

3.0 EXISTING TRANSPORTATION SYSTEM

3.1 General

The Pukatawagan area transportation needs have been met primarily by rail since the 1950s. Prior to the rail line being advanced from Sherridon to Lynn Lake, the transportation needs were met by a combination of rail and watercraft in summer and tractor trains in winter.

While the existing rail transportation is reasonably dependable throughout the year, the general freight costs for goods and materials being transported into Pukatawagan are fairly high. For this reason, a winter road has been constructed and maintained by the Department of Highways each winter since 1989. The winter road sees very heavy personal vehicle use and variable amounts of heavy freight movement depending on winter ice conditions and whether there are any ongoing capital projects taking place in Pukatawagan.

While the construction of a community airstrip and the existence of a Band-owned airlines has resulted in a higher volume of air passenger travel, rail passenger travel has also increased significantly since 1992. This would indicate that there is an increasing number of trips per year/capita to larger centres.

The existing transportation modes, when all are available, serve the community of Pukatawagan reasonably well. However, the existence of the rail line from The Pas to Lynn Lake is threatened by the pending closure of the Ruttan Mine near Leaf Rapids. Operations at the Ruttan Mine currently account for over 40% of the freight being moved on the rail line. For the operation of the rail line to remain feasible, either freight rates would have to increase significantly and/or the volume of other freight being shipped by rail would need to rise substantially to compensate for the loss of freight due to the mine closure.

If the rail line ceases to exist, an alternate mode of transportation would need to be developed. The Department of Highways records indicate that the winter ice road into Pukatawagan from Sherridon is not very reliable. While the winter road usually opens for individual vehicles, it is common for the ice road not to be opened to transport trucks. In addition, the loss of rail would also jeopardize Tolko's forestry operations near Laurie River and hinder the proposed operations in the Charles area. The resulting job loss would be a significant blow to the Mathias Columb band residents of Pukatawagan and Marcel Columb band members from the Lynn Lake area.

3.1.1 Winter Road System

The current winter road system runs between Pukatawagan and Collin's Point on Kississing Lake (directly west of Sherridon) where it connects to Tolko's forestry road and then to the Sherridon All-Weather Road system, which subsequently joins Provincial Highway #10 to the south (see Figure 3.1). The winter road consists of 15 km over land and 52 km on ice for a total length of 67 km. The winter road is generally open to individual passenger vehicles, but poor ice conditions at several smaller river crossings and the Churchill River as it passes through Pukatawagan Lake has rendered the road unusable by heavier vehicles during four of the eleven years that the road has been maintained by the Department of Highways.

Use of the winter road by individual vehicles is reportedly very heavy while use by transport trucks and heavy equipment has been largely dependent on ice conditions and whether there are major capital projects taking place in Pukatawagan. The winter road is used in preference to the railway due to significant transportation cost savings.

3.1.2 Pukatawagan Airstrip

There is a 3,000 foot long gravel airstrip located on the Pukatawagan Reserve, but is operated by Manitoba Northern Airports. The airstrip, like most airstrips in smaller northern communities, can accommodate older turbo prop aircraft, but not the newer high speed/pressurized turbo prop aircraft. The current airstrip is not amenable to moving large volumes of freight. Its primary function is for air passenger traffic, carry on freight, and mail.

Extension of the runway would only be justifiable if the railway were to cease operations and if an All-Weather Road were not built.

3.1.3 Existing Rail Service

The existing rail line from The Pas to Lynn Lake which services Pukatawagan is owned and operated by HBRR. The rail line was advanced north to Sherridon in the 1930s to service the Sherridon Mine. In the 1950s, the line was advanced up to Lynn Lake to service new mines being developed in that area. Railway freight to and from Pukatawagan is transported by truck via a 10 km gravel road extending west from the rail line to Pukatawagan.

See Figure 3.1 Study Area

Commercial freight volumes being transported from The Pas into Pukatawagan are estimated at approximately 2 600 tonnes/year. The majority of freight being transported on this rail line comes from the mining activities near Leaf Rapids and the forestry operations. Hudson Bay Mining and Smelting Company Ltd. (HBMS) ship approximately 140 000 tonnes of ore concentrate from their Ruttan Mine operation to Flin Flon for smelting each year. This freight haul will cease when the mine is scheduled to close, probably sometime in the year 2004.

Tolko's forestry operations at Laurie River (north of Pukatawagan) ship approximately 45 000 tonnes of timber per year to The Pas. The proposed forestry operations near Charles (southeast of Pukatawagan) would supply an additional 45 000 tonnes per year for rail transport. If the rail line is decommissioned, the proposed Charles forestry operation would have to be re-evaluated. Tolko's largest forestry operation in the area is at Jungle Lake (east of Sherridon). This operation produces nearly 140 000 tonnes of logs per year. While the rail line is used to transport logs from this operation, the Jungle Lake operations are also accessed by an all-weather forestry road.

When the ore concentrate shipments from Leaf Rapids cease, it will probably not be economically viable to continue rail operations into Lynn Lake or Pukatawagan given the current freight volumes and freight rates. The only significant increase in freight volume would come from the proposed forestry operation near Charles. However, the Charles vicinity forestry operation would only make up about one third of the volume of freight lost due to the mine closure.

Increasing freight rates while maintaining the rail line is also an option. Without any further forestry development, it is estimated that freight rates would have to double for the rail line to remain economically viable. Additional growth in log haul traffic would be a mitigatory influence on freight rate increases and could be a factor on the decision to maintain future operation of the rail line.

Passenger service is not a significant revenue source.

3.2 Freight Transport, Costs, and Service Levels

The freight movements into Pukatawagan are achieved by rail, air, and winter road. The rail line operated by HBRR accounts for the majority of the general freight going to Pukatawagan. Although the winter road is only open to individual vehicles for approximately three months per year, it is estimated that a significant volume of general freight is brought into Pukatawagan via the winter road. Large freight hauls into Pukatawagan for capital projects are usually brought in by winter road (during those years that the ice road is capable of supporting heavy loads).

3.2.1 Winter Road Traffic - Community Freight

The winter road system into Pukatawagan has been maintained by the Manitoba Transportation and Government Services since 1989. Table 3.1 summarizes the Department's winter road freight haul data from 1989 to 1999.

Table 3.1: Pukatawagan Winter Road Freight Haul Summary

Year	Total Haul Weight (kilograms)	Total Number of Loads	Average Weight per Load (kilograms/load)
1989-1990	118,000	12	9,800
1990-1991	251,000	15	16,700
1991-1992	188,000	19	9,900
1992-1993	--	--	--
1993-1994	C	--	--
1994-1995	--	--	--
1995-1996	1,811,300	49	37,000
1996-1997	1,348,500	142	9,500
1997-1998	--	--	--
1998-1999	100,000	4	25,000
Totals	3,816,800	241	~16,000

The winter road is typically open to transport truck freight hauls from January 23 to March 19, although the road was not opened to freight trucks during four of the ten years listed in Table 3.1 due to poor conditions. Department of Transportation and Government Services personnel report that lighter vehicles have used the track every year, but personal vehicle use is not monitored.

The winter road is also used by lodge owners to transport building materials, equipment, and supplies. The volume of the freight is expected to account for a small proportion of the total freight volume moved on the winter road.

It has been assumed that the supplies and materials transported via the winter road by MTS and Manitoba Hydro for maintenance and construction projects have been monitored and have been included in the basic truck freight analysis. The volume of freight being backhauled on the winter road by construction companies, MTS, Manitoba Hydro, and others has not been identified in the Department of Transportation

and Government Services winter road transportation data. Backhaul volumes have not been included in the basic truck freight analysis.

3.2.2 Winter Road Freight Costs

The unit freight costs relating to the winter road system servicing Pukatawagan vary with the maximum allowable load. Based on six years of the Department of Highways data, the average allowable ice road loading is 16 000 kg. Based on this loading, the incremental unit freight cost per kilogram from The Pas to Pukatawagan is \$0.07/kg.

The trucking firms list their freight rates originating from Winnipeg. The incremental unit freight rates were calculated by factoring out the Winnipeg to The Pas portion of the freight rate from Winnipeg to Pukatawagan.

The incremental freight rate from The Pas to Pukatawagan is shown in Table 3.2.

Table 3.2: Winter Road Freight Rate (The Pas to Pukatawagan)

Route	Freight Rate (based on 16 000 kg loads)	
	Cost (\$)	Cost per Kilogram (\$)
Winnipeg to Pukatawagan	2,750	\$0.172
Winnipeg to The Pas	1,615	\$0.101
The Pas to Pukatawagan	1,135	\$0.071 (incremental cost)

3.2.3 Rail Freight Traffic and Costs

The Hudson Bay Railway line from The Pas to Lynn Lake is currently the primary means of moving freight into and out of the Pukatawagan area. The vast majority of rail freight being hauled on the line is ore concentrate from the Ruttan Mine (transported to Flin Flon for smelting) and logs from Tolko's woodcutting operations (transported to Tolko's mill in The Pas). The breakdown of typical railway freight by commodity and shipping costs is presented in Table 3.3.

Table 3.3: Estimates of Typical Railway Freight/Freight Rates

Commodity	Inbound (tonnes/year)	Outbound (tonnes/year)	Freight Rate* (\$/tonne)	Approximate Shipping Cost* (\$/year)
Ore Concentrate		140,000	16	2,300,000
Logs		155,000	16	2,500,000
Diesel Fuel	370		220	80,000
Heating Fuel	95		220	21,000
Gasoline	395		220	87,000
Fish		185	360	67,000
Building Material	110		220	25,000
Machinery	70**		220	15,000
Foodstuffs	1,250		240	300,000
Other	310		240	75,000
Totals	2,600	295,185		\$5,470,000

Notes: Tonnages are estimated from data supplied by businesses shipping by rail into the region and document typical volumes and rates.

* Estimates based on limited historical data; reflect “best guess” of current market price situation.

** May include a small amount of equipment/machinery backhauled to The Pas.

Approximately 99% of the railway freight is outbound ore concentrate (47%) and logs (52%). The remaining 1% is freight bound for Pukatawagan, Lynn Lake, or Tolko logging operations, and materials being backhauled to The Pas.

Specific freight rates for the two main Hudson Bay Railway customers were not available. It was therefore necessary to estimate the shipping rates for logs and ore concentrate based on lowest known alternative shipper costs or \$16.00/tonne. The freight rates for ore concentrate and logs are low because HBMS and Tolko do their own loading and unloading, they ship large quantities, and each car is bulked out.

Shipping costs for fuels, machinery, building materials, foodstuffs, etc. vary with the size of the load, but are generally between \$220/tonne and \$240/tonne. Fish transportation costs are even higher due to the small size of the shipments and because the product requires special packing. It is estimated that fish transport costs are approximately \$360/tonne.

The freight rates, which for full loads are \$0.22 to \$0.24/kg can be significantly higher (up to \$0.45/kg) for small/partial loads. An empty tanker truck is shipped into Pukatawagan to facilitate transporting gasoline from the rail tanker cars into Pukatawagan. The shipping costs for an empty tanker truck is reportedly \$2,900 each way (~\$290/tonne). Shipping costs for an automobile is \$520 (~\$500/tonne).

Even though the railway freight costs can range from \$0.24 to \$0.45/kg (much higher than the estimated cost of \$0.07/kg for winter road freight), the railway is still used to transport foodstuffs, fuel, etc., even during times when the winter road ice can accommodate fully loaded transport trucks. It is suspected that typical contractual arrangements preclude short-term switches in freight carriers.

Several problems have been identified with the existing rail service into Pukatawagan. These include:

- Not a daily service.
- Very slow travel, at times unsafe due to frost heaving, etc.
- Freight rates are high.
- Access road to community is in very poor condition.
- Rail transport for fishing industry is unreliable and has resulted in significant volumes of spoiled product.

The advantage of the rail service is that it is not particularly dependent on weather conditions and rail fares to The Pas are reasonably low (around \$35.00 one way).

The owners of the HBRR (Omnitrac) do not anticipate that the line will remain economically viable once mining operations cease in Leaf Rapids. Shutdown of the Leaf Rapids operation is anticipated by 2004. At this time, the rail line will likely close given the existing economic conditions. Servicing the community of Pukatawagan will then become problematic given the unreliability of the winter road.

3.2.4 Air Freight

Only a small portion of the total freight being transported into Pukatawagan currently comes in by air. This is due to the lower freight rates on the rail line which passes 10 km east of Pukatawagan. Both commercial air carriers which service Pukatawagan bring in small quantities of freight. Air freight totals into Pukatawagan for the 1999 calendar year are as follows:

- Via Thompson - 42 200 kg.
- Via The Pas - 52 500 kg.

Because the regular mail service for Pukatawagan is Thompson-based, the air freight rate from Thompson is approximately \$0.50/kg while from The Pas the air freight rate is approximately \$0.99/kg. Despite the freight rate from The Pas being considerably higher, increasingly more freight is transported into Pukatawagan through The Pas than through Thompson. Most of the freight is likely shipped by the individual air travellers. Since there are approximately 35% more travellers taking commercial flights from The Pas to Pukatawagan than from Thompson, it is understandable that the majority of air freight is coming through The Pas. In recent years, the air freight volume being shipped from The Pas has grown by 15% per year.

The air freight service is available six days per week from The Pas and six days per week from Thompson. Only one of the thirteen flights per week that lands in Pukatawagan occurs during normal working hours, when records are kept by the Northern Airports. Therefore, the above information had to be obtained from the commercial carriers servicing Pukatawagan.

The total volume of freight being transported into Pukatawagan for the year 2000 is estimated to be 6150 tonnes (3.5 tonnes/capita). Of this, 2590 tonnes (42%) is transported by rail, 770 tonnes (12.5%) is transported by truck on the winter road, and 95 tonnes (1.5%) are transported as air freight. The remaining 2695 tonnes are unaccounted for freight volumes. The unaccounted for volume of freight was determined by comparing the freight volumes of Pukatawagan to a community of comparable size. It is reasonable to assume that of the 2695 tonnes of unaccounted for freight, 1910 tonnes can be transported by personal vehicles travelling on the ice road, 540 tonnes are transported as carry-on rail freight, and 245 tonnes are transported as carry-on air freight.

3.2.5 Overall Freight Summary

While the winter road is primarily geared to handling freight movements, which have been reasonably well monitored over the last eleven years, there has been considerable personal vehicle/passenger traffic that has not been monitored to date. During four of the eleven years since the ice road has been maintained, there are no records of any freight movement. This is likely because the road was closed to heavy traffic due to poor ice conditions at river crossings (truck companies confirmed that the winter road into Pukatawagan

is often not passable). However, the winter road reportedly has been heavily used every year by personal vehicles.

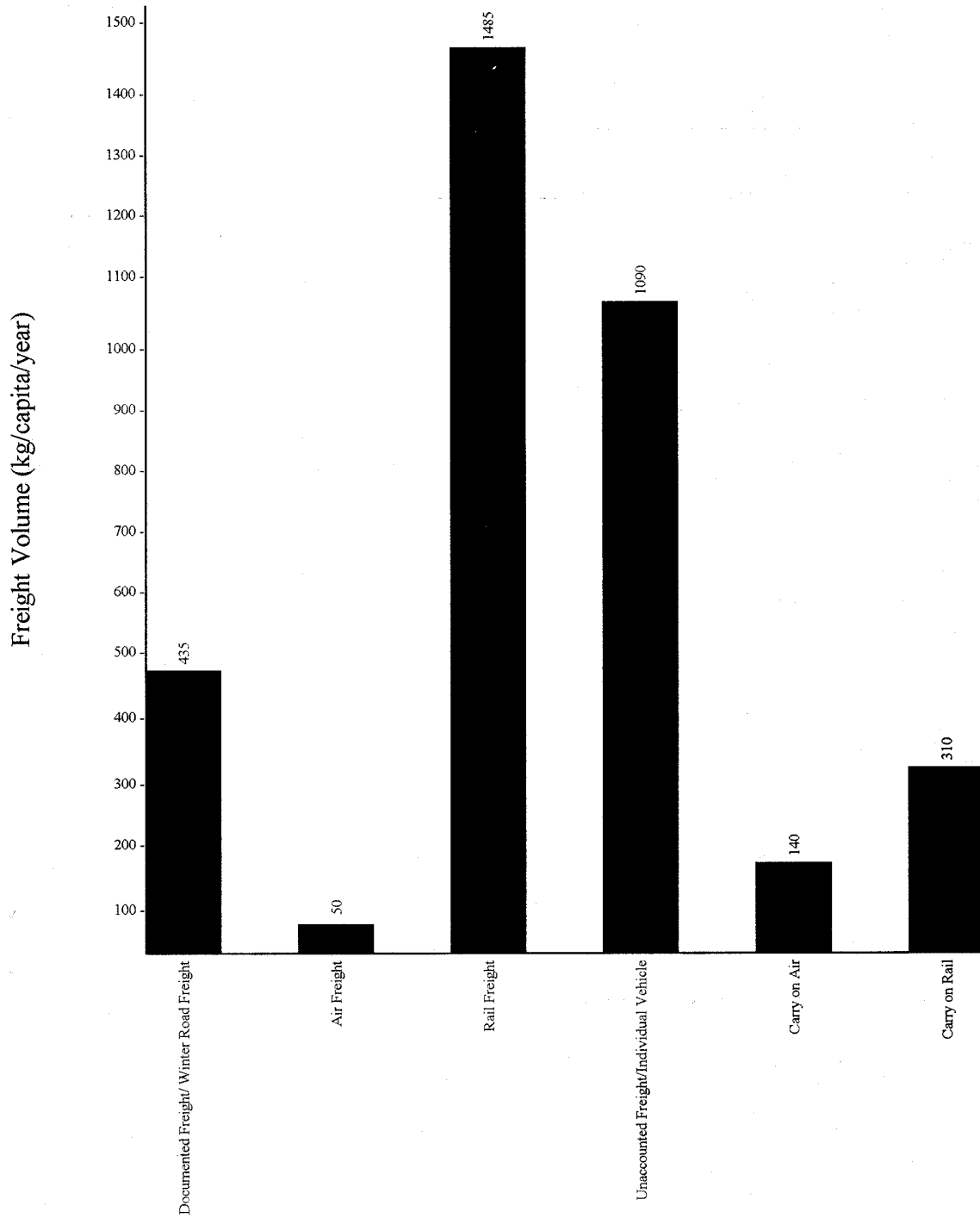
Analysis of the winter road freight transport data indicates that on an annual per capita basis, the documented freight hauls on the winter road varies from 80 to 1170 kg/capita/year, with an average of 440 kg/capita/year (for years, the winter road was open to freight transport). The two largest freight hauls occurred during consecutive winters in 1996 and 1997. The majority of this freight was building materials, machinery, fuel, and food used for capital construction projects (new school and nursery station). During an average year when the winter road is open to trucking and when there are no large capital projects, the documented freight hauls are approximately 125 kg/capita/year. Because the communities of The Pas and Flin Flon are only about a three hour drive from Pukatawagan, a considerable proportion of freight is carried by private vehicles. It is estimated that approximately 1090 kg/capita/year of freight is transported to Pukatawagan by private vehicle. Table 3.4 provides, for comparison, the per capita winter road, rail, and air freight traffic movements for various commodities. Figure 3.2 is a graphical comparison of freight volumes versus mode of transportation.

Approximately 43% of the total freight moving into the Pukatawagan area can be attributed to commercial freight (12%) and personal vehicles (31%) travelling on the winter road.

Table 3.4: Freight Volumes - Transport Mode (kg/capita/year)

Commodity	Winter Road Freight	Air Freight	Railway Freight	Individual Vehicles	Carry On Air	Carry On Rail	Totals
Diesel Fuel	45	0	210	35	0	0	290
Heating Fuel	0	0	55	20	0	0	75
Gasoline	30	0	225	250	0	0	505
Building Material	230	0	55	130	0	0	415
Machinery	85	0	40	0	0	0	125
Food	15	0	720	525	105	125	1,490
Other	30	50	180	130	35	185	610
Total	435	50	1,485	1,090	140	310	3,510

Figure 3.2: Freight Volumes (kg/capita/year) Versus Mode of Transport



3.3 People Transport

A community such as Pukatawagan with a population of 1,743 has a considerable demand for people movement. The existing rail system scheduled and charter air services and individual vehicle travel (via winter road) all help to meet this demand.

Without the benefit of scientific surveys, it is necessary to speculate on the specific-use related to personal travel into and out of Pukatawagan. A reasonable assumption would be:

- Shopping and Personal Business:
 - primarily rail and individual vehicles via winter road
- Medical (Referrals and Escorts/Medivac):
 - primarily air and some rail
- Educational:
 - primarily rail and some winter road
- Social Services:
 - primarily rail and some air travel
- Governmental:
 - primarily air travel, but some winter road
- Resource Industries:
 - primarily air and some winter road
- Hydro/MTS/Lodges:
 - primarily air and some winter road

3.3.1 Rail Passengers

Rail passenger service is provided by VIA Rail. Passenger ticket sales are well documented for The Pas departures, but not for Pukatawagan departures. Table 3.5 shows the number of fares from The Pas to Pukatawagan since 1992.

Table 3.5: Train Fares from The Pas to Pukatawagan

Year	Number of One-Way Fares	Comments
1992	4,873	Fair ice road conditions.
1993	4,834	Poor or no winter road.
1994	4,869	Poor or no winter road.
1995	4,654	Poor or no winter road.
1996	2,518	Very good ice road conditions.
1997	2,607	Good ice road conditions.
1998	3,805	Poor or no winter road.
1999	4,294	Poor ice road conditions.

From the above table, it is apparent that in-bound train passenger travel averages and is relatively constant at about 4,300 per year. However, in years when the winter ice road is in good condition (e.g., 1996 and 1997), the travel numbers drop significantly.

Outbound passenger traffic has been assumed to be approximately the same as in-bound, even though this cannot be confirmed by what is believed to be incomplete fare records. The total train travel for 1999 has been estimated at 8,600 (one-way fares).

Rail fares between Pukatawagan and The Pas range from \$33.17 for a one-way fare booked seven days in advance to \$44.94 for a one-way walk-on fare. Assuming that most travellers would book fares in advance, it is estimated that approximately \$285,000/year is spent on rail fares each year.

Although travel by rail is significantly slower than by air and the train only travels a couple times per week, a considerable number of travellers still use the train. The relatively low fares and large quantities of allowable carry-on baggage likely contributes to the train being a popular mode of travel.

3.3.2 Air Passenger Traffic

Air traffic records are maintained by the Province of Manitoba, Northern Airports, and Marine Operations. However, these records only reflect air traffic data for weekdays between 7:00 a.m. and 4:00 p.m. Currently, only one of the fourteen scheduled flights into Pukatawagan falls within this window, therefore, the Northern Airports data is missing a large portion of the flight information. The air transport data provided in this report is estimated based on information obtained from the commercial carrier and charter services flying into Pukatawagan. There are two commercial airlines servicing Pukatawagan. Calm Air flies out of Thompson and Beaver Air Lines (owned by Mathias Columb First Nation) flies out of The Pas.

Air passenger movements into and out of Pukatawagan were approximately 12,000 trips in 1999, with approximately 54% of the flights attributable to the air charter industry. The vast majority of charter flights are from The Pas on Beaver Airlines. For scheduled commercial flights, approximately 58% originate from The Pas while the remaining 42% originate in Thompson. Since 1997, the number of passengers flying by charter into and out of Pukatawagan via The Pas has remained constant at approximately 6,475 trips per year. During the same time frame, trips on commercial carriers via The Pas have increased by 32 percent, while trips via Thompson have decreased by 1 or 2%.

In addition to Beaver Air Services Ltd., the Mathias Columb First Nation also operates their own Medivac aircraft. The Medi-van flights generally fly to The Pas.

In total, approximately 80% of the scheduled air traffic in Pukatawagan travels to/from The Pas, with the remaining 20% flying through Thompson. Charter air services from Flin Flon (Jackson Air) accounts for a very small portion of the total air traffic.

Most of the air transport into Pukatawagan for both people and freight is moving through The Pas. There have been significant increases in air traffic from The Pas in recent years. At the same time, slight decreases in air traffic from Thompson have been noted. No doubt, this is in a large part, due to poor ice conditions on the winter road in 1998 and 1999.

In total, there are approximately 12,000 air passengers flying into and out of Pukatawagan per year. Table 3.6 identifies the major commercial and charter air carriers servicing Pukatawagan, the routing flight frequency, and costs.

Table 3.6: Pukatawagan Flights (1999)

	Carrier	Schedule	Number of Fares	One Way Average Cost (\$)
Commercial Flights				
from The Pas	Beaver Air Services	7 Return Flights/Week	3,120	110.00
from Thompson	Calm Air	6 Return Flights/Week	2,300	91.00
Charter Flights				
from The Pas	Beaver Air Services	As Required	6,475	1,046.00 (8 people) 131.00/person
from Flin Flon	Jackson Air	3 Trips/Month	140	550.00 (2 people) 275.00/person

Notes: Additional ground transportation not included.

Scheduled flights are available from The Pas every day of the week except Sundays (twice on Mondays) and from Thompson everyday except Saturdays.

Air charter costs are slightly higher than the schedule flight costs, but most people are choosing to fly by charter to and from The Pas.

3.3.3 Overall People Transport Summary

Although there is limited data on the numbers of vehicles and people using the winter road system, it is estimated that this mode of travel accounts for 60% of the total people movements in and out of Pukatawagan. Figure 3.3 illustrates the estimated annual distribution by mode of transportation.

Figure 3.3 Total Freight Movement into Pukatawagan