Review and Analysis

East Side of Lake Winnipeg
All Weather Road Justification and Scoping Study

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EXECUTIVE SUMMARY

This report offers a preliminary review of an August 2000 report prepared by Dillon Consulting Limited and H.N. Westdal & Associates for the Manitoba Highways and Government Services entitled East Side of Lake Winnipeg All Weather Road Justification and Scoping Study (herein referred to as "Study"). The Study examined two potential all-weather road (AWR) routes: a north/south route from Manigotogan to Oxford House and an east/west route from Norway House to Oxford House.

The Study concluded that there is greatest economic justification for a north/south *main stem* AWR from Manigotogan to Oxford House. Furthermore, the Study reported that transportation benefits/costs alone justify a north/south *main stem* AWR without the factoring in of other potential development benefits.

This review examined the main conclusions of the Study including some of its underlying assumptions used to generate its justification levels. In summary, this review concludes that the greatest economic justification for an AWR may not be a north/south *main stem* AWR route but rather an east/west *main stem* AWR route –assuming that AWR construction cost estimates are not understated within the analysis.

In effect, this review has identified three significant areas where the Study has likely erred in reporting its conclusions or at the very least has not substantiated its assumptions. The three areas include:

1. Assumptions for projected **air travel reductions** -with an approximated total of $41 million in transportation net benefits (present value) favouring a north/south AWR route over an east/west AWR route in both a *main stem* analysis as well as an *all-community* analysis;

2. Estimates for transportation net benefits in the cases of both **Oxford House** and **Gods River** -with an approximated total of $5.14 million in transportation net benefits (present value) favouring a north/south AWR route over an east/west AWR route in a *main stem* analysis and an approximated $6.56 million in transportation net benefits in an *all-community* analysis;

3. Higher than expected estimates used for **population growth rates** for St. Theresa Point, Wasagamack, and Garden Hill and its impacts on projected **air freight reductions** –with an approximated total of $7.63 million in transportation net benefits (present value) overstated within the overall justification for both AWR route scenarios in both a *main stem* and *all-community* analysis.

Notwithstanding these three critical issues, this review has identified additional areas within the Study that will have clear impacts on its reported overall justification levels for both all-weather road scenarios. These issues include:

- The Study did not examine Thompson within its transportation analysis –with the result being an inherent bias for a north/south AWR route over an east/west AWR route;

- The Study overstates the level and degree of community support for an all-weather road with respect to the majority of affected communities;

- The Study does not consider the issue of all-weather road construction time within its 20-year forecast period –with the result being an overstatement of economic justification for both AWR route scenarios.

PART A: INTRODUCTION AND BACKGROUND

This report has been prepared by Paskanake Project Management for Whelan Enns Associates Inc. It is a review of an August 2000 report prepared by Dillon Consulting Limited and H.N. Westdal & Associates for Manitoba Department of Highways and Government Services (now called Manitoba Department of Transportation and Government Services) entitled East Side of Lake Winnipeg All Weather Road Justification and Scoping Study.

The issue of an all-weather road (AWR) on the east-side of Lake Winnipeg continues to be a contentious issue between many competing and common interests in Manitoba.

In August of 1999, the Province of Manitoba commissioned a study that examined two potential all-weather road routes on the east-side of Lake Winnipeg in Manitoba. The two potential AWR routes studied included:

- North/south AWR from Manigotogan to Oxford House;
- East/west AWR from Norway House to Oxford House.

The study was intended to provide a preliminary benefit/cost assessment on each of these two potential AWR routes and to determine which, if any, was more economically justified. In August 2000, Dillon Consulting Limited and H.N. Westdal & Associates completed their assessment with a 110-page report in addition to a separate and accompanying 49-page executive summary.

The August 2000 report concluded that a north/south *main stem* all-weather road from Manigotogan to Oxford House (connecting a total of seven communities) had the greatest economic justification. The Province of Manitoba has recently indicated an interest in studying a specific all-weather road corridor, based on the assumptions, analysis and results of the August 2000 report.

In January 2001, Whelan Enns Associates Inc. contracted Paskanake Project Management to provide a preliminary review of the main conclusions of August 2000 report. The purpose is to provide the many common and competing interests with an independent analysis of the accuracy of the August 2000 report.

The review should not be viewed as a complete analysis of the August 2000 report but only as a preliminary review of some of its main conclusions. Nevertheless, this review offers insight and discussion on some of the critical issues affecting the overall reported justification for an all-weather road within the east-side region of Manitoba.

An important point should be noted. One of the fundamental limitations of benefit/cost analyses as a pre-project evaluation and assessment tool is in its general inability to represent "values" not normally or directly associated with hard numbers. The problem is exacerbated in dealing with the impacts on traditional economies and social/cultural issues affecting Aboriginal peoples. Without adequate attention paid to Aboriginal-focused values, a benefit/cost analysis is essentially ethnocentric-based (i.e. biased since only one set of values is being considered).

PART B: OVERVIEW OF ANALYSIS

General Information

Part B identifies and analyzes four key areas that have a significant impact on the Study's overall justification levels and main conclusions. The four areas specifically include:

1. The manner in which an east/west AWR is presented within the Study;
2. The Study's assumptions concerning air travel reduction;
3. The Study's estimates concerning Oxford House and Gods River; and,
4. The Study's estimates concerning annual population growth rates for St. Theresa Point, Wasagamack, Garden Hill, and Red Sucker Lake.

The following notes are provided only for reference purposes.

- A north/south ***main stem*** AWR, via Manigotogan, would connect the First Nation communities of Bloodvein, Berens River, Wasagamack, St. Theresa Point, Garden Hill, Gods Lake, and Oxford House. It does not include the communities of Poplar River, Pauingassi, Little Grand Rapids, Gods River, and Red Sucker Lake.

- An east/west ***main stem*** AWR, via Norway House, would connect the First Nation communities of Wasagamack, St. Theresa Point, Garden Hill, Gods Lake, and Oxford House. In addition, the Study also includes an AWR from Manigotogan to Bloodvein and Berens River. It does not include Poplar River, Pauingassi, Little Grand Rapids, Gods River, and Red Sucker Lake.

- Transportation net benefits/costs are direct net benefits/costs associated with an all-weather road.

- **Other** benefits refer to transportation-based benefits arising from potential development activities that include Pine Falls Paper Company (PFPC) expansion, Manitoba Hydro By-Pole III development, and commercial fishing expansion.

- **Overall** benefits refer to both direct net transportation benefits and transportation-based benefits arising from potential development activities.

- All benefits/costs are presented as 20-year **present values** in millions of dollars.

In all cases, this review does not endorse one AWR route over another. Furthermore, while it specifically examines the two AWR routes (as presented within the Study), the review does not aim to prejudice other potential routes.

1. The Study does not provide a clear picture of an east/west AWR.

The Study concludes that there is greatest economic justification for an AWR along a north/south ***main stem*** route from Manigotogan that connects the First Nation communities of Bloodvein, Berens River, St. Theresa Point, Wasagamack, Garden Hill, Gods Lake, and ending at Oxford House.[1]

In contrast, an east/west ***main stem*** AWR has a reported $24.3 million net **cost** (direct transportation benefits/costs alone) and a net overall benefit of $7.2 million.

An important question to ask is why the Study combines a north/south AWR route to Bloodvein/Berens River within the overall justification for an east/west AWR to the four Island Lake Tribal Council (ILTC) and the three Keewatin Tribal Council (KTC) communities?[2]

There are significant implications. For instance, subtracting the southern extension to Bloodvein/Berens River from the east/west AWR analysis generates a new picture.[3] Utilizing the Study's own assumptions, an east/west AWR to Oxford House would generate a $0.1 million net **benefit** (direct transportation benefits/costs alone) and a $4.6 million overall net benefit.[4] In essence, transportation costs alone do <u>not</u> justify this southern extension under a western AWR –it is only justified if PFPC and Manitoba Hydro engage in developmental activities.[5]

Therefore, based on transportation costs/benefits alone (without PFPC and Manitoba Hydro Bypole III), <u>both</u> AWR ***main stem*** scenarios can provide net transportation benefits <u>within the Study's existing framework of assumptions/numbers</u>.[6]

[1] It reports that the 20 year present value of such an AWR has a $12.8 million net **benefit** (direct transportation benefits/costs alone) and a net overall benefit of $65.9 million.
[2] In both AWR scenarios, the bulk of direct transportation net benefits (between 87.3% to 91%) will accrue from the seven northern communities (based on relatively higher freight demands and air travel reduction).
[3] According to the Study, a separate north/south AWR connection to Bloodvein/Berens River has a transportation net **cost** of $24.38 million. It is feasible only if <u>other</u> development activities are factored in.
[4] This is directly a result of the projected $24.4 million net cost (direct transportation benefits/costs alone) of building an AWR from Manigotogan to Berens River. The net cost is further increased if the specific benefits attributed to the existing PFPC pulpwood transport is subtracted from the analysis (representing approximately $11 million in total increased costs for an overall net transportation cost of $35.4 million).
[5] $26.9 million offsets the $24.4 million net cost (overall net benefit of $2.5 million for the extension).
[6] $12.8 million for a north/south AWR to Oxford House and $0.1 million for an east/west AWR to Oxford House.

2. The Study provides questionable assumptions concerning air travel reductions.

An important issue to consider in assessing the benefits/costs of an AWR is the Study's assumptions concerning air travel reductions (ATR).[7] The Study assumes that a north/south AWR will cause a 60% ATR and an east/west AWR will cause a 40% ATR. In either case, despite their very high relative impact on the overall justification, these assumptions are not supported with sufficient evidence.[8]

An important issue to determine is whether a four-hour difference in travel time to Winnipeg will result in a 20% difference in the assumed tradeoff.[9] See the below chart for community-specific travel time differences for both AWR routes to Winnipeg.

Estimated Travel Time to Winnipeg (based on estimates provided by the Study)

Community	**East/West** (hours)	**North/South** (hours)	**Difference** (hours)
STP/WAS	10.5	6.4	4.1
Garden Hill	11.3	7.4	3.9
Gods Lake	11.6	7.7	3.9
Gods River	12.3	8.4	3.9
Red Sucker Lake	11.7	7.8	3.9
Oxford House	12.5	8.6	3.9

Since a six-hour drive time is long already, does a four-hour difference determine whether the individual will choose to fly or drive? More importantly, will it result in a 20% difference in air travel reduction between the two access routes?

Furthermore, the Study does not factor in Thompson as a preferred destination even though, for the three KTC communities, Thompson may represent a more preferred travel destination than Winnipeg.[10] For instance, if a southern AWR were in place, would an individual in Oxford House drive to Thompson via Winnipeg (approximately 16

[7] Reduction in air travel and the trade-off towards automobile travel (cost-avoidance factor).

[8] While providing a detailed and comprehensive analysis in the area of freight cost comparisons for each access route, the Study does not provide either a detailed and/or comprehensive analysis to support air traffic reduction assumptions and projections. Yet, in the overall scope of the Study, it is the projected reductions in air traffic which has the greater determining impact on the overall justification to develop a north/south AWR (relatively speaking, freight cost issues are much lesser in comparison).

[9] In other words, will individuals choose to fly 20% more when faced with an east/west AWR then they would for a north/south AWR? Since only one AWR access route would be built, individuals would make their decisions separately in each case. For instance, will the individual in St. Theresa Point fly to Winnipeg rather than incur the 10.5-hour estimated drive time for an east/west AWR? Will the same individual in St. Theresa Point fly to Winnipeg rather than incur the 6.4 estimated drive time for a north/south AWR?

[10] For the three KTC communities, Thompson is home to many regional offices, business interests, and personal connections. This includes MKO, KTC, KCC, etc. Many regional federal/provincial government services/offices are also located in Thompson.

hours)?[11] See the following chart for community-specific travel time differences for both AWR routes to Thompson.

Estimated Travel Time to Thompson (Based on estimates provided by this review)

Community	**East/West** (hours)	**North/South** (hours)	**Difference** (hours)
ST. Theresa Point	5.5	14	8.5
Garden Hill	6.5	15	8.5
Gods Lake	6.5	15	8.5
Gods River	7.5	16	8.5
Red Sucker Lake	6.5	15	8.5
Oxford House	7.5	16	8.5

The Study's estimates have a significant impact on the overall justification for a north/south AWR over an east/west AWR. According to the results of the Study, there is an approximate $41 million difference in benefits that rest on these assumptions.[12]

The Study assumes that of the 60% reduction in air travel indicated for a north/south AWR, approximately 1/6 will be derived via the "Medical Services/Evacuation" segment.[13] While it is difficult to imagine either AWR transporting a significant amount of patients to Winnipeg, it is reasonable to expect greater utilization of the Norway House hospital under an east/west AWR scenario (especially with respect to Island Lake residents that require moderate health-care services).[14] Since the Study does not make reference to the Norway House hospital, it understates the potential air travel reductions for an east/west AWR.

In similar fashion, given KTC communities close connections with political offices (i.e. KTC and MKO) and federal/provincial regional government offices in Thompson, air travel reduction projections that favour a north/south AWR are likely to be overstated while at the same time understating projections for an east/west AWR.[15] Similar questions can be equally applied to other segments.[16] Overall, the Study's assumptions concerning air traffic reduction projections are at the very least questionable, likely distorting the overall economic justification of either AWR access route.

[11] Would the same individual drive or fly to Thompson via an east/west AWR (approximately 8 hours)?
[12] See Figures 8.4 and 8.5 within the Study. Based on an approximated $205 million air travel cost for winter road status quo scenario within a *main stem* AWR analysis (extracted from bar graphs).
[13] In comparison, it assumes that of the 40% reduction in air travel for an east/west AWR, approximately 1/8 will be derived for this purpose. See pages 37 and 38 within the Study.
[14] In many cases, due to a lack of physicians on site, a chronic shortage of nurses, and poor local medical facilities, it is reasonable to expect that many patients will continue to be flown to Winnipeg for treatment.
[15] While ILTC is Winnipeg-based, ILTC forms part of the MKO Thompson-based political body.
[16] It is unlikely that significant air traffic reductions for lodges and outcamps will result since many that currently fly are mainly American-based anglers/hunters. It is reasonable to suggest that these individuals prefer quick entrance/exits to and from their destinations. In addition, it is unlikely that representatives from senior governments (i.e. federal/provincial) will incur the extended driving time in either AWR scenario, choosing instead to fly.

3. The Study provides questionable estimates for transportation net benefits in the cases of Oxford House and Gods River.

In comparing the Study's analysis and conclusions with respect to the north/south and east/west AWR routes, consideration must be paid to the transportation net benefits in the cases of Oxford House and Gods River. The Study concludes that under a north/south AWR, Oxford House would realize $45.63 million in transportation net benefits compared to $26.8 million for an east/west AWR (41.3% difference). It also concludes that under a north/south AWR, Gods River would realize $19.98 million in transportation net benefits compared to $12.57 million for an east/west AWR (37.1% difference). The below chart outlines the reported differences in the Study.[17]

Transportation Net Benefits by Community (Extracted from Study)

Community	North/South AWR	East/West AWR	% Difference
Oxford House	45.63	26.80	41.3%
Gods Lake	37.43	27.60	26.3%
Garden Hill	85.71	59.07	31%
Red Sucker Lake	25.40	18.51	27.1%
Gods River	19.98	12.57	37.1%
St. Theresa Point	62.06	44.22	28.7%

An important issue is to question why the reported differences in transportation net benefits for Oxford House and Gods River are so much greater compared to the other four communities. This is important since Oxford House and Gods River are likely to benefit relatively higher with a shorter east/west AWR access route to Thompson.

The implications are significant. For instance, if a 30% difference in transportation net benefits between both AWR routes is more accurate, there will be a $5.14 million overstatement for a north/south AWR versus an east/west AWR within a *main stem* AWR analysis. In terms of an *all-community* AWR analysis, this overstatement increases to $6.56 million. For the purpose of this review, it is assumed that transportation net benefits for a north/south AWR are overstated with no change in transportation net benefits for an east/west AWR.

Unfortunately, the Study does not provide sufficient detail on how it justifies higher differences in Oxford House and/or Gods River. Therefore, based on the scope of this analysis, there is concern that the Study further overstates the justification for a north/south AWR over an east/west AWR.

[17] It is important to keep in mind that these are the Study's numbers based on their assumptions in all cases. It should be noted that the Study's assumptions concerning ATR projections represent a significant determining factor in the reported differences for both routes (i.e. comprising 20% for each difference). See pages 78 and 79 in the Study.

4. The Study overestimates transportation net benefits associated with air freight cost reductions due to excessively high population growth rate estimates.

The Study overestimates population statistics and therefore overstates the transportation net benefits in the analysis of both AWR scenarios. Population statistics are a key determining base-line variable within the overall analysis with specific reference to air freight cost diversion benefits and air travel cost diversion benefits.

Specifically, the Study uses a 4.0% annual population growth rate projection for both St. Theresa Point and Wasagamack and a 3.5% annual rate for both Garden Hill and Red Sucker Lake.[18] In comparison, the Study uses a 2.5% annual rate for the three northern KTC communities. According to the Study:

> The growth rate identified for St. Theresa Point/Wasagamack is perhaps 0.5 percent higher than what would be strictly justified by historical population data; however, the strategic location of these two communities within the freight haul system and the anticipated new airport justify an assumption of significant future population in-flow."

However, according to Indian and Northern Affairs Canada (INAC), population growth rate estimates for planning purposes are set at 2.5% for each community. Furthermore, it may be the case that an all weather road could result in increased out migration since this would make it easier to live off reserve and still maintain community contact.[19]

As a determining base-line variable, there are significant implications for this discrepancy. Projections used to determine AWR-induced air freight cost reductions will be proportionately higher as the population growth rate estimate is increased. In effect, the higher the population growth rate, the more transportation net benefits will be accrued as a result of the benefits of reduced air freight costs projected over a 20 year period under a status quo model (i.e. continuing winter road system as the primary travel mode).

Using a 2.5% annual population growth rate for all communities, there is an approximate $7.63 million overstatement in transportation net benefits for both AWR scenarios. This is based on adjusted population levels for each year, estimated per capita air freight demand, as well as discounting annual totals at an 8% rate.[20]

A similar analysis could also be undertaken for population impacts on the Study's estimates concerning air travel reduction benefits/costs. An extended analysis in this area would have the effect of reducing transportation net benefits for both AWR routes even further.

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[18] While the Study identifies a 4.8% annual population growth rate for both St. Theresa Point and Wasagamack it seems likely that a 4.0% was actually used in the analysis. This review makes an assumption that the 4.8% number is in fact an error intending to read 4.0%.

[19] By using historical population growth data over the past 20 years, the Study includes changes associated with Bill C-31 –impacts that are not likely to happen in the next 20 years.

[20] Based on 450 kilograms/capita for St. Theresa Point and Wasagamack; 1000 kilograms/capita for Garden Hill; 1200 kilograms/capita for Red Sucker Lake; $1.30/kilogram air freight cost estimate.
Based on approximated $30 M air freight cost for St. Theresa Point/Wasagamack and $51.5 M for Garden Hill with respect to winter road status quo scenario (extracted from bar graphs in Study –Figures A3, A4).

PART C: OTHER ISSUES

- The Study does not provide sufficient justification for air travel reduction (ATR) assumptions.

  The Study does not provide reasonable evidence to support its assumptions concerning air travel reductions. While plenty of research was used to support freight issues, freight cost impacts alone are minimal in comparison to the impacts associated with the assumptions used for air travel reduction. Vitally missing is a formal analysis on air traffic reduction (ATR) projections considering a north/south AWR and an east/west AWR separately.

- The Study does not include Thompson within its transportation analysis.

  A critical issue missing from the transportation analysis is the significance of Thompson. For the seven northern communities, especially the three KTC communities, Thompson represents a significant destination (in terms of individual demand and associated costs). Without its inclusion within the justification analysis, the Study inherently favours a north/south AWR over an east/west AWR.

- The Study does not consider alternative routes such as an eastern-oriented AWR route involving Ontario and/or potential hybrid models.

  An important issue missing from the Study and its terms of reference is an analysis on alternative AWR routes and scenarios. The Study does not consider an AWR scenario that could connect the seven northern First Nation communities from the east (Ontario via Sandy Lake and Red Lake). In addition, the Study does not examine potential hybrid models that combine regional AWR connections with connecting winter road access roads.

- The Study does not consider the overall impact on the airline industry with specific reference to community-owned airlines and likely local employment losses, etc.

- The Study does not sufficiently consider issues relating to socio-cultural values and the associated costs/benefits expected from an AWR.

  According to the Study, each of the potentially affected communities has indicated a concern that an AWR will lead to social/cultural disruptions and related losses/costs. Important issues include increased access to alcohol and drugs, loss of language and cultural identity, and associated increases in family and community problems (domestic violence, chemical addictions, crime, etc.). While difficult to predict, there is no overall analysis provided on these important issues within the Study.

  Once an AWR is built, the likely expansion of forestry-related resource development activities within the region under a north/south AWR represents one of the greatest concerns expressed by First Nations. The concern is that such activity will negatively

conflict with First Nation traditional economic pursuits (fishing, hunting, trapping, and gathering) and other future economic development interests. In this light, the Study does not address potential resource conflicts and the resulting economic costs and tradeoffs concerning alternative and, sometimes competing, land use activities.

- The Study does not include or make mention to the time factor in AWR construction.

  One of the main limitations of the Study is that it assumes that an AWR would be completed at the beginning of the 20-year forecast period suggesting that assumed and projected benefits would accrue in full every year during this 20-year period.[21] There are implications for such an assumption.[22] As a result, the Study may significantly overstate the 20-year present value in both AWR routes scenarios.[23]

- The Study does not sufficiently assess and report on expected winners/losers.

  The Study does not adequately determine the relative benefits/costs for each stakeholder, community, and other interests. It offers only aggregate totals. To what degree will individual communities benefit? Who are the likely winners and losers?

- The Study does not provide sufficient analysis on the expected net cost to the service sector in each community neither does it provide a sufficient analysis on the overall impact of the tourism industry.[24]

- The Study provides only preliminary cost estimates for AWR construction. Based on follow-up discussion with Department of Highways staff who provided information to the consultants that prepared the Study, costs may increase or decrease by 25% from the estimate used in the analysis. A 25% increase may not justify an AWR in either case.[25]

[21] The Study does not state explicitly its assumptions on this important issue.
[22] For instance, an AWR that is built over a five-year period would require the majority of affected communities to incur winter road-related costs during this construction stage (with winter road-related costs decreasing respectively at each stage of the development process as each community becomes connected). This is especially significant since the bulk of the transportation net benefits will accrue from the seven northern communities. In effect, the value of benefits after a five-year period will be considerably lower due to the compounding effects of an annual discount rate of 8%.
[23] For instance, assuming a five-year construction period, the present value in year 20 is essentially an estimate for year 25. Using an eight percent annual discount rate, the present value in year 25 is considerably lower than a comparable present value for year 20.
[24] The Study concludes that there will be net benefits for the tourism industry under an AWR despite a contrasting assessment provided by Manitoba Tourism. The Study does not provide sufficient evidence to base its conclusion other than recommending the design of a tourism development plan in conjunction with the AWR planning process.
[25] Not addressed is the issue of contingencies for added kilometers due to environmental and social mitigation issues and the associated increase in costs. The Study based its construction cost estimates at $400,000 to $500,000 per kilometer.

Examining the Issue of Community Support for an AWR

The Study does not provide a sufficient assessment of community support for an AWR. The issue of an AWR on the east-side of Lake Winnipeg continues to be a contentious issue between and within First Nation and other Aboriginal communities.

Based on limited community meetings, the Study concludes that there is "general support" for an AWR.[26] However, in reviewing the specific community meeting summary notes for each affected community, it is clear that all communities expressed support for an AWR **providing** that they had adequate control over all development activities likely to take place once a road was built. In essence, most communities expressed this type of "qualified support" for an AWR. As a result, the Study greatly overstates the extent of community support inasmuch as it separates the issue of an AWR from the issue of potential additional development activities.

The implications of this form of "qualified support" are significant. It demands considerable accommodation by both the Government of Manitoba and the Government of Canada to facilitate adequate and effective First Nations participation in the decision-making forums affecting the future licensing of resource development activities and land-use planning and road planning processes within the affected regions. In essence, it demands a high-level and formal joint-management relationship between the provincial, government, federal government, and First Nation governments over large areas of non-reserve lands impacting and affecting traditional territories. Ultimately, it may even require a formal revisiting of the 1930 Natural Resource Transfer Agreement (NRTA).

Without adequate First Nation control over all likely development activities within the affected regions, it is conceivable that the majority (if not all) of First Nation and other Aboriginal communities will oppose the development of an AWR, irrespective of any route proposed.

[26] It specifically concludes that five of the twelve affected communities indicate "strong support", two indicate "qualified support", two indicate "significant reservations", and three were "unknown or uncertain".

CONCLUSION

The following are some of the main conclusions of this review.

- The Study provides a bias for a north/south AWR over an east/west AWR. For the benefit of the seven northern communities, it would be advantageous to clearly indicate the overall justification of an east/west AWR without a Bloodvein/Berens River southern extension. Including Bloodvein/Berens River in the east/west AWR analysis distorts the overall justification for an east/west AWR. In many respects, the two AWR route options may be better assessed as if they were two separate projects – each assessed separately based on their own merits.

- The Study uses very questionable assumptions concerning air travel reduction. Critically absent are formal community specific surveys that examine individual decision-making by segment/sector (i.e. whether individuals will drive or fly). The same could be said for the Study's assumptions concerning population growth rates estimates. Both areas significantly call into question their overall justification levels and main conclusions.

- An east/west AWR is likely to increase northern economic development capacity in a manner far exceeding a north/south AWR. This issue alone may make an east/west AWR route favourable.

- In total, the five northern First Nation communities represent approximately 91% of all transportation net benefits with respect to the north/south AWR ***main stem*** analysis. In the larger north/south AWR ***all-community*** analysis, the seven northern First Nations represent approximately 83.4% of all transportation net benefits. Without the northern connections, a north/south AWR cannot be justified on direct transportation benefits/costs alone.

- Based on general conversations and available information, each of the seven northern communities has indicated a clear preference to have an east/west AWR over a north/south AWR.

- Under an east/west AWR, each of the seven northern communities will have a better choice to either travel to Winnipeg or Thompson relative to a north/south AWR.

- The Study overstates the degree of community support with respect to affected communities for an AWR. It does not adequately factor in the implications for "qualified support". The issues identified from the community consultation process (should they be adequately addressed) would result in an unprecedented undertaking (i.e. joint-management over decisions affecting future resource development activities in large areas of non-reserve land in and around First Nation traditional territories).

- The Study's extensive analysis and projections concerning freight costs depends on the construction of a high quality gravel AWR. On this issue, the Study does not

anywhere specify the level, class, and/or quality of AWR assumed within the analysis. Therefore, it is not clear whether the estimated AWR construction cost of $0.4 to $0.5 million per kilometer will be sufficient to construct the required road quality to generate the Study's projected freight cost savings.

- The Study concludes that the forestry sector will stand to gain approximately $22 million in 20-year present value in transportation net benefits in a north/south AWR to Berens River and approximately $40-$45 million for a north/south AWR to Oxford House. In terms of an east/west AWR, the forestry sector appears to have little to gain. In each of the AWR route scenarios examined by the Study, it is these additional forestry benefits that seem to add the necessary justification for the construction of an AWR.

APPENDIX A

AWR ANALYSIS (re-stated)

The following six charts provide a re-statement of the justification levels for each AWR scenario. In each case, the re-statement includes the following adjustments:

- Oxford House adjustment ($5.14 million) affecting each *main stem* AWR scenario.
- Oxford House and Gods River adjustment ($6.56 million) affecting each *all-community* AWR scenario.
- Population adjustments and their direct impact on freight diversion benefits affecting the communities of St. Theresa Point, Wasagamack, Garden Hill, and Red Sucker Lake (approximated $7.63 million total)

Each chart illustrates the impact of ATR assumptions on overall justification levels. Each expresses an ATR range from a high of 60% to a low of 30%. The purpose for these charts is to illustrate the uncertainty of overall justification levels without a certain ATR percentage. All estimates are 20-year present value totals expressed in millions ($).

B/C	Benefit/Cost
ATR	Air Travel Reduction
AWR	All-weather Road
East/west	AWR via Norway House
North/south	AWR via Manigotogan
Other	Additional benefits related to PFPC Phase 1 transport, Manitoba Hydro By-Pole III, and commercial fishing

East/West AWR Scenarios

East/west AWR *Main Stem* Analysis (without Bloodvein/Berens River)

ATR %	Net AWR Cost	Transportation Net Benefits	Plus/Minus	Other	Overall B/C	B/C Ratio
60%	157.59	191.06	33.47	4.64	38.11	1.242
55%	157.59	180.81	23.22	4.64	27.86	1.177
50%	157.59	170.56	12.97	4.64	17.61	1.112
45%	157.59	160.31	2.72	4.64	7.36	1.047
40%	157.59	150.06	-7.53	4.64	-2.89	0.982
35%	157.59	139.81	-17.78	4.64	-13.14	0.923
30%	157.59	129.56	-28.03	4.64	-23.39	0.871

Note: ATR based on approximated $205 M air travel cost for winter road (extracted from bar graph in Study).

East/west AWR *Main Stem* Analysis (with Bloodvein/Berens River)

ATR %	Net AWR Cost	Transportation Net Benefits	Plus/Minus	Other	Overall B/C	B/C Ratio
60%	204.91	213.99	9.08	31.51	40.59	1.198
55%	204.91	203.74	-1.17	31.51	30.34	1.148
50%	204.91	193.49	-11.42	31.51	20.09	1.098
45%	204.91	183.24	-21.67	31.51	9.84	1.048
40%	204.91	172.99	-31.92	31.51	-0.41	0.998
35%	204.91	162.74	-42.17	31.51	-10.66	0.951
30%	204.91	152.49	-52.42	31.51	-20.91	0.907

Note: ATR based on approximated $205 M air travel cost for winter road (extracted from bar graph in Study).

East/West AWR Scenarios (continued)

East/west AWR *All-Community* Analysis (only seven northern communities included)

ATR %	Net AWR Cost	Transportation Net Benefits	Plus/Minus	Other	Overall B/C	B/C Ratio
60%	207.24	227.54	20.3	4.64	24.94	1.120
55%	207.24	215.94	8.7	4.64	13.34	1.064
50%	207.24	204.34	-2.9	4.64	1.74	1.008
45%	207.24	192.74	-14.5	4.64	-9.86	0.955
40%	207.24	181.14	-26.1	4.64	-21.46	0.906
35%	207.24	169.54	-37.70	4.64	-33.06	0.862
30%	207.24	157.94	-49.30	4.64	-44.66	0.823

Note: ATR based on approximated $232 M air travel cost for winter road (extracted from bar graph in Study).

East/west AWR *All-Community* Analysis (all communities included)

ATR %	Net AWR Cost	Transportation Net Benefits	Plus/Minus	Other	Overall B/C	B/C Ratio
60%	338.2	288.38	-49.82	32.71	-17.11	0.952
55%	338.2	275.28	-62.92	32.71	-30.21	0.918
50%	338.2	262.18	-76.02	32.71	-43.31	0.886
45%	338.2	249.08	-89.12	32.71	-56.41	0.857
40%	338.2	235.98	-102.22	32.71	-69.51	0.830
35%	338.2	222.88	-115.32	32.71	-82.61	0.804
30%	338.2	209.78	-128.42	32.71	-95.71	0.779

Note: ATR based on approximated $262 M air travel cost for winter road (extracted from bar graph in Study).

North/South AWR Scenarios

North/south AWR *Main Stem* Analysis

ATR %	Net AWR Cost	Transportation Net Benefits	Plus/Minus	Other	Overall B/C	B/C Ratio
60%	241	240.99	-0.01	53.11	53.1	1.220
55%	241	230.74	-10.26	53.11	42.85	1.178
50%	241	220.49	-20.51	53.11	32.60	1.135
45%	241	210.24	-30.76	53.11	22.35	1.093
40%	241	199.99	-41.01	53.11	12.10	1.050
35%	241	189.74	-51.26	53.11	1.85	1.008
30%	241	179.49	-61.51	53.11	-8.40	0.966

Note: ATR based on approximated $205 M air travel cost for winter road (extracted from bar graph in Study).

North/south AWR *All-Community* Analysis

ATR %	Net AWR Cost	Transportation Net Benefits	Plus/Minus	Other	Overall B/C	B/C Ratio
60%	363.99	315.58	-48.41	54.32	5.91	1.017
55%	363.99	302.48	-61.51	54.32	-7.19	0.981
50%	363.99	289.38	-74.61	54.32	-20.29	0.947
45%	363.99	276.28	-87.71	54.32	-33.39	0.916
40%	363.99	263.18	-100.81	54.32	-46.49	0.887
35%	363.99	250.08	-113.91	54.32	-59.59	0.859
30%	363.99	236.98	-127.01	54.32	-72.69	0.834

Note: ATR based on approximated $262 M air travel cost for winter road (extracted from bar graph in Study).

SCOPING STUDY MAP (with note) - Adapted from Figure 1.1 of the study **APPENDIX B**

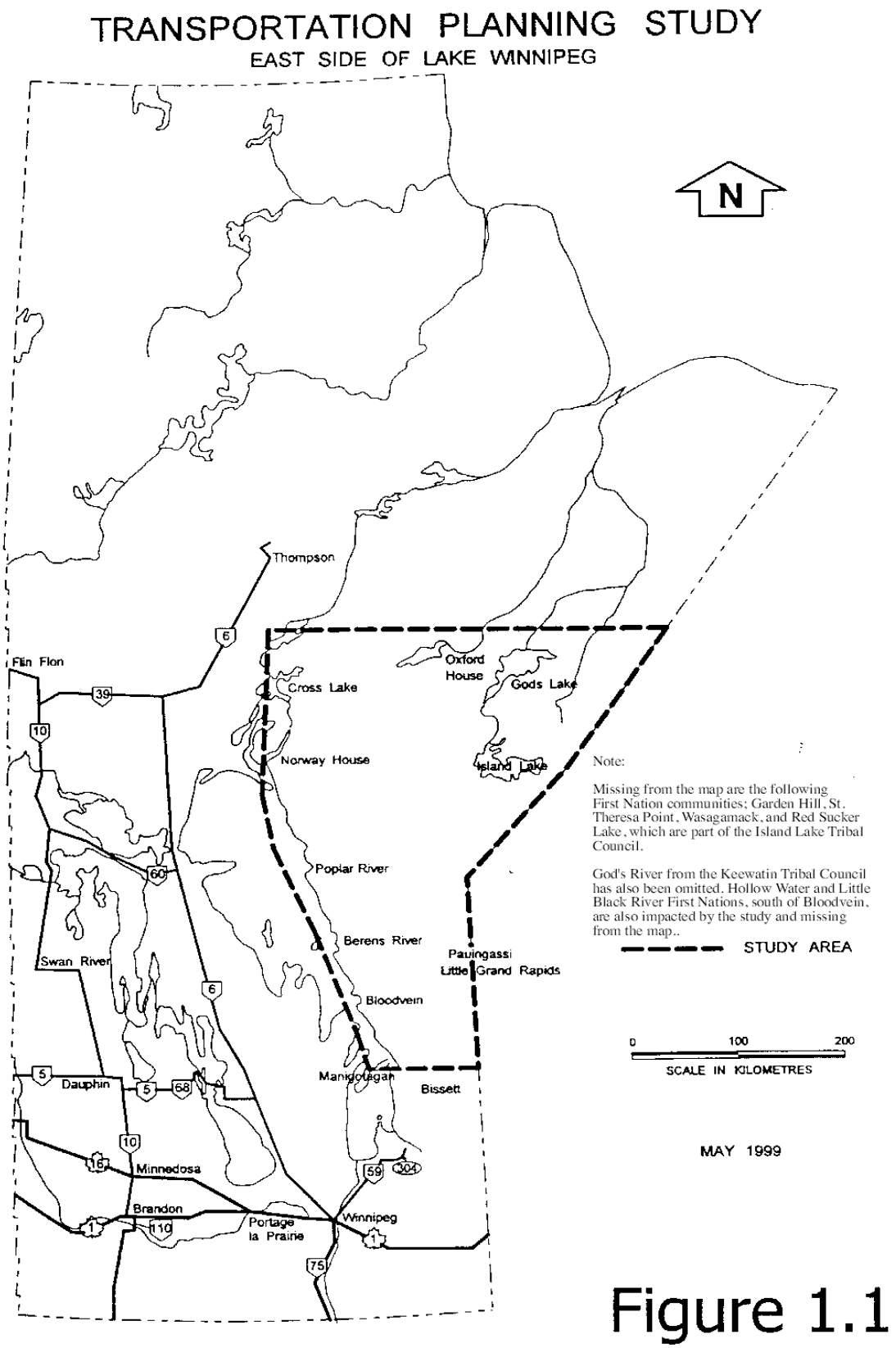

Figure 1.1