

**CITY OF WINDSOR**



Transport  
Canada

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Canada

# **COMMUNITY BASED STRATEGIC RAIL STUDY**

Final Report

McCORMICK  
RANKIN  
CORPORATION



**in association with**  
Canarail Consultants Inc.

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## **PREFACE**

The City of Windsor and Transport Canada are undertaking a strategic planning study to assess the opportunities for rail rationalization and modal integration in the City of Windsor.

The intent of the study is to produce a strategic plan that is technically feasible and addresses the City's transportation needs, while being responsive to the local community through consultation with key stakeholders.

This Report is based on the various technical reports completed during the study. The technical reports completed are listed below:

TR1	Rail Operations – Issues and Opportunities	February 2006
TR2	Rail Rationalization Opportunities	April 2007
TR3	Modal Integration Opportunities	July 2007
TR4	Associated Community Opportunities and Benefits	November 2007
TR5	Implementation Strategy	January 2008

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## E1. Executive Summary

The City of Windsor and Transport Canada have undertaken the Community Based Strategic Rail Study to assess the opportunities for rail rationalization and modal integration in the City of Windsor. The intent of the study is to produce a strategic plan that is technically feasible and address the City's transportation needs, while being responsive to the local community through consultation with key stakeholders.

The existing rail operations (See **Exhibit E.1**) in the City of Windsor present issues and opportunities that stem from the capacity problems at the Windsor-Detroit border and the changing rail traffic patterns which leave the City with redundant rail lines and yards; as well as, many at-grade intersections that impede local road traffic and expose pedestrians and road users to unsafe conditions. The opportunities that can be realized from addressing the issues associated with current rail operations are:

- Increased Passenger Rail Services;
- Reduced Freight Rail Maintenance Costs;
- Improved Rail Operations and Reduced Traffic Delays;
- Redevelopment;
- Intermodal Facility and;
- New Rail Tunnel.

The feasible alternative for rail rationalization within the City of Windsor was based on the development and assessment of various alternatives. It involved consultation with rail companies, partner agencies and other key stakeholders. The key partners and stakeholders included Canadian Pacific Rail Company (CPR), Canadian National Railway Company (CN Rail), VIA Rail Canada Inc. (VIA) and Essex Terminal Railway Company (ETR). An ultimate rationalization scenario has been developed that would remove some of the continuity barriers to road users, transit users, cyclists and pedestrians that currently exist in the city. The key features of the ultimate scenario can be grouped into a set of three initiatives:

- Retire the Chatham Subdivision west of Ringold, and shift VIA operations to CPR's Windsor Subdivision between Ringold and the CPR Windsor rail tunnel;
- Construct new VIA passenger station in downtown Windsor, near the south end of CPR Windsor Yard;
- Retire the CASO Subdivision between Fargo and Pelton Spur, and consolidate all east-west rail traffic onto CPR's Windsor Subdivision.

The potential initiatives that were developed for modal integration include relocating CN and/or CPR rail yards and constructing a new VIA passenger terminal on airport lands. In developing the initiatives, key stakeholders were consulted, including the rail companies and the airport operator. Also, given that the Windsor Airport lands have

identified a potential Multi-Modal Area in the Airport master plan study area (Windsor Airport Reserve Land Study, 2003), this area could be used for a rail passenger and/or a rail/air/truck intermodal facility.

The opportunities and benefits that can result from the rail rationalization and modal integration initiatives would be realized by the municipalities, rail operators, commercial and residential developers, property owners and residents. The benefits include freeing up land that was once occupied by the Chatham and CASO Subdivisions and developing these lands for other purposes such as urban infrastructure: public transit, parks, greenways, trails, and bicycle paths. Traffic flows as well as traffic and pedestrian safety would also improve as a result of eliminating several at-grade intersections. The rail operators would look to benefit from the reduced costs associated with track and infrastructure maintenance when the three Subdivisions are consolidated. The potential intermodal facility on Windsor Airport lands would allow rail operators to abandon their rail yards, which in turn, could be developed into commercial or residential areas.

The many opportunities and benefits of rail rationalization and modal integration outlined also present challenges and impacts that need to be addressed and resolved. For rail operators, the consolidation of the three Subdivisions eliminates alternative routes into the City and reduces the flexibility of their schedules. Also impacted are some rail operators that would stand to lose operating and commercial rights. The upgrading of the Windsor Subdivision, as a result of the increased capacity requirements, requires substantial costs that would need to be taken on by the rail operators and/or the government. The increased capacity on the Windsor Subdivision would also strain the existing at-grade intersections and consequently, the local traffic.

In terms of an intermodal facility on the Airport lands, it meets the location criteria in terms of site topography, land uses and proximity to transportation infrastructures such as rail lines, E.C. Row Expressway and Lauzon Parkway. However, the needs of an intermodal facility has not been established. In addition, spatial constraints may be an issue in accommodating all the yards owned by CPR and CN. Current operations at the various yards may need to be examined to find ways to streamline operations.

The main obstacles to implement the initiatives as recommended in this study will be issues related to cost and funding for the project. Implementation strategies need to be developed to overcome funding issues, to ensure project success and to attain government and stakeholder buy-in.

A multi-phase implementation strategy has been developed to spread project costs over successive stages, thereby reducing the initial capital costs required. The project initiatives are broken down into three phases:

- **Phase 1 ‘Interim Scenario’ (Exhibit E.2)** – Abandonment of the Chatham Subdivision and relocation of VIA operations to the Windsor Subdivision
- **Phase 2 ‘Ultimate Scenario’ (Exhibit E.3)** – Removal of the CASO Subdivision and the combined operations of CN and CPR on the Windsor Subdivision
- **Phase 3 ‘Modal Integration Potential Scenario’ (Exhibit E.4)** – Construction of an Intermodal Facility at Airport lands with CN and CPR yards.

The implementation strategy that was developed includes action components that include forming a Multimodal Committee; establishing public and private partnerships; obtaining government approvals and commitments; resolving rail operations and contractual agreement complexities; and developing the preliminary design for the rail rationalization and modal integration initiatives. The implementation strategy action components are described in more detail below.

- The Multimodal Committee would supervise a Business Case Study that would assess the market feasibility of the intermodal facility in Windsor as well as providing market management of the potential facility.
- Strategic partnerships will need to be established for federal, provincial and local governments, as well as CN, CPR, VIA and other rail operators. It will be vital to form partnerships with neighbouring municipalities since they broaden the area of influence of the initiatives and introduce additional groups to lobby the government.
- The coordination with various levels of government bodies is critical to the success of the initiatives since the rail operators have expressed no interest in shouldering the substantial costs without the government's financial support.
- The rail operators have very complex contractual arrangements and the consolidation of operations onto one line would only further complicate their situation. The complexities need to be considered and issues such as priority and precedence need to be resolved between rail operators.
- The development of the preliminary design of the initiatives is important as it allows for a more detailed and comprehensive understanding of the design components of the preferred alternative.

In summary, this Community Based Strategic Rail Study for the City of Windsor recommends initiatives under rail rationalization and modal integration that address the transportation issues and opportunities of the City. These recommendations are developed through close consultation from key stakeholders. The main features of the recommended alternative involve the streamlining of rail operations through the consolidation of three Subdivisions and the various rail yards into an intermodal facility in the City's airport lands. The key challenge that the project recommendations face is the issues associated with costs and funding. The implementation strategies of phasing the project and establishing partnerships with various levels of government and other pertinent agencies will help in addressing the financial requirements and assure potential project success.

## 1. Introduction

Windsor is home to about 55 km of rail track, which is owned by several different rail companies and spread over four rail corridors in the City. Three major rail yards are located within the City Limits, two of which are located in the heart of the City. Almost 13% of homes – over 11,000 – are situated within 300 m of a rail line.

Existing rail infrastructure has shaped development and transportation limits in Windsor. As such, rail lines create continuity barriers to road users, transit users, cyclists and pedestrians. Over time, changes in infrastructure have allowed for small scale consolidation of rail operations but have not addressed larger rail consolidation needs within the City. With changes in technology and business alignment, duplicate rights-of-way and yards still exist that could be better managed if their operations were to be consolidated.

In light of these issues and to capitalize on the growing awareness of the importance of international trade, the City of Windsor and Transport Canada have completed this strategic rail study to improve and facilitate transportation modal integration in the City of Windsor.

The focus of this study is on rail rationalization opportunities, the potential establishment of an intermodal facility and the potential ‘brownfield’ redevelopment of future retired rail lands. The study will consider other transportation modes to produce a well-balanced and integrated multimodal network.

The goal of the study is to create policy framework and conceptual plans that will both facilitate and take advantage of rail rationalization in the City of Windsor. The key study activities included:

- Analyzing the existing and currently planned rail operations in the City of Windsor;
- Developing potential alternatives for rail rationalization and consolidation;
- Identifying potential community and environmental opportunities created by such a plan;
- Identifying potential transportation benefits of an intermodal facility at the Windsor Airport;
- Developing an overall implementation plan or “road map” for the preferred rail rationalization/multimodal transportation system; and
- Continuously involving stakeholders throughout the project in order to build consensus on the best balance of community needs and railway needs and to generate ongoing support for the implementation of the preferred rail rationalization/multimodal transportation system.

This Final Study Report is divided into five main sections which correspond to the milestone technical reports throughout the study.



## 2. Rail Operations – Issues and Opportunities

### 2.1 Existing Rail Operations

Within the City, six different rail companies operate on four rail corridors including three connecting spur lines and four rail yards. In total, there are approximately 55 km of rail lines and approximately 75 railway crossings within the City.

The six rail companies that operate in the City are:

- Canadian Pacific Railway Company (CPR)
- Canadian National Railway Company (CN)
- Essex Terminal Railway Company (ETR)
- CSX Transportation Inc. (CSXT)
- Norfolk Southern Railway Company (NS)
- VIA Rail Canada Inc. (VIA)



The rail corridors, the connecting spur lines and the rail yards are shown on **Exhibit 2.1** and are summarized in **Table 2.1**. Rail companies currently using the facilities or with facility access agreements are included in parentheses.

<b>Rail Corridors</b>	<b>Spur Lines</b>	<b>Rail Yards</b>
<ul style="list-style-type: none"> <li>• Chatham Subdivision (VIA, CN, NS)</li> <li>• Windsor Subdivision (CPR)</li> <li>• CASO Subdivision (CN, CPR, CSXT, NS)</li> <li>• ETR Mainline (ETR)</li> </ul>	<ul style="list-style-type: none"> <li>• Pelton Spur (CN)</li> <li>• Chrysler Spur (CN, NS)</li> <li>• ETR Spur (ETR)</li> </ul>	<ul style="list-style-type: none"> <li>• Windsor Yard (CPR, ETR)</li> <li>• Van de Water Yard (CN, CSXT, NS, ETR)</li> <li>• Little Yard (CN, NS)</li> <li>• Walkerville Yard (CPR)</li> <li>• ETR Yard (ETR)</li> </ul>

## 2.2 Rail Corridors & Rail Yards

The following discusses the six major rail corridors in Windsor as shown on **Exhibit 2.1**.

### Windsor Subdivision (CPR)

CPR's Windsor Subdivision passes east-west through the centre of the City. This single track line travels north of the Windsor Airport and under the E.C. Row Expressway west of Jefferson Boulevard. The line also serves CPR's Walkerville Yard east of Central Avenue. Near McDougall Street, the line splits into two tracks. The northern track heads north to CPR's Windsor Yard and the southern track also heads north on a different alignment to the Detroit-Windsor Rail Tunnel.

The CPR Chicago–Detroit–Toronto–Montreal mainline passes through Windsor on the Windsor Subdivision and the existing twin bore tunnel under the Detroit River and the mainline track are integral to the CPR network between Canada and the U.S. As a result, this section of mainline is heavily used, with upwards of 30 train movements a day (including mainline trains and yard movements between the Walkerville and Windsor yards). However, the twin Detroit River railway tunnels have limited vertical clearances, and CPR cannot transport double stack 9'6" containers and large Automax carriers across the Windsor-Detroit border.<sup>1</sup>

To address increased border security issues, CPR has installed the VACIS system and is up and running on the Windsor Subdivision to the east of Walker Road.<sup>2</sup> This will allow moving railcars to be inspected by U.S. border officials prior to crossing into the U.S. A minor drawback of this system is that mainline trains destined to the U.S. will be required to slow down to the tunnel. The Windsor Yard is also connected to an interlocking with the ETR mainline and yard, which run directly to the west between the CPR yard and Crawford Avenue.<sup>3</sup>

Due to the amount of activity in and through Windsor, CPR has at times experienced a significant capacity shortfall on the main line between London and Windsor and especially within the Windsor terminal area. These throughput problems experienced by CPR are probably caused by rail congestion in Detroit. Occasionally, Norfolk Southern (NS) and CSX Transportation (CSXT) will hold back U.S.-bound CPR trains if movement through Detroit is not clear on their tracks. This action tends to increase the congestion experienced by CPR on the Canadian side of the border. CPR has recently negotiated a new route between Detroit and Chicago and expects this dispatching problem to decrease.

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1. Double stack is a railway term that refers to the placement of two shipping containers on top of each other on a railway car.

Automax is a type of railway car for transporting automobiles.

2. Vehicle And Cargo Inspection System (VACIS) is a gamma ray-based inspection system designed to non-intrusively inspect the contents of railway cargo as it passes by/through the system.

3. In railway signalling, an interlocking is an arrangement of signal apparatus that prevents conflicting movements through an arrangement of tracks such as junctions, crossings, and so forth.



*CPR's Windsor Yard*

### **Chatham Subdivision (VIA, CN & NS)**

The Chatham Subdivision runs into Windsor along Lake St. Clair and ends at the Detroit River, west of the Riverside Drive/Walker Road intersection. As is the case with CPR's Windsor Subdivision, the Chatham Subdivision used to connect with a rail ferry at the riverfront, which was discontinued during the 1980s. The subdivision is primarily double track in Windsor, with several sections of multi-track sidings between road crossings.

VIA owns the corridor between mileage 63.9 and 99.2, that is, between Tecumseh and Chatham, with the section within Windsor owned by CN. CN has trackage (running) rights on the VIA-owned portion of this track, while both VIA and NS have running rights on the CN-owned portion. CN continues to operate on the Chatham Subdivision in Windsor, moving goods between clients – primarily Hiram Walker – and the Little Yard on the Chrysler Spur. NS does not currently operate on the corridor.

VIA operates all intercity rail service in Canada and VIA operates their Toronto-London-Windsor passenger service into Windsor on the Chatham Subdivision. VIA's trains terminate at the Windsor (aka Walkerville) Station, which is situated at the north end of Walker Road near Riverside Drive. VIA currently offers four round trips per day, seven days per week. As there is no direct connection between the Chatham Subdivision and the Windsor rail tunnel, there is no cross-border passenger rail service between Windsor and Detroit. VIA has expressed a desire to extend its service into Detroit and connect with Amtrak.



### **CASO Subdivision (CN, CPR, CSXT, NS)**

The CASO Subdivision runs diagonally through Windsor from northwest to southeast. The Subdivision connects directly with the Windsor-Detroit Rail Tunnel and then passes along the southwest side of CN's Van de Water Yard before heading southeast towards Tilbury and Fargo. At Fargo, there is a connecting track between the CASO Subdivision and the CSXT Line to Chatham. The corridor is double track through its entire length in Windsor.

The entire CASO line used to be jointly owned by CN and CPR, however the portion of the corridor within the City and including the Detroit-Windsor Tunnel was recently (in 2002) sold to the Detroit River Tunnel Partnership (DRTP). DRTP is equally owned by CPR and Borealis Transportation Infrastructure Trust, a subsidiary of the Ontario Municipal Employees Retirement System. DRTP owns the corridor and the track through the tunnel and south to CN's Van de Water Yard. From the yard to the South City Limit, DRTP owns the land, while CN owns the track infrastructure. The remainder of the line outside of the City is still jointly owned by CN and CPR. All existing operating agreements on the line have been maintained, and therefore CN, CPR, CSXT and NS all have running rights.

CSXT and NS use this track between the railway tunnel and Fargo to access CSXT's track to Chatham and connect with the CN mainline in Chatham. From this point in Chatham, NS heads east along the CN mainline and CSXT heads north of Chatham on its tracks to Sarnia.

CN's main operation in southwestern Ontario is located in Sarnia. All of its Chicago- and Detroit-bound trains operate through the relatively new Paul M. Tellier Tunnel in Sarnia. The Sarnia tunnel can accommodate double stack container trains, multi-level auto carriers and other large rail cars and payloads, and as such, CN relinquished its ownership position in the Detroit-Windsor Rail Tunnel. CN has, however, retained operating rights in the existing tunnel and any future railway tunnel in Windsor. CN's primary business within Windsor is the movement of automotive-related traffic and interchange traffic with ETR. CN operates one train per day through the Windsor Tunnel between the Van de Water Yard and Detroit. CN also moves one train per day between the Van de Water Yard and the Little Yard via the CASO Subdivision and the Pelton Spur.

The DRTP has put forward a proposal to construct a new single bore rail tunnel under the Detroit River and convert the existing twin tubes for cross-border trucks. A new two-lane

truck-only road would be constructed along the CASO corridor between the tunnel and Highway 401. This “Jobs Tunnel” proposal was included in the long-list of alternatives that were considered by the Detroit River International Crossing (DRIC) Project for a new international crossing of the Detroit River. However, the Jobs Tunnel/CASO Corridor was set aside by the DRIC Project Team in late 2005.

### Van de Water Yard

CN’s Van de Water Yard is located northeast of the CASO mainline tracks between Tecumseh Road and Dougall Avenue. At 135 acres, it is the largest rail yard in Windsor in terms of area. However, it has only 19 tracks, which is less than CPR’s Windsor Yard. This yard was heavily used when CN used the existing tunnel in Windsor for most of its cross-border business, however, since CN has relocated the majority of traffic to Sarnia this yard is used to build trains for CN, CSXT, ETR and NS.

### **Chrysler Spur (CN & NS)**

At Jefferson Avenue – about two miles east of VIA’s Windsor Station – CN’s Chrysler Spur connects to the Chatham Subdivision. This primarily north-south spur travels between the Chatham Subdivision and CN’s Little Yard at CPR’s Windsor Subdivision. There are several automotive-related industries which are accessed along this spur, including DaimlerChrysler, Gen-Auto Shippers, and the Ford Essex Aluminum and Engine plants. Trains on this spur line impact road traffic on Tecumseh Road East as they wait for signals or permission to enter either the Chatham Subdivision track or cross the CPR mainline. While NS has running rights on the spur, the firm does not operate on the line at the current time.

### Little Yard

CN’s second yard in Windsor is the Little Yard, which is located immediately north of CPR’s Walkerville Yard. This yard is used to service the automotive industry and interchange traffic with CPR. This yard is connected to the Chatham Subdivision via the Chrysler Spur and also to the CASO Subdivision via a cross-over of the Windsor Subdivision and the Pelton Spur. As previously noted, CN moves one train a day between Van de Water and Little Yard.

### **Pelton Spur (CN)**

The Pelton Spur is a north-south connecting track between the CASO Subdivision and the CPR Windsor Subdivision and is used solely by CN. Train movements between Van de Water and Little yards use this track. CN has one train per day that moves traffic between the two yards. In 1999, the diamond crossing of the CPR mainline and the Pelton Spur was removed and a new crossover between CN’s Little Yard and the CPR mainline was installed.<sup>4</sup> The land north of the diamond was sold to DaimlerChrysler for plant expansion.

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<sup>4</sup> A diamond rail crossing is one where two independent tracks cross each other in the form of a diamond or cross when viewed from above. A crossover is a connection between two sets of tracks.



### **ETR Mainline and Spur (ETR)**

The ETR is a century-old short line railway that provides switching service between industries located in the Windsor to Amherstburg area and the other mainline railways that operate through Windsor. The Spur segment runs southwest from just south of the Chatham Subdivision to the CPR Windsor Subdivision at the Lakeshore Interlocking at McDougall Street. From here it parallels CPR's main tunnel access line before turning north to access the small ETR Yard, which is adjacent to and west of CPR's Windsor Yard. The Mainline segment runs north of the ETR Yard, to north of College Street where it turns west and crosses the mainline tracks connected to the Detroit River rail tunnel via a grade separation. The east-west portion travels at-grade across Huron Church Road, immediately south of the Ambassador Bridge Canadian Plaza and gradually curves south and on to industrial customers along the Detroit River between Windsor and Amherstburg.

ETR's major Windsor customers include Canadian Salt, Morterm and Van de Hogen on its Mainline, and GM and Ford on its Spur line. ETR has operating rights in both CPR's Windsor Yard and CN's Van de Water Yard to interchange cars with the Class 1 railways so that their customers' products can be shipped outside of the Essex County area.

## **2.3 Road Crossings**

Within the City, there are close to 75 road crossings of rail lines, of which 62 are at-grade and the remainder are grade-separated. Key crossings are listed in **Table 2.2**.

At-grade road crossings result in delays to road users during the passage of trains. As road and rail traffic increase, cumulative delays begin to present problems. For example, the length of vehicle queues may impact adjacent intersections, delays may impact the response time of emergency vehicles, or delays may impact the movement of goods and services.

**Table 2.2 – Summary of Key Railway Crossings**

Road / Rail Crossing		Number of Lanes	Number of Tracks	Daily Road Traffic Volume	Exposure Index (Note 1)	Adjacent Land Use (Note 2)	Remarks / Road Traffic Operational Deficiencies
CN - Chatham Subdivision	Riverside Drive East	4	1	22,100	44200	WR, BP, R	
CN - Chatham Subdivision	Wyandotte Street East	2	3	19,000	n/a	I, BP	Grade-separated; Visibility & traffic capacity
CN - Chatham Subdivision	George Avenue	2	4	7,360	73580	I, R	Visibility
CN - Chatham Subdivision	Pilette Road	2	2	11,400	114000	R	Visibility
CN - Chatham Subdivision	Jefferson Boulevard	2	3	14,800	148000	R	Visibility
CN - Chatham Subdivision	Lauzon Parkway	4	2	21,400	214000	R, BP, CCe	
CN - Chatham Subdivision	Banwell Road	4	1	8,300	83000	I, R, BP, CCo	Operations
CN - Chrysler Spur	Tecumseh Road East	6	1	29,700	178200	CCo, BP, MU	
CN - Chrysler Spur	Jefferson Boulevard	6	1	18,900	113400	R, I, BP	
DRTP - CASO Subdivision	Dougall Avenue	4	2	52,700	n/a	I, CCo, BP	Pedestrian safety and traffic operations
DRTP - CASO Subdivision	Howard Avenue	2	2	20,000	120000	R, CCe, MU	Safety, capacity and operations
DRTP - CASO Subdivision	Cabana Road East	2	2	11,600	69600	R, CCo	Safety, capacity and operations
DRTP - CASO Subdivision	Walker Road	2	2	23,100	138600	CCo, BP, I	Safety, capacity and operations
CPR - Windsor Yard Lead	Tecumseh Road West	4	1	20,300	284200	I	
CPR - Windsor Subdivision/ ETR - Spur	Dougall Avenue (South of the CPR Windsor Yard Lead crossing)	4	3	18,300	549000	I, CCE, CCo, R, P	
CPR - Windsor Subdivision/ ETR - Spur	McDougall Avenue	2	3	9,000	270000	BP, CCo, P	
CPR - Windsor Subdivision	Howard Avenue	4	1	32,500	780000	CCo, R	Grade Separation proposed; EA Study Underway
CPR - Windsor Subdivision	(South of the ETR crossing) Walker Road	4	1	34,900	n/a	R, I, CCo	Grade separation under construction
ETR - Main	Huron Church Road	8	1	38,400	230400	R, Inst, I	

**Note 1: Exposure Index**

Train Length x Road Volume  
n/a = Not Applicable

**Note 2: Adjacent Land Use**

WR = Waterfront Recreation  
BP = Business Park  
R = Residential

I = Industrial  
CCo = Commercial Corridor  
CCe = Commercial Centre

MU = Mixed Use  
P = Park  
Inst = Institutional

Typically, an *exposure index* can be calculated for an at-grade crossing which takes into account the road and rail traffic. This index provides an indication of the delays to road traffic at the rail crossing. Once this number exceeds 200,000, which represents a significant delay to road traffic, a warrant may exist for a grade separation. The average length of delay may also be a factor in the assessment of a crossing's performance. Upon review of the list of crossings within Windsor, the following crossings have exposure indexes over 200,000.

- CN Chatham Subdivision and Lauzon Parkway
- CPR Yard Lead and Tecumseh Road
- CPR Windsor Subdivision/ETR Spur and Dougall Avenue
- CPR Windsor Subdivision/ETR Spur and McDougall Road
- CPR Windsor Subdivision and Howard Avenue
- ETR Mainline and Huron Church Road

In an effort to address some of the delays resulting from busy at-grade crossings, the City is currently constructing a grade separation of the Walker Road / CPR Windsor Subdivision crossing and is conducting an Environmental Assessment study for a grade separation of the Howard Avenue / CPR Windsor Subdivision crossing. There are no other railway grade separations planned within the City at this time.

## **2.4 Land Use Adjacent to Rail Corridors**

As illustrated by the City's Official Plan Land Use Map, which is included in **Exhibit 2.2**, the land uses adjacent to the rail lines represent the broad spectrum of land uses found in the City as a whole. Rail corridors in some cases run through large contiguous areas of industrial uses, in other cases residential communities are divided by a rail corridor, and in others the adjacent land uses are a mix of residential, institutional, commercial and industrial.

### **Chatham Subdivision**

The railway line runs through predominantly residential lands for most of its length in the City, without any buffer between the rail line and the housing. The railway tends to act as a barrier between several densely-populated neighbourhoods north and south of the line. It is noted that some residents have been known to cut across the tracks as a short-cut, with serious safety consequences.



There are two significant commercial/industrial stretches along the line: from west of George Avenue at the west end and from east of Lauzon Parkway at the east end. Significant land users include Hiram Walker and the VIA Station at the west end, the Ford plants at the ETR Spur line, and Tecumseh Mall and Lear Corporation at Lauzon Road.

### **ETR Spur**

Railway lands in the southern half of this corridor separate a generally contiguous residential area, while to the north the rail lands cross a large mix of uses. Major lands users include the General Motors Transmission Plant off of Walker Road and the Ford plants near the Chatham Subdivision.

### **Chrysler Spur**

North of Tecumseh Road, the rail line abuts residential properties on the west and vacant/industrial/commercial lands to the east. South of Tecumseh Road, save for a small townhouse development northeast of Roseville Garden Drive and Roseville Public School southeast of Roseville Garden Drive, the north-south portion of the rail line is surrounded by industrial/commercial land uses. The nearest residential lands are on the west side of Jefferson Boulevard, one block to the west of the rail line.

The east-west portion of the line abuts residential land to the north and industrial/commercial lands to the south. Major land users abutting the line include the Ford Essex Aluminum Plant, the Ford Essex Engine Plant, and Gen-Auto Shippers.

### **Windsor Subdivision**

The railway lands are adjacent to both residential neighbourhoods as well as large industrial properties. In the central portion of the rail line between Howard Avenue and Walker Road, the residential lands are located directly beside the railway on both sides. Some residences also abut the east side of the CPR Windsor Yard.

Major land users include DaimlerChrysler plants between Walker Road and Pillette Road, and the Windsor Airport Lands south of E.C. Row Expressway.

### **Pelton Spur**

Industrial and commercial and vacant land uses are located to the east and west sides of this corridor. At the south end, some agricultural lands are located east of the line. The nearest residential lands are located 140 m west of the line, off of Riberdy Road. The major adjacent land use is Windsor Airport immediately east of the line.

## **ETR Mainline**

This long rail line passes through mostly industrial lands with some commercial uses as it travels through the west end of the City. As the line curves east-west at the north end of the City, the land use changes to a more residential nature with the rail line acting as being a barrier between different residential neighbourhoods. Along this railway line there is a large mix of planned future land uses including, residential, institutional, industrial, commercial and open space.

Significant land users include the Ambassador Bridge Canadian Plaza at Huron Church Road, the Lou Ramano Water Reclamation Plant at Ojibway Parkway, and Black Oak Prairie Heritage and Ojibway/Tom Joy Woods parks near Broadway Street.

## **CASO Subdivision**

The railway line generally separates residential land uses to the south/west from industrial/commercial land uses to the north/east. The diagonal nature of the line also bisects several major City streets.

Notable adjacent land users include Dorwin Plaza at Dougall Avenue and the Roundhouse Centre at Howard Avenue.

## **2.5 Issues and Opportunities**

Based on discussions with the rail companies, the City, and key stakeholders, several issues and opportunities associated the existing railway operations have been identified. The following sections briefly identify and discuss each one.

### **2.5.1 Issues**

#### **Existing Rail Lines and Yards**

As a result of changes in railway operations in the City over the years since the rail lines were first constructed, several lines and yards are underutilized under the current operating conditions. These underutilized facilities cut through many areas of the City, dividing one neighbourhood from another and hindering long-term transportation and land-use planning.

At other active rail lines, the high number of at-grade crossings of major roads creates significant delays for road and transit users, as well as safety concerns for pedestrians and cyclists.

#### **Existing Rail Tunnel**

Some of the challenges faced by rail stakeholders in the Windsor area are caused by the design of the existing rail tunnel. The rail tunnel is a double-track tunnel with a maximum freight train speed of 40 mph for both tracks. The east tube of the tunnel was enlarged in the mid-1990s to allow for the smaller automotive rail cars and double-stack 8'6" container rail cars. However, further enlargement to accommodate double-stack 9'6"

container rail cars or the new generation automotive rail cars is not possible without improving the structural integrity of the tunnel. The west tube was not enlarged and is still at its original size, which can only accommodate single stack container rail cars.

Several studies have examined a new rail tunnel crossing in Windsor. One option would be to relocate the Canadian tunnel portal to the vicinity of CPR's Windsor Yard, thereby providing CPR with direct access to the tunnel from their main line. This option would also require the relocation of the Windsor Yard, as the tunnel portal would be in the centre of the yard. A second proposal (the Schwartz Report) proposes the construction of a new, larger rail tunnel in the existing corridor for freight use, and the use of the existing tunnels by VIA trains. A third proposal (DRTP's) would construct a new, larger rail tunnel adjacent to the existing tunnels and convert the existing tunnels for truck use.

While a new tunnel would address the height restrictions at the current tunnel, the major obstacle for a new Windsor rail tunnel is the significant cost associated with its construction. In addition, a new rail tunnel would likely increase rail traffic in Windsor, which could in turn require additional rail infrastructure leading to the tunnel and/or new grade separations at busy at-grade road crossings.

In June 2008, the State of Michigan has passed a resolution to express support for the construction of a replacement rail tunnel between Detroit and Windsor.

### **Existing VIA Station**

VIA passenger rail service between Toronto and Windsor terminates near the Detroit River waterfront at the Walkerville Station (at Riverside Drive and Walker Road). VIA has two issues with respect to service in Windsor:

- Extension of service beyond Windsor into the U.S. and;
- Location of the existing train station and its integration.

As the train station is located at the end of the Chatham Subdivision, there is no direct connection with the Detroit River tunnel. Connecting to Detroit via the existing Windsor station would require a long and arduous process of reversing the train's engine at the station, followed by a circuitous route through Windsor.

The Walkerville Station is located in an industrial area east of Windsor's downtown. The station is located behind a Hiram Walker facility and only has direct visibility from Walker Road. The one Transit Windsor bus line that ran adjacent to the station (the Crosstown 2 Express on Riverside Drive) has been cancelled due to low ridership. The regular Crosstown operates on Wyandotte Street which is reasonably proximate to the train station. Therefore, the station is not well connected to the heart of the City.



VIA would prefer a station location that is directly connected to the tunnel, closer or better connected to downtown and/or the University of Windsor (both of which generate significant numbers of rail passengers), and is more visible from major streets.

### **Windsor–Quebec City High-Speed Passenger Rail proposal**

High-speed passenger rail service between Windsor and Quebec City has been discussed for a number of years. The most current proposal, entitled *VIAFast*, considers an increase in VIA speeds to a maximum of 100 mph between London and Windsor. This proposal identified three alignment options for high-speed service to Windsor. All options were based on direct access to the Detroit River tunnel and therefore included relocating VIA service from the Chatham Subdivision through Windsor.

Other *higher*-speed rail studies (> 150 mph) have been completed for the Windsor–Quebec City corridor. These proposals required new, dedicated passenger rail track for the majority of the corridor, grade separations at all road crossings and new rolling stock. At the time of writing, there is very little chance that a 150-mph passenger rail service would be implemented to Windsor given the very high cost for its construction. Therefore, for the purposes of this study, only the *VIAFast* alignment options are being considered for high-speed passenger rail in Windsor.

In July 2008, Transport Canada has initiated an overview study to re-evaluate the feasibility of High Speed rail (HSR) between Windsor and Quebec City. The study will be completed through a review and update of previous work pertaining to the HSR. The study is expected to take about a year.

### **Roadway Deficiencies**

In addition to the road/rail at-grade crossings identified in **Section 2.3** with *exposure indexes* greater than 200,000, several additional crossings have been documented with operational and/or safety concerns, as noted in the list below. Some of these areas could provide significant community benefits if the deficiencies can be mitigated or eliminated through rail rationalization:

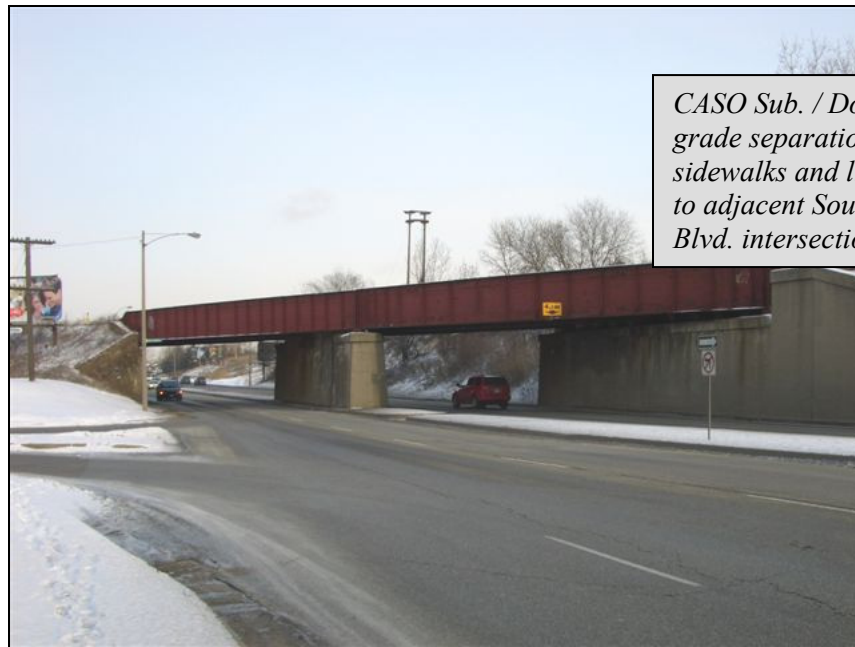
- Visibility concerns on the Chatham Subdivision at the at-grade crossings of George Avenue, Pillette Road and Jefferson Boulevard;
- Operational concerns on the Chatham Subdivision at the at-grade crossing of Banwell Road;

- Visibility and traffic capacity concerns at the Chatham Subdivision grade separation of the Wyandotte Street/Drouillard Road intersection;
- Illegal and unsafe mid-block pedestrian crossings of the Chatham Subdivision due to the distance between adjacent road crossings;
- Visibility concerns at the CASO Subdivision/College Avenue grade separation;
- Pedestrian safety and traffic operation concerns at the CASO Subdivision/Dougall Avenue grade separation;
- Safety, capacity and operational concerns at the CASO Subdivision at-grade crossings of Howard Avenue, Cabana Road and Walker Road at-grade crossing; and
- Traffic capacity concerns on Tecumseh Road, Dougall Avenue and McDougall Street due to the closely-spaced ETR Spur and Windsor Subdivision at-grade crossings.

However, rail rationalization could also increase the exposure indexes at some at-grade crossings, which could require additional grade separations be constructed by the City.



*Visibility and traffic capacity concerns at the Chatham Sub. grade separation of Wyandotte Street / Drouillard Road*



*CASO Sub. / Dougall Avenue  
grade separation: no  
sidewalks and limited visibility  
to adjacent South Cameron  
Blvd. intersection*

### **Transit/Pedestrian Issues**

Of Transit Windsor's 15 bus routes, 12 cross rail lines at at-grade crossings. This causes significant disruption to its bus service, whether in the form of temporary route delays or permanent route diversions.

The high number of railway corridors and the distance between pedestrian crossings in Windsor limit pedestrian access to transit routes. Route running time/passenger seat time is increased when transit routes have to be diverted from arterial and collector roads onto residential streets in order to achieve appropriate penetration of neighbourhood catchment areas.

Transit Windsor has been unable to implement direct east-west transit service on Tecumseh Road due to the delay impacts of the CPR and ETR at-grade crossings associated with the rail yards between Crawford Avenue and Janette Street.



*Traffic congestion at the closely spaced ETR and CPR crossings of Tecumseh Road*

CN has recently invested substantial funds to install fencing and remove brush along several sections of the Chatham Subdivision to discourage illegal pedestrian crossings of the rail line. Although this effort improves safety and prevents trespassing, it also lengthens the walking distance to bus routes for Transit customers.

### **Noise/Air Issues**

Consolidating rail operations onto one or two corridors would reduce rail traffic on some lines but would necessarily increase rail traffic on others. This could cause increased noise and air quality concerns for residences located along these corridors. The trade-offs between the removal of trains from one corridor and the increase of trains on another must necessarily be weighed.

### **Freight Rail Customers**

The rail customers along any corridor under consideration for abandonment will need to be consulted to see if alternative servicing arrangements can be developed. This could include intermodal service to and from a potential multimodal yard.

Ancillary to this issue is the potential increase in truck traffic on City streets as a result of rail customers being serviced by trucks instead of rail.

### **Rail Operating Agreements**

Operating agreements are required to allow one rail company to operate on another's tracks. These private agreements can be quite complex and can address several sections of track across the continent, specific operating times, train lengths, costs, etc. As for profit companies, railways enter into agreements only if there is mutual benefit to the parties. Therefore, altering existing agreements and/or developing new ones could be quite difficult even if a preferred rail rationalization scenario is developed.

## **‘The Bigger Picture’**

All three rail subdivisions in Windsor travel through many other communities to the east of the City before they interconnect again. Therefore, any rail rationalization scenarios that are developed for these subdivisions will necessarily affect other communities. Consultation with the affected communities will be required before any rationalization could be implemented.

### **2.5.2 Opportunities**

#### **Consolidation of Rail Lines and Yards**

Based on the existing and future needs of rail operations, there are ample opportunities to consolidate some of the rail lines and yards in Windsor. Rail rationalization and associated yard connections, additional trackage and/or modified train routings could result in a more efficient rail corridor operation in the Windsor area.

#### **Improved Passenger Rail Services**

The relocation of VIA services from the Chatham Subdivision to either the Windsor or CASO subdivisions would allow for a future connection into the U.S. This relocation would require a new Windsor passenger station, possibly at a future multimodal hub near the airport or possibly located near the tunnel portal (close to Downtown and the University of Windsor). This could also provide the opportunity to better integrate the passenger rail with other modes of transportation.

#### **Reduced Road Traffic Delays**

The current rail operations have imposed significant delays to road users at existing at-grade crossings. Reducing the number of at-grade crossings could greatly reduce the delays to road users and improve bus transit planning and operations.

#### **Improved Roadway Operational and Safety Performance**

Some of the existing rail crossings have resulted in geometric deficiencies in roadway operations. Eliminating these crossings could improve the operational and safety performance of the roadways at these crossings.

#### **Reduced Rail Maintenance Costs**

Consolidating rail lines would reduce the cost of maintaining trackage on low-usage corridors.

#### **Redevelopment**

Rail rationalization could provide opportunities to redevelop abandoned or under-utilized tracks and/or yards. This redevelopment could take the form of infill or ‘brownfield’ redevelopment, thereby reducing the amount of ‘greenfield’ development in the City. Other opportunities could involve re-naturalization or converting the corridors for alternative transportation uses (transit, cycling and/or pedestrian). However, it should be



noted that the conversion of rail lands to other uses has historically involved significant site remediation to remove environmental contaminants.

### **Reconnecting Communities and Improving Transportation Network**

Consolidating rail corridors could also present opportunities to connect discontinuous streets and thereby re-connecting communities. It could also improve intersections and interchanges, construct new roadway connection, and generally improve the transportation network in the City.

### **Intermodal Facility**

An intermodal facility, which would service rail, truck and air freight traffic, as well as passenger traffic, has been proposed for the Windsor Airport lands adjacent to the CPR Windsor Subdivision. An intermodal facility could encourage a modal shift from road to rail freight and ease traffic congestion on the constrained road border corridors. The feasibility of an intermodal facility should be reviewed in conjunction with potential rail rationalization scenarios.

### **3. Rail Rationalization Opportunities**

#### **3.1 Development of Rail Rationalization Alternatives**

Based on the existing rail operations and future needs, several initial rail rationalization concepts were identified. These concept ideas were used as starting points to develop a long-list of rail rationalization alternatives. During the development of concept ideas, initial opportunities and constraints with the concepts were also identified. A detailed description of the development of preliminary rationalization alternatives and the selection of a technically preferred alternative can be found in Technical Report 2 (TR2).

##### **3.1.1 Passenger Rail**

In a recent study performed by VIA Rail in its Quebec–Windsor corridor, VIA expressed interest in operating to Detroit by way of the Detroit River rail tunnel. During the study, several alternatives for VIA trains to access the tunnel were discussed including:

1. Following VIA's current route along the Chatham Subdivision to George Avenue, turning southwest onto the ETR Spur Line, and then running through the rail tunnel via the tunnel connection off the Windsor Subdivision;
2. Entering onto the Windsor Subdivision near Ringold (west of Chatham) and running over the CPR main line to the rail tunnel; or
3. Running over CN lines to Chatham, turning south to Fargo via CN's Blenheim Spur, turning west onto the CASO Subdivision, and then following the CASO Subdivision into the rail tunnel.

There are several issues associated with each of these alternatives, in particular the ETR alternative (Option 1), which would put passenger trains through a heavily populated residential area plus lead the VIA trains through the Ford and General Motors auto plants.

Although VIA may prefer the most direct option of accessing the rail tunnel via the Windsor Subdivision (Option 2), the relatively higher-speed passenger train operations would have a significant impact on CPR's single-track Windsor Subdivision, which currently has capacity suitable for CPR trains only. The impact of the VIA trains on track capacity would be predominantly felt by CPR, however, some capacity concerns could also be felt by CN trains operating over the Windsor Subdivision between the CN Van de Water Yard and the CN Little Yard.

The option of running VIA passenger trains over the Blenheim Spur and CASO Subdivision (Option 3) would result in a marginally longer journey, but from the service perspective, this option is comparable to having the VIA trains run over the Windsor Subdivision. It would, however, require the relocation of the VIA Chatham Station, which is located west of the Chatham Subdivision's junction with the Blenheim Spur.

Another important consideration in the assessment of these alternatives is the fact that the Windsor Subdivision, Blenheim Spur and the CASO Subdivision would all need upgrading in order to accommodate VIA's passenger trains.

### **3.1.2 Freight Rail**

The relocation of passenger rail traffic from the Chatham Subdivision may then provide opportunities to consolidate or rationalize freight traffic within Windsor. There are three separate freight routes into Windsor from the east: the Chatham Subdivision, the Windsor Subdivision and the CASO Subdivision. The Windsor Subdivision sees heavy usage by CPR, the CASO Subdivision sees regular, but lighter, use by CN, and the Chatham Subdivision is currently only used by VIA for passenger trains. (However, operating agreements are in place that allow other railways to use both the CASO and Chatham subdivisions.)

Several opportunities exist to relocate freight traffic and abandon sections of track. Opportunities include abandoning one or two of the main freight routes into the Windsor and consolidating freight traffic into the remaining route(s). Other sub-options include rationalizing some of the rail spur lines in the city.

Due to the fact that the Chatham Subdivision is not directly connected to either the rail tunnel or the main Windsor rail freight yards, and its primary user (VIA) would like to move to another corridor, the Chatham Subdivision would initially appear to be the most promising for rationalization. Likewise, the CASO Subdivision currently sees less rail traffic than the Windsor Subdivision, however, the CASO Subdivision provides the most direct connection to the rail tunnel. In any event, alternatives that add additional traffic to the Windsor Subdivision will result in operational problem as the corridor does not have capacity to accommodate additional rail carriers.

Unlike the other major rail lines in Windsor, no duplication exists for the ETR railway route. It was recognized early on in the study that due to the unique operating environment of ETR and the local switching services that they provide to Windsor businesses, no rationalization opportunities exist for the ETR line.

### **3.1.3 Rail Yards**

Opportunities for rail rationalization may then provide opportunities for the reduction, removal, or relocation of yard operations. Given that the CPR Windsor Yard is not directly connected to the rail tunnel and is located in downtown Windsor, CPR might be willing to consider relocating their yard operations to a new location. If CN's operations (and ETR's interchange operations) can be relocated, the need for the CN Van de Water Yard, in its current location, may also no longer be required.

The introduction of an intermodal facility in Windsor may also provide an opportunity to relocate some yard functions from the CN Van de Water Yard and the CPR Windsor Yard.<sup>5</sup> One alternative that was proposed in the past would involve the construction of

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5. An intermodal facility, which would service rail, truck and air freight traffic, as well as passenger traffic, has been proposed for the Windsor Airport lands adjacent to the Windsor Subdivision. A Windsor intermodal facility could encourage a modal shift from road to

new yard facilities on the Windsor Airport lands south of the Windsor Subdivision. The drawback to this location is the fact that it is on the opposite side of the mainline track from the CPR Walkerville Yard and the CN Little Yard. Moving freight cars between these locations and an airport rail facility could hinder operations on the Windsor Subdivision. An additional hindrance to the Windsor Subdivision operations would be the need to run ETR trains between the airport rail facility and the ETR lines to maintain ETR's switching operations with both CPR and CN.

### **3.2 Rail Line Rationalization Alternatives**

The challenge in developing rationalization alternatives for the Windsor rail lines was to attempt to strike a balance between the objectives of the City and the requirements of the rail companies. Following discussions with the City and the rail companies on the initial rail line rationalization concept ideas, the concepts were refined into a long list of preliminary alternatives. In total, nine rail rationalization alternatives were developed. The alternatives that were analysed and evaluated are included in **Appendix A**.

### **3.3 Rail Yard Relocation Alternatives**

Independent of the rail line consolidation options, two stand-alone rail yard relocation concepts were also examined and developed. The following proposed yard relocation concepts could support any of the proposed rail rationalization alternatives, but are not integrated components of the overall rail rationalization.

Should rail yard relocation be desired, the most feasible option would be to retire the CPR Windsor Yard and reconstruct it southeast of the CPR Walkerville Yard on the Windsor Airport lands. The Windsor Airport has confirmed that areas south of its main runway are available for new train yards. This concept has the potential to generate significant community benefits to existing residential neighbourhoods surrounding the existing Windsor Yard. However, it is noted that from CPR's point of view, there is no need or urgency to relocate their existing Windsor Yard operations.

Relocating the CN Van de Water Yard to the Windsor Airport is also technically feasible, but is not recommended. Like CPR, CN has noted that they have no need to relocate their current yard operations in Windsor. Relocating this train yard has less potential to generate significant community benefits due to the adjacent business and commercial land uses. This yard is currently heavily used to interchange freight cars between ETR, CN, CSXT, and NS. In addition, unlike the Windsor Yard, the Van de Water Yard has a direct connection to the rail tunnel.

As part of either scenario, ETR would require running rights on the Windsor Subdivision in order to maintain its switching operation at the new yard(s).

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rail freight and ease traffic congestion on the constrained road border corridors. Modal integration opportunities are discussed further in Technical Report TR3.

### 3.4 Consultation

At the beginning of the study, two advisory groups were formed to provide input to this study: the Partner Agencies Group and the Stakeholders Group. The Partner Agencies consisted of the key railway companies in Windsor (CN, CPR and VIA) as well as Serco Aviation. ETR was also included in the rail rationalization meetings. The Partner Agencies were consulted on the technical, physical and operational aspects of Windsor rail rationalization. The Stakeholders Group consisted of key members of the Windsor business community (e.g., Windsor Chamber of Commerce, Airport Advisory Committee, DaimlerChrysler, Ford, GenAuto and General Motors) with an interest in railway rationalization in the city and other agencies (e.g., Windsor Bicycling Committee) who have a stake in the potential benefits and impacts of rail rationalization.

#### 3.4.1 Partner Agencies Group Meetings

During this phase of the study, two meetings were held—in April and October 2006—to discuss potential rail rationalization alternatives. Notes of the meetings are appended to Technical Report 2 (TR2).

Preliminary rail rationalization concepts were presented to the group for comments and feedback on physical/operational feasibility criteria. Based on comments received from the Partner Agencies and from the City staff, the MRC Study Team generated a “long list” of alternatives and assessed the benefits/impacts—on a strategic level—associated with each alternative. The railway companies provided feedback on key technical and operational issues related to the long list of alternatives, as well as the MRC Study Team’s impact/benefit assessment. City staff also provided input on the community benefits/opportunities associated with the long list of alternatives. It was recognized that the success of one concept over another would depend on many more criteria—such as commercial agreements—that could not be fully determined under the scope of this high-level feasibility study.

Following the development and analysis of the long list of alternatives, the Partner Agencies provided input to the evaluation of the alternatives and reviewed and commented on the technically preferred alternative. **However, it should be noted that the technically preferred alternative identified by the MRC Study Team is not necessarily the preferred alternative of the individual Partner Agencies. Appendix B** contains a summary of key comments from the Partner Agencies on Windsor rail rationalization.

#### 3.4.2 Stakeholders Group Meeting

During this phase of the study, a meeting was held (in October 2006) with the Stakeholders Group to present the preliminary technically preferred rail rationalization alternative, and both rail yard relocation concepts. The MRC Study Team also provided an update on the status of the study and discussed issues related to modal integration in Windsor. Those attending the meeting gained a better understanding of the many hurdles that must be overcome before rail rationalization can occur in Windsor. Notes of the meeting are appended to Technical Report 2 (TR2).

### 3.5 Analysis and Evaluation of Alternatives

The comparative assessment of the rail rationalization alternatives was a two-step process. The first step involved an analysis of the impacts of the various alternatives under consideration. At this stage, each technical, railway and community factor was examined to determine the extent of impact of each alternative.

The second stage was the evaluation itself. This stage built upon the information obtained from the impacts assessment stage and involved a comparative analysis of the advantages and disadvantages of the alternatives to select a technically preferred alternative.

The City and the Partner Agencies provided technical input to the analysis and evaluation process. All the rail rationalization alternatives were evaluated in terms of the three main rail subdivisions—Chatham, Windsor and CASO—and new operating routes. Using the advantages and disadvantages of each alternative under the factors, alternatives were either set aside from further consideration or carried forward to the next evaluation phase. Based on this evaluation, a technically preferred alternative was identified. The detailed analysis and evaluation tables for the alternatives can be found in **Appendix C**.

#### 3.5.1 Analysis

The MRC Study Team analyzed each rail line rationalization alternative based on several factors. These included technical factors, railway factors and Windsor community factors. The alternatives were grouped in tables based on major factor groups so that each alternative could be compared with the others. These tables are included in **Appendix C**. The key benefits and impacts of the alternatives on the Windsor community are also shown graphically in **Appendix D**. The key benefits and impacts to the railways are shown in **Appendix A**.

#### 3.5.2 Evaluation

All the rail rationalization alternatives were evaluated in terms of the three main rail subdivisions—Chatham, Windsor and CASO—and new operating routes. Using the advantages and disadvantages of each alternative under the factors, alternatives were either set aside from further consideration or carried forward to the next evaluation phase. Based on this evaluation, a technically preferred alternative was identified.

Based on the evaluation of the alternatives, the identified technically preferred alternative is Option L4: the retirement of the CASO Subdivision outside of Windsor, the retirement of the entire Chatham Subdivision, and the consolidation of CN, CPR and VIA rail operations on the Windsor Subdivision.

In light of the complications surrounding combined CN/CPR operations, Option L3 is identified as an ‘**interim**’ step to the implementation of the technically preferred alternative.

### 3.5.2.1 Rail Yard Relocation

While relocating both the CPR Windsor Yard and CN Van de Water Yard are technically feasible, neither relocation is required by CN or CPR. However, the most feasible option would be to relocate the CPR Windsor Yard to an area on the Airport Lands.

Relocating the Windsor Yard would release a significant portion of downtown Windsor land for potential redevelopment and would allow the reconnection of several city streets, including Elliot Street, Erie Street and Giles Boulevard. It would also eliminate one level road crossing (on Tecumseh Road) and reduce train conflicts at the complex Lakeshore Junction.

However, given the long-term use of the area as a rail yard, there is a high potential that the land is contaminated with some level of hazardous material, and therefore would require significant costs for remediation. Due to the uncertainty about the condition of the underlying soil and the fact that the railways' do not require the relocation of their Windsor rail yards, a preferred rail yard relocation concept is not included in the overall technically preferred alternative.

## 3.6 Technically Preferred Alternative

The identified preliminary technically preferred alternative (TPA) is viewed as the 'ultimate vision' of the Windsor rail network.

The option would require significant rail operating changes in southwestern Ontario, which would likely only occur over the long term. Given the long-term nature of this option, an initial 'interim' rail rationalization scenario leading to the ultimate vision is proposed. This option could be implemented in the medium-term timeframe.

The Partner Agencies recognizes that the TPA is the preferred *community* vision for rail rationalization in Windsor, but caution that there are many more challenges to overcome before the TPA could be implemented, such as the negotiation of new operating agreements between the railway companies, addressing the removal of rail access to existing railway customers, and most importantly, obtaining funding.

### 3.6.1 'Ultimate' Scenario

Key Features (**Exhibit 3.1**):

- Remove the Chatham Subdivision west of Ringold.
- Remove the CASO Subdivision between Fargo and the Pelton Spur.
- Consolidate all east-west rail traffic onto the Windsor Subdivision.
- CN would operate on the Windsor Subdivision–Pelton Spur–CASO Subdivision route between Ringold and the rail tunnel.
- VIA would operate on the Windsor Subdivision west of Ringold.

- A new VIA Windsor station would be constructed closer to downtown on the Windsor Subdivision, near the north end of the Van de Water Yard.

It is recognized that the removal of the CASO Subdivision east of the Pelton Spur (east of Walker Road) would mainly benefit communities outside of Windsor. However, the CASO Subdivision cannot be removed west of Walker Road as it provides the most direct access to the heavily-used CN Van de Water Yard. Although trains could theoretically access the Van de Water Yard from the Windsor Subdivision, these trains would have to first head towards the rail tunnel, stop near the tunnel entrance, and shunt back towards the Van de Water Yard. Trains leaving the Van de Water Yard for the Windsor Subdivision would follow the reverse manoeuvre. Such manoeuvres would create significant rail operating issues in an area that is on a downgrade and that already experiences a high level of railway traffic.

### 3.6.2 'Interim' Scenario

As the first step towards the 'ultimate' rail rationalization scenario in Windsor, an interim TPA scenario was identified (**Exhibit 3.2**). The interim scenario does not include the removal of the CASO Subdivision nor the combination of CN and CPR operations in one corridor. Only VIA traffic would shift to the Windsor Subdivision. This is considered a more 'feasible' rail rationalization scenario that can be achieved within a shorter timeframe.

### 3.6.3 Opportunities

#### 3.6.3.1 Windsor Community

There are several community benefits and opportunities that would result from implementing the TPA:

- It would improve roadway operations, traffic/pedestrian safety, and eliminate road traffic delays at some rail crossings.
- It would reduce noise levels, vibration, and improve air quality for residents living along the abandoned corridors.
- It would create an opportunity to redevelop the abandoned railway corridors (for transit, greenway, trails, etc.), improve streetscapes, improve urban design, and enhance neighbourhood ambience.
- The TPA, by proposing to consolidate the majority of rail traffic onto the Windsor Subdivision, would also support the City's objectives of double-tracking the proposed/under construction grade separations at Howard Avenue and Walker Road.



### **3.6.3.2 Railway Companies**

The identified benefits to the rail companies, although somewhat limited, are:

- Reduced infrastructure maintenance as a result of track abandonment.
- The potential opportunity gain derived from track abandonment (e.g., sale of the scrap metal and the right-of-way).

### **3.6.4 Impacts**

#### **3.6.4.1 Windsor Community**

There are significant overall City-wide community benefits associated with the TPA; however, there are some local impacts associated with specific areas:

- Decrease in road level of service at five existing at-grade railway crossings along the Windsor Subdivision—due to the addition of eight VIA trains (4 cars in each train) and six CN trains (11 to 50 cars in each train) per day.
- Increase in noise, vibration, and reduction in air quality associated with the increase in rail traffic along the Windsor Subdivision.

#### **3.6.4.2 Railway Companies**

The identified impacts to the railway companies are:

- Increased track maintenance costs as a result of infrastructure upgrades required under both the ‘Ultimate’ and the ‘Interim’ scenarios.
- Combined CN/CPR operations in one corridor could create operating issues.
- CN – loss of an alternative route into Windsor as a result of the Chatham Subdivision abandonment.
- CN – a monetary loss due to the loss of existing customers (e.g., Hiram Walker).
- CN – a monetary loss due to the loss of existing Chatham Subdivision operating and commercial agreement with NS.
- CN – negotiating running rights with CPR for operating on the Windsor Subdivision.
- VIA – negotiating running rights with CPR for operating on the Windsor Subdivision.
- CPR – increase in rail traffic through the complex Lakeshore Junction as a result of VIA switching its operation onto the Windsor Subdivision.

### 3.6.5 Outstanding Issues

Although the TPA presents a feasible rail rationalization scenario from a technical and operational point of view, there are many implementation challenges that must be addressed before the scenario could be implemented, including:

- Infrastructure upgrades on the Windsor Subdivision, including full double tracking, some triple track sidings (ultimate TPA only) and CTC, are required to accommodate VIA and CN trains.
- Restructuring existing long-standing and complex operating agreements between various railway companies.
- Negotiating new running rights (operating agreements) with CPR for use of the Windsor Subdivision by the other railways.
- Addressing the complications arising from operating both CN and CPR freight trains in the same rail corridor (ultimate TPA only).
- Addressing CN's potential opportunity loss (e.g., loss of existing/future customers and operational flexibility in Windsor) as a result of the abandonment of the Chatham and CASO subdivisions.
- Obtaining external funding for the significant costs associated with the TPA.

### 3.6.6 Preliminary Construction Cost Estimates

Preliminary 'broad-brush' construction cost estimates were developed for the interim and ultimate rail rationalization scenarios. These estimates were based on typical known unit costs for new track, track upgrades and track abandonment, respectively. No in-depth analyses were performed as part of this feasibility study, and therefore, these cost estimates should be considered *very* preliminary.

#### 3.6.6.1 Interim Scenario

The first rail rationalization phase would be to remove the Chatham Subdivision between Ringold, west of Chatham, and the Detroit River. Although there is a cost for the physical removal of the existing track between these two locations, it is assumed that the funds received from the sale of the rail and steel track material would yield a positive net salvage value; which, based on current prices for scrap steel and reusable rail, is estimated at \$75,000/km. Based on this unit cost, the removal of the Chatham Subdivision between the Detroit River and Ringold (70 km) could realize a net positive salvage of about \$5.3 million (\$0.7 million for CN and \$4.6 million for VIA).

The Ringold ‘diamond’ would require reconfiguration to allow trains to travel between the Chatham Subdivision and the Windsor Subdivision.<sup>6</sup> The new embankments, trackage and signal interlocking would cost approximately \$3 million.<sup>7</sup>

The Windsor Subdivision would require full double tracking between Ringold and Windsor, except at locations with existing sidings and the existing double-track section west of Walkerville Yard. Therefore, 54.4 km of the 71.6 km Windsor Subdivision would require a second track. The track doubling work would include:

- Embankment widening;
- New track construction;
- Five double crossovers (one every 10 km);
- New rail bridges and overpasses; and
- Expansion of the signals and communications to full Centralized Traffic Control (CTC) to cover the second track and safely control the faster and shorter VIA trains interspersed with the slower and longer CPR trains.

It is believed that all of the above work can be accommodated within the existing CPR right-of-way so no additional land would be required. The widening of the existing embankment is based on an average height of 2.5 m and an added width of 4.5 m.

It is important to note that once the CPR Windsor Subdivision has been double tracked and the five sets of double crossovers are installed, there would be no need for additional trackage to handle the expected freight and passenger traffic for many years to come.

In addition to the track work, a new VIA Windsor Station would be required. Based on recent train station construction in the Toronto area, a new station can be constructed for about \$6 million. Based on the above, the preliminary construction cost estimate for the interim scenario would be about **\$175 million** as outlined in **Table 3.1**, below.

**Table 3.1 – Interim Scenario Preliminary Cost Estimate**

Item	Unit Cost	Length	Total
Ringold diamond reconstruction	n/a	n/a	\$3,000,000
Embankment widening	\$300,000/km	54.4 km	\$16,320,000
New track construction	\$600,000/km	54.4 km	\$32,640,000
New rail bridges and overpasses	\$750,000/km	54.4 km	\$40,800,000

6. A diamond is where two rail lines cross each other. The physical track crossing is in the shape of a '+', but the tracks are not necessary perpendicular to each other.

7. In railway signalling, an interlocking is an arrangement of signal apparatus that prevents conflicting movements through an arrangement of tracks such as at a junction or crossing. The signalling appliances and tracks are sometimes collectively referred to as an interlocking plant. An interlocking is designed so that it is impossible to give clear signals to trains unless the route to be used is in fact safe to use.

Item	Unit Cost	Length	Total
Double crossovers	\$1,000,000	5 crossovers	\$5,000,000
Centralized Traffic Control	\$500,000/km	71.6 km	\$35,800,000
New VIA Windsor Station	n/a	n/a	\$6,000,000
<b>Subtotal</b>			<b>\$139,560,000</b>
Contingency (30%)			\$34,890,000
<b>Total (Rounded)</b>			<b>\$175,000,000</b>

### 3.6.6.2 Ultimate Scenario

The second or ultimate phase of rail rationalization would entail the further abandonment of the CASO Subdivision between the Pelton Spur and Fargo. This additional rail line abandonment would total 76 km and would result in a net positive salvage value of \$5.7 million.

In addition to the new Windsor Subdivision double tracking required for the interim scenario, due to the additional operation CN trains with the CPR and VIA trains, it is likely that additional triple track sidings would be needed in several locations. Based on the locations of the existing sidings, it is estimated that 17.2 km of new sidings would be required. Based on the unit costs outlined under the interim scenario, the preliminary construction cost for the new sidings is estimated at about **\$38 million**, as shown in **Table 3.2**, below.

**Table 3.2 – Preliminary Estimated Additional Costs Associated with the Ultimate Scenario**

Item	Unit Cost	Length	Total
Embankment widening	\$300,000/km	17.2 km	\$5,160,000
New track construction	\$600,000/km	17.2 km	\$10,320,000
New rail bridges and overpasses	\$750,000/km	8.6 km	\$6,450,000
Centralized Traffic Control	\$500,000/km	17.2 km	\$8,600,000
<b>Subtotal</b>			<b>\$30,530,000</b>
Contingency (25%)			\$7,632,500
<b>Total (Rounded)</b>			<b>\$38,000,000</b>

Therefore, including the interim scenario, the total construction cost for the ultimate Windsor rail rationalization concept would be in the order of **\$213 million**.

It should be noted that the technically preferred alternative has been identified as the most technically preferred by the MRC Study Team; however, it does not necessarily imply that the Partner Agencies have signed-off on the alternative.

Notwithstanding the technical feasibility of rail line or yard rationalization scenarios, there are many more challenges to overcome before they could be implemented. Major issues such as the negotiation of new operating agreements between the railway companies, addressing the removal of rail access to existing railway customers, and most importantly, obtaining funding, would need to be addressed before any rationalization could occur.

## 4. Modal Integration Opportunities

An intermodal facility, which would service rail, truck and air freight traffic, as well as passenger traffic, has been proposed for the Windsor Airport lands adjacent to the CPR Windsor Subdivision. A Windsor intermodal facility could encourage a modal shift from road to rail freight and ease traffic congestion on the constrained road border corridors. A facility at the Airport may also relieve traffic issues from downtown Windsor as a result of truck traffic from existing yards.

As part of the *Community Based Rail Study* at a preliminary level, the feasibility of a Windsor intermodal facility was investigated. All key stakeholders were consulted, including the rail companies and the airport operator. Several other intermodal contexts around North America were reviewed to examine the opportunities and issues solved as a result of the intermodal yards presence. A detailed background and description of the modal integration opportunities can be found in Technical Report 3 (TR3).

### 4.1 Windsor Airport Lands

The existing Windsor Airport, owned by the City of Windsor, occupies 815 hectares of land. The airport is bordered on the north by the CPR Windsor Subdivision, the west by the CN Pelton Spur and Walker Road, and Highway 401 and the CASO Subdivision at the far south limit. About 356 ha of the airport lands have been identified as surplus, most recently in the 2003 Windsor Airport Reserve Land Study. The study accounted for the proposed airport improvement projects, which are independent of any multimodal facility proposals, including a new air terminal building, a 300 m runway extension, new taxiways, new VHF transmitter and receiver sites, a new air traffic control tower site, and improved parking and airport access.

The surplus land is located in the southeast quadrant of the airport, and has been the subject of development proposals, including Serco's conceptual development plan prepared for the City of Windsor in 1998. This plan included a new 97.5 ha multimodal terminal located in the northeast corner of the surplus lands, a 182 ha high-tech employment centre, a recreational/open space, and air and groundside development areas.

In 2002, the City of Windsor annexed a large portion of land south of the Windsor Airport from the Town of Tecumseh to accommodate future city growth, particularly employment growth. Subsequent to the annexation, the City conducted a land use study to determine the preferred land use concept for the subject lands. As part of the recommended land use concept plan developed in October 2006, an area south of the main east-west runway has been designated for a "potential multi-modal area".

Included in the recommended employment land policy statements for the annexed lands is that "[l]arge scale manufacturing and/or multi-modal facilities should be encouraged to locate on the airport lands, east of the Airport Operating Area or east of Lauzon Parkway,

between the EC Row Expressway and County Road 42 to facilitate the interconnectivity of air, rail and road transportation systems.”<sup>8</sup>

## 4.2 Rail Companies’ Views on Intermodal in Windsor

As part of the consultation undertaken for this study, the potential of an intermodal terminal at the Windsor Airport was discussed with the major railway companies in Windsor. **Each company had differing views on intermodal based on their individual business operations, but all shared one common opinion. This was that there is no current need for a new or expanded Windsor intermodal freight terminal.**

This view was based on the fact that the existing Windsor rail yards are adequate for each railway’s operations and that Windsor is already served by several private intermodal and transload facilities. In addition, both CPR and CN’s Toronto-area and Detroit intermodal facilities already serve the south-western Ontario market and both operators have no need for supplemental facilities in Windsor.

However, as previously discussed during the City’s Airport annexed lands study, CPR would be willing to consider a new train yard at the Windsor Airport to replace its existing Windsor Yard, should outside funding be available. While the Windsor Yard is adequate for CPR, it has no direct connection to the Detroit River rail tunnel and therefore CPR must shunt trains to and from the Walkerville Yard for cross-border travel. A new yard at the Airport would allow CPR to consolidate their operations in one central location.

## 4.3 Modal Integration Opportunities

### Passenger

The preferred ultimate rail rationalization scenario relocates all rail traffic into the CPR Windsor Subdivision corridor. Relocating rail traffic and not relocating the yards would only provide passenger rail integration opportunities at the Windsor Airport. A passenger station on the airport lands would be located along the south side of the CPR Windsor Subdivision, east of the EC Row Expressway overpass and would be quite removed from the existing airport terminal. To move the passenger station closer to the existing airport terminal would require construction of additional rail infrastructure which would directly access the terminal. This construction would be very costly and would include a loop at the end so trains could continue without reversing movements back out to the mainline track.

VIA has indicated that they have no interest of locating a station at the Airport. Their customer base/market is in downtown.

Given that VIA have not expressed an interest in relocating their station to the Airport and that passenger access to airports is typically provided at very busy airports, providing rail passenger integration at the Windsor Airport is currently not recommended. Public

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8. Stantec Consulting Ltd., in association with Pryde Schropp McComb Inc., *Windsor Annexed Lands Master Planning Study – Background Reports Summary*, September 13, 2006, p. 14.5.

transit services between the airport and the VIA station can be provided to serve passengers between the two destinations.

In the future as both air and rail ridership growth occurs, a Cost–Benefit study could be completed to revisit the need for air/rail passenger integration in Windsor.

### **Freight**

The rail yard relocation scenarios identified in TR2 are independent of the rail rationalization options and that any yard relocation to the airport lands would create modal integration opportunities for transport by air, truck and rail.

Currently CPR and CN operate yards within Windsor along with ETR and other small private operators where goods are loaded and unloaded from rail cars. The goods are typically shipped to the facilities by truck. The preferred rail yard relocation alternative moves the CN and CPR facilities onto the airport lands and provides a consolidated location for Transload operations. One of the issues associated with the relocation of Transload facilities to the airport is that some of the existing facilities within Windsor are privately owned and a new facility built with public money may be objected to.

There are some basic requirements for a new Intermodal Yard on the airport lands, they include:

### ***Land Development Approvals***

Any development of an intermodal terminal on surplus airport lands would require the appropriate zoning amendments, as well as approval from Transport Canada, and a screening under the Canadian Environmental Assessment Act.

There are two main issues that relate to the compatibility of a intermodal terminal with the surrounding land uses – the airport operations and the rail-truck operations.

The airport is affected by Transport Canada regulations and industrial lands uses are affected by Ministry of Environment guidelines.

### ***Transport Canada Regulations***

Transport Canada produced a publication “Land Use in the Vicinity of Airports - TP 1247E”, dated seventh edition May 1996. This publication sets out regulations for land uses near airports. It gives recommendations for land uses that affect equipment – telecommunications, radar and electronic systems, and land uses that are affected by noise. The publication explains noise exposure forecasts (NEF) that are used to measure noise around airports. This regulation was taken into account in the Master Plan for the annexed area, and no new residential areas are proposed within the 30 NEF contour around the Windsor airport.

### ***MOE Guidelines***

The Ministry of Environment (MOE) has developed guidelines related to land use compatibility and sensitive land uses. Guideline D-1 deals with land use compatibility. The guideline recommends separation distances between incompatible uses. As an



intermodal facility is proposed on the annexed land on the edge of the urban area of Windsor, the only established land use, apart from rural residences that will be affected, is the airport. The airport is not a sensitive land use and is a significant generator of noise, so there will be no effect on the existing land use, the airport. There may be an effect on future residential areas that are proposed in the future urban areas of the annexed lands. At the time that new areas are considered for residential development, the MOE guidelines will be reviewed as part of the planning application process, and any necessary separation distances or buffers can be implemented.

The D-6 Guideline deals with compatibility between industrial facilities and sensitive land uses. Sensitive land use may be a part of the natural or built environment. It may include the following types of facilities:

- Residences, including hospitals, nursing homes and campgrounds
- Institutional uses, e.g. schools, churches, community centres and day cares
- Certain outdoor recreational uses e.g. trailer parks, picnic areas
- Certain agricultural operations e.g. cattle raising, mink farming, orchards
- Bird and wildlife habitat or sanctuaries.

By following the MOE guidelines, an intermodal facility can be planned for without causing incompatibility of land uses.

As the development of a potential intermodal facility is expected to be many years in the future, this provides the opportunity for the proposed facility to be shown in the City of Windsor Official Plan well in advance of its construction. Surrounding land uses can be planned and built knowing that an intermodal facility is anticipated. The City can ensure that all new developments in the vicinity are subject to the MOE guidelines, and then when the facility is finally built, it will not cause any adverse effects to existing land uses.

The Official Plan currently designates the land as “Future Employment Area”. There is the opportunity that a more specific term be used such that future landowners would be alerted to the type of land use that will likely occur on the property. With such a designation, the City of Windsor would be in a position to ensure that development that is planned in close proximity to the site either accommodates or mitigates for the intermodal use.

### ***Services***

Construction of an intermodal facility, along with any other proposed development, will require services, including utilities, sanitary sewer connections, and stormwater facilities. Serco’s 1998 study suggests that provision of these services will not be problematic, and the study includes a conceptual servicing plan. A 2000 study by Coco Development Group also includes a conceptual servicing plan for the surplus airport lands. The Serco study notes that stormwater facilities must be designed so as not to attract birds to the area.

### ***Road Network***

The proposed location for the multimodal terminal is in relatively close proximity to both Highway 401 and E.C. Row Expressway. Access to Highway 401 would likely require improvements to Walker Road and/or an extension of Lauzon Parkway. Access to E.C.

Row Expressway would likely be provided by Jefferson Blvd., Lauzon Parkway, and Central Ave. A 6-km Lauzon Parkway freeway link between Highway 401 and E.C. Row Expressway has been proposed, as has the widening of E.C. Row Expressway by one lane between Lauzon Parkway west to Ojibway Parkway. Improvements to other elements of the local road network would be required to facilitate development, and discussions between proponents of the development and the City of Windsor have taken place in the past regarding this issue.

### ***Restrictions on Development***

Major constraints to development of the airport surplus land are NAV CANADA's electronic zoning requirements for navigational aids and communications equipment; as relocation of some of this equipment has been proposed, the constraints imposed by each must be considered. Instrument landing systems (ILS) are particularly susceptible to interference from metallic structures; thus, nearby structures (including rail lines), must be located so as not to interfere with the system.

Electronic equipment, such as the glide path antenna, VHF transmitter and receiver, transmission source locator, and others, would impose restrictions on nearby development. VHF equipment can also generate electromagnetic interference that may impact factory robots, and this is one of the reasons for the proposed relocation of this equipment. The height and footprint of any proposed facility will be restricted by the relocation of this equipment.

### **Marine Opportunities**

The Port of Windsor is a full-service port with fourteen terminals along the Detroit River moving goods by water. Port Windsor stretches over 20 km of Detroit River shoreline with the industrial/marine facilities concentrated in the western portion of the Port. Port Windsor is centrally located on the Great Lakes/St. Lawrence Seaway System, Its central location is one of the Port's greatest assets.

Port Windsor is the third largest Canadian Great Lakes port in terms of shipments. Cargos include a wide range of products such as aggregates, salt, grain, fluorspar, lumber, steel, petroleum, vehicles and heavy lift equipment. Particularly, stone entering the port continues to be a main commodity as highway expansion and construction projects continue.

Over the past decade, shipments of goods through the Port increased 38% from 4.2 million tonnes to 5.8 million tonnes. Growth has paralleled the buoyant Windsor and mid-west U.S. economies. Other than salts which are outbound, most of the other cargoes are inbound from the east.

In terms of potential integration with an intermodal facility at the Windsor Airport, there is existing rail lines and roads connecting between the Airport and the Port. The ETR currently operates in the Port with rail connections to the existing CN, CPR and NS.

Currently, there is no dedicated container shipping in the Great Lakes. There are challenges associated with container shipping in the Windsor area. Generally, container

traffic is driven by manufacturing products and as such major container ports are typically located at major manufacturing centres. While container business is year-round, the St. Lawrence Seaway operates only 9 months due to the close-down in the winter months. It presents a competitive disadvantage when the marine cargos have to rely on other transportation modes for 3 months of the year. The Seaway is also too small to handle the Ocean cargo vessels.

However, current trends have seen more oversea cargos shipped to the East Coast (since the West Coast is very busy and has capacity limitation), i.e. Halifax. From Halifax, some cargos continue by sea to Montreal where they are transferred to trucks or rail enroute to the U.S. Mid-West. There could be a market for continuing the cargo on marine from Montreal to Windsor by transferring the cargos from Ocean vessels to Great Lake vessels.

In addition, Port Windsor has potential to develop specialized cargo services such as biodiesel. Grains from the U.S. Mid-West could be transported by ships to Windsor where they would be processed for liquid fuels. These liquid fuels could then be shipped to Europe where there is a market for biodiesel.

### **Air Freight Opportunities**

In general, air-rail intermodal shipments are rare, mainly due to the differing nature of cargo carried by each mode. There are, however, air-rail-truck intermodal facilities in operation, including Vatry, France, and Vantaa, Finland. Other airports, such as the Vienna International Airport in Austria, have greatly increased their air freight volumes by catering to high-tech and pharmaceutical markets.

The airlines at an airport provide both passenger as well as cargo services on both scheduled and charter carriers. The air cargo activity at an airport involves a cargo terminal, ground aircraft handling, trucking facilities, and government services such as Canada Customs and Agriculture Canada. Shippers drive air cargo production but production is organized differently depending on the type of carrier used (passenger, all cargo or integrator) and the airport used to move the cargo. Air cargo is either carried in the belly of passenger aircraft or on all-cargo freighters.

The air cargo shipper's objective is seeking a secure and reliable, time-definite delivery of their goods. The specific mode of carriage is often not particularly relevant. As a result, surprisingly, many shipments classed as "air cargo" are never placed anywhere near an aircraft. Due to availability of capacity on surface modes and cost considerations, truck or railcar may be employed for all or part of the carriage. For example, at Toronto's Pearson International Airport approximately 25% to 40% of the air cargo is brought in by trucks at the airport's air cargo terminal (or nearby Canada Customs bonded warehouse), is issued an air waybill, and is loaded on a truck to its destination. Sometimes, air cargo from the Toronto area destined for a country with no direct air service is trucked to a major hub such as New York or Chicago airport for its final destination.

Thus, an intermodal facility at or near an airport is attractive for processing air cargo demand of a region. However these facilities typically do not require the presence of rail

infrastructure to function. Recently, a study conducted by a consortium of consultants, including KPMG and Marshall Macklin Monaghan, advised Sault Ste. Marie against the pursuance of an intermodal facility involving air freight. Reasons identified include the competitive and volatile nature of the air cargo industry and that the value of air freight tends to be high, while the volumes are generally low. Additional business case studies could be completed to further understand airside freight logistics and the products that originate or are destined for Windsor that could move by air.

In addition, there has also been some suggestion for a possible seaway connection to be investigated in conjunction with the present study; however, it remains to be seen if this can be accommodated within the scope of the project.

### **Rail Intermodal Facility**

An intermodal terminal facilitates the transfer of freight or passengers from one mode to another. It also provides a transportation hub that can integrate the best features of different modes.

The overall shipper consideration of costs now encompasses the supply chain to the firm and the distribution channel to its customers. Shippers also demand more from carriers such as reliability, real time information, minimal damage, and more ancillary services.

The transportation industry is responding to these new conditions by:

- Mergers and alliances to increase the scope of the service network;
- Providing greater ancillary services;
- Innovation and standardization;
- In-transit visibility and flexibility; and
- Multimodal movements and intermodal connectors.

Intermodal transport represents a permanent change in the market, and a clear sign that railways are playing a bigger role in the movement of finished goods including electronic equipment, clothes and food, and less-dependant on cyclical bulk cargoes.

A recent, positive initiative by CN and CPR has resulted in a series of co-production agreements to make rail operations more efficient for freight traffic through the Port of Vancouver – Canada’s largest, busiest and most diversified port.

As part of the annexed lands study, CPR developed several conceptual train yard layouts on the airport lands for discussion purposes. The conceptual yard layouts included intermodal facilities as well Expressway and other general train yard facilities. The conceptual design shows road access from the terminal to Lauzon Parkway and rail access to CPR’s Windsor Subdivision. The design provides for 366 intermodal truck parking spaces; a 52-acre automotive compound; lumber, steel and dry bulk facilities; marshalling and pretripping yards; rail connections with a future industrial park adjacent to the terminal; and, other operational and maintenance facilities. It was understood that

the facilities shown in these concept drawings would accommodate all of CPR's yard needs in Windsor, and therefore, if a new yard were to be constructed, the downtown CPR Windsor Yard could be retired. However, the CPR concepts were only developed to prove the physical feasibility of a train yard at the airport lands, and no detailed technical or cost/benefit analyses were performed. The estimated property required for the CPR yard was 550 acres or 218 hectares. The facility was sized to accommodate CPR's needs and any alternatives which would include moving CN's Van der Water yard operations to this location would require significant additional lands to support additional yard operations.

The Windsor Annexed Area plan allotted 270 ha to a potential multi-modal facility, as noted above the CPR concept plan alone requires 218 hectares. The ability to expand the facility to include operations from the CN Van der Water yard appears to not exist and expansion of the site would be limited to the 270 ha provided.

At this time both CN and CPR have noted that they have sufficient intermodal facilities within the Southern Ontario region and the expense of building a new facility is not currently justified.

### **Logistic and Distribution Centre**

An airport intermodal facility can offer Windsor the potential to become a more prominent logistic and distribution centre in North America. For instance, a Windsor International Trade Zone can be established, where truck freight can clear US and/or Canada Customs at the airport, then proceed to the Ambassador Bridge, or any other crossing, via controlled lanes. However, recent attempts at establishing pre-clearance at the Peace Bridge have been suspended due to differences in entry requirements between the US and Canada Customs. Nonetheless, services such as warehousing, suffrage warehousing, distribution centres, and brokerages can be offered, reinforcing the "one-stop shopping" concept for importers and exporters, who can use the same facility for US, Canadian, or foreign freight without having to pay for duties until distribution. In other words, a Foreign Trade Zone (FTZ), such as that in Gander and Vancouver, can be established in Windsor. Under this concept, as supported by the Export Distribution Centre (EDC) Program, foreign goods are permitted to arrive in Canada for value-added processing in a tax and duty free environment before the products are shipped onwards to other export destinations. Windsor would effectively become the only US/Canada intermodal zone in North America. The biggest challenge would be to convince Canada and US Customs of the practicality of controlled lanes.

Further, provided that a true intermodal business case could be established, commercial airlines, especially those from China, may be attracted to serving Windsor. Passenger flights could be subsidized by cargo demand, and US pre-clearance for passengers and freight would be available. The idea is to sell Windsor Airport as a key distribution area with access to Canadian and US markets. However, although cargo traffic between China and North America is expected to increase, there is currently overcapacity on this segment. Other consideration includes the trade imbalance that exists between China-North American routes, where operators often struggle to find freight for the return trip from North America to China. This issue would have to be addressed before it can become a viable concept.

## **Recent Trends**

### *Increased Use of Freight Rail – Larger Trend*

Freight transportation is expected to grow significantly in the next 25 years. Trucking companies presently dominate the haulage industry in North America, with approximately 70% of the market. Freight railroads are preparing to play a bigger role in freight transportation, and are working with partners in the trucking, ocean shipping, and logistics industries to respond to increased demand.

Most railroad companies in the past several years have made substantial investments in their networks, and continue to have extensive expansions planned or underway. By adding new sets of track, straightening curves, expanding tunnels for larger trains, building new or expanded freight yards/multi-modal facilities, and obtaining more fuel-efficient locomotives, railroad companies are positioning themselves for increased demand.

The rail industry continues to transition from the primary role of hauling raw materials, such as coal, timber, grain etc. to moving an increasing amount of finished consumer goods. Due to increased globalization, a substantial amount of consumer products originate in Asia and arrive by ship at ports on the west coast. The shipping containers are then moved by rail to key locations throughout North America. Despite increased investment in freight rail infrastructure, capacity remains a significant challenge.

### *Increased Use of Freight Rail – Fuel Related*

Freight railroad operators maintain several advantages over their main competitor, the long-haul trucking industry. The long-haul trucking industry is struggling with rising fuel prices, as well as driver shortages and highway congestion. Moving freight by train rather than truck is a way to reduce fuel consumption, emissions, and traffic congestion.

Industry sources indicate that freight trains move a ton of freight an average of 436 miles on a single gallon of diesel fuel, which is approximately 10 times more efficient than trucks. A single rail intermodal train can remove 280 trucks from the road.

Rising fuel prices are forcing the transportation industry to scale back, with the exception of railroads. Railroad operators are hauling increased amounts of freight throughout North America. Although the railroad industry has economic and environmental advantages over the long-haul trucking industry, the trucking industry is an integral part of the goods movement chain. Overall growth in freight traffic will keep both modes of freight movement busy. Railroads cannot deliver point-to-point and cannot always deliver on time due to rail congestion. Trucks are required to deliver containers, automobiles etc. from the rail head to the final stop. Trucks enjoy the advantage of timeliness and “just-in-time” delivery which is important to commercial and industrial operations.

With respect to passenger rail, the increased cost of fuel is forcing more people to travel by train instead of by airplane or car for long-distance and inter-city commuter travel. Passenger rail is a viable alternative in a number of key corridors.

### *Trucking Industry Trends*

Even before the recent increases in the cost of fuel, the trucking industry had been working toward increased efficiencies within the freight industry. Trends that have been observed include increased use of larger trucks that make more successive deliveries, the use of joint distribution centres and more efficient routing practices, and increasingly more sophisticated logistics management capabilities. It is anticipated that these trends will assist in reducing some of the impacts of fuel cost, as well as other issues facing the trucking industry such as driver shortages and traffic congestion.

Although there has been a recent increase in freight rail transport due to fuel costs, it is part of a much larger freight industry trend responding to increased demand. The freight industry, which includes shippers, transport, and logistic companies, continue to increase investment in, and their use of, multimodal facilities to optimize operations by linking various modes of freight transport. It is hoped that enhanced efficiencies, whether it be timeliness of delivery or reduced shipping costs (which includes fuel costs) can be achieved. Should fuel costs continue to increase it would be expected that freight rail will continue to increase its share of the freight transportation market.

### **Location of Intermodal Site**

Intermodal sites are typically located adjacent to existing railway track that is located on flat land and is a relatively straight length of track of approx. 3 km in length. The site also needs to be close to a major market, and in relatively close proximity to a major highway; in Ontario, preferably next to a 400-series highway.

Because the nature of an intermodal facility is that it generates noise and dust, it needs to be away from residential areas and other sensitive land uses.

An intermodal site at the Airport land meets the location criteria as it is adjacent to a relatively straight portion of track and is on relatively flat land. The Airport land is also well served by transportation infrastructures such as rail lines, E.C. Row Expressway and Lauzon Parkway. In addition it meets the distance criteria, as it is located in an urban expansion area that contains no urban uses because it is essentially comprised of rural lands uses.

## **5. Associated Community Opportunities and Benefits of Rail Rationalization**

Rail rationalization can contribute to the expansion of cities and accelerate its growth, or it can delay and complicate future development opportunities. The benefits and opportunities associated with rail rationalization can be social, environmental, or economic. Whereas some benefits are definitive and easily observable, others are indirect and less tangible. Improvements in operational efficiency and reductions in maintenance costs are examples of direct benefits, while increased real estate value as a result of reduced noise and vibration exemplifies indirect benefits.

This section of the report describes the community opportunities and benefits associated with rail rationalization. Specifically, land use redevelopment opportunities, traffic impacts, and environmental impacts are examined. The discussion is focused primarily on the opportunities immediately within the City of Windsor and on the preferred alternative. A detailed background and description of the associated community opportunities and benefits of rail rationalization can be found in Technical Report 4 (TR4).

### **5.1 Land Use Redevelopment Opportunities**

#### **5.1.1 Current Uses**

In accordance to the City of Windsor Zoning By-Law 8600, land adjacent to the Chatham Subdivision, CASO Subdivision, and Windsor Subdivision are currently zoned primarily as residential, commercial, institutional, and industrial districts. The area along the Chatham Subdivision, from the Detroit River to the Chrysler Spur, is dominated by businesses and light industrial establishments. The different land uses along the railway corridors are presented in the Meridian Planning Consultants report “Non-Railway Uses for Railway Lands.” The area between George Avenue and Jefferson Blvd on the Chatham Subdivision is of greatest concern. Along this segment of the tracks, residential communities and parks are located immediately adjacent to both sides of the railway. As a result, trespassers frequently cross the tracks to save time. East of the Chrysler Spur, major commercial and industrial areas are interspersed among residential communities. Beyond the city limits, the environmentally protected areas of Ruscom Shores and Tremblay Beach are located adjacent to the Chatham Subdivision, on the shore of Lake St. Clair.

Along the Windsor Subdivision, from the Detroit River to the Pelton Spur, the area is predominantly commercial and industrial, with occasional residential and institutional communities found near the rail line. McAuliffe Woods Conservation Area is located to the south of the Windsor Subdivision and east of Lauzon Parkway, just outside of Windsor proper.

The CASO Subdivision, between the Detroit River and the Pelton Spur, consists mainly of commercial, light industrial, business-park, and institutional establishments. Some residential districts and green space are situated near the rail line, but the majority of the



area is zoned for commercial and industrial purposes. The Devonwood Conservation Area can be found to the west of the Pelton Spur and north of the CASO Subdivision and Division Road. The environmentally significant area of Maidstone is located north of the CASO Subdivision between the Pelton Spur and The Town of Essex.

### 5.1.2 City of Windsor Land Use and Rail Use Strategies

Section 6 of the Official Plan outlines the goals, objectives, and policies that the City of Windsor hopes to achieve through appropriate land use planning and designation. Goals pertaining to this study include, but are not limited to:

- Environmentally sustainable urban development
- Convenient and viable areas for the purchase and sale of goods and services
- An integration of institutions within Windsor’s neighbourhoods
- A variety of open space areas
- An accessible Detroit River, Lake St. Clair, and a healthy waterfront
- The protection and conservation of environmentally significant and sensitive natural heritage features and functions
- Pedestrian oriented clusters of residential, commercial, employment, and institutional uses
- The City Centre as the vibrant focal point and symbol of Windsor

Plans for the redevelopment of rail lines should closely adhere to the goals set forth in the City’s Official Plan.<sup>9</sup> Section 7.2.8 of the Plan refers directly to rail transportation policies. It asserts that the abandonment of a rail corridor or the rezoning of a rail corridor for non-rail purposes will require a comprehensive review. The review will explore potential use of rail corridors by:

“taking into account infrastructure needs, community amenities and land use compatibility, within the context of providing opportunities for employment, housing, open space and transportation linkages where appropriate.”<sup>10</sup>

In 2005, Meridian Planning Consultants prepared a document, entitled “Non-Railway Uses of Railway Lands,” for the City of Windsor. The document summarizes the policies within the Official Plan that govern potential redevelopment of rail corridors and rail yards for non-rail purposes.

Section 7.2.8.5 of the Official Plan refers to developments adjacent to existing rail corridors, stating that:

<sup>9</sup> City of Windsor, *The City of Windsor Official Plan-Volume 1: The Primary Plan*, Office Consolidation November 2006 <http://www.citywindsor.ca/DisplayAttach.asp?AttachID=6220>, p. 6-1, 6-2

<sup>10</sup> City of Windsor, *The City of Windsor Official Plan-Volume 1: The Primary Plan*, Office Consolidation November 2006 <http://www.citywindsor.ca/DisplayAttach.asp?AttachID=6220>, p. 7-23

“All proponents of a new development within 300 metres of a rail corridor, maybe required to complete a noise study to support the proposal, and if the need for mitigation measures is determined by such study, shall identify and recommend appropriate mitigation measures, in accordance with the Procedures chapter of this Plan.”<sup>11</sup>

In addition, a vibration study is required for developments within 75 metres of a rail corridor.

Meridian believes that the Official Plan does not provide adequate direction or specific land use permission for use on rail corridors:

“the conversion of rail corridors to non-rail uses would essentially be without policy guidance under the current Official Plan, except in anticipation of abandonment.”<sup>12</sup>

As a result, an amendment (OPA 43) was made in 2006 to the Official Plan Section 7.2.8.4 with regards to abandoned railway rights-of-way, stating that:

“proposed non-rail uses of rail corridors will be based on the premise that any proposed use must be compatible with adjacent uses and meet current noise, air quality and vibration standards, notwithstanding the past or current use of the corridors for rail purposes.”<sup>13</sup>

For developments adjacent to a rail yard, the Official Plan effectively prohibits any new residential developments that require rezoning. This is presented in Section 7.2.8.6 of the Official Plan:

“New residential development and other new sensitive land uses, which require a rezoning (exclusive of a zoning by-law consolidation), plan of subdivision or plan of condominium are not permitted within 300 metres of a designated Rail Yard.”<sup>14</sup>

The “designated Rail Yard(s)” refer to those as presented in Schedule C of the Official Plan. Additionally, a noise study would have to be completed for developments within 300 to 1000 metres of a rail yard, and a vibration study would be required within 75 metres.

For instance, if a developer were to propose a plan for the redevelopment of a low density housing community to medium or high density properties, then under Section 7.2.8.6 of the Official Plan, the City cannot grant the necessary approvals for this development if it is within 300 metres of a rail yard.

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<sup>11</sup> City of Windsor, *The City of Windsor Official Plan-Volume 1: The Primary Plan*, Office Consolidation November 2006 <http://www.citywindsor.ca/DisplayAttach.asp?AttachID=6220>, p. 7-23

<sup>12</sup> Meridian Planning Consultants, *Non-Railway Uses of Railway Lands*, October 2005, p. i

<sup>13</sup> City of Windsor, *The City of Windsor Official Plan-Volume 1: The Primary Plan*, Office Consolidation November 2006 <http://www.citywindsor.ca/DisplayAttach.asp?AttachID=6220>, p. 7-23

<sup>14</sup> City of Windsor, *The City of Windsor Official Plan-Volume 1: The Primary Plan*, Office Consolidation November 2006 <http://www.citywindsor.ca/DisplayAttach.asp?AttachID=6220>, p. 7-24

Meridian considers these to be too ‘general’ to provide direction for any actual land use changes. However, it is important to note that the closure of rail yards through rail rationalization would effectively “release” the occupied land and the land within 300 metres of the rail yards to new developments that would not have been possible otherwise because of the limitations presented by the Official Plan.

### 5.1.3 Brownfield Development Policies

Brownfields are abandoned or underused industrial sites within built-up urban area that present great potential for expansion, but their development necessitates some form of environmental remediation. Brownfield sites are valued for their location within downtown cores and along scenic waterfronts of urban communities. Brownfields may have once been occupied by paper mills, foundries, factories, railways, or shipyards. Because existing municipal infrastructure (storm and sanitary sewers, watermains, etc.), transit, and community facilities are already in place, there are many opportunities for cost savings for municipalities and developers when new provisions are not required. Ultimately, brownfield developments not only contribute to urban revitalization and intensification, but help dampen unsustainable greenfield developments and urban sprawl as well.

In Ontario, brownfield developments are governed and regulated by the *Brownfields Statue Law Amendment Act, 2001*. The legislation dictates the planning, financing, and environmental liability aspect of these projects. The Ontario Ministry of Municipal Affairs and Housing encourages and provides support for this type of development primarily through tax incentives.

Whereas rail yards tend to attract residential and commercial investments, redevelopment plans for rail corridors are often limited to transit or pedestrian walkways and bicycle paths. Provided in **Section 5.1.4 to 5.1.6** of this report are examples of different types of brownfield development within urban centres with demographics and needs comparable to Windsor.

### 5.1.4 Residential and Commercial Developments

Residential and commercial developments on brownfield sites fit with current urban trends for downtown revitalization and intensification. As most brownfields are located within city centres, they are often adjacent to well-established transportation, municipal, and community infrastructure, making them prime real estate for development. However, depending on historical land usage and the level of contamination, the cost of remediation can be substantial. In larger cities, where land value is typically high, the advantages of their development may outweigh the costs. For smaller municipalities, benefits might be more limited.

From the point of view of municipalities, brownfields present an opportunity for establishing a greater tax base. Likewise for developers, brownfields have become a new generation of development and source of revenue. However, beyond the economics of brownfield developments, other benefits include the beautification of cityscape, the

gentrification of deteriorating neighbourhoods, and the enhancement of an urban quality of life for residents.

As residential and commercial projects often demand a sizeable portion of developable land and have strict lot dimension requirements, only rail yards are generally considered worthy candidates for this type of project.

Examples of brownfields that have been successfully converted to residential and commercial developments include Oliver Village in Edmonton and Moncton's Shop's Project in Moncton.

### **5.1.5 High-Speed Transit**

Rail rationalization may allow for land currently occupied by the Chatham and CASO Subdivision be used for new developments. One of the options that should be considered is the development of a high-speed transit system along the Chatham Subdivision. The proposed operation could be a light-rail transit (LRT) or a bus rapid transit (BRT) system. A major advantage of using the corridor for high-speed transit is that the continuity of the existing right-of-way would be maintained. This would allow for greater flexibility in implementing future growth and development strategies.

The existing right-of-way, track, and rail facilities could be adapted for LRT operations, and could be further modified for BRT operations. Because of the existing rail infrastructure, the capital investment required for BRT construction would likely be higher than for LRT because of the added cost of pavement and associated infrastructure. In most other cases, where there is an existing roadway but no rail infrastructure, the cost of LRT construction would be higher than BRT.

High-speed transit could positively influence adjacent land by increasing accessibility and promoting mixed-use developments. It also has the ability to attract and funnel large groups of people to concentrated zones along the transit line, where they become focal points of economic activity. This is especially true for retailers that thrive near areas of high pedestrian volume and movement. Because of increased accessibility, the real estate value of residential homes and commercial buildings near LRT and BRT stations is often higher than at locations without access to transit. Nonetheless, these impacts only represent an optimistic view with regards to high-speed transit's influence.

The railways' current alignment within the City of Windsor is advantageous due to its proximity to residential, commercial, and industrial districts. A fast and convenient connection to the city centre would appeal to commuters, who work or spend leisurely time in the central district but live in suburban or rural communities. Light-rail or bus rapid transit would compliment Windsor's existing transit system and provide better access to the city's downtown district and waterfront. The choice between light-rail and bus rapid transit will be dependent on transit demand, space allocation and alignment, zoning, and budget. A feasibility study involving transit demand is suggested.

Examples of railways that have been retrofitted with LRT and BRT services within different municipalities include the O-Train and Transitway in Ottawa for OC Tranpo and the River Line for New Jersey Transit.

### **5.1.6 Parks, Bicycle Paths, and Pedestrian Walkways**

In addition to high-speed transit, a network of trails, parks, and green space could be constructed along the existing rail corridor. Trails promote walking and cycling as attractive alternative means of getting from one place to another. An extensive network of trails and pathways could help the city amalgamate conservation areas with green space, parks, schools, and residential communities, thereby transforming Windsor into a more environmentally friendly and walkable city.

Whereas rail lines tend to fragment neighbourhoods by restricting movement across railways, continuity within communities can be maintained through walkways and trails. Residents are often tempted to cross railway tracks illegally or are forced to walk unnecessarily long distances to the nearest crossing. Problems associated with noise pollution and vibration can be virtually eliminated with this redevelopment approach. The air quality in the area will vastly improve with added green space.

Parks and trails often contribute to higher real estate value because residential properties adjacent to these areas are generally more desirable. Furthermore, with relatively low investment costs to the city, this could serve as an interim step to providing light-rail or bus rapid transit.

Two examples of railway tracks that have been converted to recreational trails and bicycle paths are the Katy Trail State Park in Missouri and the Hamilton to Brantford Rail Trail in Ontario.

### **5.1.7 Modal Integration**

A plan that would integrate rail, high-speed transit, and bicycle paths and walkways may also be a viable option for the rail lines to be retired. Each of the proposals presented represent a different mode of travel. The integration of these modes will provide greater flexibility to the users and expand on the benefits that characterize each of these options.

For instance, the proposed new VIA Windsor station near the city centre could be designed to accommodate light-rail or bus rapid transit facilities and cyclists. At LRT or BRT stations, bicycle storage facilities can be constructed to make the transition from cycling to transit more convenient and appealing. Pedestrian paths and walkways that lead directly to the station from resident homes or workplaces can also be constructed to provide riders with the option of walking to their destination.

## **5.2 Traffic Impacts**

### **5.2.1 Improvements on Existing Traffic Deficiencies**

In 2004, the Federation of Canadian Municipalities conducted studies revealing that railway access and at-grade crossing collisions account for approximately one third of all reported railway accidents.<sup>15</sup> Impatient vehicle drivers are more likely to ignore warning

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<sup>15</sup> Ministry of Municipal Affairs and Housings, *Planning for Railway Safety Infosheet, Spring 2004*, <http://www.mah.gov.on.ca/Asset1087.aspx> (accessed July 5, 2007)

signs and try to beat trains at crossings. Collisions at crossings frequently have devastating consequences, often resulting in the loss of life for vehicle passengers and/or the derailment of trains. When this occurs, the safety of nearby residents as well as train employees and passengers is jeopardized. In the event of chemical spills, the surrounding natural environment can also be severely damaged.

A list of high risk collision locations along the rail lines has been identified in this study. We believe that the elimination of these traffic deficiencies through rail rationalization would present significant safety and economic benefits to the community. Areas of traffic deficiencies include, but are not limited to, the following:

- Visibility concerns on the CN Chatham Subdivision at the at-grade crossings of Jefferson Boulevard, Pillette Road and George Avenue.
- Visibility and traffic capacity concerns at the CN Chatham Subdivision grade separation of Wyandotte Street/Drouillard Road.
- Illegal and unsafe pedestrian crossings of the CN Chatham Subdivision due to the distance between road crossings.

There are a total of 11 crossings along the Chatham Subdivision and 9 for the CASO Subdivision, respectively. It is important to note that the crossings provided for the CASO Subdivision are west of the Pelton Spur; therefore, they are located within Windsor’s city limits. The crossings are presented in **Table 5.1**. The crossing types are identified as either at-grade (AG) or grade separated (GS).

Converting the Chatham and CASO Subdivision to LRT operations may not eliminate at-grade crossings if the existing alignment and track are used. As LRT generally operates at higher frequencies than freight traffic, drivers tend to be more cognisant of LRT crossings than railway crossings. A heightened sense of awareness and care can significantly reduce the risk of collisions. Moreover, better design and signage would reduce the potential for collisions at these locations. If the vacant land were to be used as parks and nature trails, then at-grade crossings would be completely removed and the risk of collisions would be eliminated entirely.

**Table 5.1 Chatham and CASO Subdivision Rail Crossings**

#	Railway	Road Crossing	Road Classification	Number of Lanes	Number of Tracks	Crossing Type
1	Chatham Sub	Riverside Dr E	Scenic Drive	4	1	AG
2	Chatham Sub	Devonshire Rd	Local	2	1	AG
3	Chatham Sub	Walker Rd (S of Riverside)	A2	2	5	AG
4	Chatham Sub	Wyandotte St E	A2	4	3	GS
5	Chatham Sub	George Ave	C1	2	4	AG
6	Chatham Sub	Pillette Rd	A2	2	2	AG
7	Chatham Sub	Jefferson Blvd	A2	2	3	AG

#	Railway	Road Crossing	Road Classification	Number of Lanes	Number of Tracks	Crossing Type
8	Chatham Sub	Lauzon Pkwy	A1	4	2	AG
9	Chatham Sub	Lauzon Rd	A2	4	2	AG
10	Chatham Sub	Clover Ave	C1	2	1	AG
11	Chatham Sub	Banwell Rd	A2	4	1	AG
12	CASO Sub	College Ave	C1	2	2	GS
13	CASO Sub	Tecumseh Rd W	A2	4	3	GS
14	CASO Sub	Dougall Ave	A2	2	2	GS
15	CASO Sub	E.C. Row	CAH	6	3	GS
16	CASO Sub	Expressway Howard Ave (S of Division)	A2	2	2	AG
17	CASO Sub	Cabana Rd E	A2	2	2	AG
18	CASO Sub	6th Concession	C1	2	2	AG
19	CASO Sub	Walker Rd (S of Provincial)	A2	2	2	AG
20	CASO Sub	Highway 401	CAH	4	1	GS

### 5.2.2 Road User Delays

For the purpose of this study, road user delay is defined as the time that passenger vehicles have to wait at railway crossings. The intended use of lines proposed for retirement must be determined in order to estimate any future delays. If the LRT or BRT alternative is preferred, then delays due to LRT vehicle crossings would have to be determined. Ultimately, the amount of road user cost savings would depend on the frequency of transit service and traffic volume. Delays at LRT crossings, however, are generally shorter in length but occur more frequently than freight train crossings. Otherwise, if the rights-of-way were to be used for parks and trails, user delays would be negligible and limited to delays caused by pedestrian or bicycle crossings. Road user cost savings are more likely to be realized under this scenario. Along the Windsor Subdivision, where an increase in freight and passenger rail traffic is expected, there is a potential for greater user delay. The increase in user delay experienced at these locations may offset any gains attained from eliminating the crossings along the other railways.

Road user delays can be quantified by determining the total number of crossings, the number of vehicles in queue at each crossing, and the average time a vehicle spends at each crossing. The total number of crossings along the Chatham and CASO Subdivision has been provided in the previous section.

Road user cost savings are calculated based on the total amount of delay passengers experience and the relative value or worth of a passenger's time. Before a reasonable estimate can be provided, accurate representations of user delays must be determined. Total user delay savings can be significant because of the large volume of vehicles that

cross the railways at any given time. Those delayed may include passengers and trucks that carry goods which are time sensitive in nature.

The computer software package “MicroBENCOST” was used to perform the required quantitative analysis. The results compare the total costs of track removal at road crossings for both the CASO and Chatham Subdivision to the user delay savings achieved at these locations. The results are summarized in **Table 5.2**.

**Table 5.2 MicroBENCOST Analysis of Costs and User Delays**

	<b>CASO</b>	<b>Chatham</b>	<b>Total</b>
Delay Savings	\$57,030	\$20,230	\$77,260
Total Costs	\$19,200	\$54,300	\$73,500
Benefit Cost Ratio	3.00	0.37	1.05

The results of the analysis reveal that the benefits in user delay savings outweigh the costs for the CASO Subdivision, but not for the Chatham Subdivision. However, collectively, the savings realized still exceed the costs. The greater delay savings and lower total costs for the CASO Subdivision can be attributed to the longer and slower freight trains that run along this line and the fewer number of at-grade road crossings relative to the Chatham Subdivision. Comparatively, shorter, faster moving VIA passenger trains run along the Chatham Subdivision, which also has a greater number of at-grade crossings.

The benefits determined in this analysis refer to user delay savings only. Other benefits such as better air quality and reduced noise and congestion have not been accounted for, but should still be considered as positives. The favourable benefit cost ratio and the additional potential benefits described reinforce the advantages of rail rationalization.

## **5.3 Environmental Impacts**

### **5.3.1 Noise and Vibration**

Technical Report TR2 determined the preferred alternative of rail rationalization, which involves consolidating service along the Windsor Subdivision and eliminating usage on the Chatham and CASO Subdivisions. Under this initiative, the Windsor Subdivision would be outfitted with a double-track for 63 kilometres between Ringold and the Pelton Spur.

The areas along the lines to be retired should experience a reduction in noise and vibration. Along the Windsor Subdivision, an increase in noise and vibration would be expected. The Rail Association of Canada (RAC) suggests that noise from pass-by-trains is generally too infrequent and limited in duration to be a major concern for residents. Similarly, although vibrations might become more frequent along the Windsor line, the effects on residents will be limited.

If the retired rail lines were to become light-rail transit corridors, noise and vibration disturbances would have to be reconsidered. Increases in pedestrian movement and



commercial activity near station areas could be expected, resulting in increased noise and vibration levels at these locations. Between stations, however, less noise and vibration would be expected, as light-rail vehicles tend to operate more quietly and carry a lighter load than freight trains.

### **5.3.2 Air Quality**

Air quality is affected by vehicle emissions resulting from traffic congestion and delays. When emissions are reduced, air quality improves. Minimizing the number of at-grade crossings will help ease traffic congestion and delays, thus lowering unnecessary emissions. If light-rail transit were to be implemented, then additional improvements in air quality may be observed as a result of a reduction in the total number of persons travelling on motor vehicles on the streets. Trails, bicycle paths, and parks benefit the overall air quality of the region in a similar manner to LRT. As more people are encouraged to walk or cycle, fewer automobiles are expected on the streets, hence lower harmful emissions.

In the context of this study, the Chatham Subdivision has the potential of developing into a vital transit corridor for the City of Windsor. By promoting alternative modes of transportation such as light-rail transit, biking, or walking, the city is taking an active role in improving air quality within the community. This is consistent with the agenda as outlined in the City's Air Quality Action Plan, 2001.

### **5.3.3 Conservation Areas**

There are environmentally significant sites and conservation areas located along all three rail lines. Measures should be taken to minimize the impact on these areas, which serve as important natural animal habitats and woodlands. Although all of the conservation areas, with the exception of Devonwood, are beyond the city limits, the impact of rail rationalization on these areas should still be examined. In particular, an assessment of the impact on McAuliffe Woods Conservation Area due to increased rail traffic on the Windsor Subdivision should be performed. The potential to link adjacent conservation areas with trails and bicycle paths exists between Ruscom Shores and Tremblay Beach as well as between Devonwood and Maidstone Conservation Area. Enlarging environmentally protected areas will help offset any potential detrimental effects of increased rail traffic along the Windsor Subdivision.

## 6. Implementation Strategy

A feasible alternative for rail rationalization within the City of Windsor and its potential benefits and challenges have been identified and documented. This final section of the report summarizes the findings and recommends a set of actions for the implementation of the proposed initiatives. The preliminary project schedule and cost estimate are established as a means of illustrating the scope of this project. A detailed description of the implementation strategy can be found in Technical Report 5 (TR5).

### 6.1 Implementation Time Frame and Costs

Given the scope of this project and the substantial investment required, a multi-phase implementation strategy is appropriate. Project costs could be spread over successive stages, thereby reducing the initial capital required. Time between stages could be used for monitoring the progress of preceding phases, design modifications, and potential refinancing schemes. A phased approach would provide the owners and stakeholders with an opportunity to evaluate the completed initiatives and initiate any project changes required before proceeding to the subsequent phase.

A three-phased project schedule could be applied. **Phase 1 (Exhibit 3.2)** would consist of an ‘interim’ scenario involving the abandonment of the Chatham Subdivision and the relocation of VIA operations to the Windsor Subdivision. **Phase 2 (Exhibit 3.1)** would include the removal of the CASO Subdivision and the combined operations of CN and CPR on the Windsor Subdivision. Phase 1 was considered a more ‘feasible’ arrangement, given that it would be achievable within a shorter timeframe. On the other hand, combined CN and CPR operations would present greater difficulty because of issues related to commercial agreements, dispatching, and priority of train movements. Finally, the implementation of the modal integration initiatives would represent **Phase 3 (Exhibit 6.1)** of this project. It is important to note that the modal integration initiatives have been evaluated independent of rail rationalization. The completion of all phases could require upwards of **10** years or more.

The cost of implementation for the individual phases has been estimated as follows:

- Phase 1: \$175 million
- Phase 2: \$38 million
- Phase 3: \$100 million +

The combined total cost of implementation would exceed **\$313 million**.

The estimated cost shown does not account for the costs incurred from the recommended actions as presented in this Implementation Strategy.

## 6.2 Implementation Strategy

The implementation strategy is focused on addressing the challenges and impacts of the project and recommends a set of actions required to achieve the potential opportunities and benefits identified. In executing the project initiatives, five action components have been developed, these include:

- Forming a Multimodal Committee to supervise the development of a Business Case;
- Establishing public and private partnerships;
- Obtaining government approvals and commitments;
- Resolving rail operations and contractual agreement complexities; and
- Preliminary design for rail rationalization and modal integration initiatives.

**Exhibit 6.2** illustrates the implementation strategy and project phasing scheme for the rail rationalization and modal integration initiatives.

### 6.2.1 Business Case and Multimodal Committee

Although the major railway companies have expressed that a new or expanded Windsor intermodal freight terminal is not currently required, a Business Case that would assess the feasibility of such a facility in Windsor in the context of market assessment should be established. Both the viability of an intermodal passenger terminal and a freight facility should fall under the scope of this Business Case. Unlike TR3, which examined modal integration opportunities and benefits, the Business Case would help identify market demands, industry trends, economic viability, potential private partnership opportunities, and an implementation plan. It would provide an objective and comprehensive view of the issue, ultimately, offering the City and the stakeholders a better indication of the intermodal needs of Windsor.

It is also recommended that a Multimodal Committee be established, initially to supervise the development of the Business Case and possibly continue to promote modal integration if a viable Business Case could be identified. The Committee would serve as a link between the City, stakeholders, potential private investors, and the Business Case consultant. It should advise on project issues as they arise, liaise with all groups involved, and actively monitor the progress of the Business Case development process. The function of the Committee should also include the promotion of modal integration initiatives within Windsor and instigation of public and private partnerships with interested parties.

## 6.2.2 Partnerships

The scope of this project extends beyond the City of Windsor, affecting a number of neighbouring towns and districts in the area. These include Tecumseh, Lakeshore, Chatham-Kent, and the County of Essex. MRC has approached these municipalities and informed their representatives with the details of this study. Many of the opportunities and benefits described for the City of Windsor would also apply to these areas. Corridor land could be released for other developmental purposes, such as schools, parks, and trails. Noise and vibration disturbances would be eliminated for towns adjacent to the abandoned segments along the Chatham and CASO Subdivision.

It is recommended that strategic partnerships with these municipalities be established for the purpose of increasing the area of influence and opportunities. The objective would be to assemble a more prominent group that has the ability to exert greater pressure on the Ontario and federal government and facilitate dialogue with members of their office. It is imperative that this project be presented as a regional initiative as oppose to a local development scheme. Ultimately, this project demands that the City of Windsor be in partnership with the federal, provincial, and local governments, in addition to CN, CPR, VIA, and other rail operators.

Initial consultation held in late 2007 and early 2008 with the adjacent municipalities has been positive however costs associated with acquiring and maintaining the abandoned rail corridors could present an obstacle. Further consultations with these municipalities, particularly County of Essex and the Municipality of Chatham-Kent, should be continued.

## 6.2.3 Government Approvals and Commitment

Coordination with the appropriate government bodies would be crucial in gaining support for the rail initiatives. As discussed, the estimated project cost is substantial and the rail operators have expressed no desire to pursue this venture without government funding. Therefore, securing financial support from federal, provincial, and municipal governments will be of greatest priority. Attracting public attention by promoting and emphasizing the significant community opportunities and benefits may help bring this project to the forefront of the governments' agendas. The process may involve presenting to members of parliament and senior technical advisors the findings of this rail study. Governing bodies may also demand that additional requirements be satisfied prior to further commitment and approval.

A cost-sharing formula should be developed to attain sufficient buy-in from the government and the rail companies. The terms of the cost-sharing strategy should be discussed in detail and fully dictated to avoid ambiguity among the parties involved. Whether a consistent formula is applied to all phases of the project or only for selected components should be entertained during this discussion.

Should government commitment be established, subsequent actions required include seeking the necessary approvals for decommissioning the Chatham and CASO Subdivision and upgrading the Windsor Subdivision. The Ontario Ministry of

Environment and CEAA may necessitate the completion of various Environmental Assessments before this project could proceed.

Amendments to current zoning and land-use bylaws, noise regulations, and city master plans may be required to maximize potential residential and commercial redevelopment opportunities. Of particular interest are the sections within the Official Plan and other directives pertaining to ‘brownfield’ developments and uses for abandoned rail yards and corridors. The City is to ensure that the necessary preconditions and policies are in place to allow for sustained growth and the execution of future development strategies in these areas.

#### **6.2.4 Rail Operations and Contractual Agreements**

The agreements and operating rights of the rail companies involved are complex and extensive. This is due to the nature of the contracts in place, which have been inherited and established since the inception of the respective railways. With three separate corridors and relatively few operational conflicts, current railway operators have a high level of flexibility with regards to scheduling and capacity. Consolidating operations would inevitably result in the loss of this flexibility and require the renegotiation of multiple contractual agreements between carriers.

There are many areas of consideration with regards to the terms of a new operation and ownership agreement; the most significant being the priority of operations on the CPR owned Windsor Subdivision. In times of congestion, when capacity is limited, the question of priority and precedence become especially important. Generally, the owner of the tracks would have highest priority. It is important to note, however, that the allocation of capacity and scheduling to the shared operators must not be viewed as disproportionate and unjustifiably favourable to the owner. If the terms of the agreement offer little value to change the status quo, then it is unlikely that any agreement could be achieved.

In the event of CPR, CN, or VIA induced delays, the compensation and settlement offered to the affected parties should be clearly described and dictated to ensure that a formal resolution is in place to prevent unnecessary confrontations and costly renegotiations. The extent of shared responsibility of day-to-day operations and infrastructure maintenance would also have to be determined. Through this process, operators should strive to reduce operational redundancies and promote system integration. Although fundamentally challenging, timely execution of both these elements would be critical to the full realization of the benefits which form the basis of this project.

#### **6.2.5 Preliminary Design**

Although the consolidation of rail operations on the Windsor Subdivision has been deemed technically feasible, a more detailed and comprehensive understanding of the design component of this alternative is required. The ‘ultimate’ scenario recommends that the Windsor Subdivision be upgraded and double-tracked between Ringold and Pelton Spur to accommodate the addition of VIA, CN, and NS trains. Triple track sidings along

selected segments of the corridor and CTC (Centralized Traffic Control) have also been suggested.

Although high-level analyses revealed that there should be sufficient right-of-way to make the necessary upgrades, preliminary design should be carried out to reveal a more detailed plan of action required. As a part of this analysis, the existing condition and design capacity of the track should be examined in order to determine the upgrades required to handle the different loads and operating speeds of CN, CPR, and VIA trains. Development plans and growth strategies of the operators should be well understood to anticipate future requirements and upgrades needed. The existing alignment would likely be maintained, although some modifications may be required. Cross-sections at key points along the corridor should be developed as a part of the preliminary design. A possible connection from the Chatham Subdivision to the Windsor Subdivision at Ringold should also be investigated during this analysis.

Once the intermodal Business Case confirms that there is adequate demand for an intermodal terminal, a more detailed technical analysis of the facility should follow. Of greatest interest are the size and dimensions of the airport land intended for intermodal use, as this would set limitations on the technical design of the facility. CPR has previously developed several conceptual rail yard layouts on airport lands for discussion purposes. These can be used as a functional guideline for a more detailed design.

## 7. Conclusion

Existing rail infrastructure in Windsor has shaped development and transportation limits in the City. Over time, rail traffic patterns have changed resulting in the under-utilization of some rail infrastructures. In the meantime, rail infrastructure continues to create continuity barriers to road users, transit users, cyclists and pedestrians. Also, some of the existing rail crossings have imposed geometric and safety deficiencies for road traffic operations.

With potential changes in train routings, technology and business alignment, duplicate rights-of-way and yards could be better managed if their operations were to be consolidated. There are significant benefits identified in consolidating the rail infrastructures in Windsor, these include reduced road traffic delays, increased operational and safety performance of roadways at crossings, reduced rail maintenance, redevelopment of surplus rail corridors, removal of barriers to communities, and integration opportunities with other modes of transportation.

Based on the development and assessment of various rail rationalization alternatives for the City of Windsor, and through consultation with the rail companies, partner agencies and other key stakeholders, an ultimate rationalization scenario has been developed that would remove some of the continuity barriers to road users, transit users, cyclists and pedestrians that currently exist in the city.

The ultimate scenario, or community vision, would remove both the Chatham and CASO subdivisions and consolidate CPR, CN and VIA rail traffic on the Windsor Subdivision. A new VIA station would be constructed closer to downtown Windsor, near the north end of the Van de Water Yard area.

An interim rationalization scenario was developed that could function as a first stage of the ultimate scenario. This interim scenario would only remove the Chatham Subdivision and relocate VIA traffic to the CPR line. CN traffic would be unchanged.

Rail yard rationalization scenarios were also developed independently of the rail line rationalization alternatives. While all Windsor rail companies indicated that they have no need to construct new yards, should yard relocation be desired, it would be most technically feasible to relocate the CPR Windsor Yard to an area within the Windsor Airport lands. An intermodal facility could be placed on the available Airport land however it could not accommodate all of the intermodal needs within the City of Windsor. The current operations of the CPR Windsor Yard could be accommodated; however, there is insufficient space to accommodate the CN Van de Water Yard operations.

An intermodal at the Airport land meets the location criteria in terms of site topography, land uses and proximity to transportation infrastructures such as rail lines, E.C. Row Expressway and Lauzon Parkway. However, the needs of an intermodal facility has not been established. A Multimodal Committee should be formed to promote modal integration initiatives in Windsor, examine private partnership opportunities, and oversee the development of a Business Case.

The associated benefits of rail rationalization in the developed scenarios include:

- Land Use Redevelopment Opportunities;
- Improvements in Vehicular as well as Pedestrian Traffic and Safety; and
- Enhanced Environmental Conditions.

The lack of secured funding remains the biggest challenge to the implementation of the rail rationalization and modal integration initiatives. In the near term, the City of Windsor should strive to increase the number of partners involved and bring as many supporters on board to the project. Federal and provincial government commitments will be imperative, and a cost-sharing formula that will be satisfactory to all contributing partners will have to be developed.

Once the major partnerships are in place, then the City should proceed to mediate the negotiation of new operating and ownership agreements with the respective rail operators. The terms of the agreement should mandate the shared use of the Windsor Subdivision and clearly dictate provisions regarding track and right-of-way ownership, maintenance and dispatching responsibilities, and priority of train movements.

In summary, this strategic rail study has outlined the issues and opportunities that exist in the City of Windsor and identified a preferred technical alternative through analysis, evaluation and consultation with all key stakeholders. The implementation strategies developed help address the major issues identified and provide a framework for the rail rationalization and modal integration opportunities to be realized.