



## CITY OF VANCOUVER

### ADMINISTRATIVE REPORT

Date: September 1, 2005  
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Meeting Date: September 20, 2005

TO: Standing Committee on Transportation and Traffic

FROM: General Manager of Engineering Services in consultation with the Director of Current Planning

SUBJECT: False Creek Flats - Strategic Rail Overview and Detailed Operation Study

### RECOMMENDATION

- A. THAT Council receive the Lower Mainland Rail Infrastructure Study for information.
- B. THAT Council request the Vancouver Port Authority, Gateway Council, and Railways to begin as soon as possible a more detailed rail operation and network study of the False Creek Flats and Waterfront rail support yards, and that staff work with the Port, Gateway Council, and Railways to complete this study in a timely way.
- C. THAT Council advise staff that the Phase 2 land use and transportation planning for False Creek Flats should take into account the range of possible future rail "footprints" as described in this report.

### CITY MANAGER'S COMMENTS

The City Manager recommends approval of Recommendations A through C.

### COUNCIL POLICY

In 1995, Council approved the Industrial Lands Strategy, which included False Creek Flats as an area to be retained for mainly city-serving industry, transport, and service uses.

In 1996, Council adopted the False Creek Flats Preliminary Concept Plan which identified locations for high-technology industry and commercial uses while preserving the majority of the Flats for city serving and transportation uses.

In 2001, Council approved, in principle, the False Creek Flats Structure Plan and called for Transportation and Rail studies for the Flats to be undertaken.

In 2003, Council approved the City's participation and cost-sharing of a regional rail transportation study, including the False Creek Flats, and approved a terms of reference for a transportation study of the False Creek Flats with a report back on funding.

In 2004, Council approved starting in 2005 a work program, staffing, and budget, to undertake land use and transportation planning for the False Creek Flats, and asked staff to report back on a detailed long range visioning (Phase 2) after completing scoping (Phase 1).

## **PURPOSE AND SUMMARY**

The purpose of this report is to present the findings of the Lower Mainland Rail Infrastructure Study; to recommend that Council request the Port, Gateway Council, and railways to expedite a more detailed rail operation and network study for the False Creek Flats and Waterfront rail support yards; and to describe how Phase 2 (visioning) of the False Creek Flats planning will handle the uncertainty regarding the future rail footprint.

This report outlines the findings of the recent Lower Mainland Rail Infrastructure Study (LMRIS) for Council's information (Recommendation A). In summary, the Port is expecting significant growth in freight rail in the next 15 - 20 years. Passenger rail companies VIA, Amtrak, and Rocky Mountaineer are all considering expansion.

This growth will place significant additional demands on the rail yards used by CN, CP, and BNSF on the Burrard Inlet Waterfront and in the False Creek Flats. Both infrastructure (i.e. rail track) improvements and more coordination of operations among the rail companies are needed to meet this growth, rather than see it shift to truck, which is less sustainable.

While the LMRIS is an important strategic overview, there is a pressing need for the relevant parties to undertake a detailed rail network and operational study for the Waterfront and Flats rail facilities and Recommendation B is for Council to urge them to do so.

In the meantime, staff are soon to complete Phase 1 of the False Creek Flats land use and transportation planning. Phase 1 is a "scoping" phase involving all the interested parties, aimed at formulating a detailed terms of reference for Phase 2, the long term planning for the Flats.

While we now know that rail will not be disappearing from the Flats, the rail footprint may stay the same, increase, or decrease in various ways. Phase 2 will need to acknowledge a range of future scenarios for the rail footprint in the Flats (Recommendation C).

## BACKGROUND

In 2001, when Council approved, in principle, the False Creek Flats Structure Plan, it recognized that a broad transportation study for the Flats had never been done. To understand the overall implications of the increased transportation demand for both people and goods movement, it approved undertaking the following False Creek Flats transportation studies:

- A transportation planning study on the broad implications of the land uses and associated transportation impacts on the proposed structure plan
- A passenger and freight rail transportation study on the current and future rail needs including goods movement implications for the City and the Port

It was decided that most of the transportation planning component should be incorporated into the broader Flats planning program. However, with regard to freight and passenger rail transportation, the City was able to participate with other agencies and rail companies in the Lower Mainland Rail Infrastructure Study (LMRIS).

The LMRIS was completed earlier this year. It was a strategic overview of the regional rail corridors that provides rail demand forecasts as well as recommendations for major infrastructure improvements. The findings as they pertain to the Flats and Waterfront rail facilities are summarised below.

Approximately one third of the 308 acres of land in the Flats is dedicated to rail activities, primarily to serve the Port of Vancouver and passenger rail services (please see [Appendix A](#)). The scoping work (Phase 1) for False Creek Flats planning is almost complete, and terms of reference for Phase 2 will be reported to Council shortly. The approach that will be taken to handling uncertainty regarding the alternative futures for rail in the Flats is described in later sections of this report.

### 1. Underlying Reasons for Anticipated Growth of Rail

The market for Vancouver ports has recently experienced significant volume growth and has been recording annual growth rates in excess of 6% in recent years. It is forecast that rapid growth in rail will continue over the next 15 years. The largest area of growth will be in the container sector, with a projected annual growth rate of 6.5% between 2004 and 2020. Consensus by all stakeholders - ocean carriers, port facility operators, and railways - appears to be for sustained rail growth over the next 15 years.

The strong growth in Pacific Rim trade and Vancouver's handling of the resulting goods movement traffic will require significant railway infrastructure investments as well as improvements through improved coordination and integrated operational changes. At a recent rail logistics and capacity forum in Vancouver, Fred Green, Vice-President, Canadian Pacific Railway, summarized the rail growth message as follows:

*"As we look forward, the situation facing railways is very different than that of more than 20 years ago. Then, railways were feeling the full effects of an industry that had been stagnating, and was undergoing reductions in all aspects of their business. Growth was not part of the vocabulary. Today, railways are experiencing unprecedented growth in traffic across the full range of products.*

*The events affecting global logistics such as China's entry into the WTO are coming at a time when rail infrastructure is reaching operating capacity in many corridors."*

The operators of the Port's such as Centerm and Vanterm container terminals are already expanding their terminals to serve the projected increase in rail traffic. Their combined capacity for containers will increase from 800,000 to 1.3 million TEUs per annum (TEU: twenty foot equivalent unit - a measure of container traffic based on the physical length of a container). The increase in container traffic alone from the current expansions of these two terminals will create additional rail movements and an even higher utilization of the False Creek Flats and Waterfront rail support yards.

The current mode split of containers moved to/from the Port of Vancouver is 60% by rail and 40% by truck. With rail being twelve times more efficient than trucks in terms of fuel consumption, accommodating growth in the movement of goods and passengers by rail will be important to further the vision of a more sustainable city.

It is important to note that the idea of rail growth is a much different future than anticipated in our previous planning of the Central Waterfront ODP (1979), Central Waterfront Port Lands Policy Statement (1994) and the False Creek Flats. As recently as five years ago rail was being described as 'in decline', and the 2001 False Creek Flats Structure Plan reflected a long range scenario where all of its freight rail storage tracks were closed. However, the anticipated sustained growth for rail now suggests that a 'without rail' scenario in the Flats is no longer applicable, even in the long term.

## **2. Lower Mainland Rail Infrastructure Study**

### **a. Study Scope and City Role**

Rather than the City undertaking its own rail study of the Flats, the City jointly participated in the Lower Mainland Rail Infrastructure Study in partnership with the Greater Vancouver Gateway Council (GVGC), Transport Canada, TransLink, the Port, and the railways. While the study focus was on a strategic analysis of the region's rail corridors, its findings are useful for informing the land use and transportation planning of the Flats and Waterfront. The study provided the following information:

- A general assessment of how the current rail system in Vancouver is being used
- Current and projected demand for both passenger rail and freight train traffic
- Key operational or infrastructure constraints of the existing rail network
- Recommended solutions on how to accommodate the projected demand in rail traffic

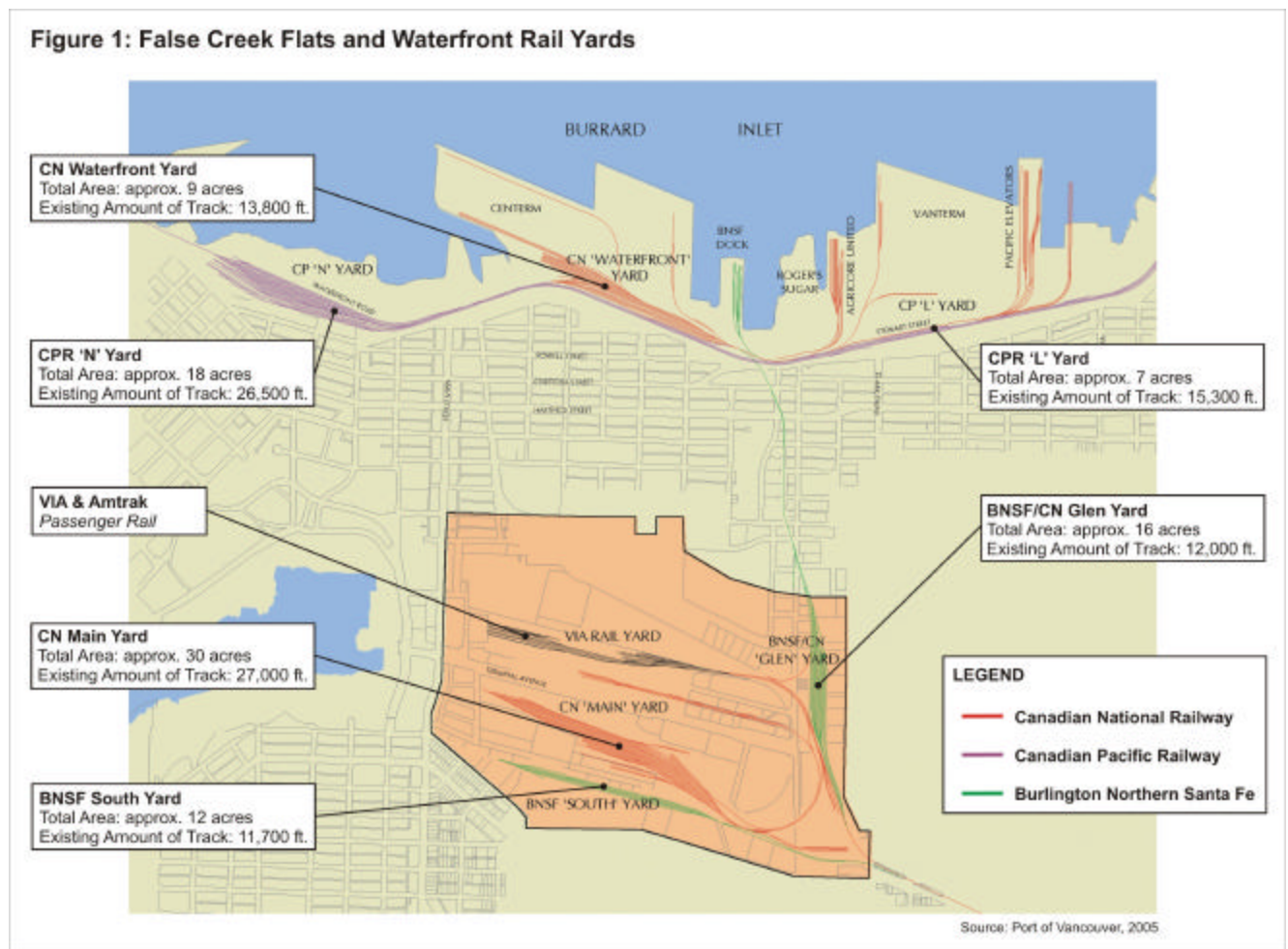
### **b. Rail in the Flats and Waterfront Today**

The regional rail network in Vancouver is served by three freight railways. Canadian National (CN) and Canadian Pacific Railway (CP) move the majority of the goods into and out of the Port of Vancouver, with Burlington Northern Santa Fe (BNSF) playing a smaller role. The main generators of rail traffic at the Port are the container terminals and the three grain terminals.

The length of trans-continental trains has increased over the years and it is now common for 15,000-foot trains to arrive/depart the Lower Mainland. These trains are too long to be delivered directly to terminal operators, as the rail support yards do not have sufficient track length to accommodate them. Incoming trains are disassembled in the suburban yards to more manageable sizes (5,000 ft), rearranged and sorted for delivery to coincide with incoming ships at the Port. The reverse happens for outbound trains.

CP accesses the Port from their suburban yard (Coquitlam) along the south shore of Burrard Inlet and the Waterfront. CN accesses the Port from their suburban yard (Surrey) via the New Westminster rail bridge (NWRB), through the Grandview Cut and the Flats. The line that connects the Flats to the Waterfront is owned by BNSF and CN has running rights on this line.

CP, CN, and BNSF rely on support yards to marshal, switch and store cars prior to delivering the rail cars to the terminals. The yards on the waterfront and in the Flats are functionally linked, and referred to in the LMRIS as "Burrard Inlet". As shown in Figure 1, in the Waterfront, CP has two support yards, CN has one; in the Flats area, BNSF owns and uses one yard, while CN owns one yard and uses another it leases from BNSF. Each support yard is unique in size and function.



Along the Waterfront, CP uses its "N" yard for multiple purposes including Centerm container traffic and uses its "L" yard for grain trains and Vanterm container rail cars. CN uses its Waterfront yard for short term storage to serve nearby terminals, Centerm in particular.

Within the Flats, CN uses its Main Yard to store container rail cars destined for export. The yard is also used to hold box cars and liquid bulk rail cars. The Glen Yard is primarily used by CN to store 100-car grain trains that are assembled/disassembled for delivery and used to store container rail cars when Main Yard is at capacity. South Yard is used by BNSF to store rail cars for customers located on Industrial Avenue and rail cars that are barged from BNSF's dock on the Waterfront to various destinations along the coast.

Passenger rail services includes Amtrak and VIA trains in the Flats which use the VIA rail yard and Pacific Central Station. Rocky Mountaineer has recently relocated its operation in the Flats to CN's Main Yard, including its own rail station. West Coast Express (WCE) commuter trains use CP tracks along the south shore of Burrard Inlet to access Waterfront Station.

### **c. Rail in the Flats and Waterfront Tomorrow**

A summary of the trainload forecasts for existing and future years is provided in [Appendix B](#). The combined impact of increases for all commodities shows that freight rail traffic will likely double by 2021. Terminal nodes such as "Burrard Inlet", which includes the Waterfront and Flats yards, are expected to see the highest future growth in freight rail movements. Weekly train movements to the Burrard Inlet will increase 100% over the next 20 years. With respect to passenger rail movement, the current 26 passenger trains per week into the Flats could increase to as much as 70 per week.

To enable termination of more trains closer to the terminals in Burrard Inlet, 4 new receiving tracks of 7,000 feet may need to be installed by 2021. Developing new support tracks within the existing footprint of the Waterfront area requires obtaining agreement among several landowners. Therefore, some of the new support tracks may need to be developed in the Flats. If the New Westminster Rail Bridge (NWRB) is replaced and its capacity is increased, the CN/BNSF corridor via the Flats to the Port could become more attractive.

While the replacement of the NWRB remains the critical capacity link in the existing CN and BNSF rail network, one of the key operational constraints is the track connecting the Waterfront and Flats rail yards. The track currently crosses underneath Hastings Street but crosses at-grade at five other streets. Access is currently limited to 20-car trains to minimize the length of time vehicle traffic has to wait while the train passes through the at-grade crossings. The rail study recommends that this section be double tracked as there is room within the current rail right-of-way to build a track adjacent to the existing one. Modifications to the at-grade crossings as well as road/rail grade separation at Powell Street are also recommended.

Coordinated rail operations have already proven to be successful in several locations in the Lower Mainland (see [Appendix C](#)). Coordinated rail operations involve the railways sharing, in a coordinated manner using commercial agreements, the available rail capacity. Co-production initiatives in the Fraser Canyon recently announced by CN and CPR represent an example of coordinated rail operations. The benefits of achieving more efficient cooperation throughout the network are substantial compared to status quo operations.

However, while more coordinated rail operations may delay the need to undertake infrastructure improvement projects, even a future scenario of fully coordinated rail operations does not provide enough efficiency gains in itself to significantly reduce the rail footprint in either the Waterfront or False Creek Flats rail yards. In addition, achieving more coordinated rail operations in the Waterfront and False Creek Flats is very complicated. The railways are private commercial entities and will cooperate when the business case is in their best interest and there is a long history and established landownerships of many stakeholders in this area.

#### **d. Other Related Rail Studies**

There are two other relevant studies about rail use:

- BC Ports Strategy: The BC Ports strategy's goal for 2020 is to have all port system partners working together to maximize trade traffic and economic growth opportunities for British Columbians and Canadians. It seeks to have the needs of industry and local communities in balance while preserving the environment. To ensure long-term access to suitable lands in support of BC's port system development, it recommends creating a ports/transportation corridor land bank in conjunction with regional and local land use plans.
- FCM/RAC Rail Proximity Study - The Federation of Canadian Municipalities and the Rail Association of Canada are jointly funding a study into best practices to address proximity issues (noise, safety etc.) arising from rail traffic in urban areas. The goal is to develop standards for best practices that city governments can consider incorporating within their regulations and development guidelines.

### **3. Next Steps**

The next steps for the City are twofold. First, encourage the relevant parties to undertake a more detailed rail operational and network study for the Flats and Waterfront, i.e. "Burrard Inlet" rail terminal. Second, to ensure that Phase 2 planning for the False Creek Flats acknowledges that there will continue to be uncertainty about the ultimate rail "footprint" in the Flats, and plans for a range of scenarios.

#### **a. More Detailed Rail Study**

The LMRIS was strategic in its nature and did not attempt to describe how the current rail configuration would perform operationally at a track by track level of detail. It assumed a certain amount of coordinated operations but did not consider more detailed rail track efficiencies or consolidation of rail tracks. With respect to rail yards, not all rail tracks are equal in that longer track segments are better suited to break down and build up trains moving to and from the Port. The ultimate requirement for tracks and track configuration depends on detailed simulations of yard and terminal operations.

Recommendation B is for the Council to request the relevant parties to begin a detailed rail operation and network study of the Flats and Waterfront rail support yards as soon as possible. Its primary purpose would be to explore alternative rail future scenarios that meet the long term passenger, freight, and Port rail operations in the Flats and Waterfront. The study will also look in more detail at the rail link between the Flats and Waterfront rail yards. The City does not determine or control rail corridors or support yards as this is a senior

government function. However, staff proposes that the City work with the Port, Gateway Council and the railways to complete the more detailed rail study in a timely way.

## **b. Handling Rail in False Creek Flats Planning Phase 2**

Although important, the rail yards also create significant barriers to establishing much-needed linkages around and through the Flats. Phase 2 of Flats planning will seek to establish a future structure for the Flats that respects and maintains its transportation role, yet at the same time, improves connectivity.

The detailed rail study will not be finished before Phase 2 begins, and even when complete, it will likely require a period of time before the rail companies adopt any or all of its conclusions. Therefore, Recommendation C is that Phase 2 of Flats planning acknowledges a range of future rail scenarios.

Based on research and discussion with the Port and rail operators completed in Phase 1 (scoping) for the Flats, the following assumptions on the respective support rail yards seem reasonable:

- CN Main Yard: Status quo or increased footprint
- BNSF South Yard: Status quo or eliminated
- Glen Yard: Status quo or increased footprint
- Passenger Yard: Increased footprint

Based on these, in generic terms possible rail scenario examples for the Flats are:

- Reconfigured Footprint- This would be a scenario that assumes the BNSF South yard is no longer in service and the equivalent amount of track is reconfigured to either CN's Main Yard and/or the Glen Yard
- Increased Footprint - This would be a scenario that accommodates a footprint larger than today, with either a larger CN Main Yard and/or Glen Yard
- Reduced Footprint - This would be a scenario that assumes the BNSF South yard is no longer in service and that enough rail efficiencies are gained in the CN Main Yard, Glen Yard, Waterfront or Grandview Cut to accommodate the Port freight rail growth

The City will be interested in measuring the transportation, land use, economic and goods movement impacts of these future rail scenarios and developments. It is also important to know more about the potential long term shift between truck and rail for goods that could be potentially accommodated by either mode. Additional resources, if required, to specifically study the rail scenario impacts will be identified as part of the Phase 2 work program.

## **CONCLUSION**

The Lower Mainland Rail Infrastructure Study was recently completed, and this report summarizes its findings and recommendations. Next steps include requesting the Port, Gateway Council, and railways to complete a more detailed rail operation and network study to look at how to provide for the anticipated growth in freight and passenger rail in the Waterfront and Flats areas; and structuring Phase 2 of the False Creek Flats planning to take account of a range of alternative rail "footprints".

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**APPENDIX A**  
**RAIL LANDS IN THE FALSE CREEK FLATS**



**APPENDIX B**  
**EXISTING AND FUTURE TRAINLOAD FORECASTS**

Terminal Node	2003		2011		2021	
	Weekly Train Movements		Weekly Train Movements		Weekly Train Movements	
	EastBound/ Southbound	Westbound/ Northbound	EastBound/ Southbound	Westbound/ Northbound	EastBound/ Southbound	Westbound/ Northbound
Port Coquitlam	14	14	24	24	37	37
Sapperton	9	9	10	10	11	11
Thornton Yard	22	23	25	26	26	27
Livingston	3	3	0	0	0	0
North Vancouver	31	31	43	41	49	46
Burrard Inlet	37	34	57	50	73	63
Lulu Island	5	5	6	5	6	5
Annacis	1	1	2	2	2	2
Fraser Surrey	9	12	11	13	13	16
Roberts Bank	74	65	94	79	122	100
Port Moody	15	15	19	19	24	24

Source: LMRIS, 2004

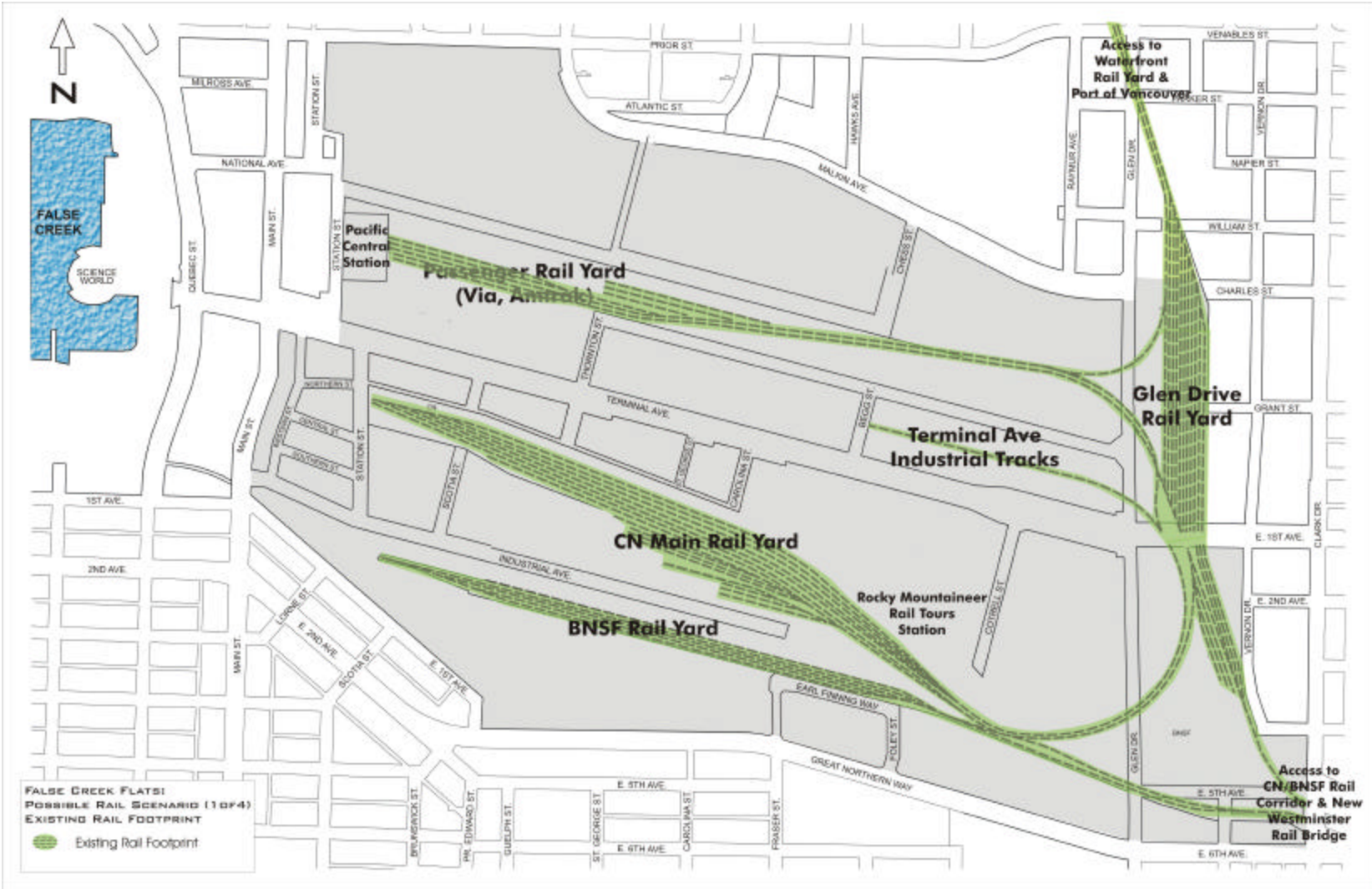


## APPENDIX C COORDINATED RAIL OPERATIONS IN THE LOWER MAINLAND



Source: Railway Association of Canada, 2005

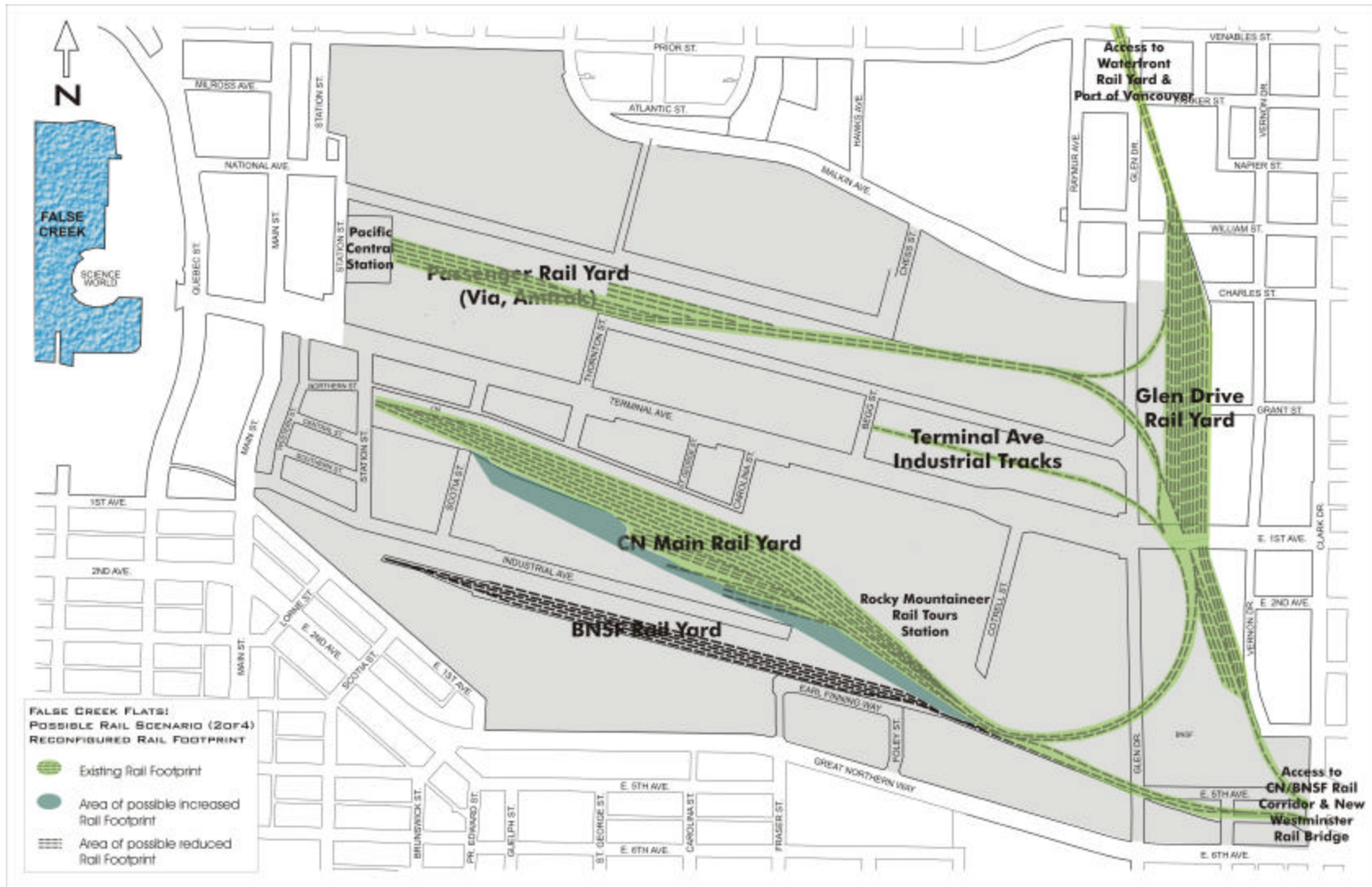
**APPENDIX D**  
**POSSIBLE RAIL SCENARIO (1 OF 4) - EXISTING RAIL FOOTPRINT**





## APPENDIX D

### POSSIBLE RAIL SCENARIO (2 OF 4) - RECONFIGURED RAIL FOOTPRINT

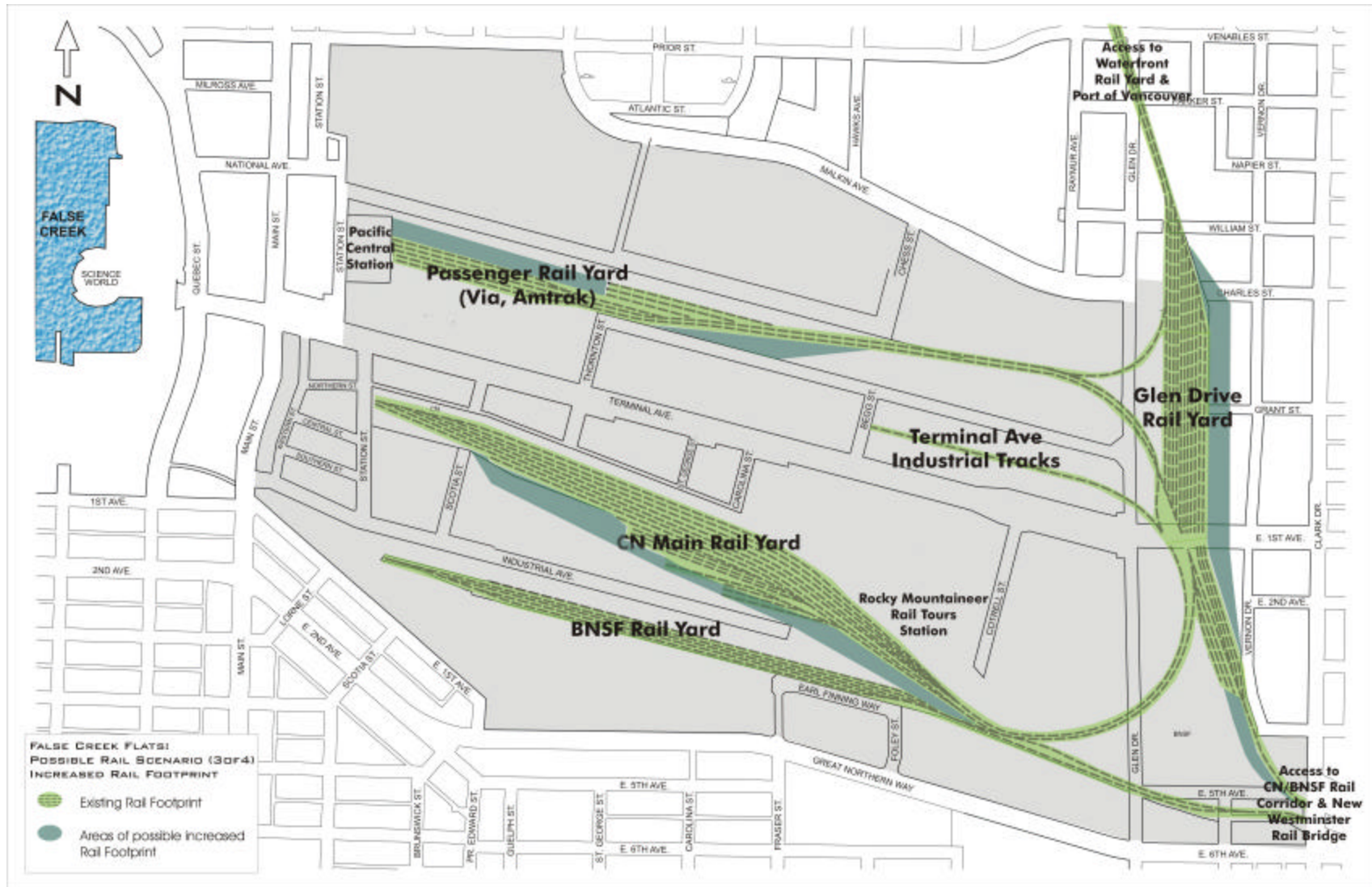


**FALSE CREEK FLATS:  
POSSIBLE RAIL SCENARIO (2 OF 4)  
RECONFIGURED RAIL FOOTPRINT**

- Existing Rail Footprint
- Area of possible increased Rail Footprint
- Area of possible reduced Rail Footprint

## APPENDIX D

### POSSIBLE RAIL SCENARIO (3 OF 4) - INCREASED RAIL FOOTPRINT





# APPENDIX D

## POSSIBLE RAIL SCENARIO (4 OF 4) - REDUCED RAIL FOOTPRINT

