and narrow openings along roadsides.
- Eliminate or minimize slash within first 50 feet from travel routes or recreational areas.
- Limit slash along sensitive routes to maximum height of 2 feet, avoid windrows or slash piles.
- Regenerate and/ or stabilize landings ASAP after use.
- Leave all snags possible; however, some situations call for removal for safety, aesthetics, or disease prevention.
- Avoid tracking mud onto highways by using appropriate road surface material.
- Limit operation of heavy equipment during periods of peak recreational use or normal sleep hours, or defer harvest until after peak tourist season.
- Inform and educate recreational users about the harvest activity and limits to their being on site.

Impact 16 Projected development of permanent roads in primitive and semiprimitive nonmotorized areas

Continued Proposer participation in landscape-based road and trail planning is the mitigation for this impact. The Proposer is committed to engage in such planning as appropriate opportunities arise.

Impact 17 Projected harvesting affecting unique cultural and historical resources

The application of the appropriate *Voluntary Site-level Forest Management Guidelines* regarding the identification and avoidance of unique cultural and historical resources is the mitigation for this impact; see the *Guidelines*, Cultural Resources, pages 1-25, and Riparian Areas, pages 1-12. The Proposer is committed to following this guideline for harvest occurring on its own lands, and with rare exceptions is following it also for all non-industrial private forest lands and government lands where it controls the stumpage.

The basic tenet of mitigating adverse harvest-related impacts to sensitive visual resources is to ensure such features are recognized in harvest planning and taking steps to reduce impacts from harvest-related activity (e.g., road development; site preparation). Specific measures being employed by UPM/Blandin Paper to implement the applicable guideline include, but are not limited to, the following.

Pre-harvest Inspections

Area Foresters should walk over cutting blocks at least twice before any work is done. During the planning phase while taking volume plots, they are required to look for cultural and historic sites. When located, these features are to be recorded in the company GIS. Special features are to be marked on the ground with pink paint or ribbon as appropriate so that the operator thoroughly understands and can locate them. All highly sensitive features and all riparian areas adjacent to trout waters are to be marked by foresters.

Foresters are to review this information with the contract logger during pre-work field session. At the same time, the company requires that the logger understands the map and written instructions. The contract logger is to review this information with all appropriate crew employees, explaining clearly that no work is to be done within the protected area.

Forester are to sign the check-off sheet as required acknowledging discussion and understanding of harvest plan and site specific considerations. Check-off sheets will be either UPM/Blandin Paper's Site Harvest Plan or generic Site Requirements Checkoff, or various government sign-off forms.

Contractors are to obtain approval from the company forester prior to commencing harvest activities. Any changes to harvest regulations or cutting area must be approved by forester.

If during field operations the contractor reports previously unidentified features and forester deems them to be significant, the site plan maps are to be updated accordingly.

5.2 ALTERNATIVES FOR ADDRESSING POTENTIALLY UNMITIGATED IMPACTS UNDER THE BUILD ALTERNATIVE

The GEIS identified 17 areas of potentially significant cumulative environmental impact that could be attributed to statewide timber harvest. The GEIS concluded that mitigation was available to address these impacts, however even with implementation of its recommendations it was likely that cumulative unmitigated impacts would remain; see Final GEIS Section 5.7.4. For statewide timber harvest, these potentially unmitigated impacts are: loss of forest area and timberlands; changes to age class and cover type structure; incidence of pest and disease; impacts on biodiversity; impacts on forest soils, including nutrients, soil physical structure, and erosion; impacts archaeological and cemetery sites; impacts on traditional use sites; loss of primitive and semiprimitive non-motorized recreation opportunities; impacts on motorized recreational uses; and impacts on tourism and travel-based industries.

In terms of the Build Alternative, the Project could contribute significantly to the cumulative unmitigated impacts resulting from statewide timber harvest in the following areas: impacts on biodiversity (Impact 5); forest soils – nutrients (Impact 8); forest soils – erosion (Impact 10); loss of primitive and semiprimitive non-motorized recreational opportunities (Impact 16); and impacts on cultural and historic

resources (Impact 17). The Final Scoping Decision requires the DEIS to consider the Project's potentially unmitigated impacts in terms of: 1) alternative sources of wood fiber; 2) investments to increase forest utilization and productivity; and 3) alternatives incorporating reasonable mitigation measures.

5.2.1 ALTERNATIVE SOURCES OF WOOD FIBER

UPM/Blandin Paper's current and future mill operations propose to use aspen-type roundwood. Aspen is the principal species used by pulp-based industries production in Minnesota. Substituting species other than Minnesota aspen is considered one means to lessen the impacts associated with the state's heavy industry reliance on aspen. Measures available to the Proposer include:

5.2.1.1 Use of Imported Roundwood

The Proposer uses wood from both Minnesota and non-Minnesota sources. The Proposer anticipates that approximately 73 percent of the roundwood would be purchased from Minnesota sources with the balance of 27 percent coming from roundwood imports, principally from Canada, Wisconsin, and Michigan. Use of wood from non-Minnesota sources results in a *de facto* reduction of the Project's contribution to statewide cumulative effects.[4]

5.2.1.2 Mix Flexibility

UPM/Blandin Paper has flexibility in the percentage mix of the primary use species (e.g., aspen, spruce, balsam fir). The company reports that significant amounts of spruce can be substituted for aspen during times of tight aspen supplies, which are most likely to occur over the next 10-15 years. Flexibility is also present for balsam fir; greater amounts of balsam have been used at the mill in the last few years since this species has become more available as a result of the spruce budworm infestation. The ability to shift within the mix of existing species will remain a feature of wood procurement and associated mill operation under the Build Alternative.

5.2.1.3 Non-target Species Marketing

The Proposer's procurement activity can result in the acquisition of non-targeted types of roundwood (e.g., species other than aspen, spruce, or balsam fir). When UPM/Blandin Paper acquires this type of roundwood, either from harvesting operations on its own lands or through open-market purchases, this wood is marketed to other mills in the area for use. This activity provides for substitution species other than aspen generally, and may provide additional aspen, balsam, and spruce in the market for purchase and use by the Proposer.

5.2.1.4 Species Substitution

Only aspen, balsam fir, and spruce trees have so far proven technically feasible for the specific grade of paper UPM/Blandin intends to produce as part of the Thunderhawk Project. Basswood and cottonwood

[4] The DEIS analysis assumes that all of the wood used to supply the project will be from Minnesota. This is done to evaluate the maximum possible timber harvest effects from project implementation

are also species that do not fulfill the end product quality specifications today, but might someday with further advances in technology. Species that are not acceptable in any amounts are tamarack, cedar, hard maple, birch, or oak. Flax fiber, which is a byproduct of flaxseed oil generation, is receiving attention as an alternative fiber source. At present, it is infeasible for flax fiber to be used as a substitute for roundwood-generated pulp, although research is underway on this issue.

Relevant technical issues regarding species substitution include:

1. *Fiber quality*. Wood fiber characteristics must match the quality standards of the finished paper product. Red pine fiber is used in small amounts by some mills to manufacture various grades of paper; red pine-type roundwood availability could be achieved through increased plantation thinning. The Proposer has evaluated the use of red pine as a substitute fiber source. Test data show the presence of relatively high levels of pitch or extractives requiring process modifications; additional expense would be incurred if the use of red pine increases significantly.
2. *Variability and Logistics.* Pulp and paper processes require consistency. To reduce variability, any new species used needs to be stored separate from other species, and metered into the wood flow in even, consistent proportions. As the number of species used at the mill increases, the complexity of onsite management (e.g., hauling, storage, sequencing) increases, which in turn can be cost prohibitive. Alternate species also need to be available in steady, predictable quantities.

The Proposer indicates the firm is continually conducting fiber tests. Use of alternative sources of wood fiber will occur subject to process specifications and operational feasibility.

5.2.1.5 Poplar and Aspen Plantations

Developing aspen substitutes will be most important during the next 10 to 15 years due to tight supplies. Up to 10 percent plantation grown hybrid poplars may eventually be available as a substitute for standard aspen. This fiber would come from farmer-produced wood being grown on marginal farm lands that were likely in native forest in earlier times. Forestation of marginal agricultural lands with poplars or aspen would be a positive impact to forest land area and could help to balance age class structures of other native cover types. Planting stock used must be insect and disease resistant to mitigate pest and disease problems often associated with these operations. The 2004 DNR Forest Resources Report indicates that there are 22,000 acres of poplar plantations. Interview information indicates that approximately 2,000 acres are being added annually to the total acreage estimate.

Plantations of hybrid aspen and improved native aspen currently exist but are largely in the form of field trials. The Proposer reports that use of hybrid aspen as an alternative source of wood fiber will occur subject to process specifications and operational feasibility. Regarding the potential use of hybrid poplar, the Proposer indicates that some fiber tests have been conducted, but the results are inconclusive.

DEIS-related modeling included consideration of shifting the species used to supply the Project from a mix of aspen and spruce-fir to all spruce-fir. Any such shift is expected to be relatively small in the terms of statewide consumption levels and this shift would likely be short-term in nature. Results suggest that over the relatively short planning horizon used, the cumulative impact on the age distribution of the lowland spruce cover type would not be great. However, an important assumption in the DEIS analysis to note was that conifer types harvested can be successfully regenerated as conifers.

In summary, potential Project-related contributions to the GEIS-identified unmitigated impacts can be potentially lessened through substitution of alternative fiber sources, feasibility of which still needs to be determined on a case-by-case basis as a function of ongoing research on process and quality specifications. Other measures probably provide a more proven opportunity to lessen impacts, including mix flexibility, non-target species marketing, use of imported roundwood, potential use of hybrid poplar and aspen, and potential shifting species to all spruce-fir.

5.2.2 INCREASED UTILIZATION

In-woods utilization improvements were among the main GEIS major productivity/impact mitigation recommendations. Such improvements could come in several forms.

5.2.2.1 Change in Top Size Standard

UPM/Blandin Paper currently utilizes wood to a stringent maximum top size of 3 inches. There are examples of similar type industrial-type users of wood using a two-inch top size standard. Projected utilization gains from 3-inch top in 100-inch lengths include (in-woods measurements and data from Zasada, Hubbard, Adams, 1947; Schlaegel, 1975; Perala, 1971):

- Use stem to 2-inch top to nearest 4-foot length – Black spruce = 10.5 percent volume gain
- Use stem to 2 inch top to nearest 4-foot length – White spruce/balsam = 7 percent gain
- Use stem to 2 inch top to nearest 4-foot length – Aspen = 3.5 percent gain (based on current average stem size of older trees – gain will increase as average diameter becomes less in younger forests)

The Proposer concurs that changing the utilization standard to a 2-inch top diameter could reduce overall mill-related wood demand. Experience suggests, however, that aspen wood pieces of less than 3-inch diameter can become "lost" during the process of debarking, in turn breaking up during debarking. Any implicit gain in aspen volume is actually lost to the debarking process, thus ending up as boiler fuel. Regarding softwoods (e.g., spruce, balsam fir), the proposed addition of chipping capacity with the Project could possibly use wood down to the 2-inch top standard. However, the same debarking issue (as with aspen) of losing small pieces of wood would be present, which may have adverse cost and efficiency implications.

The Proposer indicates further study of the issue is necessary before it could commit to using wood to 2-inch top diameters.

5.2.2.2 Change in Wood Length Standard

The Proposer currently utilizes wood in 100-inch lengths. There are examples of other companies processing wood in multiple lengths, specifically 8-, 12-, 16-, or 20-foot lengths to gain additional fiber from tops left in the woods when using only the 8-foot system. For example using the 8-foot system, if current utilization is to a 3-inch top and the harvester determines the next 8 foot log cut would be at 2.8 inches that portion is left in the woods. Multiple length processing would likely capture an additional 4 to 6 feet of the tree. Other advantages include: 1) facilitating improved in-woods merchandizing, 2) improved wood quality preservation (less moisture loss), and 3) reduced logger processing costs. Adoption of these utilization standards under the Build Alternative would remove an additional 63,000 green tons annually from the estimated 8,453,000 green tons now being removed under the No-Build Alternative.

UPM/Blandin Paper is considering this option, pending further study. The proposed Project design allows for the use of softwoods (not aspen) of lengths between 8-feet and 16-feet. Lengths shorter than 8 feet are infeasible due to storage safety considerations. Other factors requiring further consideration include changes to logging and wood handling systems and benefit-cost analysis. Further investigation is warranted, but changes and equipment upgrades are needed throughout the state's logging industry to improve the viability of this option.

5.2.2.3 Change in Cut-to-Length Processors

Utilizing more chainsaw cut-to-length (CTL) processors will further improve yields by 0.8 percent over feller/buncher/skidder/slasher system. The Proposer reports it has a history of encouraging loggers to invest in modern equipment, including CTL processors. Whether this occurs is outside the scope of the Project; UPM/Blandin Paper does not conduct its own logging operations nor does it purchase logging equipment for independent contractors. The company does encourage the general use of CTL equipment, including supporting college-level training courses devoted to CTL technology.

5.2.2.4 Advanced Screening Systems

Advanced screening systems are available to remove incipient decay fiber from quality fiber; this is not occurring under present mill operations. If used, the use of marginal quality wood could be expanded, thus improving overall harvest efficiency while providing additional waste as fuel for co-generation. The Proposer has no plans to install such a system.

In summary, it is estimated that utilization gains are potentially feasible and could add measurably to UPM/Blandin Paper's annual supply. The projected utilization gains apply to total wood consumed, not just the additional demand associated with Project proposal. Assuming an overall 7 percent utilization gain would add 28,000 cords of wood to UPM/Blandin Paper's annual wood supply. This would reduce

the cumulative impacts of total Project-related harvesting by reducing the area harvested by UPM/Blandin Paper by up to 7 percent, or approximately 1,200 acres annually. Most of these measures have been, or are being, studied by the Proposer, with implementation possible as they become financially and operationally feasible.[5]

5.2.2.5 Silvicultural Practices

The Proposer conducts thinning and selective harvest on for both red pine and white spruce. This provides wood fiber while creating the opportunity to promote characteristics of the older growth stages of plant communities other than northern hardwoods, lowland hardwoods, and lowland conifer. UPM/Blandin Paper will thin its white spruce plantations a number of times before final harvest, thus promoting natural regeneration alone with other species in the process (to develop a multi-aged structure). Aspen thinning (precommercial and commercial) provides fiber but also assists with addressing the current aspen age class imbalance.

5.2.3 ALTERNATIVES INCORPORATING REASONABLE MITIGATION MEASURES

The Final Scoping Decision requires consideration of mitigation measures identified through comments on the scope or the draft EIS. Comment was offered during EIS scoping that the Project should be subject to binding procurement policies with its wood suppliers. DEIS Sections 5.3.2.3 and 5.3.2.4 detail the commitments by the Proposer to address the potentially adverse effects of timber harvest on its own lands or through its open-market purchases. Comment offered on the DEIS stated the DNR should impose specific permit conditions for a number of impact areas. FEIS Chapter 4 responds to these comments by indicating that mitigation is available to address the stated concerns. UPM/Blandin Paper has in place procedures and policies that when applied result in the avoidance and/or minimization, or mitigation, of the potentially adverse consequences of timber harvest. These measures occur in the context of greater programmatic mitigation efforts being undertaken comprehensively by the full array of forest land managers and industrial wood users in Minnesota.

[5] Minnesota's forest products industry in general is considering and/or implementing these utilization measures where meeting production processes and product requirements are not cost prohibitive.

CHAPTER 6.0
ADDITIONAL REFERENCE

Lundgren, A.L. 1983. New site productivity estimates for red pine in the Lake States. *Journal of Forestry* 81(11): 714-717.

FEIS Appendix A

Comment Letters

DEIS Appendix K

Executive Summary of MFRC Reports