Agenda Item # Page #

TO:	**CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON OCTOBER 6, 2015**
FROM:	**JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES AND CITY ENGINEER**
SUBJECT:	**WESTERN ROAD / WHARNCLIFFE ROAD NORTH WIDENING ENVIRONMENTAL STUDY REPORT**

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental & Engineering Services and City Engineer, the following actions **BE TAKEN** with respect to the Western Road / Wharncliffe Road North Widening Environmental Assessment:

(a) The Western Road / Wharncliffe Road North Widening from Platts Lane to Oxford Street Municipal Class Environmental Study Report **BE ACCEPTED**;

(b) A Notice of Completion for the project **BE FILED** with the Municipal Clerk; and,

(c) The Environmental Study Report **BE PLACED** on public record for a 30 day review period.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

- Civic Works Committee – June 19, 2012 – London 2030 Transportation Master Plan
- Civic Works Committee - July 22, 2013 – Reprioritization of Growth Management Implementation Strategy (GMIS) Transportation Projects.
- Civic Works Committee – January 6, 2014 – Appointment of AECOM Canada Limited, Western / Wharncliffe Road North Widening from Platts Lane to Oxford Street, Schedule ‘C’ Environmental Assessment.

BACKGROUND

Purpose

This report provides Committee and Council with an overview of the Municipal Class Environmental Assessment (EA) for the Western Road / Wharncliffe Road North Widening from Platts Lane to Oxford Street and seeks approval to finalize the study. The completed Environmental Study Report (ESR) documents the EA process undertaken for the Western Road / Wharncliffe Road North Widening.

One of the Areas of Focus in the Strategic Plan is “Building a Sustainable City”. The Strategic Plan identifies the implementation and enhancement of safe mobility choices for cyclists, pedestrians, transit users and drivers. Improvements to this corridor as identified in this EA will help achieve this goal.

The purpose of this Municipal Class EA study is to provide a comprehensive and environmentally sound planning process which is open to public participation to meet the following objectives:

- Improve traffic operations by addressing congestion and deteriorating road conditions;
- Investigate traffic and access management measures with the potential to improve safety and traffic operations;
- Improve safety for all roadway users (e.g. motorists, cyclists and pedestrians); and,
- Improve efficiency throughout the corridor including the intersection of Wharncliffe Road North / Oxford Street.

Background

Western Road and Wharncliffe Road North are currently congested in the peak hours. Long traffic queues occur on these roads and also on Oxford Street where it intersects. The Western Road / Wharncliffe Road North corridor is currently operating marginally above roadway planning capacity. Under future conditions, growth is expected to continue during peak hours and will further deteriorate traffic operating conditions along the study route. Despite the close proximity to Western University and demands for improved active transportation facilities, Western Road and Wharncliffe Road North do not currently have bicycle lanes and the sidewalks are narrow.

The long-term transportation objectives for this study area corridor are identified within the City of London’s Official Plan (OP) and Smart Moves, The London 2030 Transportation Master Plan (TMP). The TMP recommends widening of the above noted section of Western Road / Wharncliffe Road North within the next five years. The project is also identified in the 2014 Development Charges Background Study.

AECOM Canada Limited was retained by the City to conduct the EA. The study area in the Western Road / Wharncliffe Road North corridor extends from Platts Lane to Oxford Street and includes the Oxford Street intersection, including the existing Canadian Pacific Railway (CPR) grade separation located just north of Oxford Street. The study area is shown in Figure 1.

Figure 1: Western Road / Wharncliffe Road North Widening Study Area

ENVIRONMENTAL ASSESSMENT CONTEXT

The study area consists of a mix of land uses including residential, commercial, and open space. Residential land uses including low, medium and high density developments exist throughout most of the study area. Small scale commercial and office buildings also exist on both sides of Wharncliffe Road North from Oxford Street to CPR and along Oxford Street. The northern portion of the study area, north of Western Road is identified as open space.

This EA considered many factors during evaluation of the design alternatives and determined that the future planned growth cannot be accommodated by the existing system or by the implementation of transportation demand management techniques alone and will require the implementation of various capacity enhancements including the widening of Western Road / Wharncliffe Road North. It is noted that the sections of Western Road and Wharncliffe Road North north and to the south of the study area have a four lane cross-section. The study area is a logical candidate for a four-lane widening to address a traffic bottleneck and to provide network continuity to reduce congestion.

Smart Moves London 2030 Transportation Master Plan

The EA has regard for the corridor improvements recommendations and Rapid Transit routing recommendations detailed in the 2030 TMP. These recommendations have been incorporated into the generation of planning alternatives and design concepts, particularly designing to accommodate for transit services.

The Smart Moves London 2030 Transportation Master Plan (TMP) defines future transportation system needs that are addressed by roadway extensions and widening to support future growth. The widening of Western Road / Wharncliffe Road North from Platts Lane to Oxford Street is one of the enhancements included in this citywide transportation network plan.

The London 2030 TMP also proposed a rapid transit (RT) network. Shift, the Rapid Transit EA has progressed this concept further and is described below.

Shift Rapid Transit EA

The City is presently undertaking a Class EA to plan the implementation of a rapid transit system that will provide further refinement to the preliminary rapid transit recommendations set out in the 2030 TMP. Shift will provide justification for the type of transit system, route selection and detailed parameters for the rapid transit (RT) corridors.

The Western Road / Wharncliffe Road North Class EA has regard for the preliminary recommended RT corridors recommended to date by Shift. These recommendations have been incorporated into the generation of planning alternatives and design concepts, particularly designing to enhance transit services.

Bicycle Master Plan

The Bicycle Master Plan (BMP) sets out the long term visioning for on- and off-road bicycle routes for both commuter and recreational users. Bike lanes on Western Road / Wharncliffe Road North will ultimately connect with routes to the north. Adjacent to the study area, a bike lane is located on Platts Lane from Oxford Street to Western Road and the Thames Valley Parkway exists east of the Thames River. The policies of the BMP have been incorporated into the generation of planning alternatives and design concepts, particularly designing to accommodate on-street bike lanes.

Beaufort/Gunn/Saunby/Essex Street Neighbourhood Secondary Plan – Draft (2012)

Prior to the launch of this study, the City initiated a draft Neighbourhood Secondary Plan for the Beaufort/Irwin/Gunn/Saunby/Essex area (BIGS) adjacent to the Western Road/Wharncliffe Road North corridor. The neighbourhood study was conducted as a result of significant development pressure in the area to accommodate future student housing. The draft secondary plan provides a vision for future redevelopment of the BIGS area, including road enhancements, land use and housing typology.

This Class EA study reviewed the recommendations of the BIGS study and determined through consultation the extent to which the recommendations should be incorporated into the final design of the study corridor.

Cultural Heritage

The Cultural heritage resources within the study area were reviewed to identify Ontario Heritage Act (OHA) designated properties and listed properties. The following designated and listed properties were identified:

Grosvenor Lodge

Grosvenor Lodge is a significant city heritage resource. At present, it is disconnected from the neighborhood both physically and visually. The 1853 Grosvenor Lodge, at 1017 Western Road, was designated in 1977 and listed as a Priority 1 building on the City’s Inventory of Heritage Resources. The reasons for the designation of Grosvenor

Lodge pertain to the architectural characteristic of the building and make no mention of the surrounding land or the stone entrance gates on Western Road. The stone gates are located within the study area right-of-way and were constructed in the mid-20th century.

The planned road improvements do not affect the Priority 1 building but do require that the entrance gates be relocated. During detailed design, the City will develop appropriate mitigation measures to relocate the entrance gates.

Listed Properties

The following nine listed heritage properties were identified in Section II, Heritage Database of the City of London Inventory of Heritage Resources:

- 225 Wharncliffe Road North
- 227 Wharncliffe Road North
- 232 Wharncliffe Road North
- 335 Wharncliffe Road North
- 343 Wharncliffe Road North
- 2 Oxford Street West
- 16 Oxford Street West
- 80 Oxford Street West
- 88 Oxford Street West

In June 2009, the London Advisory Committee on Heritage (LACH) approved the statement of heritage significance for four additional properties, namely 78, 82, 84 and 86. A Cultural Heritage Evaluation Report (CHER) was prepared as part of the EA for the group of six houses located at 78, 80, 82, 84, 86, and 88 Oxford Street West and on the basis of the O.Reg 9/06 evaluation in Section 4, were determined eligible for designation.

ENVIRONMENTAL ASSESSMENT SUMMARY

The Western Road/Wharncliffe Road North Class EA has been carried out in accordance with the Schedule “C” process of the Municipal Engineers Association (MEA) Municipal Class Environment Assessment document (October 2000, as amended in 2007 and 2011).

The ESR documents the process followed to determine the recommended undertaking and the environmentally significant aspects of the planning, design and construction of the proposed improvements. It describes: the problem being addressed, the existing social, natural and cultural environment considerations, planning and design alternatives that were considered and a description of the recommended alternative. The ESR also identifies environmental effects and proposed mitigation measures, commitments to further work, consultation, and monitoring associated with the implementation of the project. A copy of the Executive Summary for the ESR is contained in Appendix A.

Planning and Analysis of Alternatives

Phase 1 of the Municipal Class EA process involves the identification of the problem and/or opportunity being addressed by the study. It was determined that improvements are needed along the Western Road / Wharncliffe Road North corridor to address existing and future road/traffic operational deficiencies, future transit system efficiencies, long-term vision of a street design that supports active transportation, road safety, and drainage deficiencies.

Phase 2 of the Municipal Class EA process involves identifying alternative solutions (planning alternatives) to the problem/opportunity. The following five alternatives were assessed against their ability to reasonably address the problems and opportunities, and in consideration of the constraints identified in the early stages of the study, to identify the preferred solutions:

- Alternative 1 - Do Nothing
- Alternative 2 - Transportation Demand Management (TDM)
- Alternative 3 - Operational Improvements
- Alternative 4 - Improvements to Other Roads
- Alternative 5 - Arterial Road Widening

<u>Recommended Planning Solution</u>

The evaluation process concluded that the preferred planning solution to solve the current congestion, capacity and operational deficiencies should be a combination of the Alternatives 2, 3 and 5. This solution will improve existing operational deficiencies, accommodate future travel demand and transit system expansion, address future pedestrian and cyclist movements, accommodate safe movement through the corridor, address drainage deficiencies, and minimize social impacts and maximize social benefits.

The preferred planning solution addresses the problems and opportunity statement while avoiding unnecessary social and natural environment impacts.

Design Alternatives

Phase 3 of the Municipal Class EA process involves the development and review of alternative design concepts. The main outcome in this phase of the study was developing road cross-section concepts for the recommended planning solution.

Several road cross-section concept alternatives were developed to properly assess the potential impacts and benefits associated with each alternative.

The following design issues and constraints influence the generation, assessment, and evaluation of the alternative designs:

- Accommodation of potential future land use changes and densities within the study area;
- Consideration of active transportation initiatives;
- Avoidance of significant property requirements; and
- Minimization of environmental impacts (social, cultural, and natural environments).

Three alternative road cross-sections were developed:

1. Widen equally about the centerline with a standard cross-section.
   5 vehicle lanes, 1.5 m bike lanes, 1.5 m sidewalks, 6 m boulevard. The right-of-way width for this alternative is 36 m.

2. Widen equally about the centerline with a non-standard compressed cross-section. 5 vehicle lanes, 1.5m - 1.2 m bike lanes, 1.5 m sidewalks, variable boulevard and sidewalk width, 2 m median. The right-of-way width for this alternative is 26 to 36m which reduces private property impacts

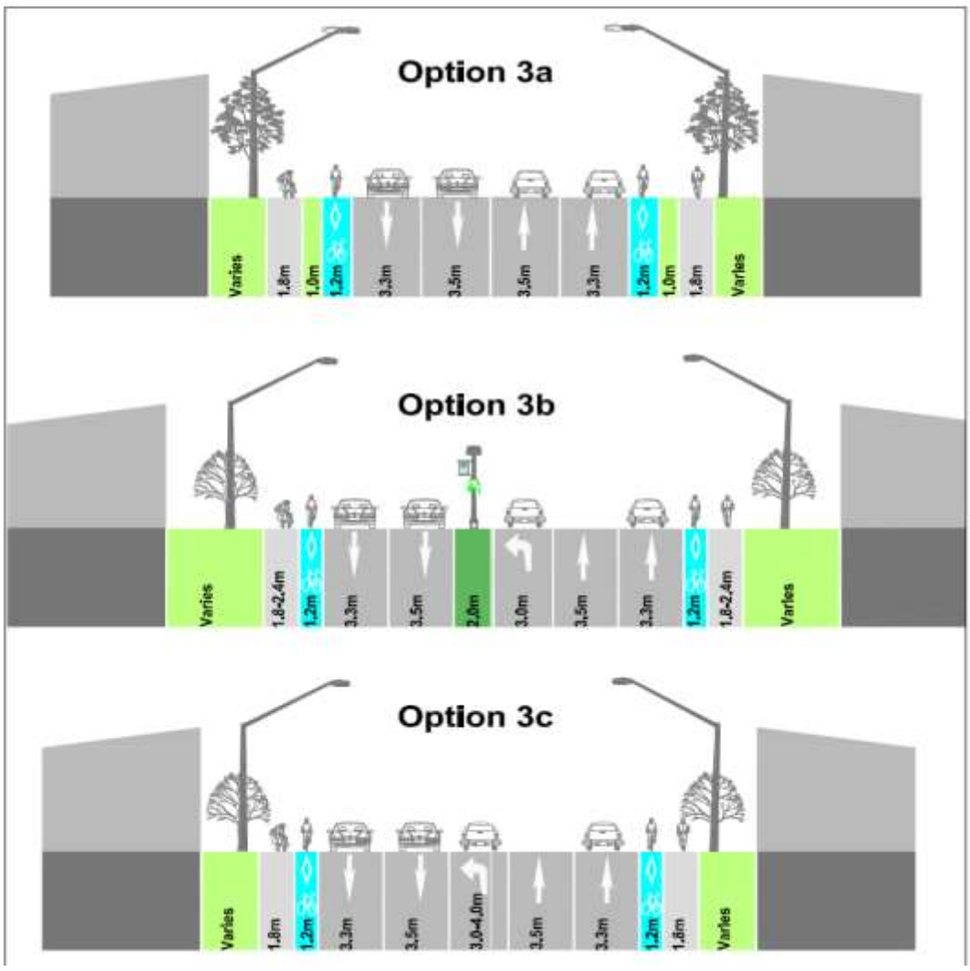
3. Widening east or west of centerline with a non-standard cross-section.
   5 vehicle lanes with variable lane width, 1.2 m bike lanes, variable boulevard and sidewalk width. The right-of-way width for this alternative is 26 to 34 m. This, combined with centerline adjustments reduces private property impacts further.

An evaluation was undertaken for the above road cross-sections and it was determined that Alternative 3 addresses the project need and is the recommended design alternative based on the following rational:

- Improves traffic operations and safety;
- Supports active transportation by providing bike lanes in both directions and wider than standard sidewalks where appropriate;
- Lowest impacts to commercial and residential properties;
- Lowest property acquisitions required; and,
- Lowest project construction costs.

Figure 2 below illustrates Option 3, the preferred road cross sections with sub-options that apply throughout the project limits depending on adjacent land uses and the need for left-turn lanes.

Figure 2: Preferred Road Cross Section



The EA identifies intersection improvements at Oxford Street and Wharncliffe Road North including the addition of east and west right-turn / transit queue jump lanes and signal upgrades to support transit signal priority. These recommendations are subject to further refinement by Shift considering that this intersection is a preliminary recommended transit route. Improvements in the area of the Oxford Street / Wharncliffe Road intersection will likely be incorporated into the rapid transit initiative for improved coordination.

CPR Grade Separation

The CPR structure is the primary constraint that has prevented the implementation of road capacity increases consistent with the existing four lane road improvements to the north and south. The existing CPR subway structure cannot accommodate the proposed increased cross-section of Wharncliffe Road North and will need to be replaced.

The abutments of the new structure will incorporate sympathetic features that mimic the stone abutments of the existing bridge. This will be done in recognition of the gateway feature that currently exists and the recommendations of the Draft BIGS Neighbourhood Secondary Plan.

A new subway grade separation is proposed with a clear span of 25.6 m. The new installation requires the replacement of the existing structure to a wider span on the current alignment. This will require the construction of a temporary rail diversion on the south side of the existing rail line to facilitate the subway structure construction while minimizing impacts to the road and CPR operations. The rail diversion will be a temporary single track rail line offset from the existing rail line a maximum 10 m to the south. The diversion will extend 400 m west and east of Wharncliffe Road. A temporary retaining wall will be constructed on CPR lands to mitigate impacts on the property and parking lot at 279 and 281 Wharncliffe Road North. Once constructed, the diversion will allow two lanes of vehicular traffic to remain open during rail construction. Temporary, shorter duration road closures will be necessary during construction and will be confirmed during detailed design. Overall, the diversion does not require the acquisition of private property but localized impacts associated with the temporary relocation of the rail should be anticipated by property owners.

Consultation

A public mailing list was developed at the outset of the Class EA study based on a list of public and stakeholder members, as well as a list of homeowners residing around the study area. As the Class EA study progressed, the list was updated to include individuals who requested to be notified of future public consultation efforts and study updates. A project website page was also developed at the outset of this study. Study notices and presentation materials were posted on the project website throughout the project duration. All notices were mailed to agencies, interest groups, property owners and utilities beginning with the Notice of Study Commencement on March 24th, 2014. The commencement notice was also placed in The Londoner on March 27th and April 3, 2014. Direct correspondence and meetings were held with interest groups and affected landowners as needed.

Two Public Information Centers (PICs) were held during the EA process. The first PIC was held on June 11, 2014 to notify and to invite interested parties to review information and provide input regarding the problem being addressed, the collection of background information and the alternatives being considered.

A second PIC was held on April 1, 2015. This PIC presented a summary of the feedback received at the first PIC and the preliminary preferred alternative. The information included elements such as recommended number of through lanes, cycle lanes and cycling facilities, main street boulevards, pedestrian enhancements, stormwater management, and the CPR Subway structure and recommended rail diversion arrangement.

Very few comments were related to the need for widening i.e., there were no questions or concerns raised regarding the need for the project. Many of the comments confirmed operational deficiencies. Most comments were related to design alternatives such as the road cross-section alternatives, property requirements and associated impacts.

Communication with First Nation communities, with potential interest in the project, involved numerous contact points and follow-up throughout the study. The project was discussed with representatives of the Caldwell First Nation.

Property Requirements

The existing Western Road / Wharncliffe Road North and Oxford Street corridors are very constrained. Arterial roads usually require a road allowance of at least 36m. Widening to the full 36 m would have a significant impact on a large number of adjacent properties so reduced design widths and offsets have been incorporated where necessary. The impact to properties has been minimized as much as possible; however, acquisitions of strip widenings are required at many locations throughout the project

The required acquisitions from some residential and commercial properties impact structures and other improvements such as parking areas. The final extent of acquisition at these locations and associated mitigation will be the subject of negotiations with the property owners.

The heritage listed residential houses at 78 to 88 Oxford Street West will be impacted by this project and require removal from the widened road right-of-way. Although not required for the EA, a Heritage Impact Assessment (HIA) has been proactively initiated. The HIA will evaluate the impact the proposed project will have on the cultural heritage resources at 78-88 Oxford Street West and recommend a conservation strategy in coordination with the property acquisition process.

Construction Staging and Traffic Detouring

Completion of the full scope of the proposed work will be a significant undertaking. The reconstruction of the CPR subway is very complex. The EA evaluated several construction methodologies and identifies a construction plan that minimizes the impacts to road users. A temporary rail bridge on the rail diversion is proposed to avoid a long-term closure of Wharncliffe Road. However, complete closures of Wharncliffe Road including the associated sidewalks will still be required for durations varying from days to weeks depending on the construction staging and with consideration for pedestrians. These impacts will be scrutinized further during detail design and communicated to the community with appropriate advance notice and identification of detours.

The following staging and sequencing of construction is recommended:

- Year 1- CPR subway diversion construction
- Year 2- Road reconstruction and CPR subway construction
- Year 3- Final restorations and surface asphalt, and removal of CPR subway diversion

Subject to approval and acceptance of this ESR, detailed design will be initiated. The design and approvals of the proposed project will include property acquisition requirements, and thorough agency (CPR and MOECC) approvals and co-ordination, in anticipation of construction. Commencement of construction in mid-2017 is desired and is dependent on the duration of property acquisition processes. If this schedule is achievable, it is anticipated that construction would commence with the installation of the temporary southerly rail diversion and temporary bridge structure in 2017. Following rail diversion construction, road reconstruction, including all servicing replacements, and bridge replacement will commence in 2018. The project will also require significant utility relocations and replacements potentially to occur prior to and during the anticipated construction period.

Based on the anticipated significant scope of the overall project and with the likelihood of future rapid transit improvements at the Oxford Street intersection, phasing of the project is likely. Subject to the outcome of Shift, the Rapid Transit EA, the improvements north of Oxford Street to Platts Lane will likely be constructed as per the schedule described above. Improvements in the Oxford Street intersection would subsequently be implemented as part of the larger rapid transit initiative. Final scheduling and staging limits would be developed during the detailed design process and as the scope of the rapid transit initiative develops.

Preliminary Cost Estimates

A preliminary construction cost for the project is $28.1 M. The cost estimate includes roadway construction, the railway grade separation, traffic signals, street lighting, stormwater management, utility relocation, landscaping, traffic control, sanitary sewers, watermain, landscaping, staging and property acquisitions.

The cost for the first phase of works north of Oxford Street is estimated at $23,700,000. This value has been used to update the capital budget. Second phase works are anticipated to be implemented through the rapid transit initiative. The first phase cost includes a provision for the possibility that some land purchase associated with Oxford / Wharncliffe intersection may be necessary to accommodate phasing, particularly with respect to utility relocations. The cost identified is very close to the estimate contained in the 2014 Development Charges Background Study.

Cost sharing is anticipated with Canadian Pacific Railway for the railway grade separation and with utility companies for utility relocations. This has been taken into account within the estimates.

CONCLUSION

Improvements to the Western Road / Wharncliffe Road North corridor and the intersection of Oxford Street and Wharncliffe Road North are necessary to fulfill its necessary function in the transportation network. The provincial Environmental Assessment Act requires the completion of an EA for projects of this scope. The improvements identified in this EA will help fulfill the Strategic Plan Area of Focus of Building a Sustainable City by providing convenient and connected mobility choices for all Londoners.

A Municipal Class Environmental Assessment (EA) was undertaken. The ESR is ready for final public review.

The EA was prepared with input from external agencies, utilities, emergency service providers, agricultural community and other stakeholders, as well as First Nations and property owners in proximity to the study.

The EA recommends a multi-modal solution. Based on the evaluation of three road cross-section alternatives, the recommended improvements to Western Road / Wharncliffe Road North Widening from Platts Lane to Oxford Street, is a four and five-lane urban compressed road cross section. Active transportation is supported with the addition of bike lanes and wider than standard sidewalks. Transit operations will be

improved by queue jump/right turn lanes along Oxford Street to assist transit in avoiding congestion at the Wharncliffe Road North intersection during the peak traffic periods.

Pending Council approval, a Notice of Completion will be filed, and the ESR will be placed on public record for a 30 day review period.

- Stakeholders and the public are encouraged to provide input and comments regarding the study during this time period.
- Should the public and stakeholders feel that issues have not been adequately addressed, they may provide written notification within the 30-day review period to the Minister of the Environment requesting a Part II Order.
- If no requests for a Part II Order are received, the project will be in an immediate position to move forward to the detailed design, property acquisition and construction stages in accordance with the recommendations of the study.
- Construction is anticipated to begin as early as 2017 subject to Council approval of the capital budget and property acquisition and approval schedules.

Acknowledgements
This report was prepared with assistance from Max Kireev C.E.T., Technologist II and Ted Koza, P. Eng., Transportation Design Engineer in the Transportation Planning & Design Division.

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Attach: Appendix “A” – Environmental Study Report Executive Summary

c: Peter McAllister, P.Eng. PMP; AECOM Canada

Agenda Item # Page #

Appendix A
Environmental Study Report Executive Summary

Executive Summary

Introduction

The City of London (the City), through their consultant AECOM Canada Ltd., has completed a Municipal Class Environmental Assessment (Class EA) study to address necessary transportation infrastructure requirements along Western Road/Wharncliffe Road North. The study area, indicated in **Figure ES1**, comprises the existing right-of-way (ROW) and adjacent lands for Western Road/Wharncliffe Road North, extending from approximately 200 m south of Oxford Street to Platts Lane, and approximately 300 m east and west of the Oxford Street/Wharncliffe Road North intersection. An existing rail subway, part of the Canadian Pacific Railway (CPR) - Windsor Subdivision, crosses Wharncliffe Road North just north of Oxford Street. This corridor is an essential multi-modal route conveying vehicles, transit, cyclists, and pedestrians to and from Western University and north London.

The long-term transportation objectives for this study area corridor are identified within the City of London's Official Plan (OP) and documented in the City's *Long-term Transportation Corridor Protection Study* (September 2001) and *Smart Moves – The London 2030 Transportation Master Plan* (TMP). Western Road/Wharncliffe Road North is expected to be widened from 2 to 4 lanes in combination with a left turn lane extending from Oxford Street West through Essex Street, as well as widening the CPR subway. Based on the TMP, widening of the above-noted section of Western Road/Wharncliffe Road North is anticipated to be completed in the next five years. This Environmental Study Report (ESR) documents the planning and design process followed including study findings and recommendations including how input was received from the public and review agencies.

Consultation

The involvement of the community – residents, agencies, stakeholders, Aboriginal communities, and those who may be potentially affected by a project – is an integral part of the Class EA process. The purpose of the Class EA study consultation process is to provide an opportunity for stakeholder groups and the public to gain an understanding of the study process; contribute to the process for development and selection of alternatives/design concepts; and provide feedback and advice at important stages in the Class EA process. Specifically, the objectives of the consultation efforts are to:

- generate awareness of the project and provide opportunities for involvement throughout the planning process; and
- facilitate constructive input from public and agency stakeholders at key points in the Class EA process, prior to decision-making.

A consultation program was incorporated into the study in order to meet the above objectives. The consultation program included:

- Posting project milestones on the City of London website;
- Conducting meetings with agencies and stakeholders at key phases during the project;
- Publishing notices in The Londoner for all project milestones;
- Notifying stakeholders, affected residents, the general public and review agencies regarding project milestones;
- Conducting two Public Information Centres to inform the public, review agencies and stakeholders and obtain input; and
- Issuing a Notice of Completion.

Identification of the Problem

The key problem areas associated with the existing conditions are summarized below:

- Western Road/Wharncliffe Road North currently carries approximately 930 vehicles per hour per lane during the key PM peak hour, which is marginally above roadway planning capacity of 900 vehicles per hour per lane.
- Under future conditions, the Western Road/Wharncliffe Road North corridor is expected to carry approximately 1200 vehicles per hour per lane during the key PM peak hour. This will further deteriorate traffic operating conditions along the study route.
- Based on the existing conditions capacity analysis it is found that the signalized intersection of Wharncliffe Road North/Oxford Street is operating at overall Level of Service E during the PM peak hour with significant queuing and delays in both the northbound and southbound directions.
- Southbound approach queues at Wharncliffe Road North/Oxford Street typically extend beyond the CPR subway in the busy PM peak hour.
- Oxford Street widening may be required due to rapid transit needs along Oxford Street. Widening on Oxford Street may require additional through lanes, turn lanes, and/or queue jump lanes.
- No bike lanes exist within the study corridor despite the proximity of Western University and significant student population in the area.
- Localized stormwater management and drainage issues currently exist.

The problem/opportunity statement for this project is:

To improve the multi-function efficiency and safety of Western Road/Wharncliffe Road North from Oxford Street to Platts Lane as a key component of the City of London's transportation and arterial road network; to be consistent with the City's Official Plan and 2030 Transportation Master Plan; and to address capacity issues and the potential rapid transit implementation strategy at the intersection of Oxford Street and Wharncliffe Road North.

Alternative Solutions

The following alternative planning solutions were identified for consideration for this project.

Planning Alternative Solutions		Description
Alternative 1	Do Nothing	This alternative comprises no physical and/or operational changes to the Western Road/Wharncliffe Road North corridor within the study area. This alternative was included to provide a baseline to which the other alternative planning solutions can be compared.
Alternative 2	Transportation Demand Management	This alternative consists of introducing Transportation Demand Management (TDM) strategies to reduce demands along the study corridor by promoting alternative modes of transportation such as transit, cycling, and walking.
Alternative 3	Operational Improvements	This alternative involves operational improvements, such as restricting turning movements, localized widening to accommodate dedicated left turn lanes, intersection improvements, and continuous left turn lanes.
Alternative 4	Improvements to Other Roads	This alternative involves upgrading adjacent/parallel roads to reduce the travel demand on Western Road/Wharncliffe Road North. Specifically, this alternative considers recommendations from the 2030 TMP to widen Oxford Street to 6-lanes between Wonderland Road and the Norman Bradford Bridge in the 10 to 20 year horizon to facilitate the implementation of the proposed rapid transit route, and widen Wonderland Road to 6-lanes from Fanshawe Park Road south to Exeter Road to increase corridor capacity and reduce travel demand along the study corridor.
Alternative 5	Arterial Road Widening	This alternative would involve widening Western Road/Wharncliffe Road North between Oxford Street and Platts Lane from two- to four-lanes to provide improved capacity and safety.

The evaluation process on the alternative solutions concluded that the preferred solution to solve the current congestion, capacity, and operational deficiencies should be a combination of three alternatives. **Alternative 2: TDM** and **Alternative 3: Operational Improvements** as isolated solutions will not address the problem statement. However, these alternatives, in conjunction with **Alternative 5: Arterial Road Widening**, will provide a multi-modal approach to address the problem statement.

Alternative Design Concepts

The following describes the road widening alternatives generated.

Widening Alternative		Description
Alternative 1	Widen equally about centreline with a standard cross-section	Shift the existing road alignment equally on both sides.

Cross-Section	Travelled Lanes	Left Turn Lane	Bike Lanes	Sidewalk	Boulevard	Median
36.0m standard	3.5m (4)	4.0m continuous	1.5m (2)	1.5m (2)	6.0m (2)	N/A

Widening Alternative		Description
Alternative 2	Widen equally about centreline with a non-standard cross-section	Shift the existing road alignment equally on both sides.

Cross-Section	Travelled Lanes	Left Turn Lane	Bike Lanes	Sidewalk	Boulevard	Median
26.0m - 36.0m Non-standard	3.5m (4)	3.5m - 4.0m Non - continuous	1.2m - 1.5m (2)	1.8m – 2.4m (2)	Width varies (2)	2.0m Non - continuous

Widening Alternative		Description
Alternative 3	Widening east/west of centreline with a non-standard cross-section	Shift the existing road alignment to minimize impacts to properties.

Cross-Section	Travelled Lanes	Left Turn Lane	Bike Lanes	Sidewalk	Boulevard	Median
25.9m - 34.0m Non-standard	3.3m - 3.5m (4)	3.5m - 4.0m Non - continuous	1.2m (2)	1.8m – 2.4m (2)	Width varies (2)	2.0m – 3.0m Non - continuous

Recommended Design Concept

Alternative 3: Non-Standard Cross Section, Centreline Shifted East/West best addresses the project need and is the recommended design alternative based on the following rationale:

- Improves traffic operations and safety;
- Provides bike lanes in both directions along Western Road/Wharncliffe Road North;
- Lowest impact to commercial and residential properties;
- Lowest property acquisition required; and
- Lowest project construction costs**.**

Additional Design Components

As part of this current study, additional design components along the study corridor were considered in the overall context of the road widening project.

Recommended Design Concept (CPR Subway Structure)
Alternative 1: Structural Steel Girders and is the preferred CPR subway structure for the following reasons:

- Permits increased vertical clearance without having to lower the current road profile;
- Low impact on bridge construction and construction scheduling;
- Less complicated construction;
- Steel can be fabricated locally; and
- Least expensive alternative.

Recommended Design Concept (CPR Track Diversion)
Alternative 3: Temporary Track Diversion with Temporary Bridge is the preferred diversion option for the following reasons:

- Low impact to CPR operations
- Least impact to properties and related facilities;
- Least impact to trees and other vegetation; and
- Avoids impact to homes on the north side of the tracks on Saunby Street
- Endorsed by CPR.

Recommended Design Concept (Intersection Improvements)
Alternative 3: No Changes is the preferred alternative for the Western Road/Wharncliffe Road and Essex Street intersection for the following reasons:

The centreline radius of the widened Western Road will be shifted to improve sightlines at this intersection. Traffic/turning movements at the intersection do not warrant a full signalized intersection. The existing pedestrian crossing at Western Road/Essex Street intersection will be relocated to north side of the Wharncliffe Road North/Beaufort Street intersection.

Recommended Design Concept (Left Turn Lane)
Based on the above, Alternative 1: Single Left Turn Lane is the preferred alternative for the Western Road/Wharncliffe Road North and Oxford Street intersection. The use of a lengthened single left turn lane, in combination with optimizing the signal cycle timing results in an improved level of services, and with a reduced overall road and right-of-way width, minimizes the impacts to the existing residential and commercial properties.

Project Timing and Staging

Subject to approval and acceptance of this ESR, it is anticipated that the detailed design of the overall recommended design will be initiated. The design and approvals of the proposed project will include property acquisition requirements, and thorough agency (CP Rail and MOECC) approvals and co-ordination, in anticipation of construction commencing by mid-2017. It is anticipated that construction would commence with the installation of the temporary rail diversion and temporary bridge structure, in 2017, followed by the road reconstruction, including all servicing replacements, and bridge replacement, in 2018. The project will also require significant utilities relocations and replacements potentially to occur prior to and during the anticipated construction period.

Based on the anticipated significant scope of the overall project, staging of the project may be considered, to separate specific components or areas of the overall project area, in an effort to expedite construction and to minimize disruption to the area residents and businesses, and the vehicular and pedestrian traffic. Final scheduling and staging limits would be developed during the detailed design process.

Preliminary Project Costs

The preliminary estimate for this project is $20.6M, including approximately 10% contingency and 15% engineering, and is summarized as follows:

Description of Item	Estimated Cost
Roadworks	$5,200,000
Storm and Sanitary Sewers	$1,400,000
Watermain	$900,000
Traffic Signals and Street Lighting	$750,000
Utilities Relocation	$1,000,000
Removals, Miscellaneous & Landscaping	$1,630,000
CPR Subway	$5,600,000
Sub-Total	**$16,480,000**
Contingency (10%)	$1,648,000
Engineering (15%)	$2,472,000
Sub-Total	**$20,600,000**
Property	**$7,500,000**
TOTAL	**$28,100,000**