Summary of the Long-Term Management Direction for the Wabadowgang Noopming (Armstrong portion of the former amalgamated Lake Nipigon Forest)

2021-2023 Contingency Plan and 2023-2033 Forest Management Plan

Ontario

Whitesand First Nation

NWES

NorthWinds Environmental Services

Table of Contents

Note to Reader

This Long-Term Management Direction (LTMD) summary is prepared for the 2023-2033 Wabadowgang Noopming (Armstrong portion of the amalgamated Lake Nipigon Forest) Forest Management Plan (WN FMP). Because of the delayed start in the preparation of the FMP, it has been pre-determined that a 2-year contingency plan (CP) will be prepared following the endorsement of the LTMD. Therefore, the 2-year contingency plan will be implemented in 2021 and be consistent with the endorsed LTMD prepared for the 2023-2033 FMP. From this point on, the forest management plan will be referred to as the 2023-2033 Wabadowgang Noopming FMP.

1.0 Introduction

The Wabadowgang Noopming (WN) Forest is located northwest of Lake Nipigon and lies within the northern portion of the Thunder Bay Administrative District, with approximately 631,929 hectares of Crown land. It is about 230 km north of the City of Thunder Bay and is accessible via Highway #527. This forest is bordered by the Ogoki Forest to the north and the Black Spruce Forest to the south. The Wabadowgang Noopming Forest is also bordered on the west, and northwest, by Wabakimi Provincial Park, on the southeast by the Lake Nipigon Forest, and on a small portion of the southwest side by the English River Forest.

The Long-Term Management Direction (LTMD) for the Wabadowgang Noopming Forest provides a means of assessing forest sustainability through the assessment and monitoring of management indicators that have been developed as required by the Crown Forest Sustainability Act (CFSA) and other forest management planning policies and guides. By successfully balancing and achieving the biological, social, and economic objectives, it is expected that desirable long-term forest conditions and benefits will be maintained. The LTMD has been prepared according to the 2017 Forest Management Planning Manual (FMPM) and has involved a multi-disciplinary planning team led by the Plan Author.

This document summarizes the proposed Long-Term Management Direction (LTMD) for the Wabadowgang Noopming 2021-2023 Contingency Plan (CP) and 2023-2033 Forest Management Plan (FMP). This includes the desired forest and benefits, the plan objectives, indicators, desired levels and targets, as well as the assessment of indicator achievement, preliminary spatial assessment, socio-economic assessment, and risk assessment. Also included is the reasoning behind preferred and optional harvest areas, as well as a summary of the primary road corridors.

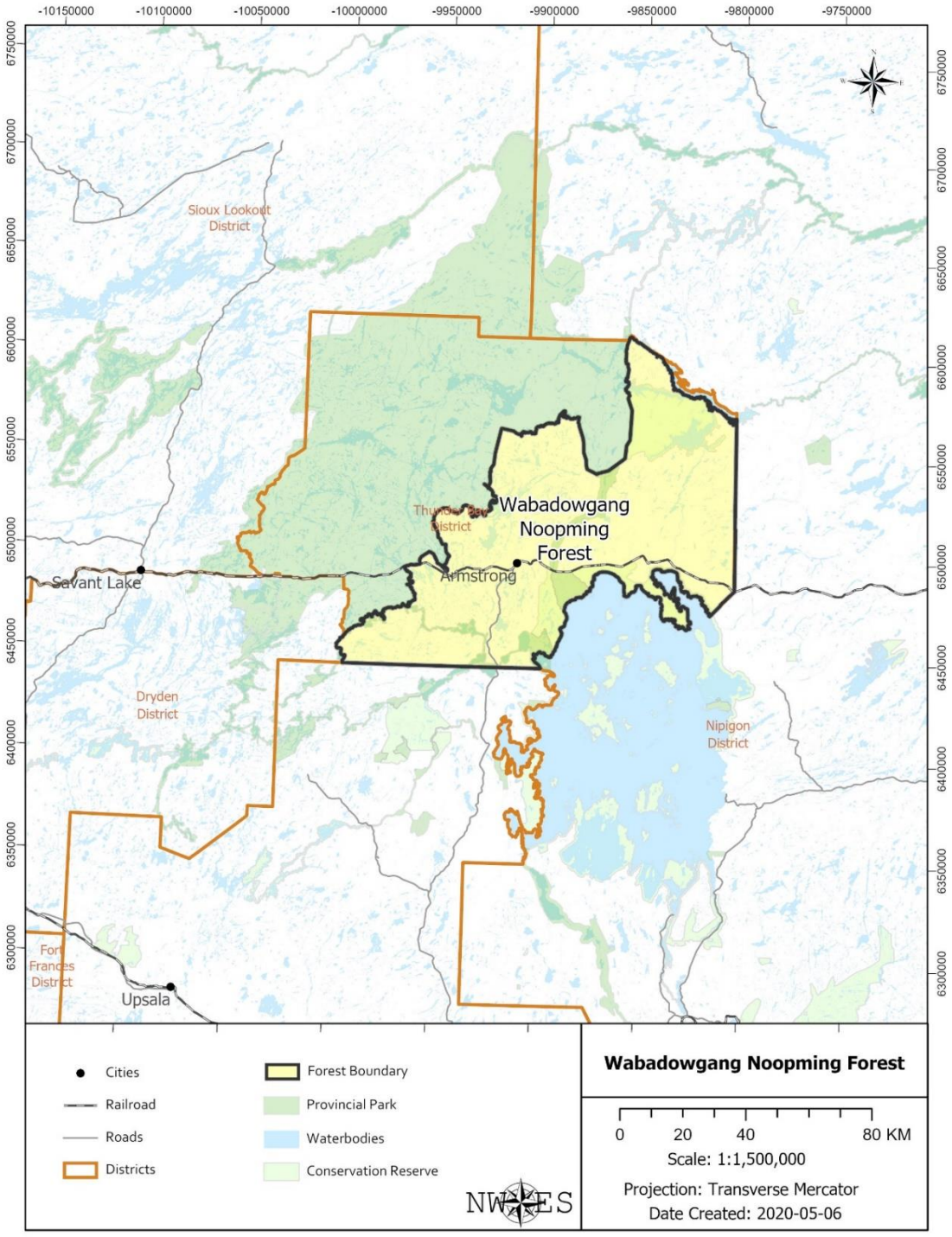

Figure 1. Location of the Wabadowgang Noopming (former Armstrong portion of amalgamated Lake Nipigon Forest)

2.0 Desired Forest and Benefits

Determining the desired future forest condition and considering the derived benefits from the forest is an essential part of the forest management planning process. Desired forest and benefits are defined as the forest structure and composition, and the goods and services, which are desired from the forest to achieve a balance among social, economic and environmental issues (OMNRF 2017).

Two Desired Forest and Benefits meetings (DFBM) occurred for the 2023-2033 WN FMP. The first meeting occurred in the community of Whitesand First Nation on November 18th, 2019, and the second meeting occurred in Armstrong on January 15th, 2020. The purpose of these meetings was to inform participants of the background information and to provide a forum for participants to share their respective interests in the management of the forest. These meetings were critical in providing input for the development of objectives, indicators and desirable levels by:

(a) identifying local desired forest and benefits;
(b) reviewing management objectives, indicators, desirable levels, and targets in the current FMP;
(c) reviewing indicators and target achievement from the year five management unit annual report for the current FMP
(d) reviewing management objectives and indicators from the FMPM and forest management guides.

Anyone attending the DFBM and local citizens' committee (LCC) members were given a survey developed by the Wabadowgang Noopming 2023-2033 Forest Management Planning Team (PT). This survey had a series of questions designed to determine the desired forest and benefits people want from the WN Forest today and in the future. The survey was to be completed either at the meeting or at home and mailed to the plan author or regional forester by February 28th, 2020.

Whitesand First Nation - November 6th and 18th, 2019

This meeting was open to any community members of Whitesand First Nation. Presentation material related to the current plan objectives and indicators and Boreal Landscape Guide (BLG) requirements relating to new plan objectives was given during the November 6th meeting, and the identification of local desired forest and benefits occurred at the November 18th meeting. At the November 18th meeting, community members participated in a survey and a dotmocracy exercise.

The community of Armstrong – January 22nd, 2020

This meeting was open to LCC members and community members of Armstrong. Presentation material related to the current plan objectives and indicators and Boreal Landscape guide requirements relating to new plan objectives was given, and then participants did a dotmocracy exercise and survey.

The feedback received from these communities was used by the Plan Author and Planning Team to develop the current management objectives and indicators.

3.0 Plan Objectives, Indicators and Desired Levels

The list of desired forest and benefits, past forest management plans, annual reports, audits for the Wabadowgang Noopming Forest, and the Ministry of Natural Resources and Forestry (MNRF) sources of direction and forest management guides were used to develop plan objectives, indicators of objective achievement, desirable levels and targets for the WN Forest 2023-2033 FMP. The principal documents guiding the plan objectives were the Forest Management Planning Manual, 2017 (FMPM) and the Forest Management Guide for Boreal Landscapes, 2017 (BLG). In addition, the Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales, 2010 (SSG) was also referenced.

The Crown Forest Sustainability Act (CFSA) requires management objectives in an FMP to be compatible with the sustainability of the Crown forest, and indicators of objective achievement to be identified. Also, the CFSA requires each FMP to contain management objectives relating to:

a) Crown forest diversity objectives, including consideration for the conservation of natural landscape patterns, forest structure and composition, habitat for animal life and the abundance and distribution of forest ecosystems;
b) social and economic objectives, including harvest levels and a recognition that healthy forest ecosystems are vital to the well-being of Ontario communities;
c) objectives relating to the provision of forest cover for those values that are dependent on the Crown forest; and
d) silviculture objectives for the harvest, renewal and maintenance of the Crown forest.

The 2023-2033 Wabadowgang Noopming FMP has a total of 8 management objectives, with 26 indicators. The 8 objectives all have multiple indicators that are used to measure objective achievement. The 8 objectives include the following:

1. Forest Diversity and Provision of Forest Cover: Habitat for forest-related species and species at risk in Ontario.
2. Forest Diversity: To emulate natural landscape patterns. To provide forest structure, composition and abundance that is representative of natural landscape composition over time.
3. Social and Economic: Long term harvest levels.
4. Social and Economic: Planned Harvest levels, community well-being.
5. Social and Economic: Harvest Levels, community well-being.
6. Silviculture: to maintain and enhance the forest ecosystem condition and productivity through silviculture practice.
7. Ecological Sustainability: to ensure a healthy forest ecosystem and protection of the natural resource and non-forest values through the development of a forest management plan.
8. Social and Economic: Involvement in forest management plan development and implementation.

Some indicators have been assessed during the LTMD, some will be assessed during plan development (operational planning and draft plan), and others will be assessed later during the implementation of the plan (i.e. year 5 annual report and/or final plan annual report). Only those

indicators which can be measured at LTMD are summarized in Section 5.1. The FMP text will include a discussion of all plan objectives.

The targets were developed and refined through a comprehensive analysis of results from a decision support system. For the 2023-2033 WN FMP, the decision support tools used in the development of this LTMD are the Sustainable Forest Model (SFMM) and the Ontario Landscape Tool (OLT). This involved an iterative process through a series of investigations to provide insight into what the forest can produce, and to develop realistic and feasible desirable levels and targets for objective indicators. These indicators include the ability of the forest to meet forest diversity and cover desirable levels based on the current forest condition and dynamics; and the ability of the forest to continue to supply forest benefit levels. The management objectives, indicators (with associated targets and desired levels), and timing of assessment are documented in Table FMP-10.

4.0 Proposed Long-Term Management Direction (LTMD)

The proposed management strategy shows the development of the forest throughout a 160-year planning horizon in terms of forest composition, structure, as well as the activities required to meet the objective indicators. Outputs from the SFMM model are included in the following FMP tables (Appendix 1).

a) Table FMP-8: Projected available harvest area by forest unit,
b) Table FMP-9: Projected available harvest volume by species group and product group; and
c) Table FMP-10: Assessment of objectives achievement

4.1 Selection of Preferred and Optional Harvest Areas

The available area by forest unit from the strategic analysis for the 10-year period is the available harvest area for the 2023-2033 Wabadowgang Noopming FMP and is documented in Table FMP-8. The available harvest area serves as the upper limit for the selection of the preferred areas for harvest for the 10-year period. The preferred areas were selected from the eligible harvest area.

The WN Forest is entirely within the continuous distribution caribou range and as such is managed using the dynamic caribou habitat schedule (DCHS). The DCHS is a long-term plan for the provision of sustainable year-round caribou habitat in very large interconnected habitat tracts, that is implemented through long-term strategies and operational plans for roads, forest harvesting and forest renewal within acceptable limits of habitat supply and population persistence. The DCHS regulates the timing and location of the area available for forest management operations through time. Therefore, forest stand eligibility was primarily directed by the DCHS but also included considerations for operability constraints of the forest stands and available harvest area limits from the SFMM model.

A total of 55,686 hectares are identified as preferred harvest areas for the 10-year plan period. The projected available area by forest unit is documented in Table FMP-8 (refer to Appendix 1) and illustrated on the summary map (refer to Appendix 2).

The preferred harvest areas will be refined and balanced during Stage Three of the FMPM process (operational planning). This will include consideration of all identified values, management objectives (e.g. pattern/texture), and development of areas of concern prescriptions, as well as other considerations. During this process, some optional harvest areas may become planned harvest areas to balance the operational areas with the LTMD available harvest area and aid in achieving management objectives.

4.2 Available Harvest Volume

The projected available harvest volume by species group and product group for the 10-year period of the WN FMP is:

Spruce-Pine-Fir (SPF): 2,545,030 m^3

Poplar (PO): 1,252,421 m^3

Birch (BW): 487,814 m^3

5.0 Preliminary Determination of Sustainability

The preliminary determination of sustainability considers the following:

a) the collective achievement of objectives;
b) the preliminary spatial assessment;
c) the social and economic assessment; and
d) the risk assessment.

5.1 Assessment of Management Objective Achievement

Many of the management objectives for the WN FMP are based on direction from the Forest Management Guide for Boreal Landscapes (Boreal Landscape Guide – BLG). The BLG provides guidance on the desirable levels and timing of achievement for each landscape guide indicator as well as a recommended order of application. On the WN Forest, the primary indicators are related to woodland caribou habitat measured through 4 indicators, followed by landscape classes which are measured through 7 indicators. There are also indicators related to social and economic, wood supply, silviculture, and community well-being.

An overview of the achievement of all Objectives and Indicators for the 2023-2033 Wabadowgang Noopming FMP.

Objective	Indicator	Achievement
1. Forest Diversity and Provision of Forest Cover: to maintain the biological diversity (forest structure composition and abundance) of the Wabadowgang Noopming Forest while providing habitat for forest-related species and species at risk in Ontario.		
1.1 Habitat for forest-related species at risk - Caribou	Refuge habitat	Maintained within desired level-Achieved
	Winter used and preferred habitat	Maintained within desired level-Achieved

1.2 Texture and arrangement of caribou refuge habitat on the Wabadowgang Noopming Forest	Very little movement - Achieved
1.3 Texture and arrangement of caribou winter habitat (used and preferred) on the Wabadowgang Noopming Forest	Achieved
1.4 To create/maintain a suitable supply and arrangement of online Caribou habitat (>60 year of age) through the retention and harvest of DCHS blocks through time.	Maintained within desired level-Achieved

Objective	Indicator	Achievement
2. Forest Diversity: To emulate natural landscape patterns. To provide forest structure, composition and abundance that is representative of natural landscape composition over time.		
2.1 Forest Structure and Composition: by landscape class	Mature and late balsam fir mixed (by FU) - BfMx1	Above desired level and moving away
	Mature and late lowland spruce and low other conifer (by FU) SbLow and Oclow	Above desired level and moving towards
	Mature and late conifer and conifer mixedwood (by FU) - ConMx, PjDom, PjMx1, SbDom, SbMx1	Maintained within desired level-Achieved
	Mature and late hardwood and hardwood mixedwood (by FU) - BwDom, PoDom, HrdMw, HrDom	Moving towards desired level
2.2 Amount and distribution of old growth forest: Crown productive forest by forest unit group	Lowland Conifer - SbLow, OcLow	Above desired level and moving away
	Upland conifer - SbDom, PjDom, PjMx1, SbMx1	Above desired level and moving away
	Mixed conifer-mixed and pure hardwoods - PoDom, BwDom, HrDom, BfDom, OthHd, ConMx, HrdMw	Above desired level and moving towards
2.3 Upland conifer forest: Crown productive forest (all ages) in spruce and pine dominated forest units		Below desired level and moving towards
2.4 Young Forest: less than 36 years in age (all forest unit) Young forest		Above desired level
2.5 Red pine and white pine forest unit area (all ages): PrwMx		Levels are maintained
2.6 Natural Landscape Patterns - texture of mature and old forest - frequency distribution of mature and old forest by concentrated class		Very little movement - Achieved
2.7 Natural Landscape Patterns - Young forest patch size - frequency distribution of young forest patch by patch size classes		Very little movement - Achieved

Objective	Indicator	Achievement
3. Social and Economic: Long term harvest levels.		

3.1 Long term projected available harvest area by Forest Unit	Achieved
3.2 Long-term projected available harvest volume by species group	Achieved
3.3 Long-term projected available harvest volume by broad size.	Achieved

Objective	Indicator	Achievement
4. Social and Economic: Planned Harvest levels, community well-being.		
4.1 Actual Harvest area, by Forest Units (% of planned harvest area)		Future Assessment – Yr 5 annual report and after plan implementation
4.2 Actual harvest volume, by species group. (% of planned harvest volume)		

Objective	Indicator	Achievement
5. Social and Economic: Harvest Levels, community well-being.		
5.1 Managed Crown productive forest available for timber production		Future Assessment – Yr 5 annual report and after plan implementation
5.2 Kilometer of SFL roads that will be used for forest management purposes per square Kilometer of Crown forest.		

Objective	Indicator	Achievement
6. Silviculture: to maintain and enhance the forest ecosystem condition and productivity through silviculture practice.		
6.1 Percent of harvested forest area assessed as successfully established by forest unit		Future Assessment – Yr 5 annual report and after plan implementation
6.2 Planned and actual % of harvest area treated by silviculture strata.		
6.3 Planned and actual % of area successfully regenerated to the target forest unit by forest unit		

Objective	Indicator	Achievement
7. Ecological sustainability: to ensure a healthy forest ecosystem and protection of natural resource and non-forest values through the development of forest management plan.		
7.1 Percent of forest operations in non-compliance, by activity and remedy type		Future Assessment – Yr 5 annual report and after plan implementation
7.2 Compliance with management practices that prevent, minimize or mitigate site damage (% of inspection in non-compliance, by remedy type)		
7.3 Compliance with management practices that protect water quality and fish habitat (% of inspection in non-compliance, by remedy type)		

Objective	Indicator	Achievement
8. 8. Social and Economic: Involvement in forest management plan development and implementation.		

8.1 First Nation and Métis Involvement	To be measured at Draft Plan submission
8.1.1 8.1.1 Provide First Nation and Métis Communities within and adjacent to Wabadowgang Noopming Forest Management Unit (former Armstrong Forest) with opportunities for involvement in the development of the forest management plan	
8.2 LCC Involvement	To be measured at Draft Plan submission
8.2.1 Local Citizens Committee members' self-evaluation of their effectiveness in plan development.	

5.1.1 Forest Diversity – Caribou Habitat Objective

The management unit is entirely within the continuous distribution range and as such is managed using the Dynamic Caribou Habitat Schedule (DCHS). DCHS is a mosaic of contiguous large landscape patches (LLP's) that are used to meet objectives for long-term caribou habitat provision and renewal. The DCHS development is supported by a caribou habitat/values tract map analysis. The caribou tract map analysis documents caribou occurrences, including current use and habitat potential of sub-range habitat features across the management unit. This map and analysis inform the planning team with landscape-level ecological information about caribou habitat amount, arrangement, occupancy and use, which supports the development of a sustainable DCHS.

The DCHS is incorporated into strategic forest management models where harvest and deferral patterns are cycled over a 100-year rotation to produce and maintain relatively even-aged LLP's consistent with the CFSA's requirements to emulate natural disturbance patterns. Caribou habitat amount and arrangement and site-specific values are all taken into account when balancing other plan objectives in the strategic modelling. LLPs are called DCHS blocks and are assigned a harvest period of either 10 or 20 years. The harvest period label is the time from plan start (0-20, 20-40, 41-60, 61-80….etc.) that the DCHS block is scheduled and available for harvest activities. Renewal activities and surveys can occur after the 10- or 20-year period but should occur as soon as possible to achieve block closure. The distribution of the mosaic of LLPs making up a DCHS ensure that habitat is maintained both temporally and spatially in a manner that supports the achievement of the caribou habitat milestones. The timing and arrangement of the DCHS, as well as maintaining forest composition (i.e. conservation of the pure conifer forest in natural proportions to this forest), within the DCHS blocks influences the FMP's balance of objectives assessed at the LTMD stage of the FMP. More detailed information on the Wabadowgang Noopming Forest DCHS and how it was developed can be found in the Analysis Package. Below is an overview of the achievement of all objectives and indicators for the FMP. For more detailed information on assessments for each indicator, see Table FMP-10 and the Analysis Package.

Caribou Refuge and Caribou Winter

At plan start, Caribou Refuge habitat is 323,220 ha and is within the Inter-quartile range of 280,122 - 342,535 ha. LTMD projections show that Caribou Refuge habitat is maintained within

the Inter-quartile range in the short, medium, and long term. Upon completion of the LTMD, the desired level and target are achieved.

At plan start Caribou Winter habitat is 225,713 ha and is within the Inter-quartile range 207,213 - 284,898 ha. LTMD projections show that the non-spatial Caribou Winter habitat is maintained within the Inter-quartile range in the short term. The forest has a prominent age class gap in the 40-80-year age classes of conifer forest. During term 4 and also term 7, the habitat levels drop below the Inter-quartile range (T4 - 206,920 and T7 - 204,115), which is in part a reflection of this age class gap. Following term 7, levels are maintained within the Inter-quartile range as the age class gap is evened and normalized. When assessing the achievement of this non-spatial indicator, one must consider the spatial habitat provision, and the future forest health and habitat quality as the forest ages in all DCHS blocks. Harvest and deferral decisions are timed to avoid future habitat degradation from blow-down and succession, while balanced with other objectives for biodiversity, social and economic benefits. DCHS blocks are required to be fully harvested over time for the creation and maintenance of large, even-aged patches with a coarse landscape texture that benefit the future habitat amount and arrangement. Therefore, leaving behind small fragments of old conifer within a DCHS block that will not provide habitat, and that would artificially inflate the non-spatial indicator for terms 4 and 7, is not done. Overall non-spatial winter habitat trend indicates that desired levels and targets are achieved.

Online Caribou Habitat

The plan-start level for the % of the capable land base in DCHS blocks that are in suitable (online) habitat condition, is quite high at 66%. This is due to lack of large fires, and low levels of harvest on the unit over the last 20 years, including some A blocks (now labelled as AB's) that have yet to be harvested. Online caribou habitat at the DCHS block landscape-scale remains forecasted at the desired level throughout the 100-year cycle, except for a slight dip during the D-period (2061-2081), where online caribou habitat dips to 38.9%, and then rebounds above 40% to the desired level in the E period. Also, the current U-blocks are not yet cleaned-up and assigned to a future even-aged schedule (DCHS), and therefore are delayed for development into future online habitat conditions. This delay for the U-blocks also contributes to the D-period dip. Overall the indicator trend for this objective is achieved.

Objective indicators for spatial assessments of caribou habitat texture and arrangement are discussed in Section 5.2.

5.1.2 Forest Diversity – Landscape classes, Old Growth, upland conifer, young forest and Red and White Pine forest.

Landscape classes - Mature and late balsam fir mixed

Mature and late balsam fir mixed plan start level is 7,770 ha and is above the inter-quartile range (2,567 - 5,145). Over the short, medium and long term, levels increase to 22,711 ha. This landscape class represents a relatively small area on the forest and is mostly tied up within reserves (AOC's or parks) and cannot be managed. In addition, most natural succession rules in the model have a proportion succeeding to BfMx1.

Landscape classes - Mature and late lowland spruce and low other conifer

Mature and late lowland spruce and low other conifer plan start levels are 89,372 ha and above the inter-quartile range of 61,856 - 74,279. Over time, levels move towards the inter-quartile range and fall within from term 4 to Term 10, then increase above in future terms. Due to the application of the DCHS and due to large amounts of lowland forest locked within reserves (protection forest), there is limited ability to manage mature and late lowland conifer levels in the forest. Overall, the desired level and target has been met.

Landscape classes - Mature and late conifer and conifer mixedwood

Mature and late conifer and conifer mixedwood plan start levels are 182,929 ha and are within inter-quartile range of 117,711- 191,115. Over the short, medium and long terms, levels stay within the inter-quartile range. Upon completion of the LTMD, the desired level and target has been achieved.

Landscape classes - Mature and late hardwood and hardwood mixedwood

Mature and late hardwood and hardwood mixedwood plan start levels are 93,003 ha and above the inter-quartile range of 17,130- 28,319. Over the short, medium and long term the LTMD projects that levels will move towards 17,130- 28,319. The desired level and target is achieved.

Old Growth - Lowland Conifer, Upland conifer and Mixed conifer-mixed and pure hardwoods

Plan start levels for Old growth for lowland conifer and upland conifer are below the inter-quartile range and mixed conifer-mixed and pure hardwood are above the inter-quartile range. LTMD projections show that over the long term all old growth is overachieved (above the range). There is limited ability to manage Old growth levels over time due to the application of the DCHS on the forest. Old growth structure provides habitat for many species (e.g. cavity nests and roosts, dens), and achievement above the desired levels means more of this habitat. The desired level for the 2.4 Young Forest area indicator is also achieved, and therefore over-achievement of these Old Growth indicators is acceptable and not a detriment to the forest.

All ages upland conifer forest

All ages Upland Conifer forest at plan-start is 199,839 ha and below the inter-quartile range of 288,637 - 311,226. Projections show that levels will decrease slightly until term 8, then there is movement towards the inter-quartile range in the long term, although the inter-quartile range is not reached. Since conifer is replaced where harvested in the strategic modelling, the slight decrease from T1 to T8 is due to succession in the old forest on the rest of the land base not yet harvested, and not in control of forest management. Increased planting to convert large natural areas of hardwood-mixedwood into pure conifer was a concept explored in the strategic model, however, this had negative ramifications: First, the significantly increased cost of silviculture was not realistic nor feasible; and second, the model would not be able to fully harvest conifer in the DCHS blocks to renew pure conifer, therefore increasing edge and fragmentation, not renewing caribou habitat, not meeting other BLG indicators, and reducing volume harvested.

Conversion to conifer of large natural areas of hardwood-mixedwood is not feasible. After T8, the long term movement is towards the desired level.

Young Forest

Young Forest plan start levels are 143,775 ha and within desired levels of 73,063 - 149,563. Young forest levels are maintained either above or within the desired levels over the short, medium and long term. There is limited ability to manage young forests over time due to the application of the DCHS on the forest. Over-achievement of the young forest area does not appear to negatively affect the achievement of mature and old forest indicators (Old Growth, Landscape Classes). Clean up of U-blocks will reduce existing fragmentation, which contributes to moving towards the improved long-term texture of caribou habitat.

Red and white pine forest

Since the management unit is located within the northern extreme of the Red and White Pine species range, and this FMP is for the de-amalgamated Wabadowgang Noopming Forest (Armstrong portion of amalgamated Lake Nipigon Forest), the planning team agreed that the BLG milestones needed to be revised from "Increase" to "Maintain". Red and White pine forest unit only occupy 30.7 hectares of the land base and this is a very small amount of area. The planning team has decided to not harvest any of the PrwMx forest unit and therefore not include the forest unit within the operable area in SFMM. Since PrwMx succeeds within itself, levels are maintained over the short and long term. LTMD projections show that the desired level and target is achieved.

The assessment on natural landscape patterns - texture of mature and old forest and young forest patch size is included in Section 5.2.

5.1.3 Social economics – Long Term Harvest Levels

The FMP also includes objectives regarding wood supply. This is to allow for continued social and economic benefits over the short, medium and long terms. The planning team needed to maintain a balance between various competing objectives when considering wood supply. Overall, the volumes levels have been maximized over short, medium and long terms.

The remaining social and economic, silviculture and ecological sustainability objectives are not assessed during the LTMD. Some will be assessed operational planning and/or draft plan submission, and others will be assessed during plan implementation (year 5 AR) and/or final year of the forest management plan. See section 5.1.

5.2 Preliminary Spatial Assessment

There are four indicators that are assessed spatially on the forest. These include: texture and arrangement of caribou refuge and habitat within the caribou continuous 4 distribution, the texture of mature and old forest and young forest patch size distribution. These are all spatial assessments measured through Ontario’s Landscape Tool (OLT).

There is also a requirement to assess the projected distribution of harvest over the first four FMP periods (40 years). This assessment is provided in section 5.2.4.

5.2.1 Texture and arrangement of caribou refuge and winter habitat

Refuge habitat

The timing of the DCHS blocks and to a certain degree the forest composition within the blocks determines Texture and arrangement of caribou refuge habitat. Texture and arrangement is measured at plan start (2021) and year 10 (2031). The desired level and target is to move towards the mean and focusing on 60% and greater proportion classes. For the 6000 hexagon frequency distribution, LTMD projections show that there is movement away from the mean at the 61-80% proportion classes and movement towards the mean at the 81-100% proportion classes. For the 30000 hexagon frequency distribution, LTMD projections show that there is movement towards the mean for the 61-80% proportion classes and no movement for the 81-100% proportion classes. Overall, the objective has been met. Continued harvest and clean-up of DCHS blocks to create large landscape patches of young forest will improve texture in future terms

Winter habitat

The timing of the DCHS blocks and to a certain degree the forest composition within the blocks determines Texture and arrangement of caribou winter habitat. Texture and arrangement is measured at plan start (2021) and year 10 (2031). The desired level and target is to move towards the mean and focusing on 60% and greater proportion classes. For the 6000 hexagon frequency distribution, LTMD projections show that there is movement towards the mean at the 61-80% proportion classes, and no movement for the 81-100% proportion classes. For the 30000 hexagon frequency distribution, LTMD projections show that there is no movement towards the mean for the 61-80% proportion classes and 81-100% proportion classes. Overall, one of the four classes has seen movement towards the mean, while the others have not moved. Continued harvest and clean-up of DCHS blocks to create large landscape patches of young forest will improve texture in future terms

5.2.2 Natural Landscape Patterns - texture of mature and old forest

For the 500ha and 5,000 ha frequency distribution, preliminary LTMD shows that there is movement towards the mean for three classes and movement away of the mean for four classes. Three classes do not show any movement. The movement away from the mean is due to a number of factors, and change at the level required will take a number of years to accomplish (multiple FMP's). It is not possible to completely change the texture of a forest in 10 years. This indicator is about the distribution of patches of mature and old forest at 500ha and 5000ha, and therefore the most important proportions are the densest concentrations of 61-80% and 81-100% which are the most difficult to achieve and maintain. The less dense concentrations are automatically created through time by new harvest blocks fragmenting the older forest. The WN forest starts with and maintains a very coarse texture with the combined proportions of 61-80% and 81-100% far exceeding the mean SRNV. This indicator is considered achieved.

5.2.3 Natural Landscape Patterns - Young forest patch size

Preliminary LTMD shows that there is movement towards the mean for two classes and movement away from the mean for four classes. Three classes do not show any movement. The movement away from the mean is due to 10 years of harvest creating more smaller young forest patches. It will take more than 10 years to amalgamate the smaller harvest patches into larger harvest patches to shift the distribution to increase the frequency of larger young patches. Strategies such as harvesting all eligible area within DCHS blocks and clean-up of the U-blocks will accomplish movement towards the mean over several FMP terms

5.2.4 Projected distribution of harvest over the first four FMP periods

The projected distribution of harvest over the first four FMP periods (i.e. 40 years) was assessed for:

(a)feasibility of the spatial distribution of the harvest (e.g., operational, accessibility, other land-use decisions);
(b)economic feasibility of the harvest (e.g., balancing wood cost).

Feasibility of the spatial distribution of the harvest

Figure 2 shows the projected distribution of harvest for the next 40 years for the 2023-2033 FMP. The landscape task team did some slight modification in the DCHS pattern to better address operational feasibilities related to access and to incorporate the new Caribou East parcel that was previously not part of the amalgamated Lake Nipigon Forest. Below is a summary of the blocks that will be open for harvest during the 2021-2033, 2021-2043 and 2043-2063 period.

AB blocks – comprised of un-finished A blocks that are to be completed by 2033 (10 years).

B block – New DCHS blocks that are opening for harvest in 2021.

- B-1 is open for the 2021-2033 period,
- B-2, B-3, and B-7 is open for the 2021-2043 period and
- B-4, B-5 and B-6 is open for the 2033-2043 period

U blocks – Open indefinitely in the model. The planning team recognizes that these blocks have a history of harvest and are currently heavily fragmented due to past harvesting under different guidelines. One portion of the U blocks has been added to the DCHS schedule by making it part of B-1. The remaining area within the U blocks cannot be fully harvested (cleaned up to even-aged forest) in the next 10 or 20 years and for this reason, are not following the DCHS schedule. The planning team intends to aggressively allocate area within the U blocks in this FMP. Depending on harvest levels and market conditions, future planning teams might be able to incorporate the U blocks into a defined DCHS schedule.

C blocks – DCHS blocks that will be open for harvest during the 2043-2063 period.

The AB and B have a long-term access plan in place. Most of the blocks are accessible through existing road systems on the landscape, however, some of these roads will need significant investments since they have not been used for periods of 10-20 years due to the lack of forestry activities in the forest. The northwestern portion of the forest will see new access from a new primary road corridor called Dalton Extension (see summary map for location of the proposed road and alternatives).

The "C" blocks come online for harvesting from 2043 to 2063. Over this 20-year period, access opportunities were investigated and discussed by the landscape task team and operational task team to ensure that there are feasible access opportunities available for all the "C" blocks. For accessing C blocks, there are no issues outside of what would be considered normal for road construction.

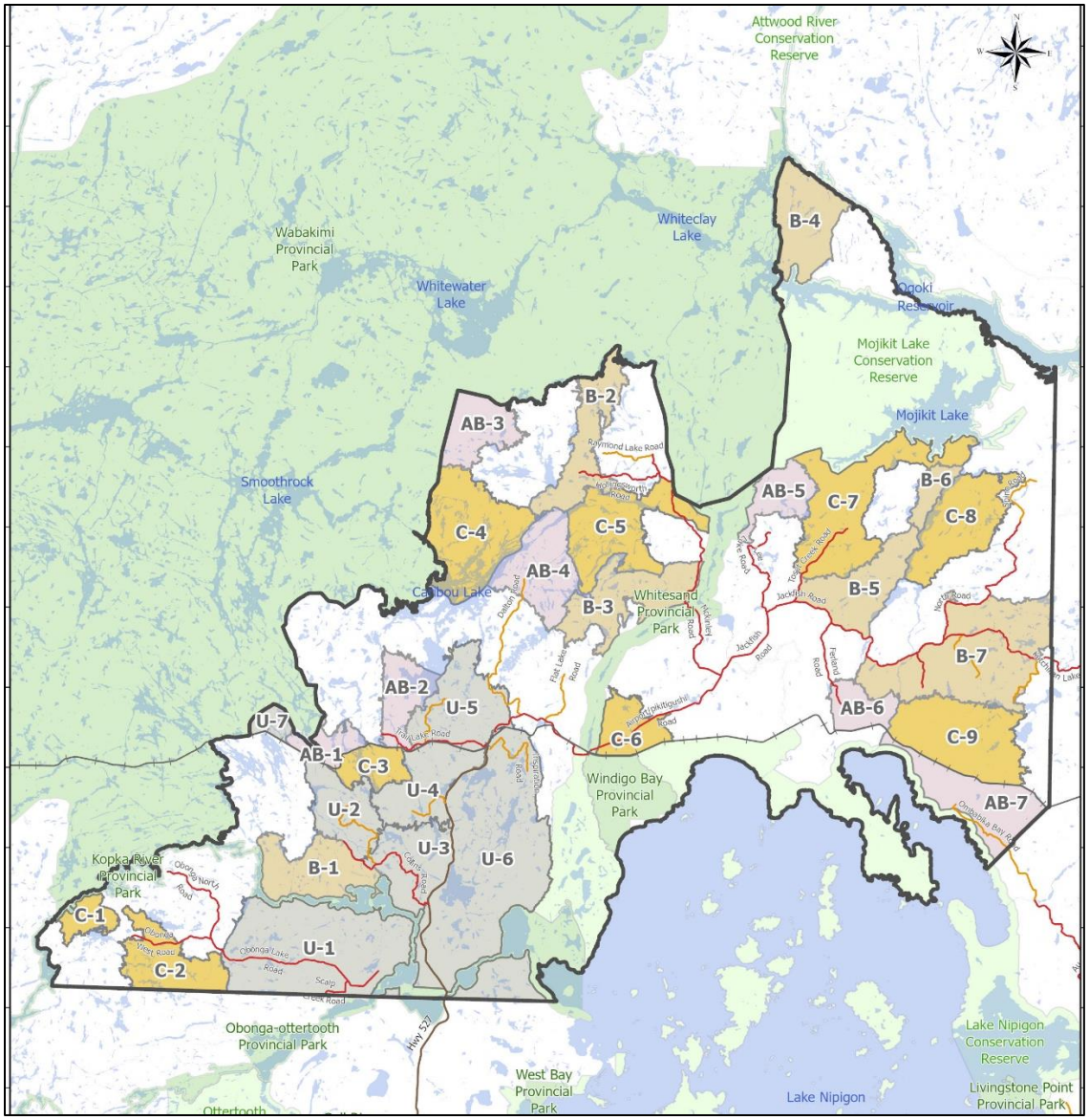

Figure 2. Projected distribution of harvest for the next 40 years

Economic feasibility of the harvest

Haul distance and travel time is a significant factor when determining wood costs. The distance to a mill and the actual haul times related to the quality of the road should be considered. Currently, all the wood harvested on the management unit (with the exception area north of Mojikit Lake Conservation Reserve) needs to flow south on highway 527 to Thunder Bay. This has traditionally made the southwestern portion of the unit affordable to harvest due to shorter haul distance and the northeastern portion of the forest (east of Whitesand PP) less desired due to the increased cost of transportation/travel. When developing the DCHS, the landscape task team evenly distributed the harvest periods throughout the forest (see figure 2) in order to avoid a period where most/all wood available would be either close or fare.

It is expected that moving into the future, DCHS blocks areas will have succeeded to lower volumes as a result of older stand ages; therefore, due to poor volumes, this may result in areas not feasible for harvest. As a consequence of implementing a DCHS correctly over the entire forest, the first 100-year cycle will have these imbalances, until a full cycle of the DCHS is completed and the age distribution is balanced across the landscape.

5.3 Social and Economic Assessment

The Forest Management Planning Manual (2017) requires that a Social and Economic Assessment (SEA) be prepared to identify the expected social and economic impacts of implementing the Long-Term Management Direction (LTMD) proposed for the development of the 2023-2033 FMP. The assessment examines how the quantity of harvest volume supplied to the wood-processing facilities, and the silvicultural investment requirements for the proposed long-term management direction may affect the communities identified in the Social and Economic Description.

The Social and Economic Assessment of timber volumes and silvicultural expenditures was completed and is based on the comparison of the annual planned levels for the 2011 FMP and the levels shown in the LTMD for the 2023-2033 FMP. For the Wabadowgang Noopming Forest, this comparison is challenging due to the 2011 amalgamated Lake Nipigon FMP having planned harvest levels for the entire unit (no separation between the Armstrong portion and Lake Nipigon east portion) and the new management unit boundary of the Wabadowgang Noopming Forest with the addition of the Caribou East piece (approximately 21,000 hectares in size). Projected volume for the 2011 FMP (2021 to 2131) is based on the proportion of Crown Managed areas for the Armstrong Portion (the assumption was that projected harvest area and volume would be equally distributed between both units).

When compared with the 2011 amalgamated Lake Nipigon FMP (Figure 3), the proposed management strategy endorsed by the planning team, projects an increase in volume over the short term (2021 to 2041) and a small decrease in available wood supply from the Forest over the long term.

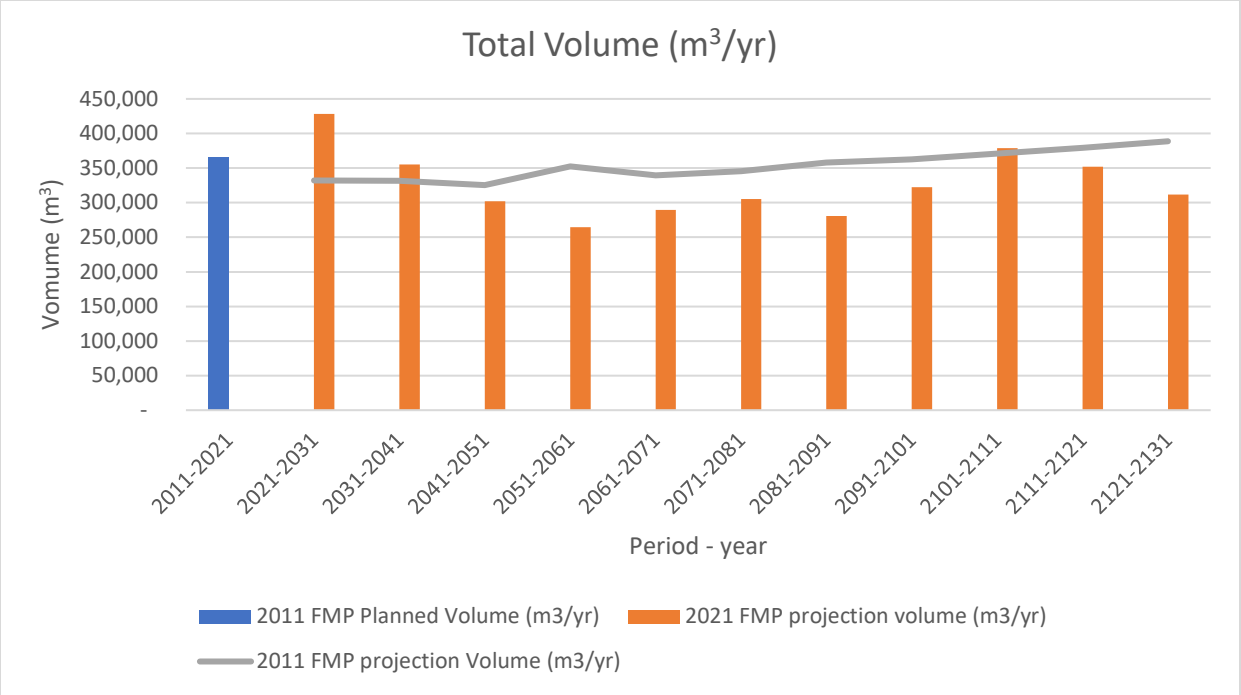

Figure 3: Comparison of planned volumes for the 2011 FMP and projections form the 2011 FMP and 2023 FMP.

The 2011-2021 FMP and the 2023-2033 FMP show a stable trend in available wood supply to occur during this plan period and those periods beyond, although due to the cleanup of un-harvested "AB" blocks that were originally scheduled to be completed by 2021, the available volume for the next 20 years is higher than past projections. The proposed LTMD will continue to have a positive socio-economic impact on the communities and their wood processing facilities through receiving timber directly from the Forest. The relationship between the economic activity created through the forest management expenditures and the manufacturing of the timber into processed products creates a chain of events which have an extensive positive impact on the social and economic dimension of the community, the region and the province.

The impacts of forest management and operations on other industrial and nonindustrial users of the forest, such as but not limited to, recreation and tourism, are not dependent on the harvest level but rather how the integration and/or accommodation of the specific activity/value has been addressed. Some values benefit from increased access to previously un-accessed areas whereas others (e.g., Resource-Based Tourism) that rely on remoteness can be negatively impacted. The impacts of forest management on mining and mineral exploration are mainly positive. Forest operations will directly affect certain traplines and not affect others depending on where harvest allocations are planned. These operations may have both a positive and negative impact on one or more trappers and their traplines. Bear management area (BMA) operators may also be affected by both the harvest operations and road access. Stakeholder involvement during plan development will allow consideration for other values and users to be incorporated in the FMP to minimize potential negative impacts from forest operations.

5.4 Risk Assessment

Risk assessments are performed to illustrate any risks associated with the implementation of the proposed LTMD. Risks associated with the implementation of the proposed LTMD could result from natural causes (e.g. wildfire, blowdown, disease), lack of implementation of management practice due to public opposition (e.g. herbicide application to promote successful conifer regeneration) and market conditions. If they occur, these are risks to implementation that could result in significant negative impacts on the forest at the landscape level.

For the Wabadowgang Noopming Forest LTMD, the planning team identified the following risks:

1) Reduced wood utilization due to lack of market:

Mill shutdown or prolonged restrictions in production would reduce the demand for wood in the Wabadowgang Noopming Forest. As a result, the available harvest area harvested and renewed would be reduced. This poses a risk to achieving the socio-economic objectives and Forest Diversity objectives. This could, in turn, result in an imbalance of harvest area on the forest, since market conditions dictate how far facilities are willing to pay for wood to be hauled. The eastern portion of the forest (east of Whitesand Provincial Park) is currently considered expensive wood to harvest due to its haul distance to the consuming facility in Thunder Bay.

2) No market for hardwood species:

Currently, the consuming facility for the Wabadowgang Noopming Forest is Resolute in Thunder Bay, and SPF is the main species group they are interested in harvesting from the management unit. There is a potential for a Bio-Cogen facility in Armstrong which would resolve the issue of hardwood utilization, however, this facility has not yet been constructed.

3) Tending:

To achieve our Forest Diversity objectives that include the provision of conifer forest for the WN Forest, it is necessary to incorporate tending or other silvicultural methods that are economical and effective in managing competitive vegetation. However, herbicide application on the management unit is a contentious issue and the planning team recognizes that LTMD projections might not be achieved if hardwood competition is not properly managed. Over the long term, if the conifer forest is not properly regenerated, forest diversity objectives will be negatively impacted along with harvest levels for all species groups. Renewal of the pure conifer forest units is how caribou habitat is renewed, and currently, this is a requirement under policy and is required by Regulation under the Endangered Species Act for the forest industry to be exempt from damage and destruction of habitat.

5.5 Conclusion of the Sustainability of the FMP

As outlined in the assessment of objective achievement (Section 5.1), most of the management objectives and associated indicators that are assessed at the LTMD stage have been achieved. Based on the overall assessment of objective achievement (for those objectives which can be measured at this time), preliminary spatial assessments and social and economic assessment, the LTMD prepared for the 2023-2033 Wabadowgang Noopming FMP provides an overall balance of objectives that are achieved in the short, medium and long terms. Therefore, the FMP has regard for plant life, animal life, water, soil, air, and social and economic values including recreational and heritage values. As such, it can be concluded that this LTMD can be deemed sustainable as per the requirements of the Crown Forest Sustainability Act.

6.0 Primary Road Corridors

The existing roads on the management unit were built to access DCHS "A" blocks over the past 20 years. The transition to new operating areas in the DCHS blocks in DCHS "AB", and DCHS "B" will require the construction of new roads to provide principle access for current and future forest management activities. There is a total of two proposed new primary road corridors for the 2023-2033 Wabadowgang Noopming FMP.

Proposed New Primary Road Corridors
Dalton Extension – Alternative 1 and 2 (Hollingworth)
Trail Lake Road Extension

The locations of primary road corridors, and alternative road corridors, are portrayed on the summary map (Appendix 2). Primary road planning, including the consideration and environmental analysis of a reasonable range of alternative practical one-kilometer wide corridors, is documented in the Primary Road Planning Supplementary Documentation prepared for this stage of plan development.

Appendices

Appendix 1 - FMP 8, 9, 10

Appendix 2 - Summary Map

Appendix 3 - Comment Form

APPENDIX 3 – Comment Form

Wabadowgang Noopming 2021-2023 Contingency Plan & 2023-2033 Forest Management Plan

Stage 2 Review of Proposed Long-Term Management Direction

July 1st – July 30th, 2020 (30 Day Review Period)

*Please submit your comments by July 30th, 2020

Comments:			
*Additional space for comments is available on the next page.			
Recorded By:		Date:	
Person's Name:		Phone Number:	
Address:			

The Ministry of Natural Resources is collecting comments and information regarding this Forest Management Plan under the authority of the *Crown Forest Sustainability Act* to assist in making decisions and determining further public consultation needs. Comments and opinions will be kept on file for use during the Forest Management Planning period and may be included in study documentation, which is made available for public review. Under the *Freedom of Information and Protection of Privacy Act* (1987), personal information will remain confidential unless prior consent is obtained. However, this information may be used by the Ministry of Natural Resources to seek public input on other resource management surveys and projects. For additional information regarding the Act, please contact Alyson Dupuis, District Business Coordinator, Alyson.Dupuis@ontario.ca

Written comments should be submitted to:

Leona Tarini, District Manager (acting)
Ministry of Natural Resources and Forestry
435 James Street South
Thunder Bay, Ontario, P7E 6S7
Attention: Vishnu Kowlessar RPF

For additional information on the forest management plan, please contact:

Laurren Peterson RPF, NW Regional Planning Forester Ministry of Natural Resources and Forestry 435 James Street South, Suite 221a Thunder Bay, Ontario, P7E 6S7 807-475-1182	Jeffrey Cameron RPF, Plan Author NorthWinds Environmental Services 195 Park Ave. Thunder Bay, Ontario, P7B 1B9 807-631-8744	Vishnu Kowlessar RPF, Management Forester Ministry of Natural Resources and Forestry 435 James Street South Thunder Bay, Ontario, P7E 6S7 807-475-1163

There is an opportunity at any time during the forest management planning process for interested persons to seek resolution issues with the plan author. If there is still dissatisfaction with results with the plan author, the Ministry's District Manager and/or the Ministry's Regional Director will attempt to resolve the issue.

There is also an opportunity during the 30-day inspection of the approved forest management planning process for interested persons to make a request to the Director of Environmental Assessment and Approvals Branch, Minister of the Environment, that specific forest management activities require an individual environmental assessment under the *Environmental Assessment Act.*

Additional Comments (If Any):