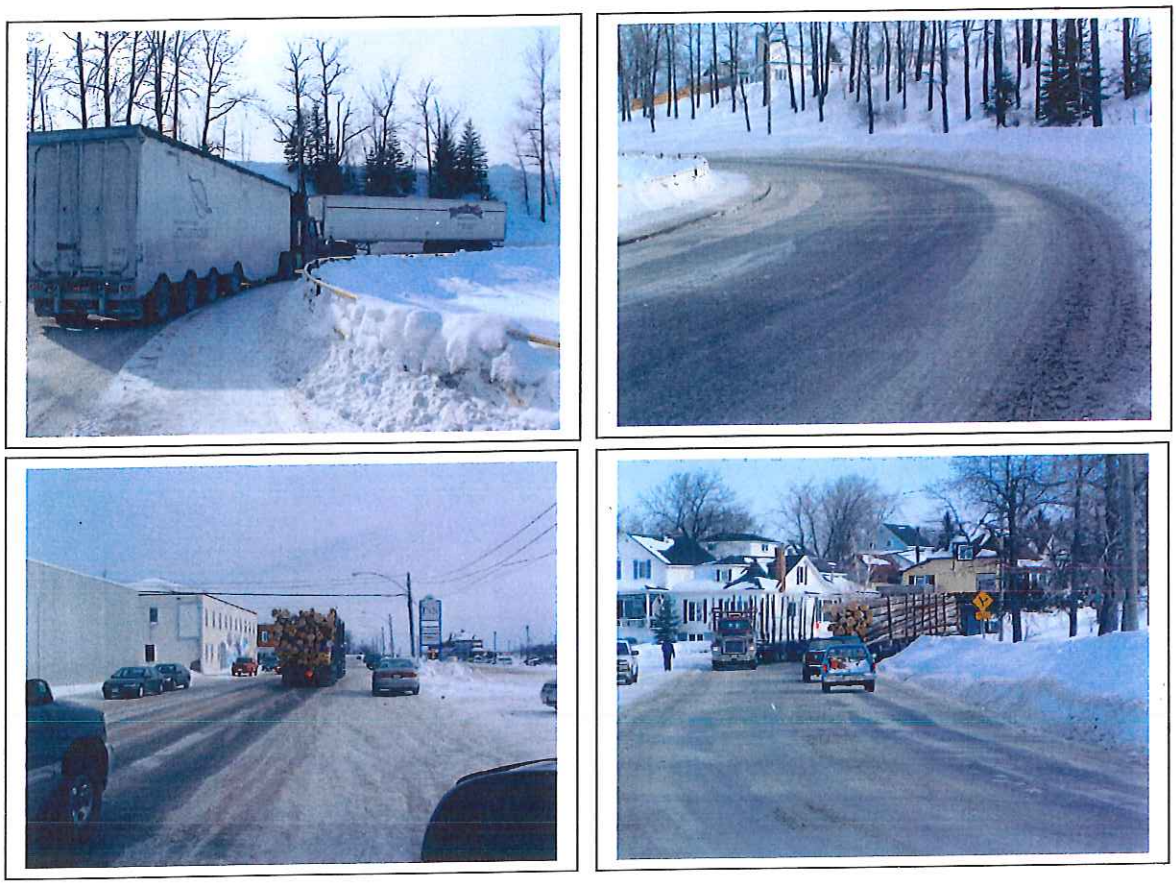
CORPORATION OF THE TOWN OF COCHRANE

BUSINESS PLAN FOR A PROPOSED TRUCK BYPASS WITHIN THE TOWN OF COCHRANE



2006 OGRA/ROMA Combined Conference

CORPORATION OF THE TOWN OF COCHRANE

BUSINESS PLAN
FOR A
PROPOSED TRUCK BYPASS
WITHIN
THE TOWN OF COCHRANE

COCHRANE, ONTARIO
MTO DISTRICT 53

Prepared for:

Corporation of the Town of Cochrane and **Ministry of Transportation Ontario**
Northeastern Region
North Bay, Ontario

Prepared by:

Sutcliffe Rody Quesnel Inc.
Engineers & Surveyors
New Liskeard, Ontario

February 17, 2006

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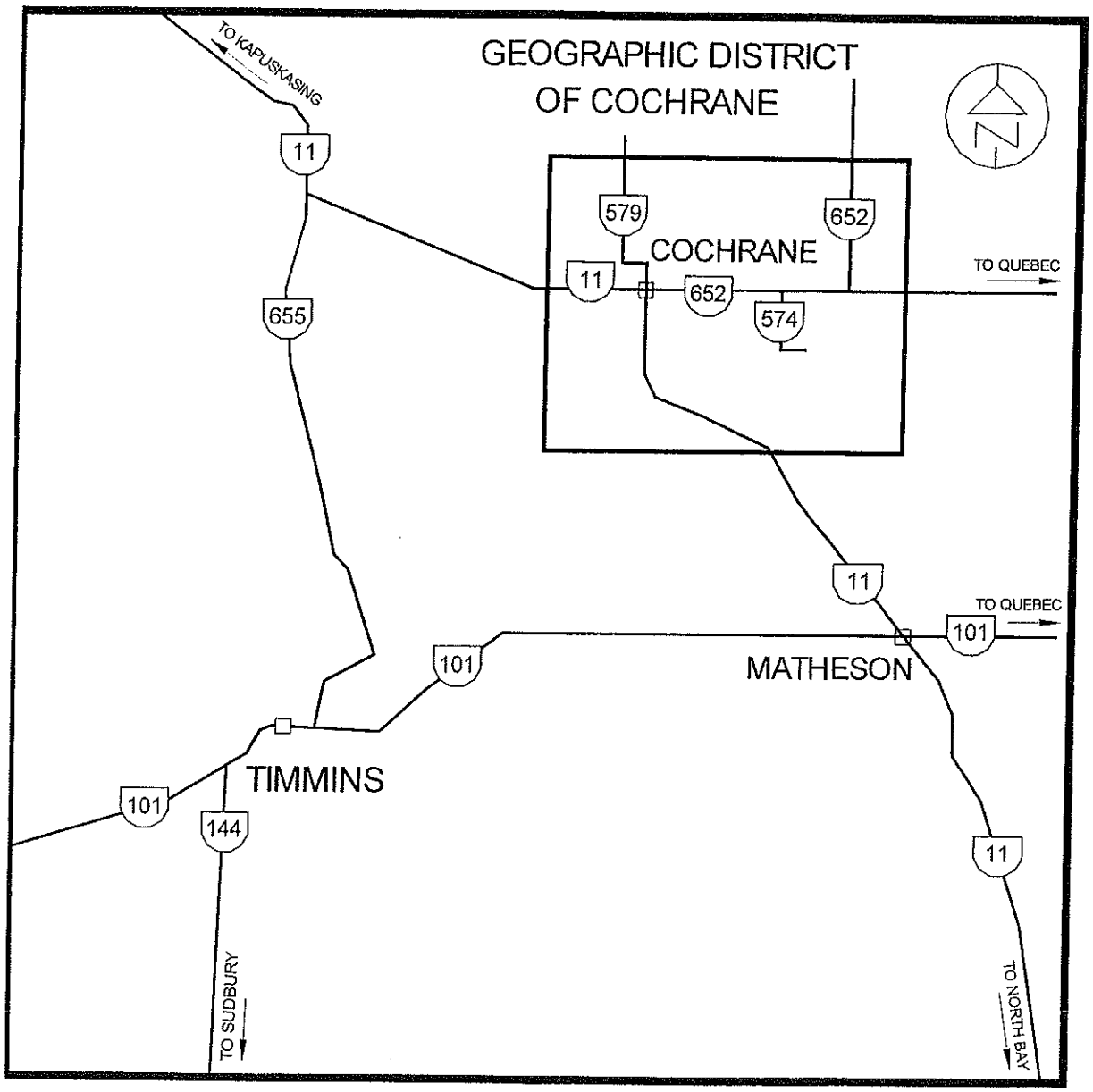
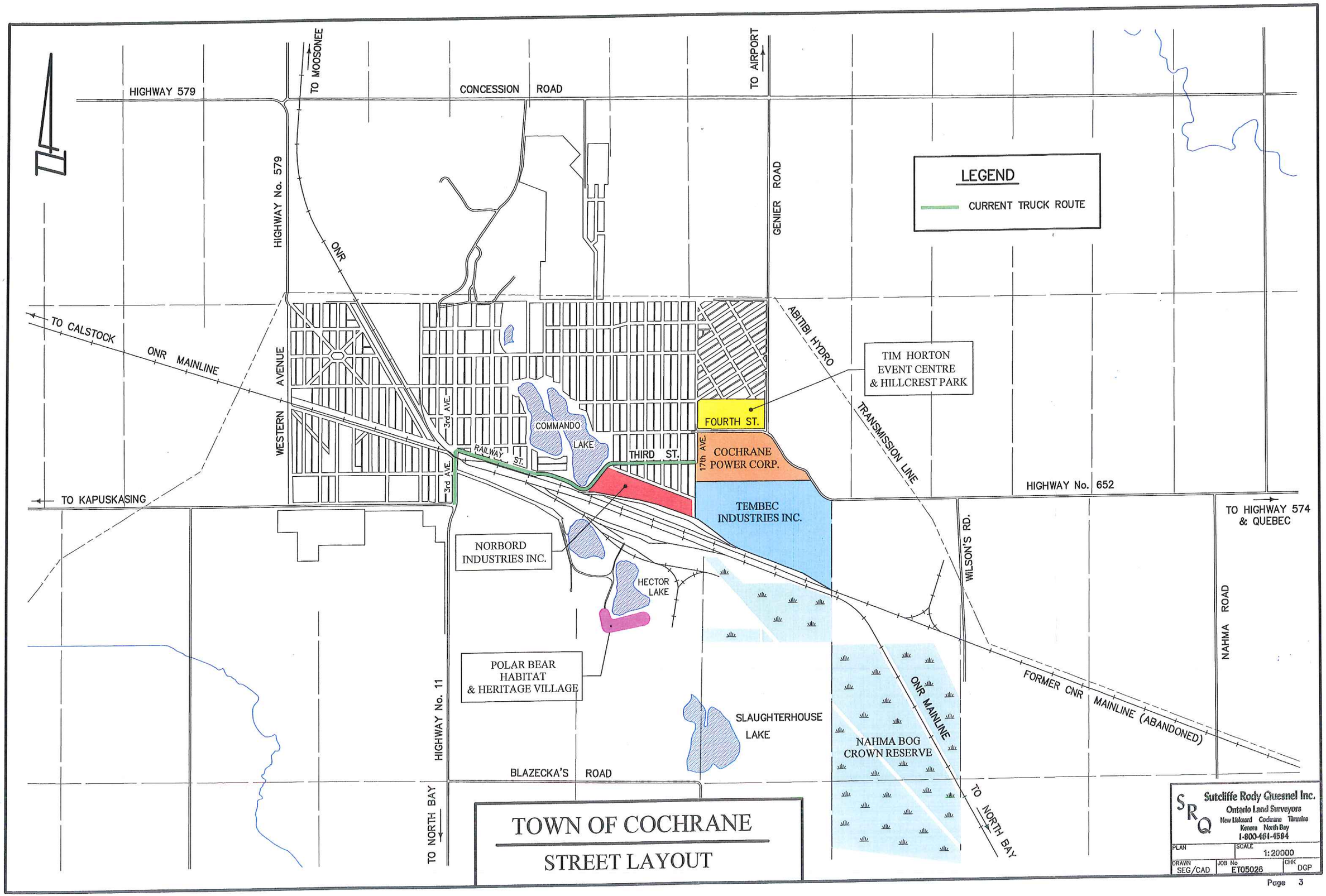




TOWN OF COCHRANE

STREET LAYOUT

Sutcliffe Rody Quesnel Inc.
Ontario Land Surveyors
New Liskeard Cochrane Timmins
Kenora North Bay
1-800-461-4584

PLAN	SCALE
	1:20000
DRAWN	JOB No	CHK
SEG/CAD	ET05026	DGP

1.0 PROJECT ABSTRACT

The Town of Cochrane serves as the sole conduit for truck traffic flowing between Highway 11 and Highways 652 and 574. There are serious concerns due to the passage of heavy industrial trucks through residential and commercial areas, as well as adjacent to Commando Lake which is connected to the groundwater aquifer serving the Town's municipal supply wells. A Feasibility Study for a Truck Route Bypass was prepared in 1980. It identified some of the concerns noted above and recommended an alternate route in the form of a truck bypass that would divert traffic away from the developed area of Town. Upon review of the Study, the provincial Ministries of Northern Affairs and Transportation & Communications called the (then) truck volumes insignificant to warrant a bypass and noted that the truck route was a municipal matter.

In 2006, the volume of truck traffic flowing through the Town represents an even greater problem. The primary issues are:

- The real potential for the contamination of Commando Lake by an environmental spill caused by a truck accident (eg. a bulk fuel tanker) along the existing truck route. Commando Lake is connected to the groundwater aquifer serving the Town's municipal water supply and contamination of the lake would place the municipal water supply in jeopardy.
- The risk to the health and safety of local residents living along, and/or using the existing truck route.
- The traffic congestion caused by the operation of the large industrial trucks within the commercial core of the Town.
- The financial burden on the Town of Cochrane to operate and maintain a route through the Town for truck traffic that serves an interprovincial purpose.

Consultation with Cochrane based industrial and commercial stakeholders confirms visual observations regarding the magnitude of cross Town truck traffic volumes with just these stakeholders causing 84,000 (two way) cross Town truck movements annually with a peak daily volume of more than 500 cross Town truck movements during the

winter log haul period. These figures do not include cross Town truck movements that are attributed to out-of-town stakeholders and are conservatively low.

Economic analysis of the commerce generated by the Cochrane based stakeholders reveals that the value of materials moving cross Town exceeds $217 million on an annual basis. Transported materials include raw materials entering Cochrane to support processing and manufacturing industry; processed material and manufactured goods exiting Cochrane to regional, provincial and USA markets; and produce, manufactured goods and equipment entering Cochrane for consumption or for further transportation by rail or air.

On an annual basis, for just the Cochrane based stakeholders, value of processed material and manufactured goods exiting Cochrane and utilizing the local Cochrane cross Town road system is:

- $17 million to regional markets,
- $20 million to Southern Ontario markets, and
- $35 million to United States markets.

Furthermore through use of the Lake Abitibi Model Forest Regional Community Constellation Impact Model (RCCIM), examination of socioeconomic impacts of the two largest Cochrane based stakeholders, Norbord and Tembec Sawmill, reveals:

- These stakeholders are responsible for 1475 person-years of employment in Ontario annually with one-third of the province-wide employment occurring within the Town of Cochrane and one-half of the province-wide employment occurring in Southern Ontario. Of this province-wide employment, the share reliant on the Cochrane cross Town road system within the context of the Provincial Highway network is 972 person-years with only 333 person-years occurring within the Town.
- Province-wide value added is increased by $115.5 million per year. The share reliant on the Cochrane cross Town road system within the context of the

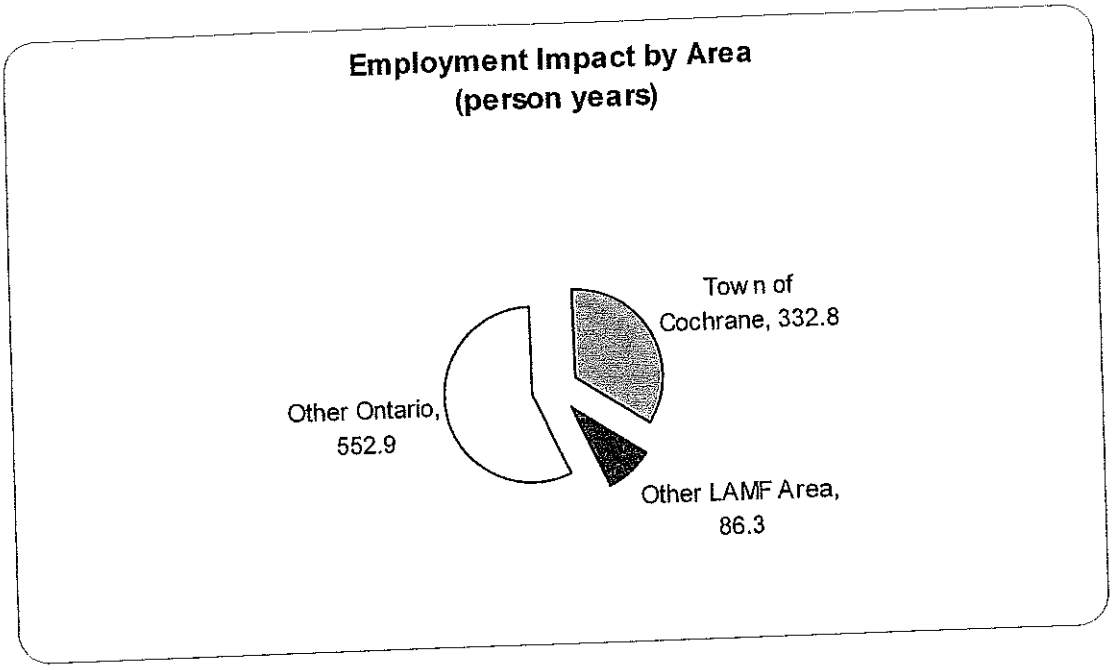
Provincial Highway network is $76.2 million. Value added is equally balanced between the Town of Cochrane, the region, and Southern Ontario.

- Total wages and salaries on a province-wide basis amount to $73.6 million per year. Almost $50 million is reliant on the Cochrane cross Town road system within the context of the Provincial Highway network, with the largest share, 56%, captured by Southern Ontario.
- The industrial activity from the Tembec and Norbord mills results in over $44 million per year of tax revenue to all levels of government. The federal government is the largest recipient, with estimated revenues of almost $22 million representing 49.5% of total taxes. The provincial government collects an estimated $15.8 million, or 35.8%. **The Town of Cochrane benefits by $0.5 million, receiving just 1.1% of total taxes generated by the two mills.**

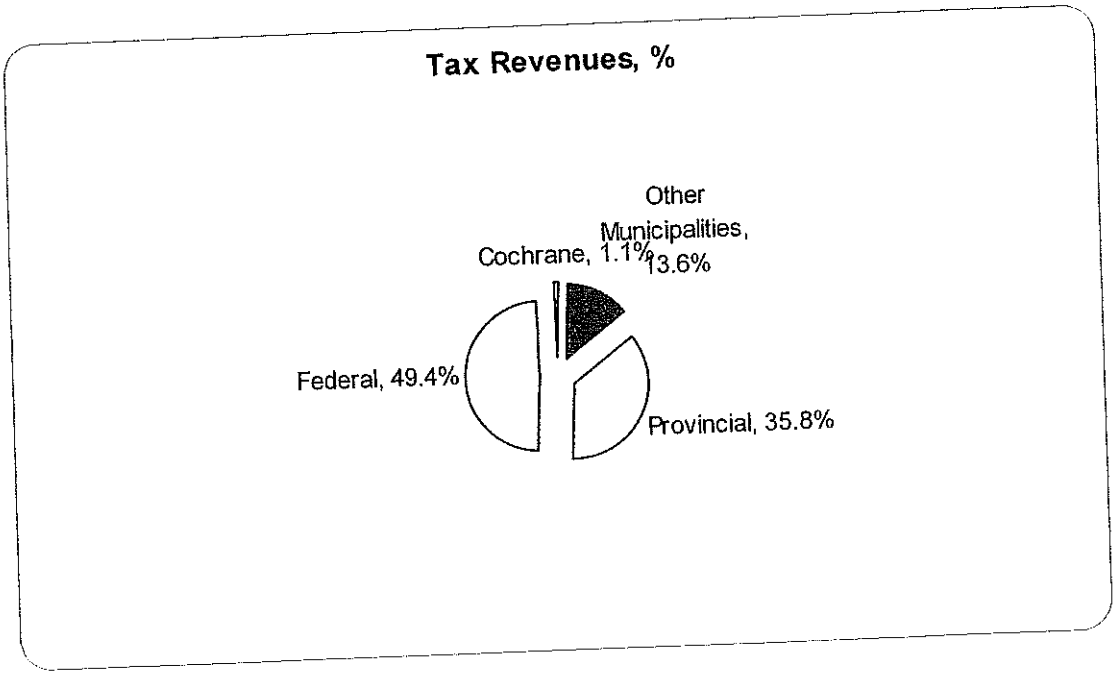
The solution to the problem is the construction of a truck route bypass in a location that diverts the truck traffic away from current and future areas of residential development within the municipality, without adding unreasonable travel distances for stakeholders. In keeping with the results of the economic impact analysis, the funding for the construction and operation of the route should be entirely supplied by the provincial government, and the route become a part of the Provincial Highway network.

Alternative routes have been examined with four routes being identified as feasible. Preliminary estimated construction costs for the four routes range from $7.7 million to $13 million.

Employment Impact attributed to Road Transportation - by Area (person years)



Tax Revenues by level of government (%)



2.0 PROJECT RATIONALE & HISTORY

2.1 Background

The Town of Cochrane is acknowledged to be one of the primary transportation hubs in Northeastern Ontario. The King's Highway No. 11 runs through Cochrane and is part of the Trans Canada Highway System. It handles traffic flows between eastern and western Canada, southern and northern Ontario, as well as goods and materials destined for the United States and beyond. In addition, the Town serves as a conduit for highway traffic emanating from, or destined for, Highways 652, 574 and 579. The truck component of these traffic flows has long been recognized as a safety hazard within the community due to proximity to school areas and pedestrian routes, as well as the traffic congestion that is created within the commercial core.

Several years ago a portion of Highway 579 was re-routed away from the Town's core with the construction of a new connection to Highway 11 at the western edge of Town. Highway 652, however, continues to be linked to Highway 11 by means of the municipal street network in Cochrane.

The Ontario Northland Railway (ONR) mainline also runs through Cochrane. It provides the only land-based link to the communities on the James Bay coast (eg. Moosonee) and offers a direct connection to Toronto and points in between or beyond. The ONR also provides railway service to the area to the west of Cochrane, as far as Calstock.

A district airport with a 1370 m paved runway is located within the municipality, 3 km northeast of the Town.

Cochrane is surrounded by a wealth of natural resources. Over the years, the forestry industry has been particularly active within the region. This has led to the expansion of long-standing processing and production plants within the Town, as well as the construction of new facilities. The industrial buildup has occurred along the north side of

the railway lines, in the vicinity of the eastern extremity of the residential development within the Town. As a result, truck traffic volumes have grown due to the increased consumption of raw materials and the increased production capacities of the local industries. The increase in truck traffic volumes has resulted in the establishment and expansion of support service businesses i.e. service shops and bulk fuel storage in the east and north areas of the Town. As well, in recent years, the payloads carried by the trucks have increased substantially.

The situation described above is not unique to Cochrane. In the 1980's, the residents of Smooth Rock Falls were experiencing similar problems with excessive truck traffic flowing through their Town, between Highway 634 and Highway 11. Ultimately, the Ministry of Transportation of Ontario acknowledged the problem, and the Highway 634 Bypass was constructed in 1989.

2.2 Current Situation

The current population of the Town of Cochrane is 5,500.

There is no present crossing of the ONR tracks in the immediate vicinity of the mills on the east side of Town. Presently, the designated truck route connecting Hwy 11 to the vicinity of the mills must pass through residential areas as well as the downtown commercial area. The designated route follows Highway 652 (in the east end) to Fourth Street, south along Seventeenth Avenue to Third Street, west along Third Street to Railway Street, west along Railway Street past Commando Lake to Third Avenue, and thence south along Third Avenue to Highway 11 (and destinations, or points of origin, to the south & west). An earlier truck route along Fifth Street and Third Avenue had an even greater exposure to residential areas and school children. It also skirted past Commando Lake.

The following problems and concerns exist on a daily basis, in conjunction with the passage of large industrial trucks through the Town of Cochrane:

- Commando Lake's proximity to the current truck route makes it vulnerable to any contaminants that might be released as the result of an accident along this section of the route. Commando Lake, a spring fed kettle lake in the centre of Town, is connected to the aquifer serving the municipality's groundwater supply wells.
- Third Street, between Seventeenth Avenue and Railway Street, has a traveled surface width of approximately 6m, with an additional 0m to 2.5m available for parking on the southside and 0m to 1.5m available on the north side. In winter conditions, the roadway widths available for parking are significantly reduced due to snow accumulations from street plowing.
- Railway Street at the south end of Commando Lake has a radius of approximately 35m (should be R=90m for 50 kph design speed) and an asphalt surface width of approximately 9m. Parking is not permitted in this area. There is little available space for widening of the traveled surface, or realignment improvements, due to proximity to the lake on the north side and the railway embankment on the south side. It is not possible to transport wide loads through this area without encroaching upon the opposite lane due to the tight radius and relatively narrow lanes.
- Railway Street, west of Commando Lake within the commercial area, has an asphalt surface of approximately 14m with parking permitted on both sides. There is no additional space available within the street allowance to permit widening or extra lanes.
- During the winter, high snow banks from street and driveway plowing severely impact sight distances within the residential areas.
- Existing intersections at Third Street/Seventeenth Avenue, Third Street/Railway Street, and Railway Street/Third Avenue are insufficiently wide to permit unobstructed truck turning movements.
- The existing road surface along Third Street is severely rutted, indicating a failure of the road structure due to the traffic loadings.

- There is the ever-present problem of the noise resulting from the operation of the large trucks, as well as the pollutants emitted in the vehicle exhaust. In summer, there is a very significant amount of dust produced by the passage of the trucks.

The input of Cochrane based industrial and commercial stakeholders has been obtained, in order to determine the make-up of the truck traffic that regularly utilizes the route through Town. The truck payloads may be categorized as follows:

- Raw materials, primarily roundwood, coming into Town for processing.
- Processed materials and manufactured goods, primarily lumber, plywood panelboard and wood byproducts, flowing out to external markets in northeastern Ontario, southern Ontario, other provinces, the United States, and other countries.
- Raw materials, processed goods and equipment passing through Cochrane to other destinations.
- Bulk fuel transportation to support the local trucking industry, Highway 11 service station outlets and local heating requirements.

The traffic concerns noted in section 2.1 above are further compounded by the heightened activity in the mining industry in the area and in the James Bay coastal area. With the initiation of construction of the DeBeers Canada Victor Project near Attawapiskat, a significantly increased traffic volume is realized by the Ontario Northland Railway (ONR) in deliveries of processed goods and equipment into the freight yard for shipment by rail to Moosonee for further transport by barge or winter road into the project. In addition, former gold producing sites with proven levels of mineralization, such as the Detour Lake area to the east of Cochrane, become viable when world prices reach current levels resulting in an increase in the movement of exploration equipment through the Town and potentially a large increase in traffic should a mine be opened and taken through to development.

With the increase over the years in transport of raw materials and processed goods into and from industry in Cochrane, the need for bulk fuel deliveries has correspondingly increased opening up new business opportunities and the establishment of a bulk fuel

storage yard north of Cochrane. The establishment and growth of this new business has resulted in the regular and frequent movement of bulk fuel tankers across Town on the existing truck route between Hwy 11 and the bulk fuel storage yard.

2.3 Future Consequences (Status Quo)

If the project is not completed, there is the potential for some very serious implications to the Town. The following is a list of some of the risks that will continue to exist if heavy industrial truck traffic continues to flow through Cochrane:

- An accident involving a bulk fuel tanker truck, in the vicinity of Commando Lake would contaminate the lake. Commando Lake is situated within the sand and gravel esker oriented in a north-south direction and dissecting the built up area of the Town. The esker makes up the groundwater aquifer which feeds the municipal well field located in the north part of the built up area of the Town. A municipal groundwater study completed in 2004 under the Ontario Operation Clean Water initiative identified Commando Lake as being within the 2 year time-of-travel (TOT) capture zone for the municipal well field. The study recommended the municipality take action to minimize or avoid the risk of contamination of the aquifer with particular attention to uses within the 50 day and 2 year TOT capture zones. Should such an accident occur, there would be an urgent and critical need to establish an alternate water supply or provide for an additional level of treatment, i.e. activated carbon filters, in addition to the requirements of an environmental cleanup. The required remedial action for the municipal water supply, servicing a population of 4500, would entail costs in the millions of dollars. In addition, given the current provincial government emphasis regarding source protection of water supplies, public criticism of governments at all levels, municipal, provincial and federal, for not taking action to minimize the risk such an event would be vocal and immediate.
- An accident involving a large truck and a pedestrian, or a school child, resulting in personal injury, or, in the extreme, loss of life. Ultimately, this could result in a

legal action or actions costing thousands of dollars to defend and millions of dollars to settle.

- An accident involving a large truck and a family vehicle, resulting in personal injury, or in the extreme, loss of life. Again, this could result in a legal action or actions costing thousands of dollars to defend and millions of dollars to settle.
- The failure of the roadway structure along the full length of the current route. The resulting costs of a complete reconstruction would be several million dollars, not to mention the negative effect on the downtown business core and the impact on access to the Ontario Northland Railway station.
- Ill health amongst local residents as a result of continued exposure to truck noise, exhaust contaminates, and dust. In the extreme, this could result in a legal action or actions costing thousands of dollars to defend and millions of dollars to settle.

3.0 PROJECT DESCRIPTION

3.1 Objectives

The purpose of this business case is to identify the volume and the economic significance of the truck traffic flowing through Cochrane, and to distinguish the provincial, interprovincial, and international (eg USA) elements from the regional. In so doing, the economic data will be used to justify the construction of a new truck bypass and to have that new route included in the Provincial Highway network.

The primary objectives of the overall project are as follows:

- Eliminate the potential for the contamination of the Town's water supply in the event of an environmental spill into Commando Lake (located immediately adjacent to the existing truck route).
- Eliminate the safety hazards associated with heavy industrial trucks traveling through areas that are near to schools or school children, and/or pedestrians.
- Eliminate the traffic congestion and conflicts that occur in the downtown commercial core, as a result of the long tractor-trailer loads passing along areas

with parallel parking, and having to negotiate stop conditions followed by 90 degree turning movements within undersized intersections.

- Eliminate the dust and noise, which is produced by the truck traffic, from the residential and commercial areas.
- Eliminate the increased road maintenance costs that result from the heavy trucks using the Town streets along the existing route.
- Minimize the impact on existing development along any new route.
- Minimize environmental impact along any new route.
- Ensure that any new route is operationally sustainable and minimizes maintenance demands.
- Ensure that any additional transportation costs (travel distance) for the industrial and commercial stakeholders are kept to a reasonable amount.

3.2 Project Scope

The truck bypass project will include three phases – planning, design and construction.

The initial planning phase shall be comprised of the preparation of a business plan for the construction of the bypass, a route selection process, public consultation and input, screening of environmental impacts, completion of an Environmental Study Report under a Class Environmental Assessment, identification of property requirements and identification of land use conflicts.

The second phase will be the design phase. It will include property acquisition and associated legal surveys, pre-engineering surveys, geotechnical investigations, structural investigations (bridges and culverts, as required), identification of utility conflicts, acquisition of external approvals (eg. new railway crossings, new highway intersections), detailed engineering design, and the preparation of a contract package for tendering.

The final phase will involve all construction operations. It will include all required utility relocations, replacement or rehabilitation of any existing structures (if required), and the construction of the new roadway.

3.3 Expected Results

The construction of the new truck route bypass will provide immediate and long-term improvements to public health and safety within the Town of Cochrane, as well as a significant reduction in expenditures for road maintenance (and eventually reconstruction costs) along the current truck route. Some of the specifics are as follows:

- Reduce the contamination risk to Commando Lake, and therefore, the Town's water supply.
- Eliminate the current safety hazard caused by heavy industrial truck traffic traveling through residential areas and the downtown core.
- Eliminate the noise, exhaust and dust pollution presently impacting residential areas and downtown businesses.
- Free up municipal funds formerly allocated to road maintenance work for other critical infrastructure renewal within the Town.
- Reduce the potential for imminent structural failure of the current municipal roadways and the associated reconstruction costs.

3.4 Stakeholders

The following is a list of the primary stakeholders contacted, together with a brief summary of their relationship to the project. Industrial and commercial traffic in and around Cochrane is not limited to these identified stakeholders, however, the above list is considered to represent the prime companies affected by an alternate bypass truck route and are considered to represent the majority of industrial and commercial traffic volume through the Town under existing conditions. For example, there are other fuel suppliers that make regular bulk deliveries to clients within, or near, Cochrane. Therefore, it

should be noted that the traffic volumes presented in this document are considered to be conservative.

Stakeholder	Details
Tembec Industries (Cochrane Sawmill)	Lumber and Wood Byproducts Producer
Tembec Industries (Forest Resources Management)	Wood Supply
Norbord Industries	Plywood Panelboard Producer
Gaetan Verreault Fuels	Bulk Fuel Supplier
Cochrane Power Corporation	Cogeneration Facility, Wood Byproducts Consumer
Genier Bros. Trucking	Trucking Contractor for Forestry Industry
P & J Norris Trucking	Trucking Contractor for Forestry Industry
C. S. Enterprises (Moose Band Development Corporation)	Trucking Contractor for Forestry Industry, Forestry Equipment
M. J. Labelle Co. Ltd.	Road Building Contractor; Supplier of Aggregate
Abitibi Consolidated	Wood Supply, Wood Byproducts Consumer
CJ's Hauling & Disposal	Trucking Contractor for Forestry Industry, Roll-off Containers
B & F Shier	Supplier of Aggregate
Yves Genier & Sons	Landscaping Contractor, Supplier of Aggregates
Ontario Northland Railway	Freight Loading for Rail Transportation
L. Richards Moving & Cartage	Produce Transportation
Fortier Beverages	Soft Drink Producer/Supplier

3.5 Project Benefits

The construction of a truck route bypass will provide benefits to the local residents, the users of the truck route and the Town of Cochrane. The realization of the benefits will begin immediately upon the initiation of the construction contract and continue into the long term. The primary benefits are as follows:

- Employment opportunities and an immediate boost to the local economy at the time of construction.

- The re-routing of the heavy truck traffic away from Commando Lake will be of major significance in the Town's strategy to protect the source of the municipal water supply.
- The elimination of the truck traffic from the residential areas and the downtown commercial core will greatly improve the safety conditions for pedestrians, school children, and commercial clientele who frequent the existing truck route. A number of years ago there was a fatality in Town involving a young child and a large truck.
- The elimination of dust, noise and vehicle exhaust from the residential areas will have a direct impact upon the health and quality of life of the local residents living along the existing truck route.
- The traffic congestion caused by the operation of the large industrial trucks on undersized roadways and intersections within the Town will be eliminated.
- The resources and expenditures previously committed by the Town towards operating and maintaining a truck route will be freed up for use on other critical municipal initiatives.
- The stress on the truck drivers when operating in the confined conditions along the existing truck route will be eliminated.
- The new truck route bypass will provide a corridor that would be ideal for future industrial and commercial development.
- The elimination of truck traffic from the developed areas should result in reduced policing costs to the Town.

3.6 Project Risks & Mitigation

The construction of a new truck route bypass will also involve some risks. These risks will be identified during the planning and design phase and mitigation measures will be developed. The following risks have been determined during the preparation of this business case:

- The soil conditions along the alternate routes are largely unknown. This can be a particular concern in areas with significant muskeg deposits, as the capacities of the underlying soils to provide a suitable foundation for the roadway becomes a primary issue. Extensive geotechnical investigations will be conducted during the design phase to determine soil types and develop foundation designs.
- The generally flat terrain along most of the alternatives could present some drainage concerns. Roadway culverts and road surface elevations will be designed such that there is no possibility of flooding.
- The timeliness of the inter-related items such as property acquisition, external agency approvals, and utility relocation is essential in maintaining the schedule of the project. On-going communications will all such stakeholders will be co-ordinated through a sole person (office) throughout the design phase in order to eliminate or limit any delays.
- Funding approvals must be received in a timely manner so as not to jeopardize the overall schedule of the project. Again, a focused and well co-ordinated method of communication should ensure that no delays are experienced due to a lack of funding.
- Work involving the removal of muskeg may be best done in the winter. If this is determined to be desirable, then the scheduling of the design phase, and the issue of a tender call, must be adjusted accordingly.
- Some of the alternatives involve areas with potential environmental concerns (eg. Slaughterhouse Lake, Nahma Bog). A full class environmental assessment could be requested by affected parties.

4.0 PLANNING & DESIGN CONSIDERATIONS

4.1 Traffic

The Town of Cochrane, in serving as a transportation hub, is subjected to significant traffic flows. The Town is a destination and point of origin for industrial and commercial

materials handled and produced by companies such as Norbord, Tembec Sawmill, Cochrane Power and the Ontario Northland Railway. It also serves as a conduit for industrial truck traffic flowing to and from Highway 11, along Highway's 652 and 574. The highway/roadway system, within the Town, requires truck traffic to flow through residential areas, as well as the downtown core. Industrial developments during the past twenty-five years, within the Town and within the local district and region, have placed an increased traffic burden upon the streets of Cochrane.

Traffic data from the 1980 Feasibility Study is provided in Appendix 3 – refer to Figure 1, "Average Annual Daily Traffic" (based upon a 1978 MTC survey) and Figure 2, "Traffic Interacting with Town" (1975 AADT's and projected 1990 AADT's, based upon 1975 MTC data). The following are some excerpts from that data:

Location	All Traffic	Trucks	Remarks
Third Ave @ Hwy 11	5581	854	Total traffic - Town to/from Hwy 11 (1978)
Fifth Street (Truck Route)	3683	571	Max values between 3rd Ave & 14th Ave (1978)
Fourteenth Ave	532	120	To/from Normick (Tembec) Sawmill (1978)
Hypothetical Route 2 (now Alt 4, south of Hector Lake)	1134		Between Hwy 652 & Hwy 11 (1975); To/from Hwy 11S – 672 vpd, To/from Hwy 11W – 462 vpd
Hypothetical Route 2 (now Alt 4, south of Hector Lake)	2430		Between Hwy 652 & Hwy 11 (1990 Projection); To/from Hwy 11S – 1440 vpd, To/from Hwy 11W – 990 vpd

As part of the process of completing this business case, the prime industrial and commercial stakeholders were notified of the project, and their input was requested regarding current truck volumes, average weights of the truck payloads, approximate values of the payloads, and the points of origin/destination for the materials being transported. Table 1 provides a summary of the truck volume data received from the stakeholders and a detailed summary of stakeholder data is presented in Appendix 2 – Stakeholder Correspondence & Data re Current Truck Traffic. Data received from the trucking contractors (jobbers) to the forestry industry is incorporated into the data received from Tembec and Norbord as these jobbers are primarily contracted to these two

industries. Where a trucking contractor's business results in cross Town traffic volume not related to forestry, this data has been included in Table 1. In addition to the figures presented in Table 1, there will be other industrial or commercial traffic volumes related to other activities such as periodic deliveries of goods to businesses i.e. delivery of steel and transport of hay and grain related to agricultural, construction projects and out-of-town suppliers fuel delivery.

In summary, a conservative estimate of annual cross Town industrial and commercial traffic volume is 84,000 (two way) movements. Typically, transport patterns are such that backhauls are minimal resulting in movements that are loaded in one direction and empty in the other. Traffic volumes are not uniform throughout the year with volumes peaking in the winter months during the log haul into the mills.

Table 1

Stakeholder	Annual Trucks*	Remarks
Tembec	45,850	Tractor Trailer Loads - Logs, Chips, Shavings/Sawdust, Lumber
Norbord	17,300	Tractor Trailer Loads - Logs, Chips, Finished Product, Core, Supplies
Cochrane Power	7,500	Tractor Trailer Loads - Sawdust
Verreault Fuels	3,500	B-Train & Tandem Fuel Tankers
C.J. Haulage	1,200	Roll-off Containers
L. Richards Cartage	1,800	Tractor Trailer & Tandem Loads - Produce
Ontario Northland Railway	1,500	Rail Freight Yard
Abitibi-Consolidated		Volumes included with Tembec & Norbord
Aggregates	4,000	Tandem Loads
Floating Equipment	960	Tractor Trailer Loads
TOTAL	*83,610*	*AADT (250 days) = 335 (Trucks)* *AADT (365 days) = 229 (Trucks)* *Daily Peak (Winter) = ~ 500 (Trucks) see below*

* Annual volumes are based upon a production period equivalent to 50 weeks @ 5 days/wk (ie. 250 days).

The stakeholders in the forestry industry indicated that truck volumes peak during the winter haul period between January and March. A Norbord representative gave comparative volumes of 40 trucks per day as a normal daily average for his company, versus a winter peak of approximately 100 trucks per day. Therefore, using the data presented above, and appreciating that the Tembec operations have seasonal fluctuations

that are similar to Norbord, it is reasonable to assume that volumes during the winter peak period may exceed 500 trucks per day.

Assuming that most of the vehicular traffic (non trucks) presently utilizing Highway 652 will also use the truck route, then the combined traffic volumes can be used to establish usage expressed as the following:

AADT – Average Annual Daily Traffic

DHV – Design Hourly Volume

PHV – Peak Hourly Volume

Percent (%) commercial values, as well as projected future usages, can also be established.

A detailed traffic study has not been completed for this business case, however, based upon the 1989 AADT of 900 (see Appendix 1) for Highway 652 at Highway 574 (approximately 15 km east of Cochrane), an AADT in the range of 1200 to 1500 vehicles is expected. This is the approach that has been taken to determine a preliminary design speed, highway geometrics, cross section elements (lane & shoulder widths), and geotechnical standards (asphalt & granular thicknesses).

4.2 Design Criteria

The proposed truck bypass is classified as a rural arterial undivided roadway with a design speed of 80 kph. A copy of a Preliminary Design Criteria form, together with a Typical Section, is included as Appendix 1. An excerpt from the MTO Pavement Design and Rehabilitation Manual is also attached as justification for the proposed roadway structure. The following is a summary of the design parameters that are proposed for this project:

- Traveled Surface – 2 x 3.25m lanes
- Shoulders – 2.0m
- Shoulder Rounding – 0.5m
- Minimum Horizontal Radius - 250m

- Maximum Gradient – 8%
- Minimum Vertical Curves - Crest: K = 35
- Sag: K = 30
- Proposed Roadway Structure (for cost estimation purposes):
  - Surface - 60mm Superpave 19 (Double Surface Treatment optional)
  - Base – 150mm Granular A
  - Subbase - 1100mm Granular B
  - Subgrade Replacement (muskeg areas) – Select Subgrade Material

4.3 Alternate Routes

There were a total of six routes examined during the 1980 Feasibility Study for a Truck Route Bypass. Two of the routes had 'A" and "B" options. Location plans for each of these routes are provided in Appendix 3 (see Route 1, Route 2, etc.). Ultimately, the preferred route was determined to be "Route 1A" (see Town letter of February 16, 1981 in Appendix 3). The 1980 Study identified the flow of truck traffic through the interior of the Town as a hazard to school children and pedestrians, and a detriment to the Town's road system. The option of the southerly route connecting to Concession Road 5/6 (also known as Blazecka's Road) in Lamarche Township would eliminate the pedestrian hazards and the wear and tear associated with the interior alternatives, and would result in the least impact on existing residences and developments.

In preparing this business case, considerations are given to the evaluations and recommendations made in the 1980 Study and the developments that have occurred within the Town since that time. As a result, the alternate routes under consideration at this time are as follows:

- Alternative 1 / North Road (Route 5 in the 1980 Study) – commencing at the Norbord/Tembec weigh scales adjacent to the intersection of Third Street and Seventeenth Avenue, this route proceeds north on Seventeenth to Fourth Street, then east on Fourth (formerly Highway 652) to Genier Road, then north on Genier to Concession Road 2/3 (Glackmeyer Township), then west on the Concession

Road to Western Avenue (formerly Highway 579), and then south along Western to Highway 11. The approximate distance of the route described above is 8.26 kilometres.

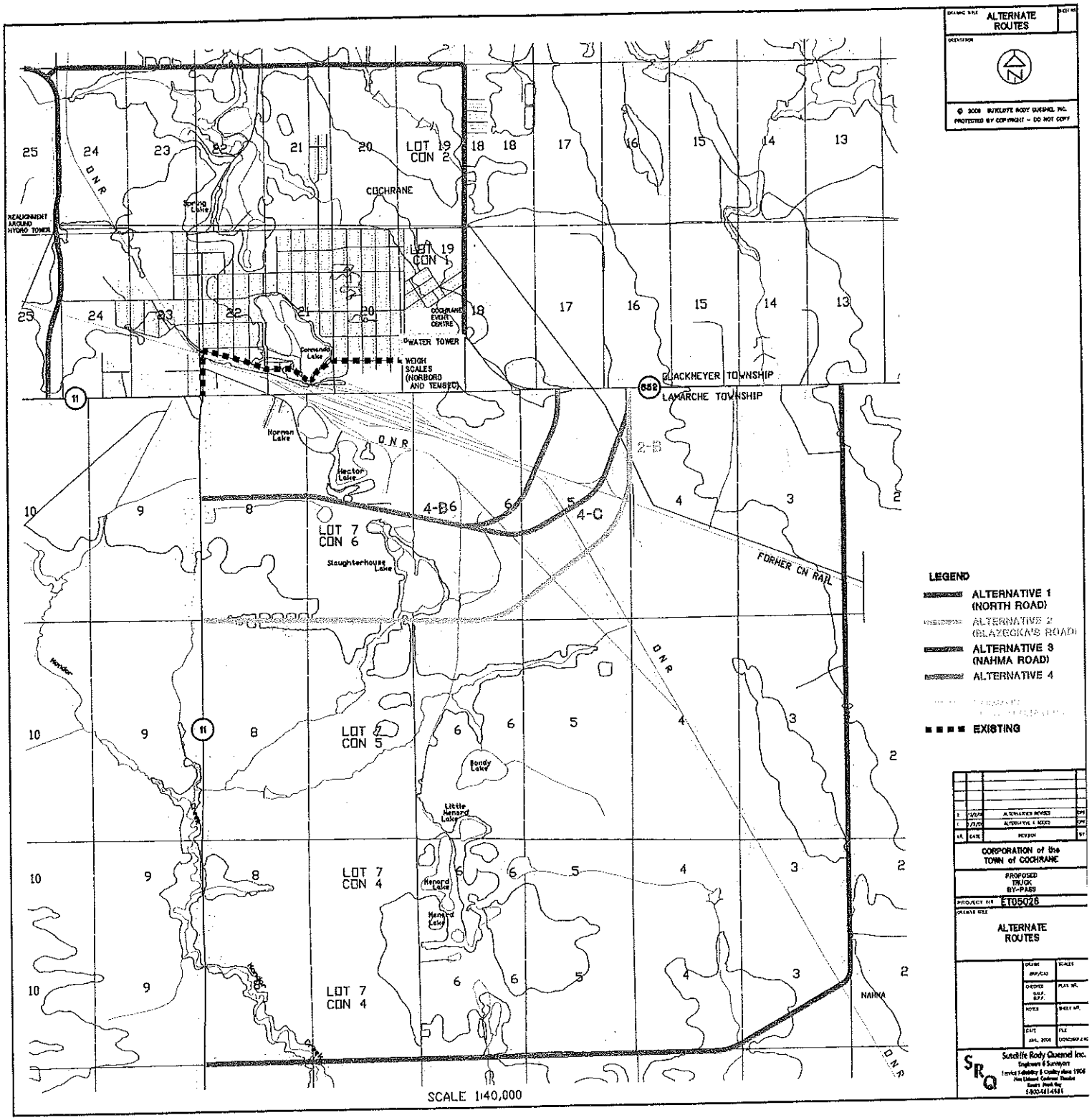
- Alternative 2B / Blazecka's Road (Route 1B in the 1980 Study) - commencing at the Norbord/Tembec weigh scales adjacent to the intersection of Third Street and Seventeenth Avenue, this route proceeds north on Seventeenth to Fourth Street, then east on Fourth (& the former Highway 652) for a distance of approximately 1.8 km to Wilson's Road, then south along Wilson's to approximately 200m north of the former Canadian National Railway right-of-way at which point a new alignment (approximately 2.2 km in length) begins and eventually curves to the west, matching into the existing roadway along Concession 5/6 in Lamarche Township, and then west along the Concession Road to Highway 11. The approximate distance of the route described above is 6.4 km. Another element of note to this alternative is the potential of a "back door" access road to the Tembec and Norbord sites via the former CNR right-of-way.
- Alternative 3 / Nahma Road (not considered in the 1980 Study) - commencing at the Norbord/Tembec weigh scales adjacent to the intersection of Third Street and Seventeenth Avenue, this route proceeds north on Seventeenth to Fourth Street, then east on Fourth (& the former Highway 652) for a distance of approximately 3.4 km to the Nahma Road, then south along Nahma to Concession Road 3/4 in Lamarche Township, and then west along the Concession Road to Highway 11. The approximate distance of the route described above is 13.4 km.
- Alternative 4B / Hector Lake (approximately Route 2A in the 1980 Study) - commencing at the Norbord/Tembec weigh scales adjacent to the intersection of Third Street and Seventeenth Avenue, this route proceeds north on Seventeenth to Fourth Street, then east on Fourth (& Highway 652) for a distance of approximately 1.3 km to the access road for C.S. Enterprises, then south along a new alignment on the west side of the C.S. Enterprises property, crossing the former CNR right-of-way and the existing ONR mainline at 900, and eventually curving to the west, between Hector Lake & Slaughterhouse Lake and connecting to Highway 11. The approximate distance of the route described above is 4.9 km.

Another element of note to this alternative is the potential of a "back door" access road to the Tembec and Norbord sites via the former CNR right-of-way.

- Alternative 4C / Hector Lake (Route 2B in the 1980 Study) - commencing at the Norbord/Tembec weigh scales adjacent to the intersection of Third Street and Seventeenth Avenue, this route proceeds north on Seventeenth to Fourth Street, then east on Fourth (& Highway 652) for a distance of approximately 1.8 km to Wilson's Road, then south at Wilson's along a new southwesterly alignment, utilizing a former railway bed (CNR turnaround siding), crossing the former CNR right-of-way, and then crossing the existing ONR mainline at 900, and eventually curving to the west, between Hector Lake & Slaughterhouse Lake and connecting to Highway 11. The approximate distance of the route described above is 5.9 km. Another element of note to this alternative is the potential of a "back door" access road to the Tembec and Norbord sites via the former CNR right-of-way.
- Note – Alternatives 2A & 4A represented routes that were considered in the very early stages of the preparation of this business case, but subsequently eliminated due to insurmountable issues relating to property and the environment.

For comparative purposes, the existing truck route begins at the Norbord/Tembec weigh scales adjacent to the intersection of Third Street and Seventeenth Avenue, and proceeds west along Third Avenue to Railway Street, then west on Railway Street around the south end of Commando Lake and past the Ontario Northland Railway Station (including the downtown commercial core) to Third Avenue, and finally south along Third Avenue to the intersection with Highway 11. The approximate distance of the route described above is 1.9 km.

A plan showing all of the alternate routes being considered, as well as the existing route through Town, is provided on the next page.


ALTERNATE ROUTES
© 2008 SUTCLIFFE RODY QUESNEL INC.
PROTECTED BY COPYRIGHT - DO NOT COPY
LOT 19 CON 2
LOT 19 CON 1
COCHRANE
Spring Lake
REALIGNMENT AROUND HYDRO TOWER
COCHRANE EVENT CENTRE
WATER TOWER
WEIGH SCALES (NORBORD AND TEMBEC)
Commando Lake
BLACKMEYER TOWNSHIP
LAVARCHE TOWNSHIP
Norman Lake
Hector Lake
LOT 7 CON 6
Slaughterhouse Lake
FORMER CN RAIL
LOT 7 CON 5
Bondy Lake
Little Menard Lake
LOT 7 CON 4
Menard Lake
NAHMA
ONR
LEGEND
ALTERNATIVE 1 (NORTH ROAD)
ALTERNATIVE 2 (BLAZEGKA'S ROAD)
ALTERNATIVE 3 (NAHMA ROAD)
ALTERNATIVE 4
EXISTING
CORPORATION of the TOWN of COCHRANE
PROPOSED TRUCK BY-PASS
PROJECT NO ET05026
ALTERNATE ROUTES
Sutcliffe Rody Quesnel Inc.
SCALE 1:40,000

4.4 Environmental Concerns

The planning, design and construction of an alternative truck bypass route would be considered to be a Schedule C project under the respective Class Environmental Assessment whether a municipal or Ministry of Transportation undertaking. Accordingly, the planning for the project must follow the respective Class EA process considering social, economic and environmental factors, providing for mitigation where adverse impacts are identified. Public and stakeholder consultation form a key component of the planning process with planning, consultation and decision-making required to be documented in an Environmental Study Report. Effort by the Town of Cochrane in preparation of this business plan in support of an alternative truck bypass route has been undertaken with due regard for the Class EA process facilitating the seamless continuation of the project through to construction. The above process also provides opportunity for public review and comment on the decision making process and the identified preferred alternative.

In addition, should approvals or authorizations from Federal agencies be required or should Federal funding contributions apply to the project, the requirements of the Canadian Environmental Assessment Act apply to the project. Through these legislated requirements, social, economic and environmental factors will be adequately addressed and relevant mitigation measures identified.

4.5 Land Use Conflicts

There are varying degrees of existing residential development along each of the proposed alternatives. Alternative 4 will have the least impact as it basically follows an entirely new alignment, and only comes near to existing buildings at the points of intersection with Highways 11 & 652. The areas along this route are less likely to be developed due to the soil conditions (muskeg) and current land use restrictions. The land abutting the Genier Road portion of Alternative 1 is largely developed and therefore offers the greatest potential for conflict. In addition, of the four alternatives under consideration,

the soils and topography along the route of Alternative 1 are the most conducive to future development. There is sporadic rural development along portions of the proposed routes of Alternatives 2 and 3.

Alternative 4 has the least potential for conflict with existing utilities and infrastructure, as most of it will be located on a new alignment in an undeveloped area. The east/west leg of Alternative 2 follows an existing roadway, which contains a buried gasmain and buried telephone cable. Due to the expected presence of muskeg, it is expected that these facilities will require relocation. Alternative 1, as noted above, passes through a developed area, and, as such, will contend with existing municipal infrastructure, gasmains, hydro transmission facilities (both high and low voltage), and telephone & communication facilities.

Each of the four alternatives contains a railway crossing that will require signals. Alternatives 1 and 3 have existing crossings that require improvements to the existing alignment. Alternatives 2 and 4 will involve new crossings; a power supply line will be required for each of these alternatives.

The rail bed of the former Canadian National Railway (CNR) mainline to Quebec is used as a recreational trail on a year round basis. Alternatives 2, 3 and 4 cross the former CNR right-of-way.

The Polar Bear Habitat Heritage Village is located adjacent to the south shore of Hector Lake. The facility is an initiative of the Cochrane and Area Community Development Corporation. The route of Alternative 4 will pass immediately to the south of the site of this facility.

The Ontario Federation of Snowmobile Clubs (OFSC) 'TOP A' Trail runs southeasterly from Cochrane to Iroquois Falls. It crosses Alternatives 2B, 3, 4B and 4C.

A patterned bog, known as the Nahma Bog, has been identified within the southeastern section of the Town. It has previously been surveyed and reported on by the Great Lakes Research Centre for the Canadian Forestry Service. The bog area contains species of vegetation normally found in Arctic regions. In 2005, the bog area received Conservation Reserve designation under Schedule 261, O.Reg. 181/05. The general location of the Conservation Reserve is identified on the Town of Cochrane Street Layout plan. In general, crossing of the Conservation Reserve with a new roadway is not considered a permitted use. Alternative 2 would cross the Conservation Reserve. Alternative 4 would be in proximity of the Conservation Reserve with perhaps some slight encroachment in certain areas dependent upon alignment.

4.6 Soils & Surficial Geology

Overburden materials primarily consist of silty clay in a glaciolacustrine plain deposit in the westerly and southerly quadrants of the study area and clayey till in a ground moraine deposist in the north-easterly quadrant of the study area. A sand and gravel esker, oriented in a north-south direction, bisects the urban area of the Town and the glaciolacustrine plain and ground moraine deposits in the north part of the study area. Within the study area, the esker encompasses a series of lakes and surface water features extending from Lillabelle Lake in the north to Slaughter House Lake in the south. Peaty organic deposits are interdispersed within the glaciolacustrine plain deposit becoming a predominant feature in the southeasterly portion of the study area and form the northerly extent of the Nahma Bog.

The 1980 Feasibility Study indicated that probe holes had been completed in the swamp areas on the south east side of Town, and that the results indicated a moss layer of approximately 300 mm overlying muskeg deposits of between 8 feet (2.4 metres) and 14 feet (4.3 metres).

A geotechnical investigation was conducted in 2000 as part of the design for a Highway 11 Improvement Contract at Cochrane (MTO Work Project 298-96-00). Excerpts from

the borehole data from that investigation are presented in Appendix 8. Muskeg depths, in the vicinity of the proposed intersections with Highway 11 and Alternatives 2B, 4B and 4C, range between 2.0 m and 2.7 m.

4.7 Hydrology & Drainage

Surface water drainage within the study area is dependent upon local surface relief. Local stormwater drainage in the central developed core of the Town outlets via storm sewer outfalls into adjacent small kettle lakes, from Lily Lake in the north to Hector Lake in the south. Drainage in the northwest and northeast quadrant of the study area is tributary to Lillabelle Creek flowing northerly through Lillabelle Lake and thence into the Abitibi River system. Drainage in the south-southwest portion of the study area outlets via a system of ditching and excavated drains southwesterly into Mondor Creek which in turn flows into Wicklow River and thence the Fredrickhouse River system. Wetlands predominate in the southeast quadrant of the study area forming the northerly extent of the Nahma Bog.

4.8 Property Requirements

It is anticipated that a 30 metre (100 ft) right-of-way (ROW) will be required for the truck route bypass. This is in keeping with minimum highway standards. A typical roadway cross section is included with the Design Criteria in Appendix 1.

Alternative 1 follows existing ROW's along its' entire length. For the most part, these ROW's are 20 metres (66 ft) in width. Property widenings will be required along much of the route in order to accommodate the design section, as well as the existing utilities. Also, additional property will be required at the two corners on Genier Road (ie. Fourth Street & Concession Road) for intersection enlargements, at the Abitibi Power Transmission towers on Western Road for a horizontal alignment correction, and at the ONR crossing on Western Road for sightline improvements. Approximate property

requirements for the anticipated widenings & intersections are 4.3 hectares in urban areas & 1.3 hectares in rural areas.

Alternative 2 follows an existing 20 metre ROW, known as Blazecka's Road, along its' western leg, and another 20 metre ROW, known as Wilson's Road, at its' eastern extremity. A property widening will be required along these portions of the route (likely on the north and west sides of the roadways), in order to accommodate the design section, as well as the existing utilities. Also, property will be required for the proposed new ROW in between, as well as for an intersection enlargement at Highway 652. Approximate property requirements for the anticipated widenings & intersections are 2.3 hectares (all in rural areas), together with 6.3 hectares for the totally new ROW (all rural).

Alternative 3 follows an existing 20 metre ROW, known as the Nahma Road, along its' entire length. Property widening will be required along this route in order to accommodate the design section and the existing utilities. Also, additional property will be required in the vicinity of the existing ONR crossing for a horizontal alignment correction, as well as at Highway 652, and possibly Highway 11, for intersection enlargements. Approximate property requirements for the anticipated widenings & intersections are 8.1 hectares (all in rural areas), together with 3.6 hectares for the new ROW realignment at the ONR crossing (also rural).

Alternative 4B requires an entirely new alignment. Also, property will be required for an intersection enlargement at Highway 652. Approximate property requirements are 10.1 hectares (all rural).

Alternative 4C requires an entirely new alignment, with the exception of the eastern extremity, which follows the 20 metre Wilson's Road ROW. In addition to the property required for the new ROW, a property widening will be required along the Wilson's Road portion (likely on the west side), in order to accommodate the design section, as well as the existing utilities. Also, property will be required for an intersection enlargement at Highway 652. Approximate property requirements for the widening &

intersection are 0.2 hectares (all in rural areas), together with 11.0 hectares for the new ROW (all rural).

4.9 Public Participation & Input

A public information session was held the evening of January 25, 2006 from 6:00 p.m. to 8:00 p.m. to present the routes under consideration as an alternative truck route bypassing the downtown core of the municipality to the general public and to solicit public comment. The public information session was held at the Town Hall building in Cochrane with Town staff, Town Council members and staff of Sutcliffe Rody Quesnel in attendance. The session was advertised via a public notice placed in the local paper, the Cochrane Times-Post, the weeks of January 13th and 20th, 2006.

An information package outlining the background to the development of a business case, the alternative bypass routes under consideration and requesting comment was provided to all public attending the information session. Copy of the information package provided to the public is attached as Appendix 5. Presentation of the background information and routes under consideration was made and ensuing questions responded to by SRQ staff. Subsequent to the presentation, opportunity for one on one discussion was provided. The public information session was well attended with 20 signatures on the information session attendance sheet.

The information package was also made available to all public requesting a copy and not in attendance at the public information session. In response to the first round of public consultation, 15 written responses were received. Responses varied considerably with some additional alternatives suggested for consideration. No responses suggested the existing truck route through the downtown core was acceptable or that an alternative route was not preferred. Of note was the suggestion that an additional route, previously examined in the 1980 feasibility study, be included in the analysis of alternatives. The route, identified as 2A & B in the 1980 feasibility study, is described as Alternative 4 / Hector Lake route in the preceding Section 4.3.

4.10 Evaluation of Alternate Routes

Selection of a preferred route will be required to take an alternate truck bypass route forward to construction. Evaluation of each identified alternative will be critical to the selection of the route which best meets the objectives and long-term requirements of the community of Cochrane.

The following suggested evaluation criteria have been identified for use in taking the project forward:

- Extent to which traffic safety hazards and traffic congestion are eliminated from residential and commercial areas, presently and in the future.
- Extent of the social and economic impact of the new route upon the existing development along that route, including the level of public support/opposition.
- Extent of the increased travel distance along the new route, versus the current Fourth Street/Seventeenth Avenue/Third Street/Railway Street/Third Avenue route through Town.
- Environmental impact of the construction of the new route.
- Estimated cost to construct the new route, including utility relocation, property requirements and engineering services.
- Estimated cost to operate and maintain the new truck route.
- Constructability risks and implementation schedule (ability to construct within a reasonable time).
- Potential for future industrial development along the new route.
- Other benefits & risks.

5.0 ECONOMIC ANALYSIS

Input from the prime industrial and commercial stakeholders within the Town indicates that a large cross Town truck traffic volume exists and uses the local Cochrane road

system. As identified in Section 4.1, a conservative estimate of cross Town industrial and commercial traffic annual volume is 84,000 (two way) movements with an estimate of a peak daily volume exceeding 500 trucks per day during the winter months when the winter log haul is underway.

Truck payloads being transported cross Town include raw materials entering for processing; processed and manufactured materials exiting; and processed materials, produce and equipment entering for consumption or further transportation by rail or air. Valuation of the material being transported cross Town, based on the data provided by the prime stakeholder group and as summarized in Appendix 2, indicates that, on an annual basis, $217 million of materials are transported cross Town. The estimate is considered to be conservatively low as only data from the prime stakeholder group is utilized and the contribution from out-of-town companies is not included. Of the $217 million, $145 million worth of materials utilizes the local Cochrane road system for processing or consumption within the Town and surrounding area or for further transport by rail or air. The remaining $72 million worth of materials, utilizing the Cochrane local road system, is shipped to markets outside of Cochrane. Of this $72 million, $17 million is shipped to regional markets (chips, shavings, sawdust) and the remainder, $55 million is shipped to points south. Of the $55 million, $35 million of processed and manufactured material, originating from Cochrane and utilizing the local Cochrane road system, is exported into the United States contributing to the Canada-USA balance of trade.

To further understand the importance of the contribution of the local Cochrane road system within the context of the Provincial Highway network, use is made of the Lake Abitibi Model Forest Regional Community Constellation Impact Model (RCCIM). The RCCIM was developed in partnership between the Lake Abitibi Model Forest, communities in Northeastern Ontario (Cochrane, Hearst, Mattice-Val Cote, Constance Lake First Nation, Hornepayne, Iroquois Falls, Kapuskasing, Moose Factory First Nation and Timmins) and Tembec Industries Inc. The RCCIM is an economic, social and

environmental impact model which gauges quantitatively the economic consequences and secondary effects of an economic activity within the above noted host communities.

The socioeconomic analysis, carried out by Mr. L. Gravelines of the Lake Abitibi Model Forest and attached as Appendix 7, examined the economic significance of the two largest prime stakeholders', Norbord and Tembec Sawmill, share of impacts attributed to the stakeholders' reliance on the Cochrane local road system within the context of the Provincial Highway network. Principle findings of the analysis included:

- The two Cochrane based industrial facilities are responsible for an annual average of almost 1,475 person years of employment in Ontario. A third of the employment, 504.2 person years, occurs within the Town of Cochrane and is an integral element of the employed Cochrane labour force. The number of jobs attributed to the road transportation share for the entire province and for the Town of Cochrane was 971.9 and 332.8 respectively.

- Over half of the total province-wide employment, or 837.7 person years, occur in Southern Ontario. The principal mechanisms for transmitting jobs to Southern Ontario are:
    - the procurement of equipment, supplies, and industrial materials for use in the plants from southern Ontario
    - purchases by Cochrane consumers of goods and services obtained directly or indirectly from southern Ontario suppliers.

- Province-wide value added is increased by $115.5 million per year. The share attributed to the road transportation system is $76.2 million. Value added is equally balanced between the Town of Cochrane, the rest of the LAMF area, and southern Ontario.

- Total wages and salaries on a province-wide basis amounted to $73.6 million per year. Almost $50 million was attributed to the road transportation system, with the largest share, 56%, captured by Southern Ontario.

- The industrial activity from the Tembec and Norbord mills result in over $44 million per year of tax revenue to all levels of government. The federal government is the largest recipient, with estimated revenues of almost $22 million representing 49.5% of total taxes. The provincial government collects an estimated $15.8 million, or 35.8%. **The Town of Cochrane benefits by $0.5 million, receiving just 1.1% of total taxes generated by the two mills.**

6.0 PROJECT SCHEDULE

The following is an outline of the proposed timeline for the project, in terms of major milestones and dates:

Milestone	Date
Initial Meeting between Town & Ministry of Transportation re Truck Problem. Preparation of a Business Plan suggested as the Course of Action.	October 2005
Notification of Consultant(s) re Project; Request for Proposal to Complete Business Plan.	November 2005
Award of Contract & Issue of Engineering Agreement for Preparation of Business Plan.	January 2006
Complete General Business Plan identifying Current Truck Route & Problems, & Alternatives Under Consideration; submit for Initial MTO Approval & Funding at 2006 Ontario Good Roads Association Annual Meeting.	February 2006
Update Business Plan for the Truck Bypass Project; submit for Final MTO Approval & Commitment to Project Funding.	April 2006
Initiate the Engineering Design Process, including Class EA Process.	April 2007
Identify all Property Requirements & Initiate the Property Acquisition Process.	September 2007
Identify the Utility Relocation Requirements & Advise the Affected Utilities.	March 2008
Complete all Property Acquisition, including Legal Surveys & Land Transfers	November 2008

Transfers.	
Complete the Engineering Design, including the Preparation of Construction Contract Documents.	August 2009
Complete all Utility Relocation Work.	September 2009
Issue a Tender/Award a Contract for the Construction of the Project.	October 2009
Complete the Construction of the New Route & Open to Truck Traffic.	October 2010

7.0 PROJECT COSTS

The following is a breakdown of the estimated project costs to undertake and construct the various alternatives noted elsewhere in this business case:

Item	Alternative 1	Alt 2B	Alt 3	Alt 4B	Alt 4C
Planning Stage	$40,000	$40,000	$40,000	$40,000	$40,000
Highway Design	$400,000	$750,000	$660,000	$590,000	$650,000
Geotechnical Design	$70,000	$100,000	$90,000	$90,000	$100,000
Structural Design (New Bridge)			$100,000		
Property Purchase	$478,000	$32,000	$50,000	$32,000	$37,000
Utility Relocation/ Installation	$310,000	$150,000	$80,000	$50,000	$75,000
Construction Contract	$5,760,000	$10,800,000	$9,490,000	$8,430,000	$9,310,000
Construction Contract Administration	$460,000	$860,000	$760,000	$670,000	$740,000
Other	$170,000	$320,000	$280,000	$250,000	$280,000
Total Est'd Cost	**$7,688,000**	**$13,052,000**	**$11,550,000**	**$10,152,000**	**$11,232,000**
Estimated Length of Construction	7.5 km	6.4 km	13 km	4.9 km	5.9 km

Notes re. project costs listed above:

- Planning Stage – cost estimate for preparation of the business case, plus 20%.

- Highway Design – assume 7% of construction contract cost estimate; includes hydrology, drainage, aquatic/fisheries design, and pre-engineering surveys.
- Geotechnical Design – includes soils investigation & pavement design report, plus a foundations design for alternatives with significant muskeg excavation.
- Structural Design – assumes design for complete bridge replacement, including a structural design report.
- Property Purchase – includes separate property values for urban areas & for rural areas, legal survey costs, & lawyer's fees.
- Utility Relocation/Installation – includes allowances for gas, hydro, & telephone, as appropriate; also includes installation of power supply to proposed railway crossing signals where none is currently available.
- Construction Contract – costs listed above include a hot mix asphalt surface; see Appendix 4 for breakdowns for each alternative, as well as costs with surface treatment option.
- Construction Contract Administration – assumes 8% of the construction contract cost estimate.
- Other – represents a contingency amount equivalent to 3% of the construction contract cost estimate.
- Taxes are excluded from all of the above estimates.

8.0 PROJECT CASH FLOW

The following cash flow table assumes that all items listed below will be completely funded by the Provincial Government. Each time period is assumed to commence on April 1st of the particular year. The percentage values shown in the table are percentages of the total cost. A preferred route alternative has not yet been selected, therefore, dollar amounts have not been used.

Item	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
Planning Stage	0.4%					
Highway Design			2.9%	2.9%		
Geotechnical Design			0.9%			
Structural Design (New Bridge)			0.5%	0.5%		
Property Purchase			0.2%	0.2%		
Utility Relocation/ Installation					0.5%	

Construction Contract					41%	41%
Construction Contract Administration					3.3%	3.3%
Other			0.6%	0.6%	0.6%	0.6%
Accumulated Cash Flow	0.4%	0.4%	5.5%	9.7%	55.1%	100%

Prepared for:

Corporation of the Town of Cochrane

And

Ministry of Transportation Ontario,
Northeastern Region,
North Bay, Ontario.

Prepared by:

D. G. Peterson, P.Eng.,
Project Engineer,
Sutcliffe Rody Quesnel Inc.

D. J. Cook, M.Sc., P.Eng.,
Environmental Engineer,
Sutcliffe Rody Quesnel Inc.

Dated: February 17, 2006.

APPENDIX 1

PRELIMINARY DESIGN CRITERIA
FOR PROPOSED ROADWAY
(INCLUDING TYPICAL SECTION)

MUNICIPAL ROAD AND BRIDGE DESIGN CRITERIA
MUNICIPALITY OF COCHRANE

(A) **EXISTING DATA SUMMARY**

Road ☑ or Bridge ☐ Urban ☐ Semi-urban ☐ or Rural ☑

Inventory Section No.: ____, A.A.D.T.: 900, Year: 1989, Capacity: _____

Road: Name and/or Number: Cochrane Truck By-pass, Length: To be Determined
From: _____, To: _____

Bridge: MTC Site No.: _____, Inventory Structure No.: _____, Local Bridge Name: _____
Location: _____, Type of Crossing: _____
Safe Load Limit: _____, Roadway Width: _____

(B) **PROPOSED DESIGN ELEMENTS**

Urban ☐ Semi-urban ☐ Rural ☑

Road: Metric ☑ or Imperial ☐ Growth due to Improvement _____ %
Growth Factor: ____, Design Year: ____, A.A.D.T.: ____, Design Class: 1000 - 1500
Design Hour Volume: _____, Directional Split: 50/50, % Trucks: 25 – 50 % see remarks (1)
Design Speed: 80 kph, Maximum Gradient: 8 %, Property Required: Yes - see remarks (3)
Maximum Horizontal Curvature or Minimum Horizontal Radius: 250 m
Minimum Vertical Curves: Crest: 35, Sag: 30
Number and Width of Lanes: Traffic: 2 – 3.25m, Parking: N/A
Widths: Median: _____, Boulevard: _____
Shoulder: 2.00 m, Roadway: 11.5 m
Surface Type and Depth: Gravel (depending on route) – see remarks (2)

Bridge: Type of Structure: _____, Sidewalks: _____
Width: Between Curbs: _____, Between Protective Barriers: _____

(C) **GENERAL**

Degree of Improvement: Spot Improvement ☐ To Tolerable Standards ☐ To Design Standards ☑
Type of Improvement: Complete Reconstruction ☐ Base and Surface ☐ Resurface and Minor Widening ☐

Estimated Cost: Road: $ _____, Bridge: _____, Total: $ _____
Soils Investigation and Report to be provided: Yes ☑ No ☐
Design: Complete ☑ Partial ☐ None ☐ by Municipality ☐ by Consultant ☑
Planned Construction Phases (1) 20__ _____ $ _____ (2)20__ _____ $ _____
and Estimated Costs N/A (3) 20__ _____ $ _____ (4) 20__ _____ $ _____
Construction Planned by: Contract ☑ Day-Labour ☐
Construction Supervision: Municipality ☐ Consultant ☑

Remarks: (1) Truck volumes are seasonal – projected peak daily winter volumes of 450 to 500 trucks/day; (2) 150 GB; 1100 GSB (Based on 865 GBE for AADT 2000-3000 as per Table 3.4 of MTO Pavement Design and Rehabilitation Manual and Northern Region Practices); (3) A 30 m ROW is planned to accommodate grading . A 5m utility corridor on each side is planned in accordance with MTO practices

Date _____ Date _____

_____ _____

For Municipality For Ministry of Transportation

GUIDE TO MUNICIPALITIES WHEN COMPLETING A MUNICIPAL ROAD AND BRIDGE DESIGN CRITERIA FORM

(A) EXISTING DATA SUMMARY

- Indicate if the Design Criteria is for road work or for the construction of a bridge. If both a road and bridge are involved; check both squares.
- Indicate if the road section to be improved is "urban", "semi-urban" or "rural".
- Inventory Section No. refers only to those municipalities which have had a needs study carried out. The Inventory Section No. is the same as that referred to on the pertinent appraisal sheet.
- The most recent A.A.D.T. (annual average daily traffic) and the year the count was taken is to be shown.
- The capacity of the existing road is expressed in terms of a two way hourly volume.
- The local road name together with Concession or Lot line to be shown after "Name".
- The length may be shown in kilometres or miles to the nearest one-tenth.
- The beginning and end of project to be shown, e.g. **From Lot 10 to Lot 26 inclusive.**
- All municipal bridges (span of 6 m (20 ft.) or greater) should have an MTC Structure Site No. A site number may be available for culverts under 6 m (20 ft.). The pertinent number is to be inserted.
- Likewise municipal bridges have a local number; this too should be included.
- The bridge location to be given by Lot and Concession in rural areas and by street name in urbans.
- The type of crossing such as creek, river, grade separation, railway overpass, etc. is to be shown.
- The existing load limit of the structure can be determined by a Professional Engineer or estimated. If estimated, it should be so indicated.

(B) PROPOSED DESIGN ELEMENTS

- Indicate whether the plans are to be prepared in Metric or Imperial units.
- Traffic data not required when it is not a design factor. (e.g. local residential)
- When a road has been improved, it usually attracts more traffic. This value may be estimated and entered as an A.A.D.T. for Growth due to improvement.
- The growth factor takes into account the amount the traffic volume will increase year by year until the Design Year.
- The Design Year A.A.D.T. is derived by adding the existing A.A.D.T., the growth due to improvement and the volume increase arrived at after applying the growth factor. The design year commonly represents the end of the economic life of the physical components of a road such as pavement structure, drainage structure, etc.
- For design class, show traffic volume range e.g., design year A.A.D.T. of 2550 would fit into the 2000 to 3000 design class.
- The Design Hour Volume generally should be the 30th highest hourly volume the roadway is expected to have during the future year selected for design. (It is deemed uneconomical to attempt to provide for a greater congestion than the 30th highest hour.)
- The Directional Split is the volume in each direction expressed as a percentage of the total Design Hour Volume.
- The % trucks (or commercial vehicles) is expressed as a percentage of the A.A.D.T. Generally the traffic composition determined from current traffic figures is sufficiently stable to be used for future design purposes. (Note: trucks tend to avoid peak periods of traffic.)
- Design Speed may be expressed in kilometres/hour or miles/hour.
- The Maximum Gradient is expressed as a percentage of the grade change to specified length or road, e.g. a 1% grade. There are recommended maximum gradients based on Design Speed and Traffic Volumes.
- Indicate whether or not property is required by a "Yes" or "No". If necessary, explain in the Remarks column of Section (C).
- If using metric units enter the minimum horizontal radius. If using imperial units, enter the maximum horizontal curvature.
- For the applicable minimum curves and width of lanes, please refer to the appropriate MTC Geometric Design Standards.
- A median may be used in a divided roadway and its width is considered to be the distance between the face of inside curb in one direction and the face of the inside curb in the opposite direction. If curbs are not involved, the median width is considered to be the distance between the inside travelled lane in one direction and the inside travelled lane in the opposite direction.
- The boulevard width is the distance between the face of the outer curb and sidewalk, in urban sections.
- The appropriate "shoulder width" may be obtained from MTC Geometric Design Standards and is applicable only to Rural and Semi-Urban Design. The normal 0.6 m (2 ft.) allowed for rounding is **NOT** to be included in the shoulder width.
- Roadway width is the travelled width between face of curbs in urban areas and the actual width from edge of rounding to edge of rounding if no curbs are involved. For divided roadways, it is the sum of such widths in each direction.
- An example of Surface Type and Depth is HL3 50 mm (2") in depth.

Bridges

- Examples of a type of Structure would be a "Single Span Concrete Rigid Frame" or "Two Span Prestressed Girders", etc.
- Sidewalks - give the number 1 or 2 and the width of each. If no sidewalk is required, indicate so by "N.A.".
- Width between curbs is the roadway width between the curbs.
- The width between Protective Barriers is the distance between base of parapet wall to base of parapet wall. Also it would apply to the distance from inside face of handrail or post to inside face of handrail or post. It should be noted that except for single lane structures, this width is not to be less than 8.5 metres (28 ft.).

(C) GENERAL

The information asked for in this section is considered self-explanatory. If you have any questions pertaining to this guide or the completion of Design Criteria form please contact the Municipal Staff in you local MTC District office, from whom additional forms are available.

Ministry of Transportation
Ontario

PRELIMINARY DESIGN CRITERIA

WORK PROJECT NO: XXX-XX-XX DIST NO: 53 HWY NO: TYPE OF PROJECT: **Grading, Drainage, Granular Base & Hot Mix Paving**

LOCATION: From xxx to xxx LENGTH: Xx km

LIMITS FROM: STA: TOWNSHIP: PLAN:
TO: STA: TOWNSHIP: PLAN:

ELECTORAL DISTRICT:
TOWNSHIPS:

	PRESENT CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS
HIGHWAY CLASSIFICATION		RCU80	RCU80
MINIMUM STOPPING SITE DISTANCE		135	135
EQUIVALENT MIN 'K' FACTOR (CREST/SAG)		35/30	35/30
MAXIMUM GRADE		6-8%	<6%
MINIMUM RADIUS		250	250 (a)
PAVEMENT WIDTH		6.5	6.5
SHOULDER WIDTH		2.0	2.0
SHOULDER ROUNDING		0.5	0.5
MEDIAN WIDTH			
R.O.W. WIDTH		26	30 (c)
POSTED SPEED		80	80
MISCELLANEOUS			

RECOMMENDED BY:

PROJECT MANAGER/ENGINEER

MANAGER CONTRACTS

MANAGER OPERATIONAL SERVICES

MANAGER ENGINEERING

APPROVED BY:

REGIONAL DIRECTOR

DATE OF APPROVAL

TRAFFIC

DESCRIPTION

	1989	2006	
AADT	900 (b)	1000-1500 (b)	
SADT			
DHV			
PHV			
% COMMERCIAL		25-50 % (d)	
Level Of Service			
Accident Rate			

PRELIMINARY DESIGN CRITERIA

WORK PROJECT NO: **XXX-XX-XX** DIST NO: 53 HWY NO: TYPE OF PROJECT: **Grading, Drainage, Granular Base & Hot Mix Paving**

NOTES:

(a) Radii as low as 125 m are possible due to railway crossings depending on the route selected.
(b) Traffic for Hwy 652. A detailed traffic study has not been done - 2006 volumes are estimated
(c) A 30m ROW is planned to accommodate grading. A 5m utility corridor on each side is planned in accordance with MTO practices.
(d) Truck Volumes are seasonal – projected peak winter volumes of 450 to 500 trucks / day.

REMARKS:

1. Preliminary pavement structure – 60 mm Hot Mix or Double Surface Treatment (depending on route selected); 150 mm GB; 11 GSB. This is based on a GBE of 865 for AADT 2000-3000 as per Table 3.4 of MTO Pavement Design and Rehabilitation Manual and Northern Region Practises.

LOCATION DESCRIPTION	DIST (KM)	PATT TYPE	1989 AADT	1989 SADT	1989 SAWDT	1989 WADT	1989 AR	NOTES
	SECONDARY # 651							
HWY 101-NADJIWON TWP								
MISSANABIE - CPR CROSSING - HWY ENDS	53.9	IC	100	110	110	80	3.6	
	SECONDARY # 652							
HWY 11 & S JCT SEC HWY 579-START OF NA COCHRANE	2.5							
FOURTH ST - END OF NA	12.8	LT	900	1250	1200	660	2.1	*
SEC HWY 574	17.8	LT	150	200	200	110	1.0	
NW INDUSTRIAL RD-DEMPSAY TWP	20.9	LT	100	130	130	70	.0	
ABITIBI CO RD-HEIGHINGTON TWP	41.1	UC	100	100	110	90	2.0	
S FLOODWOOD R BR-TWEED TWP	58.1	UC	50	50	50	40	2.8	
KATTAWAGAMI R BR - HWY ENDS								
	SECONDARY # 653							
ONTARIO/QUEBEC BDY-CHENAUX BR	2.5	IC	1950	2200	2200	1700	1.1	
RENFREW RD 4	6.3	IC	900	1000	1000	800	.5	
HIGHWAY 17 - HWY ENDS								
	SECONDARY # 654							
SEC HWY 534	12.2	LT	700	970	960	510	.3	
NIPISSING/N HIMSWORTH TWP BDY	11.1	LT	2450	3400	3350	1800	.4	
HWY 94 (N)	.4	LT	2850	3950	3900	2100	7.2	
HIGHWAY 11 - HWY ENDS								

Ministry Design Methods

The Ministry uses two different methods for flexible pavement design. These are:

1. Routine (Empirical) Method, and
2. OPAC (Ontario Pavement Analysis of Costs).

Routine (Empirical) Method — This method was derived from analyses of in-service performance of the historical pavement test sections and data from laboratory tests. In the mid-forties the Ministry carried out a number of plate-bearing tests and California Bearing Ratio (CBR) tests on various subgrade types. The results indicated that the actual pavement thicknesses were typically greater than required for structural strength. From these analyses and observations the Ministry developed the *Pavement Structural Design Guidelines* for flexible pavements. Over the years, these have been updated to reflect the Ministry's observations and experiences [23].

The current guidelines are in tabular form and are reproduced in Tables 3.3 and 3.4. They indicate the surface type and thickness and the base and subbase thicknesses for various categories of facilities and for various AADT ranges and subgrade types. The tables assume 10% commercial traffic and that the foundation is a competent non-saturated subgrade. The tables also employ the concept of Granular Base Equivalency (GBE) which equates the strength of various pavement materials in terms of their thicknesses. GBE thickness is the required overall structural pavement thickness expressed in terms of an equivalent thickness of Granular A. For example, 1 mm of hot mix (HM) is equivalent to 2 mm of granular A base which is equivalent to 3 mm of granular subbase. These and other granular base equivalencies are shown on Table 3.5. The thicknesses of materials shown in Tables 3.3 and 3.4 may then be varied using the equivalencies on Table 3.5 to derive alternative combinations of thicknesses of materials each of which is then costed out. In addition, Table 3.6 shows recommended asphalt surface thicknesses for various roadway facilities.

The thickness designs presented in these tables assume that granular bases are constructed across the full width of the cross-section, that shoulders are constructed of granular materials with or without a paved surface, and that drainage of the roadbed is adequate.

Based on regional experiences in northern Ontario, it has been found that modifications must be applied to Tables 3.3 and 3.4 to account for the deep frost penetration and marginal soil conditions in these areas. Northwestern Region has modified the tables to suit its local conditions. In Northern Region Table 3.3 is used, but with granular depths no less than those given in the table for the 2000-3000 AADT range in the southern part of the region and 3000-4000 AADT in the

north of the region. For higher truck percentages, designers typically move to a higher AADT range to suit the increased traffic loads.

Table 3.3 Structural Design Guidelines for Flexible Pavements — King's Highways and Freeways

		Subgrade Material					
AADT	Pavement Structure Elements	Gravels and Sands Suitable as Gran-Borrow	SANDS AND SILTS 5-75μm <40%	SANDS AND SILTS 5-75μm 40-55%	SANDS AND SILTS 5-75μm >55%	Lacustrine Clays	Varved & Leda Clays
Greater than 4000 AADT	HM	130	130	130	130	130	130
	B	150-250	150	150	150	150	150
	SB	—	300-450	450-600	600-800	450	450-1100
	GBE	410-510	610-710	710-810	810-945	710	710-1145
3000-4000 AADT	HM	120-130	120-130	120-130	120-130	120-130	120-130
	B	150-250	150	150	150	150	150
	SB	—	300-450	450-600	600-800	450	450-1100
	GBE	390-510	590-710	690-810	790-945	690-710	690-1145
2000-3000 AADT	HM	90	90	90	90	90	90
	B	150	150	150	150	150	150
	SB**	—	300	450	600	450	800
	GBE	330	530	630	730	630	865
1000-2000 AADT	HM	50	50	50	50	50	50
	B	150	150	150	150	150	150
	SB**	—	250	300	450	300	450 (300-600)
	GBE	250	415	450	550	450	550 (450-650)
200-1000 AADT	HM	50	50	50	50	50	50
	B	150	150	150	150	150	150
	SB**	—	150	250	300	250	300 (250-450)
	GBE	250	350	415	450	415	450 (415-550)

Notes: All AADT Volumes refer to Present Traffic.

HM — Hot Mix Asphalt & Thickness

B — Base Thickness

SB — Subbase Thickness

GBE — Granular Base Equivalency Thickness (1 mm HM = 2 mm B = 3 mm SB)

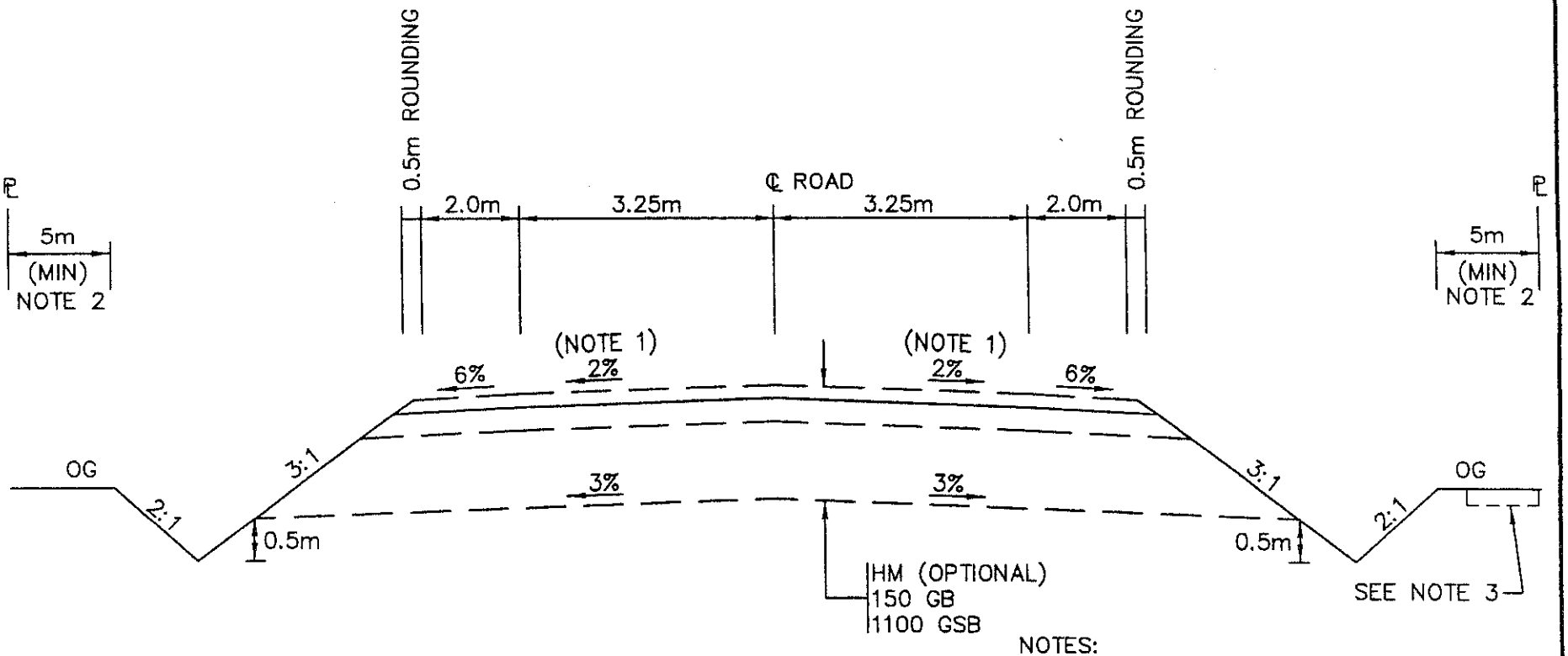
** — Proposed subbase thicknesses may be decreased or increased respectively, for harder or softer subgrade conditions in each category, except for varved and leda clay subgrade where exceptionally large ranges are shown.

Table 3.4 Structural Design Guidelines for Flexible Pavements — Secondary Highways

AADT	Pavement Structure Elements	Subgrade Material: Gravels and Sands Suitable as Gran-Borrow	SANDS AND SILTS: 5-75µm <40%	SANDS AND SILTS: 5-75µm 40-55%	SANDS AND SILTS: 5-75µm >55%	Lacustrine Clays	Varved & Leda Clays
2000-3000 AADT	HM	90	90	90	90	90	90
	B	150	150	150	150	150	150
	SB**	—	300	450	600	450	800
	GBE	330	530	630	730	630	865
1500-2000 AADT	HM	50	50	50	50	50	50
	B	150	150	150	150	150	150
	SB**	—	250	300	450	300	450 (300-600)
	GBE	250	415	450	550	450	550 (450-650)
1000-1500 AADT	CL	50	50	50	50	50	50
	B	150	150	150	150	150	150
	SB**	—	250	300	450	300	450 (300-600)
	GBE	240	405	440	540	450	540 (450-640)
500-1000 AADT	ST*	—	—	—	—	—	—
	B	150	150	150	150	150	150
	SB*	—	150	250	300	250	350 (250-450)
	GBE	150	250	315	350	315	385 (315-450)
200-500 AADT	ST*	—	—	—	—	—	—
	B	150	150	150	150	150	150
	SB**	—	150	250	300	250	300
	GBE	150	250	315	350	315	350
Less than 200 AADT	Gravel	—	—	—	—	—	—
	B	100	100	100	100	100	100
	SB**	—	150	250	300	250	300
	GBE	100	200	265	300	265	300

Notes: All AADT Volumes refer to Present Traffic.

- HM — Hot Mix Asphalt & Thickness
- B — Base Thickness
- SB — Subbase Thickness
- GBE — Granular Base Equivalency Thickness (1 mm HM = 2 mm B = 3 mm SB = 1.11)
- CL — Cold Mixed, Cold Laid or Road Mixed Mulch
- ST — Double Surface Treatment or Single Surface Treatment with Prime.
- * — Apply surface treatments 0.25 m wider than lane width.
- ** — Proposed subbase thicknesses may be decreased or increased respectively, for harder or softer subgrade conditions in each category, except for varved and leda clay subgrade where exceptionally large ranges are shown.



NOTES:

1. CROSS FALL TO BE 3% IF NO HOT MIX TO BE PLACED
2. 5m (MINIMUM) UTILITY CORRIDOR
3. A CONCRETE SIDEWALK (O.P.S.D. 310.010) IS REQUIRED ALONG THE ENTIRE LENGTH OF GENIER RD.(ALT 1), ON THE EAST SIDE

COCHRANE TRUCK BY-PASS
TYPICAL SECTION

SRQ Sutcliffe Rody Quesnel Inc. Engineers & Surveyors Service Reliability & Quality since 1906 New Liskeard Cochrane Timmins 1-800-461-4584	TOWN OF COCHRANE	DATE: JANUARY 11,2006	FILE ET05026TS1.DWG
		PROJECT No. ET05026	SCALE: N.T.S.

APPENDIX 2

STAKEHOLDER CORRESPONDENCE & DATA
RE
CURRENT TRUCK TRAFFIC

SRQ

Sutcliffe Rody Quesnel Inc.
Engineers & Surveyors
"Service Reliability & Quality since 1906"

January 10th, 2006.

By Facsimile:

Stakeholder
Cochrane

Attention: Contact

Dear Sir:

RE: Corporation of the Town of Cochrane,
Proposed Truck Bypass Route

The Town of Cochrane wishes to re-route the flow of industrial truck traffic away from residential areas within the community, as well as away from the downtown commercial core. Preliminary discussions have been held with representatives of the Ministry of Transportation of Ontario (MTO) Regional Office in North Bay, regarding the procurement of funding for such an undertaking. The MTO has requested that the Town prepare a business case that outlines the need for such a bypass and that provides justification for the construction of a new route.

Sutcliffe Rody Quesnel Inc. has been retained for the purpose of preparing the business case, as well as for conducting the related background research.

In order to be able to prepare a business case, we require details regarding the commercial and industrial traffic flowing through the Town. Therefore, we are respectfully requesting any information that you may be able to provide regarding the following items as they apply to your company:

- Average daily truck traffic volumes, including a breakdown of truck types, load/ product types, & load weights (gross weights).
- Source/destination breakdown (ie. number of loads processed in Cochrane vs number of loads passing through Cochrane).
- Directional breakdown of the daily truck traffic (ie. east, west, north, & south).
- Approximate value of materials being transported daily.
- Ton-mile costs.
- Commentary regarding current operating capacity vs maximum capacity.
- Commentary regarding any contemplated expansion, including effects on capacity and truck traffic patterns.

NEW LISKEARD:
Wellington St., P.O. Box 1208,
New Liskeard, ON P0J 1P0
Tel: (705) 647-4311
Fax: (705) 647-3111

COCHRANE:
136-B Third St., P.O. Box 398,
Cochrane, ON P0L 1C0
Tel: (705) 272-4217
Fax: (705) 272-4998

TIMMINS:
670 Airport Road, Suite 202,
Timmins, ON P4N 7C3
Tel: (705) 268-4351
Fax: (705) 264-5125

KENORA:
Rabbit Lake Road, P.O. Box
1450, Kenora, ON P9N 3X7
Tel: (807) 548-1535
Fax: (807) 548-5914

NORTH BAY:
885 Jet Avenue, P.O. Box 1198,
North Bay, ON P1B 8K4
Tel: (705) 474-5033
Fax: (705) 474-6443

TOLL FREE LINE 1-800-461-4584

WEBSITE: www.srqinc.com

A public information session is scheduled for January 25 and receipt of the above information prior to that date would be helpful. Staff of our Cochrane office will be in contact in this regard.

If you should have any questions, please contact the undersigned at 1-800-461-4584.

Respectfully submitted,

SUTCLIFFE RODY QUESNEL INC.,

Per:

D. G. Peterson, P.Eng.,
Sr. Project Engineer.

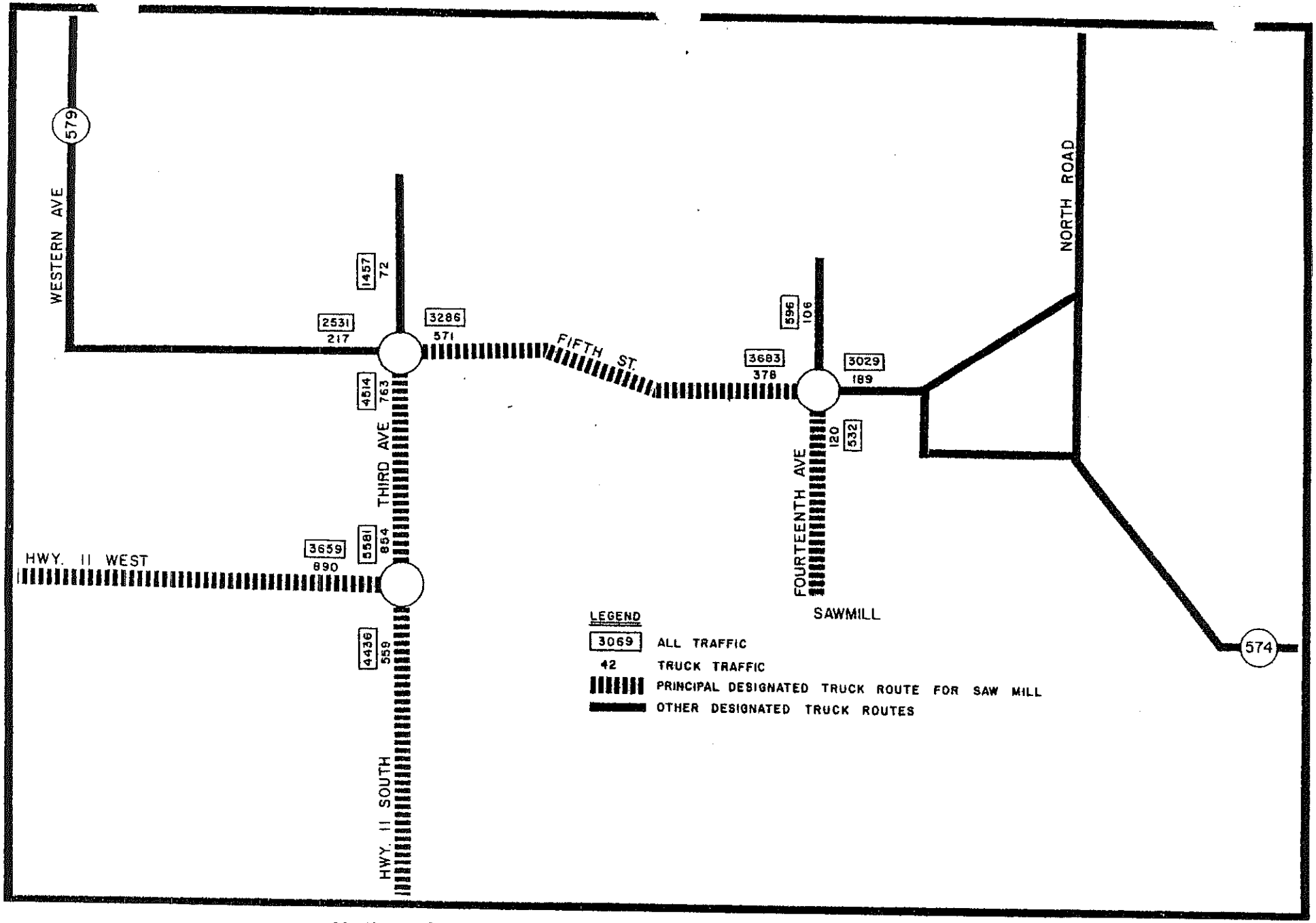
Cc: P. Demers, Town of Cochrane

	Net Tonnes/Load	Value/Tonne	Value (deliv'd)/Load	Value (deliv'd)/Yr	%/Value to States
ı mill	44	$60	$2,640	$37,303,200	
h	40	$390	$15,600	$23,400,000	40%/$9,360,000
west	40	$60	$2,400	$12,847,200	
west	40	$25	$1,000	$1,943,000	
ı mill	40	$40	$1,600	$7,200,000	
ı mill	40	$40	$1,600	$400,000	
west	34	$40	$1,360	$2,380,000	
h	25	$800	$20,000	$30,000,000	85%/$25,500,000
h	50	$150	$7,500	$1,125,000	
ll	40	proprietary		proprietary	
o plant	34	25	$850	$3,187,500	
ect delivery	64	-	$50,000	$25,000,000	
aries	23	-	$18,000	$22,500,000	
st	20	-	$300	$180,000	
h, ONR yard	15	-	$30,000	$27,000,000	
ONR yard	15	-	$30,000	$22,500,000	
s	-	-	-	-	
th	-	-	-	-	
	23	-	$150	$300,000	
	20	-	$500	$240,000	
	-	-	-	-	

Sutcliffe Rody Quesnel Inc.
Consulting Engineers, Ontario Land Surveyors, Canada Lands Surveyors
136-B Third Street, Cochrane, Ontario. P0L 1C0
Tel: (705)272-4217 Toll Free: 1-800-461-4584 Fax: (705)272-4998

APPENDIX 3

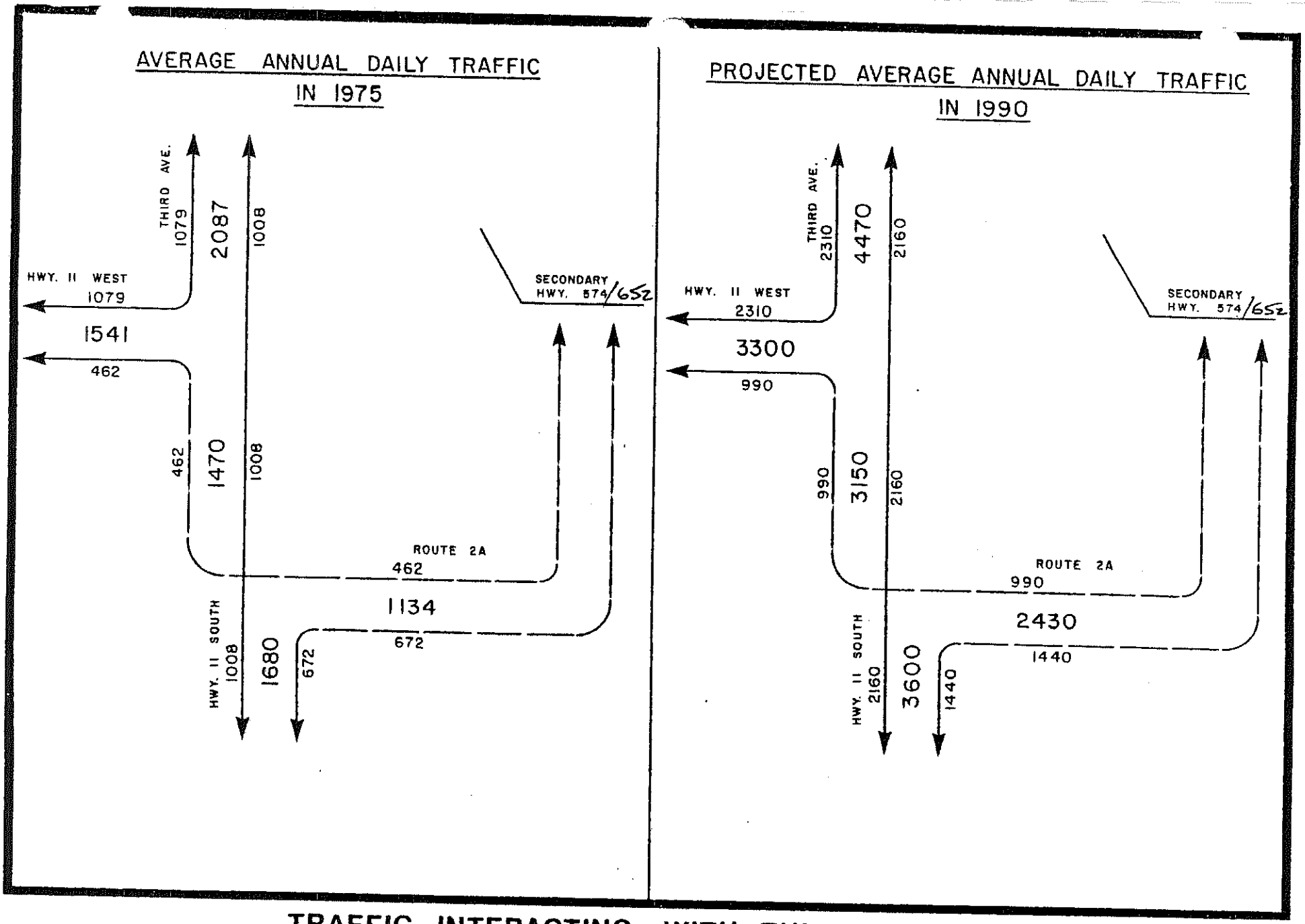
EXCERPTS FROM
1980 FEASIBILITY STUDY
FOR A TRUCK BYPASS



AVERAGE ANNUAL DAILY TRAFFIC (AADT)

FROM MINISTRY OF TRANSPORTATION & COMMUNICATIONS
URBAN & REGIONAL TRANSPORTATION PLANNING OFFICE (SURVEY 1978)

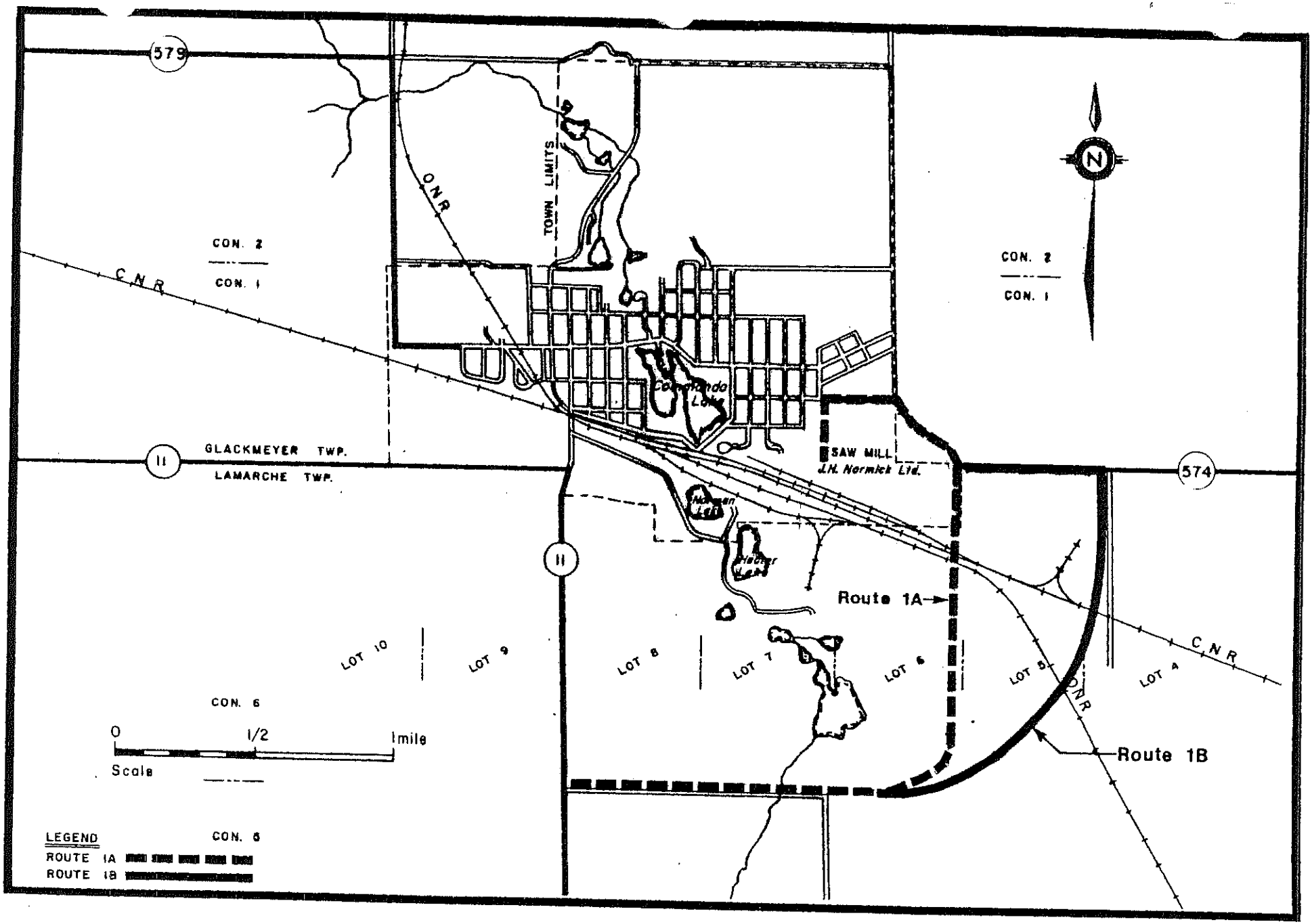
Figure 1



TRAFFIC INTERACTING WITH THE TOWN ONLY

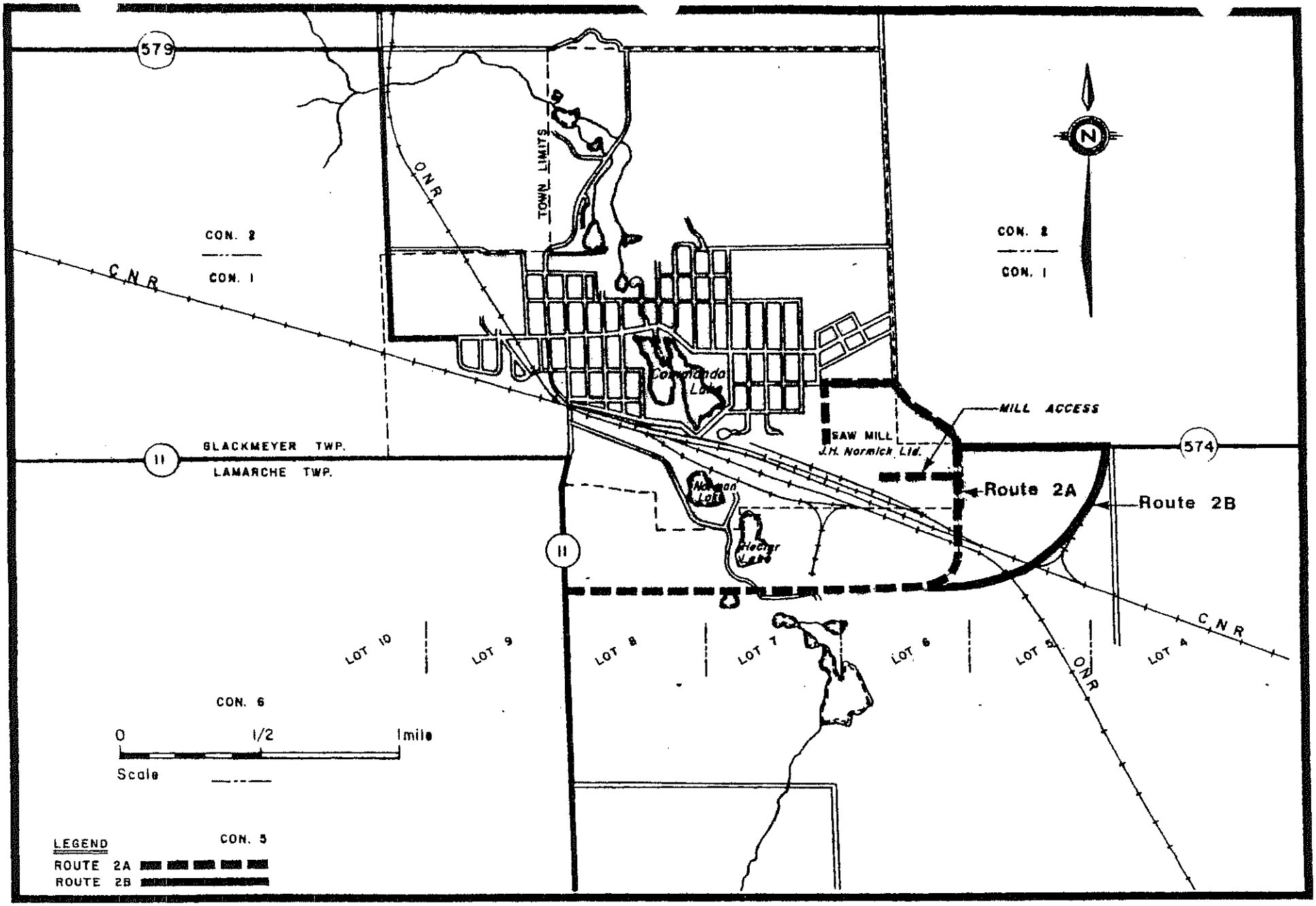
Route 2A

Figure 2



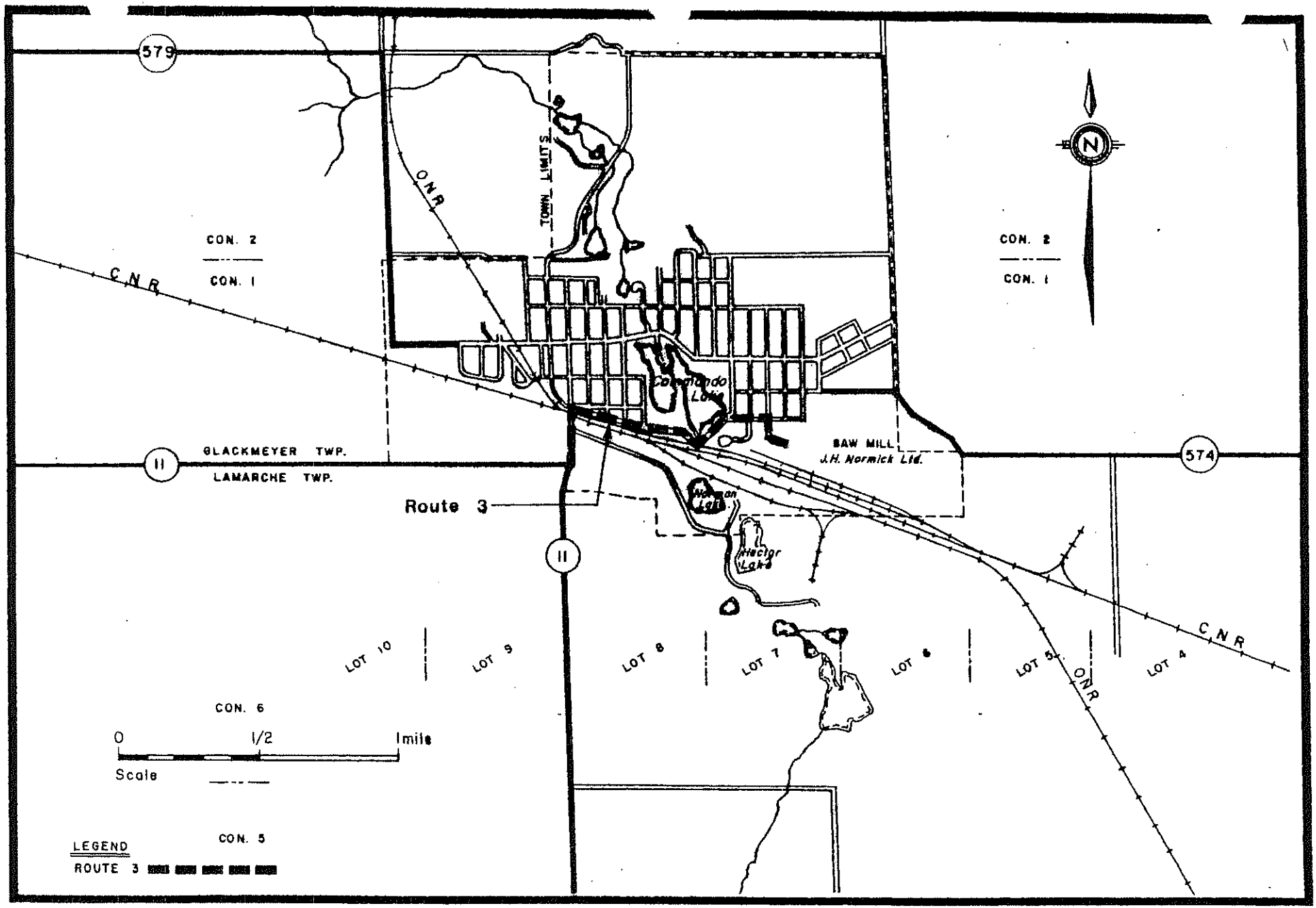
Cochrane Truck By-pass Study

Route 1



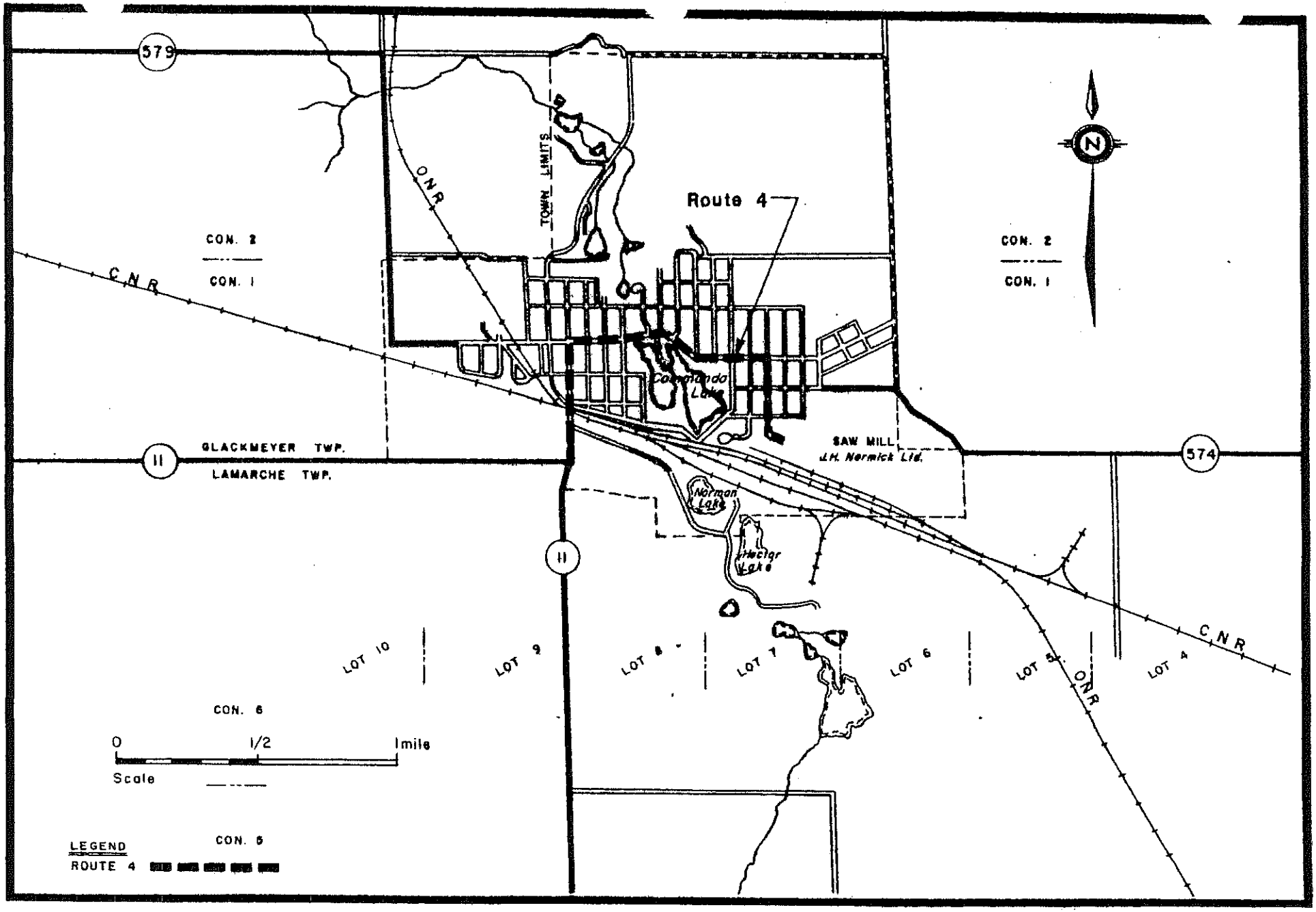
Cochrane Truck By-pass Study

Route 2



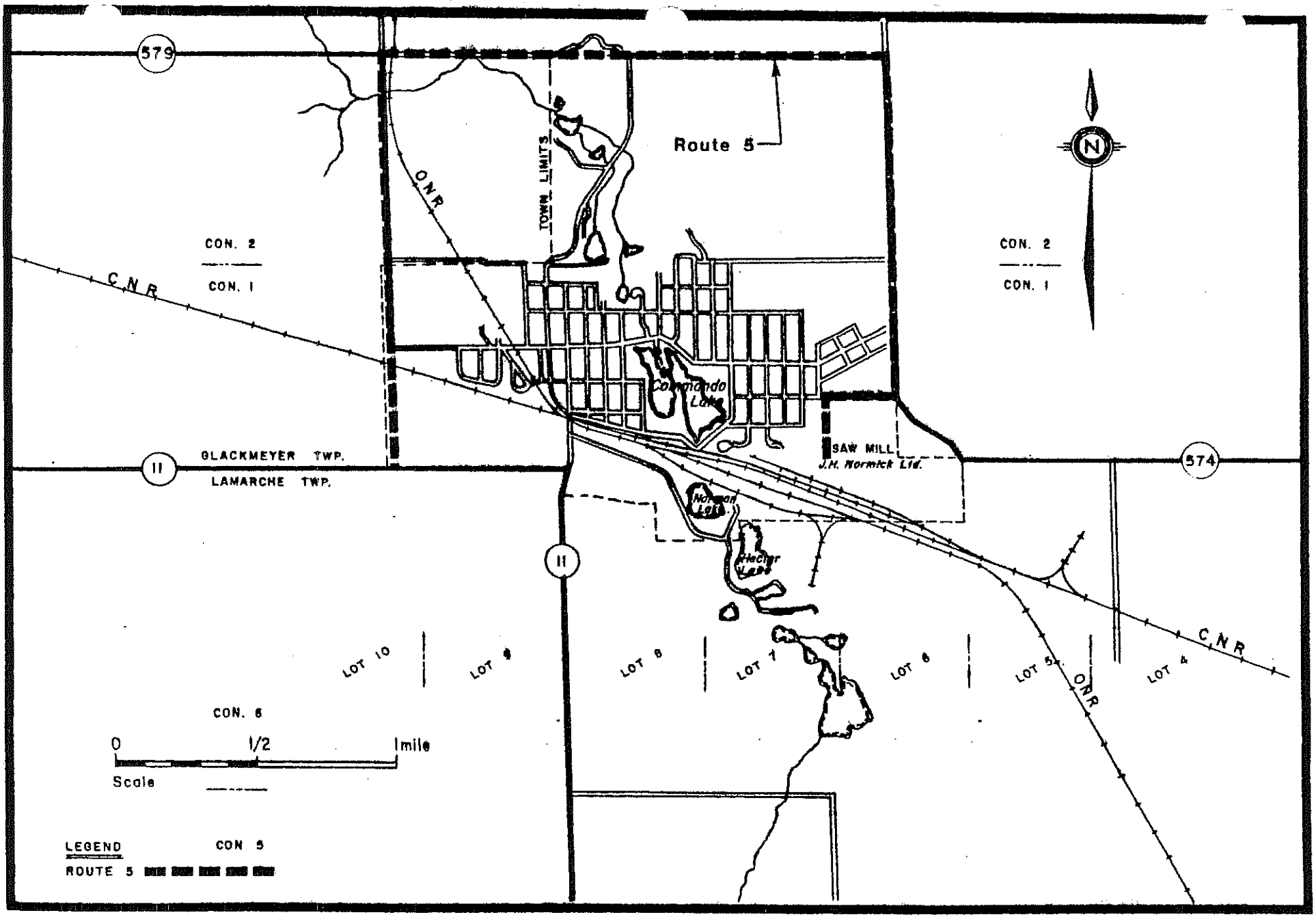
Cochrane Truck By-pass Study

Route 3



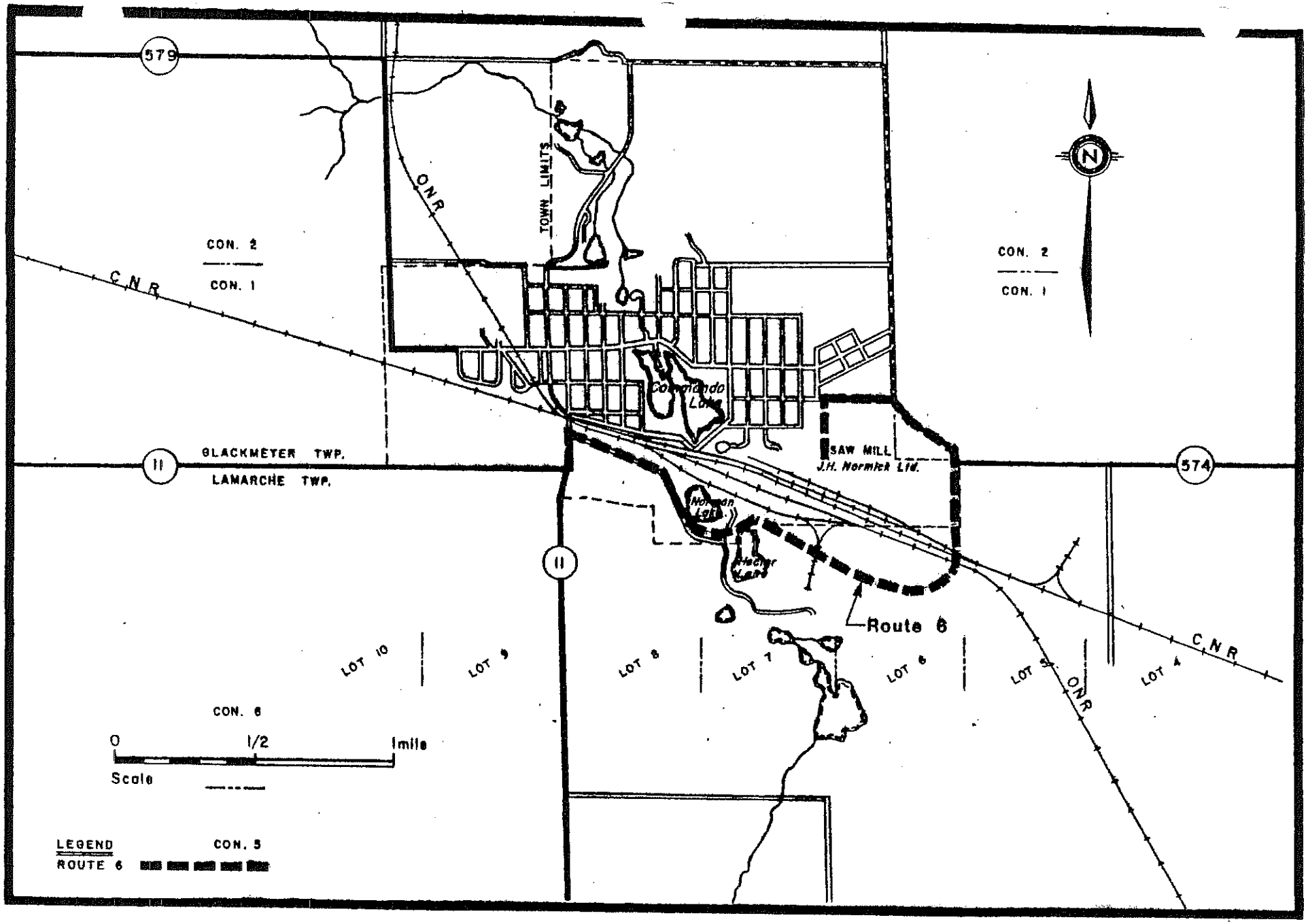
Cochrane Truck By-pass Study

Route 4



Cochrane Truck By-pass Study

Route 5



Cochrane Truck By-pass Study

Route 6

OFFICE OF THE MAYOR

TELEPHONE 272-4361

THE CORPORATION OF THE TOWN OF COCHRANE

171 FOURTH AVENUE . P.O. BOX 490 COCHRANE, ONTARIO P0L 1C0

February 16, 1981.

Honourable Leo Bernier
Minister of Northern Affairs
10th Floor
10 Wellesley Street East,
Toronto, Ontario.

RE: Truck Route Study

Dear Mr. Bernier:

The Council of the Town of Cochrane is anxious to have the truck by-pass south of Cochrane constructed and completed at an early date.

The study completed by Albery, Pullerits, Dickson ¢ Associates, Consulting Engineers points out the need for a new truck route which must be located south of the Town. The traffic is increasing each year and if the mill expands at some future date it will compound the problem. Briefly, this traffic is a hazard to school children and pedestrians and it is having an adverse affect on the Town's interior road system.

Last year the Council selected route 2A but the present Council has re-considered and now wish to choose the route designated as 1A. A certified copy of Motion Number 0-1-160 enacted on January 26, 1981 is attached.

We would appreciate if you would advise as early as possible what we may expect.

Yours truly,

THE CORPORATION OF THE TOWN OF COCHRANE

Ray Fortier
Mayor
RF/ts
Att'd.

CORPORATION OF THE TOWN OF COCHRANE

moved by (sgd) James Owens Date January 26, 19 81

second by (sgd) Donald Génier

That re: Truck Route Study, we rescind Motion Number 80-215 of May 8,

0-1-160 1980 and select Route No. 1A, and advise all concerned accordingly.

CARRIED: Ray Fortier
Mayor

This is a certified true copy of
of Motion Number 0-1-160 enacted
by the Council of the Town of
Cochrane on January 26,1981.

L.J.Adshead
Clerk-Treasurer
LJA/ts

(if division see back) Reeve

APPENDIX 4

CONSTRUCTION COST ESTIMATES
FOR
ALTERNATIVE ROUTES

CONSTRUCTION COST ESTIMATE FOR IMPROVEMENTS TO 17TH AVENUE AND 4TH STREET

(COMMON TO EACH ALTERNATIVE)

Item	Unit	Hot Mix Option	Surface Treatment Option	Unit Price	Cost - HMP	Cost - S.T.
Earth Excavation	c.m.	10550	0	$9.00	$94,950.00	$0.00
Muskeg Excavation	c.m.	0	0			
Earth Ditching	m	0	0	$8.00	$0.00	$0.00
Hot Mix Paving	t	680	0	$135.00	$91,800.00	$0.00
Primer	kg		0	$1.20	$0.00	$0.00
Class II Aggregate	t		0	$25.00	$0.00	$0.00
Granular A	t	3680	0	$17.00	$62,560.00	$0.00
Granular B	t	15200	0	$12.00	$182,400.00	$0.00
Select Subgrade Material	t	0	0		$0.00	$0.00
500 dia. Culverts	m	23	0	$190.00	$4,370.00	$0.00
600 dia. Culverts	m	0	0	$230.00	$0.00	$0.00
700 dia. Culverts	m	0	0	$300.00	$0.00	$0.00
800 dia. Culverts	m	60	0	$350.00	$21,000.00	$0.00
1200 dia. Culverts	m	0	0	$500.00	$0.00	$0.00
1400 dia. Culverts	m	0	0	$800.00	$0.00	$0.00
1500 dia. Culverts	m	0	0	$1,000.00	$0.00	$0.00
600 x 600 Catch Basins	ea	1	0	$2,500.00	$2,500.00	$0.00
1200 Catch Basin Manholes	ea	1	0	$4,000.00	$4,000.00	$0.00
300 dia Storm Sewer	m	50	0	$150.00	$7,500.00	$0.00
Concrete Curb & Gutter	m	100	0	$65.00	$6,500.00	$0.00
Contingency - 20 %					$95,516.00	$0.00
Total Estimated Construction (excluding Taxes)					**$573,096.00**	

CONSTRUCTION COST ESTIMATE FOR ALTERNATIVE 1 (NORTH ROUTE)

Item	Unit	Hot Mix Option	Surface Treatment Option	Unit Price	Cost - HMP	Cost - S.T.
Earth Excavation	c.m.	120500	120500	$9.00	$1,084,500.00	$1,084,500.00
Earth Ditching	m	4000	4000	$8.00	$32,000.00	$32,000.00
Hot Mix Paving	t	5735	425	$135.00	$774,225.00	$57,375.00
Primer	kg		66150	$1.20	$0.00	$79,380.00
Class II Aggregate	t		780	$25.00	$0.00	$19,500.00
Granular A	t	31190	27475	$17.00	$530,230.00	$467,075.00
Granular B	t	124495	124495	$12.00	$1,493,940.00	$1,493,940.00
500 dia. Culverts	m	323	323	$190.00	$61,370.00	$61,370.00
600 dia. Culverts	m	86	86	$230.00	$19,780.00	$19,780.00
700 dia. Culverts	m	14	14	$300.00	$4,200.00	$4,200.00
800 dia. Culverts	m	11	11	$350.00	$3,850.00	$3,850.00
1200 dia. Culverts	m	60	60	$500.00	$30,000.00	$30,000.00
1400 dia. Culverts	m	17	17	$800.00	$13,600.00	$13,600.00
1500 dia. Culverts	m	30	30	$1,000.00	$30,000.00	$30,000.00
RR Crossing	L.S.	100%	100%	$80,000.00	$80,000.00	$80,000.00
Concrete Sidewalk	s.m.	3000	3000	$65.00	$195,000.00	$195,000.00
Contingency -20%					$831,539.00	$695,314.00
Subtotal					$5,184,234.00	$4,366,884.00
17th Ave & 4 St Construction					$573,096.00	$0.00
Total Estimated Construction (excluding Taxes)					**$5,757,330.00**	**$4,366,884.00**

CONSTRUCTION COST ESTIMATE FOR ALTERNATIVE 2B (BLAZECKA'S ROAD)

Item	Unit	Hot Mix Option	Surface Treatment Option	Unit Price	Cost - HMP	Cost - S.T.
Earth Excavation	c.m.	85970	85970	$9.00	$773,730.00	$773,730.00
Muskeg Excavation *	c.m.	209000	209000	$8.00	$1,672,000.00	$1,672,000.00
Earth Ditching	m	0	0	$8.00	$0.00	$0.00
Hot Mix Paving	t	4435	250	$135.00	$598,725.00	$33,750.00
Primer	kg		142900	$1.20	$0.00	$171,480.00
Class II Aggregate	t		1670	$25.00	$0.00	$41,750.00
Granular A	t	24345	21565	$17.00	$413,865.00	$366,605.00
Granular B	t	98110	98110	$12.00	$1,177,320.00	$1,177,320.00
Select Subgrade Material *	t	418000	418000	$9.00	$3,762,000.00	$3,762,000.00
500 dia. Culverts	m	230	230	$190.00	$43,700.00	$43,700.00
600 dia. Culverts	m	0	0	$230.00	$0.00	$0.00
700 dia. Culverts	m	0	0	$300.00	$0.00	$0.00
800 dia. Culverts	m	0	0	$350.00	$0.00	$0.00
1200 dia. Culverts	m	0	0	$500.00	$0.00	$0.00
1400 dia. Culverts	m	0	0	$800.00	$0.00	$0.00
1500 dia. Culverts	m	0	0	$1,000.00	$0.00	$0.00
RR Crossing	L.S.	100%	100%	$80,000.00	$80,000.00	$80,000.00
Contingency - 20 %					$1,704,268.00	$1,624,467.00
Subtotal					$10,225,608.00	$9,746,802.00
17th Ave & 4 St Construction					$573,096.00	$0.00
Total Estimated Construction (excluding Taxes)					**$10,798,704.00**	**$9,746,802.00**
* Assume muskeg from Highway 11 to CNR ROW (~ 3,550m)						

CONSTRUCTION COST ESTIMATE FOR ALTERNATIVE 3 (NAHMA ROAD)

Item	Unit	Hot Mix Option	Surface Treatment Option	Unit Price	Cost - HMP	Cost - S.T.
Earth Excavation	c.m.	186270	186270	$9.00	$1,676,430.00	$1,676,430.00
Muskeg Excavation	c.m.	5000	5000	$8.00	$40,000.00	$40,000.00
Earth Ditching	m	0	0	$8.00	$0.00	$0.00
Hot Mix Paving	t	9250	250	$135.00	$1,248,750.00	$33,750.00
Primer	kg		308600	$1.20	$0.00	$370,320.00
Class II Aggregate	t		3625	$25.00	$0.00	$90,625.00
Granular A	t	51881	45835	$17.00	$881,977.00	$779,195.00
Granular B	t	210100	210100	$12.00	$2,521,200.00	$2,521,200.00
Select Subgrade Material	t	10000	10000	$9.00	$90,000.00	$90,000.00
500 dia. Culverts	m	368	368	$190.00	$69,920.00	$69,920.00
600 dia. Culverts	m	23	23	$230.00	$5,290.00	$5,290.00
700 dia. Culverts	m	0	0	$300.00	$0.00	$0.00
800 dia. Culverts	m	0	0	$350.00	$0.00	$0.00
1200 dia. Culverts	m	27	27	$500.00	$13,500.00	$13,500.00
1400 dia. Culverts	m	0	0	$800.00	$0.00	$0.00
1500 dia. Culverts	m	0	0	$1,000.00	$0.00	$0.00
RR Crossing	L.S.	100%	100%	$80,000.00	$80,000.00	$80,000.00
Bridge Replacement	L.S.	100%	100%	$800,000.00	$800,000.00	$800,000.00
Contingency - 20 %					$1,485,413.40	$1,314,046.00
Total - Construction Costs					$8,912,480.40	$7,884,276.00
17th Ave & 4 St Construction					$573,096.00	$0.00
Total Estimated Construction (excluding Taxes)					**$9,485,576.40**	**$7,884,276.00**

CONSTRUCTION COST ESTIMATE FOR ALTERNATIVE 4B (HECTOR LAKE)

Item	Unit	Hot Mix Option	Surface Treatment Option	Unit Price	Cost - HMP	Cost - S.T.
Earth Excavation	c.m.	65000	65000	$9.00	$585,000.00	$585,000.00
Muskeg Excavation *	c.m.	163000	163000	$8.00	$1,304,000.00	$1,304,000.00
Earth Ditching	m			$8.00	$0.00	$0.00
Hot Mix Paving	t	3200		$135.00	$432,000.00	$0.00
Primer	kg	0	108700	$1.20	$0.00	$130,440.00
Class II Aggregate	t	0	1280	$25.00	$0.00	$32,000.00
Granular A	t	18120	15970	$17.00	$308,040.00	$271,490.00
Granular B	t	73250	73250	$12.00	$879,000.00	$879,000.00
Select Subgrade Material *	t	326000	326000	$9.00	$2,934,000.00	$2,934,000.00
500 dia. Culverts	m	138	138	$190.00	$26,220.00	$26,220.00
600 dia. Culverts	m			$230.00	$0.00	$0.00
700 dia. Culverts	m			$300.00	$0.00	$0.00
800 dia. Culverts	m			$350.00	$0.00	$0.00
1200 dia. Culverts	m			$500.00	$0.00	$0.00
1400 dia. Culverts	m			$800.00	$0.00	$0.00
1500 dia. Culverts	m			$1,000.00	$0.00	$0.00
RR Crossing	L.S.	100%	100%	$80,000.00	$80,000.00	$80,000.00
Contingency - 20 %					$1,309,652.00	$1,248,430.00
Total - Construction Costs					$7,857,912.00	$7,490,580.00
17th Ave & 4 St Construction					$573,096.00	$0.00
Total Estimated Construction (excluding Taxes)					**$8,431,008.00**	**$7,490,580.00**
* Assume muskeg from Highway 11 to CNR ROW (~ 2,770m)						

CONSTRUCTION COST ESTIMATE FOR ALTERNATIVE 4C (HECTOR LAKE)

Item	Unit	Hot Mix Option	Surface Treatment Option	Unit Price	Cost - HMP	Cost - S.T.
Earth Excavation	c.m.	74685	74685	$9.00	$672,165.00	$672,165.00
Muskeg Excavation *	c.m.	176270	176270	$8.00	$1,410,160.00	$1,410,160.00
Earth Ditching	m			$8.00	$0.00	$0.00
Hot Mix Paving	t	3800		$135.00	$513,000.00	$0.00
Primer	kg	0	129000	$1.20	$0.00	$154,800.00
Class II Aggregate	t	0	1520	$25.00	$0.00	$38,000.00
Granular A	t	21450	18920	$17.00	$364,650.00	$321,640.00
Granular B	t	86900	86900	$12.00	$1,042,800.00	$1,042,800.00
Select Subgrade Material *	t	352540	352540	$9.00	$3,172,860.00	$3,172,860.00
500 dia. Culverts	m	138	138	$190.00	$26,220.00	$26,220.00
600 dia. Culverts	m			$230.00	$0.00	$0.00
700 dia. Culverts	m			$300.00	$0.00	$0.00
800 dia. Culverts	m			$350.00	$0.00	$0.00
1200 dia. Culverts	m			$500.00	$0.00	$0.00
1400 dia. Culverts	m			$800.00	$0.00	$0.00
1500 dia. Culverts	m			$1,000.00	$0.00	$0.00
RR Crossing	L.S.	100%	100%	$80,000.00	$80,000.00	$80,000.00
Contingency - 20 %					$1,456,371.00	$1,383,729.00
Total - Construction Costs					$8,738,226.00	$8,302,374.00
17th Ave & 4 St Construction					$573,096.00	$0.00
Total Estimated Construction (excluding Taxes)					**$9,311,322.00**	**$8,302,374.00**
* Assume muskeg from Highway 11 to CNR ROW (~ 3,000m)						

APPENDIX 5

PUBLIC INFORMATION PACKAGE

INFORMATION PACKAGE RELATING TO PUBLIC INFORMATION CENTRE

Background

The Town of Cochrane serves as a conduit for highway traffic emanating from, or destined for, Highways 652 and 574, as well as points to the east and north. The truck component of these traffic flows has long been recognized as a safety hazard within the community due to its' proximity to school areas and pedestrian routes, and due to the traffic congestion that is created within the commercial core.

The feasibility of a truck route bypass has been discussed at various times for approximately 30 years. In 1980, a feasibility study was undertaken for the purpose of identifying a preferred route, however, the provincial government at the time indicated that there was insufficient justification to commit funding for the construction of such a route. Truck traffic flows, truck sizes, and loadings have all increased significantly since the 1980 Study. Municipal council is acutely aware of the current situation and they have had preliminary discussions with the Ministry of Transportation of Ontario regarding a plan of action. The Ministry has suggested the Town prepare a business case for the project, which might subsequently provide the justification for an alternative route and assist in applying for provincial and federal government funding. Municipal council has retained the services of Sutcliffe Rody Quesnel Inc., for the purpose of preparing the business case.

A Public Information Centre (PIC), such as the one being held this evening, is a key element in the preparation of any business case or study. It provides a forum whereby the proponent (the Town) can offer information on a project and, in return, receive the public's feedback regarding the proposed undertaking.

The overall process of developing and constructing of a new roadway typically involves the following steps:

- Identification of the Project (completed)
- Developmental Planning and Preliminary Engineering (underway)
- Economic Analysis (underway)
- Identification and Acquisition of Funding
- Construction
- Operations

The business case will address the first three items listed above as well as the identification of potential sources of funding.

Objectives

The primary objectives for the construction of a truck route bypass are as follows:

- Eliminate the safety hazards associated with heavy industrial trucks traveling through areas that are near to schools or school children, and/or pedestrians.
- Eliminate the traffic congestion and conflicts that occur in the downtown commercial core areas, as a result of the long tractor-trailer loads passing through Town.
- Eliminate the potential for the contamination of the Town's water supply in the event of an environmental spill into Lake Commando (located immediately adjacent to the existing truck route).
- Eliminate the increased maintenance costs from the heavy trucks using the Town streets along the existing route.
- Minimize the impact on existing development along the new route.
- Minimize environmental impact along the new route.
- Be operationally sustainable, minimizing maintenance demands.
- Minimize additional transportation costs to affected industry stakeholders.

Identification of a Preferred Route

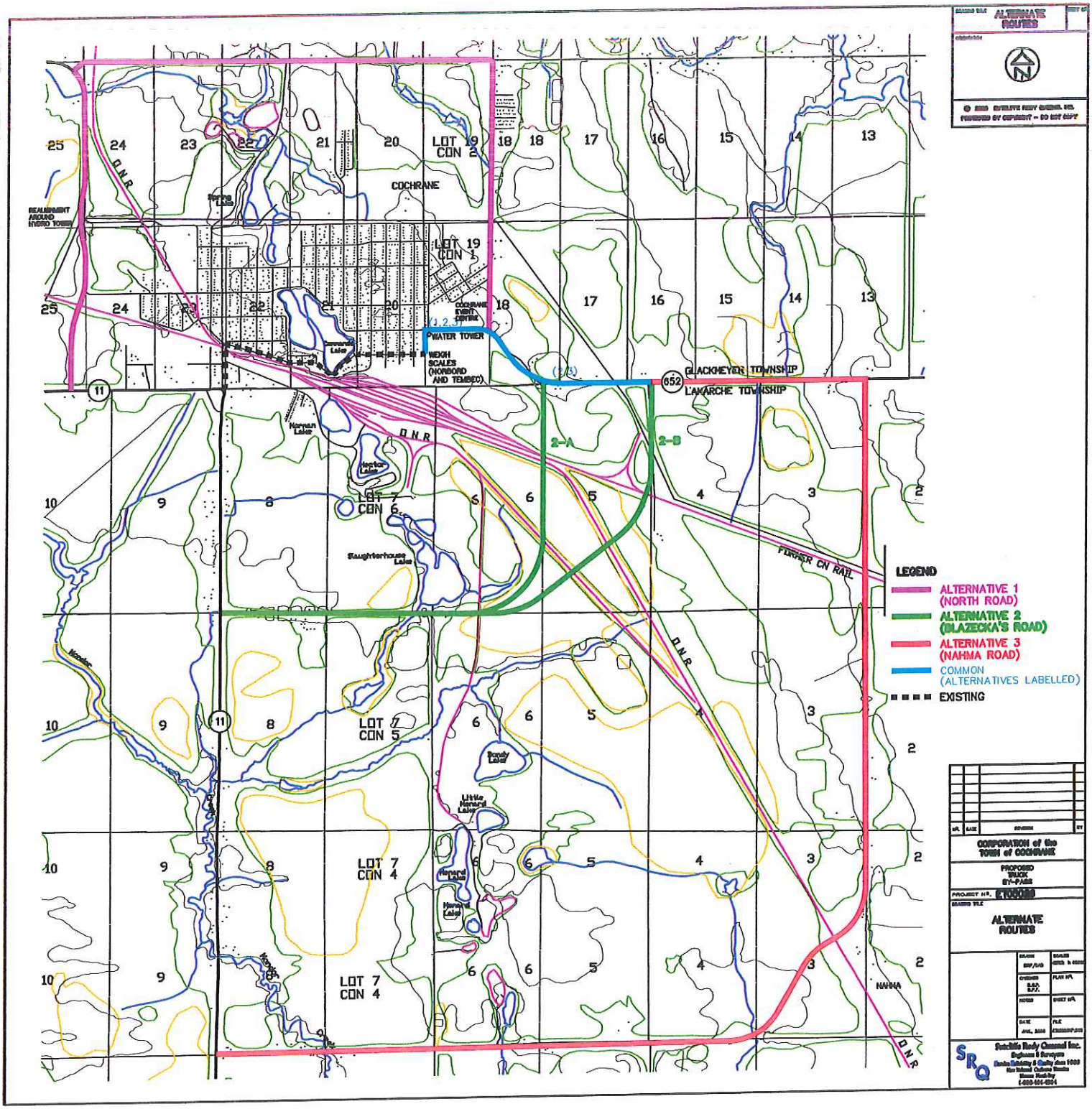
The identification of a preferred route that best meets the stated objectives, from the list of potential routes under investigation, is the key step in the overall project of creating a truck route bypass. The process of determining a preferred route involves the following tasks:

- Review of previous documentation (eg. studies, reports, correspondence, maps, etc.).
- Inventory of current highways leading into the Town, and municipal roadways extending around the perimeter of the Town.
- Determination of potential truck bypass routes, including field review and assessment.
- Identification of barriers and difficulties likely to be encountered during implementation.
- Collection of data regarding traffic volumes flowing through the town, with particular emphasis on truck traffic.
- Communications and meetings with stakeholders to obtain details on the type of truck traffic flowing through Town (eg. material types, approximate values of payloads, peak volumes, points of origin & destination, etc.).

- Inventory of property ownership along the potential routes.
- Determination of estimated construction and operational costs.

Three potential routes have been identified during the developmental planning stage; they are as follows:

- Alternative 1/North Road – commencing at the Norbord/Tembec weigh scales adjacent to the intersection of Third Street and Seventeenth Avenue, this route proceeds north on Seventeenth to Fourth Street, then east on Fourth (formerly Highway 652) to Genier Road, then north on Genier to Concession Road 2/3 (Glackmeyer Township), then west on the Concession Road to Western Avenue (formerly Highway 579), and then south along Western to Highway 11. The approximate distance of the route described above is 8.26 kilometres.
- Alternative 2A/Blazecka's Road (Tembec Option) - commencing at the Norbord/Tembec weigh scales adjacent to the intersection of Third Street and Seventeenth Avenue, this route proceeds north on Seventeenth to Fourth Street, then east on Fourth (& the former Highway 652) for a distance of approximately 1.1 km to a proposed intersection at the east side of the Tembec site, then south on a new alignment (approximately 2.4 km in length) that eventually curves to the west and matches into the existing roadway along Concession 5/6 in Lamarche Township, and then west along the Concession Road to Highway 11. The approximate distance of the route described above is 5.2 kilometres. *This was the preferred route that resulted from the 1980 Feasibility Study.*
- Alternative 2B/Blazecka's Road (Wilson's Road Option) - commencing at the Norbord/Tembec weigh scales adjacent to the intersection of Third Street and Seventeenth Avenue, this route proceeds north on Seventeenth to Fourth Street, then east on Fourth (& the former Highway 652) for a distance of approximately 1.8 km to Wilson's Road, then south along Wilson's to approximately 200m north of the former Canadian National Railway right-of-way at which point a new alignment (approximately 2.2 km in length) begins and eventually curves to the west, matching into the existing roadway along Concession 5/6 in Lamarche Township, and then west along the Concession Road to Highway 11. The approximate distance of the route described above is 6.4 km.
- Alternative 3/Nahma Road - commencing at the Norbord/Tembec weigh scales adjacent to the intersection of Third Street and Seventeenth Avenue, this route proceeds north on Seventeenth to Fourth Street, then east on Fourth (& the former Highway 652) for a distance of approximately 3.4 km to the Nahma Road, then south along Nahma to Concession Road 3/4 in Lamarche Township, and then west along the Concession Road to Highway 11. The approximate distance of the route described above is 13.4 km.


ALTERNATE ROUTES
LOT 19 CON 2
COCHRANE
LOT 19 CON 1
WATER TOWER
WEIGH SCALES (NORBORD AND TEMBEC)
GLACKMEYER TOWNSHIP
LAKARCHE TOWNSHIP
652
11
2-A
2-B
LOT 7 CON 6
LOT 7 CON 5
LOT 7 CON 4
LOT 7 CON 4
FORMER CN RAIL
D.N.R.
NAHMA
LEGEND
ALTERNATIVE 1 (NORTH ROAD)
ALTERNATIVE 2 (BLAZECKA'S ROAD)
ALTERNATIVE 3 (NAHMA ROAD)
COMMON (ALTERNATIVES LABELLED)
EXISTING
CORPORATION of the TOWN of COCHRANE
PROPOSED TRUCK BY-PASS
ALTERNATE ROUTES

SUGGESTION SHEET

(please attach additional sheets as required)

Name: _____

Organization (if applicable): _____

Address: _____

Telephone No.: _____

Email: _____

1. My (our organization's) preference for the route alternatives as presented are:

_____

_____

_____

2. My (our organization's) suggestions re modifications to the potential routes are:

_____

_____

_____

3. My (our organization's) comments re particular design requirements are:

_____

_____

_____

4. My (our organization's) comments re existing physical barriers are:

_____

_____

_____

5. My (our organization's) comments on the economic impact of the new route(s) are:

_____

_____

_____

Attendance Sheet
Public Information Centre - January 25, 2006

Name	Organization (if applicable)	Contact (Telephone or E-mail)
BRYAN PREVOST	HOMEOWNER	272-4964
Walter Ondrejuk	" "	" 3855
Merven Hamle	" "	" 4754
[illegible]	" "	272 6506
LARRY ADSHEAD	" "	272 3237
BARTHA ADSHEAD	" "	272 3237
CHARLES OOSENBRUG	" "	272-5970
GERRY COURVILLE	Coch Airport	272-6500
Alice & Leon Benedict	Home owner	272-4626
Miquel Claveau	SRQ	272-6070
WAYNE KOOPS	HOMEOWNER	272-4517
LUC DENAULT	MNDM.	272-7168
Bill Rogers	Home owner	272-3314
DAN BIGGS	ONTRAIL	272-4120.
Pat Dell	council	272-5245
Pat BLAZECKA	LAND OWNER & BUSINES	3915
Gilles Chartrand	Town Council	272-4614
James Smith	Cochrane	272 4769
Cliff Allen	Cochrane	272-4089
Mike Skinner	Cochrane	272-4685

APPENDIX 6

LETTERS OF PROJECT SUPPORT
FROM STAKEHOLDERS

Norbord

February 15, 2006

Corporation of the Town of Cochrane
P.O. Box 490
Cochrane, Ontario
P0L 1C0

Attention: Pierre Demers – CAO

Dear Pierre:

On January 12, 2006 Norbord attended an information session at the offices of Sutcliffe Rody Quesnel Inc. regarding the resurrection of the truck by-pass study.

An alternate truck route to the industrial section of Cochrane is **long overdue**. It is Norbord's opinion that the present route through the downtown business core and residential area presents both a safety risk as well as a congestion problem; it is also adds exponentially to the wear and tear of our town streets.

Norbord supports the Town of Cochrane wholeheartedly in this venture to have Hwy 11 linked with Hwy 652. We see a positive economic impact in terms of turnaround time even though we will be adding extra distance to our inbound loads coming from the west.

Please feel free to contact me if you require additional information.

Yours truly,

Norbord Industries Inc.

Rick Linklater
General Manager – Cochrane Plywood Division

Cc: Dan Cook M.Sc., P.Eng. Sutcliffe Rody Quesnel

Norbord Industries Inc.
70 Boisvert Crescent
P.O. Box 1956
Cochrane, ON
Canada P0L 1C0

Tel 705 272-4210
Fax 705 272-3570
www.norbord.com

GROUPE DES PRODUITS FORESTIERS
FOREST PRODUCT GROUP

Division NORTHERN ONTARIO Division

Usine COCHRANE Sawmill
70 – 17th Avenue
P.O. Box 1059
Cochrane (Ontario) P0L 1C0

Téléphone: (705) 272-4321
Télécopieur / Fax: (705) 272-2804

February 16, 2006

To: Dan Cook

Tembec his very concern on the amount of traffic coming trough the down town core and residential area.
The proposal by the town of Cochrane on generating a Bi-Pass is well supported by Tembec.
Do to the high volume of traffic that we generate from our operation.

This will held Tembec on the volume delivered to our facility by making an easier access to our mill. This year we have coming from the West side of town 146,000 m3, of logs, it represent 3,318 loads.
This is a large volume that will travel through the Down Town core, there is greater volume when you include deliveries and pick up at the mill site.

This volume will vary from year to year.

We strongly support your proposal.

If you have any more question

Please give me a call

Aurel Lachapelle
Fiber Superintendent
Cochrane Sawmill
P 272 – 7634
F 272 – 1330
C 642 – 5806
Aurel.lachapelle@tembec.com

APPENDIX 7

REGIONAL COMMUNITY
CONSTELLATION IMPACT MODEL 2004

Cochrane By-Pass Project

February 2006

Prepared by Laurie A. Gravelines

Prepared for

The Lake Abitibi Model Forest
The Town of Cochrane
and
Sutcliffe Rody Quesnel Inc.

Executive Summary

The Town of Cochrane hired Sutcliffe Rody Quensnel Inc. to prepare a business case for a truck bypass through the town. The business case required the preparation of a socioeconomic impact analysis using the Regional Community Constellation Impact Model (RCCIM). The RCCIM was developed in partnership with eight partners including six communities and Tembec under the leadership of the Lake Abitibi Model Forest (LAMF).

Many Cochrane companies are dependent on an efficient and effective road transportation system. This study is based on an examination of the largest companies reliant on the road network – Norbord and Tembec. The economic significance of each company to the local economy, to the regional economy, and to the Ontario economy is quantified. Each company uses a combination of rail and road transportation services. The share of socioeconomic impacts attributed to the road network was based on the share of the value of final product shipped to market.

Each socioeconomic variable is quantified by its direct, indirect and induced effects. Each is also quantified by geographic area – the Town of Cochrane, the rest of the LAMF area that partnered in the development of the RCCIM, and the rest of Ontario, i.e. Southern Ontario.

The flow of tax revenues to each level of government is also presented.

Principle findings included

- The two Cochrane based industrial facilities are responsible for an annual average of almost 1,475 person years of employment in Ontario. A third of the employment, 504.2 person years, occurs within the Town of Cochrane and is an integral element of the employed Cochrane labour force. The number of jobs attributed to the road transportation sector for the entire province and for the Town of Cochrane was 971.9 and 332.8 respectively.

- Over half of the total province-wide employment, or 837.7 person years, occur in Southern Ontario. The principal mechanisms for transmitting jobs to Southern Ontario are

- the procurement of equipment, supplies, and industrial materials for use in the plants from southern Ontario

- purchases by Cochrane consumers of goods and services obtained directly or indirectly from southern Ontario suppliers.

- Province-wide value added is increased by $115.5 million per year. The share attributed to the road transportation system is $76.2 million. Value added is equally balanced between the Town of Cochrane, the rest of the LAMF area, and southern Ontario.

- Total wages and salaries on a province-wide basis amounted to $73.6 million per year. Almost $50 million was attributed to the road transportation system, with the largest share, 56%, captured by Southern Ontario.

- The industrial activity from the Tembec and Norbord mills result in over $44 million per year of tax revenue to all levels of government. The federal government is the largest recipient, with estimated revenues of almost $22 million representing 49.5% of total taxes. The provincial government collects an estimated $15.8 million, or 35.8%. The Town of Cochrane benefits by $0.5 million, receiving just 1.1% of total taxes generated by the two mills.

Table of Contents

1. Project Description

The purpose of this report is to document the importance of the local trucking industry to the local and provincial economies. A number of metrics will be measured to provide a comprehensive description of its role in the local, regional, and provincial economies. The primary metric will be employment effects, both direct and with multiplier effects. But a number of other metrics will also be reported such as the impact on value added, property taxes, housing prices and incomes. But first some background to this undertaking.

The Town of Cochrane hired Sutcliffe Rody Quesnel Inc. to prepare a business case for a truck bypass through the town. A socioeconomic impact analysis was identified as an element of the business case. In 2003-04, the Cochrane Community Development Corporation, partnered with a group of northeastern Ontario communities and forest companies, to develop and implement a regional, inter-community socioeconomic impact model known as the Regional Community Constellation Impact Model 2004 (the RCCIM)..

The Town requested that Sutcliffe Rody Quesnel employ the RCCIM to conduct the socioeconomic element of the business case. Sutcliffe Rody Quesnel approached the Lake Abitibi Model Forest for access to technical support. As a consequence, Mr. L. Gravelines was engaged to operate and report on the findings of the RCCIM.

Regarding the organization of this report, the next section will document the conceptual framework for the subsequent analysis. This is followed by a general overview of the RCCIM, including its theoretical and certain technical aspects including its outputs. Section 4 will describe the inputs with model outputs presented in Section 5. Findings and conclusions are reported in the final section of the report.

2. Analytical Approach

Transportation infrastructure can be a critical factor supporting manufacturing activity. It is a critical factor for transporting material and supplies to the manufacturing facility, from suppliers, at a reasonable cost and a timely basis, and it is just as critical in support of transporting the final product to the market.

There are three transportation systems that support economic activity in the Town of Cochrane: the road network, the rail network, and the airlines. The airline network is more appropriate for small volume, high value, and extremely time-sensitive materials and inputs. It will not be included in the subsequent analysis.

The road and rail networks are both very important transportation infrastructures supporting industrial activity in Cochrane. Each has advantages and disadvantages relative to the other. But the focus of this analysis is the importance of the highway system.

We will proceed as follows. Given that there are many companies dependent on the highway system, we will limit this examination to two of the largest companies reliant on the road transportation, namely Norbord and Tembec. The economic significance of each company to the local economy, to the regional economy, and to the Ontario economy will be quantified using the RCCIM.

Given that each company uses the rail and the road system to support its economic activity, we will then pro-rate the economic metrics quantified by the RCCIM on the basis of the share of final product that is shipped on each system. Note: this is expected to somewhat understate the relative importance of the road network because a larger share of wood fibre is received by both mills by truck as compared to rail.

3. The Regional Community Constellation Impact Model (RCCIM)

This section presents an overview of the RCCIM.

The RCCIM was developed by a partnership led by the Lake Abitibi Model Forest that included the Town of Cochrane and Tembec. It represents a significant enhancement of the Community Development Impact Model that had previously been developed for Cochrane and Iroquois Falls under the stewardship of the LAMF.

Enhancements include the updating of the underlying industrial relationships, the inclusion of the community inter-dependencies in northeastern Ontario[1] and the broadening of economic sectors.

The model is based on an input-output accounting framework for Ontario. The economy is divided into 33 industrial sectors and 43 commodities. The input-output matrices are based on two fundamental identities. The first is that the total output of an industry is equal to the value of all inputs. The second identity is that the sum of primary inputs - wages and salaries and other value added - is equal to the sum of final demands, i.e. national income identity. The model was developed within the context of the sustainable development paradigm for natural resource management. As such it incorporates an economic, a social and an environmental set of impacts within the same modelling platform.

Outputs are separately available for each of the communities included in the model. This includes the direct effects of the project located within the community as well and the related interdependencies between communities. In addition results are available at the regional level – i.e. the sum of all included communities – and at the provincial level.

The following sub-sections of this section are intended to provide an overview of the three analytical dimensions of the RCCIM: the economic, the social, and the environmental. The RCCIM has been developed to provide insights into the benefits and costs of projects

[1] Partners included the Cochrane Community Development Corporation, Moose Band Development Corporation, , the Iroquois Falls Community Development Team, Kapuskasing Economic Development Team, Hearst NordAski, Tembec Forest Resource Management, and the Timmins Economic Development Corporation.

within the context of sustainable development. Sustainable development places great weight on a project's interaction with social and environment along with the economic. In the following subsections we provide a concise description of the three dimensions as they are represented in the model.

The Economic Dimension

The RCCIM traces how a dollar spent on an activity such as program administration, circulates and re-circulates within the economy, multiplying the effects of the original expenditure on overall economic activity. This process is called the economic multiplier effect. It operates at several levels. Initial expenditures on wages and materials are generally referred to as the direct costs and their effects on the economy are referred to as the initial or *direct effect*. Subsequent purchases by suppliers of materials and services to sustain the original and derivative expenditures are called *indirect effects*. *Induced effects* emerge when workers in the sectors stimulated by initial and indirect expenditures spend their additional incomes on consumer goods and services. The circulation and recirculation of impacts are based on the economic circumstances of the communities included in the RCCIIM and the expenditure patterns of the area residents. As such, customized multipliers are calculated internally within the model, they are not imported into the model as externally determined inputs.

Economic impact is measured using a number of indicators including:

- *Total sales* include the total turnover of goods and services sold by businesses to sustain the activity's operations. The limitation of this measure is that it double counts costs and revenues.

- *Value added* avoids double counting of products sold during the accounting period by including only final goods. It may be calculated by adding wages, interest, rent and profit or by subtracting the total cost of purchased inputs from revenues.

- Different industries exhibit different labour intensities and employ different grades of labour; hence they generate different employment impacts per unit of output. Further, because compensation levels (wages and benefit rates) vary by sector and from place to place, it is important to include as measures both *person-years of employment* and *employment income*.

- *Tax revenues* measure the relationship of government to the economy. Since more than one level of government collects taxes (and each level collects an assortment of different taxes), federal, provincial and local tax impacts are itemized separately.

The Social Perspective

The economic system is closely related to the social system within which it operates. Two sets of social indicators are analysed. The first set pertains to wealth metrics that relate changes of income levels to property values and the local tax base. A second set of indicators reflect the stability and vulnerability of the community to external developments.

- The *average price of a house* is a comprehensive wealth variable that allows us to gauge the overall economic conditions' barometer of the community.

- The impact on the *property tax base* is an overall health and wealth of community capacity.

- The link between the level of economic activity and a number of family dysfunctional indicators is measured by two family indicators indicators - *divorce* and *family violence.*

- A strong relationships between economic fortunes and a subset of largely property related criminal activities was identified and included in the model. When gainful employment opportunities are increased, alternative means to generate income become less attractive. While unemployment is not the only determinant of criminal behaviour, there are a number of criminal code crimes that are highly correlated with unemployment. Specific criminal activities, which are correlated to employment, are *murder, attempted murder, robbery, property crimes, break & enter, theft, possession of stolen goods and fraud.* All criminal indicators are measured in terms of the expected number of occurrences.

The Environmental Perspective

The environmental perspective highlights fundamental relationships that connect economic production to the environment. The links are multidimensional. First the natural environment supplies resources to

the productive process. Second the natural environment provides the space within which economic activity is carried. Third the natural environment assimilates the waste discharged by households and firms in the processes of consumption and production.

The RCCIM reports on a large number of environmental parameters. However, as these impacts will not be reported as part of this exercise, no further discussion will be undertaken.[2]

[2] See LAMF Information Note 11, Regional Community Constellation Impact Model available at http://www.lamf.net/Products/Information_notes/information_notes.htm

4. Inputs

The RCCIM already contains provincial normal expenditure patterns for each of the standardized industries as defined by the North American Industrial Classification System. The model has provisions to over-ride the provincial normal expenditure patterns with mill-specific financial information. Mill specific financial information was not forth coming in support of this analysis.

Mill production was obtained from the Ontario Mill Information system for the period 1999 to 2003. Average annual output for the Tembec sawmill was 105,000 MFBM, and average annual output for the Norbord plant was 36,500 MSF (3/8" basis). Each mill has a variety of other products such a fibre re-sale, waste, etc. They were not included for this analysis.

The average price for lumber was $420/MFBM and the average price for poplar veneer board was $550/MSF. Both are quoted in Canadian dollars as mill output.

Aggregate impacts are prorated by the share of final output shipped by truck. This is estimated as two-thirds of the combined value of shipments.

5. FINDINGS

Findings for each of the socioeconomic impact metrics are documented in the following sub sections. The direct impact, the indirect and induced impact, and the total impact are reported separately for each of three geographic entities. The three geographic entities are the Town of Cochrane, the balance of the LAMF area, and the rest of Ontario.

Also, each socioeconomic impact indicator is reported for the total economic activity and the prorated share of the total reflecting the contribution of the trucking industry to total activity.

Employment

The total employment impact of the two mills is presented in Table 1a. The share of employment pro-rated to the trucking industry is presented in Table 1b.

Table 1a Total Employment, person years

	Cochrane	Rest of LAMF Region	Rest of Province	Ontario Total
Direct	434.7			434.7
Indirect & Induced	69.5	130.7	837.7	1,037.9
Total	504.2	130.7	837.7	1,472.6

Focusing first on Table 1a, we found that within the Town of Cochrane, direct employment associated with the two mills amounted to an annual average of 434.7 person years. An additional 69.5 person years of employment were also generated in support of the two mills for a total of 504.2 person years.

As a result of the economic activity taking place in Cochrane by the Tembec and Norbord mills, 130.7 person years of employment were generated in other communities within the LAMF area.

The economy of southern Ontario was also a major beneficiary of the forest industry activity in Cochrane: an estimated 837.7 person years of employment, over 50% of the employment impact, occurred in the south. The jobs would result from manufacturing and distributing much of the equipment, materials and supplies consumed by the mills, as well as providing much of the consumer goods purchased by people whose jobs are supported by the economic activity.

Table 1b Employment Attributed to Road Transportation, person years

	Cochrane	Rest of LAMF Region	Rest of Province	Ontario Total
Direct	286.9			286.9
Indirect & Induced	45.9	86.3	552.9	685.0
Total	332.8	86.3	552.9	971.9

Table 1b presents similar information as above, but this time prorated to reflect the share of the economic activity that is attributable to the road transportation industry. As noted in Section 4, two-thirds of the value of shipments-to-final-market by Norboard and Tembec, were shipped by road. This factor was used to scale the results documented in Table 1a.

Using this factor, employment attributable to the transportation in industry in Cochrane amounted to an annual average of 332.8 parson years. Similarly, another 86.3 person years were created at the regional level, and 562.9 in the rest of Ontario for a total of 971.9 person years.

Value Added

Value added measures the total amount of income created, and that contributed to the gross provincial product.

Table 2a Value Added, millions of dollars

	Cochrane	Rest of LAMF Region	Rest of Province	Ontario Total
Direct	$29.0			$29.0
Indirect & Induced	$11.3	$37.8	$37.4	$86.5
Total	$40.3	$37.8	$37.4	$115.5

The impact on value added was more balanced between the three geographies, largely because the higher paid and productive jobs are directly associated with the mills. Within the Town of Cochrane an estimated $40.3 million of incomes was generated by the combined operations of Norbord and Tembec. An additional $37.8 million was generated elsewhere within the LAMF area. Southern Ontario benefited by $37.4 million.

Table 2b Value Added attributed to Road Transportation, millions of dollars

	Cochrane	Rest of LAMF Region	Rest of Province	Ontario Total
Direct	$19.1			$19.1
Indirect & Induced	$7.5	$24.9	$24.7	$57.1
Total	$26.6	$24.9	$24.7	$76.2

Table 2b presents the corresponding information for the portion of value added attributed to the transportation system. Again, the beneficiaries are balanced between the three areas with each receiving approximately $25 million per year.

Wages and Salaries

A annual average total of $73.6 million of wages and salaries are created by the mills at the province-wide basis. Over half of the wages are generated in Southern Ontario. Total wages in Cochrane are estimated as $26.0 million.[3] The relatively low value of wages for the rest of the LAMF area suggests that much of the employment is associated with redistribution and retailing of goods and services.

Table 3a Wages and Salaries, millions of dollars

	Cochrane	Rest of LAMF Region	Rest of Province	Ontario Total
Direct	$26.0			$26.0
Indirect & Induced	-	$5.8	$41.8	$47.6
Total	$26.0	$5.8	$41.8	$73.6

Table 3b reports on the wages and salaries attributed to the transportation sector. Results follow a similar pattern with total wages and salaries of $48.6 with the largest share captured by the rest of Ontario.

[3] At the community level, direct and indirect and induced incomes have been combined.

Table 3b Wages and Salaries attributed to Road Transportation, millions of dollars

	Cochrane	Rest of LAMF Region	Rest of Province	Ontario Total
Direct	$17.2			$17.2
Indirect & Induced	$0.0	$3.8	$27.6	$31.4
Total	$17.2	$3.8	$27.6	$48.6

Wealth Effects – Town of Cochrane

The incomes generated by these two companies contribute to the spending power of resident consumers. This shows up in a number of ways, but the impact on housing prices and property tax assessments is the focus of this section.

Wages and salaries paid by these two companies are above the local average for all professions. These above average incomes support higher housing prices. It is estimated that housing prices are supported approximately 66% over what they would be if these incomes would not present. This translates into a 47.3% increase in the property values in Cochrane.

Taxes

The income and wealth effects of the operations of the Tembec and Norbord mills in Cochrane impact the value of taxes collected by all levels of government. In total, it is estimated that the average annual value of aggregate tax revenues collected by all three levels of government exceeds $44 million. The reader is reminded that these tax revenues are associated with the total impact of the mill operations – direct, indirect, and induced – in all three areas of the province. Values are presented in Table 4.

Table 4 Tax Receipts, by level of Government, millions of dollars

	Total Production	*Road Transportation*
Cochrane	$.5	*$0.3*
Other Municipalities	$6.0	*$4.0*
Provincial	$15.8	*$10.4*
Federal	$21.8	*$14.4*
Total	$44.1	$29.1

Of the $44 millions collected by governments, almost half is collected by the federal government. Their principal sources in tax revenue are very sensitive to incomes – the personal and corporate income taxes – and the value of sales – the GST. The provincial treasury also does quite well, annually collecting just shy of $16 million with their primary sources of tax revenues being income taxes and the provincial sales tax.

Cochrane, the host community and responsible for many of the infrastructural services at the plant level, receives the lowest share of the tax income attributable to the operations of the industrial plants as a whole, or the share attributable to the transportation industry. To the extent that Cochrane is reliant on revenue sources that are insensitive to incomes, growth potential is constrained.

6. Conclusions

1. The direct impacts of a healthy and efficient road infrastructure are critically important to the socioeconomic health of the Town of Cochrane. Direct impacts on local employment levels, wages and salaries, and value added are critically important to the health and wealth generating capacity of the community.

2. Southern Ontario is a primary beneficiary of the economic activity generated in Cochrane. Southern Ontario obtains over half of the jobs and the wages created as a result of the economic activity in Cochrane. These impacts are because of Southern Ontario's role as a producer and distributor for much of the equipment, supplies, and materials required by the two industrial plants, as well as a supplier of consumer goods.

3. The federal and provincial governments are the primary beneficiaries of tax revenues generated by the total amount of economic activity associated with the Cochrane based industries. Cochrane, itself, charged with the responsibility for providing municipal services for the plants, captures barely 1% of public revenues.

Chart 1. Employment Impact attributed to Road Transportation, by Area, in person years

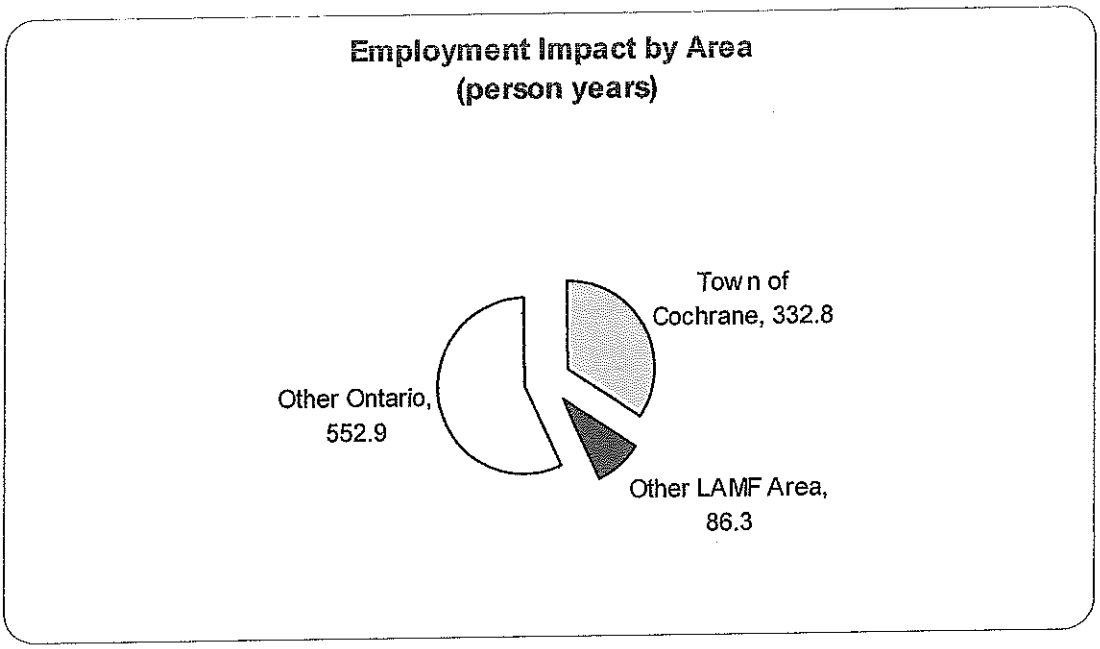


Chart 2. Employment Impact attributed to Road Transportation, by Area, %

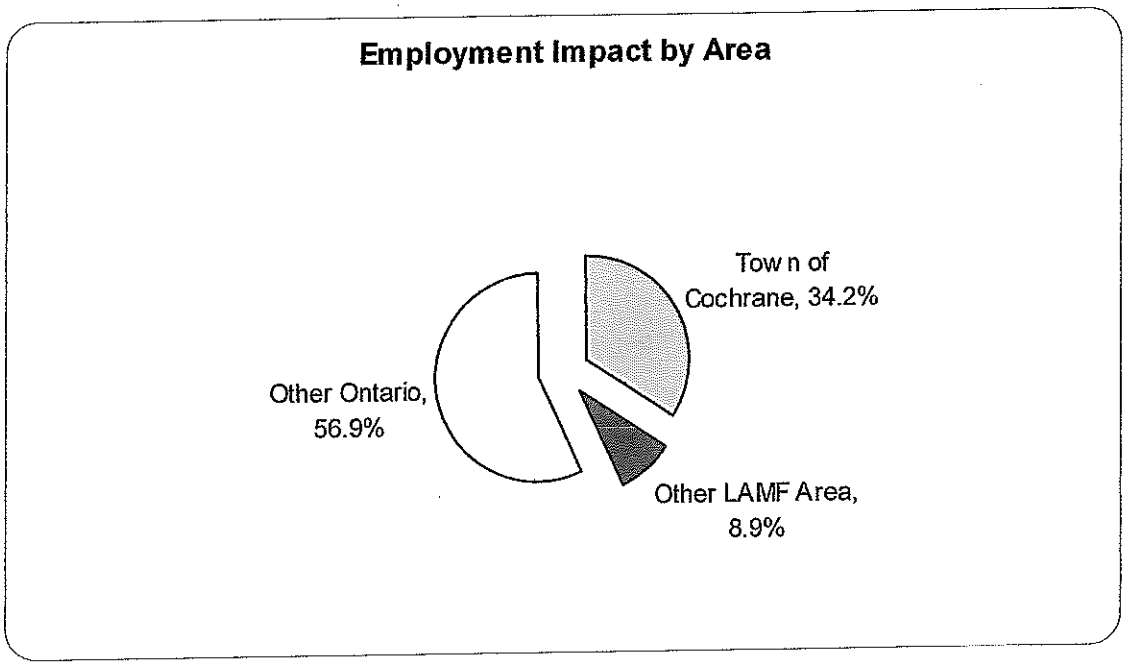


Chart 3 Tax Revenues by level of government, millions of dollars

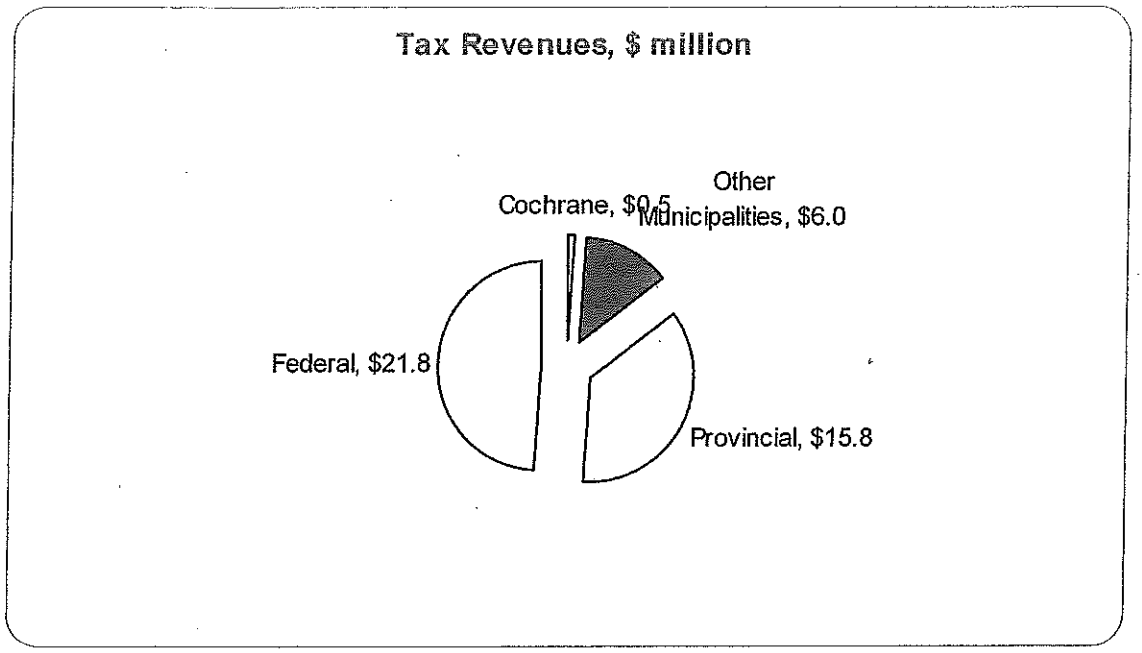
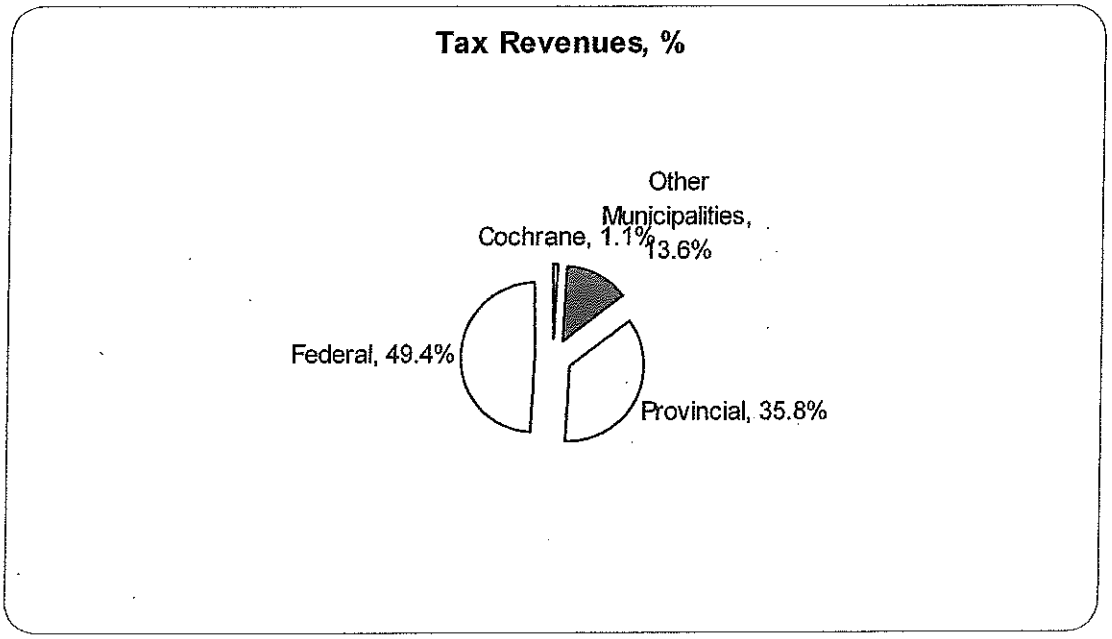


Chart 4 Tax Revenues by level of government, %



APPENDIX 8

SOILS DATA FROM
GEOTECHNICAL INVESTIGATION
FOR HIGHWAY 11 IMPROVEMENT @ COCHRANE
(MTO WP 298-96-00)

Pavement Design Report
Highway 11
From 1.7 km West of the Intersection of Highways 579 and 652 (Third Avenue) Southerly 3.5 km
W.P. 298-96-00
MTO District 53, New Liskeard
(Volume 1 - Text)

Prepared for:

MINISTRY OF TRANSPORTATION
447 McKeown Avenue, Suite 301
NORTH BAY, Ontario
P1B 9S9
and
SUTCLIFFE RODY QUESNEL INC.
9 Wellington Street
NEW LISKEARD, Ontario
P0J 1P0

Trow Consulting Engineers Ltd.

1074 Webbwood Drive
Sudbury, Ontario P3C 3B7
Telephone: (705) 674-9681
Facsimile: (705) 674-8271

S08151G
July 7, 2000

13+900	4.0 RT ℄	D-050
0 - 050	Asph	
050 - 275	Br Cr Gr W Sa, Moist, Comp	
275 - 650	Br Sa W Gr, Moist, Comp	
650 - 1.9	Br F Sa, Moist, Comp	
1.9 - 2.3	Br Si(y) Sa, Wet, L	
2.3 - 2.8	Gry Si(y) Cl, Wet, Firm	

13+900	10.5 RT ℄ (proposed)	D-500
0 - 550	Org W Sa, Moist, L, Co Fib	
550 - 2.1	Gry Si(y) Cl, Moist, Firm	

13+910	15.0 LT ℄	D-300
0 - 420	Br Cr Gr W Sa, Moist, Comp	
420 - 1.9	Blk Org, Moist, Soft, Co Fib	
1.9 - 3.2	Gry Si(y) Cl, Wet, Firm	

13+925	5.7 RT ℄	D-075
0 - 025	Asph	
025 - 250	Br Cr Gr W Sa, Moist, Comp	
250 - 600	Br Sa W Gr, Moist, Comp	
600 - 1.6	Br F Sa, Moist, Comp	
1.6 - 2.0	Br Si(y) Sa, Wet, L	
2.0 - 3.2	Br Si(y) Cl, Wet, Firm	

13+950	5.5 LT ℄	D-125
0 - 200	Br Cr Gr W Sa, Moist, Comp	
200 - 650	Br Sa W Gr, Moist, Comp	
650 - 1.3	Br F Sa, Moist, Comp	
1.3 - 1.8	Br Si(y) Sa, Wet, L	
1.8 - 2.6	Br Si(y) Cl, Wet, Firm	

13+950	6.7 RT ℄	D-075
0 - 025	Asph	
025 - 300	Br Cr Gr W Sa, Moist, Comp	
300 - 650	Br Sa W Gr, Moist, Comp	
650 - 1.5	Br F Sa, Moist, Comp	
1.5 - 2.0	Br Si(y) Sa, Wet, L	
2.0 - 2.3	Br Si(y) Cl, Wet, Firm	

13+960	2.1 LT ℄	D-050
0 - 250	Asph	
250 - 400	Br Cr Gr W Sa, Moist, Comp	**11RI#32**
	No testing required	
400 - 700	Br Sa W Gr, Moist, Comp	**11RI#33**
	Not Accep Gran "B"	
	18.5% Passing 75 μm	
	Accep SSM	
700 - 1.5	Br F Sa, Moist, Comp	**11RI#34**
	Accep SSM	
1.5 - 1.9	Br Si(y) Sa, Wet	**11RI#35**
	Accep SSM	
1.9 - 2.4	Br Si(y) Cl, Moist, Firm	**11RI#36**
	No testing required	

13+960	12.5 RT ℄	D-200
0 - 100	Asph	
100 - 340	Br Cr Gr W Sa, Moist, Comp	
340 - 600	Br Sa W Gr & Stn, Moist, Comp	
600 - 2.2	Blk Si(y) Sa Tr Gr, Moist, Comp	
2.2 - 2.5	Br Si(y) Cl, Moist, Firm	

Notes: • Clay likely indicates bottom of former muskeg excavation
• Most boreholes taken within existing Hwy (road) structure.

13+975	5.2 RT ℄	D-075
0 - 025	Asph	
025 - 325	Br Cr Gr W Sa, Moist, Comp	
325 - 600	Br Sa W Gr, Moist, Comp	
600 - 1.8	Br F Sa, Moist, Comp	
1.8 - 2.5	Br Si(y) Sa, Wet	
2.5 - 3.2	Br Si(y) Cl, Moist, Firm	

14+000	4.2 LT ℄	D-075
0 - 280	Br Cr Gr W Sa, Moist, Comp	
280 - 650	Br Sa W Gr, Moist, Comp	
650 - 1.5	Br F Sa, Moist, Comp	
1.5 - 2.0	Br Si(y) Sa, Wt	
2.0 - 2.6	Br Si(y) Cl, Moist, Firm	

14+000	4.0 RT ℄	D-050
0 - 025	Asph	
025 - 350	Br Cr Gr W Sa, Moist, Comp	
350 - 650	Br Sa W Gr, Moist, Comp	
650 - 1.8	Br F Sa, Moist, Comp	
1.8 - 2.4	Br Si(y) Sa, Wet	
2.4 - 3.2	Br Si(y) Cl, Moist, Firm	

14+010	12.5 RT ℄	D-200
0 - 100	Asph	
100 - 360	Br Cr Gr W Sa, Moist, Comp	
360 - 700	Br Sa W Gr, Moist, Comp	
700 - 2.1	Blk Org, Moist, Soft, Co Fib	
2.1 - 3.2	Gry Si(y) Cl, Moist, Firm	

Note:
Intersection of Alternatives 4B&C & Hwy 11 ≃ Sta 14+000

14+025	6.0 RT ℄	D-075
0 - 100	Asph	
100 - 420	Br Cr Gr W Sa, Moist, Comp	
420 - 750	Br Sa W Gr, Moist, Comp	
750 - 1.8	Br F Sa, Moist, Comp	
1.8 - 2.6	Br Sa Tr Si, Wet	
2.6 - 3.2	Gry Si(y) Cl, Wet, Firm	

14+050	6.2 LT ℄	D-125
0 - 260	Br Cr Gr W Sa, Moist, Comp	
260 - 2.2	Br F Sa, Wet, Soft @ 1.3	
2.2 - 2.8	Br Sa Tr Si, Wet	
2.8 - 3.2	Gry Si(y) Cl, Wet, Firm	

14+050	7.6 RT ℄	D-125
0 - 100	Asph	
100 - 500	Br Cr Gr W Sa, Moist, Comp	
500	NFP Conc	

14+070	2.4 RT ℄	D-050
0 - 400	Asph	
400 - 550	Br Sa W Si & Gr, Moist, Comp	
	11RI#37	
	No testing required	
550 - 1.0	Br Sa Tr Gr, Moist, Comp	
1.0 - 1.9	Br F Sa, Moist, Comp	
1.9 - 2.6	Gry Sa Tr Si, Wet	
2.6 - 3.2	Gry Si(y) Cl, Wet, Firm	

14+075	5.3 RT ℄	D-100
0 - 025	Asph	
025 - 350	Br Cr Gr W Sa, Moist, Comp	
350 - 650	Br Sa W Gr, Moist, Comp	
650 - 1.8	Br F Sa, Wet, Soft @ 1.5	
1.8 - 2.4	Br Sa Tr Si, Wet	
2.4 - 3.2	Gry Si(y) Cl, Wet, Firm	

Note: Intersection of Alternative 2B & Hwy 11 ≈ 14+900

14+850	10.5 RT ℄ (proposed)	D-400
0 - 350	Br Org W Sa, Co Fib	
350 - 2.1	Br Org, Co Fib	
2.1 - 2.4	Gry Si(y) Cl, Moist, Firm	

14+878	11.0 LT ℄ (proposed)	D-1.6
0 - 600	Org, Wet, WT @ Surf, Co Fib	
600 - 1.6	Gry Si(y) Cl, Moist, Firm	

14+878	15.0 LT ℄ (proposed)	D-1.5
0 - 550	Org, Wet, WT @ Surf, Co Fib	
550 - 1.5	Gry Si(y) Cl, Moist, Firm	

14+878	10.5 RT ℄ (proposed)	D-400
0 - 1.7	Br Sa W Gr Tr Org	
1.7	NFP Blds	

14+878	12.0 RT ℄ (proposed)	D-1.6
0 - 600	Org, Wet, WT @ Surf, Co Fib	
600 - 1.6	Gry Si(y) Cl, Moist, Firm	

14+880	16.0 RT ℄ (proposed)	D-1.7
0 - 800	Org, Wet, WT @ Surf, Co Fib	
800 - 1.7	Gry Si(y) Cl, Moist, Firm	

14+900	7.0 LT ℄	D-150
0 - 200	Br Cr Gr W Sa, Moist, Comp	
200 - 500	Br Sa W Gr, Moist, Comp	
500 - 1.9	Br Med Sa, Wet @ 1.3	
1.9 - 2.5	Br Sa Tr Si, Wet	
2.5 - 3.2	Gry Si(y) Cl, Wet, Firm	

14+900	11.0 RT ℄	D-075
0 - 310	Br Cr Gr W Sa, Moist, Comp	
310 - 600	Br Sa W Gr, Moist, Comp	
600 - 900	Br F Sa, Moist, Comp	
900 - 2.3	Blk Org, Moist, Comp, Co Fib	
2.3 - 3.2	Gry Si(y) Cl, Moist, Firm	

14+903	4.2 RT ℄	D-050
0 - 320	Br Cr Gr W Sa, Moist, Comp	
320 - 610	Br Sa W Gr, Moist, Comp	
610 - 1.8	Br Med Sa, Wet @ 1.4	
1.8 - 2.5	Br Sa Tr Si, Wet	
2.5 - 3.2	Gry Si(y) Cl, Wet, Firm	

14+925	10.0 RT ℄ (proposed)	D-500
0 - 350	Br Sa W Org	
350 - 2.2	Org, Co Fib	
2.2 - 2.5	Gry Si(y) Cl, Moist, Firm	

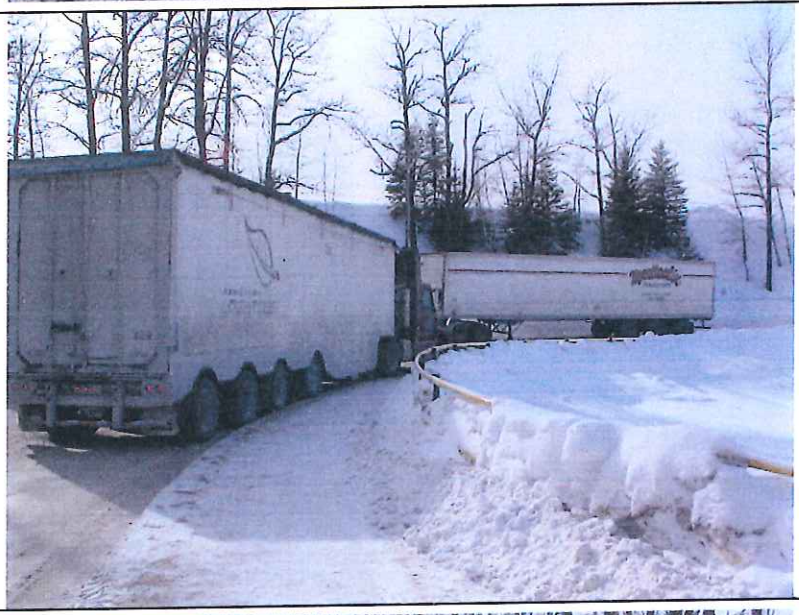
14+950	4.4 LT ℄	D-100
0 - 340	Br Cr Gr W Sa, Moist, Comp	
340 - 580	Br Sa W Gr, Moist, Comp	
580 - 1.8	Br Med Sa, Wet, Soft @ 1.4	
1.8 - 2.6	Br Sa Tr Si, Wet	
2.6 - 3.2	Gry Si(y) Cl, Wet, Firm	

14+950	6.9 RT ℄	D-100
0 - 230	Br Cr Gr W Sa, Moist, Comp	
230 - 520	Br Sa W Gr, Moist, Comp	
520 - 1.7	Br Med Sa, Wet @ 1.3	
1.7 - 2.6	Br Sa Tr Si, Wet	
2.6 - 3.2	Gry Si(y) Cl, Wet, Firm	

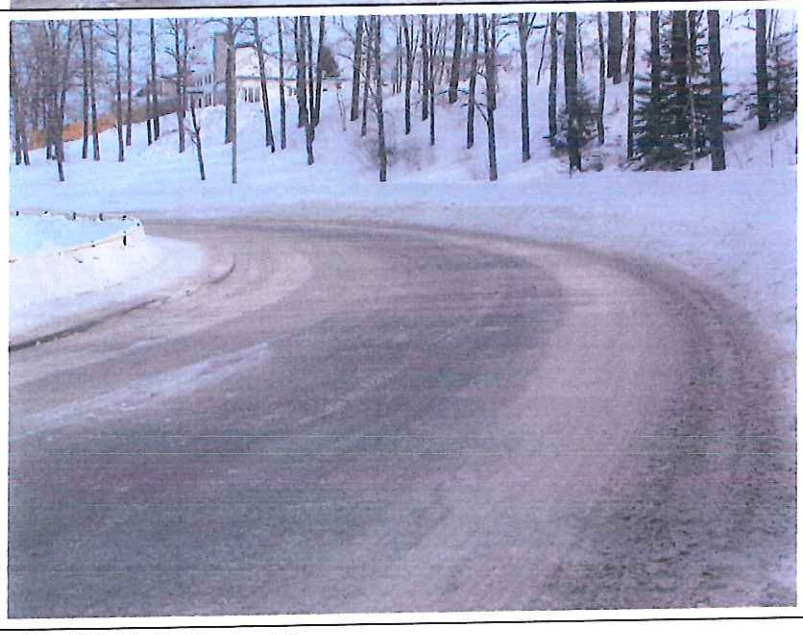
APPENDIX 9

PHOTOGRAPHS

View of Transport Rounding Yellow Bars Proceeding In Easterly Direction



View of Transport Meeting Chip Truck Proceeding in Southerly Direction



View In Easterly Direction of Radius at Point of Trucks Meeting Note Tracks on Sidewalk

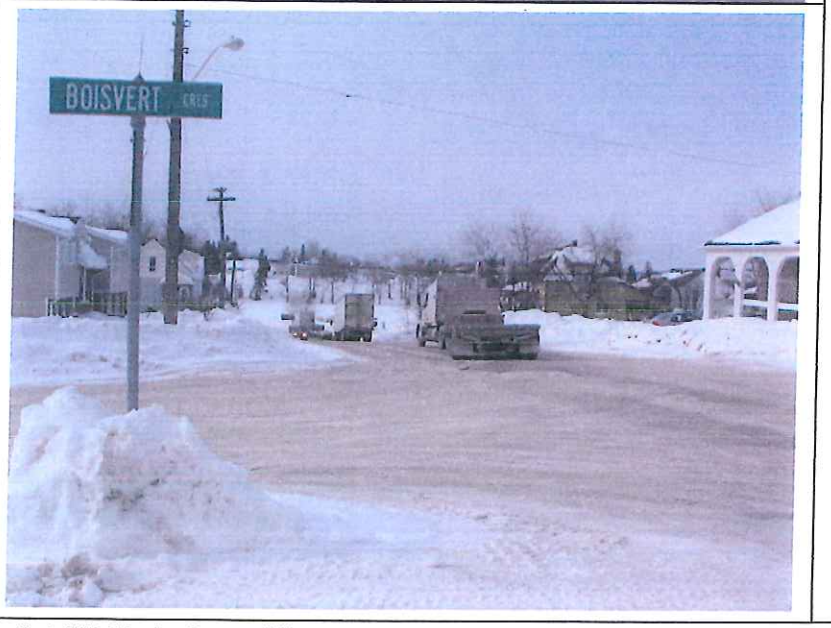
View of Transport Rounding Yellow Bars Note Limited Room for Family Vehicle

View of Log Truck Proceeding Easterly Through Downtown Core

View of Log Truck Proceeding Downhill Easterly Towards Yellow Bars

View of Log Trucks Proceeding Easterly on Third Street Climbing Hill Through Residential Area

View of Congestion at Third Street and Twelfth Avenue
Note Pedestrian



View of Three Transports on Third Street at Twelfth Avenue