

PIPELINE

Transportation Options Outlined for Pipeline Project

Over 2 000 km (1,242 mi.) of steel pipe, weighing more than one million tonnes, will make up the mainline of the Alaska Highway gas pipeline in Alberta, northeastern British Columbia and southern Yukon. An estimated total of 180 000 tonnes of construction equipment is also required for the project, as are 250 000 tonnes of bulk fuel — both gasoline and diesel — needed to operate power generators, equipment and vehicles.

To ensure that the movement of pipe, materials, equipment, fuel and personnel into the northern sections is handled safely and efficiently without disrupting regional transportation services, Foothills Pipe Lines (Yukon) Ltd. has developed a transportation and logistics plan which will be submitted to the Northern Pipeline Agency for review and approval in May. "The plan identifies the routes and types of vehicles the company could use, with a view to demonstrating the ability of the system to handle the total volume of project-related traffic," explains Julian Hawryszko, Logistics Manager for the Agency and a specialist in transportation economics. "It also summarizes the mitigative measures the company will follow."

The plan responds to objectives specified in the Agency's socio-economic terms and conditions for northern British Columbia and Yukon, Mr. Hawryszko continues. These include requirements that Foothills (Yukon) not disrupt existing transportation services and that any additional transportation infrastructure built at company cost be of long term benefit to the affected communities. "Although a transportation and logistics plan is not required by the terms and conditions for the Alberta segment of the pipeline, Foothills' plan covers the entire mainline system, running north from James River Junction," Mr. Hawryszko notes.

The rail, road and air facility network



Self-steering tractor-trailer loaded with 23-m (76-ft.) lengths of pipe for test runs along the Alaska Highway.

in the northern regions is limited in size and therefore is more sensitive to heavy traffic demands than the larger infrastructure further south, says Mr. Hawryszko. For this reason the company plans to use a combination of available routes and carriers to lessen the impact on other users of the system. "The job for moving pipe and materials will go to tender and the final selection will depend not only on cost factors, but also on the ability of the carriers to operate within the terms and conditions," he says.

Moving 1 219-mm (48-in.) and 1 422-mm (56-in.) diameter pipe from the mills in Welland, Ontario, Regina, Saskatchewan, Edmonton, Alberta and, possibly, from overseas to stockpile sites along the pipeline right-of-way is a major task, remarks Mr. Hawryszko, requiring extensive consultation with carriers and with all levels of government. One option outlined by Foothills (Yukon) has the pipe destined for Yukon going by rail to Vancouver, then by barge to Skagway, Alaska, from where it is carried by the

White Pass & Yukon Railroad to Whitehorse and finally trucked along the Alaska Highway to the stockpile sites. An alternative is to barge the pipe to the Alaskan port of Haines, truck it over the Haines Highway to join the Alaska Highway in Yukon and then deliver it to the various sites. Another scenario has pipe bound for northern British Columbia being shipped by rail to Fort St. John, Fort Nelson and other railheads and then hauled by truck to the stockpile sites.

"It's probably most efficient to move pipe into the area between Fort St. John and Fort Nelson by rail to alleviate the traffic load on the Alaska Highway," suggests Mr. Hawryszko. "There's plenty of track capacity on the British Columbia Railway line and the off-loading facilities are adequate. If a suitable contract were arranged, the haul could be made directly from the mill to the railhead in the area, and then only a short distance by truck."

As the only route beyond the last rail-
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News In Brief

Six members of the Treaty 8 Tribal Association met with officials from Foothills Pipe Lines (North B.C.) Ltd. and the Northern Pipeline Agency on March 26 in Calgary for an update on plans for construction of the Alaska Highway gas pipeline in northeastern British Columbia, including the proposed pipeline route and the location of related sites such as off-loading facilities, access roads, construction camps and compressor stations. Questions from the native group focussed on matters of safety once the pipeline is in operation, the potential for disturbance to communities located near the route and the scheduling of construction around the hunting season.

The Treaty 8 Tribal Association represents seven Indian bands in northeastern British Columbia from Fort Nelson to Fort St. John.

The National Energy Board (NEB) on March 26 granted Foothills Pipe Lines (Alta.) Ltd. leave to open the portions completed in 1981 of the Eastern Leg of the Alaska Highway gas pipeline in Alberta at a maximum operating pressure of 8 690 KPa (1,260 psi).

Northwest Alaskan Pipeline Company representatives presented a proposed schedule to obtain final approval for the Alaskan segment of the Alaska Highway gas pipeline at a procedural conference of the United States Federal Energy Regulatory Commission (FERC), held March 16, in Washington, D.C. Spokesmen from the company told presiding FERC Commissioner Anthony Sousa that financing negotiations are expected to conclude in June and all remaining regulatory requirements will be filed with the FERC by July 1. The company requests final certification from the FERC by December 1, and a "project release date" of January 1, 1983. This refers to the date when significant funds must be available to make commitments to proceed with construction. The revised schedule is based on a new target completion date of November 1, 1987.

Commissioner Sousa identified five subject areas to be considered by the FERC before the final go-ahead for the project is given. These will be covered at subsequent FERC conferences and include:

- design of the pipeline and the conditioning plant at Prudhoe Bay, Alaska;
- cost of service and net national economic benefit studies;
- financing and project company tariff;
- antitrust; and
- marketability of the Alaskan gas and economic viability of the project.

The Hon. Mitchell Sharp, Commissioner of the Northern Pipeline Agency, says that, before financing is committed and Canadian authorities give the word to commence second-stage construction of the Alaska Highway gas pipeline in Canada, both the banking community and the government must be assured the remaining portions of the project in the United States will move ahead expeditiously. Mr. Sharp told a meeting of the Canadian-American Committee in Salt Lake City, Utah, on March 12, "There are still a good many pieces to be put in place before all systems are go. But now that the legislative obstacles have been removed by the combined action of the Administration and Congress, there is a concerted effort under way on all sides to put those pieces in place just as quickly as is humanly possible."

Composed of over 100 leaders in industry, finance, labour, agriculture and resource development from Canada and the United States, the Canadian-American Committee meets semi-annually to exchange views on economic policy, politics and legislation in both countries. Sponsor organizations are the National Planning Association in the U.S. and the C. D. Howe Institute in Canada.

Senior officials of the Northern Pipeline Agency are scheduled to meet with their counterparts in the United States from the Office of the Federal Inspector (OFI) on May 20 in Washington, D.C. to discuss issues of mutual concern related to the Alaska Highway Gas Pipeline Project. The last meeting between the Agency and OFI officials took place in mid-February in Ottawa.

A delegation of Swedish government officials met with Northern Pipeline Agency representatives in Calgary on March 12 for details on the Agency's regulatory and facilitating role in the planning and construction of the Cana-

dian sections of the Alaska Highway gas pipeline. The 12-member Swedish group is associated with a proposal to build a 2 000-km (1,250-mi.) natural gas pipeline from Norway into northern Sweden and south across the country, with a possible extension to the European mainland. Representing such sectors as industry, energy, planning and housing, the Swedes were visiting government and energy industry officials in both Canada and the United States to learn more about how development projects in North America are planned and regulated, focussing on the socio-economic, environmental and design aspects.



Rodney Pickard, Socio-Economic Officer

The Northern Pipeline Agency announces the appointment of Rodney Pickard as Socio-Economic Officer. With archaeological experience in both western and northern Canada, Mr. Pickard has specialized in the assessment of resource development impact on traditional ways of life and land use practices. He joins the Agency to participate in the review of socio-economic plans and documents for the pipeline project submitted by the Foothills Group of Companies, especially those dealing with archaeological and cultural matters, and to monitor the implementation of these plans by each segment company.

In the course of his duties, Mr. Pickard will visit communities along the pipeline route to consult with native, municipal government and special interest groups, and maintain a working level contact with provincial, territorial and federal government bodies.

Profile — Jim Wallace, Senior Surveillance Officer

"There'll only be one Alaska Highway Gas Pipeline Project and I wanted to be part of it," says Jim Wallace, Senior Surveillance Officer for the Northern Pipeline Agency. The native Scotsman joined the Agency in July 1980, after nearly 24 years specializing in forest land use with the Alberta Forest Service.

"Land use is a diversified job, which is why I entered that field and stayed for so long," he remarks. Responsible for all aspects of land use on the eastern slopes of the Rocky Mountains from central Alberta to the American border, Mr. Wallace was involved in the regulation of such activities as oil and gas exploration and development, range management and commercial development for recreational purposes. His work included the evaluation of proposed routes for pipelines and power transmission lines and the development of environmental protection guidelines and specifications for land reclamation and erosion control related to watershed protection within the forest area. "Over the years I also became quite familiar with the more technical side of pipeline construction," explains Mr. Wallace, adding that the experience has proven beneficial to his senior surveillance position at the Agency.

Mr. Wallace recalls the hectic pace during the summer of 1980, leading to the start of construction by the Foothills Group of Companies on the Western Leg in Alberta and southeastern British Columbia of the multi-billion dollar gas pipeline. The surveillance teams were recruited and in the field overseeing construction in a matter of two weeks, he notes. "It happened suddenly and, although the orientation was brief, it provided us with a solid basis to do our surveillance work. For myself, it wasn't difficult because I was used to the regulatory nature of the job."

The role of a surveillance officer is different from that of a field inspector, observes Mr. Wallace. "As surveillance officers, we can't tell the contractor on site what to do, that's up to Foothills' inspectors. Our job is to oversee the work done by the inspectors — to watch that proper construction methods are being applied so as not to cause environmental damage or compromise the integrity or safety of the pipeline." The Agency's formal contact is only with the pipeline company which, in turn, issues directives to the contractor if remedial action must be taken.

Surveillance means close observation of the day-to-day activities on the line, Mr. Wallace explains. "It's more than gathering production data, such as the number of kilometres ditched or welded in a certain day. Although we include that information in our daily reports, as well as weather conditions and the number of workers on site, we also give our observations as to how the work was accomplished and various problems

which may have occurred and how they were handled."

The Agency's surveillance system has required little revision over the past two construction seasons, Mr. Wallace comments. "The only change is in a more detailed approach to the daily field reports we provide to Calgary headquarters, especially with regard to environmental matters." The potential for erosion, resulting from the removal of protective vegetation by construction activities, is an environmental concern which requires constant attention, says Mr. Wallace. "Disturbed slopes must be recontoured to restore original drainage patterns. On steep slopes, berms are usually installed to divert the surface flow of water into established vegetation to prevent erosion of the right-of-way."

The installation of the pipeline across a watercourse is another "potential environmental impact" situation, unless adequate mitigative measures are taken, he continues. "Sometimes it is necessary to place a flume in a stream to carry the water over the ditch or to dike the upstream side with sandbags while the pipe is being installed." Although these are normal procedures, Mr. Wallace points out, surveillance is still a good idea. "It's better to catch little flaws before they become big problems," he says.

Mr. Wallace admits that so far his job has not been as challenging as he originally expected. "I suppose I may be



Jim Wallace, Senior Surveillance Officer

sticking my head in a noose for saying this," he jokes, "but, seriously, challenge is often associated with problems and there just haven't been many in Alberta with construction of the Western Leg in 1980 and the Eastern Leg in 1981." Most problems on the right-of-way are attributed to inclement weather, Mr. Wallace notes. "Last year, for instance, work was slow on the short section in Alberta between James River Junction and Didsbury, due to an unusually high rate of precipitation during the first two months of construction."

Mr. Wallace adds that certain situations are unforeseeable. "You don't know if the walls of a ditch will hold until the ditch is excavated. If the walls start sloughing, it may be the result of natural springs in the ground, which no one knew existed." Each situation requires an appropriate mitigative measure on the part of the contractor, he explains.

Both the company and its contractors have been cooperative, Mr. Wallace continues. "This initial stage of building the southern sections of the pipeline in Canada is a test situation for all of us. Many of the methods and approaches taken now will form the basis for construction on more rugged terrain and under more difficult conditions as the project moves northward through areas of permafrost, forest and steep topography," he remarks. "That's when we'll be challenged and we'll be ready for it!"

Field Surveillance Under Way for '82 Construction

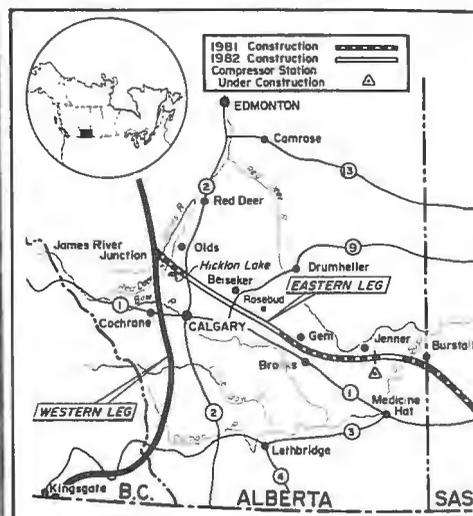
For the third consecutive season, the Northern Pipeline Agency's field surveillance activities are under way with the March 22 start of construction in Alberta on the remaining 207 km (129 mi.) of the Eastern Leg of the Alaska Highway gas pipeline.

Senior Surveillance Officer, Jim Wallace, and Surveillance Officers Pat Patterson, Dave Deyell and Bob Allan make up the team responsible for overseeing daily construction progress and the application of the Agency's technical requirements and environmental terms and conditions by Foothills Pipe Lines (Alta.) Ltd. and its contractor, Marine Pipeline Construction of Canada Limited. Initially based in Brooks, Alberta, the surveillance team will transfer headquarters to Beiseker or Olds as construction moves further west.

As in the past two years, the Alberta government is providing a minimum of three environmental surveillance officers to oversee construction. Representing the Fish and Wildlife Division, the Lands Division with respect to Crown lands, and the Land Conservation and Reclamation Council, the provincial officers visit the construction site whenever activity is taking place related to their respective areas of responsibility.

Marine Pipeline's job involves filling in the gaps to connect the pipeline sections which were completed last year, says Keith MacDonald, the Agency's Regional Manager of Surveillance. "The idea is to begin with the eastern end where it is drier this time of year and move westward where there is generally more precipitation and conditions are muddy in the spring," he explains.

Marine Pipeline has started with a 63-km (39-mi.) sandy section that runs east from Jenner to the South Saskatchewan River and is scheduled for completion by mid-May. The contractor commenced work in April on a 48-km (30-mi.) section extending eastward from a point near Rosebud to Gem. In June, Marine will begin to work westward from the Rosebud area to Hicklon Lake. The entire 1 067-mm (42-in.) diameter Eastern Leg system, scheduled to go into operation on September 1, 1982, will stretch 635 km (394 mi.) from James River Junction north of Calgary into Saskatchewan and then southeast to the international boundary near Monchy, Saskatchewan. The line will initially



Tie-in to a road crossing east of Jenner (above). Pipe strung along the right-of-way and ditch prepared for crossing Severn Creek near Rosebud (below).

deliver up to 25.48 million m³ (900 MMcf) of gas a day to midwestern markets in the United States.

The prairie terrain through which Marine Pipeline is working this year is straightforward from both a construction and an environmental perspective, remarks Mr. MacDonald. "There are no watercourse or coulee crossings of any consequence and no major changes in elevation," he notes. To minimize the impact of construction, the entire pipeline route in Alberta parallels or overlaps the existing right-of-way of Nova, An Alberta Corporation. "As long as the weather cooperates, we anticipate a good construction season," Mr. MacDonald says.

Marine Pipeline is also contracted to undertake the fabrication and installation of valve assemblies at 32-km (20-mi.) intervals along the Eastern Leg, including the portions built last year in Saskatche-

wan and Alberta. Valves placed in this manner make it possible to isolate relatively short sections of pipeline on the system is operational, explains Mr. MacDonald. "It's much simpler to remove the gas from a 20-mi. section than 200-mi. section to allow for maintenance repairs or future construction of additional facilities such as compressor stations. The valves also serve as safety devices in the event of a rupture."

Senior Surveillance Officer, Err Paydli, and Surveillance Officer, Steve Citynski, based in Medicine Hat, are overseeing the valve assembly fabrication and installation along the line, as well as construction of the compressor stations at Jenner, Alberta, and at Piapot, Richmou and Monchy, Saskatchewan, and of the meter station at Monchy. Work on the facilities began last fall and is expected to conclude by the end of the year.

New Land Acquisition and Regulatory Procedures Under Bill C-60

by Douglas M. Fox

When brought into force later this year, *Bill C-60, An Act to Amend the National Energy Board Act*, will make sweeping changes to existing negotiation and regulatory procedures in connection with federally-regulated pipeline and international power line projects. Since the Alaska Highway Gas Pipeline Project is subject not only to the *Northern Pipeline Act* but also to the *National Energy Board Act*, Bill C-60 will directly affect the lands negotiation program of the Foothills Group of Companies, as well as the regulatory role of the Northern Pipeline Agency.

The new legislation, passed by the House of Commons in December 1981, is expected to come into effect about mid-year. It addresses such matters as:

- the mode of compensation payable by a company to a landowner for land rights,
- the land rights a company may acquire for its pipeline, and
- the method available to a company to gain right-of-entry onto land when negotiations fail.

The Act also provides landowners with the opportunity to have input into matters of route selection, widths or right-of-way and methods and timing of construction. It further provides for the establishment of an arbitration committee to determine compensation when a company and a landowner cannot agree, this function formerly having been carried out by the courts under the provisions of the *Railway Act*.

Landowner provided information at outset of project

Bill C-60 sets out a procedure in which a company must provide the landowner, at the outset of the project, with a description of the proposed pipeline route across the owner's property. This "Notice of Proposed Acquisition of Lands" includes details of the compensation offered to the landowner by the company, an assessment of the value of the lands in question, information on the procedures for approval of the pipeline route and provisions for determining compensation if negotiations between parties fail.

This procedure was adopted from the one set out in Condition 18.1 of Schedule III to the *Northern Pipeline Act* which, while not as comprehensive as the new procedure, did perform a useful function

in supplying landowners with project information. The Northern Pipeline Agency is proposing to amend Condition 18.1 to provide that the format of the "Notice of Proposed Acquisition of Lands" be approved by the Designated Officer of the Agency prior to its use in the field.

Rules for land acquisition agreement give landowner option for lump sum, annual or periodic payment and make the company liable for damage

Bill C-60 also sets out ground rules for land acquisition agreements, giving the landowner the option to receive compensation in lump sum, annual or periodic form. Annual or periodic payments are subject to review every five years. Under the terms of the agreements, the company is liable for all damage resulting from construction activities. The company's use of the right-of-way is restricted to a single pipeline or related facility unless the owner consents to any proposed additional use at the time such use is required.

Under existing procedures on large projects where lump sum payments were made for pipeline right-of-way, the costs of land rights were minimal when compared to overall project costs. Under the new scheme it is expected that most landowners will opt for the annual type of payment subject to five-year review. With the precedent established by Nova, An Alberta Corporation whereby landowners will essentially be paid fee simple value of the right-of-way for each five-year period, the costs of land rights will likely increase significantly and will have to be considered when future projects are being evaluated.

Under existing legislation, the review, approval and certification of a company's plans, profiles and books of reference by the National Energy Board, setting the final detailed route of the pipeline, did not require a public hearing. Bill C-60 changes this procedure by providing landowners, where there are objections, the opportunity to participate in an "omnibus-type" hearing to be held in the affected area where questions of routing, width of right-of-way, construction methods and the timing of construction are dealt with at the one time.

Experience in working with the *Northern Pipeline Act*, with its separate hearings for route and for Leave-to-Take Additional Lands (width of right-of-way),

leads the Agency staff to believe that the omnibus-type hearing will simplify the regulatory process and, at the same time, make it more meaningful to affected landowners.

At the present time, when a company and a landowner cannot reach agree-

ment, matters relating to the expropriation and determining compensation for the land rights taken are handled by an "Arbitrator" under certain provisions of the *Railway Act*.

Bill C-60 revises this procedure by authorizing the National Energy Board to grant immediate right-of-entry upon consideration of the company's application and the written objections of landowners, and by providing an arbitration committee, appointed by the Minister of Energy, Mines and Resources, to determine compensation.

In its review of a given situation, the arbitration committee will consider such factors as the market value of the lands taken by the company, the damage to the lands and inconvenience and noise that may be expected to result from the operations of the company and any special difficulties in relocation of an owner or his property. A decision of an arbitration committee may, within 30 days of its issuance, be appealed to the trial division of the Federal Court of Canada.

Bill C-60 may set precedents for other public projects

The precedents established by Bill C-60, particularly those involving the annual or periodic payment of five years review concepts, are already finding their way into the realm of provincial jurisdiction. It will be interesting to see what impact the new procedures for federal pipelines and international power lines and the public expectations produced therefrom, will have upon the procedures of other government departments, both federal and provincial, which acquire lands for other public purposes.

What is sauce for the goose, is sauce for the gander!

Douglas M. Fox is Manager, Right-of-Way, for the Northern Pipeline Agency.

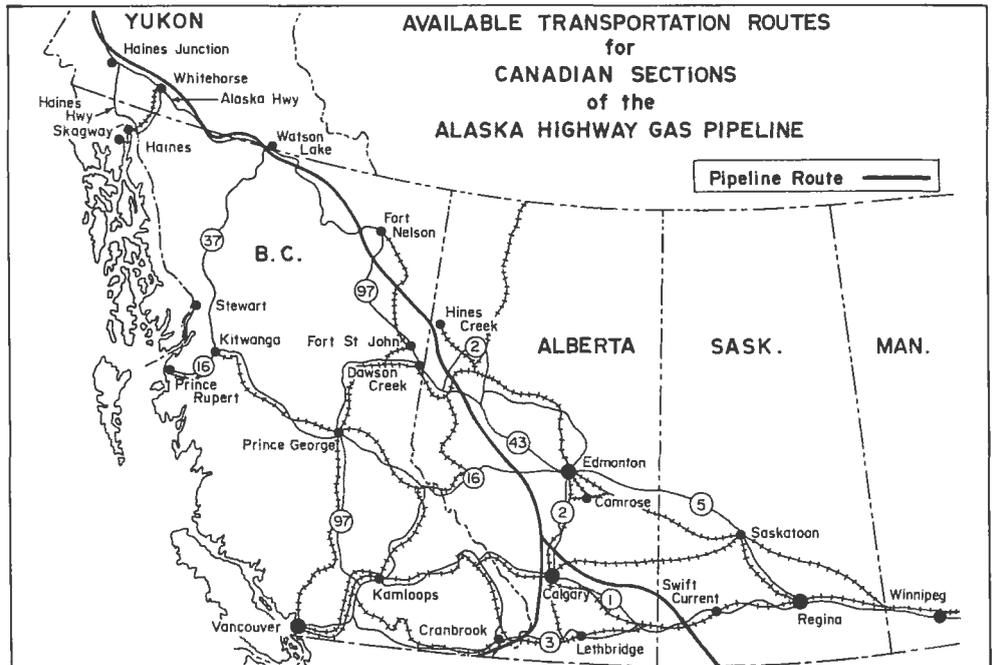
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Transportation Options Outlined for Pipeline Project

head at Fort Nelson, the Alaska Highway will be used for the supply of all materials along the northern British Columbia portion of the pipeline, Mr. Hawryszko continues. The transportation and logistics plan calls for about 11,000 truckloads of 23-m (76-ft.) pipe, with three lengths per load, and over 11,000 loads of project-related materials to be routed along the Alaska Highway north of Fort Nelson. This represents a combined average total of 63 loaded and empty vehicles a day, moving along the highway between Dawson Creek and Watson Lake.

"The most significant factor will be the increase in over-sized vehicles along the roads in that region," notes Mr. Hawryszko. "However it's just as much in Foothills' best interests as it is in the region's interests to run the exercise as smoothly as possible. If the company disrupts the transportation system, the flow of project materials will also be disrupted."

By moving the pipe in 23-m (76-ft.) lengths instead of 18-m (59-ft.), Foothills (Yukon) says the number of truckloads of pipe along the Alaska Highway will be reduced by one-third. The company has paid for the design and testing of a self-steering tractor-trailer unit with four axles, capable of carrying three joints of 23-m (76-ft.) to 24-m (80-ft.) pipe in compliance with federal, provincial and territorial highway and bridge regulations. "The ability of the Alaska Highway to cope with 23-m pipe in terms of safety and road conditions is also being studied," Mr. Hawryszko explains. "We're looking at a vehicle that's about 30-m (100-ft.) in length, so everyone wants to be sure it's always on its own side of the road when going around a corner," he says. "If not, sharp curves along the Alaska Highway may have to be widened



to accommodate the vehicle and oncoming traffic safely."

As far as railroad capabilities are concerned, a test haul of three 23-m (76-ft.) joints of 1 422-mm (56-in.) diameter pipe was made last year on a specially prepared flatcar along the White Pass & Yukon Railway from Skagway to Whitehorse to evaluate the ability of the narrow gauge line to accommodate the load. "The test proved the geometrics of the line are adequate," says Mr. Hawryszko. "However, the railway company will have to undertake a major equipment acquisition program if it is to handle the volume of pipeline project traffic."

Besides outlining the alternatives for surface transportation of materials and equipment, the transportation and logistics plan sets out tentative strategies for moving project personnel from hiring locations in Vancouver and Edmonton by

jet aircraft to regional airports such as Whitehorse, and then by smaller aircraft or bus to smaller airports or construction camps. During the course of construction, Foothills (Yukon) forecasts an estimated total of 73,000 project-related inbound and outbound passengers will go through the Whitehorse air terminal, 23,000 through Watson Lake, 8,000 through Fort Nelson and 5,800 through Fort St. John.

When the transportation and logistics plan, prepared by Foothills (Yukon), is submitted the Northern Pipeline Agency will make it available for public review in the Agency office libraries in Ottawa, Calgary, Whitehorse and Vancouver and in local public libraries. The company has agreed to update the information contained in the plan every six months to make planning data available as they are developed.

Pipeline

The Northern Pipeline Agency was created by Parliament in April 1978 to oversee planning and construction of the Alaska Highway Gas Pipeline Project in Canada. Inquiries or suggestions regarding the Agency's publication, *Pipeline*, may be directed to:

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