

**Arctic Development**

**FORT LIARD OIL AND GAS DEVELOPMENT STRATEGY**

**NWT OIL INDUSTRY  
Mining/Oil/Energy  
Plans/Strategies**

**1995**

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# FORT LIARD



## OIL AND GAS DEVELOPMENT STRATEGY

REPORT FOR THE ACHO DENE KOE

BY

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HENDAY FRONTIER

JUNE 1995

**FORT LIARD**

OIL AND GAS DEVELOPMENT STRATEGY

SUMMARY REPORT

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Fort **Liard** Oil and Gas Development Strategy.

Summary Report

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## Fort Liard Oil and Gas Development Strategy.

## Executive Summary.

Expenditures committed to by 6 oil companies in the December 1994 Sale of Exploration Rights in the Fort Liard area, amount to \$22.7 million, ( Fig 1). In order to hold the land for the full 8 year period each company is required to drill a well on its block by the end of the first 4 year term.

A conservative estimate of the expenditures that the companies actually will undertake to carry out seismic and drill wells to evaluate the 8 blocks purchased, is in the order of \$34.5 million.

A strategy of investing in some 20 business opportunities would enable the community to capture 43 % of these expenditures over the next 4 years. These opportunities include camps, catering, construction and trucking, small community businesses such as the general store, laundromat and commissary and career opportunities such as environmental monitor and survey assistant. They consist of opportunities requiring significant capital investment, as well as established businesses with potential for further growth.

Therefore through a program which combines new investment with development of businesses which show potential for incremental growth, the community will be able to control front end risk and maximize overall business growth.

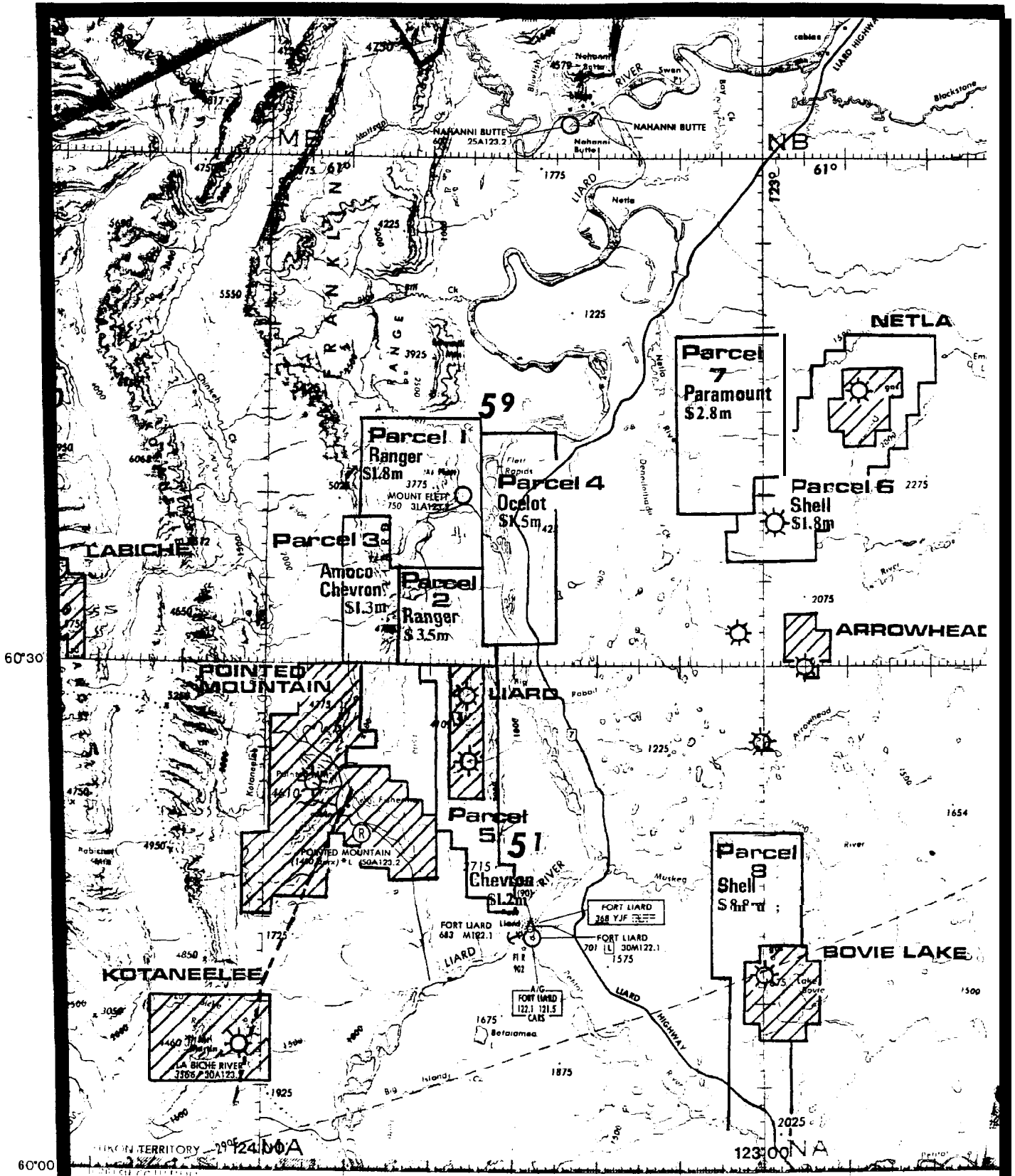
The initial capital investment required for all the potentially economic opportunities is in the order of \$1.3 million, spread out over 1.5 years. These opportunities could be expected to generate net revenues in excess of \$600,000 per year, and would require some 115 workers.

Since this level of activity and expenditures will likely exceed the support capability of Fort Liard, the community will be limited in its ability to go after all the opportunities by the financial, personnel and organizational resources available to the community.

Therefore the community will be able to focus on the selective high quality ventures that will best allow it to achieve its business, community development and human resource development goals.

The general support throughout Fort Liard for oil and gas activity, the proximity of the community to producing gas fields, and the high capital expenditures that have been committed over the next 4 years, puts the community in a unique position to develop and benefit from an exploration cycle that may be expected to last for 5-8 years.

This situation will be enhanced by the developed business infrastructure that is in place, the relatively isolated position of the community which will minimize competition and the expressed willingness of the oil and gas companies to support community business initiatives.



## FORT LIARD AREA

DECEMBER 1994 SALE OF EXPLORATION RIGHTS



## Introduction.

In December 1994, 6 oil and gas companies, ( Ranger Oil Limited, Amoco Canada Petroleum Company Limited, Chevron Canada Resources Limited, Ocelot Energy Inc., Paramount Resources Limited and Shell Canada Limited,) made commitments to spend \$22.7 million over the next 4 years, on exploration activities on 8 parcels of land in the Fort Liard area.

To help Fort Liard businesses take advantage of the activity that will be created by these commitments, the Fort Liard Band Council asked Henday Frontier to create a Community Development Strategy to target the area's overall oil and gas expenditures for capture by local community businesses.

This strategy has been developed through meetings and discussions with Fort Liard business people, members of the Band Council, representatives of oil and gas companies active in the area and oil field contractor and service company personnel.

The community representative on the project was Guy **Berreault**, President of the Liard Valley Band Development Corporation. He attended the meetings with industry in Calgary and provided the necessary community liasson.

The project was developed in 5 phases, as follows:-

- |         |   |
|---------|---|
| Phase 1 | Community Objectives and Business Capability.   |
| Phase 2 | Forecast of Industry Activity and Expenditures. |
| Phase 3 | Listing of Business Opportunities               |
| Phase 4 | Organization and business Plan                  |
| Phase 5 | Community Development strategy.                 |

Verbal and written reports describing the conclusions and recommendations of the first 4 phases have been delivered to Chief Harry **Deneron**.

The first part of this Phase 5 report is a brief summary of the first 4 phases. The latter part contains the recommendations for an integrated Development Strategy for the Community of Fort **Liard**.

By describing the financial, organizational and personnel requirements of each opportunity it will help the community make its own decisions on which of the business opportunities will have the best chance of success and will best help the community achieve its business, community development and human resource development goals.



## Business Capability and Community Objectives

Immediately following the December 1994 Sale of Exploration Rights, Shell Canada Limited, and BFR Geophysical Consultants Limited together with the geophysical contracting company **Geco-Pracla**, organized seismic programs on lands to the northeast of Fort Liard. This program lasted 6 weeks, through February and March 1995.

One of the conditions of the sale was that companies awarded exploration rights must consult with the community on their exploration plans and to the extent possible make business opportunities available to the community.

The consultation process was successful in providing opportunities for local businesses and in developing good community relations. As a result 10 businesses in Fort Liard reacted quickly in support of this program, and the total value of all contracts that accrued to the businesses was in the order of \$1.75 million. A portion of these funds went to southern suppliers. However it is estimated that nearly half of the total cost of the seismic program paid to Fort Liard businesses for supplies, services and wages remained in the community.

This amount represents a high percentage of any realistic expectation for community business capture. In the circumstances of the 1995 program it is particularly significant because it shows that Fort Liard businesses can organize quickly and efficiently to take advantage of oil and gas opportunities.

**Fig 2. Fort Liard Businesses.**

Business	1995 Seismic Program Support Activity.
Beaver Enterprises	Line Clearing Slashing Camp facilities Vehicle rental
E&D Cafe and Take Out	Catering
Great White North Contracting	Scheduled transportation to Ft Nelson.
Acho Real Estate	Accommodation and office space lease
Liard Fuel Center	Fuel supply and haul
Decho Air	Fixed wing/helicopter support
Liard Valley General Store/Motel	Supplies/motel accommodation
Northern Store	Supplies and groceries
Leahy's Electrical Services	Electrical services
Acho Dene Craft Shop	Sale of crafts

Through discussions with these companies an additional 7 activities have been identified that could be carried out by existing or new businesses in the community, throughout the life cycle of the exploration program.

These opportunities are :-

- 1) Rig camp rental
- 2) Well site office unit rental
- 3) Lease construction
- 4) Truck and heavy equipment rental
- 5) Environmental monitoring
- 6) **Expediting/hot-shot**
- 7) Employment Service.

For oil and gas activity to have a long term positive impact on the community additional training and organization will be required.

Specifically, enhanced training programs, oriented towards and focussed on job and career opportunities in the oil industry will need to be developed.

This will make career type jobs as well as wage jobs available to the **community**.

Examples of career positions arising from oil and gas activity in the area **are:-**

- |                          |                     |
|--------------------------|---------------------|
| a) Surveyor              | e) Welder           |
| b) Expediter             | f) Seismic Observer |
| c) Medic./radio operator | g) Seismic Shooter  |
| d) Mechanic              | h) Seismic Recorder |

In most cases, oil companies will help motivated community people work towards these career positions. Several of the companies have experience in this area of career development.

In summary, the community has established entrepreneurial skills and business capability. There is a positive attitude towards oil and gas industry activity, and there is a desire to see the benefits of oil and gas activity spread throughout the whole community..

By virtue of its relative isolation and lack of competitors, the community is in a unique position to benefit from the activity that will be taking place around it for the next 4 years, and thereafter to establish business leadership in the region.

## Activity and Expenditure Forecast.

### Industry Activity.

Representatives of the 6 oil and gas companies that will be carrying out program in the area together with 2 service companies were co-operative and candid in discussing their exploration plans.

All the companies appeared to be genuinely committed to using local business and labor, providing that proper standards of quality, safety and training are met. There was an expressed desire by several of the companies that the whole community, both business and the labor force benefit from their activity and efforts in the area.

Because of the confidential nature of some of the information provided by the companies only a summary is contained in this report. Specific details intended for restricted distribution have been provided to Chief **Deneron**.

Whether or not a company carries out a specific piece of exploration program depends on:-

- a) the results of previous program.
- b) world oil and gas prices.
- c) budgetary and financial constraints
- c) commitments in other areas.

Therefore the exact timing of activity can never be estimated precisely.

However, based on our discussions there is a high probability that the activity described below and on Fig.3 will take place in the Fort Liard area within the 4 year period.

Because of the different geological and terrain conditions on either side of the Liard River, separate activity forecasts have been provided for each area.

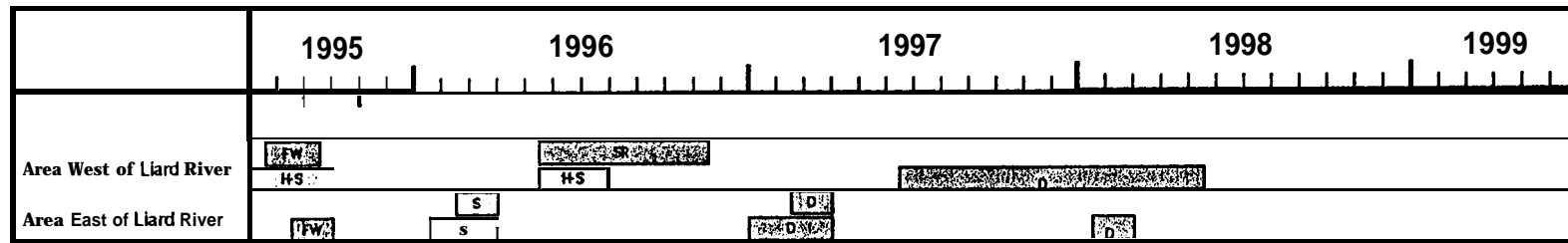
To the west of the Liard River, in addition to geological field work and **heli-portable** seismic in the summer of 1995, we expect there will be **heli-portable** seismic in the summer of 1996, and possibly 1997. This will lead to the drilling of a minimum of 2, 12,000 ft. five month wells in 1997 and 1997, with the possibility of a third well late in the program. Plans are being made to bring a service rig in the summer of 1996 to work over 2 or 3 of the gas wells already drilled.

East of the Liard River where seismic and drilling operations will be conducted in winter, we expect one and possibly two seismic programs in the winter of 1996. During the winter of 1996/97 there will be one or **two** drilling rigs working (30 day programs each) with possibly a small detail seismic program. There will probably be an additional 30 day well drilled in the winter of 1997/98.

FIGURE 3

June 1995

**Fort Liard Oil and Gas Development Strategy**  
**Forecast of Activity During First Period of December 1994**  
**Land Issuance**



LEGEND	
FW	Geological Field Work
HS	Helicopter Seismic
S	Conventional Seismic
D	Drilling Operations
SR	Service Rig / Well Workover
	Duration of Program



## Forecast of Expenditures.

The expenditure committed to by the 6 oil companies in the December 1994 Sale amounts to \$22.7 million. In order to hold each block for the full 8 year period each company is required to drill a well on the block by the end of the first 4 year term.

We estimate that the actual expenditures required to carry out seismic programs and drill the wells needed to evaluate the 8 blocks will be in the order of \$34.5 million.( Fig 4.)

Even this is a conservative estimate for it assumes that only 2 deep wells will be drilled on the 5 parcels west of the river. ( Deep wells will take 150 days to drill and will cost in the order of \$7.0 million each.)

The forecasted amount does include anticipated expenditures by Amoco on service rig activity in the Pointed Mountain field in 1996.

There could be additional seismic to delineate prospects on both sides of the river in 1997,

Since the actual level of expenditure will therefore likely be significantly higher than the committed amount, the community will be able to base its business strategy on a conservative estimate of expenditures and activity through the 4 year period.

Therefore we recommend that the community develop it's business plan based on an assumed oil and gas industry spending level over the next 4 years in the Fort Liard area of \$35.0 million, of which community businesses will capture \$14.8 million -4370. (Fig 10, page 32.)

The oil and gas companies active in the area are prepared to source their work to local contractors provided the work can be carried out effectively, safely and at competitive rates. ( There was recognition that in some cases a small premium can be justified.)

Expenditures above this level by the oil and gas industry, combined with logging, forestry and mining activity will enhance the overall profitability of individual opportunities. As the activity becomes more certain it should be factored into the overall business plan.

Fig 4. Fort **Liard** Area 1995- 1998 Activity/Expenditure Forecast.

Year	Activity	Expenditure \$'000
1995.	Winter 2 mos. seis. @ \$1000k/mo.	2000
	Summer 6 wks field wk @ \$3750/day	160
	100 km heli seis @ \$35,000/km	3500
		-----
	Total	5660
1996	Winter 5 mos seis @ \$1000K/mo.( 2 programs)	5000
	Summer 100 km heli seis @ \$35,000/km	3500
	Serv. rig, 120 days x \$20,000/d	2400
		-----
	Total	10900
1997	Winter 2 wells @\$1500k each	3000
	Summer 1 deep well, 150 days x \$45,000/d	6750
		-----
	Total	9750
1998	Winter 1 well @ \$1500k	1500
	1 deep well, 150 days x \$45,000/d	6750
		-----
	Total	8250
		-----
	Total	34560

## List of Opportunities.

The objective of Phase 3 was to determine all economic business and employment opportunities that might be available to the community arising from the 1994 sale of oil and gas rights.

The criteria for selection of the business opportunities are:-

- a) Realistic front end investment,
- b) Potential to secure firm contracts,
- c) Pay-out within the first four year period of the license term
- d) Fit to community strengths.

Obviously not every business opportunity will be recommended for inclusion in the Community Development Strategy. However they are described here since the community may wish to include them as opportunities as activity and economic conditions develop.

25 business opportunities have been identified. They have been divided into 5 categories and the financial, organizational and personnel requirements for each have been described.

### Businesses Requiring Significant Capital Investment

Businesses in this category have the potential for good utilization in the 4 year period, will generate significant revenue provided firm contracts can be established and will pay out relatively quickly.

The opportunities consist of a base camp, drilling camp, and well site unit. A 12 room hotel/motel for Fort Liard is included in this category. It could expect relatively high utilization through the 4 year period, and good utilization thereafter as tourist activity increases in the region.

### Established Businesses With Potential for Further Development.

A number of businesses in Fort Liard that are already established have the potential for further development. Incremental growth of these businesses represents a low risk source of increased revenues.

Businesses in this category this include catering, line clearing/lease construction, residence/office rental, vehicle rental and trucking.

### Businesses Providing Career/Job Opportunities.

Four businesses provide the opportunity for career type rather than wage jobs in the community. Development of these types of jobs are important to develop the human resource potential of the community and they also represent an opportunity to develop individual entrepreneurial skills.

These businesses which include expediting, environmental monitoring, surveying and the development of an employment service may be developed with low investment, through on the job training and some formal training.

### Non Sustainable Business Opportunities.

A number of business opportunities have been identified which because of the short duration of a contract would be viable if equipment already exists in the community, but which cannot support significant capital investment.

These opportunities are a seismic camp, cat (construction) camp, water truck, barges and also existing heavy equipment which is under utilized.

### Community Businesses.

Five opportunities have been identified which either exist in the community already or lend themselves to development by entrepreneurs in the community, as relatively small stand alone opportunities.

The small community businesses are a key part of the overall business strategy since they are a means of extending the benefits of oil and gas activity throughout the whole community.

The 25 opportunities are summarized in Fig 5, and described in further detail in the following pages.

The capital, operating costs and estimated revenue streams are derived from discussions with oil companies, contractors, suppliers and businesses in Fort Liard. These estimates should be further "ground truthed" by community business people who will have ultimate responsibility for the investments.

The potential oil and gas company utilization of the businesses is shown in Figs 12-14 in the appendix.

A spread sheet which summarises the financial parameters and the personnel requirements for each opportunity is also included in the appendix. (Fig 14)



**Fig 5.** Summary of Business Opportunities.

Businesses Requiring significant Capital Investment
Base Camp
Drilling Camp
Well site unit.
Hotel/motel.
Established Businesses With Potential for Further Development.
<b>Residence/office</b> rental
<b>Line</b> cutting/lease construction.
Catering
Slashing/chain saw work
Vehicle rental
Trucking
Welding
Hot shot services
Businesses Providing Career/Job Opportunities
Expediting Service
Environment Monitor/Snag Assessor
Survey Assistant
Employment Service.
Non Sustainable Businesses
Seismic Camp
Cat Camp
Water Truck
Barges/boats
Existing Heavy Equipment.
Community Businesses.
Craft Shop
General Store
Video rentals
Local trades
Laundromat
Commissary

## LISTING OF BUSINESS OPPORTUNITIES.

### Business Opportunities Requiring Significant Capital Investment.

#### Base Camp Rental.

Immediate requirement is for 40- 80 man unit, capable of expansion and located near Ft. Liard.

Utilization to support seismic activity in the area is 2 months in summer 1995, 6.5 months in 1996, 5 months in 1997.

Cost of **42** man sleeper plus 80-100 man **kitchen/diner/rec** is new \$575,000, used \$350,000.

Net revenue potential is \$166,680 in 1995,\$487,500 in 1996,\$227,700 in 1997.

Employment opportunity is long term for camp manager and maintenance staff.

**Note**, there maybe an opportunity to use part of camp as motel in the summer. Additional utilization may be provided by mining and logging companies,

[ Possible opportunity exists to move 120 man 2-story Imperial base camp from Tuk. Cost to purchase is minimal, cost to tear down, move and erect would be high, in order of \$300,000 +. ( Cost to barge Tuk to Ft Simpson, 800 tons is \$100,000. High moving costs thereafter.) Condition after move is unknown.]

#### Drilling Camp.

Requirement is for 30-40 man side by side camp to support drilling activity in the Ft Liard area for **10 mos 1997,5 mos 1998**

**Cost** of 26 man unit is new \$350,000 used \$200,000-215,000.

Revenue potential @ \$1000/day is \$300,000 in 1997, \$150,000 in 1998.

Note, drill camps were renting in 1994/95 for \$1775- 2000/day, including catering. This required a 20 man guarantee. This does not include cost of food transportation, electricity, set up.

Employment opportunity is long term for maintenance.

High potential for long term utilization on other drilling activity in Ft Liard/Ft Nelson area.

Well site unit.

Requirement is for 10 mos 1997, 5 mos 1998. These units rent at \$175/day. Revenue potential is \$52,000 in 1997, \$24,700 in 1998.

Cost is new \$85,000, used \$30,000-\$45,000. There is also opportunity to build a new unit in Ft. Liard as a training project for 4-6 tradespeople, and as a business opportunity for petitot Const. Cost, including construction equipment is \$45,000 time to build is 4-6 weeks, table saw and other construction equipment required.

Potential for long term utilization is good.

Employment opportunity is long term for trainees as maintenance staff on this and other camps .

Note, possible unit available in Norman Wells (Sahtu Contractors) and Edmonton. .  
Cost \$30,000-\$45,000.

Hotel/motel

Current hotel/motel capability in Fort Liard is inadequate for the forecast demand. The lack of facilities in the community will result in business people and tourists by-passing the community, or arranging their schedule so as not to overnight in the community.

A 12 room hotel/motel would have high utilization during the winter months when seismic and drilling is taking place, and could be expected to have good utilization in the summer as tourist activity increases in the region. (It could also be supplemented by other up-graded facilities in the community.)

Construction costs are estimated to be in the order of \$100 per square foot. Twelve, 225 square foot rooms, plus common areas, reception and mechanical/electrical rooms would require a total of 4200 square feet. Cost would therefore be \$420,000-\$450,000.

Operating costs are estimated to be 1/3 of gross revenue. Over the next 4 years occupancy rates of 60 % during the winter and summer months, and 40 % during spring and fall might be realistic. This would develop a gross cash flow of \$232,000/year, allowing the building to be paid out in 3 years. Thereafter occupancy would fall during the winter months and the hotel would be more dependent on routine business activity and tourism. For this reason a location on the river bank, overlooking the mountains and capable of expansion would be a long term community asset.

Employment opportunity is long term for manager/assistant manager and clerical housecleaning and maintenance staff

This opportunity will require a marketing study.

Established Businesses with Potential for Further Development.

Residence/office accommodation.

Requirement is for at least two houses in Ft Liard, 1.5 months summer 1995, 7 mos 1996, 10 mos 1997, 5 mos 1998.

Revenue potential @ \$1500/month is \$21,000 in 1996, \$30,000 in 1997, \$15,000 in 1998.

Since the Development Company owns 12 houses in Ft Liard, capital expenditures will be minimal. Operating costs are mortgages and maintenance.

Employment opportunity is for one cook/housekeeper per house.

Line cutting/lease construction.

Beaver Enterprises well set up to take advantage of construction opportunities.

Since seismic programs have high requirement for bulldozers, (up to 10 at a time) and these also used for drilling lease construction, there is opportunity to buy one additional D-6 or D-7.

**Cost is** \$80,000-100,000. Revenue potential is \$112,000 in 1996, \$75,000 in 1997,

Employment opportunity is long term for equipment operators, mechanics and welders.

There is opportunity also to set up alliance with construction company for peak period utilization of equipment.

Catering.

Requirement is to support base camp operations, 2 mos. 1995, 5.5 mos. 1996, 5.0 mos. 1997, and one stand alone drilling camp, 11 mos 1997, 5 mos 1998, and possibly a stand alone seismic camp 3 months winter 1996 and 1997.

Capital cost to setup is \$50,000 per camp. Gross cash flow for 75 man base camp, 5 months/yr is \$420,000/yr. Op. costs in order of \$350,000.

Employment opportunity is for manager, cook, cook's helper and camp attendant.

Capability to expand business and long term utilization potential is good. Business may need to follow oil and gas activity away from Ft. Liard. Requires high degree of organization.

Slashing/chain saw.

Slashing work required during most seismic programs, up to 20 people required for helicopter seismic. Line cutting crew consists of 4 people, paid \$20-30 /hr, plus \$ 100/d for vehicle. Each crew cuts 1 km/day +/-, @ \$1500/km.

Opportunity is to develop personnel, equipment and training capability for slashing contracts. Requirement is 6.5 mos 1996, 5 mos 1997. Revenue potential in excess of \$150,000/year.

Employment opportunity is up to 20 slashers per crew, working 2 months for winter seismic programs, 2 months for summer helicopter seismic.

Potential to setup chain saw overhaul/outboard/small engine repair business.

Vehicle Rental.

Opportunity is to rent 4 wheel drive vehicles for seismic programs. Requirement is for up to 6 vehicles for 3 months each year (winter) and 2-4 vehicles for 2 months per year (summer).

Employment opportunity is manager/clerk.

Recommendation is to make alliance arrangement with vehicle leasing company. Annual net revenue potential is in order of \$30,000. (20 vehicle months x \$1500/month) Note, margins may reduce with routine utilization.

Trucking.

Opportunity is to provide bed trucks for camp and heavy equipment moves.

Also there may be an opportunity to provide a bed truck with winch, and other heavy equipment on stand by for operations on the west side of the river.

Cost is in order of \$100,000, revenue potential is \$30,000/yr. ( \$5000/month x 6 mos)

Employment opportunity is vehicle operators.

Recommendation is to form alliance with trucking firm in Ft Nelson to allow expansion and to fully utilize the small fleet now in place.

Heavy utilization would be during winter 1996 and 1997 with possible standby summer 1996.

Welding.

Opportunity is to purchase 2nd hand truck mounted welding unit, to support seismic operations.

**Cost** is \$30,000. Revenue potential is **\$67,500/yr.** ( 5 mos /yr x \$450/d)

Utilization is to support seismic through winter 1996 and 1997, and then drilling through fall 1997 winter 1998.

Employment opportunity is for welder/welders **helper through** this Period

Hot Shot Services.

Hot shot business is already established by Great White North Contracting. The companies operating in the Fort Liard area indicated that they would continue to utilize service.

Opportunity is to develop regular service to become sole carrier in area.

Employment opportunity is drivers.

Need to make sure that the company has proper licenses. for freight and passengers and can meet hot shot requirements.

Businesses Providing Career/Job Opportunities.

Expediting Service.

Opportunity is to establish an office with telephone, fax and radio communications capability to support camps and operating units.

Utilization is 5 mos 1996, 9 mos 1997, 6 mos 1998.

Initial investment is low, revenue potential is \$ 30,000/yr. ( 150 days x \$200/day.)

Employment potential is Expediter and assistant. Potential for medium term utilization is high so long as there is exploration activity in the area. Service companies indicate they would use this service.

Environment Monitor/Snag Assessor

Seismic lines and well access roads require environmental monitor.

Requirement is for 5 mos 1996, 5 mos 1997, 1 month +/- 1998. Cap. investment is skidoo and/or ATV plus 4 wheel drive, est \$15,000. Revenue potential @ \$350/day is \$ 52,500/yr.

There is also requirement for a snag assessor for which training is required and available.

Employment opportunity is for one person and assistant, to work with the community, industry and seismic and drilling contractors.

Survey Assistant.

Survey services are required for both seismic and drilling operations. Opportunity is to gain career experience with established company.

Survey crew consisting of surveyor and assistant costs \$875/d. (\$600/d for the surveyor, \$275/d for the assistant.)

Capital cost to establish is minimal, cost of eg. leased vehicle and instruments.

Revenue potential is \$ 41,000/yr. ( 150 days x \$ 275/d.)

Employment opportunity is assistant leading to surveyor. Training is available, this is career position, will likely require leaving community

Employment Service.

**High** demand for personnel to support oil/gas, forestry and mining operations in the Ft Liard area over the next 5-8 years would support establishment of an employment service. Cost to set up would be in the order of **\$10,000** for office **equipment**.

Revenue would be derived from commission say 10% on wages of staff provided. (Note companies like to be provided with lists of people from which they can do their own hiring.)

Long term opportunity is to expand to provide employment service throughout region, to support high level of activity expected in all sectors in next 4 years.



## **Community Businesses.**

### **Craft Shop.**

There is potential for significant increased sales of crafts to company personnel and workers in the field.

Moccasins, fur hats and mitts are some of the items that are in demand.

The new store will help sales. Also expanded displays at airport in the terminal and hanger will create sales.

Suggest a portable sales case can be considered which can be taken to camps on crew change days.

A brochure describing all the products of the store would be useful both in Fort Liard and in potential sales outlets in the rest of Canada. This brochure would also help advertise the community.

The effort to increase sales will benefit the craft shop with increased profits and also many families in the village will gain additional income by producing the crafts.

### **General Stores**

Workers and company personnel will purchase sundries, work clothes and confectionery.

Camps and caterers will purchase groceries and other items to cover shortfalls in their regular orders.

There is opportunity to develop supply arrangements with caterers. Volume buying should create a benefit for both supplier and user.

### **Video rentals.**

Camps will in most case rent video tapes from local suppliers.

The people in the rental houses will also use these services on a regular basis.

Contracts with the camps could likely be arranged through company supervisors.

### **Small Laundromat.**

Would need basic support from the community to survive. Workers from oil and gas activity would increase the business during active periods.

May be good add on facility for **hotel/motel** or convenience store.

Required investment would be for one or two commercial quality machines, hook-up and rented space.

Local Trades Companies ( Electrician, carpenter, etc.)

Work may be available during camp set-up and for emergency repairs.

Camps should be refurbished after each program and local trades people should be prepared to bid competitively for this work.

### **C m m    ry**

A small commissary at the base camp, selling cigarettes, confectionery, soft drinks and sundries could be set up for a small initial investment. The commissary would need to be open at only a fixed time each day and the inventory could be adjusted quickly to the specific demand.

It could be run either by a member of the camp staff, or as an adjunct to a local business, by a local entrepreneur.

## **Non-sustainable Businesses.**

**These** businesses will be required only occasionally or for very short periods. They will not support capital investment. If equipment is available and can be put into service for nominal cost there is limited opportunity.

### Seismic Camp.

At this time the need for a seismic camp in the Fort Liard area appears very limited and is not enough to warrant investment.

Stantons have a surplus camp in Inuvik. Beaver Enterprises could approach Stanton and offer to become their agent if they moved a camp to Fort Liard.

The areas in which the camp could be used would include Northern British Columbia.

### Cat camp.

There may be some limited opportunity for cat camp rentals but not enough to justify major investment.

Best opportunities may be as advance camp on west side of river when drilling operations start there.

Since camp is now in place, should make industry aware it is available.

### Water truck.

The need for a water truck will mostly be with drilling operations.

Deep wells west of the Liard River may source water nearby and not use a water hauler.

A truck for this limited work can be justified only if it already owned or if it can be acquired at a low price.

### Boats/Barges.

Most of the operations west of the river will use some small boat support. This will be seasonal and short term.

Much of the heavy equipment used on the west side will be brought in and taken out by barge. These contracts will be of short duration and will not support new capital investment.

## Proposed Investments.

Because of the high level of activity expected over the next 4 years Fort Liard will be able to focus on the high quality opportunities that will best allow it to achieve its business, community development and human resource development goals.

A co-ordinated strategy of investing in opportunities which require capital investment together with those which can achieve incremental growth and also those which have the potential for career/job growth, **will enable** the community to develop businesses, control risk and grow its human resources.

A carefully planned and co-ordinated strategy of investment is recommended in the 4 categories of:-

- a) Businesses Requiring Significant capital Investment.
- b) Established Businesses With potential for further development,.
- c) Businesses Providing Career/Job opportunities.
- d) Community businesses.

Investment in the non-sustainable businesses is not recommended, unless equipment is currently available in the community.

The program is designed to achieve payout within the primary term of the Land Issuance period. At the end of this time the community will be in a strong position to continue work in the area, or with paid out equipment will be able to seek contracts elsewhere in the region.

The program recommended will take advantage of existing expertise in the community. It will create a broad business base in the community, from which other opportunities will develop.

A summary of the recommended investments follows.

### Business Opportunities Requiring Significant Capital Investments.

Based on discussions in the community and our understanding of community goals, Henday Frontier recommends that the community of Fort Liard consider making capital investments in a base camp, catering equipment, rig camp, well site unit and a hotel/motel.

Total investment for these 5 businesses ( Fig 6 ) is in the order of \$1.14 million.

This investment can be sequenced, starting with the base camp one catering unit and hotel/motel immediately, and the rig camp, well site unit and the second catering prior to the start of drilling operations.

Provided firm contracts for opportunities can be established, the revenue stream from these investments over the 4 year period will pay out the investments within the primary term of the Land issuance period.

A formal upkeep and maintenance program must be incorporated into the business plan for all capital investments.

Fig 6. Recommended Business Opportunities Requiring Significant Capital Investment.

		Investment		Revenue	Payout
		\$'000	Yr	Gross/Net \$'000	Yrs.
Base Camp	42 man sleeper	350	'96	668/487	2.0
	80 man kit/diner/ret		'97	319/227	
Catering	Base camp	50	'96	420/70	1.0
			'97	420/70	
	Rig camp	50	'98	420/70	
			'97	480/60	
'98	240/30				
Rig Camp	26 man side by side	225	'97	315/275	1.0
			'98	150/125	
Well site	unit.54 x10, 2x office/br/ bath.	45	'97	47/45	1.0
			'98	26/25	
Hotel/motel	12 room	450	'97	232/157	2.5
			'98	232/157	
Total		1170			

Established Businesses With Potential for Further Development.

The community will wish to optimize its position in the following activities which it is already carrying out successfully - vehicle rental, hotshot/transportation, slashing, residence/office accommodation and construction/line clearing. (Fig 7)

The plan to achieve this can be developed with a reasonable level of confidence based on our forecast of activity. This will be helped by the fact that many of the players are already known and can be contacted for some form of commitment. ( Note, the community *is* already doing this.)

The businesses must be sure that they have the organizational resources and good equipment in place to take advantage of the increased activity. The plan should include **liasons** and alliances where appropriate. Once again the forecast of activity, combined with early contact with companies **planning** program can help achieve this.

As the first step in ensuring that the community captures as much as possible of the business coming into the area, it should consider developing a business directory that **could** be passed out to companies coming to do work, to make them aware of **all** the business, service and support capability in the community.

Fig 7. Established Businesses with potential for Further Development.

Business	Opportunity	Revenue Potential \$'000/yr. Gross/net
Vehicle rental	Current strategy profitable, increase volume	60/30
Hotshot	Ensure passenger licenses, negotiate fixed contracts.	150/25
Slashing	Plan for this summer. Check equipment, maintenance and training Look for community wage base.	150/25
Residence/office <b>accom.</b>	Ensure companies aware of availability. Try for long term contracts.	25/15
Construction/line clear	Optimize use of owned vs leased equipment. Form profitable alliance	100/75

Businesses Providing Career/Job Opportunities.

The opportunity exists during the next 4 years to establish a number of career positions for people from Fort Liard. This will encourage the development of individual business skills in the community and give it a base from which to develop other opportunities.

The companies who will be working in the area have expressed willingness to support the development of these positions which will be particularly rewarding for people who demonstrate entrepreneurial initiative.

The positions are: environmental monitor, expediter, surveyor surveyor assistant and employment agency manager (Fig. 8). In addition careers in seismic and drilling will be available for younger workers who can progress from low level positions through the ranks.

Fig 8. Businesses Providing Career/Job **Opportunities**

Position	Opportunity	Skills Required
<b>Environmental monitor/snag assessor.</b>	Identify appropriate person Write into land use permit.	Mature person with knowledge of area. Good communicator. Able to serve as mentor to younger people.
<b>Expediter Assistant</b>	Identify appropriate person Request seismic contractor to accept as assistant. Access training \$	Require high organization and communication skills. Some technical capability an asset.
<b>Survey Assistant</b>	Same as above	Youthful, grade 12, willing to stay with it, must be willing to relocate at least part of the time.
<b>Employment Agency</b>	Identify appropriate person Check Sahtu experience Request Govt. to sponsor data base. Get training Get training. Use data base to access jobs for people of Fort Liard.	Mature person, well respected in community, knows local work force able to handle people, good organizer.

A key part of the process would be to develop a data base listing the skills, experience and certificates of people in the community. This will make potential employers aware of human resources in the community, and it will help the people of Fort Liard focus on and access job opportunities. The data base might be best be managed by the person running the employment agency, who will then have the ability to access work not only for people **from** the community but also those from outside.

**This** type of skills inventory is being developed now in the Sahtu, and the community may wish to discuss their experience with them.

#### Community Businesses.

Development of community businesses will focus around the base camp, residence/office accommodation and the hotel/motel.

In the case of the craft shop, general store and video rental opportunity, incremental growth in each of these businesses can be achieved by reaching an understanding with the operations supervisors of the oil and gas companies, and by providing high quality, dependable and cost effective **service**.

In the case of the Laundromat, commissary and local trades, growth and development of these opportunities will be slow and modest at first. Initial investment should be minimized and for the Laundromat a small marketing study should be undertaken to make sure that it could be viable. These opportunities lend themselves to individual entrepreneurs in the community and once again contact with the operations supervisors of the oil and gas companies is critical for business success.

**Fig 9. Community Businesses.**

Business	Opportunity	Strategy.
Craft Shop	Increased sales to base camp and drill camp workers	Advertise, set up display stands
Video store	Increased sales to camps rental houses	Establish contract.
General store	Primary contracts and supplemental sales	Establish contracts. Focus on pricing.
Laundromat.	Service to camps, hotel/motel rental housing and community.	Adjunct to convenience store etc. Needs marketing study.
Commissary	Sell cigarettes, confectionery etc. at base camp.	Identify manager/sales person.



## Development Strategy.

The expenditures committed to by the 6 oil and gas companies for the 4 year period 1994-1998, amount to \$22.7 million. In order to hold the land for the full 8 year period each company is required to drill a well on its block by the end of the first 4 year term.

As described in the Forecast of Industry Activity and Expenditures, a conservative estimate of the total expenditures to carry out seismic and to drill wells to evaluate the 8 blocks purchased is in the order of \$34.5 million. his level of expenditures is significantly higher than the committed level.

We recommend that the community develop its business plan based on an assumed level of oil and gas industry spending over the next 4 years in the Fort Liard area of \$34.5 million, of which community businesses will capture \$14.8 million - 43% of expenditures, (Fig 10).

A sequenced program of capital investments will **mimimize** financial exposure and risk during the program.

Expenditures above the forecast level by the oil and gas industry, combined with logging, forestry and mining activity will enhance the overall profitability of individual opportunities, and as they become more certain will need to be factored into future plans.

The business opportunities described in the previous section will form the basis of the Development Strategy. They will require capital investments of \$1.3 million, will generate net revenues of approximately \$600,000 per year, and will require in excess of 115 workers.

In developing the business plan the community will not be opportunity limited. In fact , - as well as financial constraints the community will be faced with personnel and organizational constraints in **carrying** out the plan.

The **personel** requirements maybe summarised as follows :-

Management/Supervisory	5
Skilled	16
Semi-skilled	14
<b>Labourer</b>	<b>80+</b>
Total	<hr/> 115 +

Even these **mimimum** requirements will exceed the human resource capability of the community. However it will provide an opportunity for everyone who wants to, to participate in the oil and gas industry activity.

Fig 10

**Fort Liard Area 1995-1998 Activity/Expenditure Forecast.**

	Activity	Total Expenditure \$'000	Ft Liard Capture \$'000
1995.	Winter	2 mos. seis. @ \$1.0 million/mo.	1000
	Summer	6 wks field wk @ \$3750/day 100 km heli seis @ \$35,000/km	117 2500
		Total 5660	3517
1996	Winter	5 crew mos seis @ \$1.0 million/mo.	2500
	Summer	100 km heli seis @ \$35,000/km serv. rig, 120 days x \$20,000/d	2500 400
		Total 10900	5400
1997	Winter	2 wells@ \$1.5 million each	750
	Summer	1 deep well , 150 days x \$45,000/d	2450
		Total 9750	3200
1998	Winter	1 well @ \$1.5million 1 deep well, 150 days x \$45,000/d	500 2100
		Total 7500	2600
		Total 34560	14817 =43 %

Success" factors.

In light of the unique opportunity offered by the high level of expenditure over a relatively short period, the success of the plan will depend on the following factors

**Low front end investment.**

Since rapid payout is critical, due to the short term nature of the business opportunities, acquisition of the assets at lower than the forecast price will significantly enhance the profitability.

The business people of Fort **Liard** are well aware of this fact.

**Good facilities/equipment**

A recurrent theme of our discussions with the oil and gas companies was their demand for reliable equipment, operated safely. The community will need to balance the financial requirement of a low front end cost against the need for modern equipment.

Once acceptable equipment has been found a proper maintenance schedule must be carried out even during down periods.

**Timing of Commitments.**

During the first 2 years of the Development Strategy the revenue flow from seismic operations will support the capital investments made for the base camp, catering and construction activities.

Thereafter significant capital investments will be required in support of drilling operations, to buy a drill camp and well site unit. These investments should not be made until contracts can be assured for specific wells or drilling programs. This can be most likely achieved in the second and third quarter of 1996.

In this way risk can be minimized on the large capital investments that are required to capture the support activity in the later phases of the 4 year term.

**Secured Contracts.**

The community has been successful at developing and maintaining contact with key personnel in the oil and gas and service companies. Personal ongoing contact, competitive bids and a track record are key to securing contracts.

The community may wish to establish a formal review and discussion schedule with the oil and gas companies, co-inciding with their budget schedule in June

and November, to give business people a better idea of possible future activity and thus a better chance of securing firm contracts.

#### Good management capability and satisfactory contract performance.

The businesses in Fort Liard will require additional management and supervisory personnel to carry out the level of activity expected over the next 4 years. Obviously Beaver Enterprises will need to identify the key personnel who will be required to enable it to carry out the increased scope of activities.

Other businesses which may be organized on a more stand alone basis will be able to make individual management decisions. These will be key to success since there will be little time to learn.

The oil and gas companies will show patience in the early phases of a program but as operations progress will have no tolerance for lack of organization or poor performance.

This is not the case for safety where standards may not be compromised even at the start of an operation.

#### Control and stewardship of operating costs

The activity expected in the area will happen quickly and most often at short notice. Since significant sums of money will be involved, formal control and stewardship procedures will need to be in place. These procedures are an essential part of business planning and will serve not only to protect the investment but also to increase its profitability and growth potential.

#### Training/Safety.

All companies strongly emphasise safety training needs. For many jobs, **prequalification** is necessary in order to work.

Therefore availability of trained personnel who can operate in a safe manner will enhance the ability of the community to secure contracts and develop its human resource potential.

Government and industry support to achieve this is available and should be sought aggressively.

A useful and essential function of the proposed Employment Agency would be to provide a data base and co-ordination services for safety/training activities.

## Summary.

In order to develop the plan the Fort Liard business community will need to make decisions relatively soon on which businesses to become involved in, what are the likely sources of capital, and the ownership, management and operation of the businesses.

In this report we recommend a strategy of making some specific new capital investments and maintaining incremental growth in certain established businesses.

By describing the financial, operational and personnel requirements of the opportunities, we have provided the data needed that will help the community make it's own decisions on which opportunities will best help it to achieve its business, community development and human resource development goals.

This generic business plan data will provide the starting point for the more detailed business plans that the community can make, based on the specific pieces of equipment, the contracts and the opportunities available to them.

Fig 11 lists the specific investments recommended by Henday frontier, and it summarises the total plan.

Associated with this summary is a worksheet which shows the requirements for all the opportunities, and describes some of the key decisions. It will help community business people make their own critical decisions on which specific business opportunities to pursue in the context of the overall plan.

By combining the high level of economic activity over the next 4 years, with the employment opportunity provided by the seismic and drilling programs Fort Liard will have the chance to divide the economic " pie " in such a way as to benefit the whole community.

Fig. 11

FORT **LIARD** COMMUNITY DEVELOPMENT STRATEGY

Business	Capital Required \$'000	Net Revenue Stream (4 yrs) \$'000	Implementation Schedule	Numbers of Personnel
Base Camp	350	881	Immediate	2
Catering #1	incremental	210	Immediate	4
Hotel/motel	450	471	Immediate	7
Slashing	10	150	Immediate	20
Residence/ office	Incremental	36	Immediate	2
<b>Envir. Mon.</b>	10	60	Immediate	2
Survey. <b>Assis.</b>	10	80	Immediate	1
<b>Empl. Agency</b>	10	75	Immediate	<b>60(Seis/Drill crew)</b>
Craft Shop	Incremental		Ongoing	
Construction/ Heavy Equip.	100	200	<b>1'Q1996</b>	4
Construction/ Heavy Equip.	100	200	<b>1'Q1996</b>	4
Vehicle Rental	Incremental	120	1'Q 1996	1
Hotshot	30	40	1'Q 1996	2
Exped. Assis	10	75	1'Q 1996	1
Commissary	5	10	3'Q 1996	1
Catering # 2	50	90	3'Q 1996	3
Rig camp	225	315	3'Q 1996	1
<b>Wellsite unit</b>	45	71	3'Q 1996	4
<b>Total</b>	<b>1305</b>	<b>2884 = 721 /yr</b>		<b>115</b>

## Appendix

Figure No.

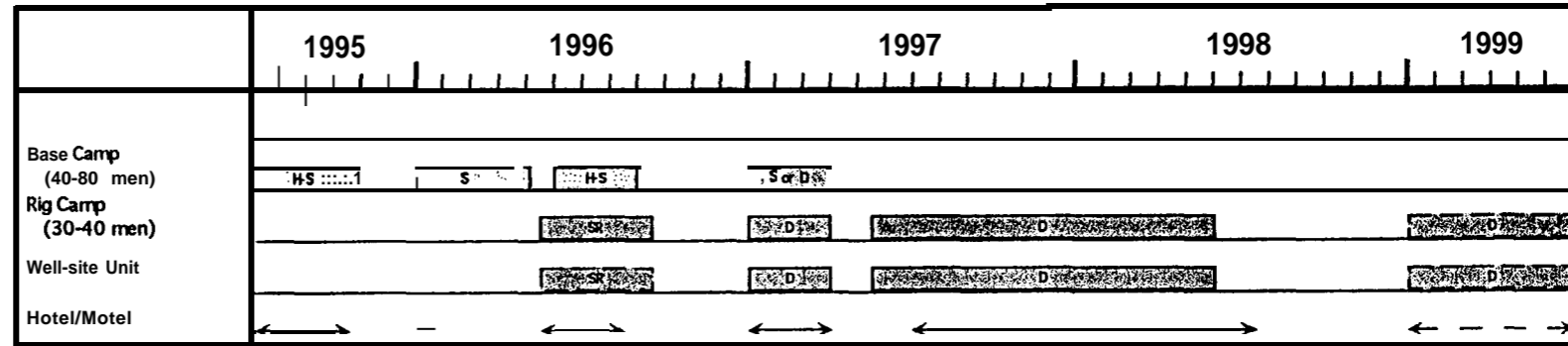
- |                 |  |
|-----------------|--|
| <b>13/14/15</b> | Timing/Utilization of Business Activity      |
| 16              | Summary of Business/Employment Opportunities |
| 17              | <b>Employment/Training</b> Opportunities     |
| 18              | List of Community Contacts                   |

Fig.13

Fort Liard Oil and Gas Development Strategy

June 995

Businesses Requiring Significant Capital Investment



LEGEND	
GFWP	Geological Field Work
H-S	Helicopter Seismic
S	conventional Seismic
D	Drilling Operations
SR	Service Rig/Well Workover
←→	Duration of Program Services Needed



HENDAY FRONTIER



Fig 14

June 1995

Fort Liard Oil and Gas Development Strategy

Established Businesses with Potential for Further Development

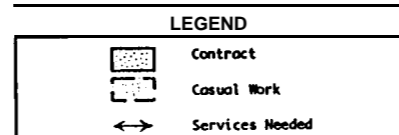
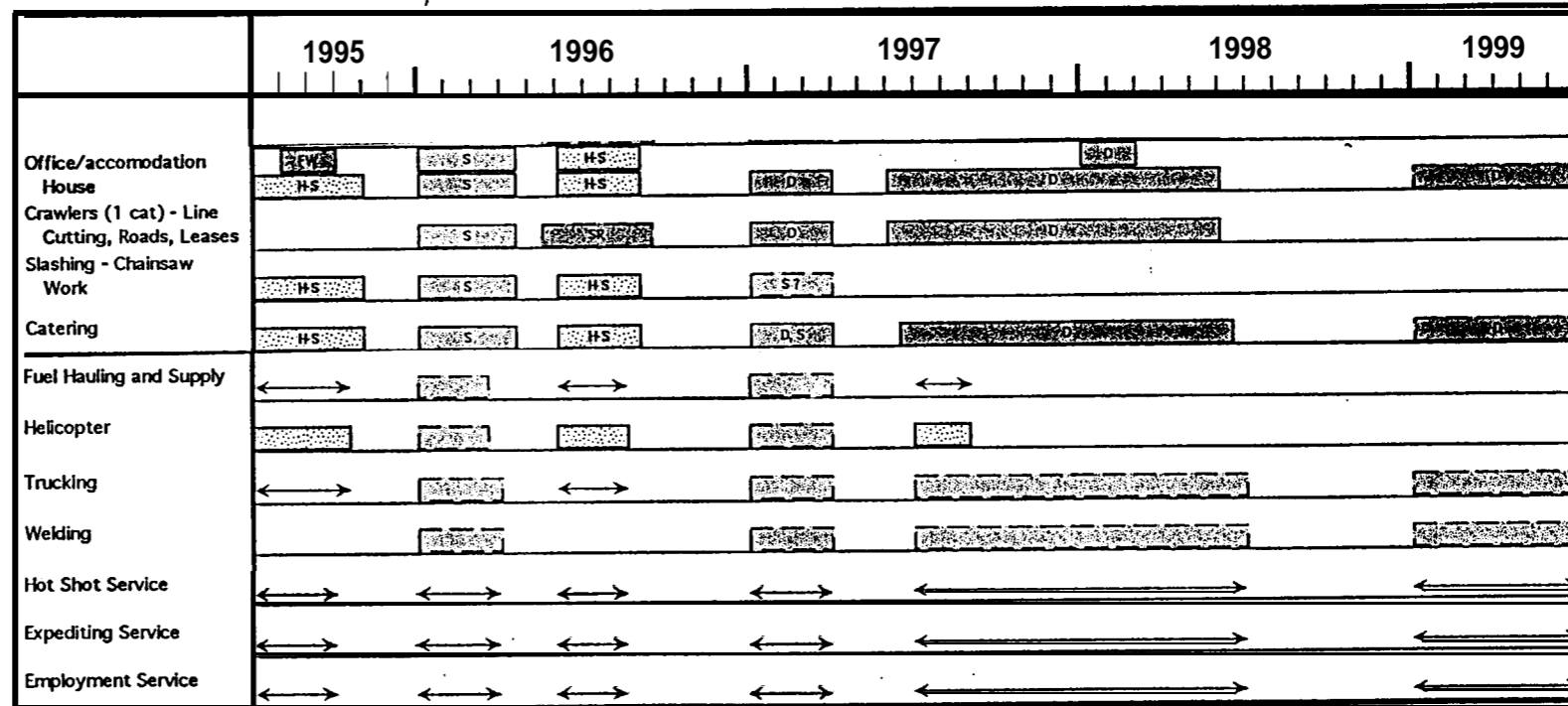
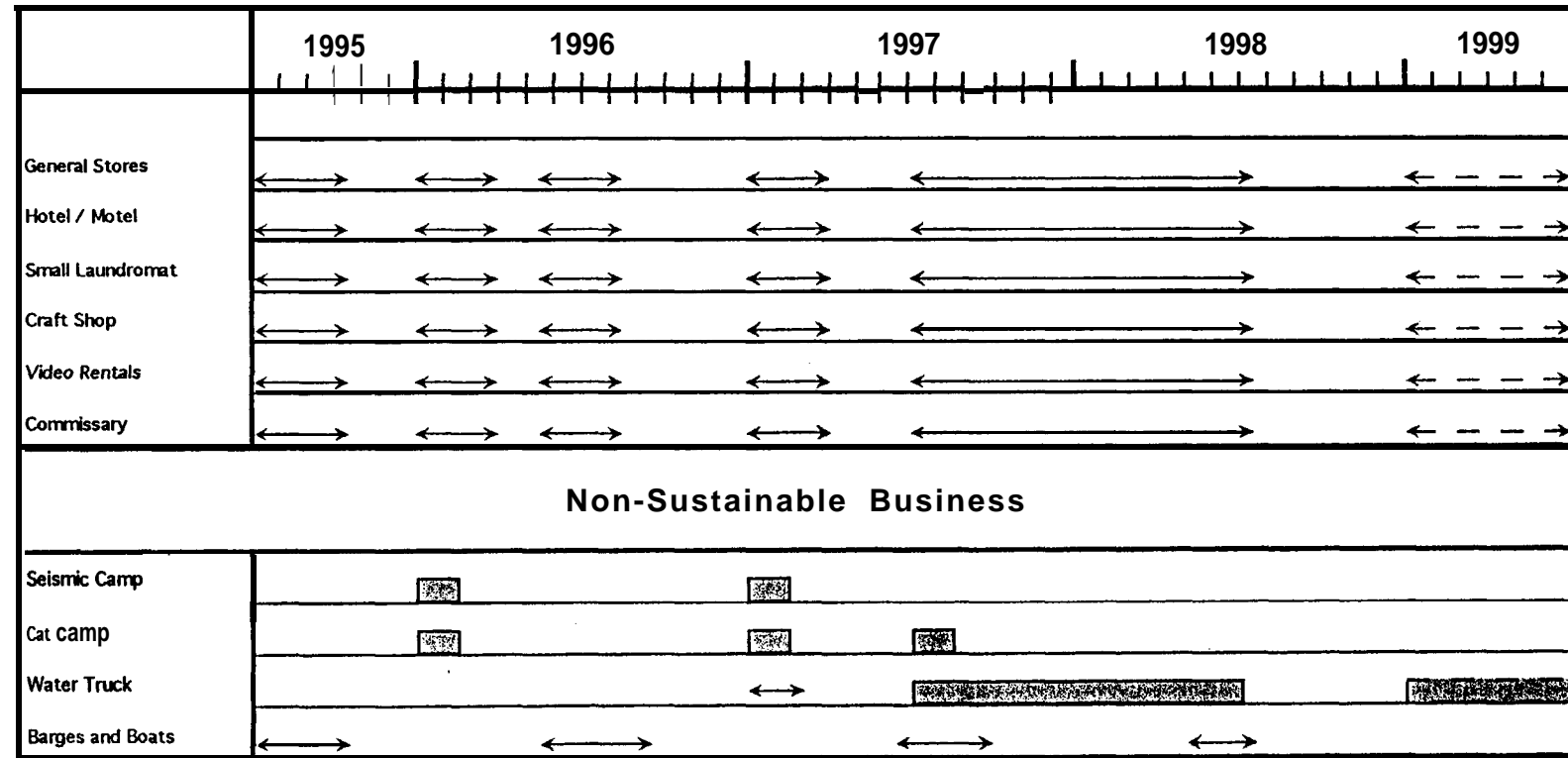


Fig 15

Fort Liard Oil and Gas Development Strategy

June 1995

Community Businesses



**LEGEND**  
 █ Possible Contract  
 ↔ Services Needed



HENDAY FRONTIER

Fig. 16 Summary of Business/Employment Opportunities

ACTIVITY	CAP EX	OP EX ANNUAL	GROSS 1996	\$k		FLOW 1998	PAYOUT YEARS	EMPLOY, REQUIR.	NUMBER OF JOBS	PERS. YR' ANNUAL
				CASH 1997						
Base Camp	350	106	668	319			1.5	Camp manager	1	
Rental								Maintenance	1	
Rig Camp	225	75		315	150		1			
Rental										
Well site unit								Carpenter	2	
Build/	85							Electrician	1	
Buy	45							Plumbing	1	
Rent		.. 12.5		52	24.7		1			
Residenta l/Office accommodation								Cook/ housekeeper	2	
Rent		10	21	30	15		1			
Line cutting/tease construction	100	25	112	75			2	Supervisor		
								Heav. Equip. op	1	
								Mechanic		
								Welder		
Slashing/ chain saw	10	75	150	150				Slashers	20	
Catering	50	350	420	420	420		1	Manager	1	
	50	420/21 O		480	240			Cook	1	

								Cooks helper	1
								Attendant	1
Vehicle Rental		10	30	30	30			Clerk/man	1
Environment Monitor/ Snag Assesor	15	10	42	42		1		Monitor	2
Survey Assis.	10	10	40	40		1		Surveyor	1
								Helper	1
Hotel/motel	450	75	232	232	232	2.5		Manager	1
								Staff	6
Trucking	100		30	30		3		Driver	2
								Mechanic	2
Welding	30	15	67.5	67.5		1		Welder	1
									1
Hotshot	30	15						Driver	
Expediting	10	- 5	30	30	30			Radio op	
								Assistant	
Laundromat	10	7.5	20	20	20				
Commissary	10	75	100	100	100				
Employment Service	10	5						Manager	1
								Seismic cr	40
								Drill help	1
								Shooter h	1
								Jr. observ	1
								Drill crew	20
								Forestry	
								Logging	
								Mining	

**Fig 17. Potential Job Opportunities**

<u>Job Name</u>	<u>Career Classification</u>
Camp cook	Long term
Cook's helper	On job training
Bull cook/camp attendant	Casual labour
Camp manager	Management
Slashers	Casual labour
Truck driver	Casual labour to long term
Heavy equipment operator	Casual to longer term
Hot shot driver	Casual labour
Seismic drilling helpers	Casual labour
Geologic field assistant	Casual labour
Medic/radio operator	Technical career
Monitor/snag" assessor	Casual labour to entrepreneur
Survey helpers	On-job training
Drilling rig crew	Casual labour to on-job training
Seismic crew	Casual labour to on-job training
Welder	Long term trade
Mechanic	Long term trade
Electrician	Long term trade
Plumber	" " "
Carpenter	" " "
Expediter	Entrepreneur potential
Labour pool co-ordinator	Entrepreneur potential

## Fort **Liard** Development Strategy.

### Employment /Training Opportunities.

- Required Training:

- All companies strongly emphasized safety training needs. For many jobs, prequalification is necessary for work.
- Contractors must meet safety requirements before contracts are issued.
- Minimum standards are provided by CAPP, B.C. Workmen's Compensation and Alberta Oilfield Health and Safety program.
- Health and safety training is the responsibility of the contractors or, more realistically, Fort Liard community. Strong support could be solicited from the companies, probably mostly through instructors.
- There is an opportunity for Fort Liard to provide safety programs.
- Some safety training programs can be provided at the job site.

- Career Development:

- When dedicated, career oriented people are identified, support can be obtained from the companies for on-the-job training, promotion or educational support. This will allow northerners to move into career positions rather than remain in minimum wage job positions. .
- Careers are available in seismic and on the drilling rigs. These careers require moving with the work and the oil company support is through encouraging the contract companies to provide a position.
- Specialized careers include work on survey crews and as medics/radio operators. There would be good company support for careers in both of these areas and the skills are transferable to other industries and to the community needs.
- Scholarships are available for post secondary education.
- Several of the companies would be willing to participate in "career day" programs in the local school.

- **Geological Field Parties:** These programs will be conducted from the community and will involve three to six people plus local support personnel. Duration of each field party will be from two to six weeks.

**Contracts:** Bell 206 or Astar helicopter  
 One 4-wheel drive vehicle  
 Possible boat and operator (1 week)  
 House for office and accommodation

**Jobs:** 1 Cook/Housekeeper  
 1 Field Assistant

- **Helicopter Supported Seismic:** These programs will take place in the mountain areas and the operation season is June through September. The programs will each have a duration of six to ten weeks and will operate from a base camp in Fort Liard.

**Contracts:** 1 helicopters, 1 heavy, 1 light machine  
 2 or 3 vehicles  
 Base camp  
 Catering for camp  
 House for office and accommodation  
 Line cutters

**Jobs:** Camp cook and assistants  
 Cook/housekeeper for office house  
 20 line cutters  
 3-4 survey helpers  
 10-15 helpers on recording crew (jug hounds)

- **Conventional Seismic Crew:** These programs will be similar to those conducted last winter. Each crew would operate from one to three months, most likely during the first quarter of each year. The work will be in the area east of the mountains. Operations from a base camp at Fort Liard is preferred by most companies, although a camp on location may be required for the northeastern part of the area.

**Fig 18.** - Fort **Liard** Community Contacts.

<b>Harry Deneron</b>	<b>Chief, Acho Dene Koe</b>
<b>Paul Gammon</b>	<b>Band Manager, Acho Dene Koe</b>
<b>Marilyn Marcellais</b>	<b>Sub-Chief, Acho Dene Koe</b>
<b>Jim Duntra</b>	<b>Councillor, Acho Dene Koe</b>
<b>Daniel Lomen</b>	<b>Councillor, Acho Dene Koe</b>
<b>Guy Berreault</b>	<b>President, Fort Liard Band Development Corporation</b>
<b>Howard Southwell</b>	<b>General Manager, Fort Liard Band Development Corporation</b>
<b>Ernie McLeod</b>	<b>E &amp; D Cafe and Take-Out, Metis Local</b>
<b>Neil Bailey</b>	<b>Liard Fuel Centre</b>
<b>Rob Borelli</b>	<b>Decho Air/Northern Mountain Helicopters</b>
<b>Greg Turnbull</b>	<b>Northern Store</b>
<b>Eva Hope</b>	<b>Acho Craft Shop</b>
<b>Charlie Hope</b>	<b>Hope's Plumbing &amp; Heating</b>
<b>Phyllis Harris</b>	<b>Employee, Great White North Contracting'Ltd.</b>
<b>John McKee</b>	<b>Manager, Hamlet of Fort Liard</b>
<b>Tim Scholl</b>	<b>Economic Development Officer</b>
<b>Mike Longlade</b>	<b>Economic Development and Tourism</b>



FORT LIARD AREA, SEISMIC OPERATIONS

(1 Crew Season -650 Km +/-)

[T] = Total

[N] = Northerners

Personnel Requirements

Admin/Log.

Shooting/Recording

Line Clearing

[T]	CAT CAMP	[N]	[T]	MAIN CAMP	[N]	[T]	BASE CAMP	[N]
1	Cat Push.	0	1	Drill Push.	0	1	Expeditor	1
4	Slashers	4	6	Drillers	3	1	Comp. Rep.	0
4	Skinner's	4	6	Driller's Helpers	6	4	Transients	0
2	Surveyors	1	12 - 15	Juggies	12 - 15			
1	Mechanic	1	1	Admin/Med.	1			
1	Cook		4 - 6	Truck Drivers	4 - 6			
			1	Mechanic	1			
			2	Party Chief/ Assistants	0			
			2	Cook/Help	2			
			2	Powderman/Helpers	0			
			1	Envir. Mon.	1			
13		10	38		30	6		1

Total Seismic Crew Requirement: 57.  
 Total opportunity available to Fort Liard: 41. (This is 72% of requirement.)

**Jobs:** Camp cook and assistants  
Cook/housekeeper for office house  
Truck drivers and swampers (2 -6 locals)  
Fuel hauler  
Water truck driver  
Cat operator (2 or 3) possibly 1 week  
Rig crew (up to 18 jobs for qualified people)  
Medic/radio operator (1 on short wells, 2 on deep wells)  
Roustabouts (4 -6 on deep wells only)

- **Service Rias for Work-overs:** This work will be done during the summer of 1996 on wells already drilled. Rig will be barged to road on west side-of river. Work program will be from four to ten weeks.

**Contracts:** Camp may work from Fort Liard, but will more likely have camp at rig.  
Catering  
Trucking (trucks must be across river)  
Fuel supply, hauling and storage  
Some aircraft support

**Jobs:** Cook and assistants  
Truck drivers and swampers  
Fuel hauler  
Roughneck jobs (3 or 4)  
Medic/radio operator

**Contracts:** Base camp  
Possibly cat camp  
Catering  
House for office and accommodation  
Line clearing  
Slashing  
Vehicle rental (5 or 6)  
Seismic drills (6)  
Fuel supply and haul  
Some 'air support - both fixed wing and helicopter  
Ambulance  
Surveying  
Trucking  
Expediting

**Jobs:** Camp cook and assistants  
Cook/housekeeper for office house  
4-10 cat operators  
2-4 slashers  
1 monitor/snag assessor  
6 driller's helpers (alternatively 4 vibroseis drivers)  
1 medic ambulance driver  
1 or 2 survey helpers  
Truck drivers  
10-15 helpers on recording crew (jug hounds)

- **Drilling Rig:** Wells drilled in the mountains will be of five or six months duration and those drilled east of the mountains will take 25-30 days. Equipment and manpower requirements for each type of well are similar. Having a camp at the well-site is preferred by most companies.

**Contracts:** Lease and road construction  
Camp  
Catering  
Well-site office unit  
Trucking  
Fuel supplies and hauling  
Water truck (1)  
Vehicle rental (2 or 3)  
House for office and accommodation  
Ambulance/medic/radio operator

In addition, on the mountain wells, air support, fuel storage, some stand-by equipment (truck, welder) ice bridge and barging may be required.

**Fig 19**

**LIST OF COMPANIES CONTACTED**

**Oil and Gas Operators:**

**Amoco Canada Petroleum Company Ltd.**

**Chevron Canada Resources**

**Husky Oil**

**Ocelot Energy Inc. ,**

**Paramount Resources Ltd.**

**Ranger Oil Ltd.**

**Shell Canada Ltd.**

**Purcell Energy**

**Service Companies:**

**BFR Geophysical Consultants**

**Geco-Prakla**

**Sourcex Geophysical Inc.**