

**A COMPARISON OF LOCATING
A CEDAR OR HEMLOCK
REMANUFACTURING FACILITY IN EITHER
THE FRASER VALLEY OR WHATCOM COUNTY**

Working Paper

CANADA~BRITISH COLUMBIA PARTNERSHIP AGREEMENT ON FOREST RESOURCE DEVELOPMENT: FRDA II

Canada



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REMANUFACTURING FACILITY IN EITHER
THE FRASER VALLEY OR WHATCOM COUNTY**

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This study was prepared under the direction of the Working Group to the Opportunity Identification Program of the
Canada-British Columbia Partnership Agreement on Forest Resources Development: FRDA II.

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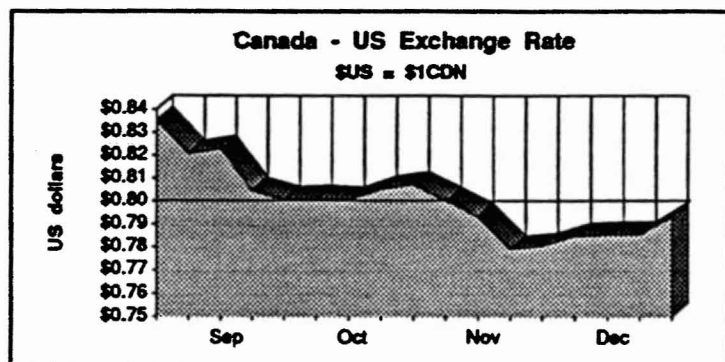
1.0

INTRODUCTION

Purpose of the Study

When this study was commissioned, the BC forest industry generally perceived that a remanufacturing facility located in Whatcom¹ county would be more competitive than a similar facility located in the Fraser Valley. Factors leading to this perception were: the decisions of several firms to locate new remanufacturing facilities in Whatcom county rather than the Fraser Valley; the use of non union labour in Whatcom county; and the availability of low cost industrial land in Whatcom county. The objective of the study was to investigate the relative benefits of locating a lumber remanufacturing plant in the Fraser Valley or in the State of Washington, and test whether these perceptions were valid. The specific locations chosen for this comparison were the Fraser Valley and Whatcom County. Identical plants were evaluated for both locations which ensured comparability.

During the project, exchange rates and interest rates moved dramatically (see the following chart for exchange rate movements). This movement verified that competitiveness, especially when viewed solely from a cash flow point of view, was fundamentally linked to the exchange rate. In September 92, the exchange rate was about C\$=US\$0.84, and the cash flow analysis strongly favoured Whatcom County. By the end of November, the exchange rate was C\$=US\$0.78, and the cash flows then favoured the Fraser Valley. The volatility of exchange rates suggests that the industry should focus on other factors that contribute to competitiveness.



¹ Fraser Valley can extend from Vancouver through to Hope. Whatcom County is in the State of Washington, just adjacent to the Canada/US border.

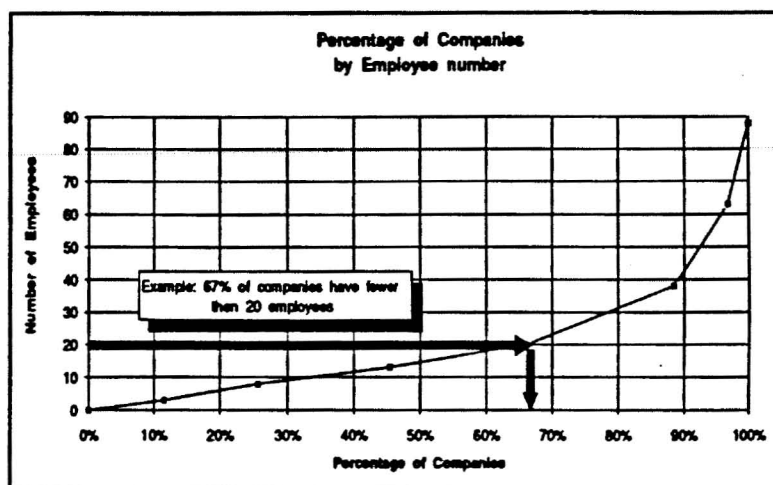
Industry Background

A remanufacturing operation adds value to lumber produced in a primary sawmill. This is accomplished by further processing this lumber into semi-finished products or by extracting the portions of clear material contained within this lumber.

The coastal remanufacturing industry has a long established history. Many of the firms currently operating in the Fraser Valley, were established in the 50s and 60s. These firms evolved from salvage remanufacturers, defined as those that primarily extracted clear lumber from lower grade lumber, to producing a variety of semi-finished and finished products. A recent report¹ estimates that there are approximately 120 plants in BC that can be broadly classified as remanufacturing plants, of which 50% are located in the Fraser Valley. Of these 120 plants, 51 plants processed Hemlock and Douglas fir, and 49 plants processed cedar.

These plants employed an estimated² 3,500 people and generated sales of nearly \$590 million in 1991. These plants, in aggregate, lost nearly \$5 million in 1991. The most important export market for these plants is the US which accounted for 26% of sales, followed by the Pacific Rim at 14%, and Europe at 12%.

The average size of these plants, using employment as a size indicator, is shown in the opposite figure. As can be seen from this figure over two thirds of the plants employ less than 20 people. No plants employed more than 100 people. In addition a third of the companies employ less than 10 people.



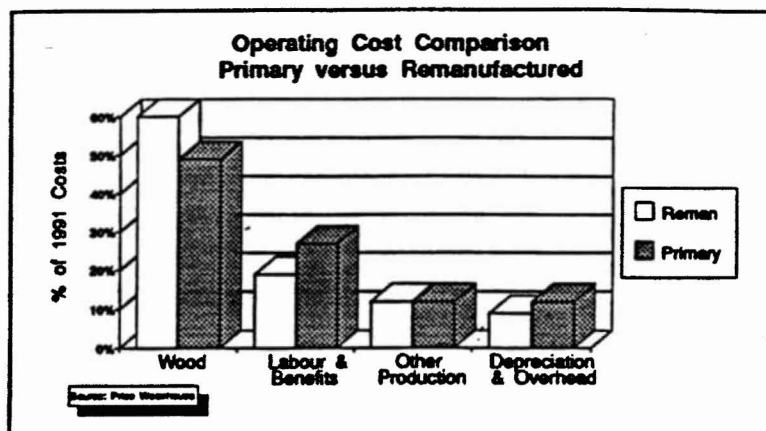
Price Waterhouse estimates that lumber accounts for nearly 60% of the operating costs for this group of companies (see the next figure). This is more than the 49% of costs that fibre represents for the primary mills. Labour at 19% of operating costs for the reman mills is less than the 27% figure for the primary mills. The other categories of costs are approximately equal for both primary mills and remanufacturers.

¹ Profile of the BC Wood Products Value Added Sector, J. McWilliams and Forintek Canada Corp, December 1991.

² Performance of the Value-Added Wood Products Industry in British Columbia, Price Waterhouse, August 1992

Methodology

The report compares the site location decision for two plants, typically found in the Fraser Valley that process BC coastal lumber (cedar and hemlock), in either Whatcom county or the Fraser Valley. To make valid comparisons of the situation on both sides of the border it was essential that the model plants were representative of the remanufacturing industry and that they were identical in both locations.



The remanufacturing industry produces many different products, purchases different grades of raw material, and uses different equipment. A recent study by Price-Waterhouse¹ concluded that it was not meaningful to develop a financial model for an "average" operation. These same difficulties were encountered in the course of this study. Therefore, instead of developing a blend of existing companies, Simons generated two facilities representative of the remanufacturing sector. Plants remanufacturing cedar and hemlock were chosen because, as previously noted, these two species account for the vast majority of the products remanufactured in the Fraser Valley. The salient operating statistics for both plants are summarized below.

	Hemlock Plant		Cedar Plant	
	Fraser Valley	Whatcom County	Fraser Valley	Whatcom County
Raw Material Input (MMFBM)	10		11	
Output (MMFbm)	7.8		10	
Number of Operating personnel	25		21	
Total Sales (C\$ millions)	\$9.5		\$10.8	
Lumber costs as % of sales	75%		79%	
Labour costs as % of sales	9.3%	8.1%	6.8%	5.9%

¹ Performance of the Value-added Wood Products Industry in BC, Price Waterhouse, August 1992.

The Impact of Countervail

The issues surrounding countervail tariffs were often in the news in 1992. Upon investigation, countervail had no impact on plant siting decisions. Canadian manufacturers have to pay countervail tariffs on finished product that they sell into the US. These tariffs are based on the input value of the lumber. US manufacturers have to pay tariff on all Canadian lumber when purchased. If the final product is exported outside the US, then the tariff is rebatable. Therefore regardless of where the plant is located, both pay equivalent tariff.

It can be argued that the countervail tariff favours the Fraser Valley location as the Canadian manufacturer pays tariffs when the product is sold, whereas the US plant pays tariffs when purchasing the raw material. However, to avoid complicating the financial analysis, the countervail tariff was excluded from the comparison, and the lumber input prices and the product sales for both facilities were held equal.

Cedar Plant

The cedar operation is relatively simple (the significant parameters of this facility and the hemlock facility are listed in Appendix A). It was designed to produce a standard line of western red cedar siding and panelling. The raw material input is typical STK/Btr¹ grade product from the primary mills in BC, and the output would be sold to a great variety of destinations throughout North America. The raw material costs are dictated by current market conditions, and since it is a North American market, the price is in the equivalent of US dollars. Similarly, the output product prices are also in US dollars.

Hemlock Plant

The hemlock operation is more sophisticated and was designed to have the flexibility to produce a number of high value product lines. This flexibility of operation demands more equipment and a substantial element of interchangeability within the work force. The operators would seek to extract the products of greatest value and to upgrade the balance through finger-jointing and laminating to produce customer and market specific products.

The raw material would be obtained from the primary mills in BC on a free market basis, i.e. no special relationship would exist between this operation and a primary mill, nor would there be any involvement with Small Business licences. Though most of the products would be sold offshore, the governing currency is US dollars for both the input raw material and the products sold.

¹ STK/Btr. = Standard Tight Knot/Better, an industry grade classification.

Other Issues

Industry experts were asked to comment on the validity of the parameters used to model the facilities. Where possible, changes suggested were incorporated. In some cases, however, the "real life" situation could not be used and simplifying assumptions had to be made. An example of this problem is the cost of equipment. It has been assumed that the operations are new and that they all buy new equipment. In reality, many entrants into the remanufacturing industry try to reduce costs by purchasing used equipment.

Similarly, it could be argued that the hemlock operation has more equipment and can do more operations in-house than many existing plants. For example, instead of having its own capability to finger joint for the inner lamina of window components, the company could buy this piece from outside sources in order to reduce capital costs. This approach would introduce other variables which could distort the objective of this analysis. Therefore, the hemlock plant was designed to be 'self-sufficient', to ensure an equitable comparison.

There is considerable variation from month to month and company to company in terms of the cost of the raw material (even for a given grade mix), and the price obtained for the output (again, even when the range of products is defined). Yet it is these two factors which have the greatest impact on the profitability of a company. In order to remove the influence of these factors, it is assumed that the mill-gate raw material cost and FOB mill product price for the facility, whether it is located in Surrey or in Whatcom county, is exactly the same. In addition, prices were chosen that ensured positive cash flows for both locations.

Extensive interviews were undertaken on both sides of the border with a variety of participants as shown below:

	Canada	USA
Industry	11	9
Government	5	9
Industry Association	5	5
Other	3	2

These interviews provided the data for the financial analysis of the plants in each location. They also gave information on other issues, e.g. community support, market access, etc., which though not impacting directly on the financial comparison, nevertheless could influence decisions on location.

Since land costs are an important variable, a number of industrial real estate agents were contacted to identify suitable plant locations in both the Fraser Valley and Whatcom County. Several potential sites were available in both locations. Land costs and availability are discussed in some detail later in the report.

These two remanufacturing plants were then modelled using the Ministry of Economic Development's financial simulation program. This program calculates, amongst other things, project net present values (NPV) and cash flows. The NPV represents the economic gain attainable from a project, and is further described in Appendix B.

Finally, in order to assess the sensitivity of the results and the comparisons, the principal input assumptions were varied and the effect of these variations on NPV were calculated. The input factors varied were output value, raw material cost, labour cost, and capital cost. The sensitivity analysis evaluated the impact on the NPV of $\pm 15\%$ variation of any one of these factors, holding all other variables constant.

2.0

CONCLUSIONS

1. **Exchange rates fundamentally affect cash flows.**
Exchange rates at less than US\$0.79/C\$ would favour a BC location when the sole criterion used is cash flow or NPV.
2. **Locational comparisons were made between the Fraser Valley and Whatcom County based on thirteen factors. The results are summarized below. Not all categories are weighted equally and some are subjective.**

Category	Fraser Valley	Neutral	Whatcom County
1. Land costs			✓

Land costs are currently lower in Whatcom County. However, offsetting lower land costs in Whatcom County is that fact that land values in the Fraser Valley have historically increased faster than land values in Whatcom County, offering potentially higher long-term capital appreciation.

Category	Fraser Valley	Neutral	Whatcom County
2. Total Tax Burden	✓		

The Fraser Valley location pays less tax than the Whatcom County location. Most people interviewed expected that the total tax burden would be less in Whatcom county than in BC, however, the reverse is true for the business cases simulated using the BC Ministry of Economic Development's model.¹

Category	Fraser Valley	Neutral	Whatcom County
3. Community support			✓

¹ For more information on the Ministry of Economic Development's financial simulation model, please contact: Financial Evaluation and Equity Branch, Ministry of Economic Development, Small Business and Trade.

The communities in Whatcom County aggressively pursue new business. All those contacted perceived that it was significantly easier dealing with the Whatcom County bureaucracy than with similar organizations located in the Fraser Valley. Whatcom County rated higher because the communities welcome wood industry employers, whereas many Fraser Valley communities appeared to favour other types of industries.

Category	Fraser Valley	Neutral	Whatcom County
4. Labour Cost			✓
5. Labour Flexibility			✓
6. Labour Productivity		✓	

Although labour costs are generally lower in Whatcom county, those firms that had low labour turnover, paid almost equivalent wages to similar firms in BC that were IWA certified. Labour flexibility was perceived to be a significant advantage in Whatcom county, even though recent IWA certifications within the Fraser Valley show increasing flexibility in job categories (recent certifications are characterized by a decreased number of job categories than traditional operations leading to greater flexibility). No evidence was found that labour productivity differed between the two areas.

Category	Fraser Valley	Neutral	Whatcom County
7. Resource Security	✓		

A firm located in the Fraser valley can compete in the Small Business Forest Enterprise Program for timber allocation. It should be noted that this program is structured to favour existing businesses, and it is unlikely that the types of operations identified in this report would win an award under this program. Environmental pressures have already resulted in a dramatic reduction in timber availability in the Pacific Northwest. However, it was also noted that the Ministry of Forests (MoF) had dramatically reduced annual allowable cuts in various coastal licences, and that the MoF were reviewing all BC licences at the time of report preparation.

Category	Fraser Valley	Neutral	Whatcom County
8. Financial Incentives			✓

Firms located in Whatcom county are eligible for potentially greater levels of financial assistance during the start up phase of operations. Assistance available to these types of BC operations is generally focused on companies that are already operating.

Category	Fraser Valley	Neutral	Whatcom County
9. Market acceptance		✓	

No evidence could be found that suggested that markets viewed products any differently if they were manufactured in the Fraser Valley or in Whatcom County. During the imposition of countervail duties in 1992, plants producing remanufactured products were temporarily charged duty on the final value of the product instead of the raw material costs. However, this situation was quickly corrected. As noted earlier, countervail actually favours the working capital position of the Fraser Valley plant.

Category	Fraser Valley	Neutral	Whatcom County
10. Environmental		✓	

Environmental pressures regarding waste disposal, dust collection, noise pollution, etc., were judged to be identical in both jurisdictions.

Category	Fraser Valley	Neutral	Whatcom County
11. Municipal & Industrial Infrastructure		✓	

Those contacted during the project believed that all necessary municipal and industrial infrastructure was equally available in both locations.

Category	Fraser Valley	Neutral	Whatcom County
12. Energy	✓		

Average energy costs are lower in the Fraser Valley than in Whatcom county.

Category	Fraser Valley	Neutral	Whatcom County
13. Transportation		✓	

The quality, cost, and frequency of transportation from each location was perceived to be equal. As markets are not a limiting factor, it is possible to create a market mix for either location that results in lower transportation costs for that location.

3. **The sensitivity analysis highlights that small improvements, less than 5%, in sales price and fibre costs significantly outweigh similar improvements in labour, site, and capital costs.**

The sensitivity analysis suggests that product innovation and increased market effort, when it leads to improved product price, offers significantly greater improvements in returns on investment than focusing on cost reductions on plant, labour and processing.

Raw material security and the consistent availability of suitable fibre lead to improved product recoveries and the ability to develop market-oriented product programs. The Small Business Forest Enterprise Program 16.1 sales, has helped some BC remanufacturers obtain tangible benefits. Similarly, the BC Wood Specialties Group is providing input to improve product development and thus higher value product lines.

4. **Many of the existing lower mainland remanufacturers are located near large urban centres and may have to face relocation decisions in the short term.**

The current value of their industrial property exceeds the value of the ongoing business. Increased urban pressures suggest that some of these industrial sites should be converted to higher valued uses. These remanufacturers logically would be considering opportunities presented by a rural location.

5. **No Fraser Valley companies have closed a remanufacturing facility in the Fraser Valley to set up new operations in Washington State.**

Four BC companies have opened new plants in the Puget Sound area in the last several years. These plant openings have not been at the immediate expense of existing BC plants. However, jobs have been created in Washington. The number of these companies opening in Washington should be viewed in the context of the estimated 150 remanufacturing companies in BC.

3.0

STRATEGIC INITIATIVES

Fraser Valley municipalities that either have existing remanufacturing companies or have land available should explore structuring industrial parks to create competitive clusters and take advantage of synergies.

Many existing plant owners, located in the Greater Vancouver Regional District, are likely to consider relocating due to the high values of their land. Given the importance of exchange rates on the competitive position of the industry, Fraser Valley municipalities should investigate other methods of providing a competitive advantage. Proactive measures are warranted to keep these people, their knowledge base, and the jobs they provide, in BC, since a number of Washington State counties are aggressively trying to attract new business.

As land cost is the major cost difference between the Whatcom County location and the Fraser Valley location, solutions such as industrial parks that offer fully supportive infrastructures could provide an incentive (inducement) to form remanufacturing clusters in the Lower Mainland. These parks should be actively marketed to the existing remanufacturing community.

Potential Advantages Offered By Industrial Parks

Purchasing	Conversion	Selling Product
Larger and more significant customer group to primary producers.	Supportive community infrastructure	Transportation consolidation
	Solve residue disposal issues	Increased synergy by clustering similar producers
	Use of common facilities	Marketing and sales synergies to park members
	Labour rates and flexibility negotiated for the park members.	

An industrial park, structured to provide common facilities to park members (kiln drying, finger jointing, etc), would reduce the total space required by each member, thus reducing land costs for each member. Accumulating residues like sawdust and shavings would facilitate disposal problems for each individual member. Other synergies noted in the table would accrue to industrial park members.

The BC industry can improve its future competitive position by focusing on new product development, process development and market initiatives thereby forming a competitive cluster. These industrial parks could form the nucleus of such a cluster. The BC industry can not rely on favourable exchange rates to maintain a competitive advantage. Exchange rates are macro-variables over which the remanufacturing industry has no control. The focus must instead be on creating an environment which can aid in achieving a sustainable competitive advantage for the wood remanufacturing industry. Existing organizations like the BC Wood Specialties Group and Forintek could support these activities, further strengthening the BC competitive base. Some examples of different initiatives are listed below.

- | | |
|------------------------|--|
| Marketing initiatives: | BC industry can focus on those markets where its fibre characteristics offer the consumers an advantage. Emerging markets, such as replacing tropical hardwoods, require sectoral initiatives to identify and then capture. |
| Process initiatives: | For example, process development could focus on efficient land use technologies that could overcome the disadvantage of higher BC land costs. These could include just in time inventory, automated handling systems, and automated bar coding systems that lead to more efficient use of space. |
| Fibre initiatives: | Coordinating product mixes between the primary and secondary sector to establish more standard sizes and grades better suited to remanufacturing products, would provide competitive advantages to the Fraser Valley industry. |

BC needs to move faster towards an industrial strategy for the remanufacturing industry.

All stakeholders need to buy into and support this strategy building on expertise and developing new markets. The remanufacturing community must participate in the development of a BC industrial sector strategy for the forest products industry. Activities under way encompassing primary producers, labour unions and rural municipalities should include representation from the remanufacturing sector.

Labour has shown great flexibility in negotiating agreements for new remanufacturers. This flexibility needs to be extended toward existing or new remanufacturing facilities, whether owned by integrated or independent companies.

BC companies contacted during the project indicated that the IWA coastal master agreement, resulted in non-competitive facilities. Many interviewed stated that existing primary mills are logical sites to install remanufacturing facilities, however, inflexible labour agreements (based on the coastal master agreement), limited this type of investment. It is very difficult to have on the same site one set of employees working under the coastal master agreement, and another set of employees working under a special "remanufacturing" agreement. However it has been done. Many pointed to the BC western red cedar mills which combine primary and secondary facilities, as an example of what can be achieved. Others pointed to European mills, where primary mills often include significant remanufacturing capabilities, as likely role models. Until the issues of labour costs and flexibility are resolved, remanufacturing sites will unlikely be located at primary sawmills, which could be a future handicap to the BC industry.

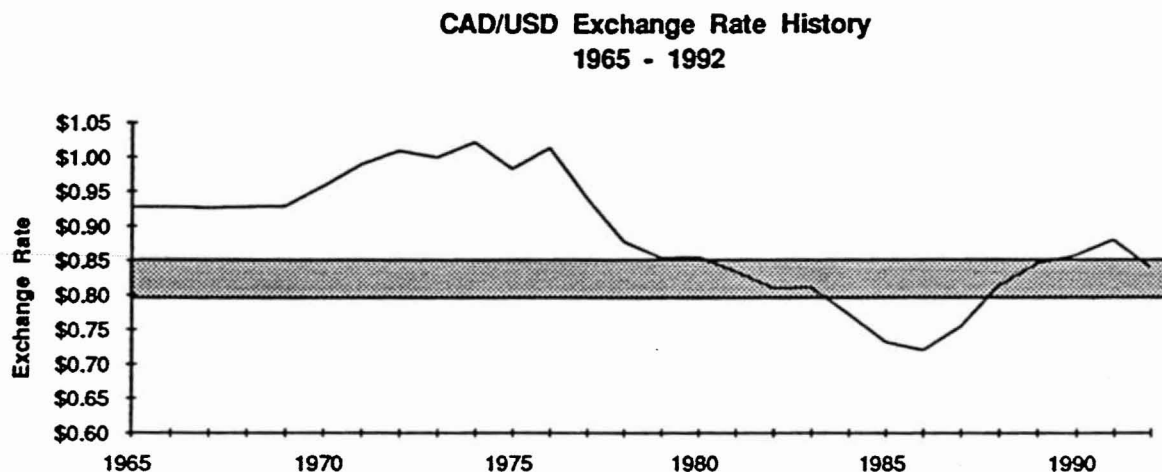
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LOCATION DIFFERENCES

Exchange Rates

In the period from 1965 to 1992 the average exchange rate was 89 cents. In the period from 1985 to 1992 the average rate was 81 cents. Figure 4-1 shows the average exchange rates for the US and Canadian currencies from 1965 through 1992.

Figure 4-1



For comparison purposes, 80 cent and 85 cent exchange rates have been used throughout the report. These levels reflect recent rates.

Financial Evaluation

The income statements for the financial comparison are summarized in the next table. This data is presented to give the reader a quick snapshot of the hemlock and cedar operations. As can be seen from these tables, the cost structures of both operations are dominated by raw material costs.

Average Income Statements

Category	Cedar		Hemlock	
	Fraser Valley	Whatcom County	Fraser Valley	Whatcom County
Sales	100.0	100.0	100.0	100.0
Raw Materials	79.3	79.3	74.6	74.6
Manufacturing Labour	7.5	6.0	10.2	8.3
SAG Salaries	2.4	2.4	2.7	2.7
Non-Salary SAG costs	0.6	0.5	0.5	0.5
Energy	1.4	1.8	1.6	2.2
Total Manufacturing O/H Costs	2.6	2.5	2.5	2.3
Margin	6.2	7.4	7.8	9.4

Actual Cost Differences

The plant configurations, capital equipment, energy needs and product recoveries are identical for both locations. The study confirmed that for both locations labour productivity was effectively equal and that equipment costs were identical. As commented earlier, raw material costs and product prices (fob the plant) are equal. The different inputs used to arrive at the numbers in Table 4-1 can be found in Appendix A which describes the models and the assumptions used for their inputs. The main cost differences between the two locations are energy costs, labour costs, and land costs. The following table illustrates the different costs for these factors.

Table 4-1
Input Cost Factors
('000 C\$)

	Fraser Valley		Whatcom County		Difference ¹	
	Hemlock	Cedar	Hemlock	Cedar	Hemlock	Cedar
Total Annual Energy Cost	140	140	205	198	65	58
Total Annual Labour Cost	908	766	788	663	(120)	(103)
Land Acquisition Cost	800	800	613	613	(187)	(187)
Total Annual Property Tax	54	54	41	36	(13)	(18)

¹ Whatcom County costs minus Fraser Valley costs

² C\$ = US\$0.80

The property taxes for the two jurisdictions differ because the Washington tax applies to all fixed assets (including equipment) while the BC rate is only applied to the land and the buildings. The tax rate for Whatcom County for the plant's location is 1.394%, while the BC rate is 2.97% for the Langley location chosen.

NPV Comparisons

The financial indicator, net present value (NPV), was used to approximate the economic gain attainable from each investment (please see Appendix B for a description of a net present value). The sensitivity of the NPV to four key input variables are shown in Figures 4-3 and 4-4.

The following table shows the base case NPVs for the different scenarios.

Table 4-2
NPV Comparisons
 ('000 C\$)

Hemlock			Cedar		
	Exchange Rate			Exchange Rate	
	0.85	0.8		0.85	0.8
Lower Mainland	423	858	Lower Mainland	366	783
Whatcom County	904	960	Whatcom County	791	840
Difference	-481	-102	Difference	-425	-57

To illustrate the great impact the exchange rate has on these investments the NPVs were done at both 85 cents and 80 cents. As the value of the Canadian dollar depreciates against the US dollar, BC manufacturers are better able to compete with US producers. The following figures use an exchange rate of C\$1 = US\$0.80.

The inputs which have the highest influence on the NPV are the output price and the raw material input cost. Labour costs and capital cost have a relatively small influence on the NPV of the project in either location. A lease arrangement increases the project's NPV as the large initial cash disbursement is spread out over the project's life.

Figure 4-2

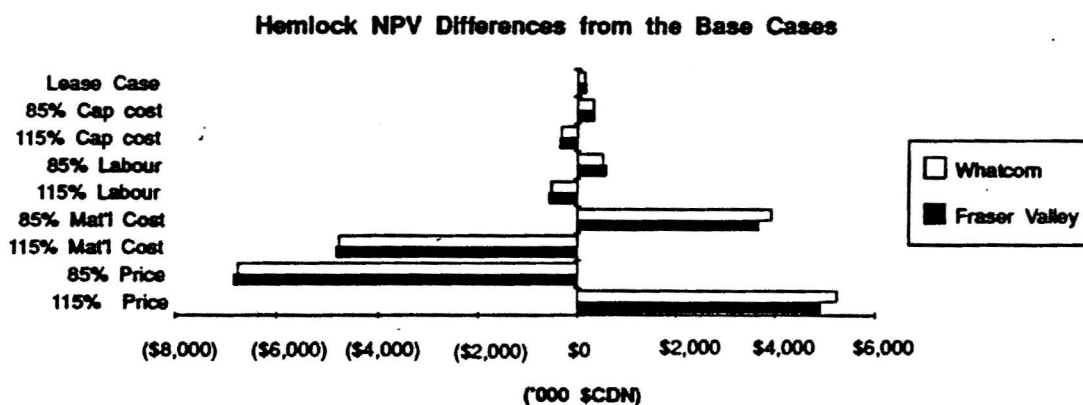
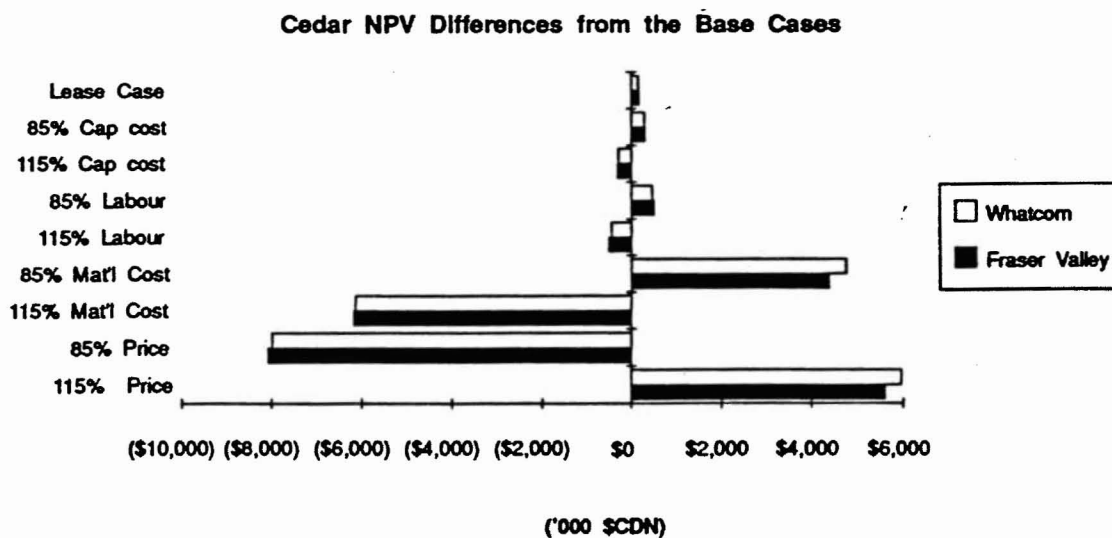


Figure 4-3



The key point illustrated in these figures is that companies have most to gain by trying to increase product prices and fibre yields.

Cash Flow Comparison

The following table compares the base case year 5 cash flows for the two locations.

Table 4-3
Year 5
Cash Flow Comparisons
('000 C\$)

Hemlock			Cedar		
	Exchange Rate			Exchange Rate	
	0.85	0.8		0.85	0.8
Lower Mainland	487	578	Lower Mainland	428	513
Whatcom County	559	594	Whatcom County	488	519
Difference	-72	-16	Difference	-60	-6

It is apparent that at an exchange rate of just under C\$1 = US\$0.80, cash flows from either location are very similar. As the Canadian dollar falls relative to the US dollar, the Lower Mainland located plant will experience a higher average cash flow than the US location. Conversely, as the exchange rate increases, the more favourable cash flow position can be attained by locating in Whatcom County.

The influence of varying input assumptions on the year 5 cash flows are shown in the following figures. The US location numbers have been converted at C\$1 = US\$0.80. As expected, these figures show that capital cost and labour costs have the least influence on overall cash flows.

Figure 4-4

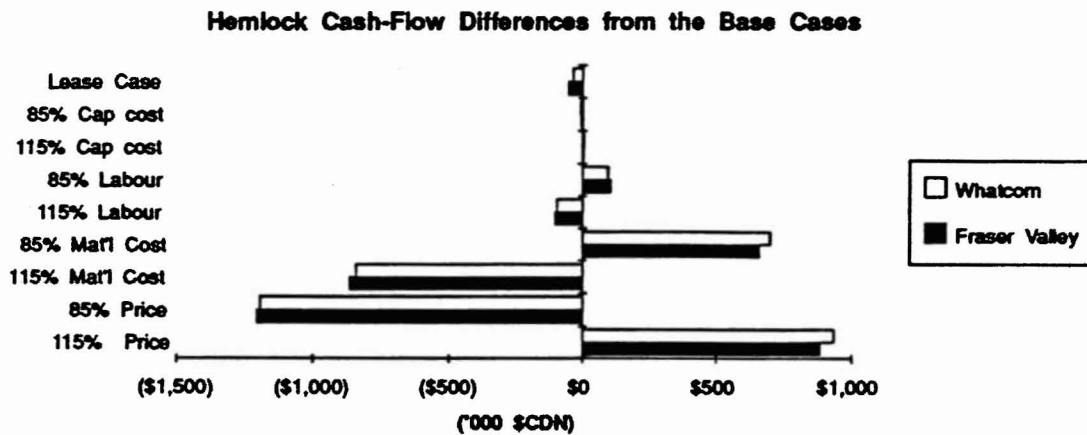
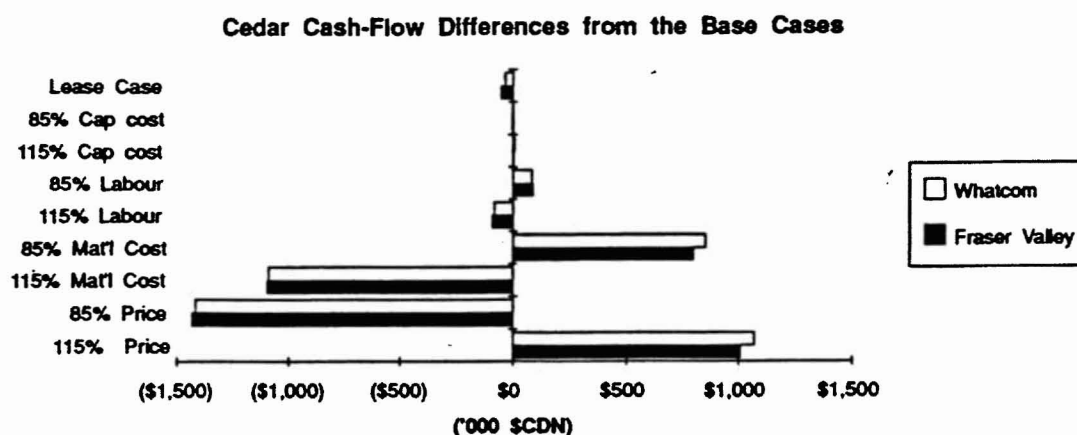


Figure 4-5



Tax Comparison

Table 4-4 shows the tax differences in the two locations for constant cost cases.

The constant cost case is developed by superimposing the US tax structure on the Fraser Valley plant. The resulting tax payments are compared to the Canadian tax payments. This process identifies those differences arising solely from the tax structure.

Table 4-4
Constant Cost Tax Differences
(^{'000} C\$)

Hemlock		Cedar	
Lower Mainland	378	Lower Mainland	346
Whatcom County	433	Whatcom County	404
Difference	-55	Difference	-58

C\$1 = US\$0.80

Taxes for the base case plants modelled are higher in Whatcom County due to the effect of the Business and Occupation (B&O) tax in Washington. This tax is a constant percentage of gross income. Profit margins have no impact on this tax as it is determined by gross income. A BC plant would progressively pay more tax as profit margins increase. Low margin businesses pay less tax given the BC structure whereas high margin businesses are more likely to favour the Washington tax structure.

Land Costs

Simons contacted three Vancouver based real estate companies to obtain market information and quotes for suitable properties. The overall price range of properties in the Fraser Valley for areas of interest is from \$160,000 per acre to approximately \$270,000 per acre. These two figures represent ranges from the Langley/Matsqui area (Gloucester Estates) and the Port Kells area. Minimum land and site preparation costs such as roads, services, sewage, water and land clearing are approximately \$120,000 an acre within the Fraser Valley.

Gloucester Estates for a price of \$160,000 per acre (including development cost charges), representing a fully serviced site with rail access was chosen for the BC location.

In BC, the lack of raw industrial land has meant that recent investors have been limited to ready-to-go industrial park lots (see Appendix C for further details).

For Whatcom County property prices Simons contacted four real estate agents and the Fourth Corner Economic Development Group. As mentioned, in BC the lowest price is approximately C\$120,000 per acre for industrial land. In Whatcom County land purchase prices vary from C\$19,000/acre (US\$0.35/sq.ft.) up to approximately C\$190,000/acre (US\$3.50/sq.ft.) for master planned industrial parks.

Whatcom County land costs were fixed at US\$2.25 per square foot (C\$123,000 per acre) for the base case. This figure was obtained from real estate quotes on fully serviced ready-to-move-in industrial lots and is within 15% of a recent Whatcom County site purchase. However, it should be noted that cheaper land is available. The impact of land costs on the net present values is shown in Table 4-5.

Table 4-5
NPV Comparison and Land Cost Differences
 ('000 C\$)

	Hemlock	Cedar
Base Case (US\$2.25/ft. ²)	960	840
US\$1.91/ft. ² (C\$2.39/ft. ²)	1,016	896
US\$1/ft. ² (C\$1.25/ft. ²)	1,169	1,049
US\$0.50/ft. ² (C\$0.63/ft. ²)	1,251	1,131

C\$1 = US\$0.80

Although land is more expensive in the Lower Mainland than in Whatcom County, it is also more likely to increase in value than land south of the border. Two major Japanese companies, Mitsui Homes and Mitsubishi, have recently located wood remanufacturing in the Lower Mainland. These are large corporations and their management philosophy apparently puts land investment in a separate category. When purchasing land for a new facility the land cost is typically not included in the overall capital costs for the project. The Japanese usually see land as a separate investment and treat it as such.

Since land costs are a large part of the initial capital outlay and affect NPV negatively, lease cases were evaluated. A lower US lease rate was chosen (8% versus 10%) reflecting lower US interest rates. The results are shown in Table 4-6 and favour the Whatcom County location.

Table 4-6
NPV Comparisons
 ('000 C\$)

Fraser Valley			Whatcom County		
	Hemlock	Cedar		Hemlock	Cedar
Base	858	783	Base Case	960	840
Lease 10%	1,021	955	Lease 8%	1,111	990
Difference	-173	-172	Difference	-151	-150

C\$1 = US\$0.80

Investor Assistance

The Fourth Corner Economic Development Group (Fourth Corner) offers one-stop shopping for people interested in locating in Whatcom county. This group effectively streamlines the inquiry process and presents a flexible, positive attitude toward new investment. Fourth Corner has strong community backing, and is supplied with funds to actively promote the county, and bring in new facilities. This office is supplied with current information on the real estate situation in the county, health insurance costs and other topics.

Community Support

New plants are welcome in Whatcom County. Canadian operators contacted during this study were very complementary about the proactive approach taken by US communities.

Whatcom County is more rural than the Fraser Valley, which is dominated by Vancouver. These rural communities have traditionally had difficulty attracting new firms forcing their residents to commute long distances to available jobs. This has provided a stimulus to attract jobs and these communities are focusing on attracting remanufacturing operations.

Most municipalities in the Fraser Valley, and especially those surrounding Vancouver want "clean industries" such as computer and high tech companies rather than manufacturing industries. So-called "clean industries" occupy relatively little space, and produce little noise and no dust. A wood remanufacturing plant represents the opposite, requiring quite large lots, while producing noise and dust. People contacted during this study felt that Whatcom County was more supportive on these issues.

Labour

The IWA has recognized that remanufacturing facilities are different from primary sawmills. More flexibility is needed within the workforce because machine centres are typically run intermittently. For example, in the manufacturing process it is unlikely that the chop saws and finger jointer are both run continuously. As one task finishes, the employee must operate a different machine. A remanufacturing plant can not afford to have all machine centres manned continuously like a primary sawmill would. In recognizing this fact, the IWA has negotiated "remanufacturing" agreements with more diffuse job descriptions, if any at all.

Wood remanufacturing labour in Washington is not unionized, which allows operators more flexibility in designing job descriptions. From an operator point of view, no union involvement is generally perceived to be more desirable than union involvement. However, the new IWA "remanufacturing" agreements are reflecting this reality, making it easier for operators to run their plants smoothly.

These agreements have also recognized that profitability in the remanufacturing industry is heavily dependent on the cost of raw material which is determined by its availability. Typically, "remanufacturing" agreements contain wage rates that are 70% of the IWA rates used in the primary industry. For the plants modelled, these rates average C\$13.10 per hour.

Labour rates are lower in Whatcom County than in the Fraser Valley. The typical labour rate is US\$8.00 per hour. During the course of the study, it was found that the BC based companies were paying upwards to US\$9.50 per hour to minimize labour turn-over. At current exchange rates, this translates to C\$11.90 per hour.

Labour productivity was thought to favour BC with its more experienced remanufacturing workforce. However, in interviewing people from companies with operations on both sides of the border during the course of the study, it became apparent that there were no differences in labour productivity. In part this finding is due to eager and easily trained employees in Whatcom County, and also the flexible "remanufacturing" agreements being adopted for new plants by the IWA.

Resource Security

A major advantage with a BC location is the resource security that can be obtained through the 16.1 Small Business Forest Enterprise Sales. A Whatcom County based company does not have access to similar resource security.

As environmental concerns continue to gain political importance, more land will be off-limits to logging. The net result is that the little remaining forested land that comes up for sale in the Pacific Northwest is too expensive for most sawmills and remanufacturing plants and is being purchased by long term speculators. This is further exacerbating resource security for Pacific Northwest operators.

In BC, the same trends are evident, but the major difference is that 95% of the forest resource is publicly owned. The BC government has regulated the harvest by reducing the allowable annual cut of the licence holders. The net result is that less timber is being harvested. The BC government has also promoted the remanufacturing sector. The Small Business Forest Enterprise Program (SBFEP) was initiated in 1980. Registrants in the program can bid on Crown timber on a competitive basis. In 1988, section 16.1 was put into the Forest Act. The intent was to encourage remanufacturing of lumber and production of specialty products by firms which are registered in the SBFEP. Currently, approximately 12.5% of the allowable annual cut is sold through the SBFEP. The net result is that BC based remanufacturing companies have greater timber resource security than similar plants in Washington State.

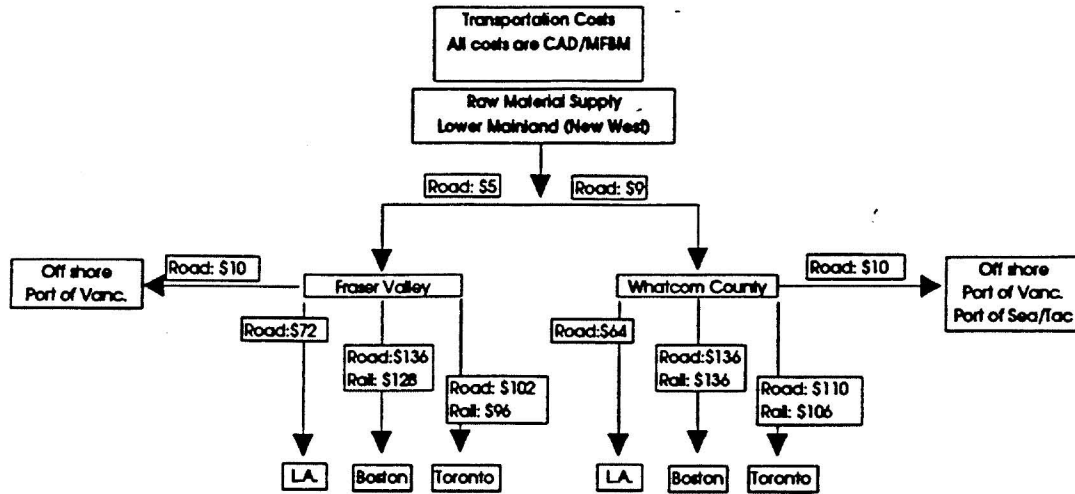
Transportation Cost Differences

Deregulation in the transportation industry and free trade has largely equalized transportation payments on either side of the Canada/US border. During the last ten years the trucking industry in North America has undergone substantial changes. Although still in a transition period the transportation sector is becoming more open, integrated, and competitive in which there are few distinctions between Canadian and US transportation suppliers.

In Canada and the US the transportation sector has gradually developed so-called seamless transportation systems either by integrating vertically or through strategic alliances or partnerships with other freight companies. Consequently, lumber producers near Vancouver or Bellingham can contract for the same rail and road services to most US destinations. For overseas exported products a lumber producer or remanufacturer has the choice of exporting either through Seattle/Tacoma or the Port of Vancouver or Fraser Port. Remanufacturers and lumber producers on either side of the border have access to both of these ports at about the same freight rates. Figure 4-6 illustrates typical transportation costs for remanufactured wood products to their markets.

Given the wide variation in transportation cost to different destinations, with relative advantages in either location, there are no clear locational cost advantages. The remanufacturer can quite easily take advantage of any differences by supplying markets with the cheapest transportation. A producer would typically sell products and optimize his product mix taking into account transportation costs to the potential customer. This picture changes slightly if one is producing a highly specialized products to specific customers. For the hemlock remanufacturer where the majority of product is exported overseas, there is clearly no transportation advantage in either location as the costs to the ports are virtually identical.

Figure 4-6



5.0

INCENTIVES

There is a major difference between the incentives offered by the two jurisdictions. BC stresses operational upgrading and marketing assistance, while Washington emphasizes reducing start-up capital costs.

The following two tables include only those incentive programs which could be applicable to the plant types in consideration. A full description of the British Columbia programs is listed in Appendix D and for Washington State in Appendix E.

BC

There are virtually no significant financial incentives to set up a new wood remanufacturing plant in BC like the ones modeled in this report. BC's applicable incentives, like those offered by Western Diversification, favour new plants manufacturing innovative products, for which a commodity remanufacturing mill would likely not qualify. The following table outlines programs available to the BC plants modeled in this report. It should be noted that only the Equity Capital Fund would be of any assistance to a new company.

Table 5-1
BC Incentives

Program Type	Program
Operational Upgrade Assistance	<ul style="list-style-type: none"> - Advanced Manufacturing Technology Application Program (AMTAP) - Business Improvement loans (BIL) - Manufacturing Assessment Service (MAS)
Job Support/Training Assistance	<ul style="list-style-type: none"> - Canadian Jobs Strategy - Skill Investment - Canadian Jobs Strategy - Skill Shortages - Canadian Jobs Strategy - UI Job Creation
Marketing Assistance	<ul style="list-style-type: none"> - Cooperative Industrial & Marketing Development Program (CIMDP) (non-financial) - Cooperative Overseas Market development Program (COMPD-WC) (non-financial) - Program for Export Market Development (PEMD) - Western Economic Diversification Program
New Investment Assistance	<ul style="list-style-type: none"> - Equity Capital Program
R&D Assistance	<ul style="list-style-type: none"> - Forest Industries R&D and Innovation Program

Washington

Washington's focus is on attracting new business. This is clearly reflected in the structure of its incentive system. The emphasis is on easing entry costs for new start-ups. Washington's B&O tax, which is a constant rate applied to a company's gross revenue/receipts, generally puts new business with low profits at a disadvantage.

The following table summarizes the incentives available to the proposed plants if they were located in Whatcom county.

Table 5-2
Washington Incentives

Program Type	Program
New Investment Assistance	<ul style="list-style-type: none"> - Community Economic Revitalization Board Financing (CERB) - Industrial Development Revenue Bonds (IRB)¹ - New-Industry Tax Deferral Program
Job Support/Training Assistance	<ul style="list-style-type: none"> - Washington State Job Skills Program (sales/R&D)

¹ Note: Program funding dependent on continuing federal tax exemption for bonds.

6.0

FOREIGN OWNED COMPANIES IN WASHINGTON

Only four BC companies have set up plants in Whatcom County, with a fifth company announcing a firm commitment to do so. To put these numbers in perspective, the remanufacturing industry in BC consists of 150 companies employing slightly less than 3,500 people, and generating revenues of \$710 million.¹

Other foreign firms that have established or acquired wood products manufacturing facilities in Washington State are few in number. The more notable companies and their operations include:

Mitsui - Acquired a primary old growth sawmill in Tacoma several years ago and recently constructed a primary small log sawmill in the Port Angeles area. Both mills are targeting the Japanese market.

Sumitomo - Joint venture with US based Plum Creek in a laminated post facility targeting the Japanese market. This venture was initiated in the late 80s.

Sekisui House of America - Acquired West Coast Forest Products in the Arlington area during the mid 80s. Produces laminated posts, low end dimension and high end finish products for the Japanese market and also produces value added products for the European and US markets.

Olympic Wood Products - Owns primary sawmills in the Shelton and Port Angeles areas. Produces dimension and finish products for the Japanese market.

Young Chang American Timber - Acquired a remanufacturing facility in Tacoma during the past year and converted it to cut flitches used in the manufacture of piano components by its parent company in Korea.

Ostermann & Scheiwe USA - A German owned remanufacturing facility that has been operating in Tacoma for over a decade.

¹ Source: Performance of the Value Added Wood Products Industry in British Columbia, Price Waterhouse, 1992.

The reasons foreign companies establish wood products manufacturing facilities in Washington vary from firm to firm. However, an in-depth comparison of the benefits of locating a similar facility in BC versus Washington is apparently an exception rather than the rule. Canadian companies with operations on both sides of the border are most knowledgeable and most likely to make some comparison of the cross border benefits. But, their assessments range from being very thorough to being very cursory. Benefits most frequently emphasized for Canadian companies investing in Washington include lower wages, proximity to US markets and a more flexible labour force.

Non-Canadian foreign companies operating in Washington apparently gave little consideration to the pros and cons of establishing operations in BC. Most of these companies had established business operations (sales, purchasing, etc.) or relations in Washington. This presence led them to identify specific opportunities to acquire or construct manufacturing facilities in the state. The reason most frequently given for locating operations in Washington was to gain closer ties to the raw material base. At the time of report preparation, a Japanese company has been evaluating locating an Medium Density Fibreboard plant in Washington versus BC or Alberta.

Over the past several months there has been a growing interest expressed by other Canadian firms in locating operations in the state. The Fourth Corner Economic Development Group of Whatcom County indicated it had received fourteen enquiries concerning establishing wood products manufacturing facilities during the first two quarters of 1992. Most of these enquiries came from BC. These numbers represent initial enquiries, many of which will not translate into a final decision to locate in Whatcom County.

Whatcom County is by far the most aggressive county in the state of Washington in soliciting BC interests to locate operations in its jurisdiction. The Fourth Corner Economic Development Group has promoted and conducted several seminars in Vancouver, BC to attract Canadian investments. The effectiveness of these seminars is reflected in the number of enquiries from all BC sources.

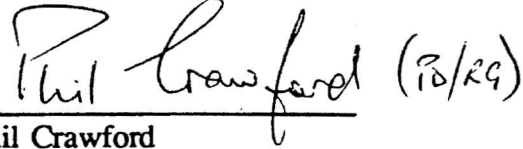
Enquiries from BC

	1991				1992	
Quarters of the Year	1st	2nd	3rd	4th	1st	2nd
Number of Enquiries	30	38	48	71	104	132

Prepared by:


Gianni Scaramella

Approved by:


Phil Crawford

APPENDIX A

MILL MODELS

Model Plant Set-ups

	Hemlock		Cedar	
Capacity	10 million board feet per year - one shift basis		11 million board feet per year - one shift basis	
Products	Window components, door stock, spindle blanks, ladder rails, laminated components, finger-jointed components, step ladder stock.		Cedar siding and panelling (bevel, STK, channel) in clear and STK grades.	
Manufacturing Activity	Sort, resaw, crosscut, dry, chop, finger-joint, plane, laminate, wrap, package.		Sort, resaw (incl. bevel siding), cross cut, dry, plane/profile, sand, grade, package.	
Raw Material Input	Rough green hemlock, 1 3/4", 3", 4" by random width and length in shop/D clear from Lower Mainland mills. Average price: \$666/mfbm		Rough green western red cedar, 1" up to 4" to 12" widths, and 10" by 8'-20' even lengths in STK and better grades including some utility/better from Lower Mainland mills. Average Price: \$735/mfbm	
Product Output	7.8 million board feet (based on 78% recovery) Average value: \$1,145/mfbm		10 million board feet (based on high percentage of bevel siding) Average value: \$1,020/mfbm	
Employees	Labour: 25	Mgmt: 4	Labour: 21	Mgmt: 4
Annual Employee Cost:				
Lower Mainland:	C\$36,000	C\$50,000	C\$36,000	C\$50,000
Whatcom:	US\$25,000	US\$40,000	US\$25,000	US\$40,000

Development of Input Data

There is considerable variation from month to month and company to company in terms of the cost of the raw material (even for a given grade mix), and the price obtained for the output (again, even when the range of products is defined). Yet it is these two factors which have the greatest impact on the profitability of a company. In order to remove the influence of these factors, it is assumed that the mill-gate raw material cost and FOB mill product price for the facility, whether it is located in Surrey or in Whatcom county, is exactly the same.

A recent Price-Waterhouse report shows there currently are no profits in remanufacturing. Yet it would be meaningless to model an operation that loses money. Therefore, marginal and readily believable changes were made to input and output values so that the BC location makes 3-4% return on sales after tax.

For the other input data, a combination of "bottom up" and "top down" evaluation was used. Significant input factors were developed in great detail with each individual component assessed in order to arrive at the sum. On the other hand, for less influential inputs, estimates based on the experience of existing operators was used.

Labour rates and skill levels for each machine centre or job was assessed, and a weighted average wage was developed. For BC, 70% of the IWA rate was used. It is felt unrealistic to assume a non-union approach for a new plant in BC, even though the majority of reman in place is non-union. The latest legislation reinforces this view. On the other hand, the IWA is adopting a special approach towards the smaller reman operations whereby wage rates and benefits are lower than for sawmills and operational flexibility is greater.

Average Whatcom County wage rates were obtained from the companies visited, and from a Whatcom County wage survey.

Benefits, both regulated and negotiated, were calculated in detail. The standard practice in each location regarding negotiated benefits was used. In BC, a pension benefit cost of \$1.00/hr. was modelled (versus the standard IWA rate of \$2.40/hr.), whereas in Washington no pension cost was added to the labour cost.

Energy costs for both electricity and gas were estimated based on horsepower requirements of motors and kilns and heating. Electricity and gas companies in BC and Washington were contacted for rate quotes for the plants' power requirements.

Land cost and property tax was based on the specific plant locations in Gloucester Estates in Langley, and a site in Ferndale.

Building cost estimates were obtained from steel pre-fab building suppliers, and assumed to be the same on either side of the border. Machinery and equipment costs were derived through industry contacts, and Simons expertise. These costs were also assumed to be the same in the Lower Mainland and Whatcom County.

Packaging costs per mfbm were estimated separately, but the balance of other miscellaneous manufacturing costs e.g. fuel, lubricants, work wear, safety equipment were assessed on lump sum basis.

Office supplies and other sales were assessed on a lump sum basis, while travel and telephone expenses were isolated as separate items.

Equipment costs were based on new equipment purchase prices, and assumed to be the same on both sides of the border and therefore not a variable.

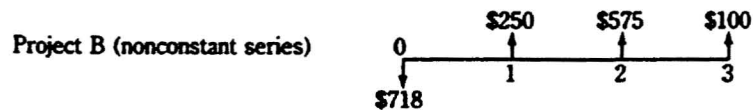
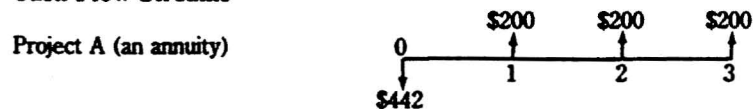
APPENDIX B

DESCRIPTION OF NPV

The value today of a given future series of receipts, when discounted at a given discount rate less the initial investment of the project. See example below.

The discount rate employed was 12 percent. Because both NPVs are positive, both projects assist in maximizing stockholder wealth.

Cash Flow Streams



Net Present Value

Project A

Present value of inflows: $\$200(\text{PVIFA}_{12\%, 3\text{yr}}) = \$200(2.402) = \$480.40$
 Less: Initial investment 442.00

Net present value (NPV) = \$ 38.40

Project B

Present value of inflows: $\$250(\text{PVIF}_{12\%, 1\text{yr}}) = \$250(0.893) = \$223.25$
 $575(\text{PVIF}_{12\%, 2\text{yr}}) = 575(0.797) = 458.28$
 $100(\text{PVIF}_{12\%, 3\text{yr}}) = 100(0.712) = 71.20$

Discounted present value of inflows 752.73
 Less: Initial investment 718.00

Net present value (NPV) = \$ 34.73

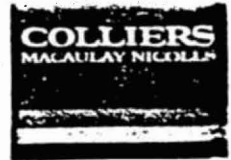
APPENDIX C

FRASER VALLEY INDUSTRIAL REAL ESTATE

Greater Vancouver Industrial Land Report

1992

Ron D. Bagan B. Comm., R.I. (B.C.)
Associate Vice President

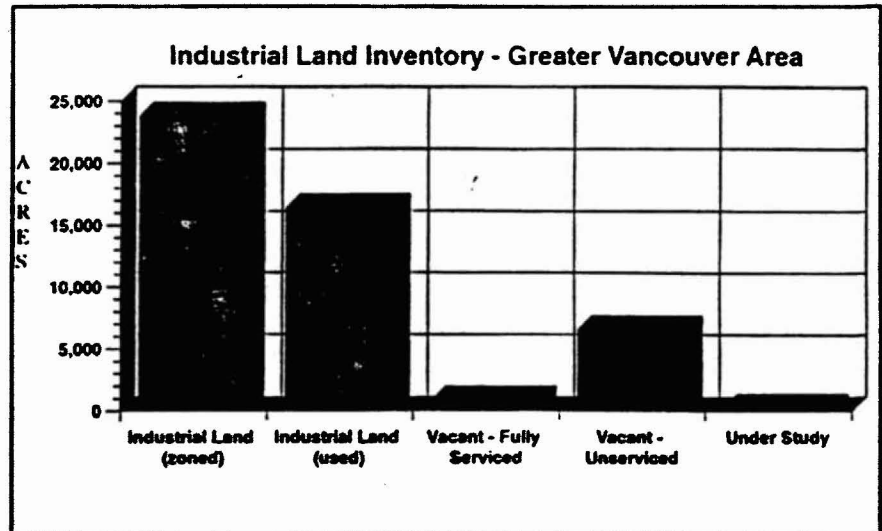


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Market Overview 1991:

Demand for industrial land in Greater Vancouver remained relatively strong throughout the past year notwithstanding the slow-down in the general economy. In 1991, approximately 310 acres of industrial land were sold, compared to approximately 400 acres in 1990 and 1000 acres in 1989. While demand in 1989 and 1990 was generated from a mix of users, developers and immigration fund managers, demand in 1991 came almost exclusively from end users. This trend continued through the first quarter of 1992 and we anticipate little change in the nature of demand through the balance of the year.



The majority of industrial land activity occurred in the south-eastern region of the lower mainland in areas such as Pacific Reach, Bear Creek, Tilbury and Gloucester Estates. Another trend emerging in the 1992 market is the increased development of smaller industrial parks such as the Nordel Business Park with 50 acres, and the Riverside Industrial Park with 42 acres. We expect to witness increased demand for small lots in the 1 to 2 acre size, and development of small industrial parks.

The Economy Greater Vancouver

	1990 Actual	1991	1992 Forecast	1993
(1) Real GDP (% Growth)	2.0	-1.5	1.4	4.3
(1) Employment (% Growth)	2.4	1.0	2.0	2.7
(1) Personal Disposal Income	6.5	5.3	6.5	6.6
(2) Housing Starts - Actual	36,720	29,600	33,500	35,600
(2) White Collar Growth	4.4	0.0	2.0	n.a
(3) Net Migration	64,446	59,000	58,000	n.a.
(2) Population	1,532,000	1,602,502	1,630,000	1,665,000
Footnotes: (1) The Royal Bank of Canada - Econoscope (2) Statistics Canada (3) The Ministry of Finance - B.C. Economic forecasts				
Source: Colliers Macaulay Nicolls Inc. - Research Division				

Overview - Land Values

During 1991 land values in the various industrial areas of Greater Vancouver have either remained at 1990 levels or increased by as much as 20.0%, depending on the supply/demand balance in the various markets. The areas with the largest increase in land values include Pitt Meadows, Richmond (Riverside), and Surrey. Surrey had the largest increase in land value at 20.0%. Other areas such as Pitt Meadows increased in value by 12.0%. Land values at Crestwood in Richmond remained stable, while Riverside land prices rose 10.0% to 12.5% and are expected to continue increasing.

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Regional Activity

Vancouver

Vancouver has the lowest supply of industrial land available in the lower mainland. In 1991 the amount of industrial zoned land inventory decreased slightly to 2,000 acres, with the rezoning of the Joyce Station area and a few other small parcels of land to residential/ commercial. Of the 2,000 acres 96% is developed with the remaining 4% vacant but serviced land.

Fully Serviced Land Values ¹ (per acre in \$1,000's)	
District of North Vancouver	\$850 - \$1,000
City of North Vancouver	\$1,000 - \$1,300
Vancouver	\$900 - \$1,500
Burnaby	
Big Bend	\$300 - \$375
Central Burnaby	\$700
Lake City	\$400 - \$500
Richmond	
Riverside	\$450 - \$525
S. of Bridgeport	\$650 - \$850
N. of Bridgeport	\$375 - \$500
S.E. Richmond	\$375 - \$475
Delta	
Tilbury	\$220 - \$300
Annacis Island	\$325 - \$375
Nordel	\$350 - \$375
Surrey	
Bridgeview	\$120 - \$140
Newton	\$220 - \$275
Port Kell	\$145 - \$260
Port Coquitlam	
Meridian	\$340
Other	\$240 - \$275
Coquitlam	
Cape Horn	\$285 - \$325
Pacific Reach	\$300 - \$400
New Westminster	\$250 - \$400
Maple Ridge	\$120 - \$160
Langley	\$145 - \$250
Pitt Meadows	\$120 - \$160

¹ Land values do not include development cost changes

Land sales activity in Vancouver was relatively slow in 1991 with 5.0 acres of industrial land sold during 1991. This is primarily due to lack of available land supply. Prices ranged between \$900,000 to \$1.5 million per acre.

District of North Vancouver

With the scarcity of readily available land in the District of North Vancouver, 93% of the industrial land base is serviced and in use. The other 7% of industrial zoned land remains unserviced and unused. This vacant land holds potential for future marine oriented development. The first 15 acre phase in the Maplewoods Business Park is pres-

ently being reviewed for development, however, activity is not expected to occur until 1993. Land prices, for smaller sites, currently range between \$850,000 to \$1.0 million per acre.

City of North Vancouver

Out of 346 acres of industrial zoned land there are only 4 acres available in the City of North Vancouver. There are however, approximately 16 acres in Versatile Pacific Shipyards and another 69 acres in the Fullerton Fill area, which are zoned industrial but currently are being held under study. There is no development expected on these sites during 1992 or 1993. Land values for vacant-fully serviced land in North Vancouver range from \$1.0 to \$1.3 million per acre.

Burnaby

Much of the industrial zoned land proposed to come on the market is owned by CN real estate which is targeted towards build to suit/lease back opportunities. Other than CN real estate a few small parcels on Marine Way account for the available land in Burnaby. Most of the vacant land parcels are infill sites that people are holding for redevelopment or future development so they are not available.

Land sales in Burnaby were strong, with 22.7 acres sold during 1991. Prices range from a low of \$300,000 per acre in the Big Bend area to a high of \$700,000 per acre in Central Burnaby. There are 1,942 acres of industrial zoned land developed and approximately another 1,038 acres zoned industrial but vacant. Of the 1,038 acres of undeveloped industrial land, 110 acres are vacant but serviced with the remaining 928 acres unserviced.

Richmond

The greatest supply of industrial land in Richmond is along the south arm of the Fraser River. This area is still under study by the city and awaits both public and private sector initiative. Industrial land sales in Richmond ranked third in the Lower Mainland with 41.7 acres sold in 1991. The majority of this activity has occurred in the Riverside Industrial Park. One of the last sites in Crestwood recently sold, putting an even higher strain on the already limited supply of industrial land in Richmond. A large parcel of land in Richmond, approximately 70 acres, is optioned and is expected to come on the market by late 1993 or early 1994 as an industrial park.

Industrial land prices in Richmond vary depending on the location. In south eastern Richmond land prices range from \$375,000 to \$475,000 per acre. Riverside Industrial Park has land values ranging from \$450,000 to \$525,000 per acre, and expect to achieve values up to \$675,000 per acre for new lots coming on the market. Values in Crestwood range from \$650,000 to \$850,000 per acre. Of the 4,745 acres of industrial zoned land only 2,886 acres are developed with the majority of the vacant land left unserviced.

Delta

Delta had the highest activity of land sales during 1991 capturing 42% (130 acres) of the total land sales in the Lower Mainland. This demonstrates a continued strength in absorption which also occurred through 1989 and 1990. Furthermore, an additional 45 acres came onto the market in Nordel Business Park during 1991.

Land prices range from \$220,000 to \$300,000 per acre in Tilbury, from \$325,000 to \$375,000 per acre on Annacis Island and from \$350,000 to \$375,000 in Nordel Business Park. Approximately 85% of Delta's industrial land base is in use, with 107 acres vacant and serviced.

New Westminster

New Westminster was extremely quiet in industrial land sales with only 2.23 acres sold over 1991. This was primarily due to a lack of available industrial land. The low availability of land was amplified last year with approximately 10% of the industrial inventory being rezoned for residential use. Prices for land in New Westminster range from \$250,000 to \$400,000 per acre.

Surrey

Surrey continues to be one of the more active areas in industrial land sales and development activity, especially the Bear Creek Business Park in Newton. While prices were originally set at \$235,000 per acre, in Bear Creek, the strength in activity and demand has put an upward pressure on land values which are now being offered between \$250,000 and \$275,000 per acre. Port Kells, along the Trans Canada Highway is still a popular location for transportation oriented users. Land prices in this area range from \$145,000 per acre, along the river, to \$260,000 per acre, along the highway. In the Bridgeview area near the Pattullo Bridge, where soil conditions are generally poor, land prices range from \$120,000 to \$140,000 per acre. In Central Newton, where some of the best soil conditions in the lower mainland exist, land prices range from \$220,000 to \$275,000 per acre. Upwards pressure on land prices can also be attributed to the higher cost of adjoining industrial areas such as Annacis Island. The impact of new I-1 (business park) zoning in Surrey will also have a positive effect on land values.

The industrial market in Surrey is primarily driven by local end users with a high demand for 1 acre lots. Industrial land sales in Surrey accounted for 14.3% of total industrial land sales in the Lower Mainland. The level of activity essentially is mirroring population growth in the area. Land values continue to increase by 20% annually in Newton, prima-

rily due to the lack of available serviced land coupled with increasing demand for manufacturing facilities in that area.

Coquitlam

Industrial activity and development in Coquitlam has been strong over 1991 and is expected to continue into 1993. Presently 76% of industrial land in this region is in use, while the remaining 24% is vacant. Of the vacant land only 4% is presently serviced however, 178 acres in Pacific Reach are currently being serviced with the second phase (approximately 60 acres) expected to come on the market by the end of 1992. The industrial land in Coquitlam is at a prime central location along the Trans Canada Highway. Prices during 1991 ranged from \$285,000 to \$400,000 per acre, reflecting the excellent exposure and highly accessible nature of the location.

The first phase of Pacific Reach Industrial Park has been successful with 11 of the 38 acres sold during 1991. With the continued strength in activity, development of the second phase is currently underway. Lot sizes in Pacific Reach Industrial Park start at 1 acre. Activity in Cape Horn Business Park is also strong, primarily due to the location and because of the supply of 1 acre lots which are in such high demand. Currently there are approximately 50 acres of available serviced industrial land in Coquitlam.

Port Coquitlam

Industrial land supply in Port Coquitlam is mainly in the centre of the municipality, along the Lougheed Highway and the Pitt River. The 268 acres in the Dominion Industrial Reserve have been taken out of the ALR and will be rezoned depending on the market activity. Land prices are \$340,000 per acre, fully preloaded, in the Meridian Industrial Park. Total inventory in Port Coquitlam is 728 acres of which 78% is in use.

Langley

The greatest impact on industrial land has occurred along the Trans Canada highway with the construction of end user facilities for such firms as Stanley Door Systems, Ledalite Architectural Products and Markcrest Foods. Activity from big users, also continues to increase in Gloucester Estates which is one of the few areas where 10 acre parcels of land can still be found. Activity has also been good in the Mufford Industrial area where smaller parcels service the smaller users or speculative developers. Land sales in Langley were moderate with approximately 8 acres of industrial land sold in 1991.

Industrial land closer to the Fraser River is approximately \$145,000 per acre, moving up to \$250,000 per acre for land closer to the highway. Of the industrial zoned land inventory only 36% is currently in use with another 4% vacant and serviced.

Pitt Meadows

Pitt Meadows remains the smallest contributor to Greater Vancouver's industrial land supply with 91% of its supply vacant and unserviced. Land prices range from \$120,000 to \$160,000 per acre. The Pitt Meadows area is currently under study with considerations to zoning that will affect industrial land supply.

Maple Ridge

While Maple Ridge has a relatively small industrial land base there is potential for an increase of up to 1,000 acres in industrial reserves. Currently only 73% of the industrial zoned land inventory is in use and 9% is vacant but serviced. Industrial land prices range from approximately \$120,000 to \$160,000 per acre, showing a greater range and higher value potential from last year when most industrial land values were strictly around \$120,000 per acre.

Industrial Land Inventory

Region Municipality	Ind Land Zoned	Ind Land Used	Vacant Fully Serviced	Vacant Unservice	Under Study	Land Sales
District of North Vancouver	730	680	0	50	0	0
City of North Vancouver	346	342	4	0	84.9	0
Vancouver	2,000	1,821	79	0	0	5.0
Burnaby	2,960	1,942	110	928	0	21.7
Richmond	4,745	2,886	75	1,784	158	41.7
Delta	1,945	1,651	107	187	0	130.2
Surrey	5,000	3,500	128	1,372	0	44.1
Port Coquitlam	728	548	50	130	0	13.2
Coquitlam	1,320	1,000	50	270	0	37.1
New Westminster	592	527	15	50	0	2.3
Maple Ridge	722	530	65	127	0	5.0
Langley	2,343	836	170	1337	0	8.1
Pitt Meadows	350	30	0	320	0	0.0
Totals	23,801	16,393	853	6,555	242.9	308.4

Vacant - Fully Serviced
For the purposes of this report "Vacant - Fully Serviced" refers to industrial land that is ready to build on. It does not include land parcels that are serviced at the parameters or are serviced partially (i.e. water or sewer only).



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Every reasonable effort has been made to ensure that the data contained in this report reflects the most accurate and timely information possible. However, responsibility is assumed for inaccuracies in reporting by outside sources.

APPENDIX D

**AVAILABLE INCENTIVES
FOR BRITISH COLUMBIA**

ADVANCED MANUFACTURING TECHNOLOGY APPLICATION PROGRAM (AMTAP)

PURPOSE

To provide funding for qualified manufacturing/secondary processing firms to engage an outside consultant to assess the commercial and technical feasibility of a comprehensive upgrade of manufacturing operations through the application of advanced manufacturing technology.

FORM OF ASSISTANCE

AMTAP contributes up to 60% of the cost of consultants, not to exceed \$15,000 for single applications. The maximum contribution for group applications is \$200,000, and must not exceed \$15,000 per company.

PROGRAM ADMINISTRATOR

Industry, Science and Technology Canada
Vancouver: (604) 666-0434

BUSINESS IMPROVEMENT LOANS (BIL)

PURPOSE

To assist small businesses in the purchase, installation, renovation or improvement of equipment, usually fixed equipment. Includes renovation of premises, leasehold improvements, purchase of land, construction and purchase of premises.

FORM OF ASSISTANCE

Provides up to 90% of land or premises costs, or up to 80% of equipment costs to a maximum of \$100,000. BIL interest rates are a maximum of prime plus 1%, and the lender may also levy an additional front end fee.

PROGRAM ADMINISTRATOR

Administered through the chartered banks, some trust companies and some credit unions.

MANUFACTURING ASSESSMENT SERVICE (MAS)

PURPOSE

A diagnostic service to help small and medium-sized manufacturers improve or maintain their international competitiveness.

FORM OF ASSISTANCE

Companies will be requested to pay up-front, cost shares ranging from \$750 to \$2,000. A manufacturing consultant, hired by ISTC, will recommend changes to increase the company's competitiveness.

PROGRAM ADMINISTRATOR

Industry, Science and Technology Canada
Vancouver: (604) 666-0266

CANADIAN JOBS STRATEGY - SKILL INVESTMENT

PURPOSE

To assist workers/owners whose employment/business is subject to change or elimination due to changes in technologies or markets.

FORM OF ASSISTANCE

- a) wage/income subsidies and reimbursement of a portion of training costs, or;
- b) provision of grants for training trust funds to finance training/retraining of workers (min. 80 hrs. of training).

PROGRAM ADMINISTRATOR

Employment and Immigration Canada
Contact your local Canada Employment Centre

CANADIAN JOBS STRATEGY - SKILL SHORTAGES

PURPOSE

To assist employers/owners to train employees (or themselves) in designated areas of skill shortages.

FORM OF ASSISTANCE

Wage/income subsidies and reimbursement of a portion of training costs (min. 80 hours of training).

PROGRAM ADMINISTRATOR

Employment and Immigration Canada
Contact your local Canada Employment Centre

CANADIAN JOBS STRATEGY - UI JOB CREATION

PURPOSE

To link unemployed workers with businesses and organizations to help maintain their skills and assist businesses complete projects. Projects must be funded for at least six weeks.

FORM OF ASSISTANCE

Participants receive enhanced UI benefits. Employers may receive up to \$125 per worker per week.

PROGRAM ADMINISTRATOR

Employment and Immigration Canada
Contact your local Canada Employment Centre

COOPERATIVE INDUSTRIAL & MARKETING DEVELOPMENT PROGRAM (CIMDP)

PURPOSE

To maintain and expand international market opportunities for BC value-added specialty wood products.

FORM OF ASSISTANCE

Various promotional, educational and training activities including:

- advertising
- trade shows
- literature/publicity releases
- market research
- product knowledge courses
- hands-on, in-plant training
- missions to marketplace

Funding breakdown:

Federal government: 40%

Provincial government: 40%

Industry: 20%

PROGRAM ADMINISTRATOR

Council of Forest Industries of BC
BC Wood Specialties Group
Vancouver: (604) 684-0216

COOPERATIVE OVERSEAS MARKET DEVELOPMENT PROGRAM (COMDP-WC)

PURPOSE

To maintain and expand offshore market opportunities for BC and Alberta softwood lumber and plywood products.

FORM OF ASSISTANCE

Various activities focus on offshore market development, including both market access and promotional activities. The federal government, provincial government, and forest industries (producers of primary solid wood products) each contribute one third of the funds to the COMDP-WC program.

PROGRAM ADMINISTRATOR

Council of Forest Industries of BC
Vancouver: (604) 684-0216

PROGRAM FOR EXPORT MARKET DEVELOPMENT (PEMD)

PURPOSE

To encourage export marketing activity and to encourage established exporters to expand their activities in new markets outside of Canada.

FORM OF ASSISTANCE

Contributes towards the costs incurred by a company in its development of new markets. These contributions are repayable if incremental sales are made to that market area.

PROGRAM ADMINISTRATOR

Industry, Science and Technology Canada
Vancouver: (604) 775-7363

WESTERN ECONOMIC DIVERSIFICATION PROGRAM

PURPOSE

To help western Canada businesses develop new products, new markets, new technologies, import replacements and industry-wide productivity improvements.

FORM OF ASSISTANCE

Interest-free financing, some non-repayable contributions and market intelligence:

Quality Assurance - Consulting, labour, equipment, training and testing: Max. \$20,000 grant component may be available.

International Marketing Initiative - Grants towards 50% of trade show participation costs.

Pathfinding - Information and advice on other sources of assistance.

Western Procurement Initiative - Helps to identify and bid on government purchasing contracts.

Advocacy and Coordination - Helps to present the interests of western Canada to government and to coordinate economic development in the West.

PROGRAM ADMINISTRATOR

Western Economic Diversification Canada
Vancouver: (604) 666-6256
Toll-free (in BC): 1-800-663-2008

EQUITY CAPITAL PROGRAM

PURPOSE

To encourage private sector investment in BC businesses, the Provincial government provides investors with an incentive to invest in a special holding company called a Venture Capital Corporation - VCC. VCC funds are invested in small to medium-sized BC businesses involved in import replacement, exporting or economic diversification and those that meet program qualifications.

FORM OF ASSISTANCE

Individuals and corporations are eligible for a Venture Capital Tax Credit equal to 30% of the amount received by the VCC.

The program allows eligible small businesses to use VCC funds for capital expenditures and working capital. In addition, under certain circumstances and with prior approval the business can use VCC funds to repay debt.

PROGRAM ADMINISTRATOR

Ministry of Economic Development, Small Business and Trade
Business Equity Branch
Victoria: (604) 387-0225
Toll free: 1-800-665-6597

FOREST INDUSTRIES R&D AND INNOVATION PROGRAM

PURPOSE

To enhance the international competitiveness of the forest and forestry-related machinery industries by supporting the development, application, promotion and diffusion of research and innovative technology in Canada.

ELIGIBILITY

Alliances in forest and forestry-related machinery industries.

FORM OF ASSISTANCE

Non-repayable contributions of up to 50% of eligible project costs.

PROGRAM ADMINISTRATOR

Industry, Science and Technology Canada
Vancouver: (604) 666-0434

APPENDIX E

**AVAILABLE INCENTIVES
FOR WASHINGTON STATE**

INCENTIVES

Executive Summary

The State of Washington offers business and industry an attractive package of solid financial incentives for new investment and continuing industrial growth.

- A state administered contingency fund lowers the cost to industry and local government of public works needed for industrial growth.
- Industrial development bonds with federally tax-exempt status provide low-cost financing for new capital construction. Umbrella bonds extend these benefits even to small projects.
- Two sales tax deferral programs reduce the cost of new investment and industrial expansion for manufacturing, computer services, and R&D facilities.
- A tax credit program benefits businesses which locate or expand in high unemployment counties.
- The Job Skill Program provides matching state support for training employees before a new facility opens or when an existing firm expands.
- A development loan fund provides financing for projects locating to or expanding in distressed and timber-dependent areas.
- Eight active foreign trade zones provide numerous benefits for firms engaged in international trade.

Community Economic Revitalization Board Funding

To facilitate the location and expansion of industry, the State of Washington created a special contingency fund to finance local public infrastructure improvements required to facilitate private sector development. The Community Economic Revitalization Board (CERB) is a broad-based citizen's group that administers this development fund for the state. CERB funds are awarded as low cost loans, or grants when uniquely required, to local governments on an as-needed basis for public works projects. Eligible projects include access roads, sewer and water extensions, as well as, other public improvements required to make specific sites attractive for private sector development. Infrastructure funded by CERB must serve either:

- Basic industries - manufacturing, processing, assembly, production, warehousing, and distribution; or
- External services - businesses that significantly support the trading of goods and services outside the state's borders.

CERB Requirements. CERB has established general funding guidelines for applicant projects. These guidelines include:

- Number of jobs likely to be created.
- Economic diversification potential.
- Economic conditions in the community.
- Public and private sector capital committed to the project.
- Feasibility of project completion.
- Ability of the local government to repay the loan.

CERB is flexible in designing financing packages to suit the unique circumstances of each industrial project and local community. This flexibility permits CERB to accelerate the location of new firms or the expansion of existing facilities throughout Washington State.

CERB Results. Since CERB's establishment in 1982, the state has authorized approximately \$50 million for funding use. Of this amount, over \$41 million has been committed to facilitate the location, expansion or retention of firms in Washington State. This level of program commitment is expected to result in the eventual creation of over 15,000 direct, permanent jobs. The total capital investment resulting from CERB assistance is over \$246 million, or approximately six dollars of private investment for every CERB dollar.

Selected Industrial Locations/Expansions Facilitated by CERB Funding

CERB Applicant	Development Facilitated	CERB Funded Infrastructure	Grant/Loan (In millions)
Port of Pend Oreille & Town of Cusick	Ponderay Paper Mill	Water Intake System	\$1.5
Lake Stevens Sewer District	Hewlett-Packard Instruments	Treatment Plant Improvements	2.7
City of Vancouver	Kyocera Intl. Ceramics	Water/Sewer/Road Extensions	3.5
Port of Woodland	Columbia River Carbonates	Water/Sewer/Power RR Spur/Site Development	0.6
Lewis County	Pittsburgh Plate Glass	Water/Sewer	0.2
Port of Douglas County	Hind-Wells, Inc.	Port Building	0.3
Port of Willapa Harbor	Protan	Industrial Pre-treatment Facility	0.3
Port of Walla	Key Technology	Construct Port Building	2.0
City of Bellingham	Heath Tecna Aerospace Co.	Extend Road, Sewer, and Water Lines	1.1
City of Camas	Sharp Microelectronics	Construct Street and Sewer Lines	1.6

Source: Washington State Department of Trade and Economic Development.

Industrial Development Revenue Bonds

Tax-exempt bond financing for industrial facilities is available in Washington State through the Industrial Revenue Bond (IRB) program. Administered by the state's Department of Trade and Economic Development, the IRB program permits public corporations to issue federally tax-exempt bonds on behalf of private companies. The key advantage of this type of financing lies in its tax-exempt status. Interest payments to IRB bond buyers are not subject to U.S. income tax. As a result, bond buyers are willing to accept lower rates of interest on these bonds, thus reducing project financing costs for the participating companies. Generally, interest rates follow AAA Bond market rates.

IRB Requirements. Changes in the federal tax laws allow only manufacturers and processors to finance capital investment with bond proceeds. The type of IRB issued to finance manufacturers and processors are called "Qualified small issue" bonds. A wide range of project costs may be financed with bond proceeds. Among eligible costs are those related to:

- Acquisition of land, construction and/or improvement of manufacturing or processing facilities.
- New machinery and equipment.
- Architectural designs, engineering work, and feasibility studies.
- Consulting, accounting, and legal fees.
- Financing arrangements and interest accrued during construction.

Up to \$10 million in bonds may be issued to finance one project. However, if more than \$1 million in bonds are issued for a project, then the company may not have more than \$10 million in capital expenditures during a six year period. That period runs from three years prior to the bond sale until three years after the bond sale. Additionally, "exempt facility" IRBs may be issued to finance the construction of specific types of facilities which will be owned or operated by private concerns but for which there is a distinct public benefit or need. There is no limit on the amount of bonds that may be issued to finance an exempt facility. Facilities which may be financed through the issuance of exempt facility bonds include:

- Airports.
- Docks and wharves.
- Sewage or solid-waste disposal facilities.
- Facilities to furnish electricity or gas.
- Qualified hydroelectric generating facilities.

In Washington State, IRBs are issued through special public corporations formed by units of government. At least 73 such corporations currently operate in the state: 32 port-related, 25 municipal, and 16 county-wide.

Umbrella Industrial Revenue Bond

The Community Economic Revitalization Board (CERB), an agency administered by the Department of Trade and Economic Development, has statewide authority to combine several requests for IRB financing into a single umbrella bond issue. The primary benefit of this pooling of requests is the reduced cost of issuance to the participants and extending the program even to small businesses.

IRB Results. A total of 232 projects were financed by IRBs in Washington State during 1982-1989. Actual bond closings during this period totaled nearly \$924 million. IRBs were issued at fixed interest rates in the 7.5% to 12% range and at variable rates of 60% to 85% of the then-current prime rate.

Selected IRB Closings 1982-1991

Bond User	Project	Public Corporation	Amount (In millions)
Computer Slides	Manufacturing	City of Seattle	\$2.5
Atlas Foundry & Marine	Manufacturing	Pierce County	5.0
Kohkoku USA	Manufacturing	City of Everett	6.5
Japan Aircraft Maint.	Manufacturing	City of Everett	0.8
ElecSpec Corp.	Manufacturing	Clark County	2.0
Integrated Circuits	Manufacturing	City of Redmond	0.7
Helly-Hansen	Manufacturing	City of Redmond	3.0
Langguth Winery	Manufacturing	Port of Mattawa	0.7
Graham Plywood	Manufacturing	CERB	3.0
Northwest Pet	Manufacturing	CERB	2.5
Interpace Industries	Manufacturing	CERB	0.7
Reidel International	Manufacturing	Pierce County	9.5
Jeld-Wen	Manufacturing	Yakima County	10.0
Sugiyo	Manufacturing	Port of Anacortes	6.5
Stardrive Manufacturing	Manufacturing	Pierce County	18.0
Entlat Forest Products	Manufacturing	Port of Cheilan	8.2
Pioneer Business Forms	Manufacturing	Pierce County	6.5

Source: Washington State Department of Trade and Economic Development.

Washington State Tax Deferral Programs

Washington State has implemented two programs to allow qualified manufacturing, computer service and research and development operations to defer payment of sales and use taxes on expenditures for new or expanded facilities.

- The New-Industry Tax Deferral program is designed to attract new industry to Washington State.
- The Distressed Area Tax Deferral program is designed to stimulate industrial development in economically distressed areas and includes no repayment of taxes deferred on construction labor costs.

Under both programs, eligible capital investments include expenditures for buildings and related machinery and equipment, as well as, the acquisition of machinery and equipment used in new leased structures. If buildings are leased, only machinery and equipment is covered. Repayment of deferred sales taxes on approved investments begins on December 31 of the third calendar year after completion of the project. A five year repayment period is allowed - 10 percent the first year, followed by 15, 20, 25, and 30 percent in the subsequent four years. Applications for sales tax deferral programs must be made to the Washington State Department of Revenue before the firm initiates construction.

New-Industry Tax Deferral. The New-Industry Tax Deferral program is designed to foster the start-up of new businesses and the attraction of new industry to Washington State. The program applies only to firms that currently do not conduct manufacturing, computer service, or research and development operations in the state. There are no geographic restrictions on location within the state, size of investment, or number of new jobs created. Construction of new facilities must proceed within 180 days of application approval. Companies utilizing the New-Industry Tax Deferral program are not eligible to utilize the State's B&O Tax Credit Program.

Distressed Area Tax Deferral. The Distressed Area Tax Deferral program applies only to projects located in Washington State counties where the unemployment rate has exceeded the statewide average by 20 percent for the past three years. Currently, 23 of 39 counties qualify as distressed areas. Eligible applicants are manufacturing, computer service or research and development investments operations who are considering expansions or modernizations of existing facilities, as well as, start-ups and new locations. The tax deferral amount is limited to invested capital which creates one full-time employee position for each \$300,000 invested. Taxes on labor directly used in construction are exempted from repayment. This program is open to applicants through June 30, 1994.

Comparison of New-Industry and Distressed Area Tax Deferral programs

Program Element	New-Industry Program	Distressed Area Program
Manufacturing, Computer Service, or R&D Status	New operations only	New or existing operations
Location Restrictions	None	Distressed areas only
Investment Limit for Taxes Deferred	None	\$300,000 per new full-time position
Leased Building Eligibility	Yes, for machinery & equipment only	Yes, for machinery & equipment only
Repayment of Deferred Taxes on Construction Labor Costs	Yes	No
Eligible for State B&O Tax Credit	No	Yes, separate program application required
Project Commencement Deadlines	Within 180 days of approval	None
Program Expiration	June 30, 1994	June 30, 1994

Source: Washington State Department of Trade and Economic Development.

Distressed Areas For Tax Deferral/Credit Programs

Qualifying Washington State Counties May 1, 1991 through April 30, 1992

Adams	Cowlitz	Grays Harbor	Okanogan	Stevens
Benton	Douglas	Kittitas	Pacific	Wahkiakum
Chelan	Ferry	Klickitat	Pend Oreille	Yakima
Columbia	Franklin	Mason	Skagit	
	Grant	Lewis	Skamania	

Source: Employment Security Department, Labor Market and Economic Analysis Branch.

Washington State Tax Credit Program

Growing companies with manufacturing, computer service, or research and development operations in Washington State distressed areas counties may be eligible to receive a tax credit against their state business and occupation (B&O) tax. The credit amount is \$1,000 for each new full-time employment position created, up to a maximum of \$300,000 for any single firm. To be eligible for a B&O tax credit, a firm must increase its total employment by at least 15 percent over the previous calendar year. Companies desiring to receive a B&O tax credit must apply to the state's Department of Revenue prior to hiring new employees. The B&O tax credit program is open to applicants through June 30, 1994. Companies utilizing the Distressed Area Tax Deferral program may also apply for the B&O Tax Credit program. However, firms that utilize the New Industry Tax Deferral program are not eligible for a B&O tax credit.

Washington State Job Skills Program

The Washington State Job Skills Program (JSP) was established in 1983 to expand the state's ability to meet short-term, job-specific training needs of industry. Funded at \$3 million per biennium, the state program provides grants for customized, quick-start training projects that provide at least 50% matching support from industry. The private sector match may include cash, donated or loaned equipment, instructional time contributed by company personnel, use of company facilities or training materials.

JSP Requirements. Most business-related operations are eligible for JSP training programs. These include private corporations, firms, institutions, business associations, and industry groups concerned with manufacturing, trade, or services. Public and nonprofit hospitals are also eligible. JSP grants can be awarded to support:

- Training for prospective employees before a new plant opens or when an existing establishment expands operations.
- Upgrading for current employees when new vacancies are created for unemployed persons.
- Retraining employees when necessary to preserve their jobs.

Individual JSP projects are managed by member institutions in Washington State's Training Network. The Network encompasses the state's 5 public universities, its four-year liberal arts college, its 27 community colleges, 5 vocational-technical institutes, 8 vocational skill centers, as well as, over 200 high school vocational programs. The Network also includes many of Washington State's private vocational schools and apprenticeship trusts.

In addition to matching financial support, industry participation is strongly encouraged in all dimensions of JSP projects. This can include recruitment and selection of trainees, development of the training curriculum, delivery of the training program, monitoring and evaluation, job counseling, as well as, job placement and hiring.

Job Skills Program Process. The Job Skills Program is designed to minimize paperwork required from participating companies. The education or training institution selected by the firm is responsible for proposal preparation, administration, and reporting.

Program Process (continued). Although each training project is unique, because objectives and instructional content must meet the special needs of a company, there are eight major events which typically mark its progress:

- Firm identifies its short-term training needs.
- Firm selects an educational institution as a partner.
- Institution, in conjunction with firm, prepares and submits a JSP training application.
- Firm and institution meet with JSP Review Committee.
- JSP grant award is made by the State Board for Vocational Education, typically within 30-60 days.
- Trainees are recruited with the help of the Washington State Employment Security Department and then selected by the firm for JSP training.
- Customized training is delivered by the institution with the active participation of the firm. Training may be in the plant.
- Appropriately trained personnel are hired by the firm.

JSP Results. Since 1983, over 170 Job Skills Program applications have been approved to train over 14,000 workers in the State of Washington. The \$9 million in state funds requested for these projects was matched by \$11 million in private sector contributions, resulting in an average total cost per trainee of \$1,429. Some participating firms included Honeywell Marine Division, John Fluke Manufacturing, National Semiconductor, Kyocera International, Union Carbide, Weyerhaeuser, Crown Zellerbach, Cominco, America-Kotobuki Electronics Industries, Pyro Industries, Sun Runner Boat, Advance Technical Laboratories, Memingsun, Champion International Mills, Bell Industries, Intermec, Steuart Seafood Company, Ponderay Newsprint Company, NW Pork Industries, EL Ranchito, Tree Top, and Plum Creek. As these firms have found, the Washington State Job Skills Program is an ideal vehicle for meeting initial and continuing training requirements to support new and expanding industrial facilities.