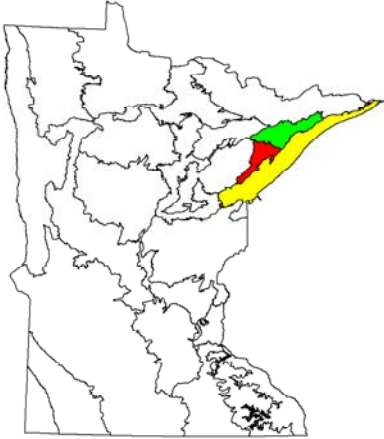


Minnesota
Department of Natural Resources
Division of Forestry



**North Shore Highlands,
Toimi Uplands, and
Laurentian Uplands
Subsections**

**Subsection Forest Resource
Management Plan (SFRMP)
Step 3 – Draft**

**Strategic
Direction
Document**



December 2004 - Draft

Division of Forestry Planning Document
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This document and additional information about the Division of Forestry Subsection Resource Management Plan (SFRMP) process can be found on the Internet at:
<http://www.dnr.state.mn.us/forestry/subsection>

This information is available in an alternative format upon request.

Executive Summary

This subsection forest resource management plan (SFRMP) strategic direction document includes management direction, strategies, and goals for vegetation management on state forestlands administered by the Department of Natural Resources (DNR), divisions of Forestry, Fish and Wildlife, and Trails and Waterways. The North Shore Highlands, Toimi Uplands, and Laurentian Uplands subsections landscape unit is approximately 2.4 million acres. State lands comprise 14 percent (324,000 acres) of the land ownership in these subsections, which includes 24,590 acres in state parks administered by the Division of Parks and Recreation. Of the state lands, 207,000 acres are considered managed timberlands (9 percent of the lands in the subsections), lands suitable and available for timber production.

Under the direction of the Minnesota Forest Resource Council (MFRC) Landscape Program, the Northeast Regional Landscape Committee completed a report in 2003 that included desired future forest conditions for all forestlands in the Northeast Landscape Region, which includes Cook, Lake, St. Louis, and Carlton counties. The goals and strategies in this subsection plan for state-administered forestlands are generally consistent with those recommended by the Northeast Regional Landscape Committee.

Old forest will be maintained on state lands. The long-term goal is to maintain 11 percent of the even-aged managed cover types (e.g., aspen and birch) acreage over the normal rotation age. To achieve this goal, 45 percent of the acres in these cover types have been designated as extended rotation forest (ERF). Old forest conditions will also be provided in uneven-aged managed cover types (e.g., northern hardwoods), ecologically important lowland conifers (EILC), and designated old-growth stands.

Young forest will be maintained on state lands. The 0-30 age classes of aspen, balm of gilead, birch, and jack pine cover types represent young, early succession forest in this plan. Currently, these four cover types comprise 48 percent of the timberland acres while the long-term goal is that they will comprise 40 percent of the acres. Currently, 46 percent of these cover type acreages is in the 0-30 age classes while the long-term goal is 48 percent.

Upland conifer cover types, including white pine, red (Norway) pine, white spruce, jack pine, upland black spruce, and upland white cedar will increase. Historically, these species were more common in these subsections. To increase these cover types, a decrease will occur in the aspen, balm of gilead, birch, and balsam fir cover types. Aspen and birch are currently the predominant cover types and that will continue into the future. During the 10-year plan, it is estimated that most stand conversions will occur in stands classified as high-risk, low-volume (HRLV) stands.

Some stands will be managed to maintain or increase within-stand species and structural composition. Long-lived conifers (i.e., white pine, red pine, and white spruce) will be increased as a component in other cover types such as aspen and birch. Many plantations will be comprised of mixed species. Some stands will be managed using techniques such as variable retention and variable density and will retain some trees of species and sizes typically found in older growth stages. Moving northern hardwoods stands toward an uneven-aged structure and providing a multiple-age structure in some white pine and white spruce stands are desired.

Patch management within this forest landscape during this 10-year management plan will emphasize maintaining existing larger (250+ acres) patches and increasing the average patch size over time. Twenty percent of the state lands have been identified as larger patches. Where possible, the state will cooperate with other landowners in patch management to reduce habitat fragmentation.

Vegetation management will provide a broad range of habitats that meet the needs of most game and nongame species (coarse filter approach) while providing specific habitat needs for individual species (fine filter approach) when needed. There are 35 game species and 260 nongame species found in the subsections. The goal is to provide healthy, self-sustaining populations of all native and desirable introduced plant, fish, and wildlife species. Strategies will be used to reduce the negative impacts caused by wildlife species on forest vegetation.

Riparian areas will be managed to provide habitat for fish, wildlife, and plant species. The MFRC's Voluntary Site-Level Forest Management Guidelines will be applied on all state lands. Management of riparian areas along streams is important from a fisheries perspective because the cold-water streams, especially in the North Shore Highlands Subsection, are very important for native and introduced fish species. Forest management strategies to maintain water quality and cold-water temperatures will be implemented.

Minnesota County Biological Survey (MCBS) work is currently being completed in these three subsections. MCBS sites with statewide biodiversity significance rankings of Outstanding, High, and preliminary survey of High were determined to be the greatest concern or importance in this SFRMP plan. Approximately 35 percent of the state's timberland acres are located in these MCBS sites. Strategies have been developed to manage forestland in these MCBS sites while sustaining or minimizing the loss to the biodiversity significance factors on which the MCBS sites were ranked. On all state lands, known locations of rare plants and animals and their habitats and rare native plant communities will be protected, maintained, or enhanced in these subsections.

The treatment level (i.e., harvest, etc.) recommended for the 10-year plan is 4,012 acres per year compared to 3,086 acres during the last planning period. Although this is a 30 percent increase in the acreage treatment level, the estimated volume increase is only 5 percent. Primary reasons for the increase are: the large acreage of high-risk, low-volume stands (1,797 acres per year and it is estimated that approximately 50 percent of these acres will result in timber sales); the goal to move toward a balance age-class distribution in even-aged managed cover types; and the acreage currently over established rotation ages. Based on cover type treatment modeling, the treatment level will decline during the next 10-year harvest period and will fluctuate each decade until the desired age-class distributions are reached in all the cover types. Strategies to increase timber productivity and quality have been developed to increase the average harvestable volume per acre growing on state lands over time.

Other topics addressed in the plan include: protecting wetland and seasonal ponds; limiting damage from insects, disease, and exotic species; minimizing forest management impacts on visual quality; mitigating climate change effects on forestlands; planning of new road access; protecting cultural resources; and evaluating disturbance events (e.g., fire and wind).

DNR Staff Involved in Developing the SFRMP Plan

SFRMP Core Team Members

Division of Forestry

Doug Rowlett (Team Leader), Forestry Area Supervisor, Two Harbors Area, Two Harbors
Doug Tillma, Region Program Forester, Northeast Region, Grand Rapids
Craig Sterle, Area Program Forester, Cloquet Area, Cloquet
Gaylord Paulson, Forest Planner, St. Paul

Division of Fish and Wildlife

Tim Quincer, Northeast Region Forestry/Wildlife Coordinator, Brainerd
Bob Kirsch, Area Wildlife Manager, Two Harbors Area, Two Harbors
Martha Minchak, Assistant Area Wildlife Manager, Cloquet Area – Duluth Field Office

Division of Ecological Services

Lawson Gerdes, Ecologist/Northern Coordinator – Minn. County Biological Survey (MCBS),
Isabella
Chel Anderson (Alternate), Botanist/Plant Ecologist - MCBS, Grand Marais

Work Group Members / Key Consultants*

Division of Forestry

Bob Maki, Program Forester, Two Harbors Area – Grand Marais Field Office
Chuck Meyer, Program Forester, Hibbing Area, Hibbing
Jeff Rengo, Program Forester, Tower Area, Tower
Les Miller, Program Forester, Cloquet Area – Duluth Field Office
John Bachar, Program Forester, Two Harbors Area – Finland Field Office
*Mike Albers, Forest Health Specialist, Northeast Region, Grand Rapids
*John Almendinger, Ecological Classification System (ECS) Coordinator – Resource
Assessment, Grand Rapids
*Jon Nelson, Planning and Policy Coordinator, St. Paul
*Chung-Muh Chen, Biometrician, St. Paul

Division of Fish and Wildlife

Dave Ingebrigtsen, Assistant Area Wildlife Manager, Two Harbors Area – Grand Marais Field
Office
Jeff Hines, Assistant Area Wildlife Manager, Tower Area – Eveleth Field Office
*Don Schreiner, Lake Superior Area Fisheries Supervisor, Duluth
Larry Petersen, Assistant Area Wildlife Manager, International Falls Area, International Falls
Jim Weseloh, Northeast Region Planner (was Acting Forestry/Wildlife Coordinator), Grand
Rapids
*Gary Drotts, Area Wildlife Manager, Brainerd
*Steve Merchant, Forest Wildlife Program Leader, St. Paul

Division of Ecological Services

- *Carmen Converse, Supervisor - MCBS, St. Paul
- *Bruce Carlson, Botanist/Plant Ecologist - MCBS, Duluth
- *Michael Lee, Botanist/Plant Ecologist - MCBS, Sauk Rapids
- *Karen Myhre, Botanist - MCBS, Aitkin
- *Lynden Gerdes, Botanist/Plant Ecologist - MCBS, Isabella
- *Gerda Nordquist, Mammalogist/Animal Survey Coordinator - MCBS, St. Paul
- *Carol Hall, Herpetologist - MCBS, St. Paul
- *Steve Stucker, Ornithologist - MCBS, St. Paul
- *Kurt Rusterholz, Forest Ecologist - Natural Heritage and Nongame Research (NHNRP), St. Paul
- *Maya Hamady, Region Nongame Wildlife Specialist, Northeast Region, Grand Rapids
- *Steve Wilson, Scientific and Natural Area (SNA) Specialist, Tower

Geographic Information Systems (GIS) Support

- Paul Olson, Region Forestry GIS Specialist, Northeast Region, Grand Rapids
- Tom Engel, Region Wildlife GIS Program Consultant, Northeast Region, Grand Rapids
- Steve Benson, Wildlife GIS Research Analyst, Grand Rapids
- Shannon Flynn, GIS Support Specialist - MCBS/NHNRP, St. Paul

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1. Introduction

Planning Area Description

This subsection forest resource management plan (SFRMP) includes state forestlands administered by the Department of Natural Resources (DNR), divisions of Forestry, Fish and Wildlife, and Trails and Waterways in three subsections. The North Shore Highlands, Toimi Uplands, and Laurentian Uplands subsections landscape unit is approximately 2.4 million acres. It covers an area from west of Duluth near Cromwell northeast along the entire length of the North Shore of Lake Superior in Minnesota and northwest to the Iron Range near Aurora and Babbitt.

Recreation, forestry, and tourism are the major land uses. Public ownership is 64 percent. The federal government owns 740,581 acres (31 percent) that is managed by the U.S. Forest Service as part of the Superior National Forest. St. Louis, Lake, Cook, and Carlton counties own 463,151 acres (19 percent). State lands are 324,338 acres (14 percent) of the land in the subsections. Of the state lands, approximately 218,000 acres are timberlands, or 9 percent of the landscape unit, which will be considered for timber and other resource management purposes in this plan. The other state lands are state parks, scientific and natural areas, and non-timberlands such as bogs and brushlands. Privately owned lands consist of 737,432 acres or 31 percent. Industry owns 3 percent and tribal governments own 2 percent of the lands.

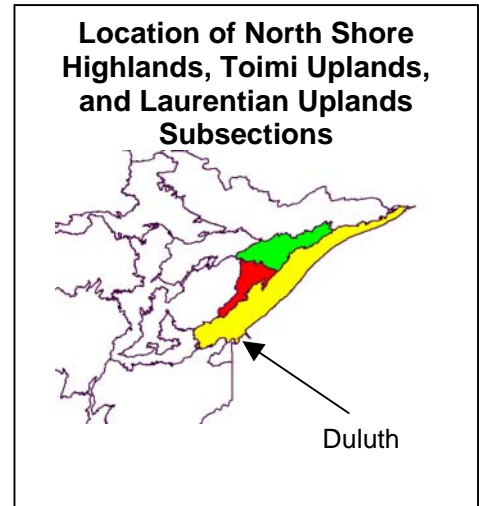


Figure 1.1a: Land Ownership in the North Shore Highlands, Toimi Uplands, and Laurentian Uplands

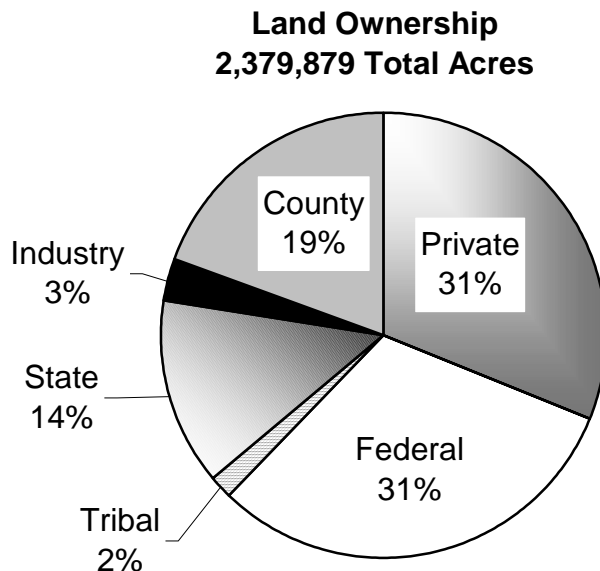


Table 1.1a: Land Ownership - Percent by Subsection

Owner	Laurentian Uplands	Toimi Uplands	North Shore Highlands	3 Subsections Total
Private	15%	14%	41%	31%
Federal	62%	33%	19%	31%
Tribal	0%	0%	3%	2%
State	15%	9%	14%	14%
Industry	5%	0%	3%	3%
County	3%	43%	20%	19%
Total	100%	100%	100%	100%
Total Acres	567,281	339,285	1,481,869	2,388,435

Based on recent Gap Analysis Program (GAP) classification by the DNR using satellite imagery of all lands in the subsection, 90 percent of the subsection is covered by forest and shrubs (73 percent forest and 17 percent shrubs). Table 1.1b shows the general cover type percentages for all ownerships based on GAP data for forested classes of land and for state lands in this SFRMP plan based on state land forest inventory data (CSA – Cooperative Stand Assessment).

Table 1.1b: Generalized Forest Cover Type Composition in the Three Subsections

Cover Type Group	All ownerships (GAP)	State lands in SFRMP (CSA)
Aspen, birch, and balsam of gilead	60%	41%
Other upland hardwoods (maple, basswood, oak)	5%	5%
Lowland hardwoods (ash, elm, and silver maple)	1%	3%
Pine (red pine, white pine, and jack pine)	8%	7%
White spruce, balsam fir, and upland black spruce	6%	11%
Lowland conifers (black spruce, tamarack, and white cedar)	16%	22%
Stagnant conifers (black spruce, tamarack, and white cedar)	3%	10%
Other	1%	1%

For additional information, see the Preliminary Issues and Assessment (November 2002) document or <http://www.dnr.state.mn.us/forestry/subsection/northshorearea/index.html> .

Scope of Subsection Forest Resource Management Plan

Subsection Forest Resource Management Plan (SFRMP)

A SFRMP is a DNR plan for vegetation management on forestlands administered by the DNR divisions of Forestry, Fish and Wildlife, and Trails and Waterways. Vegetation management includes actions that affect the composition and structure of forestlands, such as timber harvesting, thinning, prescribed burning, and reforestation. The geographic area covered by these plans is defined by Ecological Classification System (ECS) subsections (Appendix A). Previous forest management plans were based on administrative boundaries (e.g., DNR forestry areas). The SFRMPs will also consider the condition and management of forestlands not owned by the DNR, but

will only propose forest management direction and actions for DNR lands. The amount of DNR-administered forestlands within forested subsections will vary across the state.

Consistent with state policy (Minnesota Statutes 89A), the SFRMP process will pursue the sustainable management, use, and protection of the state's forest resources to achieve the state's economic, environmental, and social goals.

The SFRMP planning process is divided into three steps. In Steps 1 and 2, the subsection team prepares information to assess the current forest resource conditions in the subsection and identify forest resource management issues that will be addressed in the subsection plan. In Step 3, the subsection team finalizes the issues and develops general directions and strategies to address these issues. The strategies will help in developing the cover type management recommendations, stand selection criteria, and stand treatment levels. In Step 4, stands to be evaluated for treatment during the 10-year plan period are selected and preliminary prescriptions are assigned. There are three opportunities for public input.

ECS Subsections

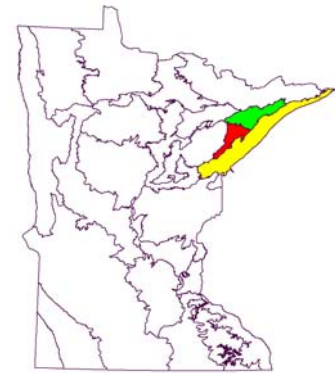
The DNR has developed an ECS as a tool to help identify, describe, and map ecosystems. ECS units are defined by climatic, geologic, hydrologic, topographic, soil, and vegetation data. The DNR ECS divides the state into six levels of ecological units, each level nested together within the next higher level. Subsections are the third level down in the ECS hierarchy in Minnesota. There are 17 forested subsections in the state, ranging in size from 339,285 to 3,657,011 acres.

Goals for the Planning Effort

While the planning process will produce many tangible “products,” such as assessment information, issues, and strategies, the end result of the planning process will be two key products:

- **Desired Future Forest Composition (DFFC) goals:** The goals will include long-term (50 years or more) and short-term (10 years) desired changes in the structure and composition of DNR forestlands in the subsection. Composition goals could include the amount of various cover types, age-class distribution of cover types, and their geographic distribution across the subsection. DFFC goals for state forestlands will be developed from assessment information, issues, the general direction identified in response to the issues, and strategies to implement the desired management direction.
- **List of DNR forest stands to be treated over the next 10-year period.** SFRMPs will identify forest stands on DNR Forestry- and Fish and Wildlife-administered lands that are proposed for treatment (e.g., harvest, thinning, regeneration, and re-inventory) over the 10-year planning period. Forest stands will be selected using criteria developed to begin moving DNR forestlands toward the long-term DFFCs. Examples of possible criteria include stand age and location; soils; site productivity; and size, number, and species of trees. Many decisions and considerations go

ECS Subsections in Minnesota (North Shore Highlands, Toimi Uplands, and Laurentian Uplands Subsections are highlighted)



into developing these criteria and the list of stands proposed for treatment. Examples include 1) identifying areas to be managed as older forest or extended rotation forest (ERF), 2) identifying areas to be managed at normal rotation age, 3) identifying areas for various sizes of patch management, 4) management of riparian areas and visually sensitive travel corridors, 5) age and cover type distributions, and 6) regeneration, thinning, and prescribed burning needs. Decisions will be made based upon the management activities (including no action) that will best move the forest landscape toward the DFFC goals for state forestlands.

Who Develops SFRMPs?

SFRMP team members include DNR forestry, wildlife, ecological services, and other agency staff. A list of SFRMP team members for the North Shore subsections is on Page i. These teams have primary responsibility for the work and decision making involved with the subsection plans. Decision-making by the team is through an informed consent process. Managers of adjacent county, federal, tribal, and industrial forestlands may be invited to provide information about the condition of their forestlands and their future management direction. Data relating to all ownerships is used in the planning process. This information will help the DNR make better decisions on the forestlands it administers.

SFRMP and MFRC Regional Landscape Planning

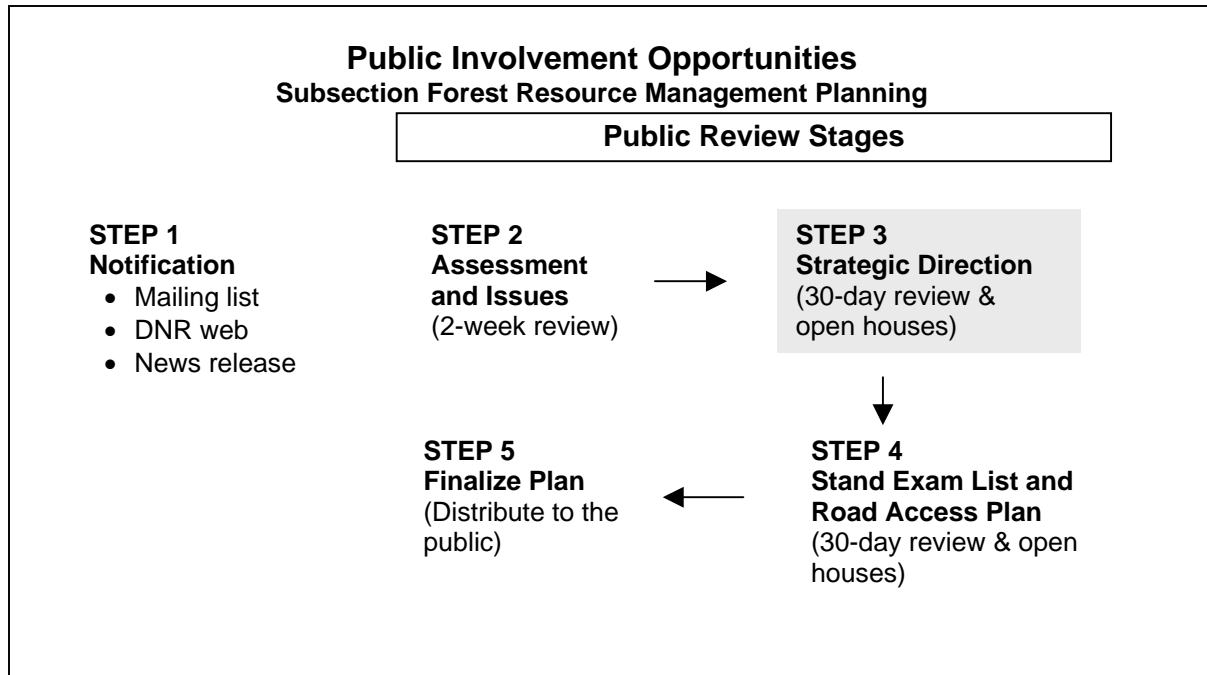
The recommended desired outcomes, goals, and strategies developed for the Northeast Landscape Region by the Northeast Regional Landscape Committee under the direction of the Minnesota Forest Resources Council (MFRC) Landscape Program were considered in developing this SFRMP. Some members of the North Shore SFRMP Team participated as members of the Northeast Regional Landscape Committee. By considering the recommendations from the Northeast Landscape Region Plan, the decisions for management of DNR-administered lands incorporate recommendations from a broader landscape perspective across all ownerships and assists in cooperation across ownerships in this larger landscape area.

SFRMP Process Overview

Table 1.1c outlines the steps in the DNR SFRMP process. This SFRMP is currently in the third step of the process, i.e., the DNR interdisciplinary team has developed general directions and strategies to address the final list of issues, established desired future forest composition goals for DNR lands in the subsection, and developed stand selection criteria to help identify stands to treat over the 10-year planning period. Figure 1.1b shows the opportunities for public involvement during the planning process.

Table 1.1c: SFRMP Process Overview

Step 1	<p>Initiating the Planning Process</p> <ul style="list-style-type: none"> • DNR forms interdisciplinary team for the subsection(s). • DNR staff assembles base assessment information. • Web page is established for the subsection on the DNR Web site. • DNR develops mailing list of public/stakeholders. • Public is informed that the planning process is beginning in the subsection, the estimated schedule for the planning process, and how and when they can be involved.
Step 2	<p>Assessment and Issue Identification</p> <ul style="list-style-type: none"> • Subsection team adjusts and supplements the base resource assessment information for the subsection. • Team identifies the preliminary issues to be addressed in the plan. • DNR distributes assessment information and the preliminary issues for public review and input.
Step 3 <i>Current Step</i>	<p>Strategies, Desired Future Forest Composition, and Stand Selection Criteria</p> <ul style="list-style-type: none"> • DNR finalizes the list of issues to be addressed in the plan based on public input from Step 2. • Subsection team develops general direction statements (GDSs) in response to the final list of issues. • Subsection team and work groups develop strategies and desired future forest composition (DFFC) goals consistent with the general direction. • Team develops stand selection criteria to help identify DNR forest stands for treatment over the 10-year planning period to move toward the goals. • DNR distributes GDSs, DFFC goals, strategies, and stand selection criteria for public review and comment.
Step 4	<p>Draft List of Stands to be Treated and Road Access Needs</p> <ul style="list-style-type: none"> • Subsection team finalizes DFFC goals, strategies, and stand selection criteria based on public input from Step 3. • DNR staff identifies state forestland stands to be considered for treatment over the 10-year planning period. • DNR staff identifies road access needs associated with the list of stands proposed to be treated. • Draft list of stands to be treated and road access needs is distributed for public review and comment.
Step 5	<p>Final Plan</p> <ul style="list-style-type: none"> • Subsection team summarizes public comments and develops DNR responses. • A summary of comments, responses, and plan revisions are presented to the department for commissioner’s approval. • Commissioner approves final plan. • Final plan is distributed, including summary of public comments and DNR responses.

Figure 1.1b: Public Involvement Opportunities

Contents of Document and Focus of Current Review

This document contains products developed by the SFRMP interdisciplinary team for public review as part of Step 3 in the planning process. Those products include the final list of issues addressed in the plan, general direction statements (GDSs) and strategies to address the issues, desired future forest composition (DFFC) goals, stand selection criteria, cover type management recommendations, and a summary of public comments from Step 2 (Chapter 5) along with DNR responses to those comments.

In Step 2 of the process, the interdisciplinary subsection team identified a preliminary list of issues to be addressed in the plan. These issues were developed based on the general field knowledge of department staff and forest resource information assembled by the subsection team in the Preliminary Issues and Assessment document. The preliminary list of issues and their descriptions were distributed for public review and comment in November 2002. The preliminary list of issues was revised based on input from DNR staff and the public. This revised list of issues is presented in Chapter 2 of this document as the final list of issues to be addressed in the plan.

In Step 3, the subsection team developed GDSs and strategies to address the final list of issues. Strategies developed by the work groups are based on existing DNR policies/mandates, technical expertise from within and outside the subsection team, forest resource information from the Assessment and other sources, and public input from Step 2 of the process. Strategies developed to address the various issues were then examined to ensure consistency with each other, to identify and group similar strategies, and to address strategies that might be contradictory. The strategies presented in this document are the product of this effort to develop a refined list of strategies to address the final list of issues.

The subsection team developed the DFFC goals based on current conditions on DNR forestlands in the subsection, and on the draft final strategies. DFFC goals are most commonly expressed in terms of desired changes in the age-class structure, the amount of various forest types within the subsection, and the geographic distribution of forest types and age-classes across the subsection.

GDSs, strategies, DFFC goals, and cover type management recommendations were used to define proposed criteria to select a pool of forest stands for treatment over the 10-year planning period in Step 4. Stand selection criteria can include: “normal” rotation ages (i.e., ages at which most forest stands will be harvested); extended rotation forest rotation ages (i.e., ages at which stands designated for older forest management will be harvested); potential productivity of the site for timber (i.e., site index); soil types; stand density, or stocking measures (e.g., basal area); tree species composition; brush and ground cover; stand size; stand location; insect and disease occurrence; and other specific criteria needed to address issues. Stand selection criteria presented in this document are those identified by the subsection team as best moving DNR forestlands toward the identified DFFC goals for the North Shore subsections.

The subsection team summarized and developed responses to public comments received during Step 2 of the process (Chapter 5). Specific references are provided as to where and how comments and concerns were incorporated into the final issues, strategies, DFFC goals, or stand selection criteria.

Public Review Period and How to Provide Input

The GDSs, strategies, DFFC goals, stand selection criteria, and cover type management recommendations contained in this document will be available for a 30-day public review and comment period. Open houses will be held during the comment period. Locations and dates will be posted on the DNR Web site, distributed to stakeholders on this SFRMP’s mailing list, and published in a DNR news release. This document is available on the DNR web site at: <http://www.dnr.state.mn.us/forestry/subsection/northshorearea> or available upon request in hard copy or on a CD. Public comments or requests for a copy of the plan can be submitted via the Web site or submitted to:

Gaylord Paulson
 DNR-Division of Forestry
 500 Lafayette Road
 St. Paul, MN 55155-4044
gaylord.paulson@dnr.state.mn.us
 Fax 651-296-5954

Next Step

The SFRMP team will use the comments received during this public review step to finalize the GDSs, strategies, DFFC goals, cover type management recommendations, and stand selection criteria. Stands proposed for treatment during the 10-year plan will be identified by DNR staff along with new road access needs to accomplish the proposed treatments. After this work is done and a document for review is completed, a 30-day public review and comment period will be held.

