DOWNTOWN WINDSOR
TRANSPORTATION MASTER PLAN

PROJECT FILE REPORT

August 2007

Revised January 2008

TABLE OF CONTENTS

EXHIBITS

TABLES

APPENDICES

Appendix A	Memo: Data Collection Summary Commuter Peak Hour Intersection and Mid-Block Volumes
Appendix B	Notice of Study Commencement
Appendix C	Public Information Centre #1 Summary Report
Appendix D	Stakeholder Meeting Minutes
Appendix E	Public Information Centre #2 Summary Report
Appendix F	Additional Stakeholder Meeting Minutes
Appendix G	Memo: Future Traffic Analysis – Trip Table Development
Appendix H	Memo: Two-Way Conversion Analysis
Appendix I	Schedule B Project File: McDougall Avenue (Report only)
Appendix J	Two-Way Street Conversion – Schedule A Projects

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1. INTRODUCTION

In 1993, the City of Windsor undertook the Downtown Windsor and Waterfront Park Traffic Operations Study to address several major development initiatives in the City's downtown business district, including the Civic Square, Waterfront Park and the Windsor Casino Project. Over the last decade, these key initiatives have been completed along with the further expansion of the Casino site and further planning initiatives associated with the City Centre West Community Improvement Plan, the Glengarry-Marentette Community Improvement Plan, the Cleary International Centre / St. Clair College proposal as well as the construction of the new Transit Windsor Terminal.

In order to understand the existing, short-term, intermediate-term and longer-term traffic operations associated with these developments, the City in conjunction with Ontario Lottery and Gaming (OLG) undertook a Downtown Windsor Transportation Master Plan study to:

- Identify longer-term traffic circulation and operational requirements to accommodate new developments;
- Develop a short and intermediate plan for future traffic operations associated with the potential closure of McDougall Avenue between Pitt Street and Chatham Street and network changes currently being reviewed as part of the Windsor-Detroit Tunnel Canadian Plaza Master Planning Study; and,
- Follow the Municipal Class Environmental Assessment (EA) process for Schedule B projects as part of the implementation process.

Within the broader framework of development initiatives in the Downtown Windsor study area, the Ontario Lottery and Gaming (OLG) is currently undertaking the expansion of its non-gaming amenities at Casino Windsor in response to the Ontario government's gaming strategy, announced in January 2005, to enhance the competitiveness of its existing facilities.

The Expansion Project, which will be referred as to as the new Entertainment Centre / Hotel complex in this document, is proposed to include the following amenities:

- A new 400-room hotel (23 stories) complementing the existing hotel
- A new 5,000 seat auditorium / theatre
- 50,000 square feet of convention space
- Approximately 400 underground valet parking spaces

The new Entertainment Centre / Hotel complex is being constructed to connect to the existing Casino site via a walkway from the second storey. During the initial stages of the Expansion Project, it was identified that McDougall Avenue between Pitt Street and Chatham Street would require reconstruction to change the existing lane configuration, and hence the existing road function and capacity. To address this reconstruction, a Class Environmental Assessment (Class EA) Study for McDougall Avenue between Pitt Street and Chatham Street was undertaken in the Summer of 2005 as a Schedule B Project

following the Municipal Class Environmental Assessment process. Recommendations from the study indicated that McDougall Avenue be reduced to a two-lane road between Riverside Drive and Chatham Street with the remaining right-of-way on McDougall Avenue between Pitt Street and Chatham Street to be designated as a valet parking pick-up / drop-off area.

Following this study and upon further development of the plans for the Entertainment Centre / Hotel complex, it was identified by OLG that the traffic operations associated with this new complex may be better enhanced if McDougall Avenue between Pitt Street and Chatham Street was closed to general traffic. As the retirement (closure) of existing roads is identified as a Schedule B Project and is subject to the Municipal Class Environmental Assessment process, an EA study was initiated in the Fall of 2006 as part of the Downtown Windsor Transportation Master Plan study.

1.1 Study Purpose

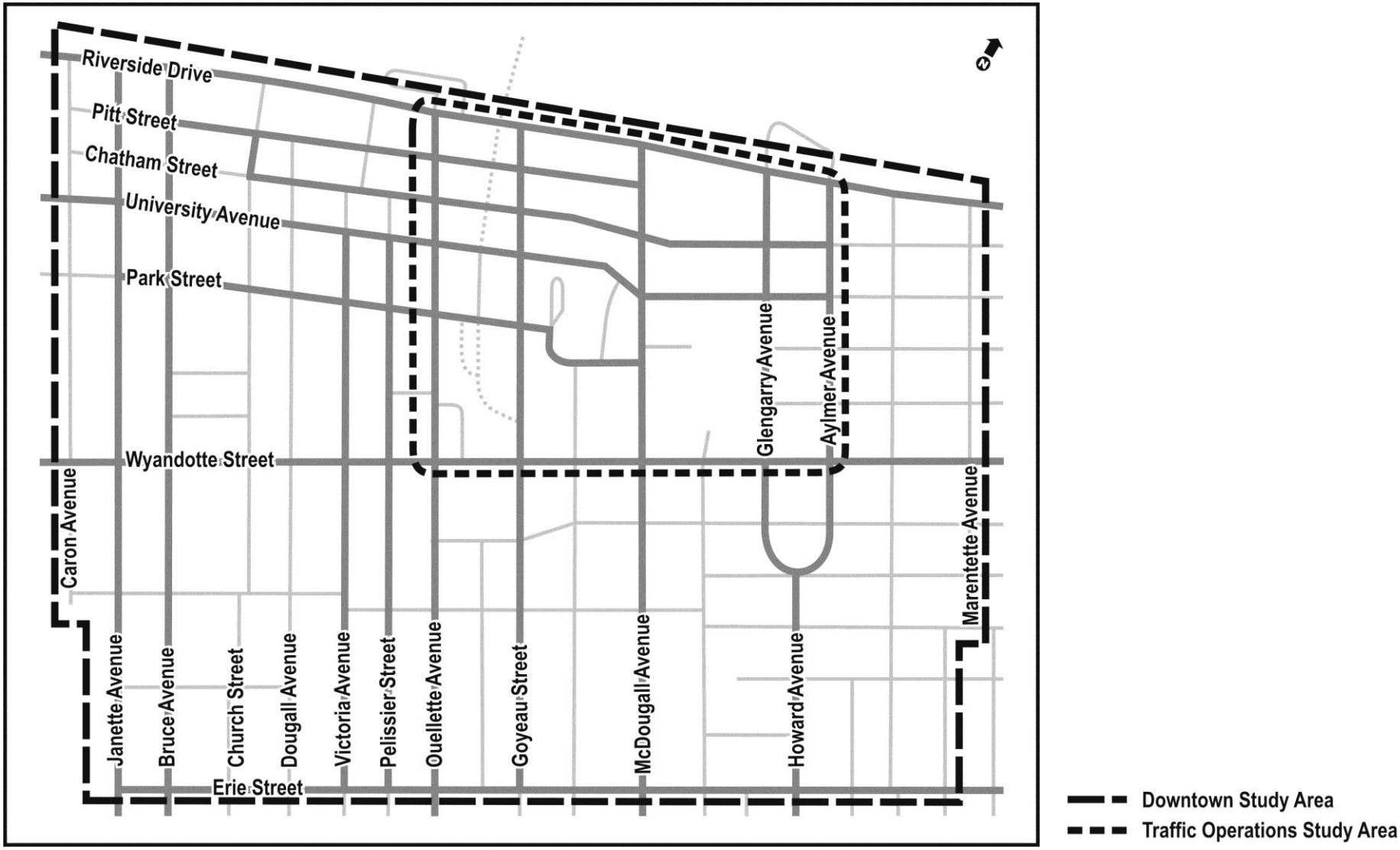
The Downtown Windsor Transportation Master Plan Study key objectives included undertaking a review of existing conditions and future transportation system requirements to accommodate growth over the next ten (10) years as well as assess the traffic operations associated with closing the two remaining lanes on McDougall Avenue between Pitt Street and Chatham Street. The traffic analysis as undertaken included the existing operational closure of Goyeau Street, when traffic back-ups occur from operations at the Windsor-Detroit Tunnel Canadian Plaza as well as potential network changes resulting from the on-going study of the Windsor-Detroit Tunnel Canadian Plaza.

The Downtown Windsor Transportation Master Plan study process follows the Municipal Class Environmental Assessment process that includes public consultation and the filing of a Project Study Report for identified Schedule B projects.

1.2 Study Area

The Downtown Study Area was defined as the Detroit River to the north, Marentette Avenue to the east, Erie Street to the south and Caron Avenue to the west. With the potential closure of McDougall Avenue being proposed between Chatham Street and Pitt Street, a Traffic Operations Area was also defined, which focussed on the immediate road network adjacent to the noted area. The Traffic Operations Area included the area bounded by the Detroit River to the north, Aylmer Avenue to the east, Wyandotte Street to the south and Ouellette Avenue to the west. Both these areas are highlighted in Exhibit 1.

Exhibit 1. Study Area



The study area contains a mix of commercial, institutional, entertainment / hospitality and residential land uses with the area adjacent to the Detroit River designated as waterfront recreation. The lands within the study area are disturbed as a result of development and urban activity and there are no identified natural environment areas that need to be taken into consideration during the identification of alternatives. The City of Windsor's Official Plan identified two gateways, implemented at major entry points into the City of Windsor, within the study area. One of the gateways is to be located along the riverfront between Ouellette Avenue and Goyeau Street and the second is to be located off of Park Street, at the Windsor-Detroit Tunnel exit to the City of Windsor. Furthermore, there is one heritage area within the study area located on Victoria Avenue between Wyandotte Street and Erie Street.

1.3 Study Process

This study is being conducted following the approved environmental planning process for Master Plans under the Municipal Class Environmental Assessment (Class EA), dated June 2000, with the intent to identify the required infrastructure and operational improvements to address existing and future traffic issues, with opportunity for public input throughout the study. This study will fulfill the Class EA requirements, referred to as Phases 1 and 2 and described below, for any Schedule B projects (improvements, minor expansions to existing facilities and retirement of existing roads, less than $1.5 million in capital costs) and identify any additional projects subject to the Schedule C process.

Phase 1 – Problem and Opportunity

- Identification and description of the problem or opportunity
- Discretionary public consultation

Phase 2 – Alternative Solutions

- Identification of alternative solutions to the problem
- Inventory of the environment and identify evaluation criteria
- Preliminary identification of a recommended solution
- Consultation with review agencies and the public
- Solution or confirmation of preferred solution

Upon completion of the study, a final report that includes the Project Files for any identified Schedule B projects and an implementation plan will be prepared and filed for public review for a minimum 30-day period.

If concerns are raised that cannot be resolved through discussions with the proponent of the project, then members of the public, interest groups or technical review agencies can request a "Part II Order" to the Minister of the Environment, which requires a proponent to comply with Part II of the EA Act before proceeding with a proposed undertaking that has been subject to Class EA requirements. The Minister of the Environment then decides whether to deny the request, refer the matter to mediation, or require the proponent to comply with Part II of the EA Act.

2. EXISTING CONDITIONS

One of the main components to the Downtown Windsor Transportation Master Plan study was a comprehensive review of historical travel flows and existing traffic operations within the study area. The purpose of the existing conditions review was to obtain a better understanding of the transportation system operations and to ensure an adequate base upon which to verify and address identified transportation issues. The review included an overview of the existing transportation functions related to the road network, the truck network, the transit network, the bicycle and pedestrian network, the directional street network and the Municipal on / off street parking. Furthermore, an assessment of existing traffic volumes and intersection levels-of-service in the downtown area was undertaken to identify potential operational issues. A summary of the existing conditions is provided in the following sections.

2.1 Background Data

As part of the existing conditions assessment, the following available data were reviewed:

- Background traffic flow information presented in the 1993 Downtown Windsor and Waterfront Park Traffic Operations Study
- Historical turning movement counts at key intersections within the study area were provided by the City of Windsor for years between 2002 and 2005;
- Turning movement counts undertaken at key intersections by the City of Windsor for the purposes of this study (2006 and 2007);
- 24-hour automatic traffic recorder (ATR) volumes at available locations within the study area were provided by the City of Windsor for the years between 2004 and 2005;
- Signal timings and associated lane configurations, where applicable, for all signalized intersections within the study area provided by the City of Windsor;
- Metered on-street parking by-laws provided by the City of Windsor (Schedule ‘S” dated May 10, 2004)
- The City of Windsor Official Plan (Office Consolidation November 2006) – Chapter 7 Infrastructure
- The City of Windsor Official Plan (Office Consolidation November 2006):
    - Schedule A – Planning Districts & Policy Areas
    - Schedule B – Greenway System
    - Schedule C-1 – Development Constraints Archaeological Potential
    - Schedule C – Development Constraint Areas
    - Schedule D – Land Use
    - Schedule E – City Centre Planning District
    - Schedule F – Roads and Bikeways

  - Schedule G – Civic Image

- Windsor Area Long Range Transportation Study (August 1999) and Riverside Drive Vista Improvement Project Class Environmental Assessment Report (Draft September 2006)
- Transit Windsor routes and services downloaded from the City of Windsor website (www.citywindsor.ca)
- Transit Master Plan: "The Way Forward" (August 2006)

2.2 Existing Road Network Classification

The road network classification within the City of Windsor is documented in the City of Windsor Official Plan (Office Consolidation November 2006) under Chapter 7 – Infrastructure and identified in Schedule F – Roads & Bikeways. The types of road classification that are identified in the Official Plan include: Controlled Access Highways, Class I Arterial Roads, Class II Arterial Roads, Scenic Drives, Class I Collector Roads, Class II Collector Roads, Local Roads and Provincial Highways. Within the Downtown Windsor study area, the road network is comprised of Class II Arterial Roads, Scenic Drives, Class I and II Collector Roads and Local Roads. A summary of the road classification function described in the City of Windsor Official Plan (Office Consolidation, November 2006) and the specific roadways within each classification follows.

Class II Arterial Roads:

Class II Arterial Roads are "designed to carry high volumes of passenger and commercial traffic for intra-city travel at moderate speeds." Right-of-ways are to be no more than 30m on a typical cross-section of four undivided travel lanes. "Direct property access [is] not permitted near intersections with Class I and II Arterial Roads and Class I Collector Roads and [is] discouraged where other alternatives exist." The arterial roads that were identified in the Official Plan in Downtown Windsor are as follows:

- University Avenue (west boundary of study area to Aylmer Avenue)
- Wyandotte Street (through the entire study area)
- Glengarry Avenue (through the entire study area)
- Aylmer Avenue (through the entire study area)
- Howard Avenue (through the entire study area)

Scenic Drives:

Scenic Drives are "designed to carry moderate volumes of predominately passenger traffic adjacent to major scenic areas, areas of historical or environmental significance or along historic routes at low to moderate speeds." Right-of-ways are to fall between 20m and 24m on a typical cross-section of two to four undivided travel lanes. The scenic drives that were identified in the Official Plan in Downtown Windsor are as follows:

- Riverside Drive (through the entire study area)

Class I Collector Roads:

Class I Collector Roads are "designed to carry moderate volumes of passenger traffic, except in industrial areas where they may carry passenger and commercial traffic, between Local Roads, Class II Collector Roads and Class I and Class II Arterial Roads at low to moderate speeds." Right-of-ways are to be no more than 24m on a typical cross-section of two undivided travel lanes and not more than four travel lanes. "Direct property access [is generally] permitted." The Class I Collector Roads that were identified in the Official Plan in Downtown Windsor are as follows:

- Pitt Street (Janette Avenue to McDougall Avenue)
- Chatham Street (Church Street to Aylmer Avenue)
- Park Street (Janette Avenue to McDougall Avenue)
- Erie Street (through the entire study area)
- Janette Avenue (through the entire study area)
- Bruce Avenue (through the entire study area)
- Church Street (Pitt Street to Chatham Street)
- Ouellette Avenue (through the entire study area)
- Goyeau Street (Riverside Drive to Erie Street)
- McDougall Avenue (through the entire study area)

Class II Collector Roads:

Class II Collector Roads are "designed to carry passenger traffic in predominately residential areas at low to moderate speeds." Right-of-ways are to be no more than 22m on a typical cross-section of two undivided travel lanes. "Direct property access [is] permitted." The Class II Collector Roads that were identified in the Official Plan in Downtown Windsor are as follows:

- Victoria Avenue (University Avenue to Erie Street)
- Pelissier Street (University Avenue to Erie Street)

Local Roads:

The remaining streets within the Downtown area are local roads. As noted in the Official Plan, Local Roads are "designed to carry low volumes of passenger traffic short distances at low speeds." Right-of-ways range between 15m and 20m on a typical cross-section of two undivided travel lanes. "Direct property access [is] permitted."

Exhibit 2 provides a display of the existing road network classification within the Downtown Windsor study area.

Exhibit 2. Road Network Classification

2.3 Existing Truck Network

A City of Windsor truck route network was identified in the Windsor Area Long Range Transportation Study (WALTS) completed in August 1999. As documented in that report, the City of Windsor bylaw notes that "*when properly worded or marked signs have been erected and are on display, no vehicle having a gross weight of four thousand five hundred kilograms or more shall be operated on any highway in the City of Windsor other than the highways set out in Schedule H."* The reference to "highway" refers to the truck route network. The truck route network as identified in the WALTS document is highlighted on Exhibit 3. While there are designated roads on which trucks are permitted to travel, it is further noted that trucks that are destined to locations not directly connected to a designated truck route are permitted to use the roads, which provide the most direct route to their final destination. For example, a truck carrying a sofa for delivery to a residential location will be allowed to utilize the local / collector road system to access the home of the resident.

Following the completion of the WALTS study, no further revisions to the truck route network have been incorporated by the City. Further documentation of the identified truck route network is noted in The City of Windsor Official Plan (Office Consolidation November 2006) Section 7.2.2.9, which recommends that "Council establish and manage a truck route system to minimize the intrusion of trucks into sensitive areas while providing acceptable access to businesses and industries." The Official Plan document also provides specifications as to the road network types that are permitted to carry trucks. As noted in Chapter 7, these road network types include Controlled Access Highways, Class I Arterial Roads, Class II Arterial Roads and Class I Collector Roads.

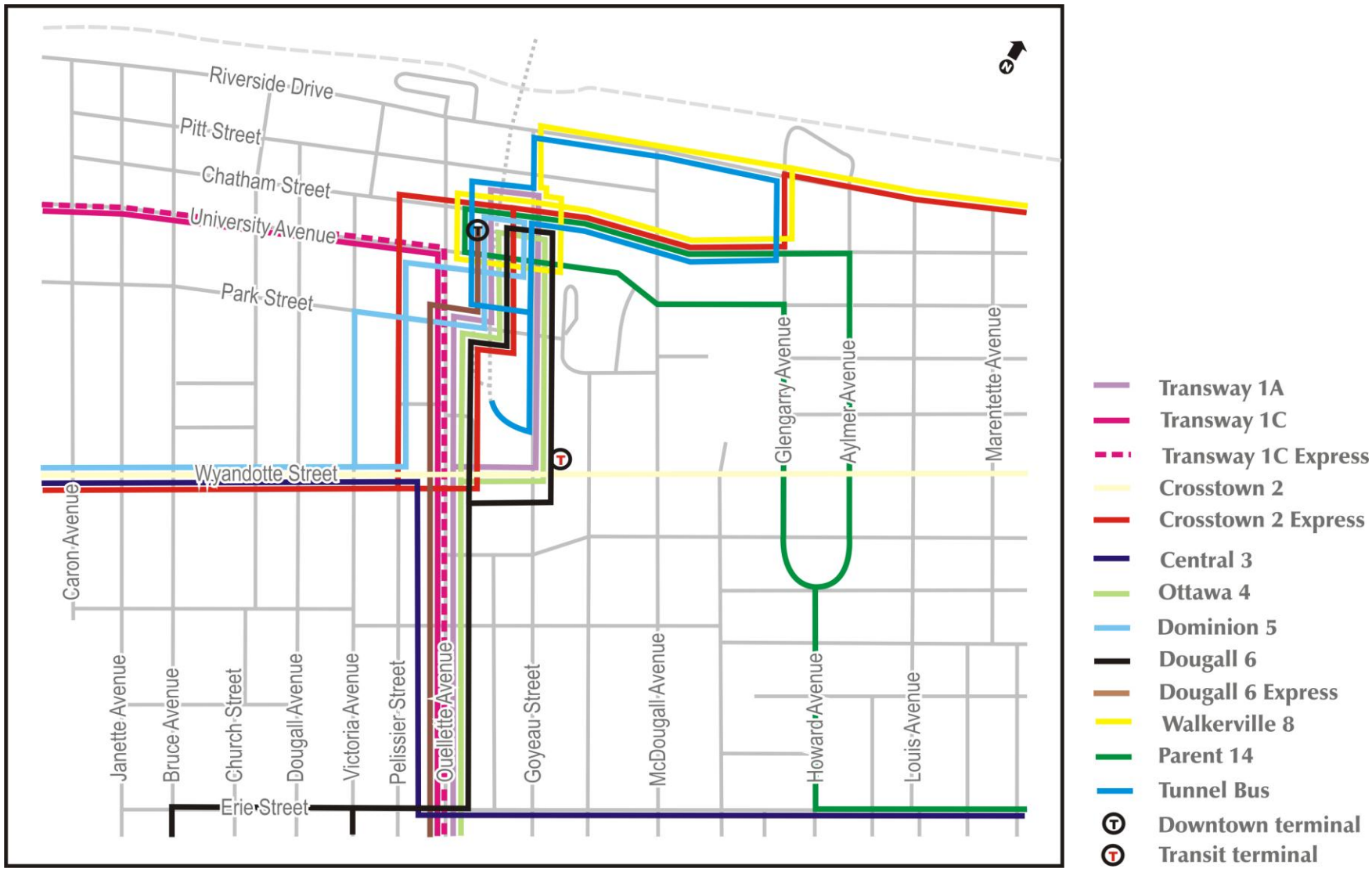
Based on the direction of the Official Plan, the City may undertake a review of the existing truck route network in light of road network modifications that have been implemented within the City of Windsor since the WALTS study.

2.4 Existing Transit Service Network

Public transportation in the City of Windsor is provided by Transit Windsor, which is an agency of the City of Windsor, and is responsible for the planning, development, marketing and operations of the public transit system. In particular, the Downtown Windsor study area is serviced by thirteen routes. Of these thirteen routes, ten of these routes stop in the existing Downtown Terminal, which is co-shared with Greyhound Lines, and is located west of Goyeau Street between Chatham Street and University Avenue at 44 University Avenue. The specific bus routes that are currently servicing the Downtown Windsor study area and their respective routing are shown on Exhibit 4.

Exhibit 3. Existing Truck Network

Exhibit 4. Existing (2006) Transit Network



A description of the existing (2006) transit routes that travel through the study area and weekday (peak and non-peak) headways is shown in Table 1.

Table 1: (2006) Transit Windsor Routes and Headways

Route #	Route Description	Weekday Headways (minutes)			
		AM Peak	Off Peak	PM Peak	Evening
Transway 1A	Downtown to Devonshire Mall via Ouellette and Howard Avenues	20	20	20	30
Transway 1C	College Avenue Community Centre to Forest Glade	15	15	15	30
Transway 1C Express	Forest Glade to University of Windsor - Includes downtown and Tecumseh and Banwell	1-3	-	1-5	-
Crosstown 2	College Avenue Community Centre to Tecumseh Mall	15	15	15	30
Crosstown 2 Express	From Tecumseh Mall to University of Windsor including Downtown	1-3	-	2-8	-
Central 3	College Avenue Community Centre to Transit Centre including Rhodes Industrial Park	22	33	33	-
Ottawa 4	Downtown to Lauzon Parkway including service to Tecumseh Mall	20	20	20	44
Dominion 5	Downtown to St. Clair College	20	40	20	60
Dougall 6	Downtown to St. Clair College via Dougall Avenue	40	40	40	70
Dougall 6 Express	From Downtown Bus Terminal to St. Clair College	1-3	-	-	-
Walkerville 8	Downtown to Legacy Park via Walker Road, including Windsor Airport	30	45	30	70
Parent 14	Downtown to Devonshire Mall via Parent Avenue and Remington park	40	60	40	-
Tunnel Bus	Downtown Windsor to and from Downtown Detroit	20	30	20	30

2.5 Existing Bicycle and Pedestrian Network

In 2001, the City of Windsor completed the Bicycle Use Master Plan (BUMP) as "a statement of [its] commitment to develop a visible and connected cycling network that is easily accessible, safe and actively used by all types of cyclists. The bicycle network that has subsequently been established within the Downtown Windsor study area is mainly comprised of on-street bicycle lanes and multi-use trails. As described in the BUMP, on-street bicycle lanes are "dedicated portions of the road surface for exclusive bicycle use, which are designed by pavement markings that separate the portion of the road used by motor vehicles from that portion used by bicycles". Multi-use trails are described in the BUMP as "any off-road dedicated facility for pedestrians and in-line skaters as well as non-motorized vehicles such as cyclists".

Further to the BUMP document, the City of Windsor Official Plan (Office Consolidation November 2006) describes the types of roadways, which are conducive to a bicycle network in Chapter 7 – Infrastructure. In particular, bicycle lanes are generally permitted on Class II Arterial Roads, Class I and II Collector Roads and Local Roads. Implementation of bicycle lanes on Class I Arterial Roads and Scenic Drives will be given consideration, but are generally not encouraged. The Official Plan further identifies the bikeways, described as "on and off road commuter cycling facilities", in its Schedule F – Roads & Bikeways and the recreationways, described as "multi-use pedestrian and cycling trails designed to service recreational movements", in its Schedule B – Greenway System.

The existing pedestrian network in the Downtown Windsor study area is mainly comprised of multi-use trails, as described in the previous two paragraphs, and sidewalks. As part of the Civic Square development and the Casino Windsor expansion project, the City has developed a pedestrian esplanade that extends from Riverside Drive to University Avenue.

As per the City of Windsor Official Plan, the general guideline for implementation of a pedestrian network in new development is to ensure the provision of sidewalks on both sides of Class I and II Arterial Roads, Class I and II Collector Roads and Scenic Drives and the provision of a sidewalk on at least one side of all Local Roads.

A review of the Downtown Windsor study area indicates that sidewalks are provided on both sides of all the Class I and II Arterial Roads, Class I and II Collector Roads and Scenic Drives within the Downtown Windsor study area, as per City policy, with the exception of the following:

- Riverside Drive (between the Goyeau Street and Glengarry Avenue)
- Goyeau Street (between the Tunnel Plaza to Wyandotte Street)
- Janette Avenue (between Caroline Street and Erie Street)

Furthermore, a sidewalk is provided on a minimum of one side of the local roads, as per City policy, with the exception of the following roads:

- Dufferin Street (south of Elliott Street)

Exhibit 5 provides a display of the recommended BUMP bicycle network, the Official Plan bicycle network designation and available multi-use trails within the Downtown Windsor study area including the pedestrian esplanade between Riverside Drive and University Avenue.

2.6 Existing Directional Network

During the initial stages of infrastructure development in the City of Windsor (post World War II), a one-way street network was created to facilitate the movement of vehicles through the downtown area and in an effort to improve capacity. In particular, Victoria Avenue, Pelissier Street, Bruce Avenue, Janette Avenue, and Dougall Avenue were all converted to one-way to improve the north-south movement of vehicles.

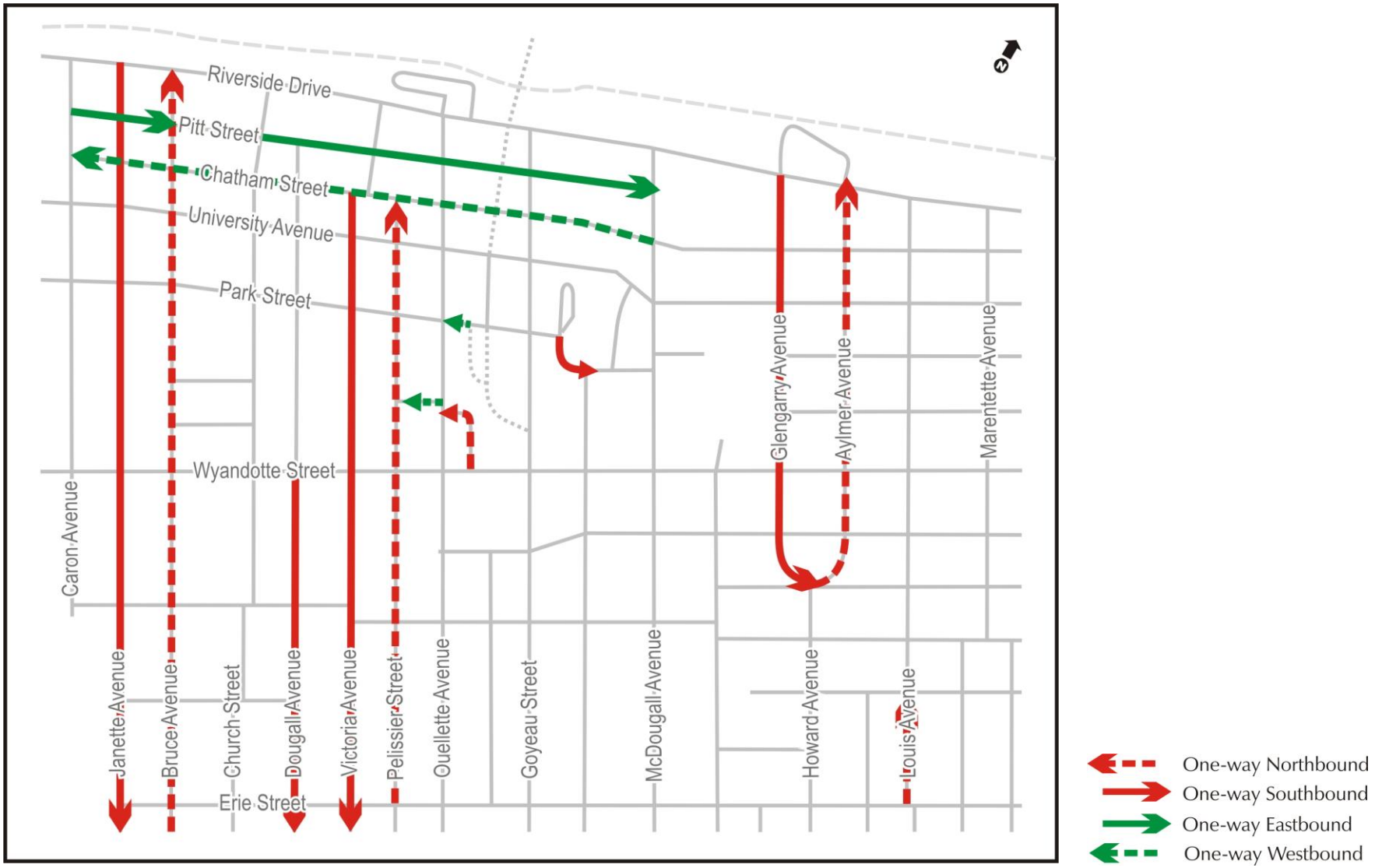
During the 1960's, it was observed that the existing road network was operating under a congested state, which resulted in a draw of traffic away from the downtown area. At around the same time, a report was prepared titled "One Way and Preferential Traffic Plan – Central Business District", which outlined reasons for one-way streets in downtown areas. Some of the noted benefits of the one-way network included increased capacity, increased efficiency, reduction in accidents, progressive signal timing, improvement in pedestrian movements and better access for emergency services. Thus, in an effort to retain the number of visitors / travellers and business traffic within the downtown area, "the traffic department, with the support of downtown businesses moved towards converting many streets to one-way"[1]. The downtown traffic management plan that was developed recommended and eventually implemented the conversion of sections of Pitt Street, Chatham Street and Park Street to one-way.

More recently, the City has responded to specific transportation issues and converted Park Street from Ouellette Avenue westerly to a two-way street as well as the conversion of Pitt Street between Bruce Avenue and Church Street to two-way operations. The one-way street network patterns within the Downtown Windsor study area are summarized in Exhibit 6.

[1] One Way Streets – How Did They Come to Be in Windsor?

Exhibit 5. Existing Bicycle and Pedestrian Network

Exhibit 6. Existing Directional Network



2.7 Existing Municipal On / Off Street Parking

Due to the numerous visitors / travellers to the Downtown Windsor study area, adequate parking facilities need to be provided to accommodate the associated vehicles. The City of Windsor Traffic Operations is responsible for the operation and maintenance of these parking facilities that include: on-street parking meters, off-street parking lots and parking garages. Within the Downtown Windsor Study area, there are a total of three (3) parking garages and twelve (12) on-street parking lots. On-street parking meters are dispersed throughout the Downtown Windsor study area, as identified in Schedule S (By-Law Number 134-2004). Existing parking by-laws are approved by Council and enforced by Parking Enforcement.

A recent City of Windsor review of Municipal parking lot utilization within the downtown area outside the immediate environs of Casino Windsor indicated that the present supply of Municipal parking meets the current needs. Within the environs of Casino Windsor, OLG has undertaken a separate parking study to develop a parking strategy to meet the Casino Windsor parking requirements. The Municipal on / off street parking available within the Downtown Windsor study area is displayed on Exhibit 7.

The other types of parking that are available within the Downtown Windsor study area are private parking lots and residential permit parking. Residential permit parking is available in areas of the City where existing institutions impact / limit the available parking in the surrounding residential neighbourhood. In such identified areas, residential parking permits can be obtained from the Parking Enforcement Office at a cost, with a maximum of two provided per household.

2.8 Historical and Existing Traffic Volume Review

The 1993 Downtown Windsor and Waterfront Park Traffic Operations Study included summaries of observed traffic flows on major facilities as well as travel patterns crossing selected screenlines entering and exiting from Downtown Windsor.

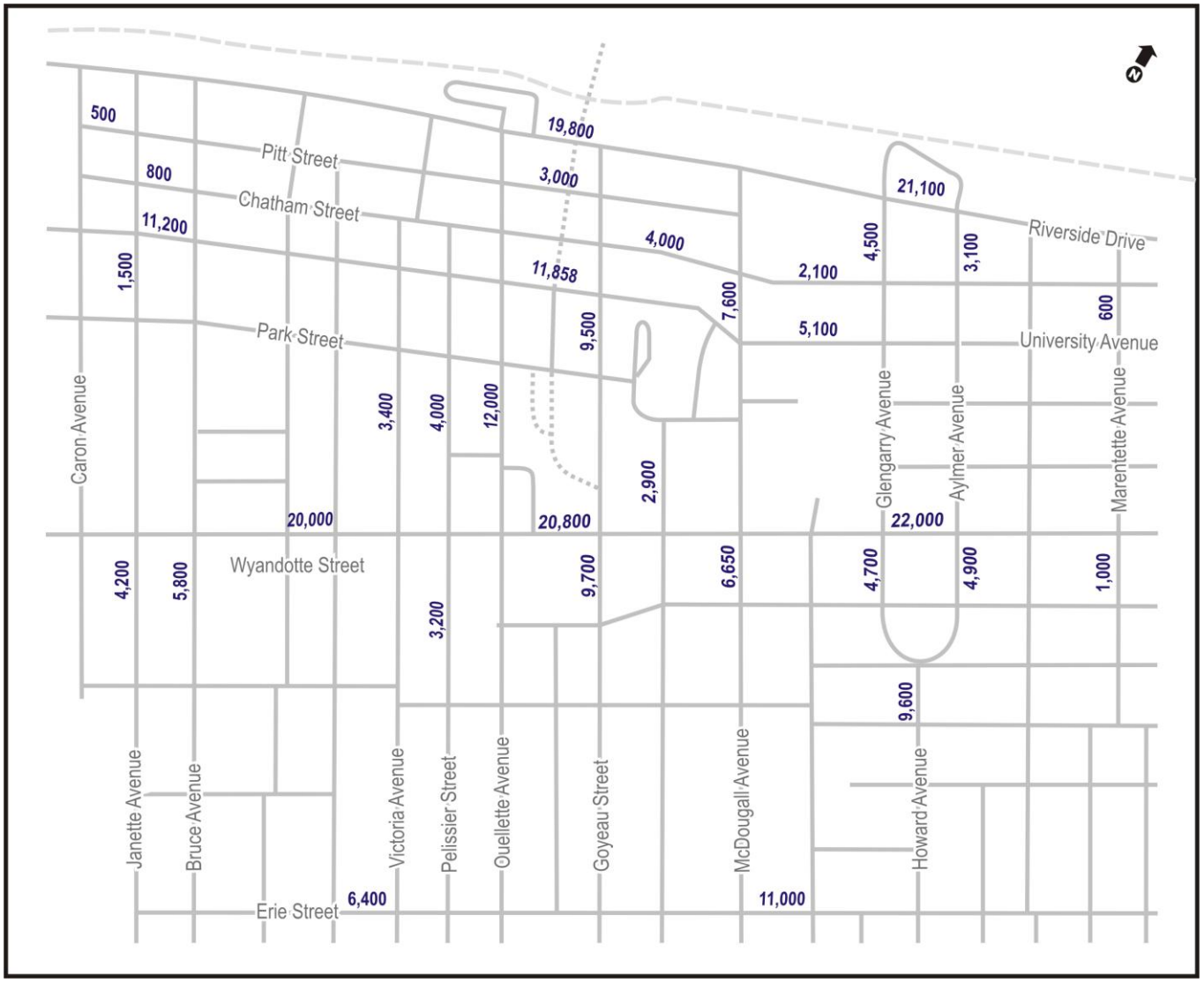
As part of the Downtown Windsor Transportation Master Plan study, a detailed traffic count program that included fifty-four (54) 8-hour intersection turning movement counts was undertaken to supplement available city traffic data. This traffic count data provided the basics for estimating the daily two-way traffic flows on various roadways within the Downtown Windsor study area as displayed on Exhibit 8.

A comparison of the 1993 and existing (2005/2006) daily volumes on selected roadways presented on Table 2 indicates that traffic flows on the major roadways within the Windsor Downtown area as a whole are similar in magnitude. Roadways adjacent to Casino Windsor, such as University Avenue, McDougall Street, Glengarry Avenue and Aylmer Avenue have shown noted increases whereas Chatham Street, Pitt Street and Goyeau Street indicate decreased flows.

The historical traffic flow comparison also indicates significant increase of traffic flow on Wyandotte Street and decreased flow on both Pelissier Street and Victoria Avenue south of University Avenue.

Exhibit 7. Existing Municipal On / Off Street Parking

Exhibit 8. Existing (2006 / 2007) Daily Two-Way Traffic Volumes



11,000 Total daily two-way volumes

Table 2: Comparison of 1993 and Existing (2005 / 2006) Daily Vehicle Flows

Road Section	Daily Volumes		Percent Change
	1993	Existing	
Riverside Drive			
• West of Glengarry Avenue	24,000	21,000	(NC)
• West of Goyeau Street	19,400	19,800	NC
Pitt Street			
• West of Goyeau Street	5,600	3,000	(46%)
• West of Ouellette Avenue	4,700	2,600	(45%)
Chatham Street			
• West of McDougall Avenue	3,800	4,000	NC
• West of Goyeau Street	4,700	4,600	(NC)
University Avenue			
• West of Goyeau Street	9,300	11,800	27%
Wyandotte Street			
• West of Goyeau Street	17,100	20,800	22%
• West of Dougall Avenue	17,900	20,000	12%
Aylmer Avenue			
• North of Riverside Drive	2,300	3,100	35%
Glengarry Avenue			
• North of Riverside Drive	1,800	4,500	150%
McDougall Avenue			
• South of University Avenue	5,700	7,600	33%
• South of Wyandotte Street	5,000 (est.)	6,650	33%
Goyeau Street			
• South of University Avenue	17,400	9,500	(45%)
• South of Wyandotte Street	10,000	9,700	(NC)
Ouellette Avenue			
• South of Park Street	13,500	12,000	(11%)
• South of Wyandotte Street	17,800	17,400	(NC)
Pelissier Street			
• South of Park Street	5,700	4,000	(30%)
Victoria Avenue			
• South of Park Street	5,800	3,400	(42%)
COMPARATIVE TOTAL	**191,500**	**185,450**	

Note: "NC" indicates no change.

The 1993 study also assessed traffic flows into the downtown area crossing screenlines located at the following locations:

- East Screenline
  - East of Walker Road (Riverside Drive to Wyandotte Street)
- West Screenline
  - West of Janette Avenue (Riverside Drive to North of Wyandotte Street)
- South Screenline
  - North of Wyandotte Street (Janette Avenue to McDougall Avenue)
  - South of Wyandotte Street (Mercer Street to Lincoln Road)

The current Downtown Windsor Transportation Master Plan study area does not extend as far east as the 1993 study. However, there is sufficient commonality to compare the 1993 and existing (2005/2006) A.M. and P.M. peak hour traffic flows on a screenline basis as presented in Table 3.

This comparison of traffic flows generally indicates similar traffic flows between the conditions observed in 1993 and the existing flows for both the morning and afternoon commuter peak hours. Although new developments have occurred in the downtown since 1993 to increase traffic flows, there have been factors that have decreased traffic flows resulting in no change to the magnitude of traffic volumes.

Table 3: Comparison of 1993 and Existing (2005 / 2006) Daily Vehicle Flows Crossing Downtown Screenlines

	A.M. Peak Hour			P.M. Peak Hour		
Screenline	**NB/EB**	**SB/WB**	**Total**	**NB/EB**	**SB/WB**	**Total**
West of CPR Line						
1993	1,670	1,215	2,885	1,820	2,080	3,900
Existing (2005/2006)	1,775	1,370	3,145	1,980	2,015	3,995
South Wyandotte						
1993	2,615	1,770	4,385	2,815	3,280	6,095
Existing (2005/2006)	2,235	1,745	3,980	2,460	2,820	5,280
East of Walker Road						
1993	715	1,935	2,650	2,085	1,045	3,130
Existing (2005/2006)	940	1,800	2,740	1,985	1,385	3,370
Total Crossings	**Inbound**	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
1993	6,220	3,700	9,920	5,680	7,445	13,125
Existing (2005/2006)	5,810	4,055	9,865	5,825	6,820	12,645
% Trip Distribution (1993/Existing)	**Inbound**		**Outbound**	**Inbound**		**Outbound**
From East	31%/31%		19%/23%	18%/24%		28%/29%
From West	27%/31%		33%/34%	32%/34%		28%/30%
From South	42%/38%		48%/43%	50%/42%		44%/41%

The comparison of direction of travel (trip distribution) indicates that during the morning commuter peak hour, there has been a minor increase in the proportion of trips entering the Downtown from the west and a lower proportion of trips entering the south. During the afternoon commuter peak hour, the existing proportion of trips exiting the Downtown by direction indicate a slight increase in trips crossing the west screenline at the expense of trips travelling across the south screenline (Wyandotte Street).

It is important to note that the changes shown in Table 3 are relatively minor, suggesting that the existing morning and afternoon travel patterns are generally similar to the 1993 distribution characteristics.

2.9 Existing Transportation Network – Operating Levels-of-Service

An essential aspect of this study was to obtain an understanding of the existing traffic operations within the Downtown Windsor study area. In order to obtain such an understanding, it was necessary to develop a representative road network and obtain up-to-date traffic data that would best correspond to the traffic volumes currently utilizing the road network and the associated operating levels of service. The existing conditions network analysis provides the appropriate base on which to develop the future road network and to determine the potential impacts of future developments on the transportation system operations.

Available turning movement counts were provided by the City of Windsor at key intersections within the study area along with the existing traffic signal timings to undertake the analysis. As some of the traffic volume data were observed to be dated, additional turning movement counts were undertaken in December 2006 and February 2007 to obtain more representative existing network volumes within the Downtown Windsor study area.

As operating levels of service on urban road networks are generally governed by intersection delay and not by mid-block flow characteristics, an intersection level-of-service (LOS) analysis was undertaken using the VISSIM software package, which is a microsimulation tool that models the dynamic operations of the road network and provides measures of queue and delay from which an intersection level of service can be determined. In order to undertake the analysis, a representative road network was first created in the traffic microsimulation package VISSIM, wherein the existing lane configurations and signal timings at signalized intersections were coded into the network. The road network that was developed for this analysis is shown in Exhibit 9.

The assessment of intersection operating levels of service was then undertaken for two scenarios: the morning (A.M.) commuter peak hour and the evening (P.M.) commuter peak hour of flow. As the microsimulation model depicts the dynamic operations of the road network, the traffic volume data that are input into the model need to be balanced on a link-by-link basis. As a result, an extensive balancing procedure was undertaken to ensure that mid-block link volumes were comparable to intersection counts. A memo describing the traffic data that was collected as part of this study and the balanced commuter peak hour intersection and mid-block volumes are attached in Appendix A.

The intersection level-of-service (LOS) analysis was undertaken for all of the signalized intersections and key unsignalized intersections within the Downtown Windsor study area to understand existing operations and identify any existing operating issues. Results of the analysis were summarized based on a level-of-service designation from ‘A’ to ‘F’. Typically, levels-of-service ‘A’ through ‘D’ reflect adequate and acceptable levels of service, ‘E’ reflects increasing congestion and ‘F’ reflects long delays and, in some cases, severe traffic congestion. The level-of-service criteria for signalized and unsignalized intersection traffic control are summarized in Table 4.

Exhibit 9. Existing Road Network – VISSIM Microsimulation Model

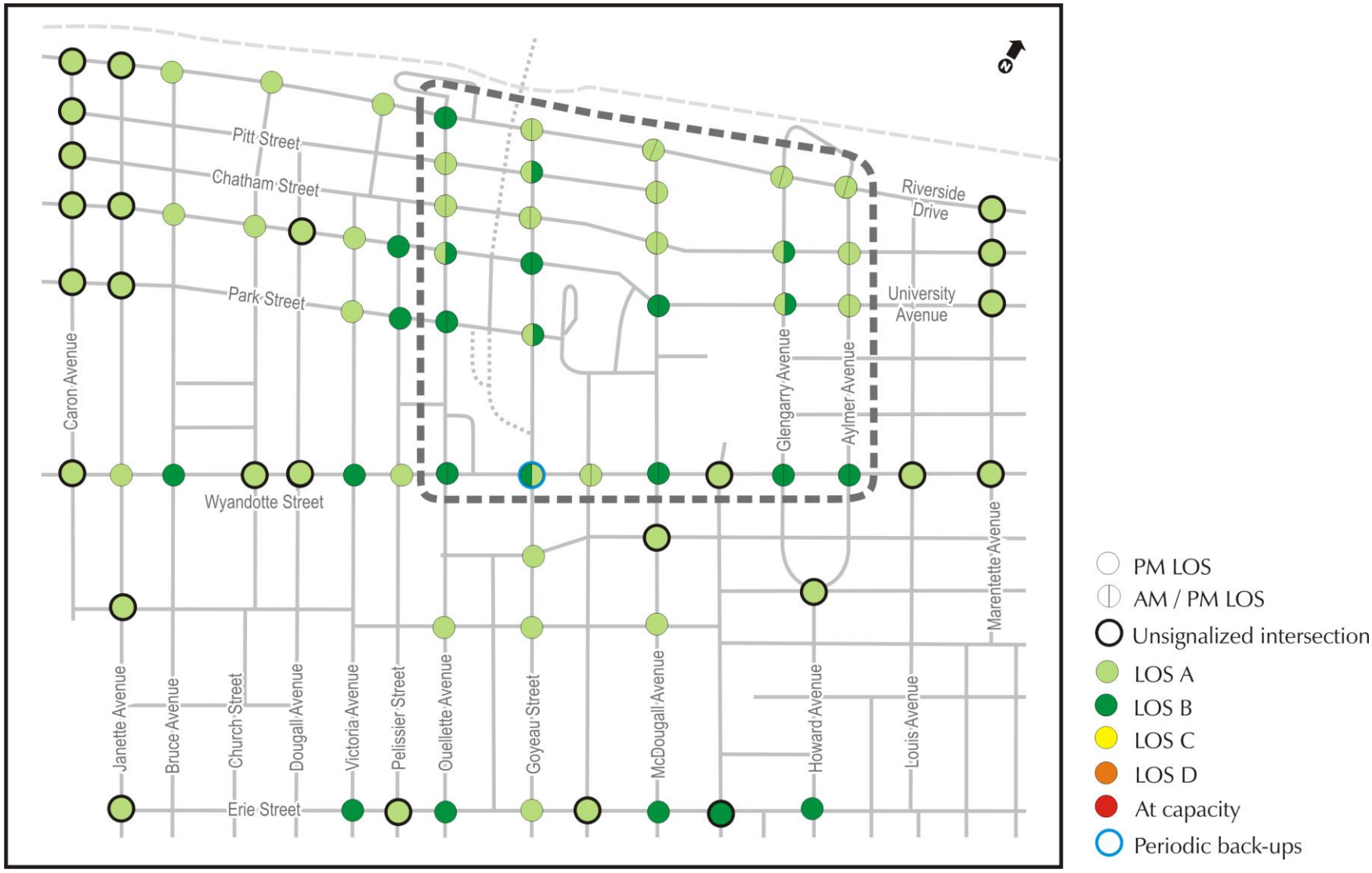
Table 4: Intersection Level-of-Service Criteria

Level of service	Operations	Average Control Delay (seconds / vehicle)	
		Traffic Signal Control	Stop Control
A	Excellent	0 to 10	0 to 10
B	Very Good	>10 to 20	> 10 to 15
C	Good	>20 to 35	>15 to 25
D	Adequate	>35 to 55	>25 to 35
E	Approaching capacity, congestion	>55 to 80	>35 to 50
F	At capacity, congested	>80	>50

Source: Highway Capacity Manual (2000)

The level-of-service results for the commuter peak hour levels of service are summarized on Exhibit 10. As a note, if an intersection is two-way stop-controlled, there is no overall intersection LOS, as the main street operates under free-flow conditions. Hence, the LOS that is displayed for a two-way stop-controlled intersection is based on the stop-controlled movements. The level-of-service analysis indicates that all the signalized intersections are currently operating at good levels of service in both commuter peak hours within the Downtown Windsor study area, with the exception of the intersection of Goyeau Street and Wyandotte Street, where periodic back-ups at the Tunnel Plaza will result in congested operations at the intersection.

Exhibit 10. Existing Commuter Peak Hour Levels of Service



3. PUBLIC CONSULTATION PROCESS

The Municipal Class EA document notes that public consultation is a mandatory component of the study process. To address this component, meetings were held with agency stakeholders, City departmental representatives and the general public as a part of the Transportation Master Plan study. The following sections briefly describe the various points of contact with the public throughout the course of the study.

3.1 Notice of Study Commencement and Public Information Centre #1

A notice of study commencement and Public Information Centre (PIC) #1 was placed in the Windsor Star on Saturday, February 10, 2007 and Wednesday, February 14, 2007 prior to Public Information Centre #1 to inform the public of the start of the study, to provide an opportunity for individuals to bring forward their concerns to the project team and to notify the public of the upcoming information centre. Individual letters / flyers were also sent out to specific stakeholders: members of the public and review agencies, as described below. Copies of the notice, letter and flyer are included in Appendix B.

Members of the public that received notification via individual letters / flyers included the following:

- Property owners on McDougall Street between University Street and Riverside Drive
- Property owners on Pitt Street between Goyeau Street and McDougall Avenue
- Property owners within the Traffic Operations Study Area
- Residents of Victoria Avenue who had previously met with the City regarding their concerns for their street

Review agencies that received notification via individual letters included the following:

Municipal

City of Windsor
- Mayor Francis
- Councillors Halberstadt and Valentinis – Ward 3
- Windsor Police Service
- Windsor Fire and Rescue
- Transit Windsor
- Land Use Planning
- Transportation Planning
- Traffic Operations
- Parks and Recreation

Windsor-Essex County Housing Corporation

County of Essex
- Land Ambulance

Federal and Provincial

Ministry of the Environment (MOE)
- Windsor District Office
- Southwestern Region, London Regional Office

Ministry of Tourism
- Windsor District Office
- Head Office

Ministry of Economic Development and Trade (MEDT)
- Windsor District Office
- Head Office

Ministry of the Attorney General
- Windsor / Essex County
- Crown Law Office - Civil

The Ontario Secretariat for Aboriginal Affairs
- Policy and Relationships Branch

Department of Indian and Northern Affairs
- Specific Claims Branch
- Litigation Management and Resolution Branch
- Claims East of Manitoba, Comprehensive Claims Branch

Essex Region Conservation Authority
- Essex Region

Fisheries and Oceans Canada
- Head Office

Ministry of Municipal Affairs and Housing
- London and Regional Office

Ministry of Culture
- Regional Office
- Head Office

Ministry of Natural Resources
- Chatham Area Office

Utilities

Union Gas Limited
Windsor Utilities Commission / ENWIN Utilities Ltd. / ENWIN Powerlines Ltd.
Cogeco Cable Inc.
Bell Canada

Others

Casino Windsor
Convention & Visitors Bureau of Windsor, Essex County & Pelee Island
Detroit and Canada Tunnel Corporation
Windsor Park Travel Information Centre
Windsor and District Chamber of Commerce
Downtown Windsor Business Improvement Association
Via Italia / Erie Street Business Improvement Association
Wyandotte Towne Centre Business Improvement Association
Other key stakeholders in the downtown core

3.2 Public Information Centre #1

The Municipal Class Environmental Assessment (Class EA) process indicates that following the identification of problems and opportunities, the proponent may choose to hold a discretionary public consultation meeting to review the issues that have been identified to date and to provide an opportunity for further input by the public. To ensure that all issues and concerns were identified, a Public Information Centre (#1) was held in February 2007 to present the existing conditions, the identified issues and potential opportunities. Highlights of the meeting are noted below.

Notification:	Notices mailed to community stakeholders, agencies, all properties within the Traffic Operations study area Newspaper advertisement placed in Windsor Star (February 10, 2007 and February 14, 2007)
Date:	Wednesday, February 21, 2007
Time:	3:00 p.m. to 8:00 p.m.
Location:	Art Gallery of Windsor, Atrium 401 Riverside Drive
Purpose:	The public information centre (PIC) was held as a preliminary point of contact with the public. The purpose of PIC #1 was to present an overview of existing conditions, identified issues and potential opportunities and to provide the public with an opportunity to further identify transportation issues and concerns. The PIC was arranged as an informal drop-in centre, where those in attendance could review the display panels and discuss the study with City staff and the project team.
Attendance:	The PIC was attended by approximately 53 people, which included Council representatives, agency stakeholders, community stakeholders, general public, City staff and project team members.
Comments:	Based on comments received, the following is a summary of the main issues that were identified by the public during and following PIC #1: • Glengarry Avenue (south of Assumption Street) – parking regulations, street lighting, pavement markings • McDougall Avenue – potential closure of McDougall Avenue between Pitt Street and Chatham Street will result in a disconnected truck route network • Victoria Avenue (Wyandotte Street to Erie Street) – Reported high travel speeds and volumes and conversion to two-way travel • Chatham Street / Pitt Street – Support for two-way conversion in Downtown Area by BIA • Glengarry Avenue – Event night level of service at Riverside Drive • Raymond Desmarais Manor – Access / egress hindered by new Casino development and loss of on-street parking on Pitt Street • Entertainment Centre / Hotel (McDougall Avenue) – Entertainment Centre / Hotel valet parking operations, operation and location of valet queue lane, emergency response time impacts, taxi staging area location • Police garage egress – require unobstructed egress from garage door All written comments were responded to in letters dated March 28, 2007.

A summary report of the Public Information Centre is included in Appendix C, which also provides a copy of the newspaper notice, the handouts, the display boards, the comments received and the response letters.

3.3 Stakeholder and Agency Meetings

Due to the nature of the issues identified in the study area and the potential impacts related to City operations or to specific agency stakeholders, individual meetings were held following PIC #1 to discuss identified issues and to note possible opportunities. In particular, meetings or discussions were held with representatives of Transit Windsor, Windsor Police Services, the City's Transportation Planning Department and the City's Traffic Operations Department.

A brief description of each stakeholder meeting is provided below and the respective minutes from the meetings are attached in Appendix D.

Transit Windsor:

Notification:	Meeting was arranged by MRC
Date	Wednesday, January 24, 2007
Time:	2:00 p.m. to 3:30 p.m.
Location:	City of Windsor, Transit Windsor Offices, Room 403
Attendees:	Transit Windsor representatives, City staff, consultant staff
Purpose:	This meeting was held to discuss proposed cross-sections on Pitt Street and McDougall Avenue and to determine whether the City had any other requirements that should be incorporated into the proposed design.

Windsor Police Services:

Notification:	Meeting was arranged by the City
Date	Wednesday, March 14, 2007
Time:	3:10 p.m. to 5:15 p.m.
Location:	City of Windsor offices
Attendees:	Windsor Police Services representatives, City transportation planning staff, project team
Purpose:	This meeting was arranged as a follow-up to PIC #1, to discuss comments received from the public, to discuss Windsor Police Services concerns and to determine the next steps of the study.
Notification:	Meeting was arranged by the City
Date	Thursday, April 12, 2007
Time:	1:00 p.m. to 2:00 p.m.
Location:	OLG office
Attendees:	Windsor Police Services representative, project team
Purpose:	This meeting was held to present a summary of additional technical analysis undertaken to address police concerns regarding valet queue lane location, to review the recommended alternative to address police garage egress concerns and to provide an overview of the Downtown Windsor TMP study recommendations.

City of Windsor Transportation Planning:

Notification:	Meeting was arranged by OLG
Date	Wednesday, April 4, 2007
Time:	1:00 p.m. to 3:30 p.m.
Location:	OLG office, Boardroom B
Attendees:	City transportation planning staff, project team
Purpose:	This meeting was held to discuss the draft PIC #2 boards.

City of Windsor Traffic Operations:

Notification:	Meeting was arranged by MRC
Date	Thursday, April 12, 2007
Time:	11:00 a.m. to 12:00 p.m.
Location:	City of Windsor, Traffic Operations offices
Attendees:	City traffic operations staff, consultant staff
Purpose:	This meeting was held to discuss proposed cross-sections on Pitt Street and McDougall Avenue and to determine whether the City had any other requirements that should be incorporated into the proposed design.

In addition to the agency stakeholder meetings, agency stakeholders were also provided with the opportunity to review information presented and to note their issues / concerns at both Public Information Centres. A summary of the agency stakeholders that were in attendance at the public information centres and the associated comments provided is noted below.

Public Information Centre #1 – Agency Stakeholder Review:

Attendees:	Representatives of Windsor Fire and Rescue Representatives of Windsor Police Services Representatives of City Traffic Operations Representatives of Transit Windsor
Comments:	The main issues / concerns that were noted by agency stakeholders during and following PIC #1 is summarized below: • Windsor Fire and Rescue: concern with emergency response times • Windsor Police Services: police garage access / egress issues • Transit Windsor: not in favour of two-way conversion on Pitt Street / Chatham Street west of Goyeau Street • Traffic Operations: no issues identified

Public Information Centre #2 – Agency Stakeholder Review:

Attendees:	Representatives of County of Essex Land Ambulance Representatives of Transit Windsor Representatives of Urban Design
Comments:	The main issues / concerns that were noted by agency stakeholders during and following PIC #2 is summarized below: • County of Essex Land Ambulance: no issues identified • Transit Windsor: turning radii from new transit terminal are not supportive of two-way conversion • Urban Design: no issues identified

3.4 Public Information Centre #2

The Municipal Class Environmental Assessment (Class EA) process indicates that a mandatory point of contact with the public is required following the identification of the problem / opportunity, the identification of alternative solutions and the associated evaluation. A second Public Information Centre (PIC #2) was held in April 2007 to review and obtain public comments on the alternatives / opportunities under consideration as well as study recommendations. Highlights of the meeting are noted below.

Notification:	Notices mailed to community stakeholders, agencies, all properties within Traffic Operations study area Newspaper advertisement placed in Windsor Star (March 31, 2007 and April 5, 2007)
Date:	Thursday, April 12, 2007
Time:	3:00 p.m. to 7:00 p.m.
Location:	All Saints' Church 330 City Hall Square East
Purpose:	The purpose of this second PIC was to provide an overview of the opportunities that were identified to address issues raised by the public, the review process that was undertaken to verify concerns and the resulting study recommendations.
Attendance:	The PIC was attended by approximately 36 people, which included Council representatives, agency stakeholders, community stakeholders, general public, City staff and project team members.
Comments:	The following is a summary of the comments made by the public and stakeholders that were noted during and following PIC #2: • Residents of the Raymond Desmarais Manor were encouraged that a total of 9 on-street parking spaces are to be provided on McDougall Avenue and Pitt Street adjacent to their building • Glengarry Avenue (south of Assumption Street) – noted that comments have been somewhat addressed but hope that recommendations will hold • Wyandotte Street (at Aylmer Avenue) – would like for parking on the south side to be maintained • Downtown BIA Area – would like two-way street conversion on Chatham Street / Pitt Street and Victoria Avenue / Pelissier Street • Transit Windsor – not in support of two-way conversion on Pitt Street / Chatham Street west of Goyeau Street as it will impact the new transit terminal operations (bus turning radii) • Councillor noted that City should continue to review the opportunity of providing additional on-site parking at the Raymond Desmarais Manor building. It is noted that this issue is outside the scope of work being undertaken as part of the Transportation Master Plan and Schedule B – EA submission. All written comments were responded to in letters dated April 30, 2007.

A copy of the mail invitation and the newspaper notice, the handouts, the displays, the comments received with their respective responses have been included in a summary report in Appendix E.

3.5 Other Points of Contact Following PIC #2

Following PIC #2, two of the concerns that had been noted by residents / the public still needed to be further addressed. The concerns included the reported high traffic volumes and speeds on Victoria Avenue and the potential for two-way street conversions in the Downtown Windsor area. As part of the process in identifying potential opportunities to address these concerns, meetings were held with individual stakeholders following PIC #2.

It is noted that in February 2007, the Environmental Assessment (EA) Act was amended and now explicitly states that traffic calming is no longer subject to the EA Act. Thus opportunities to address the "Victoria Avenue" resident reported concerns of high speeds and high volumes and the potential conversion to two-way on Victoria Avenue south of Wyandotte Street were no longer required to be included as part of the Transportation Master Plan EA process. However, the project team continued with a more detailed review of the issues through the collection of additional speed and volume data on Victoria Avenue to further confirm the noted issues. Following a review of the data and a preliminary assessment of the warrant for traffic calming measures on Victoria Avenue as per the City's Traffic Calming Policy Paper, it was noted that traffic calming measures were not warranted. As a result, no meetings were held with residents of Victoria Avenue regarding the noted concerns on speeds and volumes. However, as the study was considering the potential for two-way street conversions in the Downtown Windsor area, the City's Public Works Department indicated that Victoria Avenue and Pelissier Street south of Wyandotte Street could be included as part of the overall network that would be reviewed with respect to two-way conversions.

Subsequent meetings held to discuss the two-way street conversion opportunities included meetings with the Downtown Windsor Business Improvement Association (DWBIA) Infrastructure Committee, the DWBIA General Membership and Victoria Avenue residential representatives and representatives of Transit Windsor, the City's Transportation Planning Department, the City's Traffic Operations Department and Windsor Fire and Rescue Services. A brief description of each stakeholder meeting is provided below and the respective minutes from the meetings are attached in Appendix F.

<u>Downtown Windsor Business Improvement Association Infrastructure Committee:</u>

Notification:	Meeting was arranged by MRC
Date	Thursday, June 7, 2007
Time:	1:00 p.m. to 2:00 p.m.
Location:	Downtown Windsor Business Improvement Association Offices, 474 Ouellette Avenue
Attendees:	Infrastructure Committee representatives, City staff, consultant staff
Purpose:	This meeting was held to discuss the opportunities for conversion from one-way to two-way operations on Chatham Street, Pitt Street, Victoria Avenue and Pelissier Street in the downtown area.

Downtown Windsor Business Improvement Association General Membership and Victoria Avenue Residents:

Notification:	Meeting was arranged by MRC
Date	Thursday, June 7, 2007
Time:	5:00 p.m. to 6:15 p.m.
Location:	The Coffee Exchange, 343 Ouellette Avenue
Attendees:	DWBIA general members, Victoria Avenue representatives, City staff, consultant staff
Purpose:	This meeting was held to discuss the opportunities for conversion from one-way to two-way operations on Chatham Street, Pitt Street, Victoria Avenue and Pelissier Street in the downtown area.

City Departments, Transit Windsor, Windsor Fire and Rescue Services:

Notification:	Meeting was arranged by MRC
Date	Thursday, June 14, 2007
Time:	11:00 a.m. to 12:30 p.m.
Location:	Public Works offices
Attendees:	Representatives of City Planning, City Traffic and Operations, Transit Windsor, Windsor Fire and Rescue Services
Purpose:	This meeting was held to discuss any technical issues or concerns associated with the conversion of Downtown Windsor streets from one-way to two-way traffic flow.

4. ISSUES AND OPPORTUNITIES

As part of the study process, the Project Team prepared a comprehensive list of transportation-related issues and concerns important to Downtown Windsor. This list was developed through various points of contact with the public and stakeholders. The study area was then initially reviewed to determine whether there would be any physical, environmental or social constraints that would hinder potential opportunities. With an understanding of the main issues / concerns and any noted constraints, potential opportunities were identified. This section provides an overview of the various issues that were identified by the public and / or stakeholders and the opportunities that were recommended for further review. A problem statement is included at the end of this section that was used to direct the course of the study and to ensure that the issues and concerns identified by the public and stakeholders are addressed accordingly.

4.1 Existing Constraints

A review of the study area was required prior to the opportunity identification stage in order to determine any existing constraints that could limit proposed opportunities for the improvement of the transportation system. The constraints that were reviewed included the following:

- Heritage areas
- Natural environment
- Existing land uses

Heritage area constraints describe "an area or neighbourhood where there are collections of important heritage resources"[2]. Furthermore, the City of Windsor Official Plan (Office Consolidation, November 2006) notes that any proposed development or infrastructure in a heritage area will need to "maintain, reinforce and enhance the character of [the] heritage area as per Heritage Conservation guidelines". Victoria Avenue between Wyandotte Street and Erie Street is identified as heritage area in Schedule G: Civic Image of the City of Windsor Official Plan (Office Consolidation, November 2006).

The majority of the Downtown Windsor study area is urbanized with the exception of the waterfront recreation area north of Riverside Drive. There are no major environmental constraints or existing land use constraints that would have a negative impact on any operational improvements or traffic calming measures.

[2] City of Windsor Official Plan (Office Consolidation), Chapter 8 Urban Design, p. 8-3, November 2006.

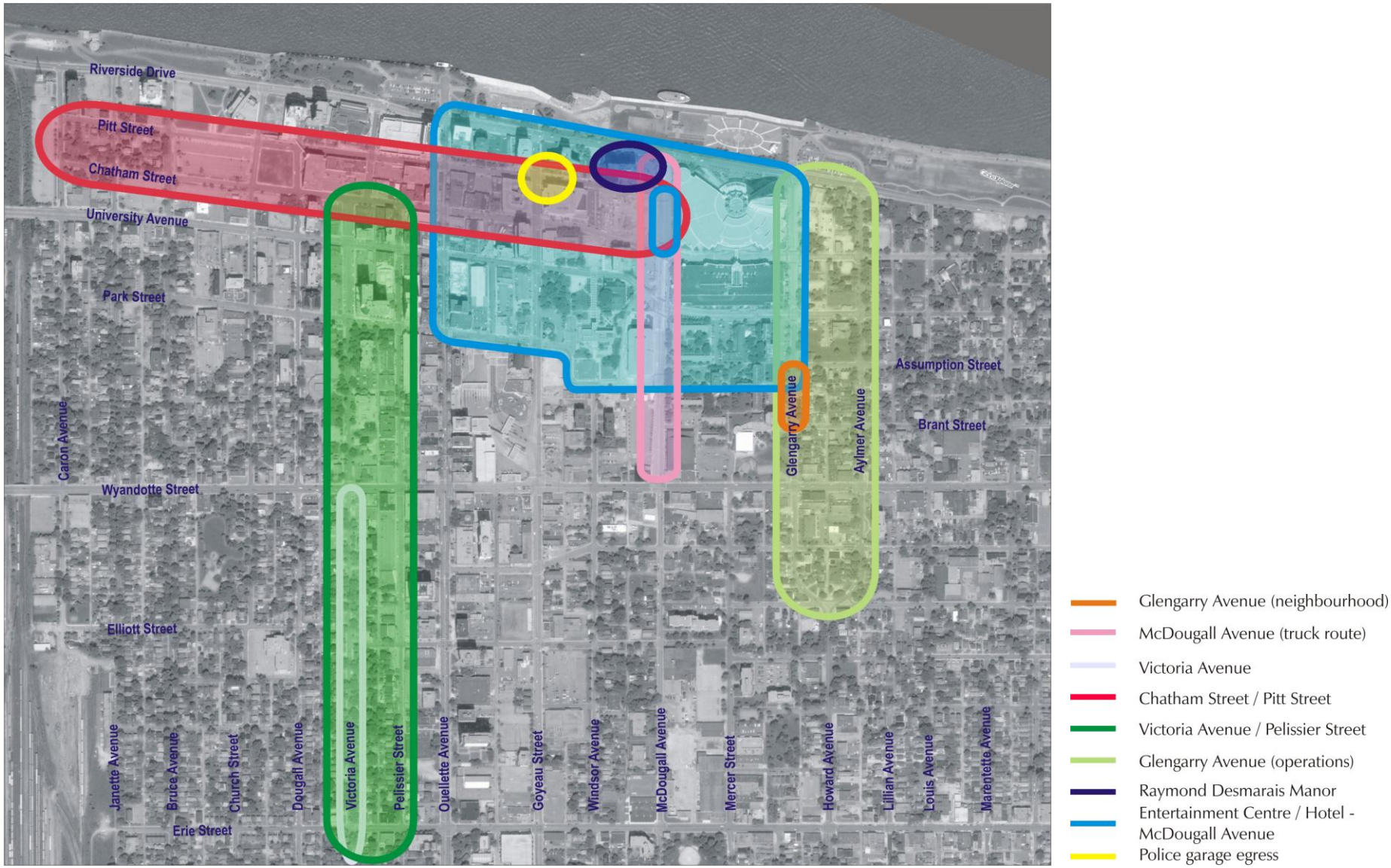
4.2 Summary of Issues and Opportunities

Following the first discretionary public consultation meeting and the receipt of comments from both stakeholders and the public, the noted issues were summarized and possible opportunities to address each of these issues were identified. Each of the issues and a brief description of opportunities for consideration as part of the study are noted below. Exhibit 11 identifies the general location where the issue is situated within the study area.

Location	Issues and Opportunities	
Glengarry Avenue	Issue:	Parking regulations, street lighting, pavement markings (south of Assumption Street)
	Opportunity:	Field review to verify concerns and identify necessary improvements
McDougall Avenue	Issue:	Potential closure of McDougall Avenue between Pitt Street and Chatham Street will result in a disconnected truck route network
	Opportunity:	Review potential alternate routes and existing truck route connectivity
Victoria Avenue	Issue:	Reported high travel speeds and volumes and conversion to two-way travel
	Opportunity:	Traffic calming measure (Wyandotte Street to Pine Street) and two-way street conversion
Chatham Street / Pitt Street	Issue:	Support for two-way conversion in Downtown area by BIA
	Opportunity:	Two-way conversion (McDougall Avenue to Caron Avenue) review and traffic analysis
Victoria Avenue / Pelissier Street	Issue:	Support for two-way conversion in Downtown area by BIA
	Opportunity:	Two-way conversion (Chatham Street to Wyandotte Street) review and traffic analysis
Glengarry Avenue	Issue:	Event night level of service at Riverside Drive
	Opportunity:	Optimize eastbound right-turn traffic flows with westbound separate left turn phase Two-way conversion (Riverside Drive to Wyandotte Street) review and traffic analysis
Raymond Desmarais Manor	Issue:	Access / egress hindered by new Casino development Loss of on-street parking on Pitt Street
	Opportunity:	Review of on-street parking concern and identify applicable opportunities
Entertainment Centre / Hotel – McDougall Avenue	Issue:	Entertainment Centre / Hotel valet parking operations Operation and location of valet queue lane Emergency response time impacts Taxi staging area location
	Opportunity:	Closure of McDougall Avenue between Pitt Street and Chatham Street Designated valet parking queue lane on McDougall Avenue Provision of emergency vehicle only lane Casino to identify strategy for traffic flow management
Police garage egress	Issue:	Require unobstructed egress from garage door
	Opportunity:	Curb bumpout, pavement markings, lane delineation Signal pre-emption at Pitt Street / Goyeau Street

These issues and the identified opportunities were further reviewed and assessed as part of the study process through discussions with representative City staff, field visits, data collection exercises and technical analysis to verify the issues and confirm whether the identified opportunities were technically feasible in addressing the issues, where applicable. The review process is further described in Section 6.0 of this document.

Exhibit 11. Location of Issues



4.3 Problem Statement

From the summary of transportation related issues and existing conditions, a problem statement was developed to clearly identify what is being addressed by this study. Two separate problem statements were developed, one for the overall Downtown Windsor area and another for the Traffic Operations Area. The following problem statements were considered to be acceptable by the attendees at the first public information centre:

Downtown Windsor Area:

> "In order to address existing and future transportation issues, there is a need to develop a comprehensive Transportation Master plan that will facilitate the efficient movement of all modes of travel (e.g., vehicles, pedestrians, bicyclists, commercial vehicles)."

Traffic Operations Area:

> "The development of the Entertainment Centre adjacent to the already activity-oriented Casino requires that an effective road network system be provided to facilitate the movement of persons and vehicles between the Casino, Hotel, Entertainment Centre and Parking facilities with the potential closure of McDougall Avenue between Chatham Street and Pitt Street and network changes currently being reviewed as part of the Windsor-Detroit Tunnel Canadian Plaza Master Planning Study."

5. SUMMARY OF FUTURE CONDITIONS

In order to determine short-term, intermediate-term and long-term transportation infrastructure requirements, a detailed analysis of future operating conditions associated with proposed developments in the Downtown Windsor study area was undertaken. While background traffic growth resulting from increased population forecasts is generally assumed in most future conditions assessments, this study assumed that any additional traffic resulting from increases to population would be minimal as the study area is mature and well-developed and that development-related traffic would sufficiently represent future increases to traffic volumes on the Downtown Windsor transportation network. A summary of the future potential developments assumed within the Downtown Windsor study area along with forecast traffic volumes, resulting future traffic operating conditions and identification of required future infrastructure improvements to address the increase in traffic volumes is provided in the following sections.

5.1 Future Development

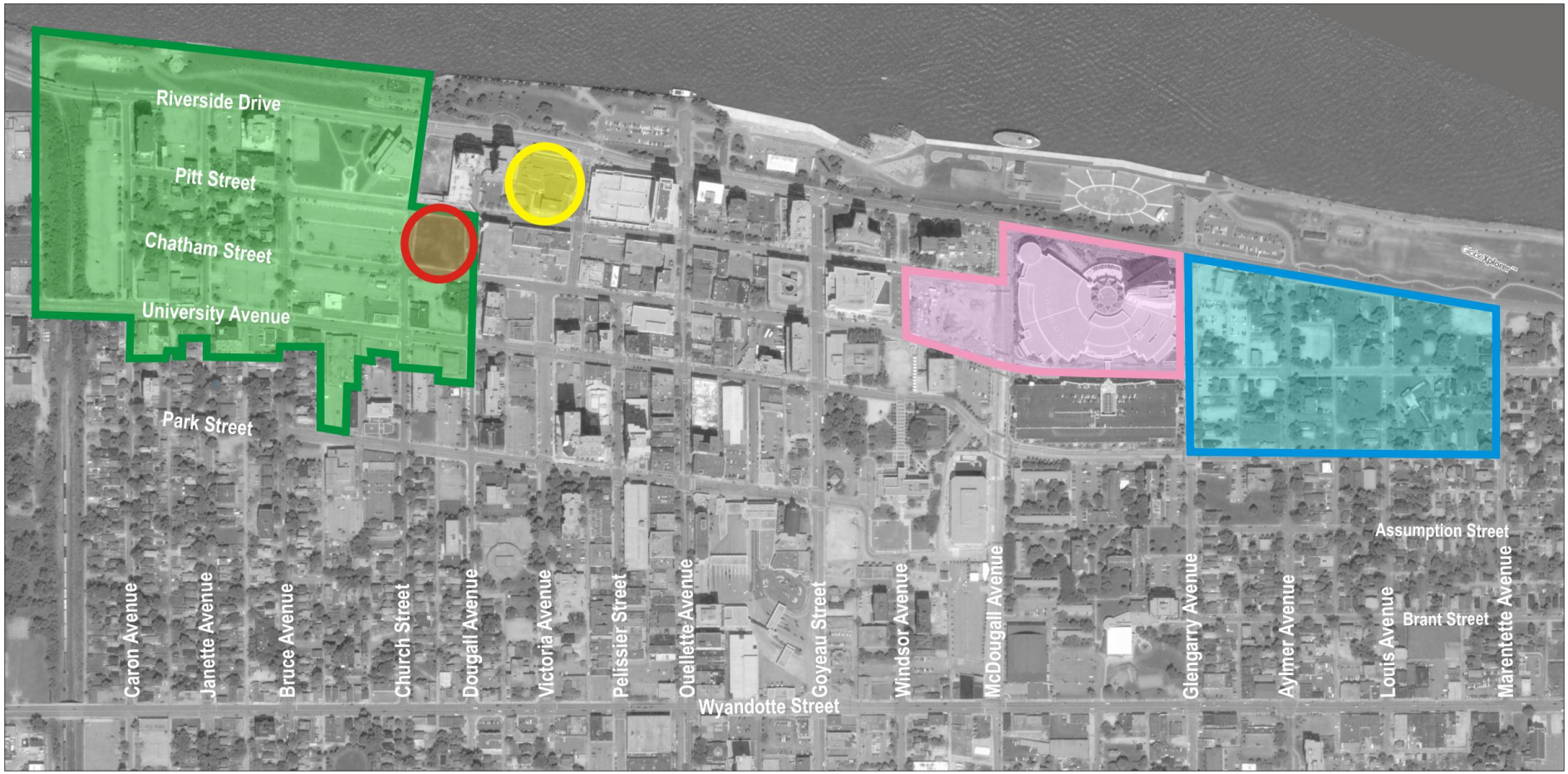
Future developments in Downtown Windsor were separated into two categories: Downtown developments and Casino Windsor developments. The Downtown developments include the City Centre West Community Improvement Plan, the Glengarry-Marentette Community Improvement Plan, the Transit Windsor City Centre Transit Terminal and the St. Clair College expansion at the Cleary International Convention Centre. Casino Windsor developments include new entertainment facilities, a new hotel and new parking facilities. The Downtown developments and the Casino Windsor developments and their approximate locations within the Downtown Windsor study area are identified in Exhibit 12.

The two Community Improvement Plans (CIPs), City Centre West and Glengarry-Marentette, include in-fill construction in central Windsor in order to bring more residents and business into the Downtown Area. The City Centre West CIP calls for the redevelopment of a 20.3-hectare area including the conversion of four existing parking lots into mixed use development, residential development and arena-based multi-use facilities. The Glengarry-Marentette CIP area includes 8 hectares east of the downtown core. When completed, the largely underutilized and vacant lands in the Glengarry-Marentette area will have been transformed through the addition of several hundred residential units in buildings ranging from three to fourteen storeys.

The Transit Windsor Downtown Bus Terminal is currently located at 44 University Street East. This terminal is scheduled for relocation later in 2007 (the terminal building is currently under construction). The new Downtown Bus Terminal will be located on the east side of Church Street between Pitt Street and Chatham Street. Operations at the new terminal require the closure of Dougall Avenue between Chatham Street and Pitt Street.

The Cleary International Convention Centre located at 202 Riverside Drive West was recently acquired by St. Clair College and renamed the St. Clair Centre for the Arts. This new Downtown campus houses the college's School of Creative Arts, which offers programmes such as culinary arts, theatre, hospitality, tourism, journalism and graphic design. Initially, upwards of 600 spaces will be made available for students at this location. The facility continues to offers convention, exhibit and banquet services and contains the 1,200 seat Chrysler Theatre.

Exhibit 12. Proposed Developments with the Downtown Windsor Study Area



Casino Windsor is currently working towards a major expansion of its facilities. The current project includes the construction of a 6-storey Entertainment Centre complex containing a 5,000-seat multi-use entertainment centre or transform to 50,000 ft^2 of convention space. Atop this six-story base will sit a 27-storey hotel with 369 guest rooms and 50, 000 ft^2 of convention space. Finally, the expansion includes enlarging the current Windsor Casino by 30,000 ft^2 (2,790 m^2) with the addition of a structure over McDougall Avenue to connect the existing facilities to the new entertainment centre and hotel. The 30,000 ft^2 addition will contain hotel registration and a 120-seat restaurant.

To accommodate the Entertainment Centre / Hotel complex expansion, new underground parking facilities will be constructed beneath the multi-use entertainment centre. Access to the parking garage will be via a valet pick-up / drop-off area located on McDougall Avenue between Pitt Street and Chatham Street (under the proposed Casino Windsor 30,000 ft^2 expansion). The Entertainment Centre / Hotel complex guest registration and valet parking requirements will require the closure of McDougall Avenue to all through traffic between Pitt Street East and Chatham Street East.

5.2 Future Development Traffic

New traffic associated with each development was estimated using the most current available data. This section provides a description as to the traffic each new development will generate during the a.m. and p.m. commuter peak hours. Additional casino traffic related to Event Nights at the new facility is discussed in Section 5.3.

5.2.1 City Centre West Community Improvement Plan

The City Centre West Community, roughly bounded by Church Street, University Avenue West, Canadian Pacific Railway and Riverside Drive West, currently houses roughly 600 residents in 20 single family homes and 2 apartment complexes (approximately 390 units). Using ITE trip generation rates for single family detached dwellings (210) and mid-rise apartments (223), existing vehicle trips into and out of the City Centre West Community were estimated for the a.m. and p.m. commuter peak hours.

Estimates of future traffic volumes into and out of the community were then forecast using the same techniques applied to the developable land assumptions presented in Table 3. ITE trip rates for specialty retail centres (814), family detached dwellings (210) and recreational community centre (495) were applied to the available developable lands in the community to generate a forecast of the ultimate number of trips into and out of the community in the morning and afternoon peak hours. Table 5 provides the assumptions on developable land used in these estimates. Table 6 provides the existing and future a.m. and p.m. commuter peak hour trips as estimated using the ITE trip generation rates for the City Centre West Community.

Table 5: Developable Land Assumptions for City Centre West Community

	Area (m^2)	Units
Specialty Retail Centre	4,860	---
Single Family Dwellings	9,650	20
Community Centre	11,315	---

Table 6: Existing and Future Commuter Peak Hour Trips Into and Out of the City Centre West Community

	AM Peak Hour		PM Peak Hour	
	In	**Out**	**In**	**Out**
Existing	4	11	13	7
Future	295	272	133	228

5.2.2 Glengarry-Marentette Community Improvement Plan

The Glengarry-Marentette Community consists of a six-block area bounded by Marentette Avenue, University Avenue East, Glengarry Avenue and Riverside Drive East. Available information suggests that there are currently 32 single family dwellings in the Glengarry-Marentette Community, along with 16 duplex units and 16 multifamily homes. It is estimated that approximately 600 residents currently reside in the area.

Using ITE trip generation rates for single family detached dwellings (210) and low-rise apartments (221), existing vehicle trips into and out of the Glengarry-Marentette Community were estimated for the a.m. and p.m. commuter peak hours. Note that the single family detached (210) trip rates were also used for the duplex residences.

Estimates of future traffic volumes entering and exiting the community were then developed using the same techniques applied to the developable land assumptions presented in Table 7, which will consist of low-rise, mid-rise and high-rise apartments along with some local commercial development. ITE trip rates for specialty retail centres (814), low-rise apartments (221), mid-rise apartments (223) and high-rise apartments (222) were applied to the available developable lands in the community to generate a forecast of the ultimate number of trips entering and exiting the community in the a.m. and p.m. peak hours. Table 8 provides the existing and future a.m. and p.m. peak hour trips as estimated using the ITE trip generation rates.

Table 7: Developable Land Assumptions for City Centre West Community

	Area (m^2)	Units
Low-rise Apartment	5,145	111
Mid-rise Apartment	11,535	496
High-rise Apartment	9,555	952
Specialty Retail Center	7,020	---

Table 8: Existing and Future Commuter Peak Hour Trips Into and Out of the Glengarry-Marentette Community

	AM Peak Hour		PM Peak Hour	
	In	**Out**	**In**	**Out**
Existing	23	128	125	71
Future	379	626	449	348

5.2.3 Transit Windsor Downtown Bus Terminal

A new downtown transit terminal, which will be known as the City Centre Transit Terminal, is currently being constructed at 300 Chatham Street West, situated just east of Church Street between Pitt Street and Chatham Street. The construction of the new downtown terminal includes the closure of Dougall Avenue between Pitt Street and Chatham Street. The new City Centre Transit Terminal will replace the existing facility and was officially opened in July 2007.

The new terminal affects bus route patterns and service areas due to the relocation of the facility. The proposed routing changes shifts bus services from one corridor to another corridor (i.e., more bus service on Pitt Street and Chatham Street near new terminal as well as extending services along Riverside Drive). The revised transit service routes operational following the opening of the new transit terminal in 2007 is shown in Exhibit 13 and a description of the planned transit routes that will service the Downtown Windsor study area and weekday (peak and non-peak) headways is shown in Table 9.

Table 9: Summer 2007 Transit Windsor Routes and Headways

Route #	Route Description	Weekday Headways (minutes)			
		AM Peak	Off Peak	PM Peak	Evening
Ouellette Transway 101 (Former 1A)	Downtown to Devonshire Mall via Ouellette and Howard Avenues	10	15	10	30
Tecumseh Transway 103 (Former 1C)	College Avenue Community Centre to Tecumseh Mall via University, Ouellette and Tecumseh	10	15	10	30
Transway 103X (Former 1CX)	College Avenue Community Centre to Tecumseh Mall including downtown and Devonshire Mall	30	30	30	-
Wyandotte Transway (Former 2)	College Avenue Community Centre to Tecumseh Mall, via Wyandotte	10	15	10	30
Central 3	College Avenue Community Centre to Tecumseh Mall, via Wyandotte and Erie/Richmond	15	15	15	30
Ottawa 4	Downtown to East Riverside including Tecumseh Mall	30	30	30	30
Dominion 5	Downtown to Southwood Lakes	30	30	30	30
Dougall 6	Downtown to St. Clair College via Dougall, Bruce and Erie	30	30	30	30
Walkerville 8	Downtown to Oldcastle via Wyandotte Avenue	30	30	30	30
Parent 14	Downtown to Devonshire Mall via Howard and Tecumseth	30	30	30	30
Tunnel Bus	Downtown Windsor to and from Wayne State University, via downtown Detroit	30	30	30	30

Further details to proposed improvements (short-term and longer-term) to existing transit services for the entire of City of Windsor is documented in the Transit Master Plan: "The Way Forward" report, which was prepared in August 2006.

5.2.4 St. Clair Centre for the Arts

The St Clair Centre for the Arts, formerly the Cleary International Convention Centre, will generate additional trips as students begin to take classes at the facility. Information provided by the City indicates that approximately 600 students will attend courses at the Centre. Using the ITE trip generation rates for universities and colleges (550), the number of new student trips was calculated for the a.m. and p.m. commuter peak hours. These values are presented in Table 10.

Table 10: Future Commuter Peak Hour Trips Into and Out of the St Clair Centre for the Arts

	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Student Trips	101	25	38	88

Exhibit 13. Future (Short-Term) Transit Network

5.3 Event Night Traffic

An analysis of potential traffic volumes into and out of the new Casino Windsor Entertainment Centre / Hotel complex examined the impact the entertainment centre would have on an *Event Night* (e.g., a night with a major performance or show) to the adjacent road network one hour prior to show time (assumed 7:00 p.m.). The traffic generated by an Event Night was calculated for both the existing and proposed Casino Entertainment Centre / Hotel complex and added to the background traffic levels to assess operating conditions.

Existing hotel operating statistics provided by Casino Windsor indicate that most hotel guests arrive at 11:00 a.m., 2:00 p.m. or 4:00 p.m. Thus, it was assumed that only about 10% of the hotel guests would arrive within one hour of the Event commencement. Furthermore, hotel operating statistics indicate that for every occupied room, nine out of every ten hotel room occupants arrive by car. Thus, it was assumed that 0.09 vehicles per hotel room would arrive in the hour prior to the Event. Assuming all rooms at the Casinos hotels would be occupied on an Event Night (800 occupied rooms), it is estimated that a total of 72 vehicles related to hotel registration would be made to the new Entertainment Centre / Hotel complex entrance on McDougall Avenue in the hour prior to the Event.

The estimate of the 5,000 persons arriving at the Entertainment Centre assumes that approximately 15% of the attendees will have checked into hotels earlier in the day and walk to the Entertainment Centre and that approximately 15% would have arrived earlier throughout the day to use the Casino amenities prior to attending the Event. The remaining 70% (3,500) persons are assumed to arrive within the hour prior to the Event.

Research conducted in auto occupancy to live theatre performances and trip generation rates in the U.S. suggests that roughly 2.7 to 3.0 persons arrive to an Event at a large theatre in a vehicle[3]. To be conservative this rate was reduced to 2.5 in this analysis. Thus, it was estimated that a total of 1,400 vehicle trips would be made to Casino Windsor in the hour preceding an Event. Based on discussions with Casino Windsor, these trips were divided between 15% to valet parking (210 trips Hotel complex) and 85% to the South Block parking garage (1,190 trips).

5.4 Future Traffic Distribution

To assess future traffic operations and network levels-of-service, a VISSIM micro-simulation network analysis was undertaken to assess the impacts of future development vehicle traffic and proposed network changes to traffic operations within the Downtown Windsor study area. However, unlike the existing conditions, where the VISSIM road network was a direct reflection of existing conditions (lanes, speeds, turn restrictions) and traffic volumes were fixed to observed counts, potential road closures associated with the Casino development, the Transit Windsor Terminal and the Windsor-Detroit Tunnel Plaza operations study require changes to the road network, which in turn changes traffic flows on impacted streets. Therefore, the future conditions analysis utilized a dynamic

[3] W. Hollis Loveday, P.E. *Live Music Theatre Parking and Traffic Characteristics*. Paper presented at the Transportation Frontiers for the Next Millennium: 69th Annual Meeting of the Institute of Transportation Engineers; Las Vegas, 1999.

assignment analysis whereby the origin and destination of each trip is held fixed and the simulation routes the vehicle based on travel time and distance. As a note, for this analysis, the Downtown Windsor study area was reduced to only include the road network bounded by the Detroit River to the north, Marentette Avenue to the east, Wyandotte Street to the south and Caron Avenue to the west as the Downtown Windsor developments are located within this area. Details of the trip table development as input to the model assignment are presented in Appendix G.

Note: In the following discussions "trips" signifies p.m. peak hour auto trips, except as it pertains to Event night trips to Casino Windsor.

5.5 Future Traffic Assignments

Future traffic assignments were undertaken for the p.m. commuter peak hour and the hour prior to an Event at the new Casino Windsor complex. Both assignments included road closures on Dougall Avenue between Pitt Street West and Chatham Street West for the new City Centre Transit Terminal, on McDougall Avenue between Pitt Street East and Chatham Street East for valet parking operations, as well as on Goyeau Street between Park Street and Wyandotte Street for Tunnel Plaza operations. The trip tables assigned in each of the two scenarios are described below in Table 11. Note that counts performed in the vicinity of the Casino showed that Friday evening volumes are 25% lower than the p.m. peak hour in the area.

Table 11: Trip Tables Assigned in each Scenario

Origin-Destination Trip Table	P.M. Commuter Peak Hour	One Hour Prior to Event
Base	100%	75%
City Centre CIP	100%	75%
Glengarry-Marentette CIP	100%	75%
St. Clair Centre for the Arts	100%	75%
Casino Event Traffic	0%	100%

5.6 Future Intersection Operating Levels-of-Service

To determine the future intersection operating levels of service within the Downtown Windsor model study area, an intersection level-of-service (LOS) analysis was undertaken using the VISSIM software package, which is a microsimulation tool that models the dynamic operations of the road network and provides measures of queue and delay from which an intersection level of service can be determined. The future intersection levels-of-service for the afternoon commuter peak hour assumed completion of all proposed developments and no associated Entertainment Centre / Hotel complex traffic, to determine the potential impacts of proposed developments. To assess Event Night traffic impacts, the future intersection levels-of-service for a Friday evening Event Night with the assumption that 75% of Downtown Windsor development related traffic would also be on the road network was assumed as a worse case scenario. Both of these scenarios were assigned to a road network that assumed the closure of McDougall Avenue between Pitt Street and Chatham Street for valet parking operations, the closure

of Goyeau Street between Wyandotte Street and Park Street for Tunnel Plaza operations and the closure of Dougall Avenue between Pitt Street and Chatham Street for the new City Centre Transit Terminal.

The resulting levels-of-service at all the intersections within the Downtown Windsor model study area for both scenarios are summarized in Exhibits 14 and 15, respectively. The level-of-service analysis indicates that all the intersections maintain an acceptable level of service in both future scenarios, with the exception of the intersection at Caron Avenue and Riverside Drive. As this intersection is stop-controlled only on Caron Avenue, the level-of-service presented is only reflective of operations on Caron Avenue, as free-flow operations are maintained on Riverside Drive. As this intersection is one of the main gateways into the Downtown Windsor study area, the volumes assigned to this intersection may be over-represented on Riverside Drive, resulting in the less favourable level-of-service.

Exhibit 14. Future Commuter Afternoon Peak Hour Levels-of-Service

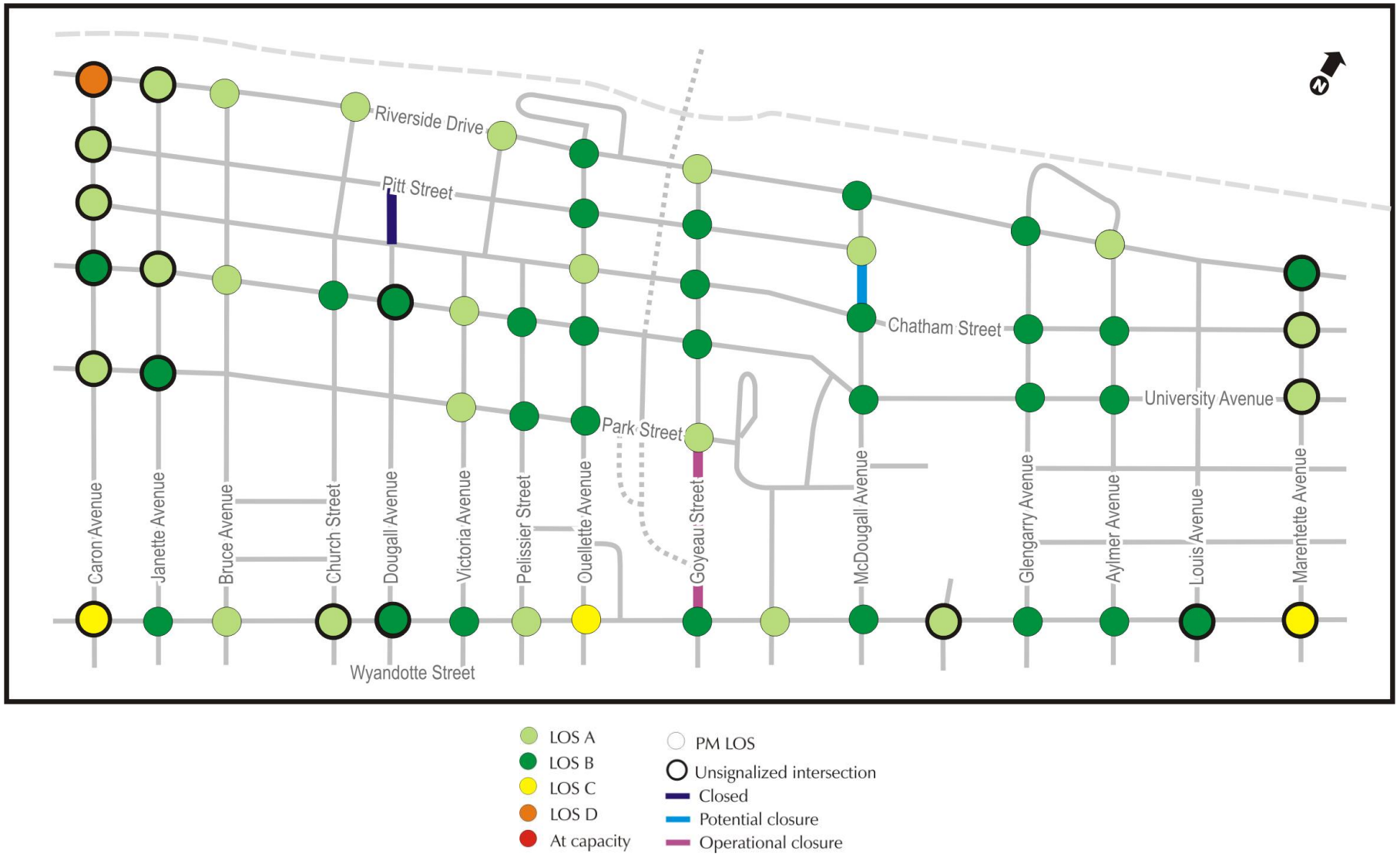


Exhibit 15. Future Friday Evening Event Night Hour Levels-of-Service

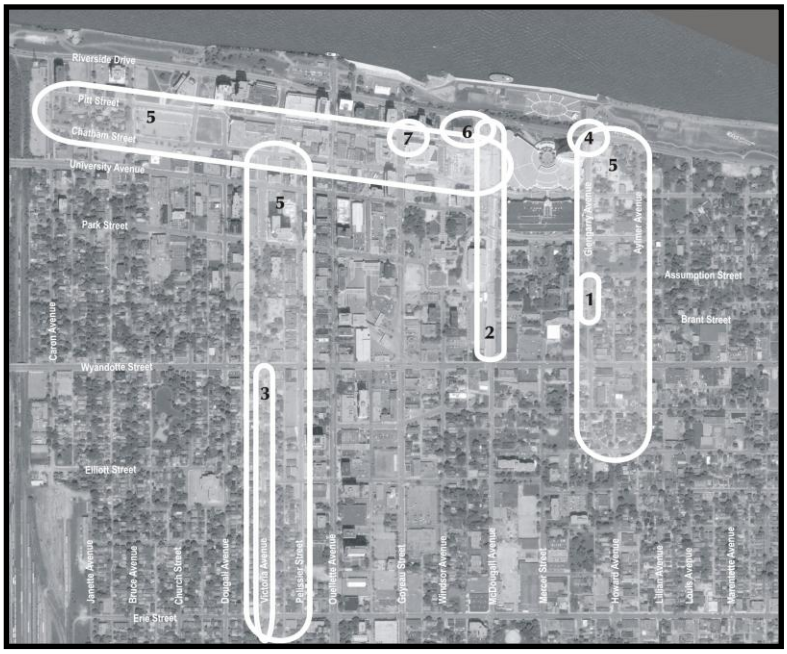
6. REVIEW PROCESS

Throughout the Transportation Master Plan process, a number of transportation infrastructure issues were raised by the public, the City and other stakeholders. For each issue identified, a field review was undertaken to verify the concerns and measure existing geometric / physical layouts. The field review was followed by meetings with agency stakeholders to discuss the issues, where applicable. If necessary, a traffic analysis was undertaken for an identified concern to determine the potential for opportunities and, in some cases, concepts were prepared that could potentially address the operational issues. Finally, an evaluation of the alternatives, where applicable, from a transportation network services perspective was completed. The following sections discuss specific issues raised by the public and agency stakeholders, the review process undertaken to address the issues, the review findings and the study conclusions / recommendations for each issue.

The issues that were identified and have been assessed through the review process are noted below and are also identified in Exhibit 16.

1. Neighbourhood concerns: Glengarry Avenue
2. Truck route network: McDougall Avenue
3. Reported high speeds and volumes: Victoria Avenue
4. Level-of-service: Glengarry Avenue / Riverside Drive
5. Two-way conversion: Chatham Street / Pitt Street
   Victoria Avenue / Pelissier Street
   Glengarry Avenue / Aylmer Avenue
6. Access / egress and visitor parking: Raymond Desmarais Manor
7. Police garage egress: Pitt Street

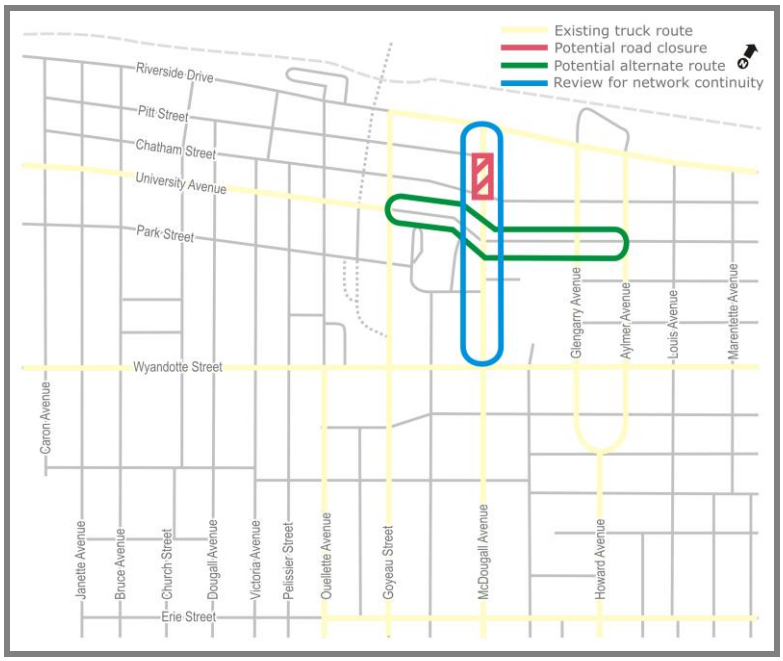
Exhibit 16. Location of Issue Areas



6.1 Neighbourhood Concerns: Glengarry Avenue

Issue:	Several issues were raised regarding the state of Glengarry Avenue south of Assumption Street. The issues included concerns over existing parking regulations, sidewalk conditions, street light conditions and loose garbage in the neighbourhood.
Location of Issue:	
Review of Issues:	In order to verify the issues that were raised, a field review of the issue area was undertaken on Thursday, March 8, 2007. Observations from the field review are summarized below: • Sidewalks were identified on both sides of Glengarry Avenue with no major signs of deterioration; • Resident permit parking was noted on the east side of the street with no parking permitted on the west side; • Street lights are provided on the east side of the street; and, • No major issues were observed regarding loose garbage on the neighbourhood street.
Review Findings:	Based on these observations, opportunities were not identified for this issue to be carried forward as no significant deficiencies were observed on Glengarry Avenue south of Assumption Street.
Recommendations:	**No further action is required to address the neighbourhood concerns identified on Glengarry Avenue south of Assumption Street as a field review has indicated that there is no immediate need for sidewalk or street standard improvements. It is further noted that this study is recommending that the existing parking regulations should be maintained.**

6.2 Truck Route Network: McDougall Avenue

Issue:	The potential closure of McDougall Avenue between Pitt Street and Chatham Street will result in a disconnect in the existing truck route network as the entire section of McDougall Avenue within the Downtown Windsor study area is part of the existing truck network.
Location of Issue:	
Review of Issues:	With a possible disconnect in the existing truck route, the review process looked at two different methods by which to address this issue: identifying an alternative route or assessing the existing truck network to determine the necessity for the McDougall Avenue truck route designation. The following describes the review of each method. • University Avenue between Goyeau Street and Aylmer Avenue was identified as a potential alternate route. A field review determined that the existing cross-section and lane widths (between 4m and 5m a travel lane on a two or three-lane cross-section) would be conducive to truck traffic. However, discussions with City Staff indicated that University Avenue between Goyeau Street and McDougall Avenue is designated as a pedestrian focus area and is therefore not suitable for truck route designation. • A review of the existing truck route network was undertaken to assess the routing function of McDougall Avenue between Riverside Drive and Wyandotte Street. The review noted that Ouellette Avenue / Goyeau Street and the Glengarry Avenue / Aylmer Avenue one-way couplet are part of the existing truck network in that section and provide the same north-south access to Riverside Drive as McDougall Avenue.
Review Findings:	The review of issues has indicated that an alternate route designation is not available within close proximity to McDougall Avenue. However, a north-south truck access, similar to McDougall Avenue between Riverside Drive and Wyandotte Street, is provided by Ouellette Avenue / Goyeau Street and the Glengarry Aveneu / Aylmer Avenue one-way couplet. Therefore, removing the truck route designation on McDougall Avenue does not compromise the overall transportation system service, as alternative north-south routes are still provided.
Recommendations:	**It is recommended that the Official Plan be updated to remove the truck route designation on McDougall Avenue between Riverside Drive and Wyandotte Street. In the event that Goyeau Street is permanently closed between Park Street and Wyandotte Street, the truck network will need to be reviewed again at that time.**

6.3 Reported High Speeds and Volumes: Victoria Avenue

Issue:	Residents expressed concerns over the high speeds and high volumes of vehicles on Victoria Avenue between Wyandotte Street and Erie Street and asked for consideration to convert the road to two-way operations to address these concerns.
Location of Issue:	
Review of Issues:	In order to verify the concerns that were identified by the residents and the feasibility for potential traffic calming opportunities, the following steps were undertaken: • A field review was undertaken on Thursday, March 8, 2007 to determine the existing cross-sections and lane widths. • A field survey was also undertaken to obtain an understanding of the number of vehicles on the road and the associated speeds. • Speed and volume counts were undertaken over a period of three days (during April 2007) south of Wyandotte Street. • Speed and volume counts were undertaken over a period of three days (during May 2007) south of Elliott Street.
Review Findings:	• Majority of the measured speeds fell within 40km/h and 60km/h, with the 85th percentile speed noted to fall within the 50km/h to 60km/h speed range. • Traffic volume data fell within the range of volumes expected on a Class II Collector Road. • These results indicate that existing traffic speeds and volumes do not merit the implementation of traffic calming measures.
Recommendations:	**Based on existing traffic data and a preliminary review of the City of Windsor traffic calming warrant analysis, traffic calming measures are not warranted on Victoria Avenue south of Wyandotte Street at this time. However, due to consideration for potential conversion of Downtown Windsor streets from one-way to two-way operations as part of this study, this study undertook a traffic analysis to assess the impacts of two-way conversion on Victoria Avenue and Pelissier Street south of Wyandotte Street, which is discussed in further detail in Section 6.5.**

6.4 Level of Service – Glengarry Avenue / Riverside Drive

Issue:	It was initially noted that Event Night operations could potentially result in less than favourable level-of-service operations at the intersection of the Glengarry Avenue and Riverside Drive East.
Location of Issue:	
Review of Issues:	To address the possible operating concern at the intersection, the review process looked at two possible opportunities to address the issue: provision of a traffic diverter to enhance intersection operations or a two-way street conversion of Glengarry Avenue / Aylmer Avenue. In order to assess these potential opportunities, the following steps were undertaken: • A field review was undertaken on Thursday, March 8, 2007 to determine the existing cross-sections and lane widths to assess the feasibility of implementing either opportunity. • A traffic analysis of intersection operations under both scenarios was undertaken to determine possible improvements to the level-of-service. • Casino Windsor provided revised event night visitor information that would be more reflective of future traffic volumes upon completion of the new Entertainment Centre / Hotel complex.
Review Findings:	• No geometric issues were identified at the intersection or along the either Glengarry Avenue or Aylmer Avenue. • The traffic analysis indicated that a traffic diverter provides minimal benefit to the intersection level-of-service. • Two-way conversion has a marginal benefit to the intersection level-of-service but does not result in significant impacts to other intersections along both roads (Existing operational levels of service are not worsened with a two-way conversion). • City staff noted that an intersection that operates at a LOS 'C' or 'D' is still acceptable and does not require enhancements.
Recommendations:	**Based on review findings, no improvement opportunities are being recommended for this intersection. However, based on the traffic analysis of the two-way street conversion, the opportunity for two-way street conversion on Glengarry Avenue and Aylmer Avenue should be further reviewed and is discussed in more detail in Section 6.5.**

6.5 Two-Way Street Conversion

6.5.1 Summary of Ultimate Downtown Windsor Two-Way Conversion Plan

Issue:	Public comments identified the opportunity for this study to consider the potential conversion of streets in the Downtown Area from one-way operations to two-way operations.
Location of Issue:	
Review of Issues:	In order to verify the concerns that were identified by the public and the feasibility for conversion opportunities, the following steps were undertaken: • Field reviews undertaken on March 9, 2007 and May 14, 2007 to determine the existing cross-sections, adjacent land uses and existing parking regulations • Background research undertaken on one-way to two-way conversion benefits / impacts • Traffic analysis using VISSIM microsimulation model to assess changes in traffic flows and intersection LOS operations from the conversions • Meetings held with stakeholders (e.g., DWBIA, City departments, Transit Windsor, Windsor Fire and Rescue) to discuss potential impacts or concerns related to two-way conversion • Street petitions undertaken to determine if approximately 66% of owners / tenants on each respective street are in support of the two-way street conversions
Review Findings:	1. From a traffic operations perspective, the conversion of streets from one-way to two-way operations neither significantly improves nor reduces the transportation system operations. 2. There is a general consensus by the DWBIA and City departments indicating support for two-way conversion on streets located in the Downtown area. 3. Potential benefits to the conversion are lower speeds on the roadways, improved pedestrian environments, improved access and exposure to local businesses, improved traffic circulation and way-finding and reduction of cut-through traffic. 4. Potential impacts of the conversion are increases to the number of vehicle-vehicle and vehicle-pedestrian conflicts, minor increases in collisions, reduction in on-street parking and slower moving traffic and increases to travel time.
Recommendations:	**Convert the following streets from one-way to two-way operations:** • **Pitt Street (Caron Avenue to Goyeau Street)** • **Chatham Street (Caron Avenue to McDougall Avenue)** • **Victoria Avenue (Chatham Street to Pine Street)** • **Pelissier Street (Chatham Street to Erie Street)** • **Glengarry Avenue (Riverside Drive to Howard Avenue)** • **Aylmer Avenue (Riverside Drive to Howard Avenue)**

6.5.2 Description of Issue

Following Public Information Centre #1, the Downtown Windsor Business Improvement Association (DWBIA) suggested that this study consider the conversion of existing one-way couplets into two-way streets within the Downtown Windsor area. Streets that were of particular interest included the following two couplets: Chatham Street / Pitt Street between Caron Avenue and McDougall Avenue and Victoria Avenue / Pelissier Street between Chatham Street and Wyandotte Street.

In addition to the one-way couplets noted by the DWBIA, this study also considered the potential for two-way conversion of the one-way couplet of Glengarry Avenue / Aylmer Avenue between Riverside Drive and Howard Avenue to address level of service concerns at the intersection of Glengarry Avenue and Riverside Drive, as noted in Section 6.4. Preliminary recommendations from the analysis had indicated that the two-way conversion should be further reviewed when the development plans for the Glengarry-Marentette Community Improvement Area were confirmed as the conversion did not provide significant improvements / benefits to the levels of service along these two roads. However, comments provided by Windsor Fire and Rescue indicated that the conversion of the one-way couplet would improve emergency response accessibility to the communities located to the east and southeast of the Casino. Hence, this one-way couplet was carried forward for further review and consideration.

One additional one-way couplet was considered during the study process in response to residential concerns regarding speeding and traffic volumes and the City's comment that the conversion would be acceptable if adequate support from the residents was available. Thus, the one-way couplet of Victoria Avenue / Pelissier Street between Wyandotte Street and Pine Street / Erie Street, respectively, was also carried forward for further review and consideration.

6.5.3 Review of Issues

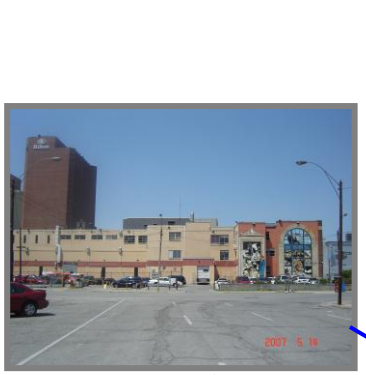
6.5.3.1 Field Review

In order to verify the feasibility of two-way conversion on each of the one-way couplets, field reviews were undertaken to identify the typical cross-sections, existing use of the right-of-way and approximate pavement widths. No major geometric constraints were noted for any of the one-way couplets as the majority of the roads had standard travelled pavement lane widths between 3.3m and 3.5m. Existing parking regulations could potentially be maintained along each of the streets, for the most part. While a preliminary assessment of geometric configurations was undertaken, it is of note that, in the event that the opportunity for two-way conversion is carried forward, detailed studies of turning radii requirements, intersection sight line restrictions, intersection channelization requirements, loss of on-street parking and the potential relocation of bus stops will need to be undertaken.

The locations of the one-way couplets under consideration and the existing configuration and adjacent land uses are shown in Exhibits 17 through to 20.

Exhibit 17. Chatham Street / Pitt Street One-Way Couplet

Exhibit 18. Victoria Avenue / Pelissier Street (Chatham Street to Wyandotte Street) One-Way Couplet



NB view south of Chatham

NB view south of Chatham

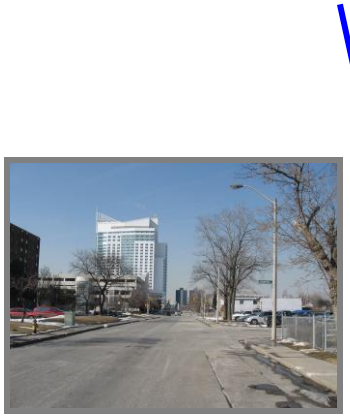
SB view north of University

NB view north of University

SB view north of Park

NB view north of Park

Exhibit 19. Glengarry Avenue / Aylmer Avenue (Riverside Drive to Howard Avenue) One-Way Couplet



NB view south of Assumption

NB view south of Brant

SB view south of Assumption

SB view north of Cataraqui

NB view at Tuscarora

SB view north of Howard

Exhibit 20. Victoria Avenue / Pelissier Street (South of Wyandotte Street) One-Way Couplet

6.5.3.2 Background Research

As a preface to understanding the existing purpose of the one-way couplets within the Downtown Windsor area, a historical review of the development of the street network was undertaken. Background papers prepared by the City of Windsor indicated that in the late 1940's, major north-south City streets (e.g., Victoria Avenue, Pelissier Street, etc.) were converted to one-way operations to improve network capacity and allow traffic to move more efficiently from the downtown. As the City began to experience a decentralization movement in the mid-1960's with an associated decrease in business in the downtown area, a downtown traffic management plan was developed by City Traffic and DWBIA representatives that converted east-west downtown streets (e.g., Chatham Street, Pitt Street, etc.) from two-way operations to one-way operations. This trend of one-way street conversions was observed in many cities throughout North America.

In the more recent years, there has been a general desire in downtown areas to improve business accessibility and visibility as well as improve the pedestrian environment. Recent examples of two-way conversions within Canada include the City of Calgary (2006), the City of Hamilton (2005) and the City of Vancouver (2004). Comments provided by the public or the municipalities during and following the conversions have indicated that there are both benefits and disbenefits to the conversions, some of which are noted below.

One-way to two-way street conversions may have the following benefits:

- Improves traffic circulation and way-finding;
- Reduces cut-through traffic on adjacent streets;
- Provides an improved pedestrian environment;
- Provides better access and exposure to businesses;
- Encourages street front residential and commercial development; and,
- Provides more direct routing (less traffic circulation) for motorists.

One-way to two-way street conversions may also have the following disbenefits:

- Initial capital cost for changes in pavement markings, signals and signage;
- Slower operating speeds;
- Potential for reduction in on-street parking;
- Increased potential for collisions; and,
- Increased potential for worsening air quality.

As there are benefits and disbenefits of one-way to two-way street conversions, it is noted that this study can only provide a technical perspective on two-way street conversions and the ultimate decision will be dependent on owners / tenants on respective streets and City Council.

6.5.3.3 Traffic Analysis

A traffic analysis, using the VISSIM microsimulation model, was undertaken to assess changes in traffic flows and intersection LOS operations related to the two-way street conversions. The network model used to assess future traffic operations (see Section 5.0) was revised to represent the following three alternative scenarios for which future intersection levels of service were assessed:

1. Existing one-way street network (base case)
2. One-way on Chatham Street / Pitt Street and two-way on Glengarry Avenue / Aylmer Avenue and Victoria Avenue / Pelissier Street
3. Two-way on Chatham Street, Pitt Street, Glengarry Avenue, Aylmer Avenue, Victoria Avenue and Pelissier Street

For all three networks, existing intersection control, whether stop-controlled or signalized, was maintained. The process by which the future network scenarios were developed and the review of the analysis results are summarized in Appendix H.

Exhibits 21 through to 23 display the future afternoon commuter peak hour operating levels-of-service for the three scenarios. The three exhibits demonstrate that the afternoon commuter peak hour operating levels-of-service for signalized intersections throughout Downtown Windsor will generally be LOS 'A' or LOS 'B' under all three scenarios, which are an indication of very good (LOS 'B') and excellent (LOS 'A') operating conditions. The results also indicate that the two-way street conversions can be implemented all at once or staged (e.g., north-south streets prior to east-west streets).

In addition to the review of the future levels of service at intersections, an assessment of future traffic volumes on the road network under each of the three scenarios was also undertaken to determine the potential increase in traffic volumes resulting from one-way to two-way street conversion. Table 12 provides a summary of future traffic volumes under each scenario, as compared with existing traffic volumes, for specific screenlines in the study area. In general, the screenlines show an approximately 20% increase of vehicle volumes for each of the future scenarios. The volumes are also indicative of consistency in the model in assigning volumes to the road network, whether under the existing network configuration or with the future two-way conversion configuration. One observation from the screenline volumes is that traffic flows appear to shift from University Avenue to both Park Street and Wyandotte Street.

Exhibit 21. Future Commuter Peak Hour Levels-of-Service on the Existing One-Way Road Network

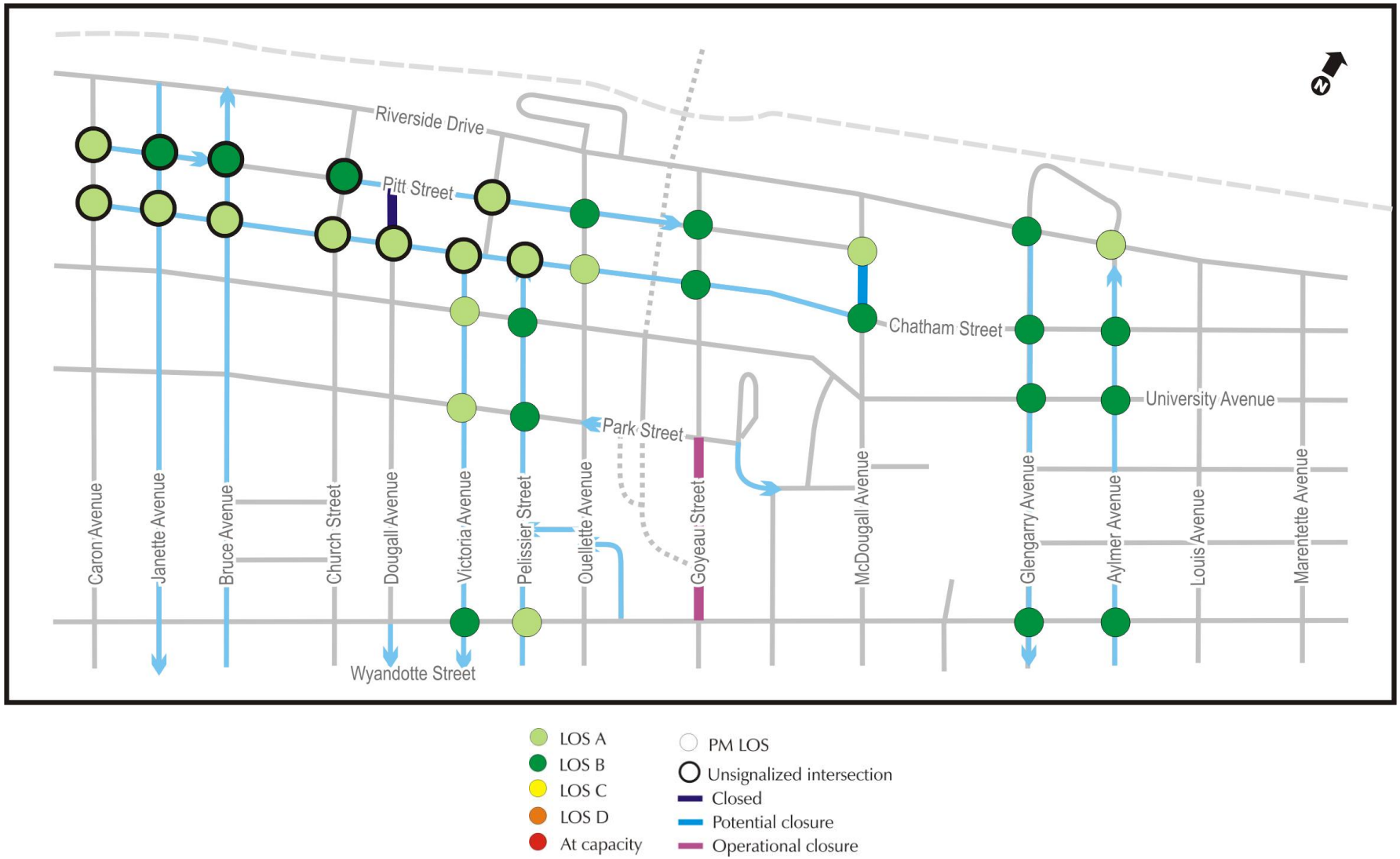


Exhibit 22. Future Commuter Peak Hour Levels-of-Service on the Partial Two-Way Road Network

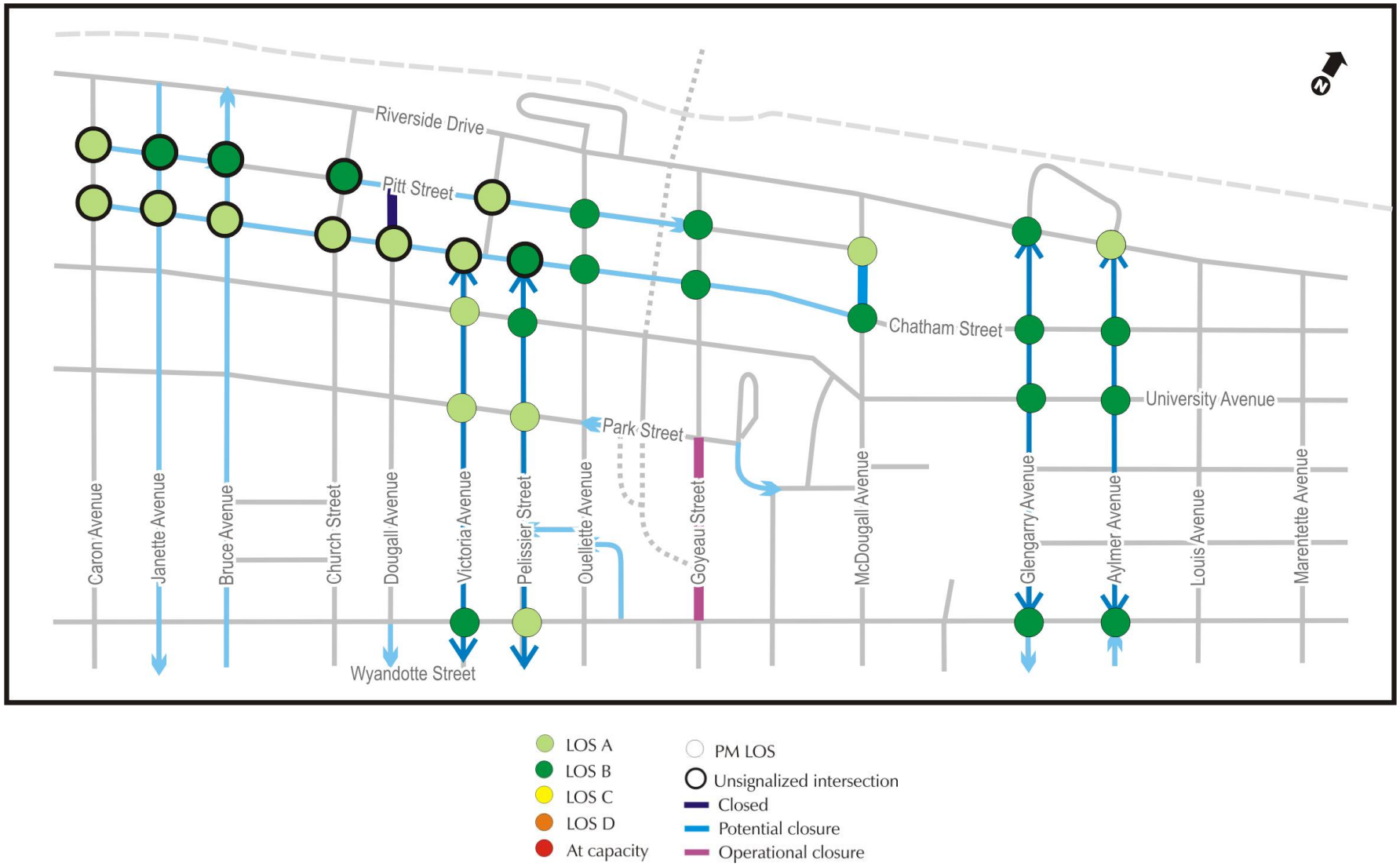


Exhibit 23. Future Commuter Peak Hour Levels-of-Service on the Complete Two-Way Road Network

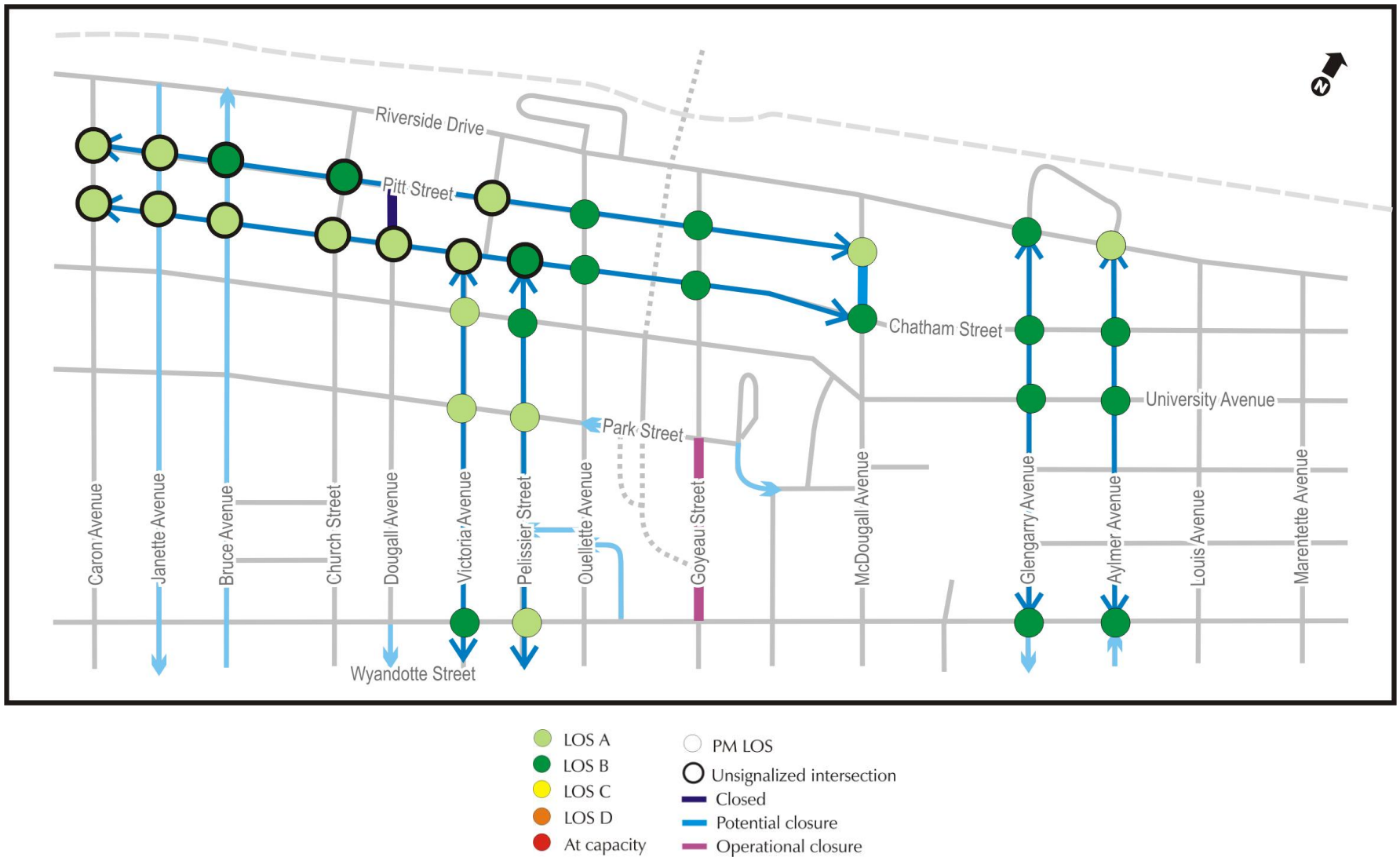


Table 12: Future Traffic Volume Screenline Summaries – Alternative 1-way / 2-way Network Scenarios

Screenline	Existing PM Traffic Counts		Future PM Volumes with Existing Network		Future PM Volumes with Partial Conversion		Future PM Volumes with Complete Conversion	
	EB / NB	WB / SB	EB / NB	WB / SB	EB / NB	WB / SB	EB / NB	WB / SB
South of Chatham Street	456	461	810	790	803	802	791	845
Church Street N/S	53	25	134	154	112	175	105	131
Dougall Avenue N/S	10	20	130	160	95	141	100	120
Victoria Avenue S	--	161	--	254	130	155	165	132
Pelissier Avenue N	104	--	172	--	145	90	83	247
Ouellette Avenue N/S	289	255	374	222	321	241	338	215
West of Goyeau Street	2516	1882	2967	2358	2951	2325	2820	2360
Riverside Drive E/W	811	750	859	866	871	832	768	949
Pitt Street E	323	--	441	--	395	--	217	86
Chatham Street W	--	316	--	211	--	235	269	95
University Avenue E/W	410	241	329	189	342	202	273	182
Park Street W	386	94	627	363	612	337	623	365
Wyandotte Street E/W	586	481	711	729	731	719	670	683
West of Ouellette Avenue	2063	2192	2149	2349	2118	2328	2160	2325
Riverside Drive E/W	824	805	758	904	793	789	830	776
Pitt Street E	196	--	338	--	295	--	156	93
Chatham Street W	--	177	--	220	--	370	229	155
University Avenue E/W	479	308	280	170	292	135	327	197
Park Street W *	--	311	158	230	146	203	85	266
Wyandotte Street E/W	564	591	615	825	592	831	533	838
East of Church Street	1975	2018	2102	2425	2096	2384	2091	2390
Riverside Drive E/W	796	855	778	875	791	856	823	812
Pitt Street E	54	--	250	--	225	--	85	90
Chatham Street W	--	51	--	310	--	320	138	210
University Avenue E/W	430	400	270	272	326	242	310	251
Park Street W	81	123	172	256	142	263	150	295
Wyandotte Street E/W	614	589	632	712	612	703	585	732

* 2005 count provided by the City, prior to two-way conversion

6.5.3.4 Stakeholder Meetings

Throughout the study process, meetings were held with affected stakeholders to determine their perspective on the potential for two-way street conversion. The following three meetings were held to provide some background to the existing one-way street network system, to discuss the benefits and disbenefits of two-way street conversion and to obtain feedback from each group.

DWBIA – Infrastructure Committee

A meeting was held with the Infrastructure Committee of the Downtown Windsor Business Improvement Association on June 7, 2007. Following a brief presentation and a subsequent question and answer period, the DWBIA Infrastructure Committee indicated that it was generally in support of two-way street conversions on Chatham Street, Pitt Street, Victoria Avenue and Pelissier Street.

DWBIA – General Membership

A meeting was held with the General Members of the Downtown Windsor Business Improvement Association on June 7, 2007. Following a brief presentation and a subsequent question and answer period, it was noted that the City would prepare a petition form and provide it to the DWBIA Board Members and the Victoria Avenue resident representative for distribution and signatures. The DWBIA would distribute the petition to all owners and tenants on Chatham Street (between Caron Avenue and McDougall Avenue), Pitt Street (between Caron Avenue and Goyeau Street), Victoria Avenue (between Chatham Street and Wyandotte Street) and Pelissier Street (between Chatham Street and Wyandotte Street). The Victoria Avenue resident representative would distribute the petition to all residents on Victoria Avenue (between Wyandotte Street and Pine Street) and Pelissier Street (between Wyandotte Street and Erie Street). It was agreed by all parties present that approximately 66% of all owners / tenants need to be in support of the two-way street conversion prior to it being recommended as part of this study. General comments received following this meeting indicated that owners / tenants were more supportive of two-way street conversions on Victoria Avenue and Pelissier Street than on Chatham Street and Pitt Street.

City of Windsor Representatives

A meeting was held with representatives from Transit Windsor, Planning, Traffic Operations and Windsor Fire and Rescue on June 14, 2007. Following a brief presentation and a subsequent question and answer period, it was demonstrated that the City representatives were supportive of two-way street conversions on Chatham Street, Pitt Street, Victoria Avenue, Pelissier Street, Glengarry Avenue and Aylmer Avenue.

It is further noted that while Glengarry Avenue and Aylmer Avenue were not included on the DWBIA list of streets for two-way conversions, a technical analysis had been undertaken for these two streets as an opportunity to address potential future operational level of service concerns at the intersection of Glengarry Avenue and Riverside Drive related to the development of the new Entertainment Centre / Hotel complex. The initial technical review had indicated that there were no obvious benefits / impacts from an operational perspective for the implementation of two-way conversion on both these streets as levels of service before and after the conversion were similar.

Following this technical review, the study had recommended at Public Information Centre (PIC) #2 that with the potential future redevelopment of the Glengarry-Marentette Community Improvement Area, the two-way conversion would be further merited at that time. However, discussions with Windsor Fire and Rescue Services representatives indicated that they were in support of the two-way conversion of both these streets as it would provide better accessibility for emergency services to the areas adjacent to the Casino complex. It was noted in particular that with the closure of McDougall Avenue between Pitt Street and Chatham Street, the operational closure of Goyeau Street between Park Street and Wyandotte Street and the evening closures of Ouellette Avenue between Pitt Street and University Avenue, the conversion of both Glengarry Avenue and Aylmer Avenue would be most beneficial to emergency services operations. Thus, both these streets were included as part of the overall technical review discussed in Section 6.5.3.3 and form part of the overall network operational analysis and findings.

6.5.4 Review of Findings

From a transportation network perspective, a two-way conversion of Chatham Street, Pitt Street, Victoria Avenue, Pelissier Street, Glengarry Avenue and Aylmer Avenue will neither significantly improve nor reduce the transportation system operations. Preliminary analysis suggests the operating levels-of-service on each of these streets would remain relatively constant if the noted streets are converted to two-way operations. As such, two-way street conversions on the above noted streets can be recommended from a technical perspective.

Furthermore, the technical review also indicates that the street conversions can be implemented in phases if required to address issues related to funding availability, owner / tenant concerns and Transit Windsor routing. Due to comments provided by some owners / tenants on Chatham Street / Pitt Street regarding their desire to maintain the existing one-way configuration on these two streets, the technical analysis assessed the opportunity for implementing two-way street conversions on the north-south streets only (network scenario 2). The analysis results indicated that the conversion of the north-south streets would maintain the same future operating levels of service as the network scenario without street conversions. As such, two-way street conversions can be staged, with the two-way conversion of north-south streets being implemented prior to the two-way conversion of east-west streets.

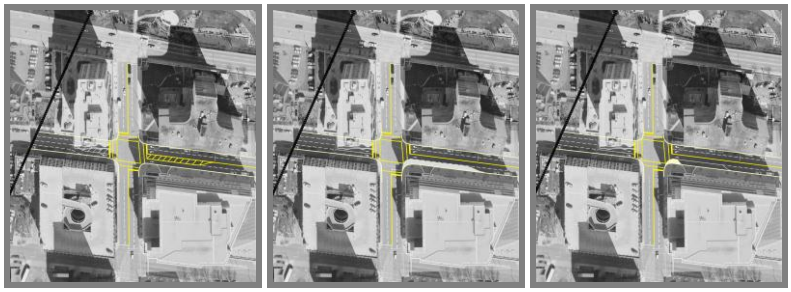
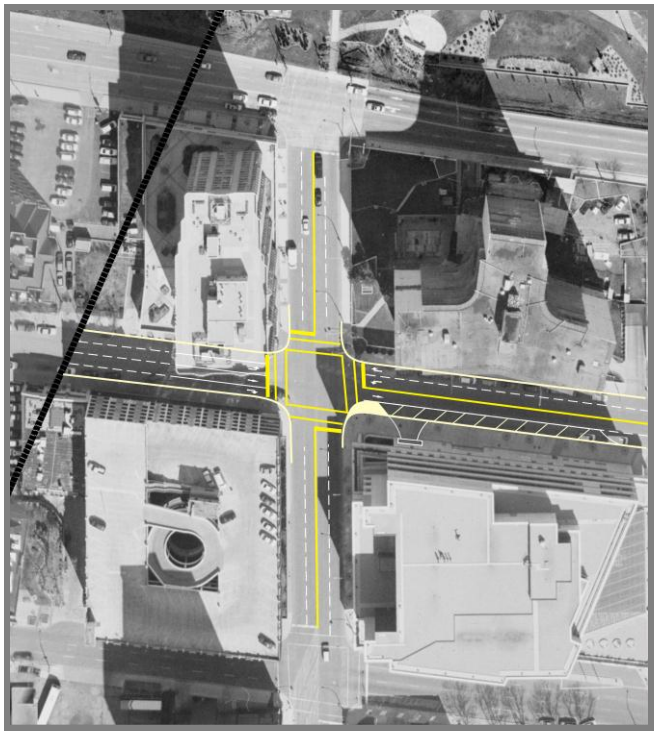
Two-way conversions on these streets are recommended as a part of the Downtown Windsor Transportation Master Plan pending petition results and Council approval.

6.6 Access / Egress and Visitor Parking: Raymond Desmarais Manor

Issue:	Representatives of the Raymond Desmarais Manor noted concerns with possible access / egress impacts as a result of the new Casino development and the potential loss of on-street parking spaces along Pitt Street, originally located in front of its building.
Location of Issue:	
Review of Issues:	In order to verify concerns noted by the Raymond Desmarais Manor, a field review was undertaken on Friday, March 9, 2007 to determine the location of existing parking spaces. Furthermore, proposed conceptual plans were reviewed to determine whether access / egress would be hindered with the new Casino development and whether there would be a loss of on-street parking.
Review Findings:	Field review observations and concept plan reviews indicated the following: • Nine on-street parking spaces were located on the north side of Pitt Street prior to construction of the new Entertainment Centre / Hotel complex. • On-street parking spaces located on the south side of Pitt Street in the vicinity of the Raymond Desmarais Manor were originally designated as police parking. • The review of the proposed plan for Pitt Street would improve vehicle access to the building as Pitt Street would be converted to two-way operations.
Recommendations:	**As the development of the new Entertainment Centre / Hotel complex will change the configuration of Pitt Street and result in a loss of on-street parking on the north side of Pitt Street just west of McDougall Avenue, OLG has noted that it will replace the nine on-street parking spaces along Pitt Street, with parking spaces located further west of McDougall Avenue and on McDougall Avenue between Riverside Drive and Pitt Street.**

6.7 Police Garage Egress: Pitt Street

Issue:	With the potential closure of McDougall Avenue between Pitt Street and Chatham Street and the utilization of the south curb lane on Pitt Street as the valet queue lane, Windsor Police Services were concerned that valet queues would extend past the pedestrian esplanade and obstruct the egress of police vehicles from their garage.
Location of Issue:	
Review of Issues:	A field review was undertaken on Friday, March 9, 2007 to observe police vehicle operations at the police garage door. The observation period was specifically chosen to occur between 5:15 p.m. and 8:00 p.m. as that time period would be most reflective of the busiest hours prior to an event at the Entertainment Centre.
Review Findings:	Observations obtained during the field review are noted as follows: • A total of 11 police vehicles exited the garage in that time frame (noted to be typical by the Windsor Police Service); • The garage door took approximately 5 seconds to raise; • Vehicles exiting from the garage required an average of 14 seconds to arrive at the intersection; • The existing signals operate under split phasing (NB/SB phase; EB phase; WB phase); • The westbound signal timing on Pitt Street at Goyeau Street was observed to be approximately 10 seconds (green, amber and red); and, • The observed wait time for the police vehicle at the signal was approximately 20 seconds. Discussions with representatives of the Windsor Police Services also noted the following concerns related to egress from the police garage: • In the event that a vehicle is blocking egress from the police garage, the existing curb space is not sufficient to allow for a police vehicle to exit the garage and wait for an opportunity to turn onto Pitt Street. Many instances have occurred where the garage door has closed on a police vehicle waiting to turn onto Pitt Street. • It was further clarified that police vehicles would require unobstructed egress from its garage door to minimize its response time in an emergency, especially during an event night when there may be instances where the valet parking queue could extend into the path of the police garage door.
Initial Recommendation:	**In order to address Windsor Police Services concerns regarding unimpeded egress for police vehicles from their garage door located off of Pitt Street east of Goyeau Street, it is being recommended that alternative concepts be developed that could potentially enhance or facilitate police vehicle egress from the garage to the transportation network.**

Alternatives for Consideration:	The following alternative concepts that were technically feasible were developed: 
Alternatives Review:	The following steps were undertaken to evaluate each of the concepts: • Presentation of concepts to Windsor Police Services representatives to discuss operational feasibility from an emergency response vehicle and police operations perspective; and, • Discussions held with City of Windsor staff to ensure proposed concepts meet with existing City protocol and operational criteria. Following discussions with respective parties, the alternative that best met the requirements of both the Windsor Police Service and the City of Windsor was further modified to incorporate comments and concerns raised during discussions.
Recommended Alternative:	The modified alternative that best met the criteria of both the Windsor Police Services and the City of Windsor is presented below: 
Recommendations:	**In order to address police garage egress concerns, it is being recommended that provision be made for a curb bumpout on the southeast corner of Goyeau Street and Pitt Street and pavement markings on the south side of Pitt Street just east of Goyeau Street to designate area for police vehicle parking. As these operational enhancements are mainly required due to the potential closure of McDougall Avenue between Pitt Street and Chatham Street, they have been incorporated as part of Alternative 1 in the Schedule B Project documentation.**

7. RECOMMENDED PLAN

The Downtown Windsor Transportation Master Plan study was initiated in the Fall of 2006 with the intent to prepare a comprehensive Master Plan document that would include a short-term, intermediate-term and long-term plan for future traffic operations. In particular, the study was focussed on assessing the longer-term traffic circulation and operational requirements related to potential future developments in Downtown Windsor. In addition to evaluating future traffic volumes associated with potential developments, this study also reviewed potential road network changes that were being proposed as part of new development and associated operational requirements. Potential closures that were assumed as part of the technical analysis included the following: the closure of McDougall Avenue between Pitt Street and Chatham Street to facilitate valet drop-off / pick-up operations at the new Entertainment Centre / Hotel complex; the closure of Goyeau Street between Park Street and Wyandotte Street to accommodate Windsor-Detroit Tunnel Plaza queuing operations; and, the closure of Dougall Avenue between Pitt Street and Chatham Street to accommodate the design of the new City Centre Transit Terminal. The traffic operations review also included an assessment of the conversion of street operations from one-way to two-way within the Downtown area.

This Master Plan has been prepared to document the following components and findings from the study:

- An overview of existing transportation conditions within the Downtown Windsor study area;
- The extensive public consultation process undertaken as part of the study;
- The compilation of issues noted through the public consultation process and the identification of potential opportunities to address the noted issues;
- An overview of future transportation conditions in terms of proposed development and associated traffic increases and proposed road network changes;
- The comprehensive review process undertaken to assess the concerns noted by both the public and stakeholders, to verify and identify the issues potentially resolvable within the mandate of the study and to determine technically feasible alternatives from a transportation perspective; and,
- The identification of Schedule B undertakings being recommended as part of this Master Plan.

It is to be noted that at the start of the study, traffic calming opportunities identified within the Downtown Windsor study area were to be documented as part of the Transportation Master Plan as a separate Schedule B Project. However, in February 2007, the Environmental Assessment (EA) Act was amended to explicitly state that traffic calming is no longer subject to the EA Act. As a result of this amendment, the process by which traffic calming measures will be recommended no longer follows the Municipal Class Environmental Assessment process, rather the identification of the need for and the recommendation of such measures will fall under processes developed by individual municipalities. In September 2005, the City of Windsor approved such a document entitled "Traffic Calming for Residential Areas" that details the required process and the associated evaluation required prior to the recommendation and implementation of any traffic calming measures.

As part of due diligence, while traffic calming recommendations would not have been required to be included as part of the Master Plan document, this study reviewed identified traffic calming issues / concerns identified during the study process following the City of Windsor's policy document. Subsequent to this review, it was noted that traffic data did not warrant the need for the implementation of traffic calming measures at the noted locations (i.e., Victoria Avenue south of Wyandotte Street) and as a result, traffic calming measures were not identified / recommended.

This Master Plan has been prepared following the completion of Phases 1 and 2 of the Municipal Class Environmental Assessment (EA) process, which also fulfills the requirements for any identified Schedule B Projects. This Plan identifies general recommendations for City planning purposes for the short-term, intermediate-term and longer-term and specific Schedule A and B undertakings. Schedule A undertakings that have been identified are pre-approved and can be implemented with the availability of funding. Schedule B undertakings require Council and EA approval prior to implementation.

It is of note that only one Schedule B project was identified in the Downtown Windsor study area: the closure of McDougall Avenue between Pitt Street and Chatham Street with associated operational road improvements on Pitt Street between Goyeau Street and McDougall Avenue. As the Schedule B project is the only project which requires both Council approval and EA approval, the Schedule B project was filed as a separate document in May 2007, with Council approval received on May 7, 2007 and EA approval received on June 6, 2007 as no Part II Orders were filed during the 30-day public review period. A summary of the recommendations noted in the Schedule B Project is provided in Section 7.3 of the Master Plan with the report section of the Schedule B Project File included in Appendix I.

The remainder of this chapter describes the recommended Master Plan for the Downtown Windsor study area, which includes the general recommendations and the Schedule B undertakings.

7.1 Study Findings

The review of existing traffic operations within the Downtown Windsor study area indicates that the signalized intersections in the Downtown area are operating at good levels of service in both the morning and afternoon commuter peak hours. The exception occurs when traffic queues at the Tunnel Plaza result in congested operations at the intersection of Goyeau Street and Wyandotte Street.

The transportation analysis related to future traffic operations resulting from proposed developments in the Downtown area as well as Casino Windsor expansion indicated that the signalized intersections in the Downtown area can accommodate, at acceptable operating level of service, the proposed development traffic with the existing transportation infrastructure. It is noted that the acceptable operating level of service anticipated at the Downtown signalized intersections is inclusive of forecast future traffic flows on a network that includes the following street closures:

- Permanent closure of McDougall Avenue between Pitt Street and Chatham Street;
- Permanent closure of Dougall Avenue between Pitt Street and Chatham Street; and,
- Operational closure of Goyeau Street between Wyandotte Street and Park Street.

Area residents on Victoria Avenue as well as the Downtown Windsor Business Improvement Area commented early in the process with respect to the potential for two-way conversion of the one-way streets. Specifically, the comments implied that two-way street conversion would improve access to homes and businesses within the current one-way blocks by allowing traffic access from all directions.

The transportation analysis review of the opportunity to convert the existing Downtown area one-way streets to two-way operation indicated that the implementation of a two-way street system would neither significantly improve nor impact the Downtown transportation system operations. The cost of the conversion is detailed in Appendix J of the report, broken down by each respective one way couplet street pair.

The transportation analysis did indicate that a staged implementation of one-way street to two-way street conversion can be implemented without major impacts to the transportation system operations. A possible implementation procedure for the conversion of the Downtown one-way streets to two-way operation is presented in Section 8.

7.2 Study Recommendations

The recommendations that are being put forward by the Master Plan have been developed from the assessment and verification of noted issues and concerns and are categorized based on the timeframe for implementation as follows: short-term and longer-term. The follow-up and implementation of these recommendations will be the responsibility of the City's Transportation Planning and Traffic Operations Departments.

7.2.1 Short-Term Recommendations

Short-term recommendations are to be scheduled for immediate implementation.

Recommendation #1 – Official Plan Policy Revisions:

It is recommended that the City of Windsor update the Official Plan to remove the truck route designation on McDougall Avenue between Riverside Drive and Wyandotte Street. In the event that Goyeau Street between Park Avenue and Wyandotte Street will be permanently closed for operational improvements at the Detroit-Windsor Tunnel Crossing, the City will need to re-assess the truck route network at that time.

7.2.2 Longer-Term Recommendations

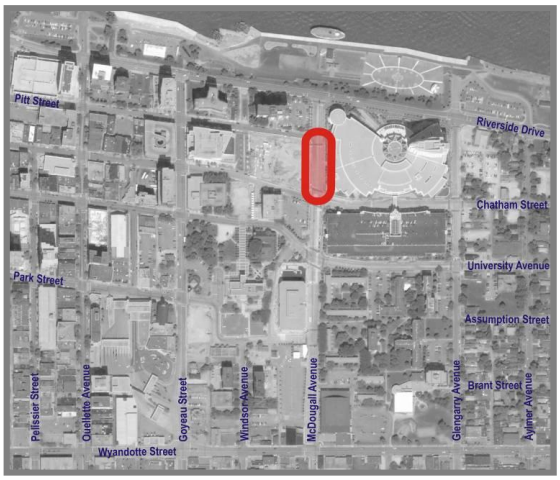
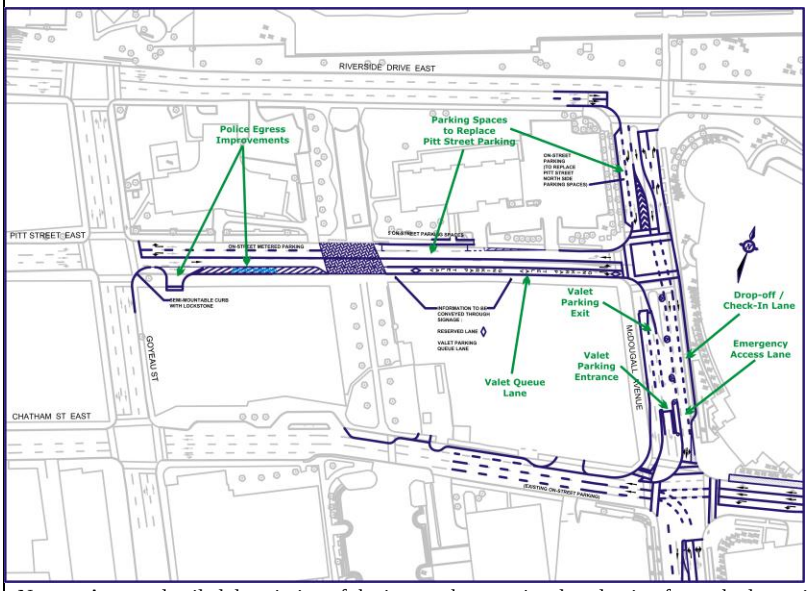
Longer-term recommendations are to be scheduled for implementation beyond a five-year time frame.

It is recommended that the City undertake an update of the Transportation Master Plan following the completion of downtown development projects including the new Entertainment Centre / Hotel complex and St. Clair College relocation.

7.3 Schedule B Undertaking

A description of the project, the location of the project within the context of Downtown Windsor, the problem statement, the identified alternatives, the preferred alternative, the scheduled implementation, the costs associated with the project and the party responsible for the implementation of the Schedule B Project is described on the following page.

The Schedule B Project File for the McDougall Avenue (Pitt Street to Chatham Street) was approved by City Council May 7, 2007 and received EA approval on June 6, 2007.

Schedule B Project:	McDougall Avenue Closure (Pitt Street to Chatham Street)
Location of Interest:	
Problem Statement:	The development of the Entertainment Centre adjacent to the already activity-oriented Casino requires that an effective road network system be provided to facilitate the movement of persons and vehicles between the Casino, Hotel, Entertainment Centre and Parking facilities with the potential closure of McDougall Avenue between Chatham Street and Pitt Street and network changes currently being reviewed as part of the Windsor-Detroit Tunnel Canadian Plaza Master Planning Study.
Identified Alternatives:	Do Nothing: Maintain the approved two travel lanes cross-section on McDougall Avenue between Pitt Street and Chatham Street (three valet lanes and two travel lanes) Alternative 1: Close McDougall Avenue between Pitt Street and Chatham Street to the general public and provide for associated transportation improvements to the adjacent street network to complement the closure
Preferred Alternative: **(Alternative 1 – Close McDougall Avenue between Pitt Street and Chatham Street and provide two-way operations on Pitt Street between Goyeau Street and McDougall Avenue)**	 Note: A more detailed description of the issues, the associated evaluation for each alternative and the specific plan recommendations is included in Section 7.
Scheduled Implementation:	Immediate timeframe
Costs:	Associated road improvements costs of approximately $200,000
Responsible Party:	Ontario Lottery and Gaming

8. OTHER OPPORTUNITIES FOR FUTURE CONSIDERATION

Area residents on Victoria Avenue as well as the Downtown Windsor Business Improvement Area commented early in the process with respect to the potential for two-way conversion of the one-way streets. Specifically, the comments implied that two-way street conversion would improve access to homes and businesses within the current one-way blocks by allowing traffic access from all directions.

The technical review undertaken by the Transportation Master Plan study indicated that there is an opportunity to convert Downtown area one-way streets to two-way operation as Schedule A projects. These projects may be implemented, if approved by Council, without fulfilling further conditions of the Municipal Class EA planning process.

The following sections identify a proposed implementation process that incorporates design guidelines as well as a possible staged implementation of one-way street conversion to two-way street operations. However, it is important to note that there is no compelling traffic reason to convert these streets. Neither the casino expansion nor any other development or changes evaluated as part of the study create a condition that would warrant such action.

8.1 Implementation Process

The implementation of a one-way street conversion to two-way street operation is considered as a Schedule A project and therefore does not require formal EA approval. However, it is recommended that the City consider the following process as part of a street conversion implementation program for the Downtown Windsor area:

1. Obtain approval in principle from owners / tenants of each of the identified streets (require 66% in favour of the conversion);
2. Obtain approval in principle from City Departments (i.e., Transportation Planning, Traffic and Operations, Windsor Fire and Rescue Services, Transit Windsor, Windsor Police Services, County of Essex Land Ambulance);
3. Obtain approval in principle from City Council for specific one-way to two-way street conversion;
4. Upon available funding, City to undertake a detailed implementation and design study for the conversion of identified streets to two-way operations; and,
5. Either implement a system-wide two-way street conversion or implement a staged conversion program. A staged conversion program would give priority to the implementation of the north-south streets conversion (Victoria Avenue, Pelissier Street, Glengarry Avenue and Aylmer Avenue) prior to the implementation of the east-west streets (Pitt Street and Chatham Street) as there are greater operational benefits (emergency services) and fewer impacts (to the existing land uses and transit services) on the north-south streets.

As part of the detailed implementation and design study, the City will need to review the following aspects:

- Existing road geometry / right-of-ways;

- Centre line locations;
- Turning radii requirements to accommodate both buses and trucks (in particular, fire trucks);
- Intersection sight line requirements;
- Bus routing requirements and bus stop locations;
- Intersection channelization requirements and left-turn restrictions;
- On-street parking impacts / benefits;
- Pedestrian accessibility (intersection and mid-block); and,
- Loading / unloading regulations / by-laws.

8.2 Implementation Guidelines

Based on comments heard at meetings with the public and stakeholders, it is suggested that the following guidelines be adhered to when preparing the design of the two-way street conversion within Downtown Windsor:

1. Maintain where possible outdoor patios, curbs and sidewalks;
2. Limit traffic control requirements to existing signalized intersections;
3. Maintain the integrity of existing transit routes;
4. Provide a safe environment for both vehicles and pedestrians at intersections;
5. Review intersection channelization requirements with downtown streetscaping plans; and,
6. Continue with ongoing monitoring of traffic volumes, collision data and the need for traffic signal control (e.g., Pelissier Street / Chatham Street and Victoria Avenue / Chatham Street) following the conversion.

8.3 Staged Implementation

A description of a possible staged implementation for the two-way street conversion process for Downtown Windsor is provided in the following pages inclusive of the location of the improvements, the type of improvement and the estimated cost range (2007 dollars) for the improvements related to:

- Pavement markings;
- Parking sign and meter relocation;
- Additional stop signs;
- Additional signal heads; and,
- Bus stop relocation.

8.4 Operational Issues with Two-Way Conversions

It is noted that when municipalities choose to convert streets from one way to two way operation, acceptance and network integration issues may occur in the short term after implementation. In this regard, the following traffic operation issues are likely to occur after implementation; however, none of these issues are insurmountable.

Near Term Issues

- Pedestrians crossing streets converted to two way operation may not be aware of the street conversion change resulting in pedestrian and vehicle conflicts. Signage coupled with an advertising campaign can reduce the pedestrian and vehicle conflict issue but not eliminate it entirely.
- Drivers, due to past repetitive travel patterns, may inadvertently wander into oncoming traffic forgetting that the street is a two way operation. These occurrences are most likely to happen when there is reduced visibility resulting from darkness, rain, and snow. Signage and reflective line painting can assist in mitigating this issue.

Operational Issues

- Vehicles making short term deliveries may use the right through lane for deliveries. The off loading of deliveries will impede through traffic movement resulting in trip delays and unsafe vehicle passing movements.
- Vehicles attempting to parallel park will block the right through lane which impedes through traffic movement resulting in trip delays and unsafe vehicle passing movements.
- Traffic at some signalized intersections may experience increased delay for left turn movements due to gap availability of opposing traffic flow.
- On-street parking spaces could be permanently lost in order to accommodate left turn movements at specific intersection approaches.

APPENDICES

APPENDIX A

Memo: Data Collection Summary
Commuter Peak Hour Intersection and Mid-Block Volumes

APPENDIX B

Notice of Study Commencement

APPENDIX C

Public Information Centre #1 Summary Report

APPENDIX D

Stakeholder Meeting Minutes

APPENDIX E

Public Information Centre #2 Summary Report

APPENDIX F

Additional Stakeholder Meeting Minutes

APPENDIX G

Memo: Future Traffic Analysis – Trip Table Development

APPENDIX H

Memo: Two-Way Conversion Analysis

APPENDIX I

Schedule B Project File: McDougall Avenue (Report only)

APPENDIX J

Two-Way Street Conversion – Schedule A Projects

January 2008