The United Counties of Prescott and Russell County Forest

2009-2028 Forest Management Plan

Section C: 2021-2025 Forest Operations Plan

Prescott Russell

I hereby confirm that the 2021-2025 Operations Plan is consistent with the approved forest management plan and any amendments and updates thereto.

Steven Hunter, R.P.F.
Plan Author
Forester, United Counties of Prescott and Russell

Signed and Sealed on April 29, 2021

THE UNITED COUNTIES OF PRESCOTT AND RUSSELL COUNTY FOREST: 2009-2028 FOREST MANAGEMENT PLAN

Documents

SECTION A: **FOREST POLICY**

SECTION B: **TWENTY-YEAR MANAGEMENT PLAN (2009 to 2028)**

SECTION C: **FIVE-YEAR OPERATIONS PLANS**

Commonly Used Terms and Acronyms

United Counties of Prescott and Russell	“UCPR” or “County”
UCPR County Forest	“County Forest” or “Forest”
Eastern Ontario Model Forest	EOMF
Forest Resource Inventory	FRI
Geographic Information System	GIS
Ministry of Natural Resources and Forestry	MNRF
Ministry of the Environment, Conservation and Parks	MECP
Registered Professional Forester	R.P.F.

THE UNITED COUNTIES OF PRESCOTT AND RUSSELL COUNTY FOREST LANDS: FOREST MANAGEMENT PLAN

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C-1.0 REPORT ON PAST FOREST OPERATIONS

C-1.1 Summary of Forest Management for the 2016-2020 Operating Period

Forest management activities were steady during the 2016-2020 operating period and relatively stable market conditions for most forest products suggest that this will continue into the next operating period. Plantation thinning, harvesting to establish regeneration, wildlife habitat enhancement, crop tree release, site preparation, tree planting and tending of planted stock are some examples of the forest management activities that occurred during the period.

Operations plans for the UCPR County Forest describe a sustainable annual harvest area and provide areas where forest operations are an option during the five-year term of the plan. Field sampling by a registered professional forester confirms treatment eligibility and provides the basis for the development of forest operations prescriptions. Field sampling also confirms natural and cultural heritage features to implement protection measures prior to harvest. Renewal and tending are also addressed in operations plans.

Figure 1. Single-grip harvester performing a selection thinning in a white pine plantation.

Table 1 compares the area prepared for harvest during the 2016-2020 period to the allowable harvest area for each forest unit. Table 2 provides an overview of the harvest methods prescribed during the term of the plan. Harvest activities are summarized in Table 3, tending activities are summarized in Table 4, renewal activities are summarized in Table 5 and forest access road work is summarized in Table 6.

The total amount prepared for harvest is approximately 35% less than the planned harvest for the 2016-2020 period (Table 1). There are many reasons for why there are differences between what is planned and what is ultimately prepared for harvest. In general, the discovery of previously unidentified natural and cultural heritage features impacts the preparation of an area for harvest. Additional reasons specific for the forest units that have the largest differences are summarized in the following paragraphs.

Table 1. Comparison of area prepared for harvest to the calculated annual harvest area summarized by forest unit for the 2016-2020 operating period.

Forest Unit	Treatment Type	Planned 5 Year Harvest (ha)	Actual 5 Year Harvest (ha)	Difference
Red Pine	Thinning	343.7	311.7	(32.0)
	Shelterwood	33.2	42.8	9.6
	Conversion	9.8	6.2	(3.6)
	Sub-Total	**386.7**	**360.7**	**(26.0)**
White Pine	Thinning	63.6	33.0	(30.6)
	Shelterwood	83.3	23.6	(30.0)
	Conversion	0.0	0.0	0.0
	Intensive Wildlife Management Areas	0.0	29.7*	29.7
	Sub-Total	**146.9**	**86.3***	**(60.6)**
White Spruce	Thinning	22.8	44.3	21.5
	Shelterwood	100.0	27.1	(72.9)
	Conversion	40.4	27.2	(13.2)
	Intensive Wildlife Management Areas	11.7	0.0	(11.7)
	Sub-Total	**174.9**	**98.6**	**(76.3)**
Other Conifer	Thinning	11.7	0.0	(11.7)
	Shelterwood	7.1	1.6	(5.5)
	Clearcut	0.0	0.0	0.0
	Conversion	2.7	10.4	7.7
	Sub-Total	**21.5**	**12.0**	**(9.5)**

Forest Unit	Treatment Type	Planned 5 Year Harvest (ha)	Actual 5 Year Harvest (ha)	Difference
Intolerant Hardwood (IH)	Clearcut	29.2	0.4	(28.8)
	Conversion	10.9	0.0	(10.9)
	Intensive Wildlife Management Areas	118.0	33.0	(85.0)
	Sub-Total	**158.9**	**33.4**	**(125.5)**
Mid-Tolerant and Tolerant Hardwood (LH and UH)	Selection	61.6	32.0	(29.6)
	Shelterwood	18.4	1.5	(16.9)
	Intensive Wildlife Management Areas	7.1	0.0	(7.1)
	Sub-Total	**87.1**	**45.3**	**(41.8)**
Total Area		**976.0**	**636.3**	**(339.7)**

**This area represents a portion of a shelterwood that was modified to promote wildlife habitat features. To avoid double counting, this IWMA area has been excluded from the shelterwood area.*

The amount of the white pine forest unit prepared for harvest is approximately 59% of what was planned. Limited markets for white pine pulp and the closure of Fortress Papers in Thurso, Québec have severely limited the demand for pulp quality white pine. The preparation of pure white pine plantations with a very high pulp component have been suspended until market conditions improve.

The amount of the white spruce forest unit prepared for harvest is approximately 56% of what was planned. The primary reason for the difference is where white spruce dominated the original stand but, due to mortality, it has converted naturally to another forest type. In many cases, harvest in theses stands is not silviculturally appropriate and/or economically feasible.

The amount of intolerant hardwood and mid-tolerant/tolerant hardwood forest units prepared for harvest are approximately 21% and 52% of what was planned respectively. Firewood markets in the region are quite strong, however markets for low grade hardwood logs and pulp are poor. As a result, there are few contractors in the region who are willing to harvest in areas that are dominated by low-quality hardwoods. Intensive wildlife management areas (IWMA) are a significant portion of the intolerant hardwood forest unit. There are multiple reasons why an area identified as a potential IWMA was not ultimately treated as IWMA. They include; where the current forest condition did not meet the criteria for IWMA treatment and was better suited to be managed for other goals, the area was already well suited for wildlife habitat and IWMA intervention could have had a negative impact, and/or there was a high likelihood for

wildlife/human conflict (e.g. proximity to highly travelled roads).

Figure 2. An example of an intensive wildlife management area where a canopy opening has been created to promote young growth for browse. The opening is next to thick conifer that provides shelter from predators and from weather extremes. Large diameter (i.e. >40 cm) poplar have been retained to provide nest and roost trees for woodpeckers and many other tree cavity users (e.g. flying squirrel, barred owl, bees, bats, etc.).

Table 2. Overview of harvest methods prescribed during the 2016-2020 operating period, summarized by forest unit.

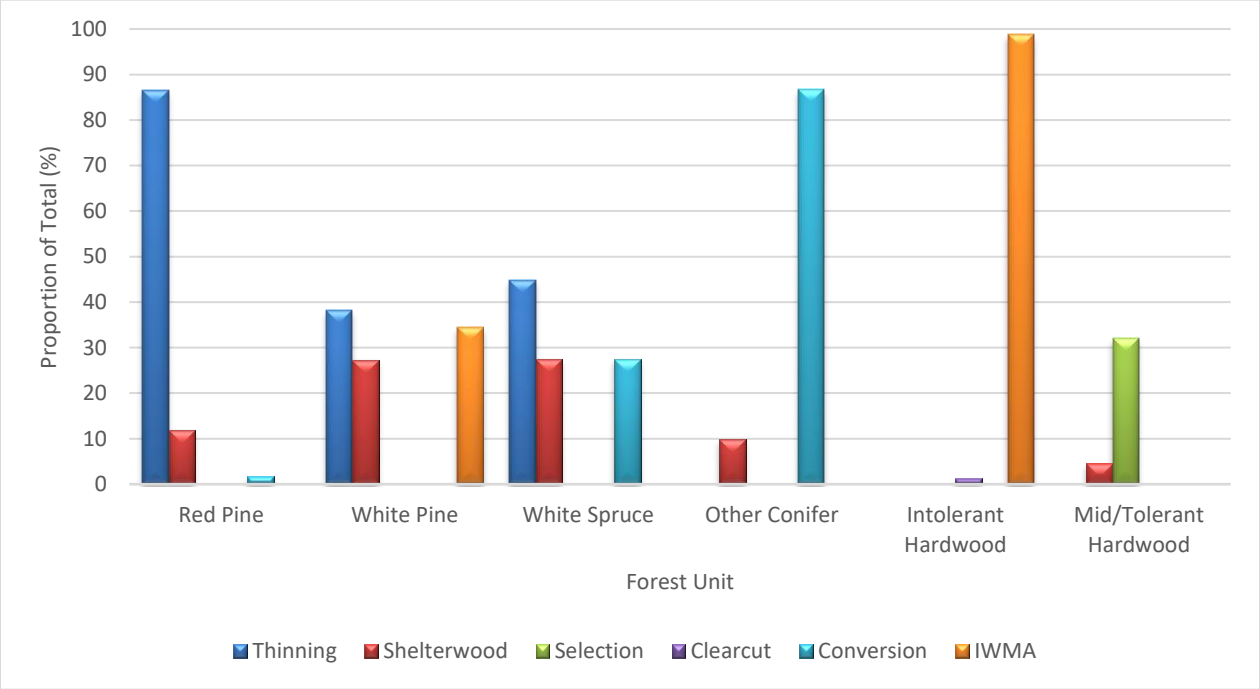


Table 3. Summary of harvesting activities performed on the UCPR County Forest during the period between 2011-2020. *Note: This table includes all harvest blocks that were prepared and sold during the 2011-2020 operating period.* ***N.B.*** *Annual area totals include harvest blocks that were re-tendered and areas carried forward from previous operating plans. Volume harvested and revenues did not necessarily occur in the year the block was prepared and sold.*

Harvest Activities								
Tender Sale #	**Compartment(s) or Tract(s)**	**Contractor**	**Area (ha)**	**Species**	**Volume Harvested (m3)**	**Utility Poles**	**Revenue**	**Harvest Status**
2011-01	78	Produits Forestiers Startrees	40.0	Pr, Pw	3,664	3010	$320,090	Complete
2011-02	98, 99	Guillaume Racine	41.3	Mh, Mr, Ag, OH	1,513	0	$19,049	Complete
2011-03	294, 295, 300, 301 (blowdown salvage)	Guillaume Racine	71.5	Pw, Pr, Sw	n/a	0	n/a	Complete
2011-04	80, 81, 103	M. W. Miller	30.0	Pr, Pw, Sw	2,609	0	$54,340	Complete
2011-05	79, 80, 81, 330	M. W. Miller	29.5	Pr, Pw, Sw	4,384	0	$61,590	Complete
2011-06	134	M. W. Miller	11.9	Pr	1,012	0	$25,943	Complete
2011-07	135, 136	M. W. Miller	29.9	Pr, Po, Sw, Pw	5,349	0	$100,121	Complete
2011 Total			**254.1**		**18,531**	**3010**	**$581,133**	
2012-01	64, 65, 83, 107, 365	M. W. Miller	18.4	Pr	2,535	0	$72,070	Complete
2012-02	63, 64, 365	Lavern Heideman and Sons	31.0	Sn/Sw, Pw, Pr, Ta				Complete
2012-03	334, 335, 356	M. W. Miller	22.3	Pr, Pj, Ps, Pw	2,677	934	$118,445	Complete
2012-04	22, 30	Lavern Heideman and Sons	13.8	Pw, Sw, Pr	2,572	0	$32,615	Complete
2012-05	317, 318, 319	Lavern Heideman and Sons	18.3	Pr, Pw, Sw				Complete
2012-06	2, 6, 318, 319	n/a	10.6	Po, Mr	n/a	n/a	n/a	No bid
2012-07	18, 19, 20, 21	Lavern Heideman and Sons	21.4	Pr, Pw, Sw, Ta, Po	n/a	n/a	n/a	Incomplete
2012-08	18, 19	n/a	26.7	Mr, Ash, Po, Mh	n/a	n/a	n/a	No bid
2012 Total			**162.5**		**7,784**	**934**	**$223,130**	
2013-01	157, 179, 180	M. W. Miller	42.5	Pr, Pw	3,184	0	$84,127	Complete
2013-02	179, 180	n/a	24.8	Pr	n/a	n/a	n/a	Re-tender
2013-03	179, 180, 200	M. W. Miller	30.8	Pr, Sw, Pw	4,392	0	$119,671	Complete
2013-04	244, 245, 246	Lavern Heideman and Sons	49.8	Pw, Pr, Sw, Ta, Po	5,244	0	$51,460	Complete

2013-05	18, 19	Produits Forestiers Startrees	26.7	Mr, Ash, Po, Mh	n/a	n/a	n/a	Cancelled
2013-06	124	Guillaume Racine	9.6	Pr, Pw	1,149	450	$73,195	Complete
2013 Total			**184.2**		**13,969**	**450**	**$328,453**	
2014-01	210, 211, 230	n/a	28.2	Mr, Po, Bf, OH	n/a	n/a	n/a	No bid
2014-02	171, 193, 208, 209, 210, 374	Lavern Heideman and Sons	37.0	Pr, Sw	4,441	0	$129,781	Complete
2014-03	228, 229, 230	Lavern Heideman and Sons	64.6	Pr, Pw, Sw	9,373	0	$188,264	Complete
2014-03 (salvage)	228, 229, 230	Lavern Heideman and Sons	n/a	Pr, Pw	3,251	0	$71,005	Complete
2014-04	204, 205	Lavern Heideman and Sons	44.7	Pw, Ta, Sw, Pr, Mr, Po	5,370	0	$70,775	Complete
2014-05	220	Lavern Heideman and Sons	10.6	Pw, Mr, Sw, Ta	1,230	0	$15,766	Complete
2014-06	82, 83, 105	Lavern Heideman and Sons	68.1	Pr, Pw, Mr, Sw	8,062	0	$171,008	In Progress
2014-07	179, 180	Lavern Heideman and Sons	24.6	Pr, Pw	3,896	1,465	$196,490	Complete
2014 Total			**277.8**		**35,623**	**1,465**	**$843,089**	
2015-01	255, 256, 264, 265	M.W. Miller	60.4	Pw, Sw, Pr, Ta/La, Mr, Sn, Po	4,227	0	70,674	Complete
2015-02	163, 184, 185, 202, 203, 343	M.W. Miller	63.7	Pw, Ta/La, Pr, Mr	n/a	n/a	n/a	Cancelled
2015-03	225, 226, 242, 243	Lavern Heideman and Sons	58.3	Pr, Pw, Po	7,815	0	$196,769	Complete
2015-04	210, 211, 230	Colin Morrison Timber Management	28.2	Mr, Po, Bf, OH	1,125	0	$5,680	Complete
2015 Total			**210.6**		**13,167**		**$273,123**	
2016-01	Gagnon	Lavern Heideman and Sons	30.8	Pr, Pw, Sw, Mr	5,713	837	$201,969	Complete
2016-02	Indian Creek	Colin Morrison Timber Management	54.2	Pr, Pw, Mr, OH	5,962	4,345	$362,464	Complete
2016-03	Indian Creek	Lavern Heideman and Sons	37.0	Pw, Ps, Po, Mr, Pr, Sw, Sn, Pj, OH	4,482	0	$62,889	Complete
2016-04	Indian Creek	Jason Arnold	14.0	Mr, Ash, OH	n/a	n/a	n/a	Cancelled
2016-05	St. Pascal	Jason Arnold	26.7	Mr, Ash, Po, Mh, OH	n/a	n/a	n/a	Cancelled
2016-06	St. Pascal	Jason Arnold	10.6	Po, Mr, Bw, OH	n/a	n/a	n/a	Cancelled

2016 Total			**173.3**		**16,157**	**5,182**	**$627,322**	
2017-01	Old Growth	Guillaume Racine	19.3	Mr, Ash Bf, OH, OC	595	0	$4,165	Complete
2017-02	Old Growth	Colin Morrison Timber Management	33.6	Pr, Pw, Sw, Mr	3,796	3,211	$153,000	Complete
2017-03	Old Growth	n/a	76.3	Pw, Sw, Mr, Ta, Po, Pr, Sn, OH	n/a	n/a	n/a	No bid
2017-04	Indian Creek	Lavern Heideman and Sons	28.5	Pr, Pw, Sw, H, OC	3,209	2,275	$101,690	Complete
2017-05	Indian Creek	Colin Morrison Timber Management	31.9	Pr, Sw, Sn, Pw, H, OC	n/a	n/a	n/a	Cancelled
2017 Total			**189.6**		**7,600**	**5,486**	**$258,855**	
2018-01	Old Growth	Colin Morrison Timber Management	41.2	Sw, Pw, Mr, Po, OC, OH	6,112	0	$11,980	Complete
2018-02	Grant	Colin Morrison Timber Management	19.0	Pr, OC, H	2,672	1,601	$133,553	In-Progress
2018-03	Indian Creek	Guillaume Racine	14.0	Mr, Ash, OH	n/a	n/a	n/a	Cancelled
2018-04	Old Tower	Lavern Heideman and Sons	42.3	Pr, Pw, Sw, H, OH	1,678	100	$22,512	In Progress
2018-05	Old Tower	Lavern Heideman and Sons	43.4	Pr, Pw, H, OC	681	0	$4,124	In Progress
2018-06	St. Pascal	Guillaume Racine	26.7	Mr, Ash, Po, Mh, C, OH	n/a	n/a	n/a	Cancelled
2018 Total			**186.6**		**11,143**	**1,701**	**$172,169**	
2019-01	Martel	Lavern Heideman and Sons	49.1	Pw, Ta, Pr, OC, H	0	0	0	In Progress
2019-02	Goyer	Lavern Heideman and Sons	13.0	Pr, OC, H	1,056	0	$25,324	Complete
2019-03	Gagnon	Lavern Heideman and Sons	48.0	Pr, Pw, OC, H	0	0	0	Not Started
2019-04	Gagnon	Lavern Heideman and Sons	29.5	Pr, Pw, Sw, OC, H	0	0	0	Not Started
2019 Total			**139.6**		**1,056**	**0**	**$25,324**	
2020-01	Indian Creek	Colin Morrison Timber Management	31.9	Pr, Pw, Sw, H, OC	0	0	0	Not Started
2020-02	Indian Creek	n/a	14.0	Mr, Ash, OH	n/a	n/a	n/a	No bid
2020-03	Calypso	Colin Morrison Timber Management	22.7	Pr, Pw, Sw, Sn, Mr	0	0	0	Not Started
2020-04	Calypso	Colin Morrison Timber	6.4	Pr, Sw, Sn, Mr	0	0	0	Not Started

		Management						
2020-05	Old Growth	n/a	29.8	Pw, Sw, OC	n/a	n/a	n/a	No bid
2020-06	St. Pascal	n/a	26.7	Mr, Ash, Po, Mh, C, OH	n/a	n/a	n/a	No bid
2020 Total					**0**	**0**	**$0**	
Grand Total					**125,030**		**$3,332,598**	

Table 4. Summary of tending activities performed during the 2016-2020 operating period.

Year	Tract	Target Species	Treatment Type		Comments
			Manual and/or Chemical Tending (ha)	Stand Improvement (ha)	
2016	Lemieux	Pr	1.3	0.0	Brushsaw
2016	Old Growth	Pw, Or	8.3	0.0	Brushsaw
Sub-Total			**9.6**	**0.0**	
2017	Lemieux	Pw, Or	13.6	0.0	Brushsaw
2017	Champlain	Pw	2.5	0.0	Brushsaw
2017	De la Tour	Or, Pw	0.9	0.0	Brushsaw
Sub-Total			**17.0**	**0.0**	
2018	Champlain	Pw, Or	8.7	0.0	Brushsaw
2018	Champlain	Pw,Or	10.5	0.0	Basal Bark
2018	De La Tour	Pw, Or	3.2	0.0	Brushsaw
Sub-Total			**22.4**	**0.0**	
2019	Boileau	Pw	14.2	0.0	Brushsaw
2019	Plantagenet	Pw, Pr, Or	9.6	0.0	Brushsaw
2019	Seed Tree	Pw, Or	8.3	0.0	Brushsaw
2019	Seed Tree	Pr, Pw	3.5	0.0	Basal Bark
2019	Lemieux	Pw, Ta	3.7	0.0	Basal Bark
2019	Calypso	Pw	33.4	0.0	Basal Bark, Invasive Species Control
2019	Old Growth	Mr	0.0	7.9	Chainsaw and skidder
Sub-Total			**62.7**	**7.9**	
2020	Lemieux	Pw, Or	9.3	0.0	Brushsaw
2020	Champlain	Pw, Or, Obur, He, Ta	2.8	0.0	Brushsaw
2020	Seed Tree	Pw	9.0	0.0	Basal Bark
Sub-Total			**21.1**	**7.9**	
Total			**132.8**	**7.9**	

Table 5. Summary of renewal activities performed during the 2016-2020 operating period.

Year	Tract	Forest Unit	Treatment Type			
			Scarification / Site Preparation (ha)	Tree Planting		
				Area (ha)	# of trees	Species Planted (in order of dominance)
2016	Champlain	Sw	0.0	13.9	31,040	Pw, Or, Obur, He
		Pw	0.0	2.0		
2016	Boileau	UH	0.0	0.5	450	Wb, Cb, Bn
2016	Old Growth	Sw	0.0	4.3	9,000	Pw, He, Mh, Or, Obur
2016	Seed Tree	Pr	3.6	0.0	0	
Sub-Total			**3.6**	**20.7**	**40490**	
2017	Seed Tree	Pr	0.0	3.6	7,400	Pr, Pw, Obur
2017	Des Pins	Pr	1.9	0.0	0	
2017	Grant	Sw	10.1	0.0	0	
2017	Gagnon	Pr	3.2	0.0	0	
2017	Seed Tree	Pr	0.7	0.0	0	
		Sw	8.1	0.0	0	
2017	Champlain	Pw	7.9	0.0	0	
		Sw	2.2	0.0	0	
Sub-Total			**34.1**	**3.6**	**7,400**	
2018	Champlain	Pw	0.0	7.9	14,650	Pw, Or, Obur, He
		Sw	0.0	3.5		
2018	Champlain	Sw	0.0	2.0	8,650	Pw (fill plant)
		Pw	0.0	6.2		
2018	Seed Tree	Pr	0.0	3.1	1,700	Pr (fill plant)
2018	Des Pins	Pr	0.0	1.9	4,000	Pr
2018	Seed Tree	Pr	0.7	0.0	0	
		Sw	8.1	0.0	0	
2018	Gagnon	Pr	3.2	0.0	0	
2018	Old Growth	Pw	9.8	0.0	0	
Sub-Total			**21.8**	**24.6**	**29,000**	

Year	Tract	Forest Unit	Treatment Type			
			Scarification / Site Preparation (ha)	Tree Planting		
				Area (ha)	# of trees	Species Planted (in order of dominance)
2019	Seed Tree	Pr	0.0	0.7	13,650	Pw, Or
		Sw	0.0	8.1		
2019	Champlain	Pw	0.0	7.9	6,000	Pw, Or (fill plant)
		Sw	0.0	3.5		
2019	Gagnon	Pr	0.0	3.2	4,610	Pr, Or
2019	Old Growth	Pw	0.0	9.8	14,540	Pw, La
2019	Calypso	Sw	14.3	0.0	0	
2019	Old Tower	Sw	1.9	0.0	0	
2019	Champlain	Sw	7.7	0.0	0	
2019	Grant	Pr	19.6	0.0	0	
Sub-Total			**43.5**	**33.2**	**38,800**	
2020	Seed Tree	Pr, Sw	0.0	8.8	9,280	Pw (fill plant)
2020	Gagnon	Pr	0.0	3.2	2,000	Pr (fill plant)
2020	Old Growth	Pw	0.0	7.0	7,200	Pw (fill plant)
2020	Grant	Pr	0.0	22.6	29,440	Pw, Or, Obur, Mh
2020	Boileau	Sw	0.0	8.0	2,460	Pw, Or, Mh
2020	Indian Creek	OC	0.0	1.1	1,180	Pw, Or
2020	Old Tower	Pw	0.0	3.9	3,540	Pw, Or, Mh
2020	Indian Creek	Pw	8.1	0.0	0	
2020	Des Pins	Sw, Pw, Pr	9.0	0.0	0	
2020	Calypso	Sw	14.3	0.0	0	
2020	Old Tower	Sw	1.9	0.0	0	
Sub-Total			**33.3**	**54.6**	**55,100**	
Total 2016-2020			**136.3**	**136.7**	**170,790**	

Table 6. Summary of road construction and maintenance for the 2016-2020 operating period. *N.B. Does not include old logging roads used as extraction trails.*

Year(s)	Road Name	Road Type	# of km	Type of Work
Annual	25 Trail	Permanent	11.1	Maintenance
Annual	4, 6, 7, 8, 9, 10, 11 Concession	Permanent	18.2	Maintenance
Annual	De La Tour	Permanent	1.8	Maintenance
Annual	Gagnon Trail	Permanent	6.3	Maintenance
Annual	Perron Trail	Permanent	6.8	Maintenance
Total				**42.4 km**
2015	Des Pins (east)	Forest Access Road	0.9	Maintenance
2016	Walnut Trail	Forest Access Road	0.1	Maintenance
2016	Mush Trail #3	Forest Access Road	0.5	Maintenance
2017	Old Growth Road	Forest Access Road	0.1	Maintenance
2018	Pre-Com Trail	Forest Access Road	0.7	Maintenance
2018	230 Trail	Forest Access Road	1.0	Maintenance
2020	218 Trail	Forest Access Road	0.6	Maintenance
Total				**7.2 km**

2018	Ferry Road	Forest Access Road	1.3	Reconstruction
2019	Des Pins (west)	Forest Access Road	2.3	Reconstruction
Total				**4.8 km**

C-2.0 FIVE YEAR OPERATING PLAN

C-2.1 Management Direction

UCPR County Forest is guided by two documents that provide direction concerning the long-term sustainability of its management; UCPR County Forest Lands – Forest Management Plan and the Protection and Development Plan of Larose Forest.

The Forest Management Plan outlines the goals and objectives for the management of the Forest. It also provides management targets and describes the tools that will be used to meet those targets (e.g. silvicultural treatment options, operational prescriptions for areas of concern, etc.). Finally, it provides the means of monitoring and evaluating management efforts to ensure forest management activities are resulting in the expected outcomes.

The Protection and Development Plan of Larose Forest (PDP) focused primarily on the recreational and environmental aspects of the management of the “Main Block” of the UCPR County Forest. In 2010, an update to the PDP was prepared that incorporated forest management into the document to ensure consistency and to further ensure the sustainable management of the Larose Forest.

The Forest Management Plan and Protection and Development Plan are long-term, strategic documents that guide the management of the County Forest. However, ten years have passed since their development and much has changed. The long-term goal to manage the forest sustainably remains relevant, but new forest and wildlife management guides, new Forest Stewardship Council standards, changes in provincial responsibilities, forest resource inventory (FRI) updates and new direction related to how natural heritage features are protected impact the way in which UCPR achieves that goal. At the time of writing, UCPR began a review and update of the Forest Management Plan and the Protection and Development Plan. A revised and consolidated Forest Management Plan will be completed during the 2021-2025 term, however many of the updates have been incorporated into the decisions made in this Operating Plan. Any changes in management direction resulting from the update to the Forest Management Plan shall be incorporated into the 2021-2025 Operating Plan during implementation.

C-2.1.1 Forest Units

The updates mentioned above have had a significant impact on the description of the forest; most notably, updates to the forest resource inventory (Table 6). Many stands have converted naturally to other forest types (e.g. poplar to red maple, spruce to white pine, etc.), others have been affected by natural events (e.g. wind storms, ice storms, etc.), and some have been altered by forest management (e.g. assisted conversion via silvicultural treatments). Table 6 outlines the updated forest description. There has been a significant increase in the amount white pine, a significant decrease in the amount of white spruce and a new forest unit has been introduced to describe mixedwood stands (i.e. no one species makes up more than 40% of the species composition).

Figure 3. A red pine plantation that will ultimately be converted to white pine.

Table 6. Description of the UCPR County Forest resulting from updates to the forest resource inventory.

Forest Unit	**2016-2020 (ha)**	**2021-2025 (ha)**	**Change**
Red Pine	1,590.4	1,464.9	(8.0)
White Pine	858.5	1,414.3	65.4
White Spruce	2021.7	845.3	(58.2)
Other Conifers	347.7	252.3	(25.7)
Mixedwood	n/a	864.4	100
Intolerant Hardwoods	2,325.3	1,945.8	(16.3)
Mid and Tolerant Hardwoods	1,837.6	2,704.4	48.1
Non-Forest	1,206.7	1,604.1	32.9
Total	**10,900.3**	**11,092.1**	**n/a**

Figure 4. An example of a newly classified mixedwood stand.

C-2.1.2 Silvicultural Systems

There are four silvicultural systems used on the UCPR County Forest; plantation thinning, selection, shelterwood and clearcut (Table 7). Within those systems there are many variations which are selected based upon the site conditions encountered, the species, amount, arrangement and size of the trees present and the desired future forest condition. These variations are referred to as silvicultural treatment options (a.k.a. harvest methods) and they provide a description of the amount and/or pattern of retention that will be applied during harvest to meet the targets for the site (Table 7). A more in-depth discussion related to sivlicultural systems and their use will be provided in the update to the Forest Management Plan.

Figure 5. Selection thinning in a red pine plantation.

Table 7. Silvicultural systems and silvicultural treatment options employed on the UCPR County Forest and some examples of their use. (N.B. silvicultural system descriptions are adapted from Forest Management Guide to Silviculture in the Great Lakes – St. Lawrence and Boreal Forests of Ontario, MNRF 2015)

Silvicultural System	Silvicultural Treatment Options	Example
Plantation Thinning - Periodic partial harvests with the goal of promoting optimal growth of the target trees.	Row thinning	First thinning in a white spruce plantation
	Selection thinning	2nd or 3rd thinning in a healthy red pine plantation

Harvest timing is based upon the growth response of the target species.	Variable Density Thinning	Creation of vertical and horizontal structural diversity to enhance the habitat of forest nesting birds (e.g. eastern wood pewee)
Selection - Periodic partial harvests, using vigour, risk and species preference, to select trees for retention and harvest. Harvests are timed based upon the time required for the forest to replace what was harvested. Typically used in uneven-aged stands where the target is to maintain an uneven-aged structure; e.g. tolerant hardwoods, hemlock.	Single-tree selection	Removal of select individuals of poor health or quality in a tolerant hardwood stand (e.g. sugar maple, beech)
	Group selection	Removal of groups of trees to promote the establishment of trees with moderate shade tolerance (e.g. white ash, red oak) within a stand dominated by shade tolerant trees (e.g. sugar maple, beech, hemlock)
Shelterwood - Most of the overstory trees are removed through a series of two or more harvests for the purpose of establishing and sheltering regeneration under a residual canopy. Typically used in even-aged stands where the desired future stand is also even-aged; e.g. white pine, red oak.	Uniform shelterwood	To promote white pine regeneration under the shelter of a uniformly spaced white pine overstory
	Group shelterwood	Create gaps in the canopy to establish regeneration of species that become established in more open conditions (e.g. yellow birch, cedar, black cherry)
	Irregular shelterwood	Where species, age, size and stocking of regeneration varies, or where the transition from an even-aged structure to an uneven-aged structure is desired (e.g. old growth)

	Shelterwood with nurse trees	Where the goal is to nurse regeneration under the canopy of a different species (e.g. maple under poplar)
Clearcut - Most of the overstory trees are removed in a single harvest to create a fully exposed microenvironment for the establishment of a new even-aged stand. Typically used where the target species requires full or near to full sunlight to become established; e.g. poplar, white birch, tamarack, red pine.	Clearcut	To promote the regeneration of trees that are intolerant of shade (e.g. poplar, red pine)
	Clearcut with seed trees	As above, but with limited retention of mature individuals of species that will produce seed and whose regeneration will form a part of the future stand (e.g. poplar with patches of white pine)
	Clearcut with the protection of advanced regeneration	Complete or nearly complete removal of the overstory where there is a well-established understory of healthy, young trees. Often the regeneration differs in species from the overstory trees (e.g. red maple regeneration under spruce)

Figure 6. A uniform shelterwood regeneration harvest. Note the natural white pine regeneration that has become established under the shelter of the mature white pine that were retained during harvest.

C-2.2 Commercial Harvest

C-2.2.1 Annual Harvest Area

An annual harvest area (AHA) is one method of ensuring the long-term sustainability of forest management. It refers to the annual harvest level that does not exceed the

productive capacity of the forest. An AHA is calculated based on assumptions made regarding the length of time required for stands to grow enough merchantable volume to support a commercial harvest (i.e. cutting cycle) and the area that could support a commercial harvest during the term of the next cutting cycle (i.e. harvest eligibility). Due to species variability and differences due to stage of management, an AHA is calculated for each forest unit and by treatment type (see Section B-2 of the Forest Management Plan for a more detailed description of the forest).

As part of UCPR's commitment to adaptive management, the annual harvest areas are recalculated for each five-year period. Updates to the management direction contained in the Forest Management Plan and the Protection and Development Plan of Larose Forest, changes in ownership, updates to forest management guides (e.g. Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales), updates to the forest resource inventory and knowledge gained through the implementation of the previous operations plans have all fed into the annual harvest area calculation. The annual harvest area for each forest unit is summarized in Table 8. The annual harvest area represents approximately 1.7% of the UCPR County Forest.

1) Cutting Cycle and Stage of Management

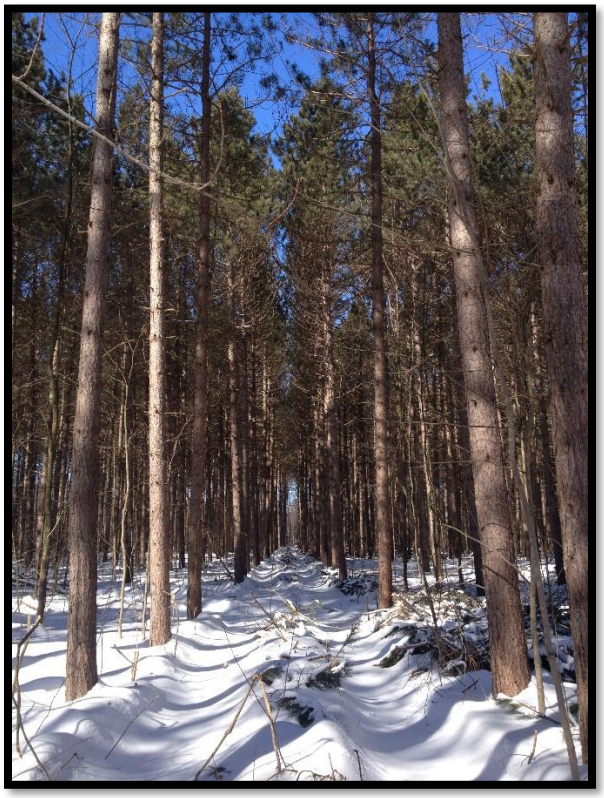
Cutting cycle is a term used to describe the length of time expected between treatments for an average stand of merchantable age. The length of time between treatments varies depending on the species involved, the type of silvicultural treatments it has been and will be subjected to and the desired future forest condition. Typically, plantation thinning is on a shorter cutting cycle (e.g. 10-15 years) than shelterwood in a white pine stand (20 years) or a clearcut in a poplar stand (>50 years).

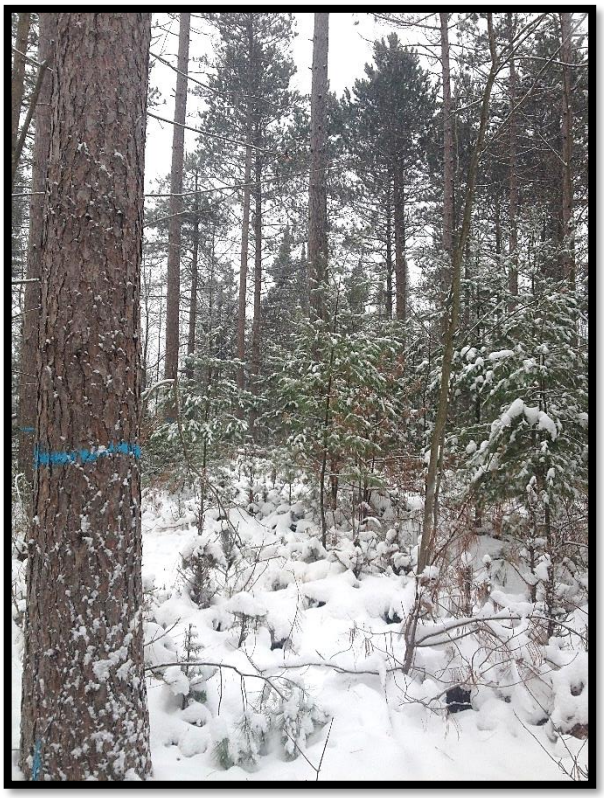
Two stands of the same forest unit but located on different site types, of different age and/or subjected to different natural events (e.g. ice storm, disease, etc.) or human intervention (e.g. thinning, underplanting, etc.) will likely be at different stages of management and/or may have different targets for their future condition. In order to meet the objectives, each stand will be subjected to a unique silvicultural treatment based upon its stage of management and the objectives outlined in the Forest Management Plan. Every silvicultural treatment affects a stand in a different way that will ultimately affect the length of the cutting cycle.

Cutting cycles will continue to be evaluated as the forest changes (species composition, stocking, diameter, etc.) and as the response to silvicultural treatments are monitored and evaluated. Forest inventory updates and data from the monitoring of silvicultural treatments to date have been used to predict the likely stage of management and to set

appropriate cutting cycles for this plan.

Figure 7. Pictured below are two red pine plantations at different stages of management. On the left, is a healthy, well-stocked plantation approximately 60 years with minimal regeneration the understory. As a result, it has been treated with selection thinning to promote the growth of the red pine. On the right, is a red pine plantation that is approximately 80 years old with a well-established white pine understory. This plantation has been treated with uniform shelterwood to provide more light to the white pine growing in the understory.





2) <u>Harvest Eligibility</u>

Harvest eligibility is an estimate of the amount of area that is likely to support a commercial harvest operation during the next cutting cycle. Several factors impact the amount of area that is eligible for harvest.

These include:

1) Stands that are less than merchantable age/size,
2) Stands that have low stocking levels (failed plantations, ice or wind damaged stands),
3) Stands with operability limitations due to poor access, poor drainage, or small area of the potential treatment site,
4) Areas unable to support a commercially viable harvest at any age (e.g. conversion to a non-forest use, beaver meadows, treed bogs, etc.)
5) Areas where forest management is excluded to meet other objectives (e.g. Protected Area, High Conservation Value Forest, Areas of Concern, etc.)

The AHA is calculated for each forest unit as follows:

$$\textbf{AHA (ha/yr)} = \frac{\textbf{(Area of Forest Unit (ha) x Proportion Eligible for Harvest (\%))}}{\textbf{Cutting Cycle (yrs)}}$$

Table 8. Annual harvest area for the UCPR County Forest summarized by forest unit and by stage of management for the 2021-2025 operational planning period.

Forest Unit	Treatment Type	Area (ha)	Eligibility	Cutting Cycle	Annual Harvest Area (ha)	Five Year Harvest Target (ha)
Red Pine (PR)	Thinning	658.9 (47%)	90%	12	49.4	247.0
	Shelterwood	259.9 (17%)	75%	20	9.7	48.5
	Conversion	461.6 (33%)	75%	60	5.8	29.0
	Sub-Total	**1,407.1**			**64.9**	**324.5**
White Pine (PW)	Thinning	625.8 (45%)	60%	15	25.0	125.0
	Shelterwood	604.0 (44%)	60%	20	18.1	90.5
	Clearcut	150.9 (11%)	90%	50	2.7	13.5
	Sub-Total	**1,380.7**			**45.8**	**229.0**

Forest Unit	Treatment Type	Area (ha)	Eligibility	Cutting Cycle	Annual Harvest Area (ha)	Five Year Harvest Target (ha)
White Spruce (SW)	Thinning	62.0 (12%)	75%	20	2.3	11.5
	Shelterwood	215.8 (41%)	75%	20	8.1	40.5
	Conversion	200.1 (38%)	75%	50	3.0	15.0
	Wildlife Management Areas	46.8 (9%)	90%	15	2.8	14.0
	Sub-Total	**524.7**			**16.2**	**81.0**
Other Conifer (OC)	Thinning / Selection	66.1 (35%)	50%	20	1.7	8.5
	Shelterwood	74.8 (40%)	50%	20	1.9	9.5
	Conversion	45.6 (25%)	90%	50	0.8	4.0
	Sub-Total	**186.5**			**4.4**	**22.0**
Mixedwood (MW)	Selection	375.1 (47%)	30%	20	5.6	28.0
	Shelterwood	100.4 (13%)	50%	20	2.5	12.5
	Clearcut	174.8 (22%)	50%	80	1.1	5.5
	Wildlife Management Areas	146.1 (18%)	25%	15	2.4	12.0
	Sub-Total	**796.4**			**11.6**	**58.0**
Intolerant Hardwood (IH)	Selection	265.6 (19%)	50%	20	6.6	33.0
	Clearcut	149.0 (11%)	80%	80	1.5	7.5
	Shelterwood / Conversion	311.0 (22%)	75%	50	4.7	23.5
	Wildlife Management	690.9 (49%)	25%	15	11.5	57.5

Forest Unit	Treatment Type	Area (ha)	Eligibility	Cutting Cycle	Annual Harvest Area (ha)	Five Year Harvest Target (ha)
	Areas					
	Sub-Total	**1,416.5**			**24.3**	**121.5**
Mid-Tolerant and Tolerant Hardwood (LH and UH)	Selection	1,195.9 (62%)	20%	20	12.0	60.0
	Shelterwood	597.9 (31%)	10%	20	3.0	15.0
	Wildlife Management Areas	144.5 (7%)	25%	15	2.4	12.0
	Sub-Total	**1,938.3**			**17.4**	**87.0**
Grand Total					**184.6**	**923.0**

C-2.2.1.1 Conversion

The Forest Management plan outlines long-term management objectives that, in part, include the naturalization of plantations and the encouragement of succession to species and patterns that more closely resemble pre-settlement forest conditions. These objectives lead to the eventual conversion from species that typically colonize heavily disturbed sites (e.g. poplar, white spruce) to species that are more commonly associated with older, less disturbed forests (e.g. sugar maple, white pine, oak, hemlock).

Most of the areas provided under the title of conversion in this plan are sites that are currently in a state of transition and may receive forest management intervention to facilitate the process. Some examples include salvage situations such as plantations of species that were not well suited for the site on which they were planted, severe storm damage (wind, ice, snow, etc.) and insect or disease infestation. Other situations that are described as conversion include sites where the overstory is dominated by early successional species (e.g. poplar, white birch, tamarack, etc.) and the understory is dominated by later successional species (e.g. red and sugar maple, white pine, hemlock, etc.).

Intolerant Hardwoods

Many of the intolerant hardwood stands in Larose Forest that have an understory dominated by red maple and other hardwoods. In some cases, there is a significant conifer component (e.g. white pine, hemlock, spruce, balsam fir). This type of conversion occurs naturally in a forest as the species that often become established after disturbance are replaced by more shade-tolerant species. Sometimes the conversion happens due to a drastic event (e.g. severe windstorm or insect outbreak) and other times it is more gradual (e.g. scattered individuals or small groups). Where this type of conversion is a possibility, harvest operations will aim to mimic those natural conversion patterns.

Figure 8. A poplar stand that is converting naturally to red maple.

White Spruce

White spruce was widely planted on the UCPR County Forest, but unfortunately it is poorly suited to the wet, sandy sites on which it was typically planted. There has been widespread decline and mortality of white spruce at an early age on the UCPR County Forest (i.e. < 50 years old) and, as such, managing to promote spruce is not possible on many sites. Conversion to other forest units is expected to be quite common and will result in a steady reduction in the representation of white spruce on the UCPR County Forest. Many white spruce plantations have already converted naturally to white pine and conifer dominated mixedwoods. Many of the wetter sites have converted naturally to lowland hardwoods. Forest management in spruce plantations will focus on mimicking those natural changes. White spruce will be encouraged on sites where it is well-suited, but it is expected that it will form a less significant component of the County Forest over time. It will most commonly be represented in mixedwood stands, as a component of white pine stands and as scattered individuals or small groups in hardwood stands.

Figure 9. Dr. Richard Wilson and Dr. John MacLaughlin, forest health specialists with the Ministry of Natural Resources and Forestry, showing UCPR forest technicians the signs and symptoms of Armillaria root rot which causes significant decline and mortality in conifer plantations, particularly red pine, spruce and tamarack.

Red Pine

Many of the red pine plantations on the UCPR County Forest are approaching or have already reached the limitations of the site on which they were planted. Several plantations have exhibited decline and mortality, primarily due to nutrient deficiency, Armillaria root rot and/or Heterobasidian root disease (see Mortality in Southern Ontario Red Pine Plantations: Causes, Consequences; McLaughlin et al., 2010). This nutrient deficiency and the presence of these persistent root diseases suggest that conversion to another forest unit may be necessary. The representation of red pine on the UCPR County Forest is expected to decline significantly over the next 40-60 years.

Figure 10. Red pine plantation exhibiting significant decline and mortality as a result of Heterobasidian root disease.

An evaluation of the red pine plantations has been performed using aerial photography, forest inventory information, knowledge of the forest managers, consultation with other forest managers and forest health experts to gauge the risk of early mortality and to determine priorities for conversion. In plantations that have suffered significant decline, a salvage harvest is likely to be performed to avoid significant loss in value of the forest products before the trees succumb to the nutrient deficiency and/or disease. White pine and red oak are well adapted to many of the sites where red pine plantations occur and they will be the primary target species for conversion. Underplanting may occur where the site is well suited to these species and where they are under-represented. Other species may be introduced to add diversity in the species that will occupy these sites. Some examples of other species that may be encouraged on these sites include hemlock, sugar maple, yellow birch, black cherry and bur oak. Conversion to other hardwoods will be another option on sites where white pine and red oak are not well

suited (i.e. too wet). The dominant species that is likely to dominate these converted sites will be red maple. Other species that will be encouraged include bur oak, elm, green and black ash.

Figure 11. A root segment that has been killed by Armillaria root rot. The root is completely damaged and no longer provides water and nutrients to the tree. Also, this root can no longer contribute to the structural network that holds the tree upright.

Some other examples of where conversion is a possibility includes stands that are in an advanced stage of decline due to disease or insect outbreak, stands whose overstory is dominated by an exotic species (e.g. Scots pine, Norway spruce, European larch, Japanese larch) or where the dominant species is outside of its normal climatic range (e.g. jack pine).

A preliminary evaluation of candidate sites for conversion has been performed. Field investigation will confirm the condition of each site and to determine if conversion to another forest unit is the best course of action.

Figure 12. UCPR staff visiting another community forest where the red pine overstory has been completely removed due to decline and mortality. The young hardwoods that that were growing under the red pine have been protected during harvest.

C-2.2.2 Salvage Harvest

Unforeseen circumstances can lead to an unscheduled harvest operation to salvage trees before significant value is lost due to disease, insect damage, flooding or extreme weather events (e.g. wind or ice storms). The effects of these damaging agents typically present themselves suddenly and can often cause rapid decline. Although an attempt has been made to account for the need to perform salvage harvest, it is not possible to reliably forecast how much of this type of harvest may occur over the term of this plan. Accordingly, the areas eligible for harvest has been adjusted when calculating the Annual Harvest Area. If significant salvage is required, the Annual Harvest Area may require adjustment before the end of the plan term.

C-2.2.2 Intensive Wildlife Management Areas

The Protection and Development Plan (PDP) identified areas that may be suitable for Intensive Wildlife Management Areas (IWMA) in the main block of Larose Forest. These represent areas where human intervention can improve the quality of the candidate sites from a wildlife habitat perspective. Employing the principles that were used to identify IWMA in the PDP, additional IWMA have been identified for the entirety of the UCPR County Forest, for a total of approximately 1,048 ha. A total of 203.2 ha of potential IWMA have been identified for treatment during the 2021-2025 operational planning period.

C-2.2.3 Compartments Selected For Harvest Operations

Candidate harvest areas have been selected (Appendix A and B), and priority has been placed on plantations that have not received silvicultural treatment in the past, although any area that is beyond the recommended rotation for the forest unit/stage of management combination may be eligible for treatment. Site locations and operational feasibility has influenced where and when the harvest areas should be prepared and the total harvest amount by forest unit and treatment type. As a result, matching the areas selected for operations exactly with the calculated AHA and the five-year target is not possible (Table 9).

C-2.2.5 Contingency Harvest Areas

To compensate for areas that are ultimately found not to be feasible (e.g. no access, newly discovered species at risk habitat, not commercially viable, etc.), contingency areas have been included in this plan as additional commercial harvest options. Contingency areas are described in Appendix A.

Table 9. Total area selected for harvest operations summarized by harvest year, forest unit and treatment type.

Forest Unit	Treatment Type	Planned Area (ha) by Harvest Year					Planned 5 Year Harvest (ha)	5 Year Harvest Target (ha)
		2021	2022	2023	2024	2025		
Red Pine (PR)	Thinning	48.8	50.0	44.8	51.4	47.8	242.8	247.0
	Shelterwood	9.3	8.6	6.1	12.9	15.3	52.2	48.5
	Conversion	9.0	0.9	0.0	0.0	0.0	9.9	29.0
	Sub-Total	**67.1**	**59.5**	**50.9**	**64.3**	**63.1**	**304.9**	**324.5**
White Pine (PW)	Thinning	24.7	27.5	26.5	24.6	19.8	123.1	125.0
	Shelterwood	9.0	20.2	27.0	12.2	12.1	80.5	90.5
	Clearcut	0.0	7.6	1.6	0.0	14.8	24.0	13.5
	Wildlife Management Areas	0.0	0.0	0.6	0.0	0.0	0.6	0.0
	Sub-Total	**33.7**	**55.3**	**55.7**	**36.8**	**46.7**	**228.2**	**229.0**
White Spruce (SW)	Thinning	3.6	5.1	2.2	0.0	0.0	10.9	11.5
	Shelterwood	4.5	5.9	14.2	14.5	0.0	39.1	40.5
	Conversion	3.1	4.5	3.7	1.0	0.0	12.3	15.0
	Wildlife Management Areas	0.0	2.6	6.4	0.0	0.0	9.0	14.0
	Sub-Total	**11.2**	**18.1**	**26.5**	**15.5**	**0.0**	**71.3**	**81.0**
Other Conifer (OC)	Thinning / Selection	5.5	0.0	0.0	0.0	2.4	7.9	8.5
	Shelterwood	0.0	0.0	0.0	0.0	9.8	9.8	9.5
	Conversion	6.3	0.0	0.0	0.0	0.0	6.3	4.0
	Wildlife Management Areas	0.0	0.0	0.6	0.0	0.0	0.6	0.0
	Sub-Total	**11.8**	**0.0**	**0.6**	**0.0**	**12.2**	**24.6**	**22.0**
Mixedwood (MW)	Selection	0.0	0.0	10.3	7.3	11.9	29.5	28.0
	Shelterwood	0.0	0.0	2.2	0.0	8.6	10.8	12.5
	Clearcut	4.0	1.9	1.3	0.0	0.0	7.2	5.5

Forest Unit	Treatment Type	Planned Area (ha) by Harvest Year					Planned 5 Year Harvest (ha)	5 Year Harvest Target (ha)
		2021	2022	2023	2024	2025		
	Wildlife Management Areas	0.0	0.0	6.4	0.0	0.0	6.4	12.0
	Sub-Total	**4.0**	**1.9**	**20.2**	**7.3**	**20.5**	**53.9**	**58.0**
Intolerant Hardwood (IH)	Selection	0.0	26.3	0.0	7.8	0.0	34.1	33.0
	Clearcut	0.0	0.0	0.0	2.1	0.0	2.1	7.5
	Shelterwood / Conversion	0.0	0.0	0.0	18.3	4.7	23.0	23.5
	Wildlife Management Areas	6.9	8.5	7.2	0.0	12.5	35.1	57.5
	Sub-Total	**6.9**	**34.8**	**7.2**	**28.2**	**17.2**	**94.3**	**121.5**
Mid-Tolerant and Tolerant Hardwood (LH and UH)	Selection	19.1	14.6	9.1	0.0	19.3	62.1	60.0
	Shelterwood	2.0	0.0	0.0	13.4	0.0	15.4	15.0
	Wildlife Management Areas	0.0	0.0	0.0	0.0	0.0	0.0	12.0
	Sub-Total	**21.1**	**14.6**	**9.1**	**13.4**	**19.3**	**77.5**	**87.0**
	Total Area	**155.8**	**184.2**	**170.2**	**165.5**	**179.0**	**854.1**	**923.0**

C-2.3 Renewal and Tending

Renewal and tending operations are silvicultural treatments that are undertaken where the revenue generated, if any, does not offset the cost of the treatment. Some examples include; tree planting, tending, stand improvement, pre-commercial thinning, etc. These types of treatments may be required to meet the objectives and targets that are described in the Forest Management Plan.

Some examples of positive impacts of renewal and tending include;

1) wildlife habitat creation or enhancement,
2) management of non-native, invasive species,
3) reintroduction of under-represented tree species,

4) movement toward a pre-settlement forest condition,
5) the maintenance of healthy, vigorous, well-formed trees
6) improved resistance to disease, insect outbreaks and extreme weather events,
7) increased growth rates (i.e. shorter cutting cycle),
8) a higher proportion of high-quality forest products in subsequent commercial harvests (e.g. veneer vs. sawlog vs. pulp distribution),
9) the establishment and/or release of adequate amounts of desirable regeneration,
10) stimulate forest diversity which allows for adaptation to climate change

Renewal and tending operations do not contribute toward the target harvest level since they have already been accounted for when the AHA was calculated. Where appropriate, these stands were not considered eligible for commercial harvest and the AHA was adjusted accordingly.

Figure 13. Tree planting under a recently harvested red pine plantation. This site received both mechanical and chemical site preparation prior to planting to manage logging debris and competition.

C-2.3.1 Regeneration

Adequate regeneration after harvest treatments is a priority for the County Forest and natural regeneration is the preferred option. However, there are situations where stocking of desirable regeneration is insufficient or where suitable seed sources are not available. In these cases, additional silvicultural treatments may be required to meet the long-term objectives for the site. Site preparation (mechanical and/or chemical), prescribed burning, scarification and tree planting may be undertaken to ensure that the UCPR County Forest is successfully regenerated to desirable species after harvesting.

Figure 14. An area that was underplanted with white pine, red oak, bur oak, black walnut to supplement natural regeneration of white pine, red pine, white spruce, tamarack, green ash, black cherry, red maple and beech.

Forecasting and scheduling specific treatments to be applied to ensure successful establishment of desirable regeneration is difficult to do in advance with any certainty. Harvest prescriptions may vary from what is anticipated, harvest operations can take several years and on-site investigation after harvest is required to determine if desirable regeneration is establishing naturally or if additional silvicultural treatments are required.

Throughout the period of this plan, post-harvest monitoring will be performed on areas as harvest is completed, focusing on areas where regeneration establishment was identified as a target in the forest operations prescription to confirm where and what additional treatments may be required.

C-2.3.2 Manual and Chemical Tending

Many woody and non-woody plant species (e.g. buckthorn, raspberry, ferns, etc.) compete with desirable regeneration for space, light, nutrients, etc. resulting in suppressed growth or even mortality of desirable regeneration. To ensure that desirable regeneration survives and thrives to maturity, such competition must be controlled. It is safe to assume that most sites that are treated with a uniform shelterwood regeneration harvest will require tending of some kind to ensure desirable regeneration reaches maturity. Due to numerous factors (e.g. site productivity, seed source, drainage, etc.) it is not possible to predict what type of tending treatment will be required, as well as when that treatment should be scheduled. Manual and/or chemical tending areas will be sought out during the period of the plan and will be scheduled as they are required.

C-2.3.3 Non-commercial Silvicultural Treatments

To promote a healthy and productive forest, non-commercial silvicultural treatment such as pre-commercial thinning and stand improvement may be prescribed. Pre-commercial thinning is performed on even-aged stands, usually young conifer, to release the dominant and co-dominant trees from lateral competition, thus allowing them to grow faster. Stand improvement treatments are performed on uneven-aged stands, usually second-growth mid-tolerant and/or tolerant hardwoods, focusing on the removal of defective stems (e.g. disease, insect, mechanical damage, etc.) to improve the health of the residual stand, to improve growth rates of the better quality stems and to promote stand structure. Both treatments can be used to alter species composition to favour higher value species, uncommon/rare trees, promote wildlife values (e.g. mast producers), etc.

Although these types of treatments do not typically generate enough revenue to offset the initial cost of the treatment, the improvements to the future value and the shorter time it takes to obtain that value make these treatments viable options.

Candidates sites for pre-commercial thinning and stand improvement have been identified but actual implementation of these treatments will be subject to budgetary restrictions and availability of contractors who can perform the work (Appendix B).

Figure 15. A stand that contains a significant component of young yellow birch that would benefit from a non-commercial silvicultural treatment.

Appendix A – Compartments Selected For Harvest Operations For The 2021-2025 Operating Period

Areas Selected For Operations – 2021 Operating Year

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
254	PR	74	0.9		0.9					0.9
454	PR	70	5.9		5.9					5.9
458	PR	70	17.4		17.4					17.4
461	PR	70	27.0		17.7	9.3				27.0
653	PR	71	1.5		1.5					1.5
699	PR	70	3.9						3.9	3.9
701	PR	73	7.7						5.1	5.1
1241	PR	47	2.1		2.1					2.1
1793	PR	71	3.3		3.3					3.3
Total			**69.7**	**0.0**	**48.8**	**9.3**	**0.0**	**0.0**	**9.0**	**67.1**
252	PW	74	12.0		12.0					12.0
255	PW	74	2.8		2.8					2.8
444	PW	63	0.7			0.7				0.7
526	PW	63	4.5		4.5					4.5
654	PW	71	4.5			7.5				7.5
1920	PW	49	1.8		1.8					1.8
1925	PW	74	1.8		1.8					1.8

1929	PW	74	1.8		1.8					1.8
2143	PW	63	0.8			0.8				0.8
Total			**30.7**	**0.0**	**24.7**	**9.0**	**0.0**	**0.0**	**0.0**	**33.7**
584	SW	71	3.5			3.5				3.5
1009	SW	71	3.1						3.1	3.1
1794	SW	47	3.6		3.6					3.6
1798	SW	47	1.0			1.0				1.0
Total			**11.2**	**0.0**	**3.6**	**4.5**	**0.0**	**0.0**	**3.1**	**11.2**
1001	OC	60	5.0						5.0	5.0
1035	OC	56	5.5		5.5					5.5
1419	OC	60	1.3						1.3	1.3
Total			**11.8**	**0.0**	**5.5**	**0.0**	**0.0**	**0.0**	**6.3**	**11.8**
453	MW	75	4.0					4.0		4.0
Total			**4.0**	**0.0**				**4.0**		**4.0**
592	IH	81	16.6	3.2						3.2
1002	IH	42	5.4	1.4						1.4
1128	IH	86	5.8	1.5						1.5
1129	IH	86	3.0	0.8						0.8
Total			**30.8**	**6.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**6.9**
529	LH	91	12.8				12.8			12.8
1189	LH	76	13.7				6.3			6.3
1294	LH	81	2.0			2.0				2.0
Total			**28.5**	**0.0**	**0.0**	**2.0**	**19.1**	**0.0**	**0.0**	**21.1**

Areas Selected For Operations – 2022 Operating Year

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
86	PR	70	0.7		0.7					0.7
166	PR	65	8.2		8.2					8.2
167	PR	65	1.0		1.0					1.0
169	PR	65	1.1		1.2					1.1
171	PR	65	0.6		1.1					0.6
172	PR	65	1.6		0.6					1.6
173	PR	65	0.7		1.6					0.7
259	PR	74	7.9			0.7				7.9
260	PR	74	3.8			7.9				3.8
261	PR	74	0.9		3.8					0.9
263	PR	74	0.9						0.9	0.9
352	PR	74	8.8		8.8					8.8
438	PR	61	3.1		3.1					3.1
657	PR	66	1.4		1.4					1.4
918	PR	71	2.0		2.0					2.0
922	PR	70	0.5		0.5					0.5
926	PR	70	0.8		0.8					0.8
956	PR	58	0.4		0.4					0.4
1000	PR	71	5.3		5.3					5.3
1038	PR	71	1.9		1.9					1.9

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
1170	PR	74	2.6		2.6					2.6
1389	PR	70	0.8		0.8					0.8
1390	PR	70	0.5		0.5					0.5
1556	PR	n/a	0.8		0.8					0.8
1563	PR	65	1.1		1.1					1.1
1564	PR	65	0.7		0.7					0.7
2199	PR	42	1.1		1.1					1.1
Total			**59.5**	**0.0**	**50.0**	**8.6**	**0.0**	**0.0**	**0.9**	**59.5**
253	PW	74	12.5		12.5					12.5
257	PW	74	16.0			16.0				16.0
258	PW	74	4.2			4.2				4.2
262	PW	74	2.8		2.8					2.8
924	PW	58	0.6		0.6					0.6
927	PW	42	1.3		1.3					1.3
955	PW	58	1.2		1.2					1.2
999	PW	71	6.1		6.1					6.1
1926	PW	74	1.6		1.6					1.6
1929	PW	74	0.5		0.5					0.5
1934	PW	74	0.9		0.9					0.9
2038	PW	65	7.6					7.6		7.6
Total			**55.3**	**0.0**	**27.5**	**20.2**	**0.0**	**7.6**	**0.0**	**55.3**
434	SW	61	1.8						1.8	1.8
435	SW	63	6.5	1.6						1.6

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
436	SW	63	1.6	0.4						0.4
658	SW	51	2.0						2.0	2.0
659	SW	70	3.9			3.9				3.9
729	SW	51	2.0			2.0				2.0
917	SW	57	0.7						0.7	0.7
1132	SW	56	3.9		3.9					3.9
1415	SW	42	2.5	0.6						0.6
1795	SW	46	1.2		1.2					1.2
Total			**26.1**	**0.0**	**5.1**	**5.9**	**0.0**	**0.0**	**4.5**	**18.1**
1927	MW	71	1.9					1.9		1.9
Total			**1.9**	**0.0**	**0.0**	**0.0**	**0.0**	**1.9**	**0.0**	**1.9**
439	IH	76	3.3		0.8					0.8
578	IH	54	19.3				16.8			16.8
730	IH	76	24.6		6.2					6.2
1922	IH	72	5.9		1.5					1.5
2104	IH	83	26.6				9.5			9.5
Total			**79.7**	**0.0**	**8.5**	**0.0**	**26.3**	**0.0**	**0.0**	**34.8**
28	UH	86	14.6					14.6		14.6
Total			**14.6**	**0.0**	**0.0**	**0.0**	**0.0**	**14.6**	**0.0**	**14.6**

Areas Selected For Operations – 2023 Operating Year

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
152	PR	72	0.9		0.9					0.9
186	PR	74	5.7		5.7					5.7
243	PR	75	11.7		11.7					11.7
472	PR	66	4.9			4.9				4.9
477	PR	66	15.7		15.7					15.7
593	PR	68	1.6		1.6					1.6
939	PR	72	0.7		0.7					0.7
940	PR	72	5.5		5.5					5.5
1792	PR	71	1.2			1.2				1.2
1895	PR	72	2.5		2.5					2.5
1905	PR	72	0.5		0.5					0.5
Total			**50.9**	**0.0**	**44.8**	**6.1**	**0.0**	**0.0**	**0.0**	**50.9**
151	PW	72	1.7		1.7					1.7
362	PW	78	9.7		9.7					9.7
364	PW	78	10.7			10.7				10.7
470	PW	66	8.4			8.4				8.4
591	PW	70	1.6					1.6		1.6
596	PW	68	8.9		8.9					8.9
943	PW	75	5.7			5.7				5.7
1134	PW	51	2.5		2.5					2.5

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
1850	PW	78	1.0		1.0					1.0
1887	PW	74	2.2			2.2				2.2
1894	PW	72	2.4	0.6						0.6
2240	PW	70	2.7		2.7					2.7
Total			**57.5**	**0.6**	**26.5**	**27.0**	**0.0**	**1.6**	**0.0**	**55.7**
190	SW	74	14.0	3.5						3.5
528	SW	70	3.5			3.5				3.5
655	SW	70	4.4			4.4				4.4
941	SW	61	10.2	2.6						2.6
1010	SW	71	4.1			4.1				4.1
1133	SW	56	2.2		2.2					2.2
1779	SW	49	1.3	0.3						0.3
1781	SW	49	1.2			1.2				1.2
1790	SW	71	1.0			1.0				1.0
1791	SW	51	3.7						3.7	3.7
Total			**45.6**	**6.4**	**2.2**	**14.2**	**0.0**	**0.0**	**3.7**	**26.5**
1057	OC	57	2.2	0.0	0.6	0.0	0.0	0.0	0.0	0.6
Total			**2.2**	**0.0**	**0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.6**
150	MW	72	11.9	3.0						3.0
154	MW	80	24.0	3.4			10.3			13.7
1404	MW	58	1.3					1.3		1.3
2019	MW	70	2.1			2.2				2.2

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
Total			**39.3**	**6.4**	**0.0**	**2.2**	**10.3**	**1.3**	**0.0**	**20.2**
594	IH	81	2.6	0.7						0.7
597	IH	81	6.9	1.7						1.7
938	IH	42	6.6	1.7						1.7
1902	IH	79	26.2	3.1						3.1
Total			**42.3**	**7.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**7.2**
139	LH	44	3.1				3.1			3.1
140	UH	84	6.0				6.0			6.0
Total			**9.1**	**0.0**	**0.0**	**0.0**	**9.1**	**0.0**	**0.0**	**9.1**

Areas Selected For Operations – 2024 Operating Year

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
490	PR	74	16.7		16.7					16.7
543	PR	80	6.4		6.4					6.4
667	PR	68	4.0		4.0					4.0
671	PR	68	12.9			12.9				12.9
996	PR	70	7.8		7.8					7.8
1297	PR	55	8.7		8.7					8.7
1311	PR	70	2.4		2.4					2.4
1409	PR	70	3.4		3.4					3.4
1410	PR	70	0.7		0.7					0.7
1412	PR	70	1.3		1.3					1.3
Total			**64.3**	**0.0**	**51.4**	**12.9**	**0.0**	**0.0**	**0.0**	**64.3**
13	PW	42	10.8		10.8					10.8
539	PW	80	7.8		7.8					7.8
663	PW	69	3.2			1.1				1.1
982	PW	70	1.8		1.8					1.8
983	PW	70	1.8		1.8					1.8
986	PW	70	2.4		2.4					2.4
992	PW	69	6.4			6.4				6.4
994	PW	70	3.2			3.2				3.2
2253	PW	70	1.5			1.5				1.5

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
Total			**38.9**	**0.0**	**24.6**	**12.2**	**0.0**	**0.0**	**0.0**	**36.8**
665	SW	69	6.5			6.5				6.5
743	SW	70	3.0			3.0				3.0
981	SW	59	5.0			5.0				5.0
1768	SW	69	1.0						1.0	1.0
Total			**15.5**	**0.0**	**0.0**	**14.5**	**0.0**	**0.0**	**1.0**	**15.5**
997	MW	70	2.8				2.8			2.8
1312	MW	70	4.5				4.5			4.5
Total			**7.3**	**0.0**	**0.0**	**0.0**	**7.3**	**0.0**	**0.0**	**7.3**
984	IH	67	2.3						2.3	2.3
1075	IH	55	4.3						4.3	4.3
1076	IH	76	2.6						2.6	2.6
1077	IH	34	2.1					2.1		2.1
1160	IH	34	3.3						3.3	3.3
1163	IH	34	7.8				7.8			7.8
2129	IH	67	5.8						5.8	5.8
Total			**28.2**	**0.0**	**0.0**	**0.0**	**7.8**	**2.1**	**18.3**	**28.2**
1030	UH	85	13.4				13.4			13.4
Total			**13.4**	**0.0**	**0.0**	**0.0**	**13.4**	**0.0**	**0.0**	**13.4**

Areas Selected For Operations – 2025 Operating Year

Stand Number	Forest Unit	Age in 2016	Stand Area (ha)	Potential Intensive Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
105	PR	61	0.5		0.5					0.5
200	PR	84	15.3			15.3				15.3
316	PR	73	7.6		7.6					7.6
319	PR	73	0.6		0.6					0.6
487	PR	71	8.2		8.2					8.2
538	PR	73	23.0		21.7					21.7
1106	PR	54	1.6		1.6					1.6
1353	PR	54	0.9		0.9					0.9
1674	PR	73	1.5		1.5					1.5
1675	PR	73	1.4		1.4					1.4
1676	PR	73	0.5		0.5					0.5
2036	PR	61	0.4		0.4					0.4
2037	PR	61	2.9		2.9					2.9
Total			**64.4**	**0.0**	**47.8**	**15.3**	**0.0**	**0.0**	**0.0**	**63.1**
107	PW	61	1.6			1.6				1.6
317	PW	77	6.1			6.1				6.1
431	PW	73	14.8					14.8		14.8
1478	PW	58	4.4			4.4				4.4
1479	PW	58	0.9		0.9					0.9
1499	PW	69	5.1		5.1					5.1

Stand Number	Forest Unit	Age in 2016	Stand Area (ha)	Potential Intensive Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
1500	PW	69	13.8		13.8					13.8
Total			**46.7**	**0.0**	**19.8**	**12.1**	**0.0**	**14.8**	**0.0**	**46.7**
1084	OC	83	1.7			1.7				1.7
1086	OC	83	1.2			1.2				1.2
1087	OC	83	6.9			6.9				6.9
1434	OC	73	2.4		2.4					2.4
Total			**12.2**	**0.0**	**2.4**	**9.8**	**0.0**	**0.0**	**0.0**	**12.2**
1063	MW	82	8.6			8.6				8.6
1476	MW	55	6.9				6.9			6.9
1483	MW	55	1.7				1.7			1.7
1484	MW	55	0.9				0.9			0.9
1485	MW	55	2.4				2.4			2.4
Total			**20.5**	**0.0**	**0.0**	**8.6**	**11.9**	**0.0**	**0.0**	**20.5**
1012	IH	75	41.2		10.3					10.3
1085	IH	83	3.6						3.6	3.6
1482	IH	42	1.1						1.1	1.1
1956	IH	76	1.2		0.3					0.3
1957	IH	76	3.1		0.8					0.8
1958	IH	76	0.5		0.1					0.1
1966	IH	76	3.4		1.0					1.0
Total			**54.1**	**0.0**	**12.5**					**17.2**
536	LH	101	1.3				1.3			1.3

Stand Number	Forest Unit	Age in 2016	Stand Area (ha)	Potential Intensive Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
1118	LH	76	2.8				2.8			2.8
1119	LH	80	15.2				15.2			15.2
Total			**19.3**	**0.0**	**0.0**	**0.0**	**19.3**	**0.0**	**0.0**	**19.3**

Areas Selected For Contingency Harvest

Forest Unit	Treatment Type	Contingency Harvest (ha)
Red Pine (PR)	Thinning	40.1
	Shelterwood	16.4
	Clearcut	5.4
	Conversion	6.6
	Sub-Total	**68.5**
White Pine (PW)	Thinning	57.0
	Shelterwood	28.9
	Clearcut	0.0
	Conversion	0.0
	Sub-Total	**72.6**
White Spruce (SW)	Thinning	9.2
	Shelterwood	28.9
	Clearcut	1.9
	Conversion	11.0
	Sub-Total	**51.0**
Other Conifer Plantation (OC)	Thinning	0.9
	Shelterwood	0.0
	Clearcut	0.0
	Conversion	0.0
	Sub-Total	**0.9**

Forest Unit	Treatment Type	Contingency Harvest (ha)
Mixedwood (MW)	Selection	41.8
	Shelterwood	0.0
	Clearcut	0.0
	Conversion	0.0
	Sub-Total	**41.8**
Intolerant Hardwood (IH)	Selection	0.0
	Shelterwood	0.0
	Clearcut	0.0
	Conversion	0.0
	Intensive Wildlife Management Areas	10.3
	Sub-Total	**10.3**
Mid and Tolerant Hardwood (LH and UH)	Selection	33.7
	Shelterwood	0.0
	Sub-Total	**33.7**
	Total Area	**219.6**

Areas Selected For Contingency Harvest

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
403	PR	76	1.3		1.3					1.3
407	PR	76	14.6			14.6				14.6
1005	PR	63	2.9		2.9					2.9
1025	PR	55	1.8					1.8		1.8
1026	PR	64	1.8			1.8				1.8
1299	PR	76	1.1						1.1	1.1
1420	PR	77	2.2		2.2					2.2
1421	PR	77	17		17					17
1422	PR	77	2.1		2.1					2.1
1425	PR	77	5.0		5.0					5.0
1426	PR	77	0.5		0.5					0.5
1427	PR	77	9.9		9.9					9.9
1428	PR	77	2.8		2.8					2.8
1429	PR	77	0.9		0.9					0.9
1430	PR	77	3.5		3.5					3.5
1431	PR	77	5.9		5.9					5.9
1433	PR	77	0.9		0.9					0.9
1474	PR	57	0.5		0.5					0.5
Total			**59.4**	**0.0**	**40.1**	**16.4**	**0.0**	**1.8**	**1.1**	**59.4**
309	PW	67	3.0		3.0					3.0

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
378	PW	66	9.7		9.7					9.7
399	PW	76	3.1			2.5				3.1
405	PW	76	2.5			3.1				2.5
406	PW	76	1.4			1.4				1.4
469	PW	66	12.9		12.9					12.9
471	PW	66	8.1		8.1					8.1
476	PW	66	11.4		11.4					11.4
660	PW	49	3.0			3.0				3.0
1029	PW	61	1.6		1.6					1.6
1060	PW	77	5.3		5.3					5.3
1188	PW	66	5.0		5.0					5.0
1470	PW	76	1.1							1.1
1471	PW	87	4.5							4.5
Total			**72.6**	**0.0**	**57.0**	**15.6**	**0.0**	**0.0**	**0.0**	**72.6**
310	SW	61	3.2		3.2					3.2
311	SW	61	1.4		1.4					1.4
396	SW	66	2.9			2.9				2.9
481	SW	71	3.4						3.4	3.4
661	SW	68	10.8			10.8				10.8
1027	SW	64	7.4			7.4				7.4
1059	SW	55	1.9					1.9		1.9
1108	SW	55	0.7		0.7					0.7
1268	SW	49	1.8		1.8					1.8

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
1417	SW	66	5.8			5.8				5.8
1477	SW	64	4.2						4.2	4.2
1488	SW	65	2.1		2.1					2.1
1783	SW	68	2.0			2.0				2.0
Total			**47.6**	**0.0**	**9.2**	**28.9**	**0.0**	**1.9**	**4.2**	**47.6**
1088	OC	82	0.9							0.9
Total			**0.9**	**0.0**	**0.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.9**
1061	MW	82	12.9				12.9			12.9
1062	MW	71	3.2				3.2			3.2
1089	MW	77	3.9				3.9			3.9
1091	MW	66	6.8				6.8			6.8
1421	MW	63	1.7				1.7			1.7
1734	MW	87	13.3				13.3			13.3
Total			**41.8**	**0.0**			**41.8**			**41.8**
398	IH	65	5.3	1.3						1.3
645	IH	76	10.1	2.5						2.5
1464	IH	65	7.8	2.0						2.0
1687	IH	76	2.9	0.7						0.7
1688	IH	76	4.1	1.0						1.0
2082	IH	65	37.1	2.8			25.9			28.7
Total			**67.3**	**10.3**	**0.0**	**0.0**	**25.9**			**36.2**
460	LH	81	7.9				7.9			7.9

Stand Number	Forest Unit	Age in 2021	Stand Area (ha)	Intensive Wildlife Management Areas	Treatment Type					
					Thinning	Shelterwood	Selection	Clearcut	Conversion	Total Harvest Area
1090	LH	73	2.3				2.3			2.3
1109	LH	72	4.3				4.3			4.3
1110	LH	71	4.4				4.4			4.4
2102	LH	79	14.8				14.8			14.8
Total			**33.7**	**0.0**	**0.0**	**0.0**	**33.7**			**33.7**

Appendix B – Potential Non-Commercial Silvicultural Treatments For The 2021-2025 Operating Period

Stand Number	Forest Unit	Treatment Type	
		Pre-commercial Thinning (ha)	Stand Improvement (ha)
82	LH	0.0	13.8
158	IH	0.0	3.4
159	LH	0.0	8.9
371	MW	0.0	25.3
681	MW	0.0	6.7
682	MW	0.0	4.8
685	LH	0.0	2.0
702	IH	0.0	3.1
771	UH	0.0	5.5
774	UH	0.0	14.2
1058	LH	0.0	11.4
1286	PR	0.8	0.0
1438	MW	0.0	1.8
1439	MW	0.0	2.5
2048	LH	0.0	1.6
2136	UH	0.0	11.8
2139	LH	0.0	9.5
2145	UH	0.0	6.8
Total		**0.8**	**133.1**