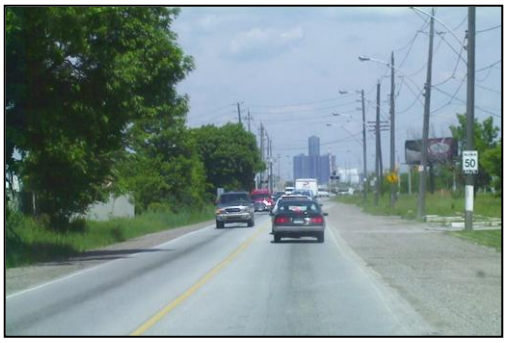

HOWARD AVENUE

CLASS ENVIRONMENTAL ASSESSMENT STUDY

ENVIRONMENTAL STUDY REPORT

HANNA, GHOBRIAL AND SPENCER LTD.

McCORMICK RANKIN CORPORATION

in association with

Ecoplans Limited

Archaeological Services Inc.

May 2003

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EXECUTIVE SUMMARY

E.1 INTRODUCTION

Howard Avenue is a north-south arterial road extending from south of Highway 3 to south of Wyandotte Street. Between Highway 3 and Division Road, Howard Avenue is a 2-lane road with gravel shoulders that is currently experiencing high traffic volumes and associated congestion. North of Division Road, Howard Avenue is a commercial, 6-lane urban road. There are interchanges at Dougall Parkway and at the E.C. Row Expressway and an at-grade rail crossing in between the South Cameron Boulevard and Division Road intersections.

The interchange at Dougall Parkway that was once a part of the Highway 401 system has operational issues associated with existing substandard geometrics. There are safety concerns and operational deficiencies at the South Cameron Boulevard/DRTP[1] Rail/ Division Road intersection complex.

In order to address capacity, safety and operational improvements on Howard Avenue between Highway 3 and Grand Marais Road, the City of Windsor has carried out the Howard Avenue Class EA Study in accordance with the Municipal Class Environmental Assessment, which is an approved process under the Ontario Environmental Assessment Act (EA Act).

The study was carried out under the direction of the Study Team, which included senior staff from the City of Windsor.

The nature of the recommended undertaking requires that an Environmental Study Report (ESR) be prepared and filed for a minimum 30-day review period. This ESR documents the process that was followed to determine the recommended undertaking, and describes:

- the problem being addressed (Chapter 2)
- existing social, natural and cultural environmental conditions (Chapter 3)
- the alternative solutions that were considered (Chapter 4)
- the determination of the recommended alternative (Sections 4.3 and 4.4)
- potential environmental effects and proposed mitigating measures of the recommended Howard Avenue alternative and commitments to further work (Chapter 5)
- the consultation undertaken with technical agencies, adjacent municipalities, utilities and interest groups (discussed throughout the ESR)

E.2 PROBLEM / OPPORTUNITY BEING ADDRESSED BY THE STUDY

Based on the review of the existing Howard Avenue and the analysis of existing traffic volumes and projected future travel demands, the problem being addressed by the study was defined as follows:

1. The rail line was formerly CN Rail's CASO Subdivision, but was purchased by the Detroit River Tunnel Partnership (DRTP) in 2002.

Problem:

- Capacity and operational deficiencies as well as safety concerns between Highway 3 and Division Road
- Operational concerns at the Dougall Parkway Interchange
- Safety concerns and operational deficiencies at the South Cameron Boulevard/DRTP/ Division Road Intersection Complex

E.3 RECOMMENDED UNDERTAKING (RECOMMENDED ALTERNATIVE)

Based on the problem being addressed, existing and future conditions, assessment of alternatives, potential environmental impacts and associated mitigation, and input from technical agencies, the public, property owners and interest groups, the recommended alternative has been determined and is shown conceptually in Exhibit E.1 and on the Design Plates following page 5-26. It includes the following:

- the widening of Howard Avenue to 4 lanes (with turning lanes at signalized intersections) from Highway 3 to Dougall Parkway
- the widening of Howard Avenue to 3 lanes (including a continuous centre two-way left-turn lane) from Dougall Parkway to Cabana Road
- the widening of Howard Avenue to 4 lanes from Cabana Road to Division Road
- the improvement of pedestrian and bicycle facilities between Division Road and Grand Marais Road
- improvements to the Dougall Parkway/Howard Avenue Interchange
- improvements to the South Cameron Boulevard/DRTP Rail/Division Road Intersection Complex
- the addition of east and west sidewalks and on and off-street bicycle lanes along Howard Avenue between Highway 3 and Division Road

The nature of the recommended undertaking identifies it as a Schedule C under the Municipal Class EA. This in turn requires that an Environmental Study Report (ESR) be prepared and filed for a minimum 30-day review period. The purpose of the ESR is discussed in Section 1.2.3.

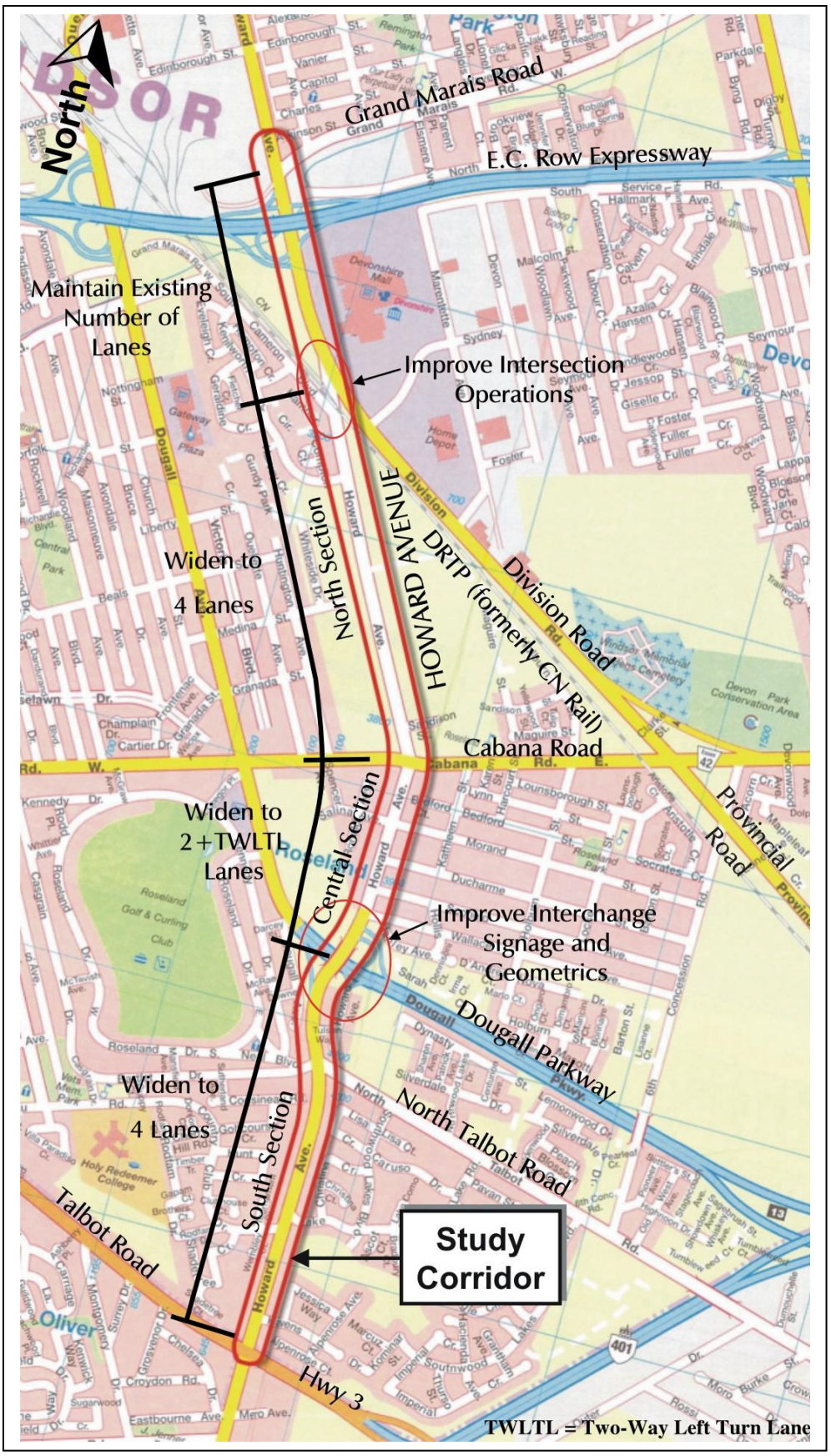
E.4 ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION

The main environmental effects and proposed mitigation are outlined in Chapter 5 of the ESR and summarized as follows:

Transportation

- increased capacity in the Howard Avenue corridor to accommodate existing and future travel demands (20 year forecast)
- increased safety for residential access between Dougall Parkway and Cabana Road through the introduction of a continuous two-way left turn lane
- improvements to the intersections of Howard Avenue with Havens Drive, Lake Trail/Country Club Drives, Neal Boulevard/North Talbot Road, Tuson Way, Cabana Road, South Cameron Boulevard, DRTP Rail crossing, and Division Road

EXHIBIT E.1 RECOMMENDED UNDERTAKING



- safety and operational improvements to the Dougall Parkway/Howard Avenue Interchange
- improvements to Howard Avenue will improve area roadway network flexibility to serve existing and future land uses
- potential for increased transit service

Social Environment

- improvements to overall community access
- widening of the existing sidewalks and addition of new sidewalks along Howard Avenue
- provision of on-street bicycle lanes for cyclists
- the undertaking is generally located within the existing right-of-way thereby reducing impacts

Land Use

- improved access to existing and future land uses adjacent to Howard Avenue

Cultural Environment

- no archaeological sites have been registered within the study area limits.

Natural Environment

- some trees will be impacted within and adjacent to the existing Howard Avenue right-of-way due to the recommended improvements. The impacts and the proposed mitigating measures, which will include a planting plan, etc., are discussed in Chapter 5, Section 5.3.

Property Requirements

Property is required at various locations throughout the Study Area as shown by the dashed line on the Design Plates following page 5-26 and as discussed below.

- along the east side of Howard Avenue at Havens Drive including sight triangles at Havens Drive
- along the west side of Howard Avenue at Country Club Drive including sight triangles at Country Club Drive
- sight triangles at Lake Trail Drive
- along the west side of Howard Avenue at Neal Boulevard including sight triangles at Country Club Drive
- along the southeast side of the Howard Avenue/North Talbot Road intersection including sight triangles
- along the southeast side of Howard Avenue at Tuson Way including a sight triangle
- along the southeast side of Howard Avenue to accommodate the proposed Howard Avenue ramp to eastbound Dougall Parkway
- along the west side of Howard Avenue between the Dougall Parkway north ramp terminal and Scofield Avenue
- from all four quadrants of the Howard Avenue/Cabana Road intersection
    - the Pizza King building on the southwest corner will be impacted by the construction and the entire property will be required by the City of Windsor

- at the South Cameron Boulevard/DRTP Rail/Division Road Intersection Complex
  - from Lots #79 and 80 along Hamner Circle to accommodate the widened and realigned Howard Avenue
  - from the DRTP to accommodate the relocated Howard Avenue rail crossing

Utilities

- relocation of ENWIN Powerlines aerial hydro pole line on the east side of Howard Avenue between Dougall Parkway and Division Road

Preliminary Construction Cost Estimate (in order of priority/staging)

• Intersection improvements at Howard Avenue/ Cabana Road	$2.2 M
• Intersection improvements at South Cameron Boulevard/ DRTP Rail/Division Road Intersection Complex	$2.8 M
• Signage improvements at Dougall Parkway Interchange	$0.04 M
• Widening of Howard Avenue: Highway 3 to Dougall Parkway	$3.2 M
• Widening of Howard Avenue: Dougall Parkway to Cabana Road	$1.3 M
• Widening of Howard Avenue: Cabana Road to Division Road	$2.9 M
• Howard Avenue sidewalk improvements: Division Road to Grand Marais Road	$0.03 M
• Geometric improvements at Dougall Parkway Interchange	$1.2 M
• **Total**	**$13.7 M**

Design Approvals

- During the detail design stage and prior to construction, the City will obtain approvals, as applicable, from the Ministry of the Environment, and the Canadian Transportation Agency.

Construction Impacts

- The mitigation of construction impacts will follow the Environmental Construction Guidelines for Municipal Road, Sewage and Water Projects, issued by the Municipal Engineers Association.
- Specific recommendations regarding excess material disposal, preservation for residual plant communities, traffic/noise/mud/dust control are included in Chapter 5, Section 5.3.

Monitoring and Maintenance

- During construction, the City will ensure that the environmental protection recommendations in the ESR and other subsequent agency approval conditions are

complied with. A full inspection of every part of the undertaking will be carried out one year after the completion of each part.

E.5 CONSULTATION

Consultation with potentially affected stakeholders including technical agencies, adjacent municipalities, utilities and the public including adjacent property owners and interest groups, was an important part of the process.

The main steps in the consultation process included:

- September 28, 2001 - Notice of Study Commencement
- November 6, 2001 - Public Information Centre #1
- April 9, 2002 - Public Information Centre #2
- October 22, 2002 - Public Information Centre #3

As well, there will be an opportunity to review the Environmental Study Report.

Neighbourhood 'backyard' meetings were also held at various points during the Study with Concerned Howard Avenue Taxpayers (CHAT) group (as discussed in Sections 4.2.6 and 4.4.1).

The comments received are discussed throughout the Environmental Study Report (ESR) and summarized in the following sections:

- Sections 4.2 & 4.4 – Technical Agencies, Adjacent Municipalities and Utilities
- Sections 4.2, 4.4 & 5.4 – Public

E.6 IMPLEMENTATION AND STAGING

The improvements to Howard Avenue have been identified as being required as follows:

Initial Stage:

- intersection improvements at Cabana Road
- intersection improvements at South Cameron Boulevard/Division Road
- signage improvements at Dougall Parkway Interchange

Ultimate Stage:

- other signalized intersections improvements (Highway 3 done by others)
- widening of Howard Avenue including pedestrian and cyclist facilities
    - South Section
    - Central Section
    - North Section
    - Division Road to Grand Marais Road pedestrian and cyclist improvements
- Dougall Parkway Interchange reconfiguration

Overall, the actual timing of improvements to different sections of Howard Avenue is dependent on traffic volume growth.

In addition, the following factors will also affect the timing/staging of construction of the recommended undertaking:

- obtaining the necessary approvals
- obtaining the required funding
- acquiring the necessary land
- designing the roadway in detail

CHAPTER 1. INTRODUCTION

1.1 INTRODUCTION

Howard Avenue is a north-south arterial road extending from south of Highway 3 to south of Wyandotte Street. Between Highway 3 and Division Road, Howard Avenue is a 2-lane road with gravel shoulders that is currently experiencing high traffic volumes and associated congestion. North of Division Road, Howard Avenue is a commercial, 6-lane urban road.

In order to address capacity, safety and operational improvements on Howard Avenue between Highway 3 and Grand Marais Road, the City of Windsor has carried out the Howard Avenue Class EA Study in accordance with the Municipal Class Environmental Assessment which is an approved process under the Ontario Environmental Assessment Act (EA Act), which is discussed in Section 1.2.

The nature of the recommended undertaking identifies it as a Schedule C under the Municipal Class EA. This in turn requires that an Environmental Study Report (ESR) be prepared and filed for a minimum 30-day review period. The purpose of the ESR is discussed in Section 1.2.3.

1.2 ONTARIO ENVIRONMENTAL ASSESSMENT ACT

Municipal road projects are subject to the Ontario Environmental Assessment (EA) Act. The Class Environmental Assessment process is an approved process under the EA Act for a specific group or "class" of projects. Projects are therefore approved subject to compliance with an approved Class EA process.

The proponent for this study is the City of Windsor. Accordingly, this study has been conducted in accordance with the requirements of the Municipal Class Environmental Assessment (prepared by the Municipal Engineers Association) dated June 2000.

1.2.1 Municipal Class Environmental Assessment Process

The Municipal Class Environmental Assessment (EA) is an approved class environmental assessment process which applies to municipal infrastructure projects including roads, water and wastewater. The Municipal Class EA outlines a comprehensive planning process which includes the following steps: problem definition; identification of alternatives (including "do nothing"); analysis and evaluation of their effects on the environment including the natural, social, economic and engineering; determination of a recommended alternative and associated mitigation measures; and, consultation with technical agencies and the public throughout the process. The Class EA process provides a rational planning approach to determining a recommended alternative for addressing the problem (or opportunity). It is an approved environmental assessment planning document which describes the process that proponents must follow in order to meet the requirements of the Ontario EA Act. Providing the Class EA planning process is followed, a proponent does not have to apply for formal approval under the EA Act.

The Municipal Class EA process is shown on Exhibit 1.1 and includes:

- Phase 1 - identify the problem or opportunity
- Phase 2 - identify alternative solutions
- Phase 3 - examine alternative methods of implementing the preferred solution
- Phase 4 - prepare and file an Environmental Study Report
- Phase 5 - proceed to detailed design, construction and operation

The three types of projects or activities to which the Municipal Class EA applies are:

Schedule 'A' - projects which are limited in scale, have minimal adverse environmental effects and include the majority of municipal road maintenance, operational, and emergency activities

- these projects are pre-approved and therefore a municipality can proceed without further approval under the EA Act

Schedule 'B' - projects which have the potential for some adverse environmental effects

- these projects are approved subject to a screening process which includes contacting directly affected public and relevant review agencies

Schedule 'C' - projects which have the potential for significant environmental effects and which must proceed under the planning and documentation procedures outlined in the Municipal Class EA document

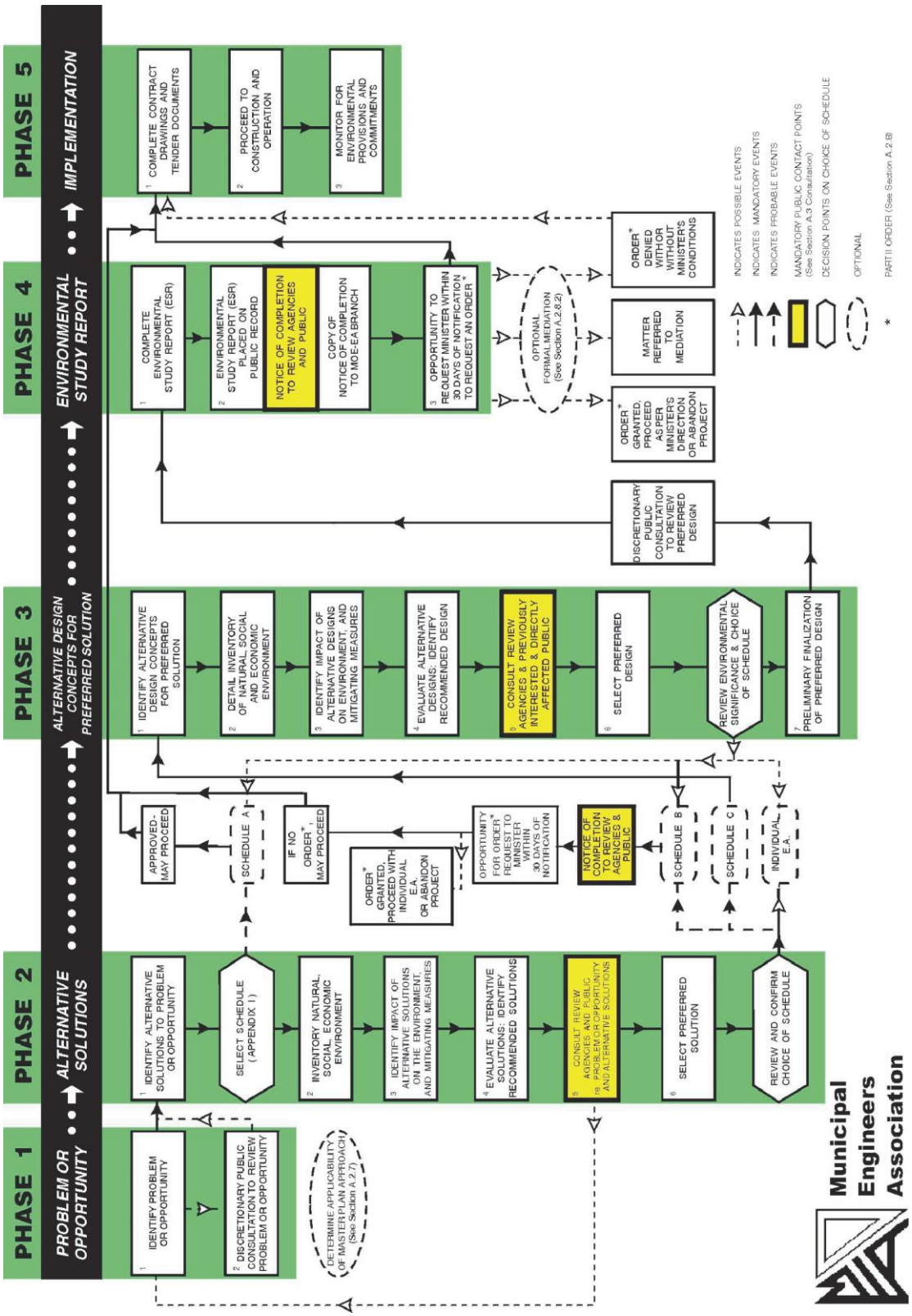
The nature of the Howard Avenue undertaking identifies it as a Schedule 'C' project. An Environmental Study Report (ESR) is required for Schedule 'C' projects and documents the environmental assessment process which was carried out prior to proceeding with the construction of the roadway. The ESR must be filed for a minimum 30-day period of public review. If concerns are raised that cannot be resolved through discussions with the proponent of the project, a "Part II Order" may be requested. This is explained in Section 1.2.3.

1.2.2 Part II Order

The Municipal Class EA process includes an appeal provision to change the status of a project from being subject to the Municipal Class EA process to being subject to an individual environmental assessment as per Part II of the Ontario EA Act. The latter requires the submission of an EA document to the Minister of the Environment for government review and approval.

It is recommended that all stakeholders work together to determine the preferred means of addressing a problem or opportunity. If concerns regarding a project cannot be resolved in discussions with the proponent (for this study, the proponent is the City of Windsor), then members of the public, interest groups or technical review agencies may request the Minister of the Environment, by order, to require a proponent to comply with Part II of the EA Act before proceeding with a proposed undertaking which has been subject to Class EA requirements. The Minister of the Environment then decides whether

EXHIBIT 1.1 MUNICIPAL CLASS EA PROCESS



to deny the request, refer the matter to mediation, or, require the proponent to comply with Part II of the EA Act.

Additional information regarding this appeal process may be obtained from the City of Windsor (see contact name below).

1.2.3 Purpose of the Environmental Study Report

This Environmental Study Report (ESR) documents the process followed to determine the recommended undertaking and the environmentally significant aspects of the planning, design and construction of the improvements for Howard Avenue. It describes: the determination of the problem being addressed, alternative solutions that were considered, a description of the recommended alternative and its purpose, the existing social, natural and cultural environmental considerations, environmental effects and proposed mitigation measures, and commitments to further work, consultation, and monitoring, associated with the implementation of the project.

For further information on the Municipal Class EA process, readers are referred to the Municipal Class EA document (2000). The City of Windsor Project Manager for this Class EA Study is available to discuss this information and can be contacted as follows:

Mr. Wes Hicks, P. Eng.
Manager, Infrastructure Planning
Infrastructure Services Department
City of Windsor
1269 Mercer Street
Windsor, ON N8X 3P4
Phone: (519) 255-6418
Fax: (519) 255-7371
email: whicks@city.windsor.on.ca

It is likely that minor modifications to the recommended undertaking and its impacts on the environment will be identified during detailed design; however, these modifications are not anticipated to change the intent of the undertaking. It is expected that any additional impacts to the environment would be addressed through standard mitigating measures. Any significant modifications to the undertaking or changes to the environment will be addressed through an Addendum to the Environmental Study Report.

1.3 CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)

This project must also comply with the requirements of the Canadian Environmental Assessment Act (CEAA). The following identifies the main potential "triggers" under CEAA and their application to the recommended undertaking. Where permits are required, application will be made during the detailed design stage.

"Triggers" to CEAA and Applicability to this EA	
"Trigger"	**Applicability**
Federal Funding or Federal Lands	- no federal lands directly affected - no federal funding anticipated - not applicable
Canadian Transportation Agency - any railway crossing requiring authorization under the Railways Act	- one railway crossing - application to be made during detailed design
Canadian Coast Guard - any navigable water crossing as per the Navigable Waters Protection Act (NWPA)	- no navigable water crossings impacted - not applicable
Department of Fisheries and Oceans (DFO) - any harmful alteration or destruction of fish habitat, according to the Fisheries Act	- no water crossings impacted - not applicable

1.4 STUDY AREA

The study area is shown on Exhibit 1.2 and includes the Howard Avenue corridor from Highway 3 to Grand Marais Road (5 km in length).

1.5 STUDY APPROACH

In order to fulfill the Municipal Class EA requirements and to ensure a thorough understanding of the problem being addressed, the alternatives considered and their associated potential environmental impacts and mitigation measures, and to enable consultation with the public and technical agencies, the study followed the Municipal Class EA process as shown in Exhibit 1.1. The main study stages and associated study schedule are shown in Exhibit 1.3.

Given that this is a Schedule C project, Phases 1 to 4 of the Municipal Class EA process have been completed with the preparation of the ESR. The ESR outlines the commitments to be followed in the subsequent implementation of the recommended undertaking, i.e. Phase 5, which includes detailed design and construction. The construction of the recommended undertaking will be carried out subsequent to the clearance of the ESR and subject to the receipt of environmental approvals and availability of funding.

EXHIBIT 1.2 STUDY AREA

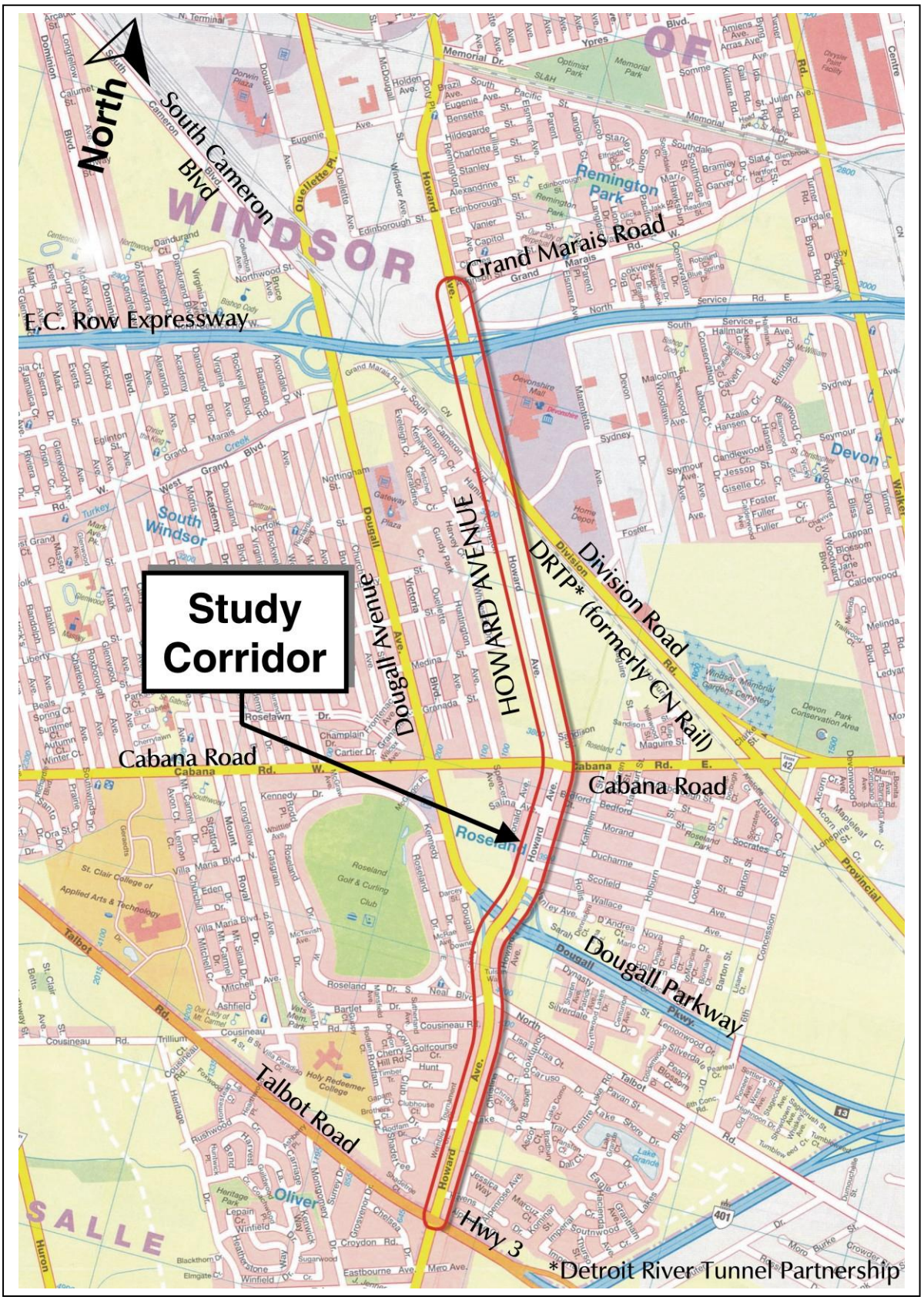
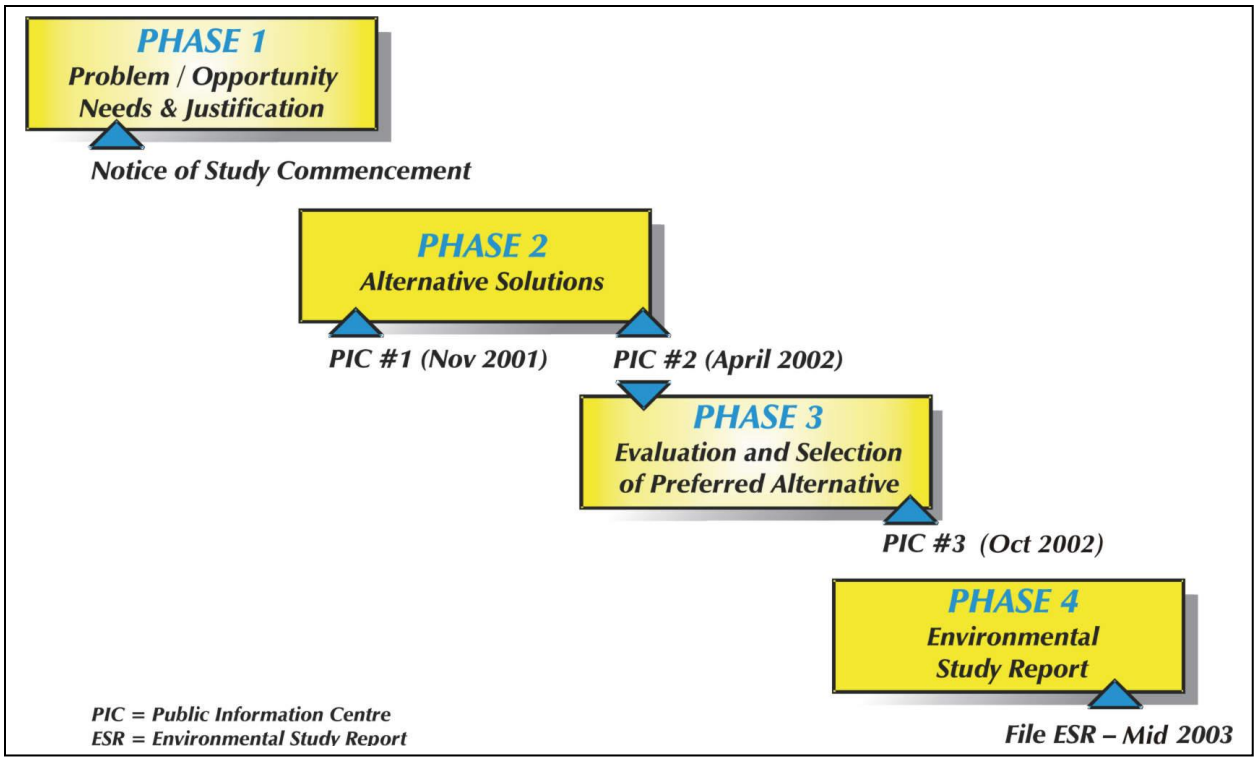
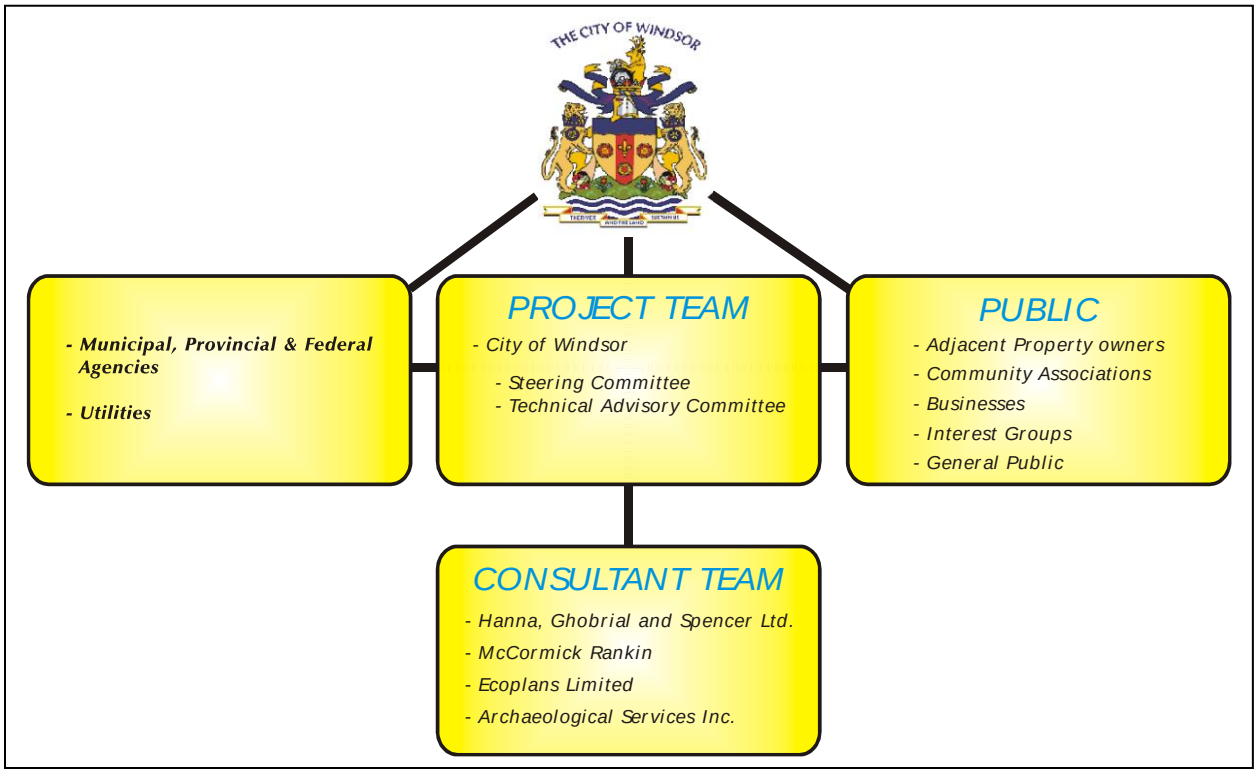


EXHIBIT 1.3 STUDY STAGES AND STUDY ORGANIZATION





1.6 STUDY ORGANIZATION

The study organization reflects the general administrative and technical needs of the study as well as the study's consultation program. The latter has been developed to provide all of those with a potential interest in the study with the opportunity to participate and provide input during the process.

The study organization is shown in Exhibit 1.3 and described in the following sections.

1.6.1 City of Windsor Council

Howard Avenue is under the jurisdiction of the City of Windsor. The study was therefore carried out by the City of Windsor, who is the proponent under the Municipal Class EA process. City Councillors were provided with copies of the notices of Public Information Centres in order to keep them apprised of the study status and findings during the course of the study.

1.6.2 Study Team

The Study Team consisted of staff from the City of Windsor and the consultants. The study was carried out under the direction of a Steering Committee, which included the Commissioner of Traffic Engineering and the Commissioner of Public Works. Representative staff from the City of Windsor in the Study Team included:

- Wes Hicks — Traffic Engineering
- Mark Winterton — Public Works Department
- Steve Bittner — Traffic Engineering
- Kevin Alexander — Parks and Recreation Department
- Marian Drouillard — Public Works Department
- Jeff Watson — Planning Department
- Mario Sonego — Public Works Department
- Michael Stamp — Property/Legal & Human Resources Department
- Vince Francescutti — Public Works Department

A team of consultants, led by Rick Spencer and Michael Chiu, was engaged to conduct the Howard Avenue EA Study on behalf of the City of Windsor. The Consultant Team included:

• Hanna, Ghobrial and Spencer, Ltd. Consulting Engineers	- project management / consultation - preliminary design
• McCormick Rankin Corporation Consulting Engineers and Planners	- project management / consultation - Class EA requirements - planning - preliminary design
• Ecoplans Limited Consulting Environmental Planners and Ecologists	- natural environmental effects
• Archaeological Services Inc.	- archaeological & heritage overview

Regular Study Team meetings were conducted throughout the Study to discuss the project. Meetings between the Steering Committee and the Study Team were also held at key milestones of the Study.

1.6.3 Technical Agencies and Utilities

Technical agencies and utilities, as identified in Exhibit 1.4, were contacted during the study and requested to provide technical input and to comment on the study's findings. The related correspondence is provided in Appendix A.

Participating agencies and utilities will also be sent a notice of the filing of the ESR.

CN Rail was consulted during the Study to obtain input regarding the proposed alternatives and their impacts to the level crossing at the DRTP crossing (formerly the CASO Subdivision).

This is discussed in Sections 4.2.6 and 4.4.3.

EXHIBIT 1.4 TECHNICAL AGENCIES, ADJACENT MUNICIPALITIES AND UTILITIES

PROVINCIAL

- Ministry of Citizenship, Culture and Recreation
- Ministry of Community and Social Services
- Ministry of the Environment (MOE)
    - London District Office
    - Windsor District Office
    - Environmental Assessment Branch
- Ministry of Municipal Affairs and Housing
- Ministry of Natural Resources (MNR)
- Ministry of Transportation (MTO) – London District Office
- Essex Region Conservation Authority

MUNICIPAL

- City of Windsor
    - Fire Department
    - Police Services
    - Transit Windsor
    - Bicycling Committee
    - Environmental Advisory Committee
    - Housing Authority
    - WACAC
- Corporation of the County of Essex
- Town of LaSalle

UTILITIES

- Bell Canada
- BP Canada Energy
- Cogeco Cable Systems Inc.
- ENWIN Powerlines
- Hydro One
- Union Gas Limited
- Windsor Utilities Commission

EXTERNAL AGENCIES

- CN Rail
- CN Rail c/o UMA Engineering Ltd.
- Detroit River Tunnel Partnership (DRTP)
- Greater Essex County District School Board
- Windsor & District Chamber of Commerce
- Windsor Emergency Health Services
- Windsor-Essex Catholic District School Board
- Windsor Essex County Health Unit
- Windsor Essex County Development Commission

1.7 PUBLIC CONSULTATION

A key component of the EA process is public consultation during the process. For this study, the main points of public consultation were:

- to notify the public that the study was commencing
- to review the existing conditions and identified problems,
- to review alternative solutions and preliminary impacts,
- to review the recommended alternative and proposed mitigating measures,
- to review the ESR.

Three Public Information Centres were held as follows:

Date	Purpose
Tuesday, November 6, 2001	**Public Information Centre #1** To review and obtain public comments about the existing conditions, the identified problems and the preliminary improvement options under consideration.
Tuesday, April 9, 2002	**Public Information Centre #2** To review and obtain public comments about the alternatives and preliminary impacts.
Tuesday, October 22, 2002	**Public Information Centre #3** To review and receive public comments about the recommended alternative including proposed mitigation measures.

Neighbourhood 'backyard' meetings were also held at key points during the Study with members of the Concerned Howard Avenue Taxpayers (CHAT) group. These are discussed in Sections 4.2.8 and 4.4.1.

The comments received from the public are discussed in the pertinent sections of the ESR and summarized in Section 5.5.

CHAPTER 2. PROBLEM / OPPORTUNITY BEING ADDRESSED

Phase 1 of the Municipal Class EA process involves the identification of the problem and/or opportunity being addressed by the study. For this study, this included:

- a review of the existing condition of Howard Avenue, including the Dougall Parkway Interchange, and the South Cameron Boulevard/DRTP Rail/Division Road Intersection Complex (Section 2.1)
- undertaking a transportation needs assessment including the analysis of existing traffic volumes and future travel demands (Section 2.2)
- development of a statement of the problem / opportunity being addressed by the study (Section 2.3)

2.1 EXISTING CONDITIONS

2.1.1 Howard Avenue

The Howard Avenue EA Study Limits extend south to north from the Windsor City Limits at Highway 3 to Grand Marais Road (see Exhibit 1.2 in Chapter 1). Within the Study Limits, Howard Avenue has a posted speed of 60 km/h south of North Talbot Road and 50 km/h north of North Talbot Road, and is designated as a Class II Arterial Road. Windsor's Official Plan describes a Class II Arterial as follows:

- Designed to carry high volumes of passenger and commercial traffic
- Usually consists of 4 travel lanes, with Right-of-Way widths no more than 30 m
- Direct property access is discouraged where other alternatives exist
- Intersections with local roads are discouraged

Howard Avenue is designated as part of the Primary Cycling Network in the Bicycle Use Master Plan (BUMP) Study:

- Expected to accommodate high cyclist volumes
- Cycling traffic is destination-oriented (e.g. place of employment, community facilities)

Howard Avenue's 30+ year truck route designation has recently been reconfirmed by the Windsor Area Long Range Transportation Study (WALTS), in which recommendations for Howard Avenue include:

- Traffic lanes at least 3.5 m wide
- 24-hour truck route

Howard Avenue is divided into four main sections, and two key intersections within the Study Limits, as follows:

Highway 3 to Dougall Parkway

- Residential – tree-lined neighbourhood with private driveway access
- Two 3.5 m lanes (one in each direction) with 3 m gravel shoulders
- Road centred within a 26 m right-of-way

- New subdivisions are under construction east and west of Howard Avenue
- Small commercial establishments at the Highway 3 and North Talbot Road intersections

Dougall Parkway to Cabana Road

- Residential – tree-lined neighbourhood with private driveway access
- Two 3.5 m lanes (one in each direction) with 3 m gravel shoulders
- Road offset to the west within a 19 m right-of-way
- **Interchange at Dougall Parkway**
- New subdivision under construction east of Howard Avenue at Dougall Parkway
- Small commercial establishments at the Cabana Road intersection

Cabana Road to Division Road

- Residential – tree-lined neighbourhood with private driveway access
- Two 3.5 m lanes (one in each direction) with 3 m gravel shoulders
- Road offset to the west within a 21 m right-of-way
- **Complex intersections at South Cameron Boulevard/DRTP Rail/Division Road**
- New subdivisions under construction east and west of Howard Avenue
- Small commercial establishments at Cabana Road and south of Kenilworth Road
- Kenilworth Park

Division Road to Grand Marais Road

- Commercial – Devonshire Mall on the east, Roundhouse Centre on the west
- Six basic lanes (three in each directions) plus turning lanes
- Road centred within a 36 m right-of-way
- Interchange at E.C. Row Expressway

2.1.2 Dougall Parkway/Howard Avenue Interchange

The Dougall Parkway Interchange is owned by the City of Windsor and is considered a critical link of the Howard Avenue corridor as it provides a connection to Highway 401. Exhibit 2.1 shows the existing interchange, lane configurations and signage.

South Side

- Partial cloverleaf[1] design with separate eastbound off-ramps from Dougall Avenue to access southbound and northbound Howard Avenue.
- Access from eastbound Dougall Avenue to southbound Howard Avenue is via a direct ramp merging with Howard Avenue immediately north of the North Talbot Road Intersection.
- Access from eastbound Dougall Avenue to northbound Howard Avenue is via (Old) Howard Avenue and Tuson Way.
- Access to eastbound Dougall Parkway/Highway 401 from Howard Avenue is also via Tuson Way and (Old) Howard Avenue.

1 Cloverleaf interchange: a fully-directional interchange with 4 inner loop ramps and 4 outer directional ramps. A partial cloverleaf interchange is one that has some, but not all of these components.

EXHIBIT 2.1 DOUGALL PARKWAY/HOWARD AVENUE INTERCHANGE EXISTING CONFIGURATION AND SIGNAGE

North Side

- Partial cloverleaf design with a single westbound Dougall Parkway off-ramp to access Howard Avenue.
- Access from Howard Avenue to westbound Dougall Parkway is via a loop ramp in the northeast quadrant of the interchange.
- The ramp terminal intersection is one-way stop-controlled (free flow on Howard Avenue).

Based on the field reviews and preliminary analysis carried out by the Study Team and input from the public, certain operational deficiencies and safety concerns were identified. The deficiencies relate primarily to signage and interchange geometrics and configuration. Details of the assessment are included in Appendix B.

2.1.3 South Cameron Boulevard/DRTP Rail/Division Road Intersection Complex

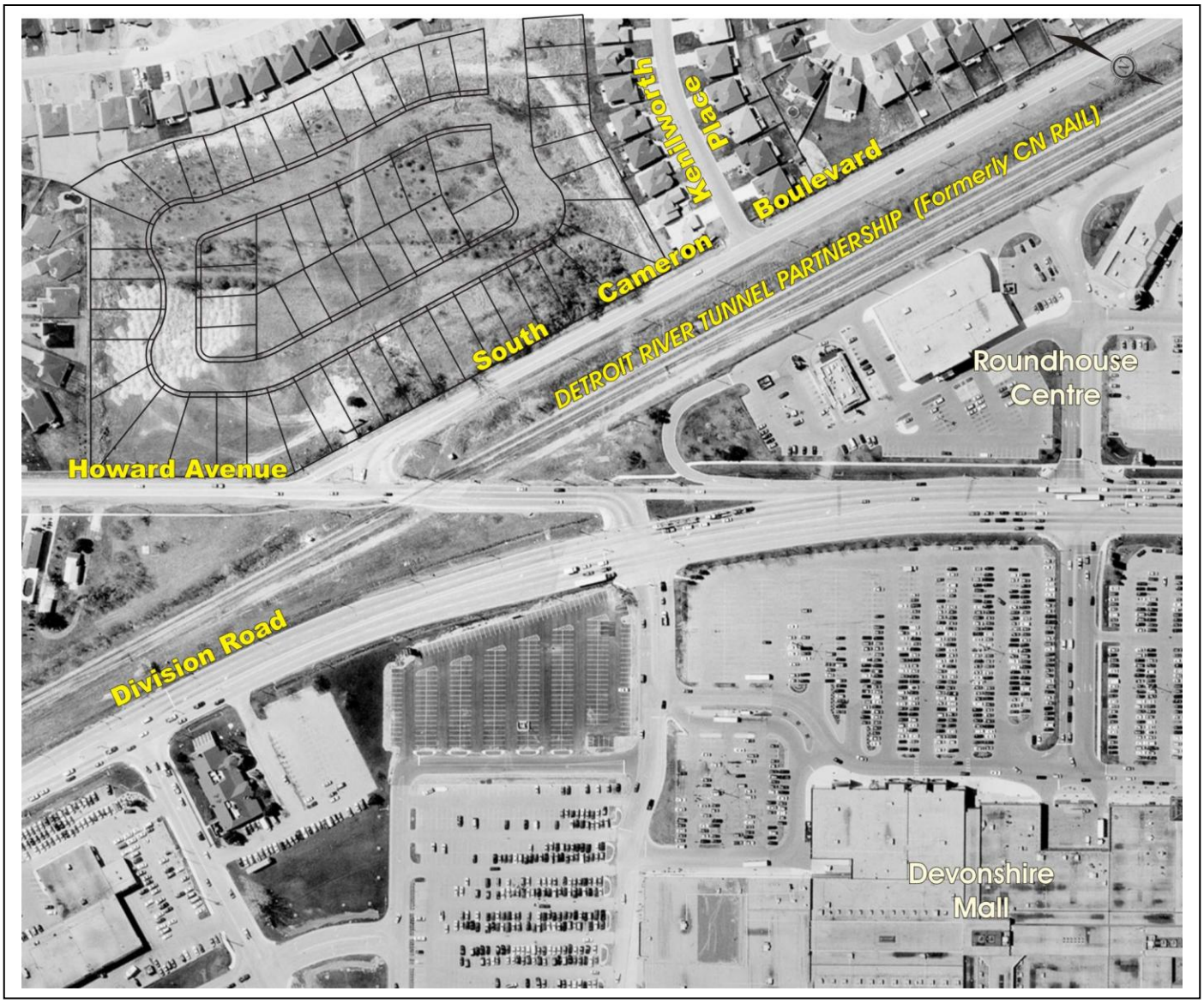
South Cameron Boulevard and Division Road are major Windsor thoroughfares and they intersect Howard Avenue within 130 m of each other. These two intersections are in turn separated by the two track DRTP Rail corridor, as shown on Exhibit 2.2. Current standards recommend that intersections be spaced no less than 200 m apart on arterial roads.

South Cameron Boulevard is a 2-lane Class I Collector Road that runs southeast-northwest between Howard Avenue and Dougall Avenue. It is the only east-west connecting link between the E.C. Row Expressway and Cabana Road. South Cameron Boulevard intersects Howard Avenue at an angle of 62°, which is undesirable. The intersection is 1-way stop-controlled in the South Cameron Boulevard direction. Left turn queuing often blocks the right turn lane due to a lack of a right turn storage lane on South Cameron Boulevard. The left turn stop bar is located 18 m away from the NB Howard Avenue rail crossing stop bar. All of these features contribute to an intersection with operational issues and acute safety concerns.

Division Road is a 4-lane Class II Arterial Road running southeast-northwest between Cabana Road and Howard Avenue. Division Road intersects the southern leg of Howard Avenue at an angle of 74°, which is undesirable. Division Road becomes Howard Avenue north of the signalized Howard Avenue (south)/Division Road intersection, which in turn is located very close to the Howard Avenue rail crossing. The southbound Howard Avenue move is performed via a right lane 'must-exit' ramp that is stop controlled at the southern leg of Howard Avenue. Branching off of this ramp is a direct taper loop ramp to the Roundhouse Centre. The northbound Howard Avenue move is accomplished via a left turn. These unconventional features contribute to an intersection with operational issues and safety concerns.

In fact, these two intersections have exhibited an above-average collision history. Between 1998 and mid-2001, there were a combined 58 collisions at both intersections and 467 collision in between the two intersections as discussed in Section 2.2.1.

EXHIBIT 2.2 SOUTH CAMERON/DRTP RAIL/DIVISION ROAD INTERSECTION COMPLEX



2.2 TRANSPORTATION NEEDS ASSESSMENT

The transportation needs assessment for the Howard Avenue corridor included the review of:

- existing traffic conditions along Howard Avenue
- findings of related studies
- future requirements for Howard Avenue

2.2.1 Existing Traffic Conditions

A review of existing traffic conditions was performed by the Study Team. This review included:

- Field Review of Howard Avenue Corridor
  - Photo log of intersection approaches
  - Intersection lane configurations
- Review of Existing Traffic Data
  - Intersection Turning Movement Counts
  - 24-hour Automatic Traffic Recorder (ATR) traffic counts
- Intersection Level of Service using HCS computer program
  - Howard Avenue intersections
  - Dougall Avenue intersections

Average Daily Traffic

Using the available information, the PM peak hour volumes, the heavy truck percentage and the average daily traffic (ADT) volumes were determined for each Howard Avenue section within the Study Area, and are shown in the table below.

Summary of Existing Traffic Volumes

Location	PM Peak Hour Vehicles		PM Peak Hour Truck %		ADT[1]
	SB	NB	SB	NB	Total
North of Division Road	1775	1530	4%	3%	36,800
Division Road to Cabana Road	490	555	4%	2%	15,000
Cabana Road to Dougall Parkway	490	580	4%	2%	13,500
Dougall Parkway to North Talbot Road	910	780	6%	1%	21,700
North Talbot Road to Highway 3	755	480	1%	1%	16,000

1. Average Daily Traffic (ADT) volumes reflect automatic traffic recorder (ATR) data provided by the City of Windsor with the exception of the section of Howard Avenue south of Grand Marais Road, for which there is no current ATR data available. For this section, the ADT was estimated based on the p.m. peak hour mid-block volumes (calculated using adjacent intersection counts for 1999/2000) and dividing these by the peak hour factor (PHF). The PHF is calculated as the average weekday PM peak hour volume from the 24-hour survey divided by the seven-day average 24-hour volume from the same survey.

The highest corridor volumes occur between North Talbot Road and the Dougall Parkway Interchange and within the 6-lane section north of Division Road.

2.2.2 Future Traffic Forecasts

Future traffic estimates were first forecast to 2016 as the Windsor Area Long-Range Transportation Study (WALTS) and other background information were all based on 2016 forecast years. These estimates were subsequently projected to 2021 (the 20-year planning horizon).

2016 Traffic Forecasts

The future (2016) traffic forecasts were developed based on:

- Population and Employment Growth
- Future Travel Demands
  - WALTS
  - Windsor Travel Demand Model (TDM)

During the course of this Study, the findings of other area studies were released and their traffic forecasts were incorporated into the Howard Avenue Study:

1) The WALTS travel demand model was updated to reflect the final land use forecasts and road network assumptions associated with the Town of LaSalle Master Transportation Plan for the Southeastern Quadrant of the LaSalle Town Centre Planning District.
2) The Division-Cabana Road Class EA indicated that there was a difference between the Cabana Road volumes at Howard Avenue based on that analysis and those initially derived as part of the current Study. Adjustments were made to the Howard Avenue forecasts in order to reflect the Cabana Road projections, and these are described in the February 21, 2002 memorandum (see Appendix C).

The estimated 2016 afternoon peak-hour and average daily traffic volume forecasts are shown in the following table.

2016 PM Peak Hour Vehicle Forecasts

Howard Avenue	2016 PM Peak Hour Volumes			2016 Estimated ADT
	NB	SB	Total	
North of Division Road	1775	2080	3855	43,900
South of Division Road	940	1120	2060	23,400
South of South Cameron Blvd.	715	1050	1765	19,400
North of Cabana Road	785	815	1600	23,700
South of Cabana Road	1000	975	1975	22,500
North of North Talbot Road	1280	1500	2780	35,500
South of North Talbot Road	955	1335	2290	29,900
North of Highway 3	1095	1305	2400	28,300

1. The projected ADT volumes reflect the application of growth rates derived from the travel demand model to the existing ADT volumes estimated from the ATR data provided by the City of Windsor with the exception of the volumes from south of Grand Marais Road to south of South Cameron Boulevard, for which data was not available. As described previously, the ADT for this section of Howard Avenue reflects the application of the existing peak hour factor to the projected mid-block p.m. peak hour volumes.

2021 Traffic Forecasts

A 2021 traffic estimate (the 20-year planning horizon) was projected from the 2016 forecasts. The 2021 travel demand forecasts were derived using two alternative approaches:

- Forecasts Based on Growth Factor
- Forecasts Based on Modelled Growth

The first approach applied a growth factor to the 2016 projections to reflect the incremental traffic growth impacts corresponding to the population growth between 2016 and 2021. Given the range between the projected population growth and the traffic growth identified by this Study, a growth factor of 5% was applied to the 2016 travel demand forecasts to estimate the corresponding 2021 projections.

The second approach reflects the sum of the observed 2000 traffic volumes and the total growth estimated by the travel demand model between 1996 and 2016.

A comparison of the 2021 forecasts (details included in Appendix F) demonstrated that those based on the sum of the observed traffic volumes and the modelled growth between 1996 and 2016 are approximately 3 to 6% greater than the forecasts derived based on the estimated traffic growth factor. Therefore, the higher Modelled Growth forecasts were used as part of this Study and are shown in the table, below.

2021 PM Peak Hour Travel Demand Forecasts Based on Modelled Growth

Howard Avenue	2021 PM Peak Hour Based on Modelled Growth (1996 to 2016)			2021 PM Peak Hour Adjusted[1]			2021 Estimated ADT
	NB	SB	Total	NB	SB	Total	
North of Division Road	1835	2155	3990	1865	2165	4030	46,100
South of Division Road	950	1195	2145	1000	1210	2210	25,800
South of South Cameron Blvd.	720	1125	1845	770	1140	1910	21,400
North of Cabana Road	785	875	1660	835	890	1725	26,500
South of Cabana Road	1065	1065	2130	1100	1095	2195	25,300
North of North Talbot Road	1365	1615	2980	1400	1645	3045	39,900
South of North Talbot Road	1045	1445	2490	1080	1475	2555	34,100
North of Highway 3	1210	1410	2620	1245	1440	2685	32,300

1. The projected ADT volumes reflect the application of growth rates derived from the travel demand model to the existing ADT volumes estimated from the ATR data provided by the City of Windsor with the exception of the volumes from south of Grand Marais Road to south of South Cameron Boulevard, for which data was not available. As described previously, the ADT for this section of Howard Avenue reflects the application of the existing peak hour factor to the projected mid-block p.m. peak hour volumes.

From the above table it is noted that the southbound direction has higher peak hour volumes than the northbound, and therefore these volumes were used to determine the future Howard Avenue requirements.

2.2.3 Existing Collision Rates

From the available collision data, the intersection and mid-block collisions were calculated for the January 1998 to July 2001 period, and are shown in the following two tables.

Intersection Collisions (January 1998 to July 2001)

Howard Avenue Intersection	Number of Collisions
Grand Marais Road East	33
E.C. Row WB Off-ramp	**46**
E.C. Row EB Off-ramp	23
Devonshire Mall Entrance	18
Roundhouse Centre Entrance	26
Combined: Division Rd., South Cameron Blvd.	**58**
Kenilworth Drive	5
Cabana Road East	27
Combined: Morand Ave., Ducharme St., Scofield Ave., Wallace Ave.	12
Dougall Avenue	2
Tuson Way	2
North Talbot Road	34
Lake Trail Drive	12
Havens Avenue	2
Highway 3	9

For this 3½-year period, Howard Avenue exhibited average collision rates except at the South Cameron Boulevard/Division Road intersections and at the E.C. Row Expressway WB Off-ramp intersection where above-average collisions were observed.

Mid-Block Collisions (January 1998 to July 2001)

Howard Avenue Section	Number of Collisions	Daily Volume	Section Length (km)	Millions Vehicle-km (Jan 98 to July 01)	Collision Rate[1]
Grand Marais Road East					
	63	36800	0.144	6.925	9.10
E.C. Row WB Off-ramp					
	25	37800	0.227	11.212	2.23
E.C. Row EB Off-ramp					
	14	27000	0.448	15.806	0.89
Division Road					
	467	12600	**0.134**	2.206	**211.70**
South Cameron Blvd.					
	13	12000	0.288	4.516	2.88
Kenilworth Drive					
	2	12000	1.027	16.104	0.12
Sandison Street					
	26	12000	0.160	2.509	10.36
Cabana Road East					
	31	12500	0.666	10.878	2.85
Dougall Pkwy. N. Ramp					
	6	20000	0.659	17.222	0.35
North Talbot Road					
	23	15000	0.621	12.172	1.89
Lake Trail Drive					
	47	15000	0.576	11.290	4.16
Highway 3					

1. Collision Rate = Number of Collisions per Million Vehicles kilometres

The high number of mid-block collisions in between Division Road and South Cameron Boulevard further highlight the operational issues at this location.

2.2.4 Future Howard Avenue Lane Requirements

The above traffic forecasts and collision data demonstrate that increased roadway capacity is required to accommodate future traffic flows with a reasonable operating level of service. To determine future lane requirements, the future peak hour peak direction traffic volumes were used as they represent the most traffic using the facility in a single direction. A summary of the projected future traffic and the future number of lanes under considerations are presented in Exhibit 2.3.

EXHIBIT 2.3 HOWARD AVENUE TRAFFIC PROJECTIONS AND LANE REQUIREMENTS

Roadway Sections	Existing Road Right-Of-Way	Existing Number of Lanes and (Vehicle Capacity in peak hr peak direction)[a]	Projected 2021 Traffic (peak hour peak direction)	Future Number of Lanes	Future Right-Of-Way	Future Operating Conditions	Carried Forward For Consideration
South Section - Highway 3 to Dougall Parkway	26 m	2 (800 vph)	1475 vph	2+TWLTL[b]	26 m	Breakdown	No
				4	26 m	Good	Yes
				4 + TWLTL	26 m – 28.5 m	Very Good	Yes
Central Section - Dougall Parkway to Cabana Road	19 m	2 (800 vph)	1100 vph	2 + TWLTL	19 m	Congested	Yes
				4	21.6 m – 25 m	Good	Yes
				4 + TWLTL	25.1 m – 28.5 m	Very Good	Yes
North Section - Cabana Road to Division Road	23 m	2 (800 vph)	1140 vph	2 + TWLTL	23 m	Congested	Yes
				4	23 m	Good	Yes
				4 + TWLTL	25.1 m – 28.5 m	Very Good	Yes
Division Road to Grand Marais Road	36 m	6 [c] (2700 vph)	2165 vph	6	36 m	Good	Yes

Notes:

a) This vehicle capacity reflects a network *planning-level capacity* assumption typically adopted for larger area network analyses. This assumption does not account for the incremental capacity that can be realized based on specific turning movement distributions and intersection utilization. Based on the refined corridor analysis undertaken for Howard Avenue, the *operational capacity* ranges between 900 and 1,100 vehicles per hour per lane.

b) TWLTL denotes Two-Way Left Turn Lane

c) 6 basic lanes with other turning lane

2.3 PROBLEM / OPPORTUNITY BEING ADDRESSED BY THE STUDY

Based on the review of the existing conditions and the analysis of existing traffic volumes and projected future travel demands, the problem being addressed by the study was defined as follows:

Problem:

- Capacity and operational deficiencies as well as safety concerns between Highway 3 and Division Road
- Operational concerns at the Dougall Parkway Interchange
- Safety concerns and operational deficiencies at the South Cameron Boulevard/DRTP/ Division Road Intersection Complex

Opportunity:

- There is an opportunity to integrate the needs for capacity, operational and safety improvements of Howard Avenue with other City Policies, such as the Bicycle Use Master Plan.
- There is an opportunity to address local driveway access with increasing traffic volumes on Howard Avenue.

Therefore, the City of Windsor is addressing the foregoing in accordance with the Municipal Class Environmental Assessment process.

During the course of the study, there was general recognition by many of those who participated in the study of the problem being addressed.

2.4 PLANNING ALTERNATIVES

At the broad planning level, the following alternatives were identified for consideration:

- "Do Nothing"
- Limit Development
- Other Modes such as transit, cycling, walking
- Travel Demand Management Measures
- Widen Howard Avenue
- Widen Other Roadways

These in turn were assessed in terms of how they would address the problem/opportunity under consideration.

Do Nothing

- does not address the problem, specifically the existing and projected future travel demands on Howard Avenue
- while this was not considered to be a reasonable alternative, it was carried forward for comparative purposes

Limit Development

- future development has been approved in Windsor and in the Town of LaSalle and the Town of Tecumseh
- therefore, limiting development was not carried forward for further consideration

Other Modes

- other modes of travel include transit, cycling and walking
- while on their own, increased use of other modes do not address the problem, they are an important part of the City's overall Transportation Strategy

Travel Demand Management Measures

- travel demand management measures include measures to reduce the number of vehicles, e.g. car pooling, staggered work hours, etc.
- while on their own, they do not address the problem, they are part of the City's overall Transportation Strategy

Improve/Widen Howard Avenue

- addresses the existing problem and future needs
- therefore, it was concluded to carry this alternative forward for further consideration

Widen Other Roadways (see Exhibit 1.2)

- does not address the existing problems:

- Walker Road	- Limited opportunity to further widen Walker Road
- Dougall Avenue	- Limited opportunity to further widen Dougall Avenue
- Cabana Road	- A Cabana-Division Road EA Study is being conducted concurrently by the City of Windsor. - This will recommend needed improvements to the Cabana Road Corridor between Highway 3 and Walker Road - Widening Cabana Road will not address the future Howard Avenue travel demands
- Highway 3 & Huron Church Road	- Both the Ontario Ministry of Transportation (MTO) and the City of Windsor have recently completed Improvement Studies for this corridor - Primarily used to access Ambassador Bridge Border Crossing - Improvements will not address future Howard Avenue travel demands

Based on the foregoing, the widening of Howard Avenue was carried forward for further consideration.

CHAPTER 3. EXISTING AND FUTURE CONDITIONS

Background information was collected from numerous sources including:

- the review of pertinent background studies and reports
- investigations undertaken by the Study Team as part of this Class EA study
- input from City staff
- correspondence or meetings with participating technical agencies, adjacent municipalities and utilities
- public input and public information centres

Exhibit 3.1 shows an aerial mosaic of the study area and identifies the key features that are discussed in the following sections.

3.1 TRANSPORTATION

3.1.1 Road Network

The main components of the existing road network within the study area are:

- Howard Avenue (as discussed in Section 2.1.1)
- Highway 3
  - east-west arterial road under the jurisdiction of the Ontario Ministry of Transportation (MTO); urban land use in the area near Howard Avenue
  - 4 through lanes plus left and right turning lanes
  - major international commercial corridor
  - MTO has completed a Class EA Study of Highway 3 to determine a preferred corridor improvement alternative
- Country Club Drive/Lake Trail Drive
  - east-west Class I and Class II Collector Roads, respectively
  - signalized intersection with Howard Avenue
- North Talbot Road
  - east-west Class I Collector Road
  - signalized intersection with Howard Avenue
- Dougall Parkway/ Dougall Avenue
  - Dougall Parkway: east-west Controlled Access Highway under the jurisdiction of the City of Windsor between Howard Avenue and Highway 401; 4 basic lanes; wide grassed median
  - Dougall Avenue: north-south urban Class II Arterial with 4 lanes and turning lanes
  - designated Windsor truck route
  - Interchange with Howard Avenue has unsatisfactory signage and geometrics as discussed in Section 2.1.2

- Cabana Road
  - 2-lane, east-west Class II Arterial Road
  - signalized intersection with Howard Avenue is at capacity and has poor operating characteristics and poor visibility
  - City of Windsor is currently conducting a Class EA study of Cabana-Division Road Corridor to determine future corridor needs
- South Cameron Boulevard
  - 2-lane, east-west Class I Collector Road
  - unsignalized intersection with Howard Avenue has poor safety and operating characteristics as discussed in Section 2.1.3
- Division Road
  - 4-lane, north-south Class II Arterial Road
  - signalized intersection with Howard Avenue has poor safety and operating characteristics as discussed in Section 2.1.3
- E.C. Row Expressway
  - 4-lane divided, east-west Controlled Access Highway under the jurisdiction of the City of Windsor
  - 2 ramp terminal signalized intersections with Howard Avenue
- Grand Marais Road
  - 2-lane, east-west Class I Collector Road
  - City of Windsor recently completed a Class EA study of Grand Marais Road between Howard Ave and Walker Road to determine future corridor needs
  - signalized intersection with Howard Avenue

3.1.2 Rail

The Detroit River Tunnel Partnership owns the two-track rail corridor that crosses Howard Avenue at-grade approximately 80 m south of Division Road. Immediately north of Howard Avenue, the corridor expands to three tracks. Currently, on average there are 6-8 train movements per day. The majority of these trains are performing slow shunting manoeuvres to/from the Van der Water Rail Yard to the north of the E.C. Row Expressway. As discussed in Section 2.1.3, there are operational concerns with the existing crossing configuration and its proximity to both the South Cameron Boulevard and Division Road intersections.

3.1.3 Public Transit

Transit Windsor currently runs two separate bus routes on different sections of Howard Avenue within the Study Area.

- Transway 1A – from north of Grand Marais Road to Devonshire Mall/Sydney Avenue
- Dougall 6 – between Cabana Road and Country Club Drive

Both routes use buses that are wheelchair accessible and include bicycle racks. The 'Transway 1A' route runs every 20-30 minutes, while the 'Dougall 6' runs every 40 minutes.

EXHIBIT 3.1 KEY FEATURES IN THE STUDY AREA

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3.1.4 Cycling

There are currently no designated cycling facilities within the Study Area. The Windsor Bicycle Use Master Plan (BUMP) identifies various future cycling routes within the corridor. They are:

- Howard Avenue – on-street bike lane (Highway 3 to South Cameron Boulevard)
  – multi-use path (Division Road to Grand Marais Road)
- Country Club Drive – on-street bike lane
- Lake Trail Drive – multi-use path
- Neal Boulevard – signed bike route
- North Talbot Road – on-street bike lane
- Cabana Road – on-street bike lane
- Maguire Street – signed bike route
- South Cameron Boulevard – on-street bike lane
- Division Road – on-street bike lane

3.1.5 Pedestrians

Sidewalks exist adjacent to Howard Avenue within the Study Area as follows:

- Highway 3 to Dougall Parkway – west side only
- Dougall Parkway to Division Road – east side only
- Division Road to E.C. Row Expressway south ramp terminal – west side only
- E.C. Row Expressway south ramp terminal to Grand Marais Road – east side only

3.2 EXISTING AND FUTURE LAND USE

The study area is characterized by urban residential use and commercial use south and north of Division Street, respectively. The main land uses in the vicinity of the study area are described below:

- well-established, mature residential neighbourhoods located south of the DRTP crossing
- small commercial pockets are located at Howard Avenue intersections with Highway 3, North Talbot Road, Cabana Road and Kenilworth Drive
- the Roseland Golf and Curling Club is located to the west of Howard Avenue, north of Neal Boulevard
- Kenilworth Park abuts the west side of Howard Avenue, south of Kenilworth Drive
- new infill developments are planned or under construction at various locations neighbouring Howard Avenue
- new subdivisions are under construction north of Havens Drive, off of Maguire Street and in between Kenilworth Drive and South Cameron Boulevard
- north of Division Road, the land use is commercial and includes the Roundhouse Centre on the west side and the Devonshire Mall on the east side of Howard Avenue

3.3 SOCIAL ENVIRONMENT

The social environment includes existing residential development and recreational facilities. The well-established, mature residential neighbourhoods located south of the DRTP rail corridor are predominantly made-up of single family houses. 230 houses have driveway access onto Howard Avenue within the Study Area. Most of the lots abutting Howard Avenue are unique 'seigneurial'-type lots (deep lots with thin frontages), with houses relatively close to Howard Avenue.

The Roseland Golf and Curling Club located to the west of Howard Avenue off of Neal Boulevard/Roseland Drive is owned and operated by the City of Windsor and provides year-round recreational activities for the community.

3.4 NATURAL ENVIRONMENT

3.4.1 Trees

Howard Avenue between Highway 3 and South Cameron Boulevard is an established residential street with many large, mature trees. These trees contribute to the present character of the roadway. A tree inventory was performed to determine the number, type, size and locations of the trees lining Howard Avenue. The detailed results are listed in Appendix H. Over 300 trees line Howard Avenue within the study area. The most common tree species was Silver/Red Maple with Norway Maple, Norway Spruce, White Spruce, White Elm and White Ash also prevalent.

3.4.2 Natural Heritage Sites

There is one Windsor-designated Natural Heritage Site (NHS 25) and one Candidate Natural Heritage Site (CNHS 24) within the Study Area.

As shown on Exhibit 3.1, CNHS 24 is situated in the northwest quadrant of the Dougall Parkway/Howard Avenue Interchange. The site is approximately 7 ha in size. CNHS 24 appears to have been a young American Elm dominated woods, but the majority have died and are now being replaced by Red-fruited Thorn and Dogwoods. The site is poorly drained in the central portion and consists primarily of open swamp, with no live trees. The site is significant due to the diversity and significance of the species, and the size and condition of the site. Of the plants encountered in the site, the following are considered rare:

- Tall Dropseed
- Pin Oak
- Agrimony
- Soft Agrimony
- Prairie Rose
- Southern Arrow-wood
- Pasture Thistle
- Seaside Goldenrod
- Ironweed

NHS 25 is situated on the west side of Howard Avenue in the vicinity of Kenilworth Drive. Subsequent to the 1992 condition survey, the majority of the site has been redeveloped as part of a subdivision. The site was originally 15 ha in size prior to redevelopment but now only includes Kenilworth Park (~2.1 ha). NHS 25 was considered significant due to the diversity and significance of the species, and the size and condition of the site. Of the plants encountered in the original 15 ha site, the following are considered rare:

- Carrion-flower
- Pin Oak
- Rough-leaved Dogwood
- Sullivant's Milkweed
- Hard-leaved Goldenrod
- Ironweed

Further information is provided in Appendix I.

Due to the recent redevelopment of the majority of NHS 25, it is unknown how many of these species still remain within the site. The recent tree inventory conducted for this Study noted that the majority of the species in Kenilworth Park abutting Howard Avenue are low significance, recent growth/pioneer vegetation.

3.5 CULTURAL ENVIRONMENT

The study area lies in the former township of Sandwich South, Essex County. Settlement in Sandwich South began in the 1700s by disbanded French soldiers. The Township of Sandwich was established in 1792 and in the early period it was characterized by two elements: trees and swamps. The entire area was thickly forested, drainage was poor and the underbrush was mucky and wet and none of these factors made travel easy. Sandwich South's early roads followed three well-establish native trails – one that followed the Lake Erie shore, one along the Lake St. Clair shoreline (present day Tecumseh Road), and the third, known as the Talbot Trail (Talbot Road, Highway 3) passed through Sandwich South and was essential to its development.

Howard Avenue was another valuable early roadway constructed by Colonel Talbot during the early settlement period in Sandwich Township South. Howard Avenue was originally a corduroy (or plank) road, later named the Gravel Road when improved in the late 1800s, and finally attaining the name of Howard Avenue after a Mr. Howard who had a farm at Tecumseh Road, and through whose land the new road had passed.

Although Howard Avenue was one of the earliest roads in the township there was little settlement within the study area (north of the Talbot Road) prior to 1881. This is likely due to the very poor agricultural conditions. Nevertheless, the 1881 Historic Atlas shows two features of interest at the present day intersections of Howard Avenue and Cabana Road and Howard Avenue and Highway 3 (Talbot Road). These structures, a hotel and a blacksmith/wagon shop respectively, were constructed to serve the needs of travellers along the corridor. In both cases buildings at the present day crossroads may be concealing these original features under modern facades.

3.5.1 Archaeological Overview

The Howard Avenue study area has undergone intensive residential and transportation corridor development and has therefore been subject to disturbance, which may have negated archaeological potential throughout much of the Study Area. There are, however, vacant properties remaining within the Study Area, as well residential frontages for which more intensive inspection may be required to confirm disturbance.

No archaeological sites have been registered within approximately 500 metres of the Study Area, however the area can be characterized as having potential for the identification of archaeological sites (in areas that have not been disturbed by recent construction) based on the intensity of historic land use as shown on historic atlas mapping.

1881 mapping depicts an historic hotel at the southwest quadrant of what is now the Cabana Road/Howard Avenue intersection and a blacksmith and wagon shop at the northwest corner of the Highway 3/Howard Avenue intersection. An historic farmstead dwelling is also shown on the 1881 map, on the east side of Howard Avenue, between Highway 3 and North Talbot Road.

At each of these locations, significant construction disturbance has occurred over the past 120 years.

3.5.2 Built Heritage Features

Howard Avenue is a primarily residential corridor with a stylistically mixed collection of one to one-and-half storey post war houses lining the corridor. Many of these structures have sizable lots and are set well back from the road allowance. Infill construction is underway at a variety of locations. Mature trees and tree stands are in evidence throughout the study area.

Given that improvements to Howard Avenue generally post date 1945, a study of existing conditions revealed very few built heritage features and no Study Area properties are listed on the Ontario Heritage Property Database. However the following structures are of heritage interest:

- 3963 Howard Avenue (c.1920) – Listed on the City of Windsor's Heritage Properties Inventory.
- 3954 Howard Avenue (c. 1875) – Listed on the City of Windsor's Heritage Properties Inventory.

3.6 UTILITIES

Under existing conditions, the following utilities were noted:

- Enwin Power Lines has an aerial pole line running the length of the Howard Avenue corridor. The hydro transmission line is located within the Howard Avenue right-of-way on the west side from Highway 3 to North Talbot Road. The hydro line then extends along the west side of (Old) Howard Avenue. North of Dougall Parkway, the line switches to the east side of Howard Avenue, up to South Cameron Boulevard, where it turns north and parallels the DRTP Rail corridor. All of the hydro poles have street lighting mounted on them. South of North Talbot Road, the poles are all precast concrete while to the north, the majority are still made of wood.
- A 375 mm diameter PVC sanitary sewer extends under the northbound Howard Avenue lane between Highway 3 and Cousineau Road. North of Cousineau Road, this line increases incrementally in size to 900 mm before branching off under (Old) Division Road. A 250 mm branch line extends under (Old) Howard Avenue and joins at North Talbot Road.
- A truss-type mobile telephone tower is situated within the northbound Howard Avenue to northwest Dougall Avenue loop ramp.
- A sanitary and storm sewer extends between Wallace Avenue and Cabana Road with branches at each crossing road. The sanitary sewer is 250-300 mm diameter PVC pipe that changes to a concrete pipe north of Ducharme Street. This pipe is situated under the centreline of Howard Avenue. The storm sewer is 900-1650 mm diameter concrete pipe situated under the sidewalk on the east side of Howard Avenue.
- A sanitary and storm sewer extends between Cabana Road and South Cameron Boulevard with branches at each crossing road. The sanitary sewer is 250-525 mm diameter PVC/concrete pipe situated under the southbound Howard Avenue lane. The storm sewer is 600-1200 mm concrete pipe situated under the east side Howard Avenue boulevard.
- Between the southern Roundhouse Centre/Devonshire Mall entrance and the E.C. Row Expressway north ramp terminal, a 600 mm diameter concrete storm sewer pipe is situated under the southbound lanes.
- Two concrete storm sewers extend from the E.C. Row Expressway north ramp terminal to beyond Grand Marais Road. One under the southbound lanes is 675-700 mm diameter, while the other, under the northbound lanes, is 675 mm diameter.