
TO: CITY MANAGER

DATE: 2013 October 29

FROM: FIRE CHIEF

SUBJECT: TRANSPORTATION OF DANGEROUS GOODS BY RAILS

PURPOSE: The purpose of this report is to highlight community safety concerns related to the rail transportation of dangerous goods through Burnaby and to recommend safety improvement actions for Council's consideration.

RECOMMENDATION:

1. **THAT** Council endorse the following recommendations:
 - a) Request the federal government to include local municipalities in future rail safety review and assessment including remote control of bridge operations and rail emergency planning.
 - b) Request the federal government to engage and support local municipalities in railway emergency exercise.
 - c) Request Transport Canada to work with railway companies to provide regular reports to local municipalities on rail shipment of dangerous goods including quantity and accident statistics and to share general dangerous goods rail shipment information with local municipalities.
 - d) Request the federal government to enable the necessary legislation to prevent the transfer of rail safety and emergency response costs to local municipalities.
2. **THAT** a copy of this report be sent to: The Honourable Lisa Raitt, Minister of Transport, FCM National Municipal Rail Safety Working Group Chairs Mayor Doug Reycraft and Mayor Pauline Quinlan, UBCM, and all Burnaby MP's.

REPORT

1.0 INTRODUCTION

Two major serious derailments occurred in Canada in recent months involving dangerous goods have many communities across Canada raising the concern of rail safety and the

lack of available information on the movement of dangerous goods through their communities. First responders from local communities are usually the ones on the front line and the first to arrive at the scene when derailment incidents occur. With information on the movement of dangerous goods not being available to local governments, it compromises public safety and the safety of the first responders and reduces the effectiveness of the emergency response plan when unknown dangerous goods are involved in a transportation accident.

At a Regular Council Meeting in July 2013, Council raised the rail safety concern and requested staff to provide a report on the movement of rail oil tank cars and other hazardous goods through Burnaby including information regarding advance notice provided to City's first responder personnel. This report is to respond to Council's request and to outline a course of action for Council's consideration.

Recently, UBCM has also called for the need to improve rail safety and has partnered with FCM to support the National Municipal Rail Safety Working Group for the purpose of ensuring the safety of Canada's rail transportation system be considered as a national priority and a clear federal responsibility. This report echoes the concerns of rail safety raised by local communities across Canada, UBCM and FCM, and is to provide further strategic support to the national work group.

2.0 TRANSPORTATION OF DANGEROUS GOODS

The transportation of dangerous goods is regulated by Transport Canada. Dangerous goods also known as regulated commodities are classified into nine categories as follows:

- Explosives
- Gases
- Flammable liquids
- Flammable solids
- Oxidizing substances
- Organic peroxides
- Infectious substances
- Radioactive materials
- Miscellaneous goods including farm waste, genetically altered micro-organisms

The three main modes of transport for dangerous goods are trucks, rails and ships. These three transportation modes are used to transport regulated goods through and around Burnaby. For truck transport of dangerous goods in Burnaby, the Provincial highway and the City's Major Road Network are used as the key transportation corridors. Due to the high volume of truck traffic and the variety of dangerous goods transported, data is not available to track the daily movements of the truck shipments. In the event of product spills caused by a transport truck accident, Fire Department personnel are equipped and trained to respond to such incidents in accordance with the hazmat protocols.

The main focus of this report is on rail transport and public safety and therefore the following sections are devoted to this specific mode of transportation of dangerous goods.

3.0 EXISTING RAILWAY OPERATIONS THROUGH BURNABY

There are four railways in Burnaby: Canadian Pacific, Canada National, Southern Railway and Burlington Northern Sante Fe (Figure 1). Of the four railways, BNSF and Southern Railway do not transport regulated commodities within Burnaby. Southern Railway operates from a rail yard that is just inside New Westminister and services three businesses in Burnaby via a spur line, none of whom receive dangerous goods at this time.

In addition to its rail network in Burnaby, CN also has three movable span rail bridges in close proximity to Burnaby – New Westminister rail bridge, Lulu Island rail bridge and Second Narrows rail bridge. The Lulu Island bridge is the only that directly connects with Burnaby at Fraser Foreshore Park. The Second Narrows rail bridge is less than 200 metres from the Burnaby border and its moveable span is raised every time a large marine vessel such as a tanker needs to pass through. If the proposed Kinder Morgan pipeline expansion project is approved in the future, there would be much higher vessel traffic in the Burrard Inlet crossing under the Second Narrows rail bridge.

These three bridges currently are operated by staff on-site to monitor the bridge conditions and marine traffic and operate the moveable bridge spans as needed to allow the passage of large marine vessels. However, CN is proposing to eliminate the on-site staff by the end of 2013 and replace them with a remote control automation system at a centralized location. The elimination of the on-site staff operations is a safety and environmental concern that needs to be re-evaluated by CN particularly in light of possible increase of oil tanker traffic in the Burrard Inlet.

4.0 DANGEROUS GOODS RAILWAY TRAFFIC IN BURNABY

Both CN and CP transport dangerous goods but neither of them have rail yards in Burnaby. Hence CN and CP trains are not typically parked in the City overnight with the exception of individual cars or small groups of cars that are parked on a siding for loading or off-loading purposes. Southern Railway has the capacity to park up to 30 cars of crude oil in its New Westminister yard including the occasional rail cars belonging to CP when there is a temporary capacity problem at the various petroleum facilities served by CP.

Railways are federally regulated and the owners of the railways operate the rail infrastructure under federal laws. Under the current federal laws, there is no requirement for the railway operators to provide goods movement information to other levels of government or outside agencies. In Canada, the transportation of dangerous goods is

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strictly regulated under the Transportation of Dangerous Goods Act, 1992. Local communities have tried unsuccessfully to obtain information on regulated goods and their volumes transported by rail from rail companies due to the concern that shared information could fall into the wrong hands and create a security risk. Rail carriers are only required to share shipment information with emergency responders if an accident involving rail cars occurs. But the lack of dangerous goods movement information in advance hinders emergency readiness and timely response by first responders and exposes the public and first responders to a greater safety risk.

Staff have contacted the rail companies but they are unwilling to provide information on the quantities and movements of regulated goods transported through Burnaby. However, a list of all regulated goods shipped through Burnaby in 2012 was obtained from them. CP staff have also offered to meet with Council to speak further on rail safety and rail transportation of dangerous goods. The list of regulated goods transported by rail through Burnaby in 2012 included: diesel fuel, crude oil, aviation fuel, alcohols, ethanol and gasoline mixture, batteries, nitrous oxides – refrigerants, fireworks, sodium hydroxide, and many other chemicals. Of note is that in 2012, CP transported mainly petroleum products and CN transported a larger share of hazardous chemicals such as sodium hydroxide, chlorine, hydrochloric acid, as well as other petroleum products including liquefied petroleum gases.

As information is unavailable on the exact volumes of dangerous goods transported through Burnaby, staff have contacted the three petroleum processing/storage facilities in Burnaby and obtained the following data.

- Chevron receives approximately 45,500 barrels (7,235,000 litres) of oil each week by rail tank car including 1 to 4 LPG (propane, butane) tank cars per day at its refinery site. The number of crude oil tank cars involved is between 60 and 80 while the total number of cars for LPG can vary from 7 to 28. Chevron has the capacity to receive a maximum of 98 carloads per week at the present time.
- Shell receives an average of about 108,000 barrels (17,172,000 litres) of finished petroleum products per week at its distribution terminal on Kensington Avenue. The equivalent rail car traffic is 165 to 185 cars per week. The terminal has the capacity to receive 300 tank cars per week.
- Suncor terminal on Barnet Highway received, between January 1 and July 31, 2013 an average of 18,000 barrels (2,862,000 litres) of petroleum products per week or 28 carloads per week. The terminal has the capacity to receive 84 tank cars per week.

The above data, although they have not been independently verified, provide an overview of petroleum products (a portion of the overall dangerous goods) transported to Burnaby and are summarized in Table 1.

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	Barrels/Week	Litres/Week	Rail Cars/Week
Chevron	45,500	7,235,000	60-70
Shell	108,000	17,172,000	165-185
Suncor	18,000	2,862,000	28

Table 1. Approximate Volumes of Petroleum Products Delivered to Facilities in Burnaby (2012/13)

With respect to the question on how safe is rail transportation, Transport Canada published the “Transportation in Canada” report in 2011 which provides some detail on the state of rail safety in Canada. The report states that there were 1,227 railway accidents/incidents in 2011 and 179 of these occurred in British Columbia, the five year BC average is 203. Of the 1,227 rail accidents across the nation, 117 involved dangerous goods of which 51 were classified as dangerous goods leakers. The report does not identify how many of the 179 accidents in BC involved dangerous goods or were classified as leakers. A summary of the 2011 rail accident statistics and the 5-year average is included in Table 2.

	CANADA	BC
2011 Rail Accidents	1,227	179
5-Year Average (2006-11)	1,445	203
2011 Rail Accidents Involving Dangerous Goods	117	n/a
5-Year Average (2006-11)	159	n/a
2011 Dangerous Goods Leakers	51	n/a
5-Year Average (2006-11)	78	n/a

Table 2. 2011 and 5-Year Average Rail Accidents in Canada and British Columbia

Although the 2011 report does not contain accident data for BC, staff were able to obtain separate statistics from Transport Canada on dangerous goods accidents in the Greater Vancouver area from 1988 to 2012 which identifies a total of 133 dangerous goods accidents involving 182 rail cars during the 25-year period. Two of these accidents occurred in Burnaby and both were minor in nature, one involved a drum of flammable liquid (1996), and the other involved a drum of sodium nitrate (1993). Of the 182 rail cars that were involved in the accidents, 53 were carrying liquefied petroleum gases, and 11 were carrying other petroleum products. More than half of the accidents occurred at the Port Coquitlam rail yard. Eighty eight percent of all accidents involving dangerous goods occurred at the Port Coquitlam, Surrey, Port Moody and North Vancouver yards.

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5.0 CONCLUSIONS

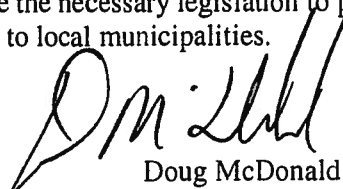
Burnaby is unique among Greater Vancouver municipalities in that it is host to several petroleum facilities. Although there have been only 2 dangerous goods accidents in Burnaby in the past 25 years, the expected increase in rail transportation of crude will create greater risk of an accident. The additional risk will present a greater challenge to Burnaby, its citizens and emergency responders due to the lack of available information on dangerous goods transportation.

Recent train accidents in Quebec and Alberta have clearly highlighted the need for the federal government to improve rail safety in the country and to take on a leadership role to improve communication on dangerous goods transportation to municipalities. Under current federal legislation, railway companies are not required to report to local governments on the type and quantity of dangerous goods they transport. They are also unwilling to share dangerous goods information when requested citing security concerns. Although information is provided to municipalities after an accident, the delay in information sharing puts the first responders and the citizens in the community where the accident occurs in a significantly disadvantageous position. While information on transportation of dangerous goods is important, it is not practical for the railway companies to provide specific manifests for every rail car that carries dangerous goods. General movements of the type and quantity of dangerous goods should be provided to local municipalities for emergency planning purposes and for safer deployment of first responders and resident evacuation in the event of an accident involving dangerous goods. The proposed remote bridge control operations of the three CN rail bridges in the Burnaby/New Westminster/Vancouver area also raises additional rail safety concern.

6.0 RECOMMENDATIONS

Based on the forgoing, staff recommend the following be considered by Council:

- a) Request the federal government to include local municipalities in future rail safety review and assessment including automation of bridge operations and rail emergency planning.
- b) Request the federal government to engage and support local municipalities in railway emergency exercise.
- c) Request Transport Canada to work with railway companies to provide regular reports to local municipalities on rail shipment of dangerous goods including quantity and accident statistics and to share general dangerous goods rail shipment information with local municipalities.
- d) Request the federal government to enable the necessary legislation to prevent the transfer of rail safety and emergency response costs to local municipalities.

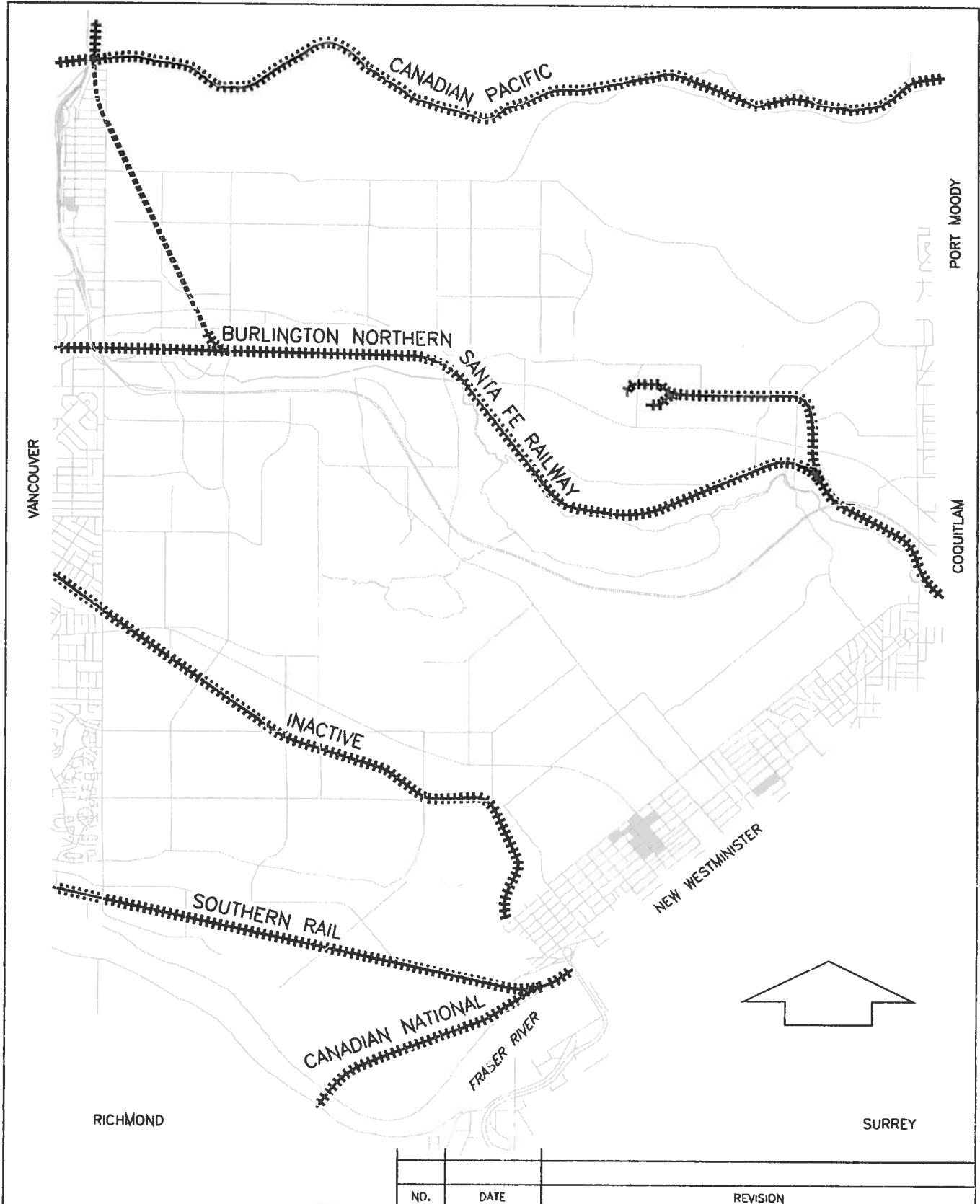


Doug McDonald
FIRE CHIEF

JR/LSC:

Copied to: Deputy City Managers
Director Engineering

Attachment (1)



NO.	DATE	REVISION



**FIGURE 1
EXISTING RAILWAYS IN BURNABY**

DRAWN BY: HLOUIE	SCALE: N.T.S.	A 659
APPRV'D BY:	DATE: 2013.10.28	