

NO: R200

COUNCIL DATE: October 20, 2015

REGULAR COUNCIL

TO: **Mayor & Council**

DATE: **October 15, 2015**

FROM: **General Manager, Engineering**

FILE: **5405-01**

SUBJECT: **South Surrey BNSF Rail Relocation**

RECOMMENDATIONS

The Engineering Department recommends that Council:

1. Receive this report as information;
2. Authorize staff to initiate discussions with the City of White Rock and the Province in developing a cost sharing agreement for the technical study and consultation work required to identify a single preferred rail relocation alignment; and
3. Instruct staff to return to Council for approval before proceeding with the above stated technical and consultation study work.

INTENT

To establish the City' approach towards the relocation of the BNSF railway line in South Surrey and the City of White Rock to an alternative in-land alignment.

BACKGROUND

The Great Northern Railway Company (predecessor to BNSF Railway) commenced the operation of services along the Semiahmoo Bay in 1909. At the time, the railway operated a single daily freight train each way, primarily transporting construction material and mail, along with limited passenger services. Today, the South Surrey peninsular and the City of White Rock have become increasingly developed and populated. In addition, the level of train activity has increased with BNSF freight frequencies ranging between 16 and 20 trips per day with train lengths as long as 8,000 ft. (2,440 m). Transportation of simple construction materials and mail has transitioned to include coal and other materials such as chlorine and liquefied natural gas. Future increases in train traffic are expected with, for example, Surrey Fraser Docks' plans to double its current coal handling capacity to 4 million metric tonnes of coal per year. Amtrak currently provides 2 daily passenger services along this route between British Columbia and Washington State.

The increasing train frequencies and commodity composition in train traffic has led to number of challenges for communities along the railway line including:

- **Community Access** Each passing train prevents access to the Crescent Beach Community and White Rock beach. This poses a significant restriction to both residents and visitors to these areas. There are also concerns regarding the impact to emergency service access despite the implementation of the ‘Stopped Train Protocol’ (STP).
- **Noise Disruption** Transport Canada regulations identify a defined train whistling protocol that must be followed by train drivers. Even during night time hours where this requirement is relaxed, train drivers are still obligated to blow the whistle if there is a perceived danger. The frequency of this night time whistling is affecting the Crescent Beach community.
- **Public Safety** Given the frequency of train movements, the level of development within proximity to the track, and popular recreational destinations that require access across the rail line, there are safety issues including reported injuries and fatalities in recent years.
- **Bluff Erosion** BNSF operates along the base of a bluff in South Surrey. There have been repeated recordings of slope failures along this stretch over the years, some of which have blocked the track. The situation is also prevalent in Washington State where slopes with similar conditions have also failed, derailling a passing freight train in Everett (December 2012).
- **Dangerous Goods** The composition of rail cargo has changed to include coal and dangerous goods in proximity to highly populated locations and environmentally fragile areas.
- **Incident Management** The location of the track along the South Surrey bluff and adjacent to an open body of water at Semiahmoo Bay has an impact on the ability to provide emergency response due to limited access should derailment or other incidents occur along this stretch of the track.
- **Environmental Concerns** The rail line passes through environmentally sensitive shorelines and estuaries with concerns regarding containment and contamination associated with a potential spillage.

Mitigation measures have been implemented along the line since it was introduced such as the installation of at-grade crossing improvements (barriers/signals), slope stability enhancements, whistling requirements, speed restrictions and the implementation of a stopped train protocol. These have been helped manage the impact of rail operations on local communities while balancing the need to support regional economic growth and prosperity. However, with a growing population and increasing train movements, particularly freight to and from Vancouver Port facilities, the ability to manage and mitigate these impacts is increasingly challenging.

Realignment of the line has been looked at on a number of occasions and there are continued concerns raised by communities along the rail line with support for the relocation. The City has undertaken previous preliminary assessment work on potential alternative alignment options and the City of White Rock commissioned an analysis in 2014 of the steps required to achieve rail relocation (Appendix I).

To advance railway relocation, significant budget and resourcing would be required, along with the cooperation of numerous stakeholders and authorities. Conceptual level construction estimates for realignment range between \$350M and \$450M, and could be higher if options with significant tunnelling are considered. These costs are in excess of what local municipalities could or should be responsible for, and it is imperative to have either senior government or BNSF lead this effort. To date, there has been no interest by any other agency to take a lead role in this initiative.

DISCUSSION

The City still believes there is merit in evaluating an ultimate relocation of the railway, and that through further public and stakeholder consultation and technical work, a suitable alternative corridor can be identified.

Staff are proposing that Surrey commence a stepped process toward achieving the rail relocation, as follows:

1. Complete agency agreements outlining cost sharing for the technical study and consultation work required with White Rock and potentially the Province;
2. Complete technical work and consultation leading to an identified single preferred rail alignment and treatment; and then
3. Initiate the Canadian Transportation Agency (CTA) rail relocation process through the Railway Relocation and Crossing Act (RRCA).

The technical work would include a comprehensive review of earlier preliminary concepts and a detailed evaluation of property impacts, community and environmental impacts, geotechnical constraints, project cost estimates and construction timelines. This work would then form the basis for an extensive public and stakeholder consultation including regional government, transportation, environmental and other agencies both in Canada and the United States.

The evaluation and consultation work would lead to a preferred single option which would be developed into a functional design with more detailed cost estimates.

The results of that work would provide the necessary detail to initiate the Railway Relocation and Crossing Act (RRCA) process. The Act provides municipalities and the provincial government the authority to compel (through the Canadian Transportation Agency (CTA)) the railway owner to relocate their railway line and allows the Federal government to contribute up to 50% of the project costs, subject to the Minister of Transportation being satisfied that Federal funding programs are available, that the project would contribute significantly towards improvement of the urban areas, and that the Governor-in-Council was prepared to allocate monies for the project. Under the RRCA, the railway should neither gain nor lose from the relocation of the railway line.

Under the application to the CTA (who act as the ultimate arbiter), the Province and affected municipalities are required to agree and develop three key plans that are submitted to the CTA for evaluation:

1. The *'Urban Development Plan'* specifies the development and land use zonings/designations of lands within and adjacent to the proposed rail corridor to ensure adequate consideration and integration.
2. The *'Transportation Plan'* outlines all aspects of the transportation network including road layouts, highways, bridges, crossings, transit and other rail services, which may be impacted or may be required to be modified as a result of the relocation.
3. The *'Financial Plan'* will be modified throughout the process as discussions between parties evolve and costs are better defined and will be reviewed by the CTA. The plan would include a full assessment of comparative capital and operating costs, inflation and property impact costs for an exact duplication of existing railway line in the new location and a new line built to modern standards.

Other Considerations

Relocating the BNSF rail line is a complex and large scale undertaking with numerous potential safety, environmental, agricultural, traffic and noise impacts to resolve. Further, given the project will involve local, regional, national and trans-border agencies and authorities and will require significant stakeholder and public consultation, staff expect a minimum of 2 to 3 years to complete the technical and consultation work with an additional 2 years to complete and submit the 'Plans' required by the CTA for the rail relocation.

Overall costs are expected to be at least \$700,000 given the level of consultation and engineering, design and evaluation required to develop a single preferred alignment and progress plans associated with the rail relocation application. The White Rock and potential Provincial share of these costs will be based on the established cost sharing agreement.

CONCLUSION

Relocation of the BNSF railway will require substantial effort and is a lengthy process; however, progressing the technical and consultation work will identify a single preferred realignment option with stakeholder and public support. Proceeding through the Railway Relocation and Crossing Act process will provide the best chance of a successful railway relocation with the required funding from the appropriate agencies.

Based on the discussion in this report, it is recommended that Council:

- Receive this report as information;
- Authorize staff to initiate discussions with the City of White Rock and the Province in developing a cost sharing agreement for the technical study and consultation work required to identify a single preferred rail relocation alignment; and

- Instruct staff to return to Council for approval before proceeding with the above stated technical and consultation study work.

Fraser Smith, P.Eng., MBA
General Manager, Engineering

JB/PB/MD/clr

Appendix I - Analysis of Rail Relocation by Mary-Jane Bennett on Behalf of the City of White
Rock - October 15, 2014

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**IN THE MATTER OF THE
SEPTEMBER 8, 2014 WHITE ROCK
COUNCIL VOTE TO INITIATE THE
RELOCATION OF THE BNSF RAIL
LINE AWAY FROM THE
WATERFRONT**

**ANALYSIS OF RAIL RELOCATION BY MARY-JANE BENNETT ON BEHALF
OF THE CITY OF WHITE ROCK**

OCTOBER 15, 2014

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Professional qualifications

I am a lawyer by training and have practiced law in both Manitoba and British Columbia. I had a litigation oriented practice and was involved on a number of constitutional cases, including two argued before the Supreme Court of Canada.

In January, 1998, I was appointed a Board Member with the Canadian Transportation Agency, a position I maintained for nine years and five months (1998-2007). The Canadian Transportation Agency is a quasi judicial tribunal and economic regulator; it makes decisions on matters in rail, air and marine transportation under the *Canada Transportation Act*.

I am aware of the history and relevance of rail regulatory policy in the national transportation policy. I have adjudicated on that policy in decisions while with the Agency. I have written a number of policy papers on transportation issues relevant to Canada, including a recent paper on the issue of risk in the transportation of dangerous goods. The transportation policy papers that I have written are:

- *Airport Policy in Canada*, August, 2012
- *Grain Freight Regulation in Canada*, November, 2012
- *A New Policy in Air Transportation for Canada is Required*, January, 2013
- *The Canadian Airline Industry and the Case of Porter Airlines*, June, 2013
- *Lessons from Lac-Mégantic: Risk in the transportation of dangerous goods*, November, 2013

I am currently a transportation consultant and Research Fellow with the Frontier Centre for Public Policy. I am a frequent media commentator on transportation issues and appear regularly in the CBC, Inside Policy, Embassy Magazine, iPolitics, the National Post and most major Canadian dailies including the Montreal Gazette, Vancouver Sun, Calgary Herald and Ottawa Citizen.

In light of this background in transportation policy, I have been asked by the City of White Rock to comment on a proposed rail relocation of the BNSF line away from the waterfront.

EXECUTIVE SUMMARY

The BNSF rail line, connecting Seattle, WA with Vancouver, B.C., runs directly through the heart of White Rock, B.C. In the past decade, the scenic, coastal community has seen a surge in freight rail traffic and a sharp increase in the shipment of dangerous goods. On September 8, 2014, White Rock City Council, responding to safety concerns relating to the spike in rail traffic, passed a unanimous resolution directing staff to initiate the relocation of the BNSF rail line away from the city's waterfront.

This study responds to that resolution. It seeks to inform on the City of White Rock's proposed relocation process by providing insight into the City's application for relocation under the *Railway Relocation and Crossing Act, R.S.C. 1985, c.R-4*. It will instruct City Council on key timelines, and will initiate a dialogue pertaining to cost sharing. Finally, it will propose a series of next steps.

Some of the issues addressed in the study include: capital costs relating to construction, process management as well as environmental, planning and design concerns. The report also explains key definitions relating to railway relocation and provides an overview of relevant operational and maintenance costs.

Table of Contents

1.	INTRODUCTION	1
1.1	HISTORY OF THE WHITE ROCK RAIL LINE.....	1
1.2	PREVIOUS RELOCATION PROPOSALS	2
1.3	RECENT EVENTS.....	3
2.	THE RAILWAY RELOCATION AND CROSSING ACT	4
2.1	THE RAILWAY RELOCATION AND CROSSING ACT AND ITS ALTERNATIVE	4
2.2	AN APPLICATION UNDER THE RAILWAY RELOCATION AND CROSSING ACT	5
2.3	MERITS OF THE APPLICATION AND CHANGES TO THE PLAN	5
2.4	RELOCATION GRANTS.....	6
3.	UNDERPINNINGS OF THE ACT.....	6
3.1	CAPITAL COST ESTIMATES	6
3.2	FUNCTIONAL EQUIVALENCE AND BETTERMENTS	7
3.3	ADDITIONS	8
4.	ISSUES IN A RAIL LINE RELOCATION	8
4.1	PROPERTY ISSUES.....	8
4.2	DESIGN AND CONSTRUCTION ISSUES.....	9
4.3	CAPITAL COST OF CONSTRUCTION ISSUES	9
4.3.1	<i>Inflation and escalation</i>	9
4.3.2	<i>Types of estimates and contingency allowances</i>	10
4.3.3	<i>Project management</i>	10
4.4	ENVIRONMENTAL ISSUES	11
4.5	URBAN ISSUES.....	12
4.6	ABORIGINAL ISSUES.....	12
5.	THE CALCULATION OF NET COST	13
5.1	KEY DEFINITIONS IN THE DETERMINATION OF NET COST.....	13
5.2	OPERATING AND MAINTENANCE COSTS.....	13
5.3	FIXED COST.....	14
5.4	GRAIN TRAFFIC.....	14
5.5	CAPITALIZATION PERIOD FOR OPERATING AND MAINTENANCE COSTS	15
5.6	INFLATION	15
5.7	DEFERRED TAXES AND INVESTMENT TAX CREDITS.....	15
5.8	CAPITAL EXPENDITURES.....	15
6.	TIMELINE	16
7.	FEDERAL GRANT AND ALTERNATE COST SHARING.....	17
8.	CONCLUSION.....	18
9.	NEXT STEPS	19

1. Introduction

1.1 History of the White Rock Rail Line

A 1901 decision by B.C. Premier James Dunsmuir to construct a railway bridge across the Fraser River would have a profound affect on the Fraser Valley. That decision, which set in motion the possibility of new rail routing for the movement of goods to Vancouver, would quickly impact White Rock, then a remote community.

By that time, Great Northern Railway Company (hereafter GN and predecessor railway to BNSF Railway, part of Burlington Northern Santa Fe Corporation) had secured a third of all freight traffic from Vancouver. But the grade was low and the flood plains of the Nicomekl River and Sepentine River in Surrey impeded good rail use. To address the flood plain, GN had initially considered raising the roadbed.

But the new bridge meant that a rail line from Blaine and following the Semiahmoo Bay—a much shorter distance— made more sense. It became the ultimate route chosen by GN. The route required minimal grading to create a roadbed for the track because of the good seafront road left over from the international boundary survey of 1856-1861.

Like most communities, White Rock, initially welcomed the railway and the improved access to Vancouver it allowed. But opposition came early. Henry Thrift, a local landowner and former Reeve voiced concern that the railway would block access to the beach. And without level crossings, the railway would legally be able to fence its entire right-of-way through White Rock, thereby denying residents access to the beach.

In 1909, the first train passed through White Rock. GN's boxcars were loaded with freight but of a fairly innocuous kind: lumber, shingles, blocks of cedar, mail and oysters from the Crescent Oyster Company in nearby Crescent Beach.

Freight train service consisted of one freight train each way daily. Passenger trains consisted of 4-6 cars and special excursion trains from New Westminster to nearby Crescent Beach. Beachgoers flooded the area.

In light of the significant hazard with the new increased use of the beaches, a 1912 decision by the federal Board of Railway Commissioners ordered GN to construct a subway under its rail line at White Rock. This, it ruled, would provide safe access to the beach. Although the subway was built the following year under a cost sharing arrangement with White Rock, beach-goers still opted to climb over or under the railcars that the railway often left parked on the track.

1.2 Previous Relocation Proposals

Relocation of the rail line was occasionally suggested during the latter part of the 1950s. The first serious proposal to relocate the line came in 1961. “To divert the railway would be a bold move,” the report, *Land for Leisure*, commissioned by the Lower Mainland Regional Planning Board found “but not impossible.” B.C.’s recreational resources are “limited,” the report continued; “it is obvious what it would mean to the entire region if the Semiahmoo Reserve and nearby areas were not literally fenced off from the beaches as they are now.”

With no consideration on where the relocated track would lie, the Planning Board’s recommendation stalled. With each rail-related accidental death, however, demand for relocation of the rail line intensified.

Within five years of the Planning Board’s report, the province’s economic best interests would end up directly hurting White Rock. On September 2, 1966 Premier W.A.C. Bennett announced that a superport would be built on the mainland coastline at Roberts Bank. The superport was built to meet the surge in demand of coal from B.C.’s Kootenay region to Asian markets. Bennett endorsed GN rail relocation as part of the infrastructure upgrade to the superport.

The new superport meant White Rock would be facing enormous increases in rail traffic: multiple times every day 100-car coal trains would be trundling through White Rock, en route to Roberts Bank.

While competitor Canadian Pacific Railway’s routing to Robert’s Bank was problematic, GN had a plan for moving Kootenay coal to port. Working with a provincially chartered railway, Kootenay and Elk Valley Railway, (K&EV), GN proposed the construction of a line in B.C. Its western vice-president, Clark Eckart appeared before White Rock’s Chamber of Commerce in 1968 agreeing to participate in an engineering study on relocation.

Although White Rock’s City Council voted to support the relocation of the rail line away from the beach as part of allowing GN access to the new superport, the move was opposed by Surrey and Delta.

The matter, however, was of greater significance to White Rock. With deaths and injuries on the White Rock tracks then totaling twenty and nine significant mudslides, White Rock demanded action. During the summer of 1968 alone, three people were killed on the White Rock track within three weeks. Prime Minister Trudeau promised action. A flurry of proposals surfaced on how to deal with what was becoming an urgent safety issue. An off-shore rail line, fencing and underpasses were all examined.

By this time, GN had merged with several affiliates and had become Burlington Northern (BN) Inc.

B.C.'s Premier Bennett introduced legislation in 1969 authorizing the relocation to proceed. But relocation hung on a pending decision on the Kootenay & Elk Valley railway in the Supreme Court of Canada. That decision would determine whether a BN provincial railway could service the area.

In May, 1972, the Supreme Court of Canada ruled in favour of Kootenay and Elk Valley Railway and construction of the new line began. Newly installed B.C. Premier Barrett, however, refused to grant K&EV a right-of-way over Crown land with the practical result of the decision being that BN had no further interest in relocation.

Further events impacted safety in White Rock. In June, 1972, Congress granted special funding to Amtrak. Their faster and quieter trains have been linked to many of the fatalities on the tracks in the ensuing years. In 2007, Amtrak announced a second train. Although Amtrak's new presence resurrected the relocation issue, it was to little avail.

By 1996, BNSF Railway was created. Its parent company, Burlington Northern Santa Fe Corporation had purchased the Atchison, Topeka and Santa Fe Railway and BN Railroad. The railways were formally merged to create BNSF Railway in 1996.

U.S. coal is transported over BN lines through White Rock and Surrey's Crescent Beach to lower mainland terminals, Westshore Terminals (Roberts Bank) and Fraser Surrey Docks for shipment overseas. The coal transfer station at Fraser Surrey Docks will mean greater amounts of U.S. coal will rumble through White Rock.

Ten years ago, two freight trains a day passed over the line; today twenty trains travel the line. Every means to enhance safety—including whistling, tunnels, speed reduction, pedestrian warning signals and fencing—has failed. There have been twenty-eight deaths and injuries on the tracks and nine significant mudslides. The lumber and cedar shingle shipments of years past have been replaced with shipments of dangerous goods like chlorine, hydrochloric acid, sodium hydrochloric acid and liquefied natural gas.

As long as the line bisects the White Rock community, the safety issues will not dissipate. Rail relocation is needed.

1.3 Recent Events

On August 21, 2014, Port Metro Vancouver was granted approval for a coal transfer facility at the Fraser Surrey Docks. Going forward, the new Fraser Surrey Docks will have the capacity to take an anticipated four million tonnes per year of U.S. coal through White Rock and Surrey.

In April, 2014, Transport Canada announced new Ministerial orders pertaining to the transportation of dangerous goods: new orders require that trains transporting dangerous substances provide assurance of the capability of first responders along the routing. As

first responders may be unable to access the community, compliance with the new regulations in Surrey's Crescent Beach area will be problematic.

The number of deaths along the White Rock line, the inability of White Rock residents to safely and easily access the city's beach, the dangerous goods now transported on the line, the potential for Surrey's Crescent Beach to be cut off from first responders in the event of a derailment, the tenfold traffic increases and further increases anticipated with the new Fraser Surrey Docks combine to make a compelling case for relocation of the rail line.

2. The Railway Relocation and Crossing Act

2.1 The Railway Relocation and Crossing Act and its Alternative

The *Railway Relocation and Crossing Act*, R.S.C. 1985, c. R-4, was designed to provide municipal and provincial governments the authority to compel the relocation of rail lines and reroute rail traffic in urban areas.

When municipal and provincial authorities initiate this process, the Act cedes jurisdiction to the Canadian Transportation Agency (hereafter CTA). The CTA can order a railway company to move railway structures, build new facilities, stop operating on certain lines, build railway lines in a specified area and make connections for rapid transit or public transit systems and close railway crossings. With regard to cost, the Act stipulates that the federal government can share in as much as 50 per cent of expenditures associated with the relocation project. Further, the Act aims to protect rail companies impacted by relocation. It stipulates that railways should neither gain nor lose from the relocation of their rail lines.

But municipal and provincial authorities looking to relocate a rail line can pursue an alternate course. Rather than following the steps laid out in the *Railway Relocation and Crossing Act*, the concerned authority and correspondent rail company can issue a joint, formal agreement stating that the parties agree in principle to construct a new rail line. This would require an application under section 98 of the *Canada Transportation Act*, S.C. 1996, c. 10. But such arrangement carries two distinct disadvantages: it does not provide mechanisms that would call for federal funding, nor the weighing of costs to ensure the rail company in question is not harmed or advantaged by relocation.

Section 4(1) of the *Railway Relocation and Crossing Act* suggests a third alternative: parties can make an application under the Act without effecting a request for federal funding. By proceeding in such a way, the parties are still bound by the requirement that the rail company not be harmed or benefitted by relocation. Alternate cost sharing arrangements with a variety of partners can instead be pursued.

2.2 An Application under the Railway Relocation and Crossing Act

An application under the *Railway Relocation and Crossing Act* requires the provincial government and all municipalities within the urban area (as defined by Statistics Canada's last census) to agree on the content of an urban development plan and transportation plan concerning the affected area. These two plans, once approved, are referred to as the accepted plan and may then be filed with the Canadian Transportation Agency (hereafter CTA).

The “urban development plan” is a plan for the development and use of land within and adjacent to the area. It outlines land use for commerce, industry, government, recreation, transportation, hospital, schools, churches, residential and other uses.

The “transportation plan” outlines how transportation is to be controlled. It proposes the lay-out of streets, highways and bridges, railway lines, crossings (level and at grade), bus routes, rapid transit lines and stations for bus, rapid transit and rail.

There is no connection between the two plans and they need not be prepared simultaneously. Logically, the transportation plan will facilitate the land use planning objectives of the urban development plan.

Either the Province or a municipality may apply to the CTA for rail relocation.

If an application seeks federal funding, the federal government may authorize the payment of fifty per cent of the relocation costs. If use of federal programs is intended, the CTA must be satisfied that:

- The Minister of Transportation is satisfied that any Federal programs contemplated for the use of the urban development are available and “would contribute significantly to the improvement of any urban area within the transportation study area.” In the 1987 Regina rail yard relocation, approval was associated with a proposed urban development plan showing a CMHC funded senior citizen residence.
- The Governor-in-Council is prepared to allocate monies for the purposes of a grant. A letter from the Minister to that effect is required.

2.3 Merits of the Application and Changes to the Plan

After an application is made under the Act, the CTA must then proceed to consider the merits of the application. As the ultimate arbiter, it must closely study the applicant's transportation and financial plans

With regards to the financial plan, the CTA must be satisfied that the plan:

- does not impose on the affected railway company affected any costs and losses greater than benefits and payments received;
- does not confer on the affected railway company any benefits or payments greater than the costs and losses incurred by the railway company; and
- sets out the applicant’s opinion on the amounts that would likely be required for payment under the Act in order to put the transportation plan in effect.

The CTA must be satisfied that all relevant municipal by-laws and orders necessary to put the application in action have been modified or passed. The CTA must further be satisfied that the financial assistance outlined in the application will be available when required. If the CTA believes that the transportation plan is not being carried out in the time and manner prescribed, the Minister of Transport may withhold funding.

If any changes to either the financial or transportation plan are considered necessary by the CTA, those changes must have the agreement of the parties.

2.4 Relocation Grants

The CTA may recommend to the Minister of Transport that a relocation grant be paid toward the cost of implementing the transportation plan and urban development plan. The grant cannot exceed 50 per cent of the net cost of railway relocation.

3. Underpinnings of the Act

3.1 Capital Cost Estimates

The *Railway Relocation and Crossing Act* requires that, following relocation, the railway company in question be left in no better or worse financial shape. If the new rail line incorporates benefits exceeding functional equivalence, a “betterment” is said to have been conferred on a railway company. In deciding compensation, that betterment must be taken into account.

The Act’s requirement that the new rail line retain the same “functional equivalence” requires the replacement of an existing rail line at the same level of operating efficiency as the existing rail line; that is, the new line must achieve the same degree of operational efficiency.

Going forward, the city of White Rock must develop two capital cost estimates:

1. an exact duplication of existing rail line at a new location, and

2. the cost to construct a rail line that would perform to similar standards at a new location. (This line must be constructed using present day design and construction standards.) The cost of any additional infrastructure demands requested by the railway will be borne by the railway. The city will report findings to the technical committee.

To prepare cost estimates, the City of White Rock will need to determine the meaning of “functional equivalence” or “betterment.” Insight can be gained by reference to the Regina rail yard relocation.

3.2 Functional Equivalence and Betterments

Concern over “functional equivalence” and “betterment” were raised in the case of the 1987 Regina rail yard relocation involving CN (Phase 1) and CP (Phase 2). The following three examples drawn from that relocation serve to illustrate the type of disputes that may arise over track upgrades made to the proposed new line and how the CTA may be expected to rule in the case.

In the case of Regina’s 100-year-old rail line, the Canadian Transport Commission (predecessor agency to the CTA) ruled that design and construction standards had changed significantly since the construction of the various lines to the city’s core between 1887 and 1907. The Commission concluded that today’s standards must be used when installing track subgrade on a relocated rail line.

Although the wider subgrades installed along the new CN line outside Regina may have “bettered” the relocated track, it was not reasonable to ask the railway to offset costs for earthwork removal and subgrade construction. Simply, the new line had to be built to today’s standards.

The Commission did, however, ask the railway to offset some of the costs associated with the heavier rail track installed in the new location. The century-old track had been constructed with the lighter, less durable material. The Commission found that the new line had been significantly “bettered” because of the new more durable construction material. Therefore CN was asked to help defray some of the costs associated with it.

With regards to sizing, CN testified that it required a smaller yard than had been built in Regina at the turn of the century. It was a yard, the Commission found, that having been built during an earlier period of railway operations, did “not reflect modern efficiencies.” The Commission agreed to a smaller yard. It deemed the new yard “functionally equivalent,” even though it was significantly smaller than the original yard.

In its 2002 report on rail relocation (better described in 4-2 herein), Delcan recommended alternative A-2, a shared road and rail alignment corridor along the majority of its length. The recommendation was based on A-2’s ability to tie into the east-west corridor, its “lower construction cost (\$133M)” and reduced “environmental and geotechnical

impacts.” The City’s capital cost estimate will assess alternative A-2 as to whether it provides a functionally equivalent model.

3.3 Additions

If the proposed relocation requires the construction of any new structures or facilities (a new Amtrak rail station, for example), BNSF will be required to offset costs associated with its construction. Those costs will be included in the financial plan prepared by the City of White Rock.

4. Issues in a Rail Line Relocation

4.1 Property Issues

Two types of property issues will be considered by the CTA:

1. The so-called “real property”, that is, any land that will need to be vacated for BN’s potential new rail line outside White Rock, and
2. any other salvageable assets taken from the current line, including but not limited to, rail and ties. Because of their salvageable value, fixtures like these will need to be tabulated when establishing costs.

The value of the vacated land is tabulated by assuming the highest and best use of the land. This amount will then be treated as a credit to the overall project costs. (This assumes that BN will continue to own the land after relocation.) Relocation costs include the cost of acquiring new land.

The manner in which the land is transferred has income tax considerations. These are dealt with at 4.8 of this report. The parties will want to ensure that all relevant tax considerations are pursued.

Property issues arising from Vancouver’s so-called “Arbutus Corridor,” serve to highlight the type of property disputes that might arise in White Rock post relocation. CP owns the Arbutus Corridor, an eleven kilometre track of disused rail line on Vancouver’s west side. The City of Vancouver and CP are currently engaged in talks over the land’s value in light of the City’s court-approved plan to develop the land.

4.2 Design and Construction Issues

In 2002, Delcan, the B.C. engineering firm, was tasked with furthering a 1997 Stantec Consulting study. Stantec had earlier examined a north-south road connector. To complete the infrastructure analysis, Delcan examined the feasibility of tying into a relocated BNSF rail line.

Delcan identified study constraints as primarily topographic. This was due to a large bluff mid way through the study area. The bluff, the report concluded, presented an “ominous challenge.” Other challenges included a preliminary finding of possible geotechnical issues due to the bluff and lower flood plains. Land use for possible relocated rail lines would be in the Agricultural Land Reserve. This provided some limitations balanced by the fact that the study area allowed for densities not likely to change. With fish habitat located on the Nicomekl and Campbell Rivers, the environmental constraints focused on fish sensitivity to disruption during new construction.

The Delcan report also looked to options, ultimately recommending a shared road and rail alignment connector (A-2) due to its lower construction cost (at \$133 million) and its reduced impact on the road network. Delcan also endorsed the A-2 option concluding that the environmental and geotechnical impacts are lesser with this alternative than the other three alternatives.

4.3 Capital Cost of Construction Issues

Generally speaking, civil engineering cost estimates depend on the quality of inputs. That is, detailed specifications, scheduling methods, labour, contractual resource analysis and construction methods will all have to be known in advance. Good estimators will be knowledgeable in scheduling methods, labour issues, contractual resource analysis and construction methods. Poor estimates and cost over-runs are caused by ineffective management. To avoid this, the project in White Rock will require effective management.

4.3.1 Inflation and escalation

Inflation causes labour rates and material prices to increase. Little can be done to control inflation. It will require an adjustment to original estimates.

Escalation, on the other hand, originates from:

- Inaccuracies in the original estimates;
- Incomplete design or changes in design, productivity or scheduling;
- Increases in project overhead;
- Unexpected owner involvement;
- Increased government regulation;
- The inability to acquire the appropriate personnel (or the inability of that personnel to adjust to the job.)

4.3.2 Types of estimates and contingency allowances

Estimates of capital construction fall into three categories.

Conceptual comparative cost estimates: Conceptual designs are prepared with a minimum of design input. To produce the most realistic probable total project cost, these types of cost estimates require a 20-25 per cent contingency allowance.

Budget estimates: Budget estimates are prepared from preliminary designs and are used to obtain the most realistic forecast of project cost possible. They provide a more accurate measure than conceptual design. These require a contingency allowance in the range of 15-20 per cent.

Engineer's estimates: Detailed engineering estimates are generally prepared after final design has been released and immediately prior to the contractor tendering process. Even though these types of estimates have been prepared with finalized design specifications, they attract a contingency allowance of between five and ten per cent to provide room for last minute design changes, extra work orders and contractual claims that generally occur between contract award and project completion.

At the conclusion of the CTA hearing into Regina's rail yard relocation, the City of Regina's technical sub-committee filed a package with the CTA outlining the differences in estimates. The main difference originated with CP's request for a series of upgrades: a separate track (Regina had proposed that CP operate the new line jointly with another rail company), a full size yard and additional turnouts and signals on the new line.

In the end, the City technical committee decided that a 15 per cent contingency allowance on construction costs was appropriate.

4.3.3 Project management

In the case of Regina's rail relocation, the City acted as overall project manager. The Commission made clear its preference for city-run project coordination. Cities, of course, have a long history of cooperating with industry and multiple levels of government. The Commission noted that CN's concerns over the proper construction of the Regina rail facilities were alleviated by allowing the rail company to appoint its own construction managers.

The Commission's recommendations had been adopted by Regina in their entirety. It suggested the city put together a project management team headed by a city manager; this project manager—tasked with the project's overall coordination—was an engineer experienced in managing major civil engineering projects. The team also included two construction managers—one for each of the two railways involved in the relocation. The two railways in question were allowed to choose their respective construction managers.

The Commission suggested the creation of a design team; its role would be significantly reduced once the project was underway (restricted to dealing with last-minute design changes.)

After Regina's rail relocation, the Commission suggested that a senior engineering review board should have been created to approve the project's preliminary designs, step by step. The Commission suggested the design team should be "a four person board" comprised of "senior professional engineers with significant direct design and construction experience; one from each railway, one from the city and the Director of Engineering, Western Division who would be chairman." It would approve final design drawings, project specifications, cost dispute control mechanisms and the awarding of construction contracts; it would also be the final arbiter on disputes relating to design and construction.

Regina's project management model is provided here as one example White Rock might follow in going forward. Some U.S. relocations might also be studied when considering the creation of an appropriate management structure. The construction of the 70 kilometre Roberts Bank rail corridor connecting Deltaport Terminal at Roberts Bank in Delta B.C. with Surrey is another relevant case study. In that case, TransLink, Metro Vancouver's rail network, acted as program director and administrative lead.

4.4 Environmental Issues

In the case of Regina's relocation, an enormous amount of time was spent addressing environmental issues because one of the rail partners insisted in constructing one section of the new rail line itself. Federal environmental law was also applied to the project (In Canada, the rail industry is regulated by federal authorities). This meant that both provincial and federal authorities conducted separate environmental assessments.

But a 2012 change to the *Canadian Environment Assessment Act* aiming to streamline the review process for major projects would simplify the process in the case of rail relocation in White Rock. The new legislation is aimed at making the environmental review process more predictable and timely and to avoid the sort of duplication between the provincial and federal environmental assessments that slowed the process in Regina.

New regulations grant federal agencies the authority to recognize provincial environmental assessments. This authority is granted when the project is not expected to cause adverse environmental effects or public concern. In light of these regulatory changes, the environmental review process should proceed far more quickly and smoothly than in Regina.

The 2002 Delcan report identified fish habitat sensitivity (in the Nicomekl and Campbell Rivers) as pertinent in an environmental review preceding rail relocation in White Rock.

4.5 Urban Issues

The relocation of the BNSF line near White Rock will primarily benefit the communities of White Rock and Surrey's Crescent Beach area. Relocating the line away from two of British Columbia's most popular beaches will sharply reduce the potential for accidents and fatalities (28 people have been killed or injured while crossing the tracks at White Rock). Further, the proposed relocation would reduce the risk of potential exposure to dangerous commodities for area residents and would dramatically reduce noise, vibration and exposure to pollutants in affected communities.

The track at Crescent Beach raises significant safety concerns of its own. The rail line, which runs along the waterfront at White Rock, veers inland at Crescent Beach. Because of this, the community could become inaccessible to first responders in case of a spill or derailment. Last April, the Transport Minister issued new safety orders under the authority of section 19 of the *Railway Safety Act* relating to the transportation of dangerous goods. They require that train operators file assessments and periodic updates on certain safety factors, including the capability of emergency responders at the communities along the train's routing. Unless the line is relocated at Crescent Beach, this unsafe situation could create serious regulatory problems for BNSF, going forward.

Finally, there is the question of the so-called "buffer zones," or building setbacks for residential development in proximity to railway operations, including sound barriers.

From the vantage of the residents near the relocated land, the question of a buffer zone is important. In May, 2013, Canadian Federation of Municipalities and the Railway Association of Canada jointly recommended a standard setback of 30 metres for all main rail line in Canada.

Although Ontario is the only jurisdiction regulates rail setbacks in new residential construction, the new BNSF setback should conform to the standard of 30 metres. To ensure best practices and compliance with federal laws prohibiting railway noise and vibration, further mitigation measures should be investigated

4.6 Aboriginal Issues

If the relocated BNSF line encroaches on First Nations property, an examination of issues surrounding title to aboriginal land must be pursued. The current track runs through the Semiahmoo First Nation; but a new line may be relocated away from the Semiahmoo land. If it does not, an exhaustive examination of the issue will be required. Considering recent legal changes since the 1997 Supreme Court decision in *Delgamuukw*, any activity on aboriginal land requires consent from the relevant parties.

5. The Calculation of Net Cost

5.1 Key Definitions in the Determination of Net Cost

To determine the net costs of the proposed rail relocation, it is crucial to understand the following five concepts.

1. Cost of new railway facilities: The word “facilities” has a wide meaning and describes the physical project including trackage and ancillary structures. It does not include land cost and any grade separations associated with the new rail line.
2. Current value of existing maintenance or operating costs of facilities: The CTA will assess the current capitalized value of any rail maintenance or operating costs over a 15 year period and at an interest rate determined by the CTA as appropriate, after consultation with the Minister of Transportation and the Minister of Finance.
3. Current value of new maintenance and operating costs of the facilities: This is the current capitalized value of any rail maintenance or operating costs as determined by the CTA over a 15 year period at an interest rate established by the CTA upon consultation. This would include the use of existing facilities still used until during a part of the 15 year period.
4. Decrease in value in relevant land: This is the decrease in value of the land owned by the railway company that will result from the carrying out of orders.
5. Increase in value of relevant land: The increase in land value as a result of carrying out the orders.

5.2 Operating and Maintenance Costs

The City of White Rock will need to assess BNSF’s potential operating and maintenance costs for the next fifteen years, This will be done to ensure the railway would neither gain nor be harmed by relocation. The CTA maintains the records necessary to make such an assessment; but access to this information is limited due to its commercially sensitive nature. This costing will form part of the initial financial plan; this plan will be routinely updated, as costing becomes more accurate and detailed through interrogatories and cross-examination with BNSF at CTA hearings.

In the case of Regina, the City examined CN and CP’s operating and maintenance costs over one year. This was known as the base year with future traffic estimates over the statutory fifteen year period based on it. These estimates were adjusted to inflation. Because the Regina relocation added 6.4 kilometres to the rail route, the City, in analyzing maintenance and operating costs, required an adjustment to the railway’s asset

needs, adding equipment assets like cars, locomotives and signaling to its costing where necessary. (Market value at acquisition and not book value was used to determine prices for these assets.) In short, the City was required to show that at the end of 15 years, there would be no reduction in capacity due to the extra distance associated with the relocation.

But White Rock is very different. In Regina, rail yards were moved from the City's core to an area outside the city; this added to the time and distance rail companies were required to travel and ultimately increased operating and maintenance costs and project cost in Regina. The BNSF route proposed by the engineering firm Delcan would, by contrast, reduce the distance as the new line would take a more direct route through Surrey. This will serve to decrease operating and maintenance costs (and therefore, the overall project costs). The benefit attributable to the reduced distance would be appropriately assigned.

5.3 Fixed Cost

Variable costs are those costs, such as fuel, that vary with the volume of traffic. Variable costs comprise about 80 per cent of total railway costs. Costs that do not vary with output are termed fixed costs.

In the Regina relocation, the railways took the position that a portion of roadway maintenance costs were fixed and that it was entitled to compensation with respect to those costs. As regression analysis provided for unit costs on a number of items including on a "per equivalent mile of road operated basis", the greater distance, they claimed, resulted in additional fixed costs.

For detailed reasons, the Commission agreed with the rail position, concluding that fixed costs, capitalized over a fifteen year period, would be allowed and included in a determination of the net costs of railway relocation.

The relocation here, with reduced mileage, would attract a similar analysis.

5.4 Grain Traffic

Grain is a regulated commodity unlike other commodities whose prices are commercially set. Grain pricing is governed by section 147 and following of the *Canada Transportation Act* with section 150 outlining the calculation of the maximum grain revenue entitlement.

When the Commission determined operating and maintenance costs in Regina, grain was examined separately (and costed differently) from other commodities. If rail relocation proceeds in White Rock, grain will again have to be examined and costed separately from other commodities.

5.5 Capitalization Period for Operating and Maintenance Costs

Whether productivity gains on operating and maintenance costs should be capitalized over fifteen years was reviewed in the Regina relocation. To maintain estimates of cash flows, the city tabulated costs to be capitalized over that fifteen year time frame. The railways argued for a capitalization period to perpetuity. The Commission dismissed the rail argument concluding that productivity improvements over a period longer than the statutory fifteen years would be increasingly difficult to forecast and that the fifteen year period conformed to “a reasonable time to complete relocation projects, to observe and adjust to change and the cost of change.”

5.6 Inflation

The views of leading forecasters would be sought. In Regina, the inflation rate of 4.5 per cent was based on a document: *The Central Consensus*, published by the Central Trust Co and incorporating the views of leading economic forecasters. Also under consideration would be whether after tax real cash flows should exclude inflation for forecasts of future revenue.

5.7 Deferred Taxes and Investment Tax Credits

The question involves the appropriate discount rate to be used in calculating the present value of operating and maintenance impacts. To the railways, relocation is the substitution of one part of a railway network, financed through a mixture of debt, equity, deferred taxes and investment tax credits with another part of the railway with the same characteristics. As such, they argue, the no loss/no gain test requires a discount rate that reflects that financing mix. The city position that a lump sum payment will not cause an incremental generation of deferred taxes or investment credits was viewed as the correct approach in the Regina relocation.

5.8 Capital Expenditures

If relocation proceeds, the City of White Rock will have to decide whether to obtain title to BNSF’s waterfront property. The railway will have to weigh such a transfer against any potential tax penalties it might consequently incur.

In the Regina case, CP Rail was concerned about proceeding by way of land exchange (the disused rail yard and the new rail yard outside the city); this was done because the rail company feared being hit with adverse tax consequences on the properties and the additions with transfer.

The Canadian Transportation Commission noted, however, that CP's concerns over potential tax penalties could have been alleviated by asking Revenue Canada to issue a preliminary ruling on the tax question. In White Rock, the city and its rail partner could seek a preliminary ruling from revenue Canada on the issue of potential tax consequences resulting from the transfer of land to BNSF.

6. Timeline

The Regina rail yard relocation was a significant project, which incorporated 102,000 linear feet of new track and buildings with a total floor area of 73,866 square feet.

Five years of planning preceded the Commission's hearings on the project. (Significant delays were caused by lengthy environmental assessments and court challenges stemming from the railways' strong opposition to the project.) A timeline highlighting significant steps in Regina's relocation process is listed below:

- September 2, 1982: The project's first meeting was held in Winnipeg, MB. Representatives from the City of Regina, the Province of Saskatchewan, CP, CN, ViaRail and the Canada Transport Commission (now the CTA) were present. Following the meeting, a technical committee was established and was chaired by a senior engineer of the Commission.
- 1982 and 1983: Technical meetings were held.
- March 30, 1984: The City of Regina filed its Phase 1 relocation application. This phase dealt with the relocation of the CN yard. Phase 2 would deal with CP yards and associated rail subdivisions to an area outside the city. The Phase I application contained the detailed plans, the application itself, and a letter from Saskatchewan's Minister of Urban Affairs outlining the province of Saskatchewan's agreement to the relocation. Two Saskatchewan communities were involved: the City of Regina and the R.M. of Sherwood, which surrounds Regina. The application package included relevant city by-laws from Regina and the R.M. of Sherwood.
- May 17, 1984: The Governor-in-Council authorized the allocation of monies to cover the anticipated 50 per cent cost of relocation.
- June 1, 1984: The Commission received a letter from Canada's Minister of Transportation agreeing that: (1) the project would significantly improve Regina's urban core, and (2) federal programs could be used to defray cost.
- September 12, 1984: The railways indicated their intention to file a motion to strike the application to relocate the rail yard. A pre-hearing conference was held to form a second pre-hearing technical committee to attempt further resolution of outstanding issues.

- Summer, 1985: The Report of the Technical Committee was filed with the Commission. The parties had agreed to a segmentation of the issues.
- July 21, 1986: The rail companies' motion to strike the application was ultimately defeated in the Supreme Court of Canada. The relocation of the Regina yards was allowed to proceed.
- July, 1985: A Notice of Application was filed in two Saskatchewan newspapers advertising the relocation application and soliciting public comment.
- November 3, 1986: Hearings before the Commission begin.
- May, 1987: Hearings are completed (The Commission sat for 52 days).
- August 10, 1987: A decision regarding the implementation of the project issued by the Commission and with it, a grant totaling 50 per cent of the project's net cost.

7. Federal Grant and Alternate Cost Sharing

The financial plan filed with the CTA will outline all costing and will include the financial, operating and maintenance costs and capital cost of the project. It cannot impose on the railway company any costs or losses greater than the benefits received by the railway company under the accepted plan. Nor can it confer a benefit or payment to a railway company greater than the costs and losses incurred.

The parties are bound by the Act's requirements that the railway be left in no better and no worse off condition. If there is a net loss to the applicant City of White Rock for relocation and if a relocation grant has not been allocated, other cost sharing arrangements could be negotiated between the parties.

In this manner, an analogy could be drawn from the April 2010 Roberts Bank rail corridor cost sharing in Surrey. That infrastructure project involved overpasses designed to improve rail access to Roberts Bank.

As in the case of the proposed rail relocation from White Rock, the Roberts Bank rail corridor infrastructure project anticipated that the province of British Columbia, the federal government, Port Metro Vancouver and Surrey would all see benefits from the overpass construction.

Although costs for the Roberts Bank rail corridor program were shared by eight funding partners, Transport Canada and Port Metro Vancouver jointly funded approximately 50 per cent of the project's cost.

The Roberts Bank rail corridor is one example of cost sharing and allows insight into a funding arrangement in circumstances where Parliament has not set aside a 50 per cent contribution to the net cost of relocation.

Any request for a federal grant or alternate cost sharing arrangement would be contingent to a finding of net loss to the applicant.

8. Conclusion

Changes to rail infrastructure in and around White Rock have left the municipality at a great disadvantage. Following the 1904 construction of the New Westminster Bridge connecting New Westminster with Surrey, the Great Northern rail line was moved; the new GN line ran directly through the heart of White Rock. This caused immediate safety problems as the trains cut off access to White Rock's popular beach.

At the time, however, until the mid-1960s, freight service on the GN line was moderate and the freight shipped benign. Today, dangerous substances move daily through White Rock and Surrey's Crescent Beach.

Initially the Bennett government planned to relocate the GN line recognizing that the massive spike in rail traffic would negatively impact the safety and quality of life for those communities. But the bill initiating the move never advanced.

In 1972, rail traffic jumped with a 1972 congressional decision allowing Amtrak to begin service along the line. Amtrak's trains, which are faster and quieter than freight trains, have been responsible for the majority of line fatalities. In 2009, a second Amtrak train began servicing the route.

Last month, in October, the Port Metro Vancouver announced the construction of a \$15-million coal transfer station at the Fraser Surrey Docks along the banks of the Fraser River in Surrey.

Twenty-eight people have been killed or injured attempting to cross the Burlington Northern Santa Fe (formerly GN) rail line at White Rock. Traffic is expected to jump again with the construction of the new coal transfer station at the Fraser Surrey Docks. Relocating the BNSF line away from White Rock and Surrey would immediately address safety concerns by redirecting increasing traffic away from the community. This would also redress the B.C. government's failure to act on its 1969 commitment to move the line.

9. Next Steps

Moving forward, it is proposed that the following measures proceed:

- Obtain the agreement in principle of all relevant parties, that is, the cities of White Rock and Surrey, B.C. and the province of British Columbia;
- In collaboration with those parties, pursue urban development and transportation plans as the Act requires;
- Explore funding options as described in section 3(3) of the *Railway Relocation and Crossing Act*;
- Review by the City of White Rock city regarding any potential by-law changes relating to the proposed relocation;
- Develop a list of certain key parties including BNSF, Amtrak, port authorities, a representative of the Canadian Transportation Agency, and relevant U.S. regional authorities, including: the City of Blaine, WA, Whatcom County, WA, Washington and the Washington Department of Transport;
- Schedule a partners' meeting to develop a shared view of the project and to co-operate on research and best practices; and
- At this meeting of parties, establish committees, including a technical committee to assist in the formulation, assessment and resolution of any technical issues presented by the project. It is proposed that the committee be chaired by a representative of the CTA.

DATED at Vancouver, British Columbia this 15th day of October, 2014.