APPENDIX 18: TIMBER SUPPLY ANALYSIS SUMMARY

Introduction

In the process of creating the Preferred Forest Management Strategy (PFMS), 10 Timber Supply Analysis (TSA) runs were completed. The runs were completed in a sequence and with a methodology designed to test sensitivities of the core goals described by the Planning Team, and to also meet basic requirements as described in the Supplemental Guidelines – Timber Supply Analysis Documentation Requirements of the Interim Forest Management Planning Manual, Draft Version, April 1998.

A description of the objective, the yield curve transitions, constraints applied and the results of each run is presented, along with the following basic summaries:

1. Harvest Volumes over time.
2. Average Harvest Age over time.
3. Growth capacity at 160 years.

A map is also presented for many of the runs that shows the 10 and 20-year spatial harvest sequence results.

Net Landbase Information

On April 14, 2004 a draft of the Net Landbase was submitted to the Department of Sustainable Resource Development (SRD) for review that received approval in principle on May 19, 2004. Since this time there have been two changes made to the net landbase.

1. Cutblocks in the southern portion of the FMA have been added. A new field has been added to the net landbase called 'New_blk.' If this field has a value of '1' then the stand has had it's age reset to '0.' If this field has a value of '0' then no changes have been made.
2. The age of stands with coniferous understory have been changed to that of the overstory. In the previous submission, these stands were assumed to have the age of the understory.

Yield Curve Information

The Planning Team has created 4 yield curves for use in the Timber Supply Analysis. Due to the conifer understory transition strategy, new yield curve proxy's were developed to facilitate the TSA model. The following table displays the yield curve information used in the PFMS.

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TABLE 18.1: YIELD CURVE SUMMARY

Yield Curve #	Description
1	Coniferous – Pine Dominated
2	Coniferous – Spruce Dominated
3	Mixedwood – no coniferous understory
4	Deciduous – no coniferous understory
6*	Mixedwood – 1-5 meter tall understory; - volume reduced by 17% to account for volume left on site during understory protection harvest. - transitions to yield curve 10 post harvest
7*	Mixedwood – 6 meter plus tall understory - volume reduced by 17% to account for volume left on site during understory protection harvest. -transitions to yield curve 11 post harvest
8*	Deciduous – 1-5 meter tall understory; - volume reduced by 17% to account for volume left on site during understory protection harvest. - transitions to yield curve 10 post harvest
9*	Deciduous – 6 meter plus tall understory; - volume reduced by 17% to account for volume left on site during understory protection harvest. - transitions to yield curve 11 post harvest
10	Mixedwood – 7 years old
11	Mixedwood – 26 years old

* As 17% of the overstory volume is being retained on the site post harvest in the form of wind buffers, the yield curves for the initial harvest of these stand types have been reduced by 17%. It is assumed that if the stand if the stand is protected as described in Appendix 10, the post-harvest stand will transition to a mixedwood stand of appropriate age (as determined in Appendix 2).

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Run 1

The first run complete was designed to calculate the maximum even flow of conifer volume that the landbase could sustain for two rotations, or 160 years. The table below summarizes the objective, yield curve transitions, constraints applied, and results of this run.

TABLE 18.2: SUMMARY OF RUN 1 OBJECTIVES, CONSTRAINTS AND RESULTS.

Forest Management Strategy #	Landbase Strategy	Yield Curve Transition	Primary Species	Flow Constraint	Planning Horizon	Target Harvest Age	Minimum Harvest Age	Planned Blocks Sequenced	Adjacency	Adjacency Horizon	Green Up Period	Accum. Block Area (ha)	Conifer AAC	Deciduous AAC
1	Single	Status Quo	Conifer	Even Flow	160	80	70-Conifer 50-Deciduous	N/A	Off	N/A	N/A	N/A	6,410 (20yr Avg.)	2,610 (20yr Avg.)

TABLE 18.3: RUN 1 – ANNUAL VOLUME FLOW SUMMARY

Period	Coniferous Volume	Deciduous Volume
5	6756	1711
10	6715	7464
15	6862	1672
20	6805	5299
25	6703	5285
30	6749	1808
35	6741	1947
40	6733	1648
45	6745	6421
50	6746	8734
55	6788	4583
60	6735	5478
65	6778	10360
70	6760	4218
75	6782	2218
80	6879	4923
85	6799	2497
90	6722	4587
95	6710	1922
100	6721	2670
105	6701	4480
110	6722	3806
115	6774	1952
120	6806	2158
125	6706	4569
130	6711	6116
135	6796	4461
140	6725	5765
145	6777	10961
150	6751	3830
155	6806	2082
160	6721	4870
20-Year Average	**6785**	**4037**
160-Year Average	**6757**	**4391**

FIGURE 18.1: RUN 1 – ANNUAL VOLUME FLOW SUMMARY

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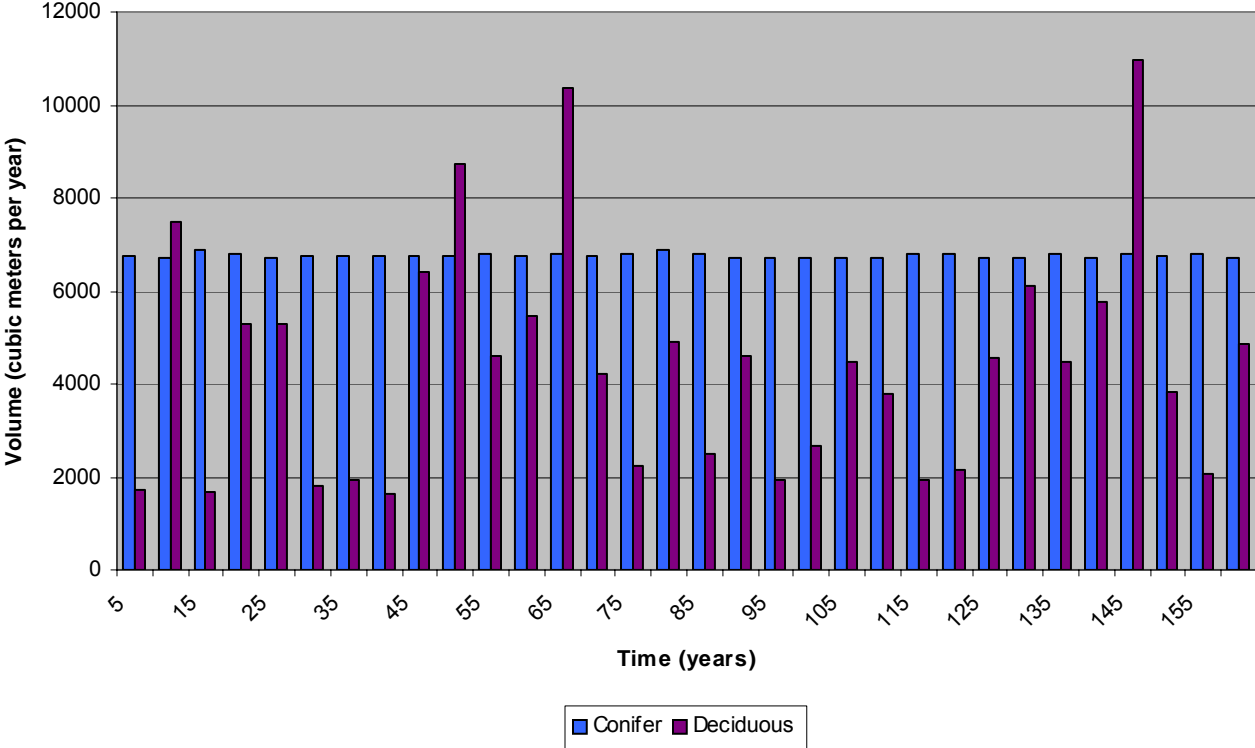
TABLE 18.4: RUN 1 – AVERAGE HARVEST AGE SUMMARY

Period	Average Harvest Age
5	112
10	87
15	120
20	95
25	147
30	139
35	128
40	128
45	133
50	131
55	128
60	128
65	133
70	128
75	85
80	78
85	79
90	82
95	82
100	83
105	84
110	85
115	84
120	84
125	83
130	84
135	85
140	84
145	83
150	82
155	82
160	83

FIGURE 18.2: RUN 1 – AVERAGE HARVEST AGE SUMMARY
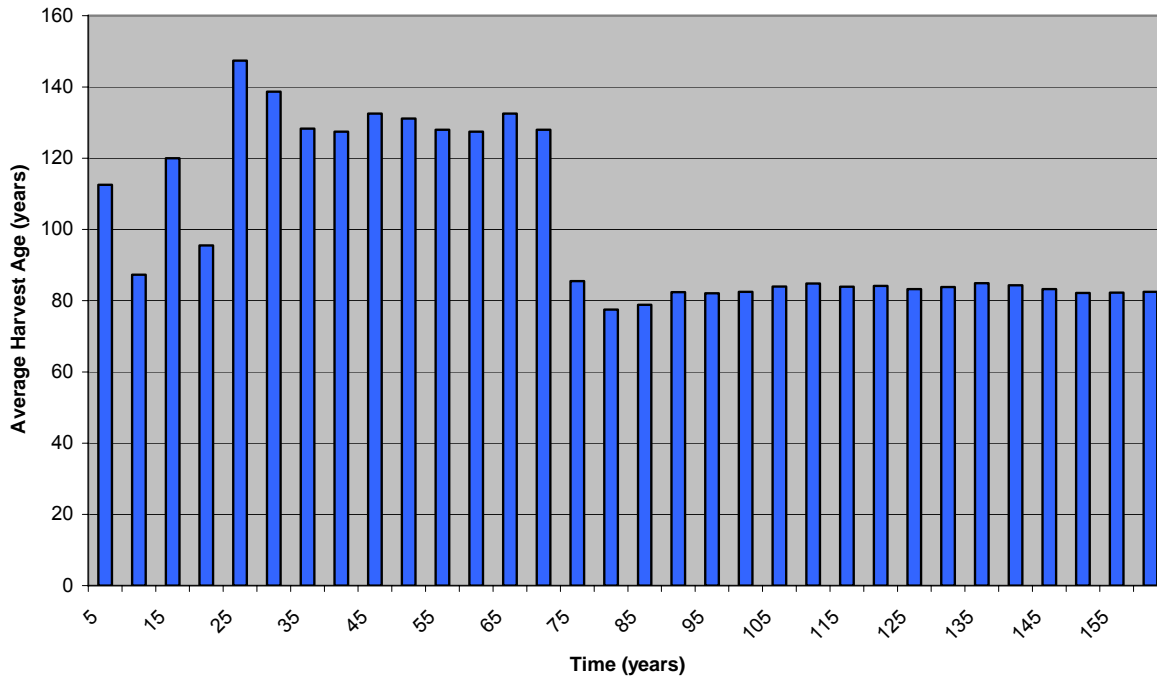
TABLE 18.5: RUN 1 – GROWTH CAPACITY AT 160 YEARS.

Age	Area (ha)	Growth Capacity Total	Annual Growth Capacity
5	309	32010.3	6402.06
10	397.1	31833.1	6366.62
15	559.5	31497.3	6299.46
20	265.6	31374.3	6274.86
25	360.6	31202	6240.4
30	562.2	30918.5	6183.7
35	468	30848.1	6169.62
40	366.5	31250	6250
45	245.4	30916.4	6183.28
50	177.1	30756.2	6151.24
55	191.7	31132.6	6226.52
60	185.1	31184.1	6236.82
65	206	30923.1	6184.62
70	314.2	30497.6	6099.52
75	242.5	31090	6218
80	248.5	29265.3	5853.06
Total	**5099**	**496698.9**	**99339.78**

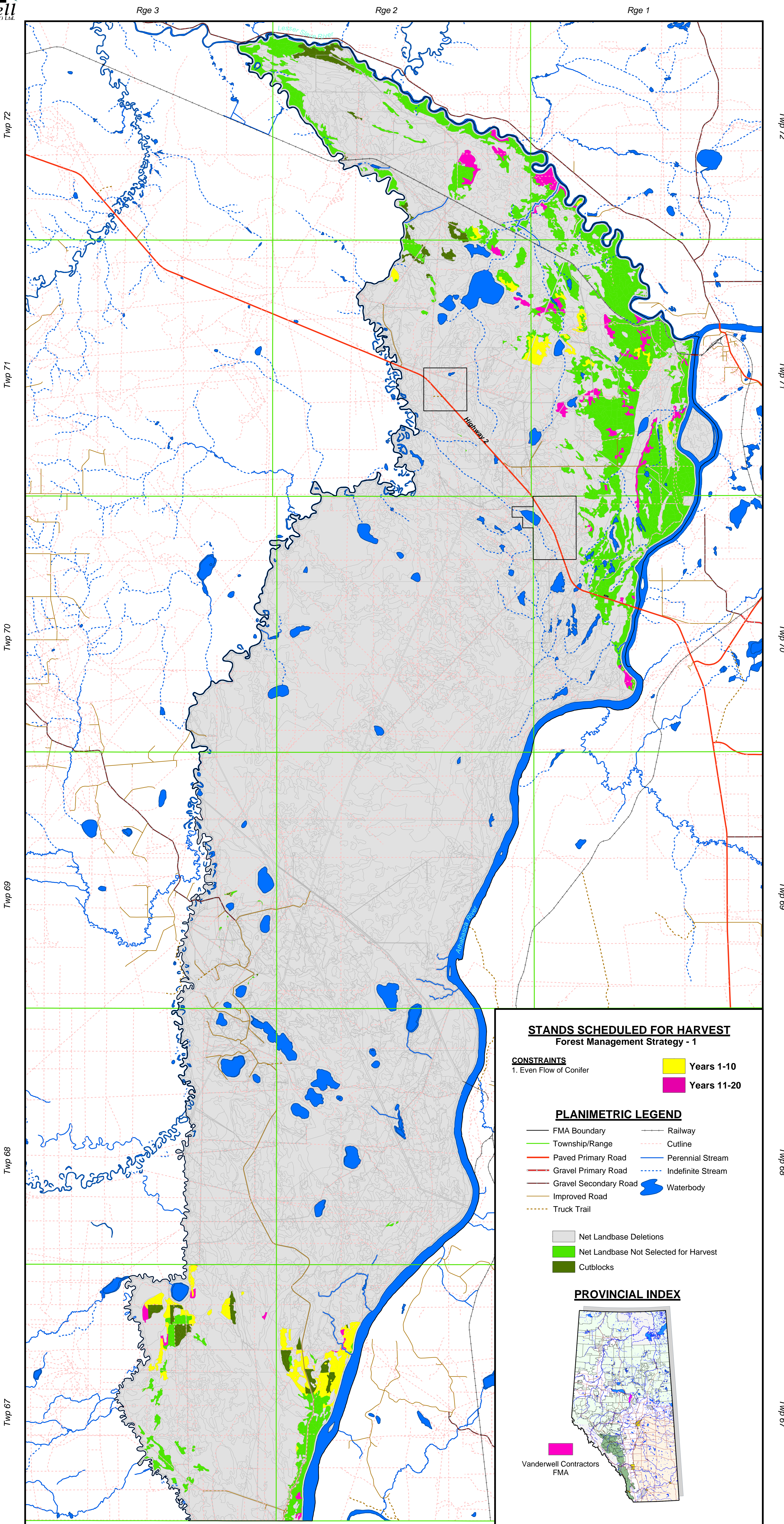# FIGURE 18.3: RUN 1 – POST HARVEST FOREST CONDITIONS[1] AT 160 YEARS IN FUTURE.

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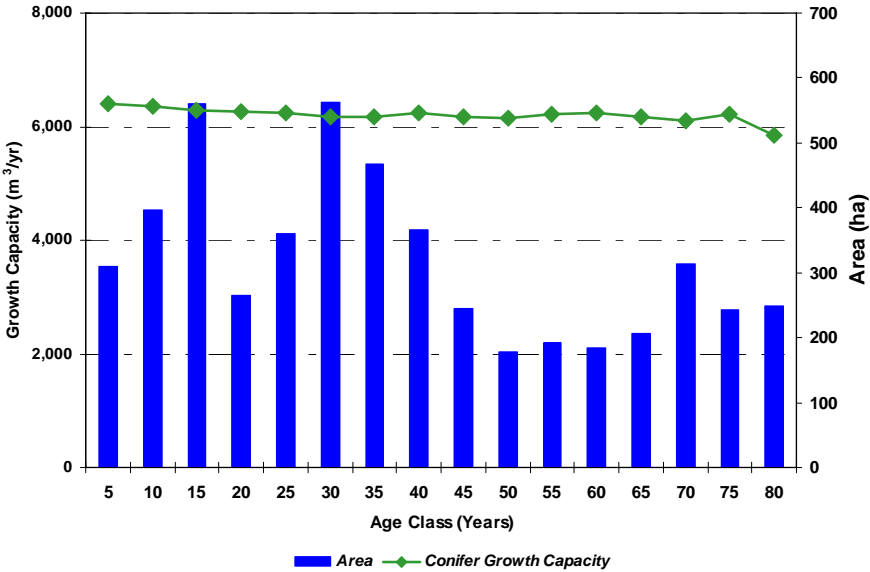
[1] **Projected structure of the net landbase after 160 years. The age class distribution (bars) and harvest age volume (growth capacity – line symbol) associated with each age class are presented.**

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20 YEAR HARVEST SEQUENCE
Within the Vanderwell FMA

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N

Rge 3 Rge 2 Rge 1

Twp 72
Twp 71
Twp 70
Twp 69
Twp 68
Twp 67

Highway 2

STANDS SCHEDULED FOR HARVEST
Forest Management Strategy - 1

CONSTRAINTS
1. Even Flow of Conifer

(yellow)	**Years 1-10**
(magenta)	**Years 11-20**

PLANIMETRIC LEGEND

——	FMA Boundary	——	Railway
——	Township/Range	----	Cutline
——	Paved Primary Road	——	Perennial Stream
——	Gravel Primary Road	----	Indefinite Stream
——	Gravel Secondary Road	(blue)	Waterbody
——	Improved Road		
----	Truck Trail		

(grey)	Net Landbase Deletions
(green)	Net Landbase Not Selected for Harvest
(dark green)	Cutblocks

PROVINCIAL INDEX

Vanderwell Contractors
FMA

Rge 3 Rge 2 Rge 1

0   5   10
KILOMETRES