ALASKA CANADA RAIL LINK
FEASIBILITY STUDY
PHASE II REPORT – INTEGRATED FINANCIAL MODEL

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TRANSFORMING THE WORLD OF TRANSPORTATION

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July 1, 2006

Kells Boland, Project Manager
Alaska Canada Rail Link Project
210-212 Main St.
Whitehorse, Yukon, Y1A 2A9
Canada

Dear Mr. Boland:

Innovative Scheduling, Inc. is pleased to submit this Final Report on the work we accomplished in support of the Alaska Canada Rail Link Phase II Financial Analysis.

We worked closely with the Ernst & Young team to enhance our Phase I model to include revenues, capital projections, phased construction plans, and detailed profitability analyses by track segment, market group and for alternative corporate structures.

The model documented in this report was designed to be a tool to be used by the Phase II team. We have worked to ensure the model is functional and calibrated, and we supported Ernst & Young in accomplishing extensive scenario testing. We have provided you with an electronic copy of this powerful model that will enable others to develop and tune a financially viable strategy for implementing the Alaska Canada Rail Link.

We appreciate your support, and look forward to working with you again in the future.

Sincerely,

Larry A. Shughart

Larry A. Shughart, Vice President

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PHASE II ASSIGNMENT

Our Phase II task was described in the "Next Steps" section of the Phase I Final Report:

> The Phase I version of the model was sufficient for analyzing each route alternative under a number of operating strategies. There are several simplifying assumptions we have been asked to address as part of Phase II of the Feasibility Study. To better support the detailed financial analysis and the due-diligence exercises in Phase II, we will be making the following modifications to the model:
>
> 1) We will limit each run of the model analysis to the preferred route option: Tintina Trench connecting to the CN at Hazelton.
>
> 2) We will improve the timing of capital expenses so we not only capture "start up" costs in year one, but we also capture incremental capital, such as locomotive purchases, required in future years as new traffic is projected to come onto the railroad.
>
> 3) We will enable users to specify how many years each segment takes to construct; traffic will flow over each segment in the year following completion of construction.
>
> 4) We will add "maintenance and replacement" capital
>
> 5) We will extend the planning horizon to 50 years and detail our traffic, revenue, and cost assumptions for each year.
>
> 6) We will re-engineer the traffic tables to better enable user "what if" analyses
>
> 7) We will include revenue, operating income, and total profits in the model
>
> 8) We will enable users to phase route construction over the planning horizon such that different segments may be built in different years
>
> 9) We will enable users to input factors that indicate the volume of traffic likely to divert if only a portion of the rail route is constructed
>
> 10) We will enhance our summary report to display a wider variety of operating and cost statistics
>
> 11) We will add summary reports that show the revenue, costs, and profits allocated to each geographic segment and to each type of traffic
>
> 12) We will develop Pro-Forma Income Statement views for a proposed integrated railroad company, and separate infrastructure and operating companies.

METHODOLOGY

We first re-engineered the Phase I model to structurally accommodate the features that were required as part of the Phase II work. In parallel, we developed a number of sophisticated financial reporting sheets that are all driven by a common data bridge that interfaces the results of the model to the Financial Analysis Modules. We worked on-site with the Ernst & Young financial experts and ALCAN project management to calibrate and adjust the model to consistently capture and reflect the desired assumptions and test scenarios. The model functionality and results were also reviewed by the ALCAN Risk and Opportunities sub-team and we responded to their questions and suggestions. As part of a separate project, we further enhanced and applied the Phase II model to an analysis of proposed transportation of Crest Iron Ore to alternative export locations in Alaska and Canada.

STRUCTURAL CHANGES TO THE MODEL

The Phase I model was enhanced to include a number of new input tabs, new functionality, and new reporting capabilities. In many cases, Phase I tabs were divided so the user could more easily focus on input data by topical area. The mission and purpose of each tab became more apparent. Where necessary, each tab was expanded to include new input parameters and new calculations that were required to support new model requirements.

Many new reports and analyses were included in the model. The “Fuel Analysis” tab summarizes key operating statistics and fuel consumption statistics to support Phase II environmental impact assessment. Other financial reports enable users to look at costs and revenue by traffic segment and by route segment. The Phase II model has detailed pro-forma income statements for an integrated ALCAN railway company as well as separate income statements that project the profitability of an ALCAN infrastructure company and an ALCAN operating company.

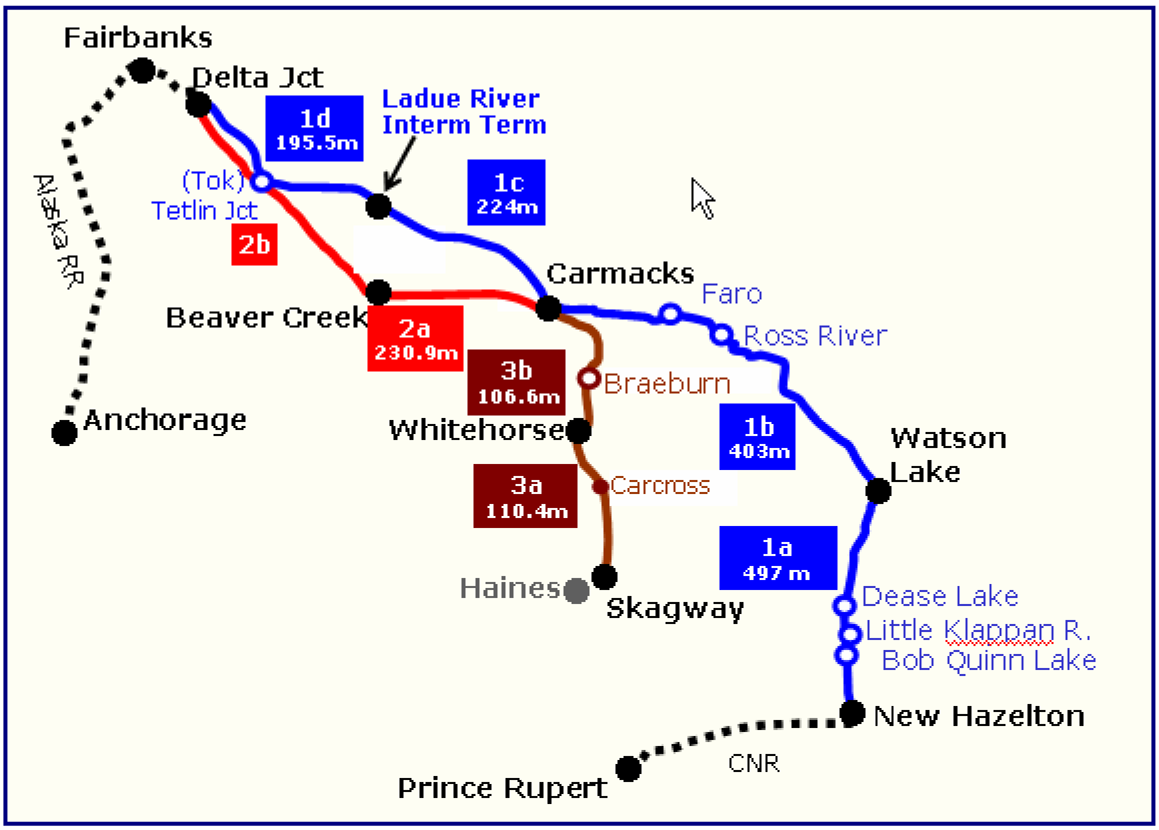
The traffic forecast and analysis was completely restructured to make it easier for users to interact with the model. In addition, for each O-D Traffic Type, users can now specify when the traffic will likely begin and how the volumes will grow or shrink each year into the future. The model automatically flows traffic over each segment in the year following completion of construction of that segment. In situations where only a part of the rail route is in place for a given O-D pair, the user can specify what percentage of the total available traffic will likely choose to go rail. For example, the inbound pipe moves may take rail from the port to the end of the line, and then be transferred to a truck for the last part of the trip to the construction site. Each traffic demand also has associated revenue per car that is used to calculate total revenues for the company and is also allocated to each geographic segment.

An improvement was made to the train speed formulation that was required because of the significant amount of “harsh” terrain on some of the route segments. To calculate average running times for each train, the maximum authorized speeds are first reduced by 33% to equal scheduled running times. The speeds are further reduced for moderate and more for harsh terrain. As a result, in the Phase I model, some trains were running at less than 10 mph. The Phase II model corrects this problem by placing a 10 mph lower bound on all train and all segments.

Phased Implementation Evaluation

The primary purpose of the Phase I model was to assess the relative costs of constructing and operating each of the alternative ALCAN routes. As a result of the Phase I team efforts, it became apparent the Phase II analysis should focus on the preferred route: Tintina Trench connecting to the CN at Hazelton (with the option of going from Carmacks to Delta Junction via the Ladue River or Beaver Creek).

Figure 1: Phase 2 Route



While the Phase II model is limited to this route, it has the added capability for the user to specify which year each route segment will be constructed, and how long that construction will take. This feature enables analysts to consider the pros and cons of phasing construction such that only a portion of the capital costs are expended in the near term. Of course, only a portion of the revenues will also be generated, but the model can now quantify if certain portions of the overall project have a superior rate of return versus the entire project.

Figure 2: Specifying start and length of construction for each segment

	1A Hazelton Watson Lake *Skeena River*	1B Watson Lake Carmacks *Tintina Trench*	1C Carmacks Interm Term *Tintina Trench*	1D Interm Term Delta Jct *Ladue River*	2A Carmacks Beaver Creek *Taylor Cutoff*	2B Beaver Creek Delta Jct *Alaska Highway*	3A Skagway Whitehorse *WP&Y RR*	3B Whitehorse Carmacks *Carmacks Extension*
Year in which construction begins	1	1	1	1	1	1	1	1
Years to build	2	2	2	2	2	2	1	1

Capital Planning Logic

The Phase I model did not include "replacement" or "maintenance" capital expenditures. To support the 50-year planning horizon and sophisticated costing required by the financial analysis team, the Phase II model was enhanced to include both "start up" capital as well as an annual capital budget in each future year. Maintenance of Way capital expenditures are a function of the traffic density and the type of terrain on each segment. Locomotives, vehicles and equipment are replaced on a periodic cycle based on the life of the assets as input by the user.

In the Phase I model, all "Start up" capital was assumed to be invested at the beginning of the project. The Phase II model reflects "start up" capital costs in year one but also future capital expenditures, which are timed as a function of when each route segment is actually built and when each locomotive is actually required (as a function of traffic coming on line as well as older locomotives being retired).

Figure 3: Locomotive and Track capital enhanced to consider life cycles and when assets are actually needed

	A	B	D	E	F	G	H	I
1	**Alaska Canada Rail Link**			Ladue River Management Strategy 2				
2	**Start Up Expenses**							
3	Ladue River							
4	Management Strategy 2							
5	Navigate Workbook							
6	**Maintenance of Way**				Cost Per Unit Span			
7					Year	Year	Year	Year
8	Pick Up Trucks		Life Span In Years	Cost Per Unit	1	2	3	4
58	**Locomotive Purchases**							
59	Units	Type						
60	Incremental Locomotives Requ	SD70M-2			0	0	7	11
61	Locomotives Purchased				0	-	7	4
62	Locomotives Retired		30		-	-	-	-
63	**Total Locomotive Purchases**			$ **1,800,000**	$ -	$ -	$ **12,600,000**	$ **7,200,000**
64			**NPV**	$72,778,608				
65			Equiv Ann $	($7,340,390)				
66	**Infrastructure Capital Investment**							
67	Units							
68	**Track Capital**		**NPV**	$10,500,727,984	$ **6,307,330,000**	$ **5,635,580,000**	$ **3,451,550**	$ **6,459,229**
69			Equiv Ann $	($1,059,094,751)				

The Phase II model includes future "maintenance and replacement" capital for each year. These expenditures are a function of the traffic density and the terrain index for each segment. As users experiment with different levels of traffic volumes, replacement capital increases, reflecting the accelerated renewal requirements associated with higher density rail lines.

Financial Analysis Modules

The Phase I model was cost-centric and focused on initial capital costs as well as ongoing operating expenses for each route. In Phase II, the financial analysis was structured to represent the pro-forma financial performance of the proposed ALCAN business. The model takes advantage of the more detailed traffic forecasts and the more detailed engineering profiles and specifications. Taking a "corporate" view of the operation, the Phase II model includes revenue, operating income and total profits (operating income less capital costs). Interest expenses and taxes were not included in this analysis. Depreciation is represented by the EUAC amortized capital expenditures. The income statement captures cost by standard railway accounts and presents summary statistics so users can sanity check results with standard industry unit costs.

The Financial Analysis Module was purposely designed to operate entirely off of a single data source or data bridge – the "Summary Report" tab -- from the more detailed engineering-economics model. In this way, new reports can easily be added to the financial module without having to connect to the complex functions and detailed data required by the operations simulation. In the same way, improvements can be made to the logic and data in the operations simulation without affecting the functional performance of the financial analysis module, as long as the format of the data bridge is constant.

The Financial Analysis Module contains a wide variety of reports and perspectives on the profitability of the ALCAN business. Reports show the revenue, costs, and profits according to geographic segment, traffic type and company.

By Segment: The model takes the Income Statement for a given year and allocates the revenue and the costs to each segment based on the work activity associated with that segment. Operating departments' costs are allocated based on Gross Ton Miles. General and Administrative costs are allocated based on carloads.

Figure 4: For the Income Statement by Segment, the user chooses which year to display

Alaska Canada Rail Link
Income Statement
For Fiscal Years Ending December 31 [Year 10]
Ladue River [Ladue River]
Management Strategy 2 [Management Strategy 2]
Navigate Workbook

	Year 10	1A Hazelton Watson Lake	1B Watson Lake Carmacks	1C Carmacks Interm Term	1D Interm Term Delta Jct
Operating Statistics:					
Miles	1,537	497	403	224	196
Gross Ton Miles (000's)	16,793,848	6,358,352	5,466,230	2,115,265	1,643,402
Carloads	789,844	198,645	201,442	161,399	161,399
Originated Carloads	221,069				
Income:					
Rail Revenue	$ 312,092,326	$ 109,640,353	$ 103,014,270	$ 36,592,088	$ 28,429,312
Total Income	$ 312,092,326	$ 109,640,353	$ 103,014,270	$ 36,592,088	$ 28,429,312
Cost of Operations:					
Maintenance of Way					
Payroll & Fringes	$ 14,175,000	$ 5,366,825	$ 4,613,821	$ 1,785,409	$ 1,387,128
Parts & Supplies	3,543,750	1,341,706	1,153,455	446,352	346,782
Track Material	10,631,250	4,025,119	3,460,366	1,339,057	1,040,346
Derailment Expense	893,025	338,110	290,671	112,481	87,389
Purchased Services	1,417,500	536,682	461,382	178,541	138,713
Other	1,533,026	580,422	498,985	193,092	150,018
Total	**32,193,551**	**12,188,864**	**10,478,680**	**4,054,932**	**3,150,376**

User Instructions | Income Statement | **Income Statement by Segment** | Infrastructure Income | Operating Co Income | Intermodal Income

By Traffic Type: The projected average income for each traffic type (Intermodal, Minerals, Coal, Pipe and Industrial Products) is calculated allocating each cost item on the income statement to a traffic type based on the GTM and carloads of that traffic type. The income is then set to equal the total revenue for that traffic type less the allocated cost for that traffic type. NOTE: a negative income using this approach does NOT mean the traffic is not profitable. Both operating and capital costs are allocated on an average basis, not an incremental basis. A more sophisticated incremental costing exercise is required to determine the contribution of each traffic segment.

Figure 5: The model includes separate income statements for each traffic type

	A	D	E	F	G	H	I
1	**Alaska Canada Rail Link**						
2	**Income Statement**	gy 2					
3	**Intermodal Income**						
4	Ladue River						
5	Management Strategy 2						
6	Navigate Workbook	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Yea**
7							
8	**Carloads (Boxes)**	31,215	62,429	93,644	124,858	156,073	
9							
10	**Income:**						
11							
12	Rail Revenue	$ 38,969,507	$ 77,939,013	$ 116,908,520	$ 155,878,026	$ 194,847,533	$ 194,
13							
14	**Total Income**	$ 38,969,507	$ 77,939,013	$ 116,908,520	$ 155,878,026	$ 194,847,533	$ 194,
15							
16	**Cost of Operations:**						
17							
18	***Maintenance of Way***						
19	Payroll & Fringes	$ 9,456,214	$ 10,267,358	$ 12,447,334	$ 12,144,368	$ 9,545,234	$ 9,
20	Parts & Supplies	2,364,053	2,566,840	3,111,834	3,036,092	2,386,309	2,
21	Track Material	7,092,160	7,700,519	9,335,501	9,108,276	7,158,926	7,
22	Derailment Expense	595,741	646,844	784,182	765,095	601,350	
23	Purchased Services	945,621	1,026,736	1,244,733	1,214,437	954,523	
24	Other	1,022,689	1,110,415	1,346,179	1,313,413	1,032,317	1,
25	***Total***	$ 21,476,479	$ 23,318,711	$ 28,269,763	$ 27,581,681	$ 21,678,659	$ 21,
26							
27	***Maintenance of Equipment***						
28	Payroll & Fringes	$ 1,053,536	$ 1,751,880	$ 2,463,919	$ 3,235,231	$ 4,581,387	$ 4,
29	Parts & Supplies - Locomotive	186,789	318,705	386,372	616,857	1,508,383	1,
30	Parts & Supplies - Freight Car	586,449	1,187,147	1,840,036	2,431,035	2,845,704	2,

Intermodal Income / Minerals Income / Coal Income / Pipe Income / Indus Prod Income / Income Check / Summary Report / Revenue

By Company: Outside of North America, it is quite common for railway companies to be structured with separate infrastructure companies and operating companies. Sometimes, these two companies may be held by the same parent company, as is the case with the Deutschbahn (DB) German railway. In other cases, the infrastructure company may be owned by the government while the operating companies are privately held, as is the case in the United Kingdom.

One reason for structuring a railway into these two entities is to more clearly define the role of government subsidies. If a railway enterprise is not profitable, most public policy makers are much more comfortable using public funds to construct and maintain infrastructure than to subsidize operations. Even in North America, it is common for airports, maritime ports and highways to be owned, operated and maintained by governments. At the same time, the users of those publicly provided assets are expected to contribute to the cost of ownership and maintenance through access fees, tolls, or user fees. To the extent users' contributions do not fully finance the cost of the infrastructure, people generally recognize such large projects facilitate and enable the overall economy and thus provide a public good. As a result, some infrastructure costs are funded from general tax revenue. World Trade Organization (WTO) rules allow for public subsidy of transportation infrastructure. On the other hand, the WTO regards public subsidies of transportation operating company losses as hidden government support for the commodities and goods that are being carried. Consequently, it would be acceptable for Canada and/or the U.S. to provide subsidies for construction and maintenance of the ALCAN rail link. However, any shippers that use ALCAN would have to pay sufficient rates to cover the above the rail operating costs.

Another reason for structuring a railway into two corporate entities is to more clearly define the costs and benefits of each segment of traffic. Many regulatory regimes require multiple operating companies be allowed to simultaneously access and share a common rail infrastructure. The Australian national railways system best exemplifies this model. Some private companies own a portion of the rail network, but operate trains over the entire national network. Other companies are pure operators and do not own any tracks. The government has rigorous mechanisms for allocating the capacity such that operators bid for the right to operate trains on certain routes at certain times. Companies must provide access to other operators at the same or lower rates than for their own trains. In addition, if company A desires low cost access to company B's tracks, Company A has an incentive to offer a mutually attractive arrangement for Company B to use A's tracks. This approach relies on the market to efficiently allocate the cost and benefits of various routes to various traffic segments.

Many professional railroaders and policy makers continue to support integrated railway companies. Integrated companies can reduce overall costs by eliminating the transaction costs and some duplication of management and administrative functions. In addition, many experts believe that integrated companies provide more efficient service and lower costs by carefully coordinating capital and operations planning. The Phase II model is structured to enable financial analysts to quantify the pros and cons of different corporate structures for the ALCAN project. The Phase II model provides Pro-Forma Income Statement views for a proposed integrated railroad company as well as for separate infrastructure and operating companies.

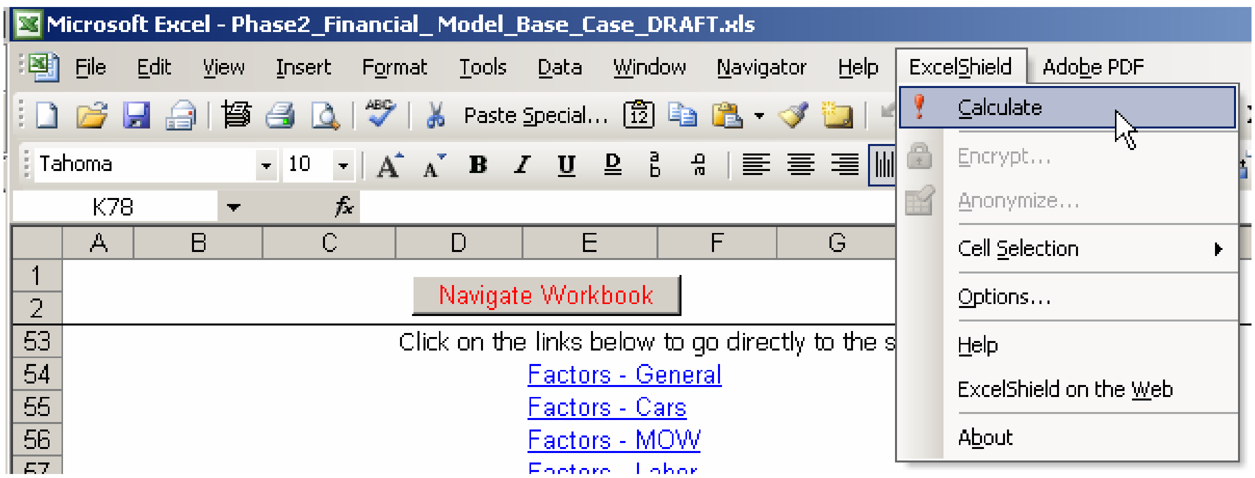
The infrastructure company bears the Income Statement cost categories for "below the rail" costs. Capital and operating costs for Maintenance of Way are included as well as some General and Administrative costs. Revenue is assumed to be access charges to "above the rail" operators and is calculated as a function of the infrastructure company's annual operating costs.

The operating company bears the Income Statement cost categories for "above the rail" costs. Capital and operating costs for Maintenance of Equipment and Transportation train operations are included as well as General and Administrative costs associated with sales, billing, interline car operations, etc. The access charges to the infrastructure company are included as a separate cost item.

MODEL AVAILABILITY

The Phase II model was provided to the ALCAN financial team as an "unprotected" version of the model. The internal team was able to exam all of the functional formulations in the model and did discover several errors that were fixed. A "protected" version of the model was posted to the ALCAN project web site. To run the model, a user must download some free software from the internet site http://www.excelshield.com/en/excelshield/clientdownload.htm. This software enables the model to function properly on any PC, but requires using the ExcelShield Calculate menu option, rather than the normal Excel calculation function, to rerun the model after making any input changes (see Figure 6Figure 1).

Figure 6: Using ExcelShield to recalculate the model



When using the model, first go to the first tab, "User Instructions". It includes explanations and important information on how to change various assumptions. It also contains links that will take you to the appropriate tab for each assumption you may wish to change. Throughout the model, input cells the user can change appear with blue font on a light yellow background. All other cells are calculations or fixed factors that cannot be changed.

Both the Phase I version of the model and the Phase II version of the model are posted on the project web site. Please feel free to email Larry Shughart at Larry@InnovativeScheduling.com with any questions you may have regarding this work.

APPENDIX I: PHASE II MODEL TAB DESCRIPTIONS

Although the summary tabs appear at the beginning of the workbook, the following tables generally describe the tabs in right-to-left order to give the reader a better sense of how the model is structured.

Tab Name	Description
I) Factors	The various Factors tabs hold model inputs that do not vary according to cost or route scenario. Users may adjust these factors if they wish to test their own assumptions regarding the values.
Factors – General	This tab contains metric and U.S. measurement conversions and currency exchange rates used elsewhere in the model to ensure all measurements and cost figures are in U.S. terms.
Factors – Locomotives	Contains Locomotive Cost Factors such as type of unit, consist make-up and Capital Cost per Unit.
Factors - Labor	Contains Labor Cost Factors, including Hourly Wage Rates, Fringe Benefit Rates and the formula for calculating U.S. Payroll Taxes.
Factors – MOW	Contains factors needed to calculate MOW operating expenses as a function of the terrain and of traffic density.
Factors – Cars	Contains factors needed in calculating Car Days and Car Costs: Train Time required to Change Crews; Train Time required for Car Inspection and for Fueling and Servicing Locomotives; Intermediate Work time; Customer time; and Interchange time. Also contains empty car weights and lading capacity by market segment (Intermodal, Minerals, Coal, Pipe and Industrial Products).

II) Traffic Forecast	These tabs are the heart of the cost model analysis. They adjust the raw traffic forecast according to various route and timing assumptions specified by the user.
Traffic Flows	In this tab, a user specifies which route segments are traversed by each O-D pair in the traffic forecast. Additional O-D pairs can be added in anticipation of new traffic.
Volume Detail – High	This tab captures the raw traffic forecast from the user. For each O-D pair, the user specifies the volumes by year, the type of traffic, and the on/off junction point for the ALCAN system.

III) Calculations	
Traffic Forecast	The traffic from the Volume Detail – High tab is flowed over the appropriate Segment and the model applies empty return ratios and tons/car factors to project total traffic by Segment and traffic type by Year. The model also adjusts the timing of the traffic based on when the user specifies each segment is to be built, and accounts for the full or partial loss of traffic if the construction of some segments is delayed or canceled. In the Phase II model, this tab has been completely automated. Users need only input data on the Volume Detail – High tab.
Calculations-Segments	This tab contains the calculations that must be done on a segment-by-segment basis because of differences in traffic, terrain, etc. The tab was enhanced to show the year each segment is to initiate construction and the annual renewal capital for each year over the 50 year planning horizon. Key operating statistics such as train run time, crews per train, and adjustment factors for terrain and traffic density are calculated here. Segment values are then added together elsewhere in the model to provide workloads used to calculate costs for each route and scenario.
Segments	This tab isolates the input data required to describe the characteristics of each route segment. The Origin, Destination, and link length form the basis of the network model. Other data qualitatively describes the terrain based on a physical description of the route profile. Users can also adjust the expected construction cost and renewal cost for each segment.
Routes	This tab combines the volume calculations from individual segments into a route chosen by the user. The results are then used elsewhere to generate costs such as for crews and locomotives.
Management Strategies	The input parameters in this tab enable a user to describe the efficiency and the operating philosophy for three different management strategies. The default values are based on empirical data from a range of North American railroad types including regional, Class I, and drag tonnage operations. This tab also enables a user to indicate the expected inflation rate for key cost inputs such as labor, fuel, and materials. Currently, inflation is not used in the Phase II financial analysis.

IV) Operating Costs	
Car Hire	For a given route, this tab shows the impact of costs and factors of Total Car Time on projected Trains (Hours), Detention Time /Car (Hours), Total Car Time (Hours), Total Car Days, Total Car Days, $/Car Day and Car Hire.
Fuel	For a given route and selected cost and traffic type, this tab calculates the Total KGTMs, Total Gallons and Total Fuel Cost.
Fuel Statistics Summary	Summarizes key operating statistics and fuel consumption statistics to support an environmental impact assessment
Crews	This tab calculates the total T&E Employees needed based on route, traffic level and cost scenario. Note that using the "Management Strategy 1" scenario may increase crew requirements because the less powerful locomotives in this scenario result in slower trains.
Car Repair	This tab calculates car repair costs and the manpower needed to support car repair operations. In the final summary tab, the costs are offset by AAR car repair billing credits, as we assume the Alaska Canada Rail Link will not buy any freight cars and thus will be able to re-bill car owners for any repairs.
Locomotives	This tab calculates the locomotives required to haul the given level of traffic on the given route. The number is also influenced by the type (and thus power) of locomotive and fleet availability (how much time is required to service and maintain locomotives plus idle time between trains).
Maintenance of Way	This tab estimates the cost to maintain track as a function of traffic density and terrain. Segments with harsh (hilly, curvy) terrain require more resources than segments with straight, level track. Only operating expenses, which encompass routine maintenance such as rail grinding, are included on this tab. The capital costs of replacing rail, ties, etc are calculated separately on the "Calculations-Segments" tab.
Manpower	This tab calculates manpower requirements for the entire rail system. Some of the numbers, such as for T&E and MOW personnel, depend on other calculations in the model (e.g. the Crews and MOW tabs). Other manpower requirements are input directly using averages for railroads of similar size. The total manpower counts are then translated into payroll costs using the wage, fringe and tax rates from the "Factors" and "Scenarios" tabs.

V) Data Bridge	
Capital Expenses	This tab includes the one-time purchase of motor vehicles and other equipment for Maintenance of Way, Maintenance of Equipment, Transportation and General & Administrative departments. The model then determines, for each asset class, what year the renewal should take place and schedules additional capital expenditures in those years. Each capital expenditure can easily be tied back to a physical life and a specific production function. As capital costs occur sporadically, this tab determines an "equivalent uniform annual cost" (EUAC) to be used later by the cost models to allocate CAPEX to each track and/or traffic segment. The EUAC is also a function of the discount rate or internal hurdle rate supplied by the user in the Management Scenario tab.
Revenue	This tab summarizes the revenue generated by each type of traffic by year. Total revenue is then divided by key operating statistics such as car mile, car load, and ton mile to enable scaled comparisons. Each carload's revenue is also allocated to each track segment based on the car miles generated by that segment and then summed to show the relative importance of each segment to the entire network.
Summary Report	This tab summarizes all the traffic and cost calculations from the rest of the model into a data bridge used by the Financial Analysis Tabs. This tab is critical to linking the financial analysis module to the engineering-economics model.

VI) Financial Analysis Module	
Income Statement	This tab presents the pro-forma income statement for an integrated ALCAN railway company for each year of the 50 years. The income statement does not include interest or taxes. Depreciation is represented by the EUAC amortized capital expenditures. The income statement captures cost by standard railway accounts and present summary statistics so users can sanity check results with standard industry unit costs.
Income Statement by Segment	This tab takes the Income Statement for a specific year (chosen by the user) and allocates the revenue and the costs to each segment based on the work activity associated with that segment. Operating departments' costs are allocated based on Gross Ton Miles and General and Administrative costs are allocated based on car loads.
Infrastructure Income	This tab takes the Income Statement cost categories and assigns "below the rail" costs to a separate infrastructure company. Capital and operating costs for Maintenance of Way are included as well as some General and Administrative costs. Revenue is assumed to be access charges to "above the rail" operators and is calculated as a function of the infrastructure company's annual operating costs.
Operating Co Income	This tab takes the Income Statement cost categories and assigns "above the rail" costs to a separate ALCAN operating company. Capital and operating costs for Maintenance of Equipment and Transportation train operations are included as well as General and Administrative costs associated with sales, billing, interline car operations, etc. The access charges to the infrastructure company are included as a separate cost item.
Income for each Traffic Type	The projected average income for each traffic type (Intermodal, Minerals, Coal, Pipe and Industrial Products) is calculated allocating each cost item on the income statement to a traffic type based on the GTM and the carloads of that traffic type. The income is then set to equal the total revenue for that traffic type less the allocated cost for that traffic type. NOTE: a negative income using this approach does NOT mean the traffic is not profitable as all costs (Operating and Capital) are allocated on an average basis, not an incremental basis. A more sophisticated incremental costing exercise is required to determine the contribution of each traffic segment.
Income Check	The purpose of this tab is to ensure all of the cost allocations done in the Financial Analysis Module cross-foot such that no costs are ignored or double-counted.

APPENDIX II: ACRL PASSENGER REVIEW

INNOVATIVE SCHEDULING RECOMMENDS THAT THE FINANCIAL ANALYSIS OF THE PROPOSED ACRL PASSENGER SERVICE BE CARRIED OUT EXOGENOUS TO THE FREIGHT COSTING MODEL.

Freight and passenger operations do share the track infrastructure, locomotive crews and dispatching functions. Unlike most North American rail corridors that host both freight and passenger service, we do not anticipate ACRL will experience significant issues. In this case, the incremental cost of maintaining track to passenger standards is probably very small as high quality track standards are anticipated to support a high speed intermodal service and a heavy haul bulk service. Again, in the ACRL case, the train meets and conflicts between passenger and freight trains will be minimal given the relatively light density of freight that is anticipated. There may be some incremental delays to freight trains as a result of giving passenger trains priority dispatching, but these delay costs can be minimized through careful management and scheduling.

THE STRUCTURE OF A FINANCIAL MODEL FOR PASSENGER OPERATIONS WOULD BE SIMILAR TO THE LOGIC USED IN THE INNOVATIVE SCHEDULING FREIGHT MODEL.

Passenger cars and passenger locomotives are not the same as freight cars and freight locomotives. Passenger locomotives have faster gear ratios and are not very useful in heavy freight operations. The purchase of passenger cars and locomotives would use a matrix just like the freight model. Research would be required to determine the price points for the passenger cars as costs can range between one and three million dollars depending on the amenities and uniqueness of the desired equipment.

There are a variety of buildings and structures required for a passenger service, including stations, platforms and support facilities. The cost and location of such structures is not part of the freight model. Commissary functions will be required to provide food services to passengers during the lengthy trips. Kitchens and food grade storage facilities will need to be built at a number of locations. Capital costs for construction of stations, platforms and maintenance facilities is similar to the track projections in the freight model.

A transportation service design plan and associated costs for the passenger model would be built up from train schedules to determine manpower requirements and equipment needs. The freight model does not factor in on-board services, staffing, or the management team to staff and monitor on-board services.

In some respects, the passenger model would be different from the freight model.

Many of the detailed cost lines would be eliminated and replaced with a transfer payment to the ACRL to cover track maintenance, dispatching, management, etc. VIA and Amtrak pay freight companies similar access fees.

Maintenance-of-Equipment cost functions are different for passenger than for freight railroads. Passenger equipment would require separate facilities from freight operations for the maintenance of equipment, probably at end points of passenger routes as opposed to a central location preferred by freight operations. Facility requirements and locations would be determined by a logic not incorporated in the freight model. The cleaning function for both the interior and exterior of passenger trains is an activity not contemplated in the freight model. Cleaning facilities, locations and staffing are not part of a freight model.

Many of the General and Administrative expenses may have the same account name, but a very different logic to develop to develop those unit costs. Utility costs will be a significant factor as numerous buildings will need to be heated. The sales effort for passenger operations is completely different from freight. Passenger sales will need to interface with travel agents, web travel sites and local tourism bureaus. Sales support requires the implementation of a call answering center. Customer care and responsiveness to service and delay issues by passenger management is more costly and intensive than with freight. If ACRL manages the passenger operation in-house, IT and computer support for a reservation system will be significant costs. Insurance costs are much higher for a passenger operation.

The structure of the relationship between the Passenger service and the ACRL will determine financial viability more than the operating costs.

Other management and policy issues, separate from the need for a passenger financial model, need to be addressed. Should there be an ACRL Passenger Company or should services be provided by a third party such as VIA, ARR, or a rail cruise company? How integrated should the Passenger Company be with Freight Company? Assuming the passenger company would follow the VIA example, what is the appropriate fee structure due to the freight company for sharing track and dispatching? Charges by U.S. freight railroads to Amtrak vary widely based on historical precedence, track density and the quality of service. The fees should be decided early in the modeling process to assure both Passenger Company and Freight Company revenues cover their respective costs of operating passenger trains. To the extent there is a planned operating loss, which combination of governments and programs will be used to subsidize the passenger operation?