

8.0 ALTERNATIVE ALIGNMENTS AND STRATEGIES

8.1 Background Information

In the late 80s, a Flin Flon to Lynn Lake Highway Corridor Study was carried out which examined a series of routes that might be appropriate with a continued rail service. Conceptual cost discussion from that study was employed and expanded on to provide All-Weather Road construction cost estimates for use in the foregoing system cost evaluations.

Four general route scenarios from the 80's study were further considered for this report. These were:

- All-Weather Road - West Alignment
- All-Weather Road - Combination of West Alignment with South Entry via Existing Churchill River Railway Bridges
- All-Weather Road - Generally Following Railway Alignment
- All-Weather Road - Closely Parallelling Railway Alignment

An alternative connection to PTH 10 near Flin Flon while not precluded, was not examined, but would likely have similar costs to an upgrading of Sherridon Road.

In addition, several Alternative Transport Improvement Strategies were examined and partially costed in order to establish their relevance to the Pukatawagan access situation.

8.2 All-Weather Road Access Alternatives

a) All-Weather Road - West Alignment

- Construction of an All-Weather Road to Pukatawagan could involve:
- 35 km of upgrading the existing Sherridon north from P.T.H. 10.
- 15 km of upgrading the existing forestry resource roads skirting the west side of Kississing Lake.
- 125 km of new alignment skirting to the west and north of Pukatawagan Lake and entering Pukatawagan from the north.

- Twelve major bridges (over 100 m long) are required; Kississing River (existing Tolko Bridge), near Lamont Lake (3), near Wright Lake (3), Pukatawagan River, Little Pukatawagan River, Churchill River (2), west of Arrow Lake
- 23 minor bridges (30 m or less in length).

The terrain on the northern half of this route is extremely rugged; river channels are deeply incised into the Precambrian bedrock. As a result, this 175 km route with steep grades and difficult curves is estimated to have capital costs in the range of \$140 M, including \$65 M for major and minor bridge structures.

If these bridges were single lane, the capital costs would be reduced by approximately \$20 M. However, it would be very difficult to single lane much of the road itself without creating extreme safety hazards.

b) All-Weather Road - Combination of West Alignment with Southeast Entry via Existing Churchill River Railway Bridges

This alternative would involve:

- 35 km of upgrading the existing Sherridon Road north from P.T.H. 10.
- 15 km of upgrading the existing forestry resource road skirting the west side of Kississing Lake.
- 100 km of new alignment to reach the Churchill River outlet of Pukatawagan Lake.
- 15 km of new alignment parallel to the railway and connecting to the existing Pukatawagan access road.
- Seven new major bridges (over 100 m long).
- Joint use of the existing three Churchill River bridges, with the Hudson Bay Railway.
- Fifteen minor bridges (30 m or less in length).

This alignment enters similar rugged terrain, but avoids several major river crossings and is 10 km shorter. The total capital cost (not including any acquisition or upgrading costs related to the railway bridges) is estimated at \$105 M, including \$35 M for other major and minor bridge structures.

If these bridges were all reduced to single lanes, the costs would be reduced by approximately \$10 M. However, if new bridges were required for the Churchill River crossings, an additional cost of \$15 M would be incurred.

c) All-Weather Road - Generally Following the Railway Alignment

This alternative would involve:

- 80 km of upgrading the existing Sherridon Road.
- 100 km of new alignment approximately parallelling the existing railway connecting to the existing Pukatawagan access road.
- Six railway cross-overs.
- Three major bridges (over 100 m long) at Kississing River, Kennedy Creek (2).
- Joint use of the three existing railway bridges crossing the Churchill River.
- Seventeen minor bridges (30 m or less in length).

The terrain along this alignment is much less rugged. The railway itself alternatively skirts rock and swamp while maintaining grades of less than 2 percent. Estimated total costs for this 180 km alternative (not including acquisition or upgrading costs for the Churchill River railway structure) are \$105 M, including \$25 M for new bridge structures.

If the bridge structures were single lane, there would be a \$10 M cost reduction. However, if new bridges were required for the Churchill River crossings, an additional cost of at least \$15 M would be incurred.

d) All-Weather Road - Closely Parallelling the Railway Alignment

This lower standard/pioneer road alternative which is geared to providing a low speed (non-standard grades and curvatures) pioneer or resource type access road, would involve:

- 80 km of existing (not upgraded) Sherridon Road.
- 100 km of alternatively new alignment and where possibly, railway alignment from Sherridon to the Pukatawagan access connection.

- Six railway cross-overs.
- Three major bridges (over 100 m long) at Kississing River and Kennedy Creek (2).
- Seventeen minor bridges (30 m or less in length).

Because the railway alignment does not lend itself to travel speeds of more than 30 to 40 kph (short sharp curves, no curve transition distances to achieve superelevation changes), and the fact that most of the existing structures are narrow trestles, there would be little benefit in attempting use of the existing rail embankment (should it become available).

Estimated total costs of building a pioneer/resource access type road with single lane bridges and no upgrading of Sherridon Road would be approximately \$60 M (not including acquisition or upgrading costs for the Churchill River railway structures).

8.3 Alternative Transport Improvement Strategies

- a) ***Maintain Rail Services through Increased Costs to Remaining Users*** - After HBMS closes its Ruttan Lake operations, rail service to Lynn Lake logging operations/Pukatawagan/Sherridon would only be available if the remaining parties paid significantly higher freight and passenger charges (perhaps double current rates).

Alternatively, it might be possible for the major public sector stakeholders (First Nations/Federal/Provincial) to provide subsidy payments to Hudson Bay Railroad to offset the current revenue lost (see Figure 8.1) from Hudson Bay Mining & Smelting. More frequent service and local facility upgrades might be achievable under such an arrangement.

It is estimated that the forest industry's total future costs to operate entirely on winter roads would roughly triple (from \$3.1 M/year to \$10.0 M/year). As such, the area timber resources may become uneconomic. Alternative wood sources and market conditions would no doubt determine what level of increased cost could be absorbed by the industry.

- b) ***HBRR rail systems - Rented by stakeholders with customer-owned track vehicles (rail buses/specialized freight cars)***. This approach would have high initial capital costs, but would not significantly improve the passenger operational safety (and comfort) or efficiency of resource produce delivery.

Figure 8.1 Omnitrax/Hudson Bay Railway - Revenue Needs

This strategy would probably involve:

- A leasing agreement with Hudson Bay Railroad to operate on their lines on a similar basis to the existing VIA arrangement.
- Participation in the cost of selective upgrading of the rail line between Cranberry Portage and Pukatawagan in order to provide safer travel.
- Purchase of rail bus/freight units capable of running on this line.
- Construction of a rail station at Pukatawagan.
- Construction of a rail bus shed/maintenance facility in The Pas.
- Dedicated rail bus crews.
- Annual operating and maintenance (including fuel).

It is probable that such an operation would cost upwards of \$0.75 M/year (not including rail maintenance equipment purchase, rail line leasing, and upgrading). The 20-year present value of such an initiative would be at least \$7.5 M plus any purchase/lease and upgrading costs.

This strategy would not provide substantial service level gains for the Pukatawagan community compared to the existing situation. It might, however, have greater relevance if Hudson Bay Railroad were to cease operations north of the Flin Flon junction.

- c) ***Reduced length of All-Weather Road with Ferry Service to south end of Pukatawagan Lake*** - This strategy could only be regarded as a short-term staging effort. A 10% reduction in road length plus new bridge avoidance would reduce the All-Weather Road capital cost by \$10 M. Offsetting this would be ferry operating costs of at least \$200,000/year (\$2.0 M - 20-year present value). Such a system would still leave the community with no road access for six to eight weeks in spring and in fall.
- d) ***Construction of a lower standard access road*** - This approach implicitly accepts lower safety standards and higher liability problems. It would involve:
- Joint use of Tolko's forestry roads north of Sherridon.
 - Single lane only bridges and use of Hudson Bay Railroad - Churchill River crossings.

- Single lane stream crossings and narrow road cross section.
- Lower operating speeds (40 to 50 km per hour).
- Low speed horizontal curves.
- Excessive longitudinal road grades.
- Seasonal and stormy weather loss of road function.
- Periodic roadway washouts.
- Shorter facility life/more frequent maintenance.
- More frequent and possibly more serious accidents.

Such an approach is normally not acceptable over the longer term. In the short-term, it might be acceptable if started at the north end and tied to Tolko's road network. It would however be essential to plan and design an ultimate (full-standard) roadway and look to achieve interim capital cost savings by selectively reducing the standards. This might involve going around rock outcrops/swamps/etc. to minimize rock cuts or deep fills and single laning bridges and other stream crossings/etc. It is suggested that with the lower standards, the initial capital cost could be reduced by 30% to 40% for a route closely parallelling the HBRR.

However, when considering the long-term annual costs of building/maintenance/etc., it is likely that such a facility would have a much shorter design life (e.g., 15 to 20 years) and hence, a 20-year present value of \$60 M, compared to the \$80 M (20-year present value) for a full highway standard All-Weather Road. A lower standard road would not generate the same level of transport benefits (e.g., \$6.0 M savings as compared to \$18 M savings on a 20-year present value basis). Overall, the economic justification would not be any greater than for a full standard road.

9.0 STAKEHOLDER IDENTIFICATION

9.1 General

The construction of an All-Weather Road from Highway 10 to Pukatawagan will provide benefits and disbenefits. The obvious economic benefits will flow directly to the First Nations. The Government of Canada and Province of Manitoba will also gain, as may Manitoba Hydro and Manitoba Telephone System to a lesser degree.

Within the resource industries:

- HBMS would lose out if the railway closed as a result of the All-Weather Road being built.
- Other mining ventures might or might not see benefits.
- Tolko would not like to see a rail closure, but would support an All-Weather Road if a rail closure resulted in the loss of service to logging operations.

Within the tourism industry:

- Remote lodges and fly-in camp operations would not benefit from an All-Weather Road.
- Road-based tourist operations would likely increase in number and scale of operations.

Within the transport industry:

- Air travel service could be reduced/redistributed.
- HBRR would probably cease operations on the line to Lynn Lake.
- Truck transport companies would see an increase for their business operation.
- Competition would be reduced and prices might rise for the Lynn Lake community.

Area communities such as Flin Flon, Cranberry Portage, The Pas, and even Thompson would be impacted to some degree:

- Postal service/air service between Thompson and Pukatawagan would be likely curtailed.
- Medical and social services could access both Flin Flon and The Pas.
- Education needs at the secondary school level would be met in Flin Flon, Cranberry Portage, and The Pas.
- Service industries in Flin Flon/Cranberry Portage and The Pas could compete for Pukatawagan customers.
- Pukatawagan and Sherridon would both have easier and safer access.

Traditional land use for First Nations people could be made easier with an All-Weather Road, but increased pressure on area wildlife and fisheries could make living off the land less viable. An All-Weather Road would mean easier access to the area and the communities, hence more outsider contact and more change to the traditional lifestyle.

Within the health services sector:

- Norman Regional Health Authority would see significant All-Weather Road costs savings related to reduced travel costs for Medivac and referred patients (and escorts). The region might also achieve some staff effectiveness gains for medical and medical support trips to Pukatawagan.

Within the education and social service sectors:

- Teachers and students will benefit from greater travel opportunities and lower costs.
- Social services staff and clients will also benefit from more frequent contacts and lower costs.

9.2 Major Beneficiaries

The construction of an All-Weather Road from P.T.H. 10 to Pukatawagan would provide the following order of magnitude benefits (20-year present value) to:

	With Continued Rail Service		Without Rail Service - No Tolko (Tolko*)	
First Nations/Federal Government	\$16 M	90%	\$25 M	90% (33%*)
Government of Manitoba/Forest Industry	\$1 M	5%	\$2 M (\$49 M*)	7% (65%*)
Utilities/Lodges	\$1 M	5%	\$1 M	3% (2%*)
Total Benefit/20-Year Value	\$18 M	100%	\$28 (\$75 M*)	100%

* Assumes that logging operation continues in the area if log transport costs were to double or triple.

There are no readily definable benefits to HBMS and other mining interests. Within the transport industry, there are no overall benefits, but there may be net winners (trucking) and net losers (air and rail).

9.3 Other Stakeholders

Within the study area, there are many individuals whose interests and circumstances would lead them to strongly support and maybe oppose an All-Weather Road. These include local merchants, educators, health care providers, social service works, administrators, police, trappers/fishermen, loggers, construction workers, homemakers, community elders, and community leaders. However, in general, there did appear to be a strong appreciation of the need for improved access.

Support for an All-Weather Road tends to have an economic or social bias, but with some recognition of environmental concerns. Opposition to an All-Weather Road tends to be environmentally or socially based, but there are groups whose economic livelihood could be negatively impacted in either case.

It will therefore be very important to seek out a very broad range of potential stakeholders. Our intention here is to identify generic categories of stakeholders rather than single out specific organizations. In this vein, it would be important to include:

- Community members, elders, and young people (band members and non-treaty).
- Health system workers.
- Teachers and parents.
- Law enforcement and Justice.

- Social workers.
- Service industry owners/workers.
- Hunters/trappers/loggers/wild rice harvesters.
- Tourist operators/workers/guides.
- Community stores/chain stores.
- Contractors/workers.
- Transport companies/truckers/pilots/airport staff.
- Environmentalists/social action groups.
- Heritage preservationists.
- Governmental regulators.
- Utility companies/employees.
- Forest industries/workers.
- Mine operation and exploration companies/employees.