PROJECT FILE REPORT

Wyandotte Street East Extension and Jarvis Avenue

Schedule 'B' Municipal Class Environmental Assessment

(Phases 1-3)

Windsor, Ontario

Corporation of the City of Windsor
350 City Hall Square West Windsor, Ontario, N9A 6S1

November 2023

EXECUTIVE SUMMARY

Introduction

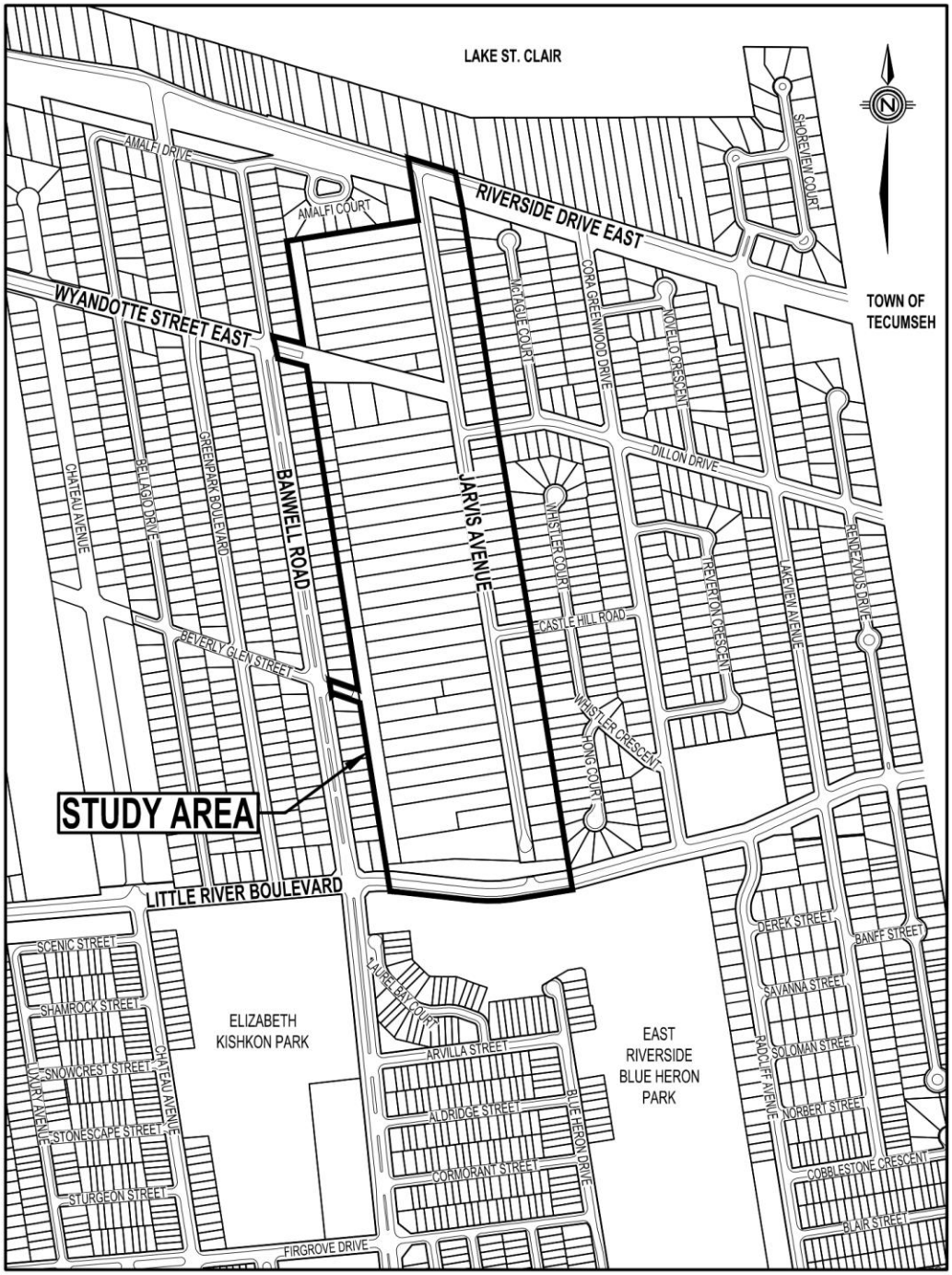
The City of Windsor initiated a Schedule 'B', Municipal Class Environmental Assessment Study (Class EA) to evaluate the extension of Wyandotte Street East to Jarvis Avenue to serve neighbourhood transportation and infrastructure needs for a 20-year period.

The study area included the area bounded by Riverside Drive East to the north, Jarvis Avenue to the east, Little River Road to the south and Banwell Road to the west, as shown in **Figure E-1** on the following page. Jarvis Avenue was developed prior to construction of the surrounding neighbourhoods. It has remained isolated with reduced connectivity and public service access points relative to other areas.

The study considers the Wyandotte Street East extension for vehicular, pedestrian, transit, and bikeway connections, traffic calming, drainage, and sanitary sewage. In addition, the study evaluates the servicing needs required to improve neighbourhood infrastructure to current municipal standards on Jarvis Avenue.

This Class EA study was undertaken in accordance with the planning and design process for Schedule 'B' projects outlined in the Municipal Engineering Association's document titled "Municipal Class Environmental Assessment" (October 2000, as amended in 2007, 2011 and 2015) under the Ontario Environmental Assessment Act.

Figure E-1: Study Area



Environmental Assessment Process

The Municipal Class EA process is an approved process under the EA Act. All municipalities in Ontario are required to follow this approved process for the planning of infrastructure projects. This project is classified as being subject to the Class EA process.

A description of the Class EA planning phases is provided below:

Phase 1 – Identify the problem (deficiency) and/or opportunities.

Phase 2 – Identify and evaluate alternative solutions to address the problem or opportunity by taking into consideration the existing environment, and establish the preferred solution considering public and review agency input.

Phase 3 – Identify Alternative Design Concepts for the preferred solution implementation by taking into consideration the existing environment and establish the preferred design concept by considering public and review agency input.

Phase 4 – Document the Environmental Assessment including the design and consultation process in an ESR for public review.

Phase 5 – Complete contract drawings and documents and proceed to construction and operation. Monitor construction for adherence to environmental provisions and commitments. Where special conditions dictate, also monitor the operation of the completed facility.

Since this project is proceeding as a "Schedule B" activity under the Municipal Class Environmental Assessment, the City of Windsor is required to maintain an official Project File that will be made available to the public for review and comment. This Class EA addressed Phases 1 through 3 of the Class EA process.

Existing Conditions

In order to understand the existing conditions and to identify potential constraints, and opportunities within the study area, the following assessments were completed:

- Traffic Impacts of Potential Road Network Changes
- Socio-economic Review
- Stage 1 Archeological Assessment
- Cultural Heritage Review
- Natural Environment Assessment
- Stormwater Management Assessment
- Geotechnical Review
- Review of Existing Utilities

Problems and Opportunities

Problems

Based on the planned easterly connection of Wyandotte Street East from Banwell Road to Jarvis Avenue, the problems for the Study Area include:

- A need to address limited access to Jarvis Avenue that limits the provision of emergency and municipal services. The extension of Wyandotte Street East from Banwell Road to Jarvis Avenue is proposed to be funded by the City through the capital budget process.

- There is a need to define any infrastructure, operational and safety improvements required in association with the project as part of this study.

- This study will need to identify how to complete Wyandotte Street East to meet safety and operational needs within a 20 year planning horizon, including for emergency services, transportation needs and land use planning. During the last 5 inter-census

periods, this district has experienced a positive population growth and an increased number of occupied dwellings.

Issues Identified for Wyandotte Street East

- The Official Plan designated Wyandotte Street East as a Class II Arterial, which requires sidewalks on both sides of the road. The City's Official Plan, Schedule "X", recommends a Class II Arterial designation with a right-of-way width of 30.0 metres. Currently, Wyandotte Street East, east of Banwell Road, is designated as a Collector Road in the City of Windsor's Official Plan with a 24.0 metre right-of-way road allowance.

- Wyandotte Street East was proposed to be constructed to the current municipal standard road width for collector roads of 10.4 metres, with sidewalks on both sides of the road.

- The City's Active Transportation Master Plan (ATMP), Walk Wheel Windsor, dated May 2019, (available on the City website) recommends an active transportation facility for Wyandotte Street East.. The Plan indicates that Wyandotte Street should have an off-street, multi-use trail along its north side which would take the place of the north sidewalk.

- Several mature trees exist within the municipal right-of-way.

- There is noted Species at Risk habitat on the site and known occurrences of Species at Risk on adjacent property.

Issues Identified for Jarvis Avenue

- Jarvis Avenue is a local residential road that has been constructed below current municipal standards of the standard 8.60 metre pavement width.

- As a local road, improvements to Jarvis Avenue are subject to the City's Local Improvement policies. Funding to update Jarvis Avenue would be a cost-share between the property owners and the municipality.

- Storm sewer service in the area is of insufficient design and capacity.

- The cul-de-sac of Jarvis Avenue at Little River Road requires an upgrade to meet municipal standards.

- The pavement structure of Jarvis Avenue is rated as "Now Deficient" under the City of Windsor's asset rating system. The current roadway is subject to poor drainage and deteriorated conditions.

Issues Identified for Remaining Areas

- Beverly Glen Street has not been completed, however most of the required property to complete the street is owned by the City with some acquisitions required.

- Operational deficiencies at Banwell Road and Little River Boulevard would be expected within the 10-year and 20-year horizons. A signalized intersection or a roundabout can be considered to improve the intersection operations in the future.

Opportunities

The full connection of Wyandotte Street West will present the following opportunities for the Study Area:

Opportunities for Wyandotte Street East

- There is an opportunity to employ the Complete Streets approach for Wyandotte Street East in order to accommodate the existing and future traffic

demand (including active transportation) and provide better connectivity to adjacent neighbourhoods.

- The proposed Wyandotte Street East Extension would complete the final portion of the road that was planned to be constructed since the right-of-way was established by the former Town of Riverside, terminating at Jarvis Avenue. The Project was first identified as a funding priority by City Council in the 2011 Capital Budget.

- The proposed connection will provide a link between the East Riverside and Lakeview Planning Areas.

Opportunities for Jarvis Avenue

- There is an opportunity to provide an upgraded road cross-section with new pavement and storm sewers to provide enhanced drainage on Jarvis Avenue.

- An opportunity to enhance access to Jarvis Avenue for the provision of emergency and municipal services.

- Provide better connectivity for all modes of transportation.

Opportunities for Beverly Glen Avenue

- Consideration of this road corridor provides a means to facilitate infill development, as well as enhance access for public service delivery.

Consultation

In accordance with the Class EA process, consultation with various stakeholders, including the public, agencies, utilities and First Nations, was undertaken during the study.

Public Information Centre (PIC) #1 was held on October 24, 2019, between 4:00pm and 7:00pm at the Riverside Sportsmen's Club, with display information available on the City's website (www.WindsorEAs.ca). A Notice of this PIC was prepared and distributed to the Study's contact list and placed in the local newspaper.

Listed below is key feedback that was gathered from residents since PIC #1:

- Concern for bringing cut-through traffic into the neighbourhood possibly destined for Tecumseh Road East, and resulting public safety impacts from increased motor vehicle use.
- Concern that updating the road to the municipal design standard will encourage speeding and higher traffic volumes.
- Concern that additional flood and sewer system capacity risk may be created due to new runoff created by new Wyandotte Street East and expanded Jarvis Avenue pavement.
- Natural environment protection.

Public Information Centre (PIC) #2 was held on August 26, 2021, in a virtual format, with a 3:00pm to 4:30pm session and a 6:00pm to 7:30pm session, in order to discuss the proposed design considerations following the earlier stakeholder engagement.

Listed below is key feedback that was gathered from residents since PIC #2:

1. Concern of when the section of Jarvis Avenue south of Castle Hill would be completed.
2. Drainage concerns and how the swale would be connected to the storm sewer on Wyandotte.

3. Impacts to trees on Jarvis Avenue due to road widening.

Alternative Solutions

Phase 2 of the Municipal Class EA process consists of taking into consideration the existing environment in order to evaluate alternative solutions to address the problems/opportunities identified during Phase 1. The potential alternative solutions are evaluated against natural environment, social environment, economic environment and technical factors.

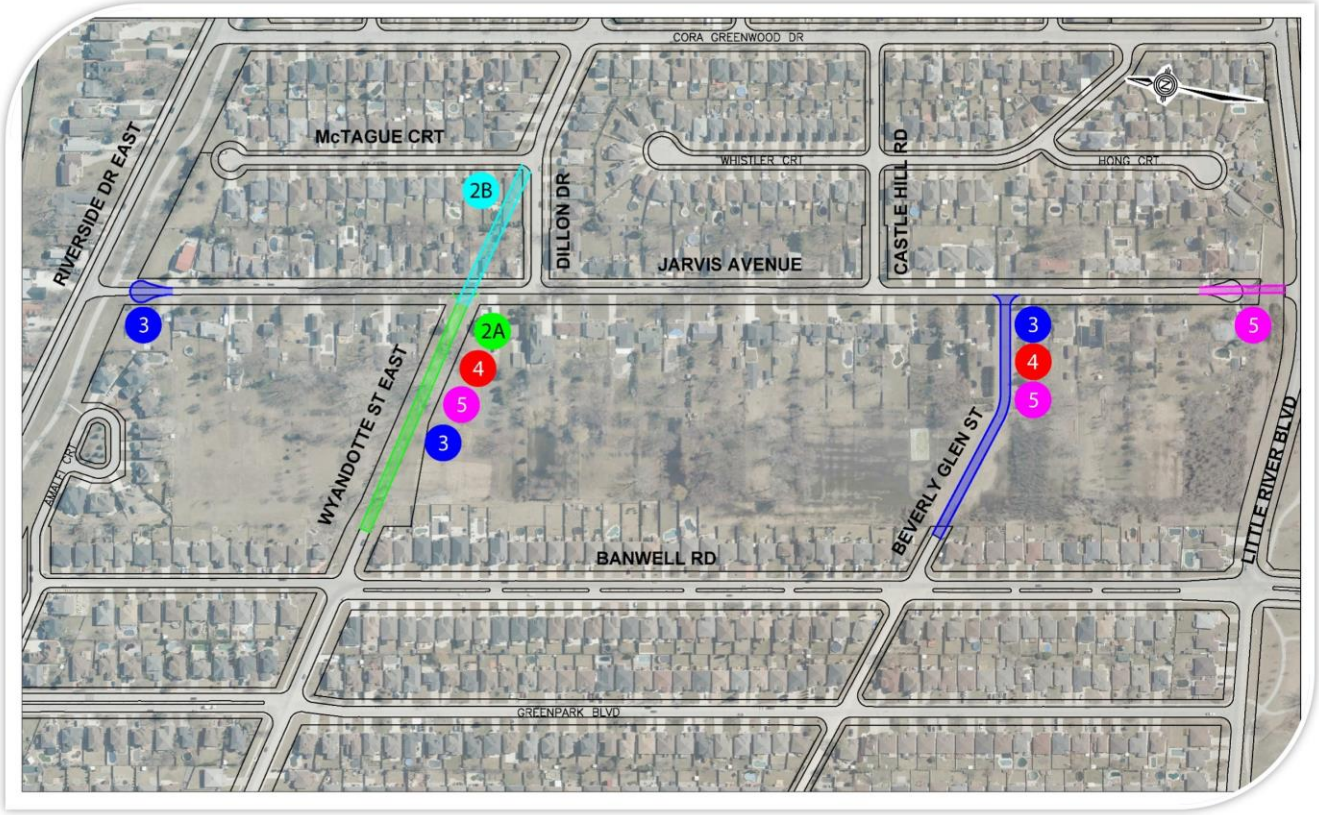
To determine the best approach for the Study Area, the following alternative solutions were evaluated. For all scenarios except for #1, the improvement of Jarvis Avenue to current municipal standards is proposed as part of a cost-shared Local Improvement.

- SCENARIO 1: Base scenario, do-nothing;
- SCENARIO 2A: Extension of Wyandotte Street East as an offset intersection at Jarvis Avenue;
- SCENARIO 2B: Extension of Wyandotte Street East as a continuous alignment connecting to Dillon Drive;
- SCENARIO 3: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, extension of Beverly Glen Street to Jarvis Avenue, and closure of Jarvis Avenue at Riverside Drive East;
- SCENARIO 4: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, and extension of Beverly Glen Street to Jarvis Avenue; and

- SCENARIO 5: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, extension of Beverly Glen Street to Jarvis Avenue, and extension of Jarvis Avenue to Little River Boulevard.

The assessment of alternative solutions for Wyandotte Street East Extension and Jarvis Avenue is summarized in **Section 3.0** of this Report. Figure E-2 shows the alternative solution scenarios.

Figure E-2: Alternative Solution Scenarios



Preferred Design Alternative

The preferred design for Wyandotte Street East Extension and Jarvis Avenue comprises the following and is discussed in detail in **Section 4.0** of this Report:

1. Construct Wyandotte Street East to a 9.6m cross-section including bicycle lanes.

2. Reconstruct Jarvis Avenue to a 6.74m cross-section.

3. Implement traffic islands at Wyandotte Street East and Dillon Drive intersections with Jarvis Avenue.

4. Construct a trunk storm sewer to service all neighbourhood drainage.

5. Rebuild the south cul-de-sac on Jarvis Avenue at Little River Boulevard and remove the driveway approach.

6. Construction of Beverly Glen Avenue will no longer be carried forward for consideration.

7. Closure of Riverside Drive East intersection with Jarvis Avenue will no longer be carried forward for consideration.

Figure E-3: Preferred Design - Wyandotte Street East Extension

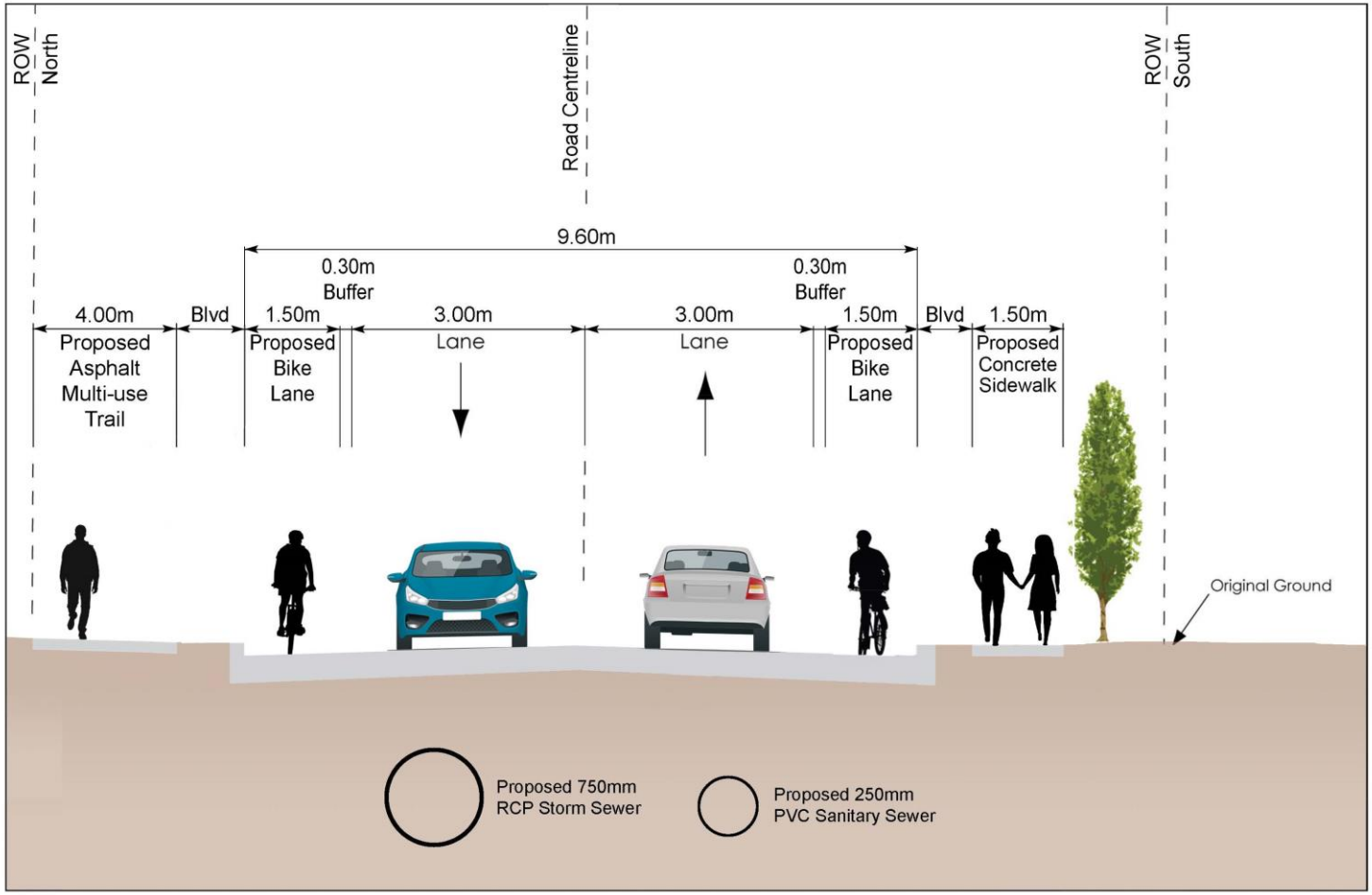


Figure E-4: Preferred Design - Jarvis Avenue from Wyandotte Street East to Dillon Drive

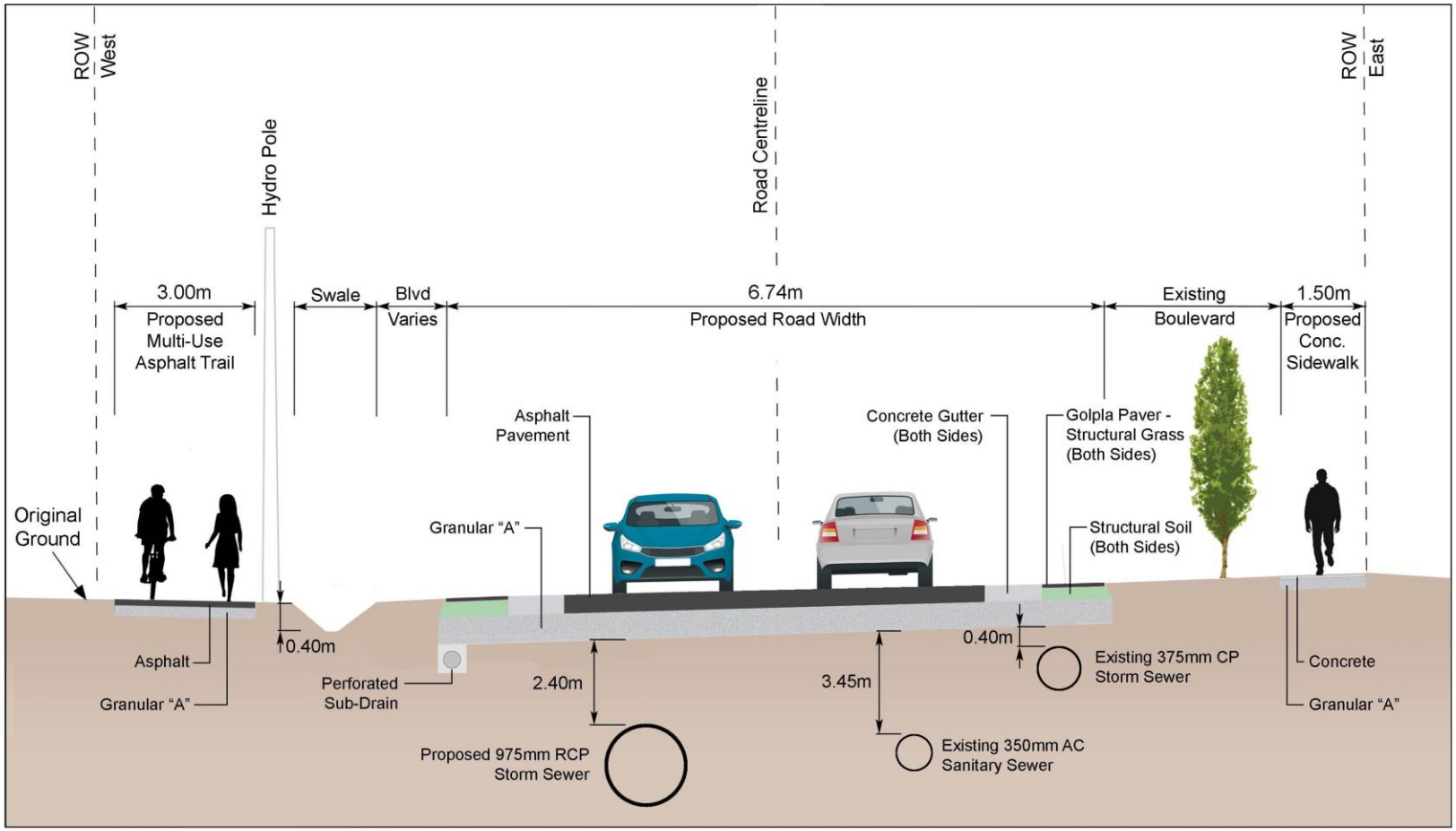
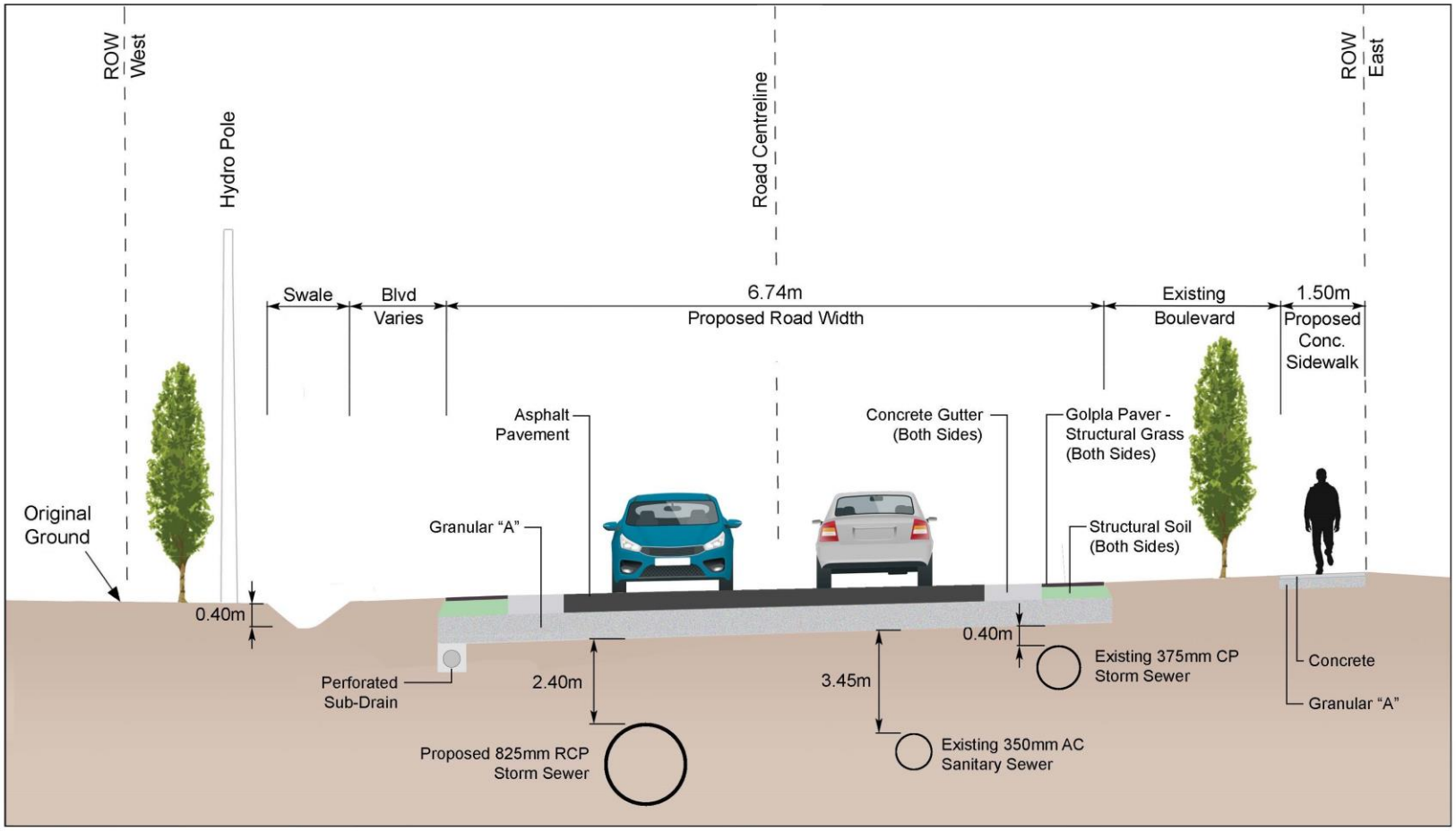


Figure E-5: Preferred Design - Jarvis Avenue from Riverside Drive East to Wyandotte Street East and from Dillon Drive to Little River Boulevard



Preliminary Cost Estimate for Preferred Design

Based on preliminary cost estimates,

- The section of works from the Wyandotte Street East extension from Banwell Road to Jarvis Avenue and on Jarvis Avenue from Wyandotte Street to Beverly Glen is estimated at $6,644,400;
- The works on Jarvis Avenue from Riverside Drive East to Wyandotte Street East and from Beverly Glen to Little River Boulevard is estimated at $8,783,600.

The total costs of both phases is $15,428,000 and includes a 20% contingency allowance and 20% for engineering and other internal costs. A detailed cost estimate is included in Section 4.5.8 – Preliminary Construction Cost Estimate.

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1.0 INTRODUCTION AND BACKGROUND INFORMATION

1.1 Purpose of the Study

The City of Windsor initiated a Schedule 'B', Municipal Class Environmental Assessment Study (Class EA) to evaluate the extension of Wyandotte Street East to Jarvis Avenue to serve neighbourhood transportation and infrastructure needs for a 20-year period. The Project was first identified as a funding priority by City Council in the 2011 Capital Budget.

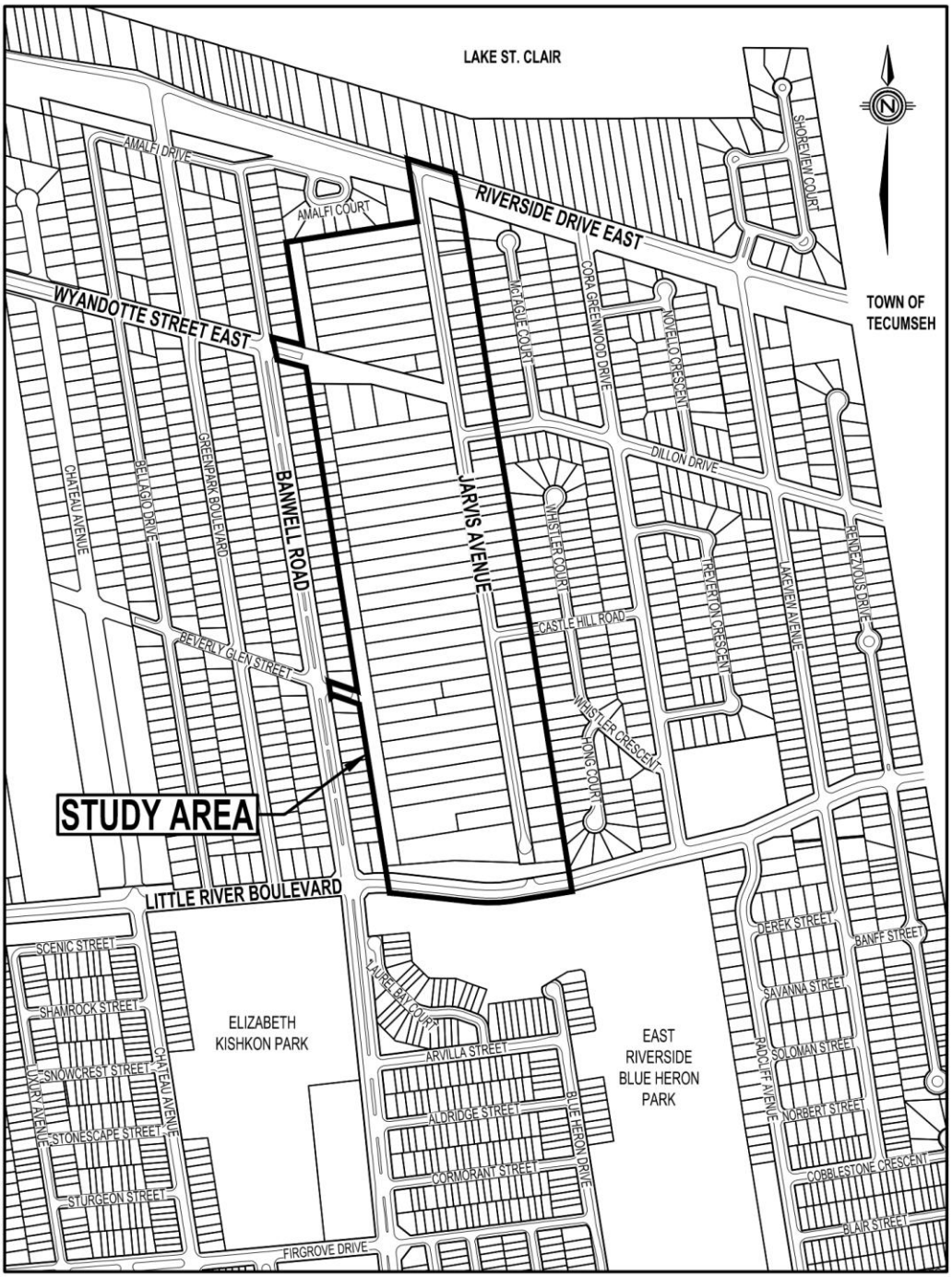
The Class EA identifies problems and opportunities, establishes a preferred alternative solution, and a preferred design including, the road alignment and cross-section for the Wyandotte Street West extension from Banwell Road easterly to the existing intersection at Jarvis Avenue, as well as Jarvis Avenue from Riverside Drive East to Little River Boulevard.

1.2 Study Area

The study area included the area bounded by Riverside Drive East to the north, Jarvis Avenue to the east, Little River Road to the south and Banwell Road to the west, as shown in **Figure 1** on the following page. Jarvis Avenue was developed prior to construction of the surrounding neighbourhoods. It has remained isolated with reduced connectivity and public service access points relative to other areas.

The study considers the Wyandotte Street East extension for vehicular, pedestrian, transit, and bikeway connections, traffic calming, drainage, and sanitary sewage. In addition, the study evaluates the servicing needs required to improve neighbourhood infrastructure to current municipal standards on Jarvis Avenue.

Figure 1-1: Study Area



1.3 Municipal Class Environmental Assessment Process

This Class EA study was undertaken in accordance with Municipal Class EA document requirements (October 2000, as amended in 2007, 2011, and 2015) under the Ontario Environmental Assessment Act. The document defines 4 schedules (Schedules A, A+, B & C) under which projects may be planned and describes the process required for each. The complexity of the project, defined by the level of community interest, technical considerations and environmental impacts help to determine which schedule is followed.

As a Class II Collector road, the Wyandotte Street East extension was identified as not having significant impacts and therefore decided as a Schedule 'B' undertaking by the project team, and as such the study completed Phases 1 through 3 of the Class EA process as outlined in the EA document.

Figure 1-2: Municipal Class EA Process

	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5
Basic Process	Problem OR Opportunity	Alternative Solutions	Alternative Design Concepts For Preferred Solution	Environmental Study Report	Implementation
Consultation Requirements	*Optional*	*Mandatory*	*Mandatory*	*Mandatory*	*Optional*
SCHEDULE 'A/A+' PROJECTS	✓				✓
SCHEDULE 'B' PROJECTS	✓	✓	✓		✓
SCHEDULE 'C' PROJECTS	✓	✓	✓	✓	✓
MASTER PLANS (See Section A.2.7)	✓	✓	✓	✓	✓

1.4 Public and Agency Consultation

In accordance with the Class EA process, consultation with various stakeholders, including the public, agencies, utilities and First Nations, was undertaken during the study. Formal points of contact were included as specified below:

1. Notice of Study Commencement and Notification of Public Information Centre (PIC) #1. Advertisement in the Windsor Star newspaper on Saturday October 11, 2019.
2. Public Information Centre (PIC) #1 was held at the Riverside Sportsmen's Club (10835 Riverside Drive East) on Thursday October, 24, 2019 between 4:00pm and 7:00pm. Advanced notification to property owners via mail and door-to-door delivery, email notification to interested agencies, stakeholders and First Nations.
3. Public Information Centre (PIC) #2 was held in a virtual format on Thursday, August 26, 2021, with a 3:00pm to 4:30pm session via zoom, and a 6:00pm to 7:30pm session, via zoom. Advanced notification to property owners via mail and door-to-door delivery, email notification to interested agencies, stakeholders and First Nations.
4. Notice of Study Completion – upon completion of the Study, the Notice will be published in the Windsor Star and mailed to those identified on the project Contact List. The Environmental Study Report (ESR) document will be made available for a mandatory 30-day public review period.

   Listed below is key feedback gathered from residents at PIC #1:

   - Concern for bringing cut-through traffic into the neighbourhood possibly destined for Tecumseh Road East, and resulting public safety impacts from increased motor vehicle use.
   - Concern that updating the road to the municipal design standard will encourage speeding and higher traffic volumes.
   - Concern that additional flood and sewer system capacity risk may be created due to new runoff created by new Wyandotte Street East and expanded Jarvis Avenue pavement.

- Natural environment protection.

Listed below is key feedback gathered from residents since PIC #2:

- Concern of when the section of Jarvis Avenue south of Castle Hill would be completed.
- Drainage concerns and how the swale would be connected to the storm sewer on Wyandotte.
- Impacts to trees on Jarvis Avenue due to road widening.

Please see **Appendix A-1** for a record of the notifications described above. During each of the Public Meetings attendees and interested parties were invited to submit comments for consideration based on the preferred alternatives presented. A consolidated record of the comments received can be viewed in **Appendix A-2**.

As part of Public Consultation, Provincial Agencies, the Essex Region Conservation Authority, and local Utilities were also contacted prior to Public Meeting #1 and given the opportunity to comment on the alternative solutions presented.

1.5 Project Team

This study was prepared by the City of Windsor. The project team includes:

- Andrew Dowie – Engineering Department
- Adam Mourad – Engineering Department
- Paul Mourad – Engineering Department
- Jeff Hagan – Transportation Planning Department
- Simona Simion – Development Planning Department
- Chris Carpenter – Real Estate Department
- Jelena Muegge – Geomatics
- Etienette Hernandez – Geomatics

Consultants were retained to prepare the following required background studies:

- Wood Environment & Infrastructure Solutions – Environmental Evaluation Report (EER)
- Wood Environment & Infrastructure Solutions - Stage 1 Archaeological Assessment
- WSP Canada Inc. – Traffic Impact Study
- RWDI AIR Inc. - Environmental Noise Study

1.6 Problems and Opportunities

Problems

Based on the planned easterly connection of Wyandotte Street East from Banwell Road to Jarvis Avenue, the problems for the Study Area include:

- A need to address limited access to Jarvis Avenue that limits the provision of emergency and municipal services. The extension of Wyandotte Street East from Banwell Road to Jarvis Avenue is proposed to be funded by the City through the capital budget process.

- There is a need to define any infrastructure, operational and safety improvements required in association with the project as part of this study.

- This study will need to identify how to complete Wyandotte Street East to meet safety and operational needs within a 20 year planning horizon, including for emergency services, transportation needs and land use planning. During the last 5 inter-census periods, this district has experienced a positive population growth and an increased number of occupied dwellings.

Issues Identified for Wyandotte Street East

- The Official Plan designated Wyandotte Street East as a Class II Arterial, which requires sidewalks on both sides of the road. The City's Official Plan, Schedule "X", recommends a Class II Arterial designation with a right-of-way width of 30.0 metres. Currently, Wyandotte Street East, east of Banwell is designated as a Collector Road in the City of Windsor's Official Plan with a 24.0 metre right-of-way road allowance.

- Wyandotte Street East was proposed to be constructed to the current municipal standard road width for collector roads of 10.4 metres, with sidewalks on both sides of the road.

- The City's Active Transportation Master Plan (ATMP), Walk Wheel Windsor, dated May 2019, (available on the City website) recommends an active transportation facility for Wyandotte Street East.. The Plan indicates that Wyandotte Street should have an off-street, multi-use trail along its north side which would take the place of the north sidewalk.

- Several mature trees exist within the municipal right-of-way.

- There is noted Species at Risk habitat on the site and known occurrences of Species at Risk on adjacent property.

Issues Identified for Jarvis Avenue

- Jarvis Avenue is a local residential road that has been constructed below current municipal standards of the standard 8.60 metre pavement width.

- As a local road, improvements to Jarvis Avenue are subject to the City's Local Improvement policies. Funding to update Jarvis Avenue would be a cost-share between the property owners and the municipality.

- Storm sewer service in the area is of insufficient design and capacity.

- The cul-de-sac of Jarvis Avenue at Little River Road requires an upgrade to meet municipal standards. In addition the maximum distance permitted for a cul-de-sac length has been exceeded requiring that Beverly Glen Street be completed.

- The pavement structure of Jarvis Avenue is rated as "Now Deficient". The current roadway is subject to poor drainage and deteriorated conditions.

Issues Identified for Remaining Areas

- Beverly Glen Street has not been completed, however most of the required property to complete the street is owned by the City with some acquisitions required.

- Operational deficiencies at Banwell Road and Little River Boulevard would be expected within the 10-year and 20-year horizons. A signalized intersection or a roundabout can be considered to improve the intersection operations in the future.

Opportunities

The full connection of Wyandotte Street West will present the following opportunities for the Study Area:

Opportunities for Wyandotte Street East

- There is an opportunity to employ the Complete Streets approach for Wyandotte Street East in order to accommodate the existing and future traffic demand (including active transportation) and provide better connectivity to the adjacent neighbourhoods.

- The proposed Wyandotte Street East Extension would complete the final portion of the road that was planned to be constructed since the right-of-way was established by the former Town of Riverside, terminating at Jarvis Avenue. The Project was first identified as a funding priority by City Council in the 2011 Capital Budget.

- The proposed connection will provide a link between the East Riverside and Lakeview Planning Areas.

Opportunities for Jarvis Avenue

- There is an opportunity to provide an upgraded road cross-section with new pavement and storm sewers to provide enhanced drainage on Jarvis Avenue.
- An opportunity to enhance access to Jarvis Avenue for the provision of emergency and municipal services.
- Provide better connectivity for all modes of transportation.

Opportunities for Beverly Glen Avenue

- Consideration of this road corridor provides a means to facilitate infill development, as well as enhance access for public service delivery.

2.0 EXISTING AND FUTURE CONDITIONS

2.1 Socio-Economic Environment- Lakeview Planning Area

The Lakeview Planning Area has a residential land use designation and has experienced a positive growth in the last five inter-census periods and an increased number of occupied dwellings. The latest Planning District details are available on the City website at www.citywindsor.ca.

2.2 Official Plan & Municipal Transportation Policies

The area subject to the EA is designated Residential District (RD1.1) and Residential District (HRD1.1) permitting residential uses.

Schedule F of the City of Windsor Official Plan (OP) designates the existing section of Wyandotte Street East as a Class II Arterial Road. The City's Official Plan Schedule "X" recommends a Class II Arterial designation with a right-of-way width of 30 metres. Currently a 24 metre right-of-way is available in the present road allowance. Section 7.2.6.5 of the OP identifies the requirements of this road class as follows:

> **CLASS II ARTERIAL ROADS**:
>
> Council shall provide for Class II Arterial Roads as follows:
>
> (a) Class II Arterial Roads shall be designated on Schedule 'F' and in any secondary plan or master plan where appropriate;
>
> (b) Operational and design characteristics:
>
> (i) Class II Arterial Roads may be designed as Controlled Access Highways and shall have a minimum right-of-way width of 42 metres;

(ii) Class II Arterial Roads shall be designed to carry high volume of traffic;
(iii) New intersections shall not be permitted with Provincial Highways;
(iv) New intersections with local roads shall be discouraged;
(v) Cycling facilities may be permitted on Class II Arterial Roads;
(vi) On street parking may be removed to facilitate the installation of turn lanes where turn lanes are warranted for capacity or safety reasons; and;
(vii) Direct property access will be discouraged where other alternatives exist. Where direct property access is required, the use of shared driveways and interconnected on-site circulation systems with adjacent properties may be required to limit the number and spacing of driveways, and where appropriate the City may require support studies and additional information to demonstrate the need for additional access.

2.3 Existing Land Use

The study area and surrounding lands consist of vacant land and residential use. A mature residential area is located to the east along Jarvis Avenue, and to the north and west of the Study Area is more recent residential subdivision development.

2.4 Natural Environment

The Provincial Policy Statement (PPS2020) is issued under Section 3 of the Planning Act by the Ministry of Municipal Affairs and Housing. The PPS guides the formulation of municipal policies and regulations, such as the Official Plans. The PPS is comprised of various policies on development and land use patterns, resource protection and management, and public health and safety. The Natural Heritage policies within the PPS identify natural features in which development is prohibited and where development is permitted, both within and adjacent to specified features, as long as there are no negative impacts on the features or their ecological functions.

There are no Natural Heritage features identified within the City of Windsor Official Plan on the subject property, but there is a designated Natural Heritage Site to the south west of the subject property. Section 10.2.5 of the Official Plan requires an Environmental Evaluation Report (EER) be completed to demonstrate that the proposed infrastructure extensions may proceed in or adjacent to, lands designated as Natural Heritage, Environmental Policy Area A or B and/or Candidate Natural Heritage Site (Subsections 5.3.3, 5.3.4, and 5.3.5 of the Official Plan). The completed EER serves as part of the Environmental Study Report (ESR) completed for the EA. Please refer to Appendix B for further details on the Natural Heritage Study.

The EER found that, *"Species at Risk (SAR), Species of Conservation Concern (SOCC), and Significant Wildlife Habitat (SWH) were found in the study area. The Study Area is not designated as Natural Heritage in the City of Windsor Official Plan, however, based on the description in Section 6.8 of the Official Plan, the Study Area is a candidate for the Land Use designation. The Official Plan describes Natural Heritage as lands that "provide for the protection and* conservation of Windsor's most environmentally significant and sensitive natural areas, including provincially designated Areas of Natural and Scientific Interest (ANSI) and wetlands"."

In addition, the EER stated, *"Per the guidelines in the City of Windsor Official Plan, the EER is to "demonstrate how and why the proposal may proceed such that there will be no negative impact on the natural features and functions for which the area is identified". The current proposal may not proceed as there will be a negative impact on natural features and functions. However, if the Beverly Glen Street extension is removed from the scope and habitat compensation and monitoring are applied to offset the impacts from the extension of Wyandotte Street East, the proposal could probably proceed while maintaining the natural features and functions."*

Given the above, the extension of Beverly Glen Street from Banwell Road to Jarvis Avenue, which was an earlier alternative solution, is no longer being carried forward for consideration. The impact of the Wyandotte Street East extension could be compensated with a restoration plan, which will require plantings and effectiveness monitoring.

Therefore, a habitat compensation and monitoring plan will be developed, with the assistance of a qualified arborist, for the Wyandotte Street East extension.

2.5 Cultural Environment

A Stage 1 Archaeological Assessment has been prepared by an Ontario-licensed archaeologist (Please refer to Appendix C for further details). The study found that:

"*The Stage 1 background study has indicated that undisturbed portions of the subject property have archaeological potential and warrant Stage 2 property assessment for two principal reasons: 1) the close proximity of a natural water source, Lake St. Clair, located 100 metres to the north; 2) the known presence of one archaeological site within a one kilometre radius providing direct evidence that this general area had been exploited by Aboriginal peoples.*"

Based on these results, the following recommendations were made:

1. *"A Stage 2 archaeological assessment in the form of a test-pit survey should be conducted on the landscaped and wooded areas as shown in Appendix A: Figure 8). The test pits should be excavated by hand at regular five-metre intervals in a grid-pattern and to a depth of 5 cm into the subsoil. The stratigraphy of soils excavated during test pitting should be examined in order to detect cultural soil horizons. In addition, excavated soils are to be screened through 6-mm mesh in order to facilitate the recovery of artifacts.*

   The pattern and intensity of test-pit placement may be altered due to changes in archaeological potential in different parts of a study area and/or the presence of disturbed soils. Any areas of 'disturbance' should be evaluated and photodocumented.

   If archaeological resources are found their exact distribution should be documented and any diagnostic artifacts recovered and inventoried. Upon the discovery of cultural materials, the survey grid should be continued to determine whether there are enough archaeological resources to meet the criteria for making a recommendation to carry out a Stage 3 assessment. In the event that insufficient archaeological resources are recovered, eight additional test pits are to be dug in a

2 to 2.5-metre radius around the positive test pit, followed by the excavation of a 1 x 1-m test unit at the positive test pit. All soils from the test pits and test unit should be screened for artifacts through 6-mm mesh. Cultural artifacts encountered are to be collected and bagged according to provenience.

2. *The remainder of the study area has low archaeological potential due to previous disturbance and does not require further archaeological assessment."*

2.6 Technical Environment

2.6.1 Existing Transportation Infrastructure

Table 2-1: Existing Study Area Roadway Infrastructure

Street	Characteristics (within the study area)			
	Classification (City of Windsor Official Plan)	**Existing Right-of-way width**	**Travel Lanes**	**Cycling Facilities**
Wyandotte Street East Right-of-way	Class II Arterial	24.0 m	None, 2 proposed	None
Riverside Drive East	Scenic Parkway	36.6 m	2	Yes, Ganatchio trail to the south
Little River Road	Class I Collector	26.0 m	2	None
Dillon Drive	Class I Collector	20.1 m	2	None
Jarvis Avenue	Local residential	20.1 m	2	None
Castle Hill Road	Local residential	15.0 m	2	None
Beverly Glen Street	Local residential	17.3 m	2	None

Within and immediately surrounding the study area, the existing transportation network has poor connectivity.

For motor vehicles, including emergency vehicles, the only east-west connectivity to Jarvis Avenue from the west is from Riverside Drive East.

For active transportation modes, existing multi-use trail connections are provided by the Ganatchio trail along Riverside Drive East.

2.6.2 Traffic Operations – Existing and Future

A review of the most recent five years of cycling collision data (2015 through 2019) found no reported motor vehicle/cyclist collisions in the study area.

The Traffic Impact Study details a review of the existing traffic conditions, the forecasted traffic conditions for 10-tear and 20-year horizons, traffic assessments of the various network scenarios, and a summary of the results and recommendations, as detailed in Appendix D. The traffic analysis found that under future conditions, the Wyandotte Street East extension with Jarvis Avenue intersection operated at an overall level of service 'A' in the weekday AM and PM peak hours, with all movement volumes operating well under capacity. Similarly the Jarvis Avenue and Dillon Drive intersection operated at an overall level of service 'A' in the weekday AM and PM peak hours, with all movements operating below capacity.

The key findings and implications of the traffic study are as follows:

a) The Wyandotte Street extension would improve traffic operations and network connectivity. The extension would provide vehicles with an alternative east-west route and therefore, a reduction of traffic would be expected at Riverside Drive, Little River Boulevard, and Banwell Road.
b) Both the offset and continuous alignment of the Wyandotte Street extension would operate within the roadway's capacity. However, if an offset extension is implemented, the City may need to consider changing the classification of Jarvis Avenue between Wyandotte Street and Dillon Drive from a local road to a collector road. A detailed design review of the extension is proposed.
c) The Beverly Glen Street extension, the closure of Jarvis Avenue at Riverside Drive, and the extension of Jarvis Avenue to Little River Boulevard would have a minimal traffic impact on the overall road network.
d) Operational deficiencies at Banwell Road and Little River Boulevard would be expected within the 10-year and 20-year horizons. A signalized intersection or a roundabout can be considered to improve the intersection operations in the future.

3.0 ALTERNATIVE SOLUTIONS

3.1 Description and Evaluation of Alternative Solutions (PIC #1)

Phase 2 of the Municipal Class EA process consists of taking into consideration the existing environment in order to evaluate alternative solutions to address the problems/opportunities identified during Phase 1. The potential alternative solutions are evaluated against natural environment, social environment, economic environment and technical factors.

To determine the best approach for the Study Area, the following alternative solution scenarios were evaluated. These alternative solution scenarios were presented in Public Information Centre (PIC) No. 1. For all scenarios except for #1, the improvement of Jarvis Avenue to current municipal standards is proposed as part of a cost-shared Local Improvement. Figure 3-1 depicts the various Alternative Solution Scenarios.

- SCENARIO 1: Base scenario, do-nothing;
- SCENARIO 2A: Extension of Wyandotte Street East as an offset intersection at Jarvis Avenue;
- SCENARIO 2B: Extension of Wyandotte Street East as a continuous alignment connecting to Dillon Drive;
- SCENARIO 3: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, extension of Beverly Glen Street to Jarvis Avenue, and closure of Jarvis Avenue at Riverside Drive East;
- SCENARIO 4: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, and extension of Beverly Glen Street to Jarvis Avenue; and
- SCENARIO 5: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, extension of Beverly Glen Street to Jarvis Avenue, and extension of Jarvis Avenue to Little River Boulevard.

Figure 3-1: Alternative Solutions Scenarios

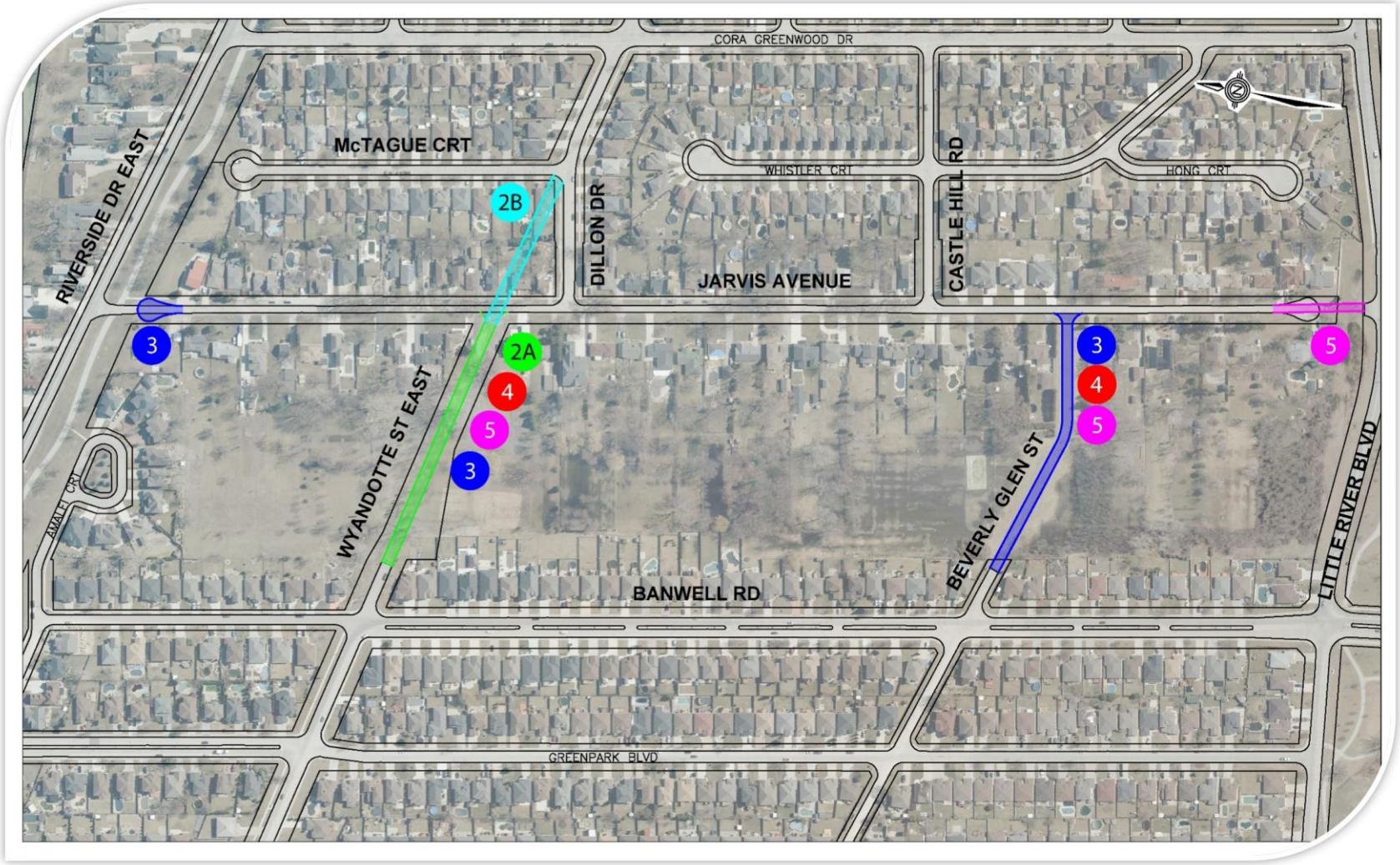


Table 3-1: Evaluation of Alternative Solutions (from PIC No. 1)

Scenario	Natural Environment	Social Environment	Economic Environment	Potential to Address Problem and/or Opportunity Statement Alone or in Combination with other Alternatives	Recommendation
1	No impact to existing trees and natural environment.	No impact to existing social environment.	No impact to existing economic environment.	•Not Realistic •Does not address the Emergency Access •Does not connect the community to existing networks for Active Transportation •All traffic passes through existing neighbourhoods	**NOT Carried Forward for Further Consideration**
2a & 2b	A plurality of the trees located within the Wyandotte Street East right-of-way will be affected by construction of the roadway and multi-use trail. No trees within the Jarvis Avenue right-of-way will be affected. There is species at risk habitat on the site and known occurrences of species at risk on adjacent property.	Will redirect traffic entering at Riverside Drive and can attract neighbourhood traffic on McTague, Hong Court and Whistler Court.	Temporary economic activity resulting from the initial construction and creates opportunity for one-time residential construction on adjacent vacant properties.	•Realistic •Constructing Wyandotte Street East establishes a second access to provide appropriate emergency response and connection to surrounding road network and Transit Routes •Construction of an additional storm sewer allows for the elimination of remaining open ditches and full urbanization of the area •Undertaking of a natural heritage inventory, including species at risk habitat assessment	**Carried Forward**
3		Will redirect traffic entering at Riverside Drive to both Wyandotte Street and Castle Hill Drive, and can attract neighbourhood traffic on Hong Court and Whistler Court.		•Realistic •Constructing Wyandotte Street East and Beverly Glen establish new access points to provide appropriate emergency response and connection to surrounding road network and Transit Routes •Construction of an additional storm sewer allows for the elimination of remaining open ditches and full urbanization of the area •Undertaking of a natural heritage inventory, including species at risk habitat assessment	**Carried Forward**

Table 3-1: Evaluation of Alternative Solutions (from PIC No. 1) - (continued)

Scenario	Natural Environment	Social Environment	Economic Environment	Potential to Address Problem and/or Opportunity Statement Alone or in Combination with other Alternatives	Recommendation
4	A plurality of the trees located within the Wyandotte Street East right-of-way will be affected by construction of the roadway and multi-use trail. No trees within the Jarvis Avenue right-of-way will be affected. There is species at risk habitat on the site and known occurrences of species at risk on adjacent property.	Will redirect traffic entering at Riverside Drive and Castle Hill to both Wyandotte Street and Beverly Glen Drive, and can attract neighbourhood traffic on Hong Court and Whistler Court.	Temporary economic activity resulting from the initial construction and creates opportunity for one-time residential construction on adjacent vacant properties.	•Realistic •Constructing Wyandotte Street East and Beverly Glen establish new access points to provide appropriate emergency response and connection to surrounding road network and Transit Routes •Construction of an additional storm sewer allows for the elimination of remaining open ditches and full urbanization of the area •Undertaking of a natural heritage inventory, including species at risk habitat assessment	**Carried Forward**
5		Will redirect the vehicular traffic entering at Riverside Drive and Castle Hill to both Wyandotte Street and Beverly Glen Drive, and can attract neighbourhood traffic on Hong Court and Whistler Court.		•Realistic •Constructing Wyandotte Street East and Beverly Glen establish new access points to provide appropriate emergency response and connection to surrounding road network and Transit Routes •Construction of an additional storm sewer allows for the elimination of remaining open ditches and full urbanization of the area •Undertaking of a natural heritage inventory, including species at risk habitat assessment	**Carried Forward**

3.2 Description and Evaluation of Alternative Solutions (PIC #2)

The alternative solution scenarios were further evaluated as part of PIC #2 and the preferred alternative solution was selected.

3.2.1 Scenario 1: Base Scenario, Do Nothing

This alternative consists of making no changes within the Study Area and was included as a basis to compare other alternatives. After further evaluation this alternative was not carried forward for consideration because it fails to address many of the existing problems and opportunities identified in the Study Area, such as:

- Fails to address emergency access;
- Does not connect the community to existing networks for Active Transportation;
- All traffic passes through the existing neighbourhood along Jarvis Avenue from Riverside Drive to Dillon Drive instead of some traffic being diverted through Wyandotte Street East.

Recommendation: This alternative was not carried forward.

3.2.2 Scenario 2A: Extension of Wyandotte Street East as an offset intersection at Jarvis Avenue

- Constructing Wyandotte Street East establishes a second access to provide appropriate emergency response, connections for Active Transportation and connection to surrounding road network and Transit routes;
- There would be an increase in traffic volume on Jarvis Avenue between Wyandotte Street East and Dillon Drive but within the roadway's capacity;
- There would be a decrease in traffic volume on Jarvis Avenue between Riverside Drive East and Wyandotte Street East.

Recommendation: This alternative was carried forward to Phase 3 – Alternative Designs.

3.2.3 Scenario 2B: Extension of Wyandotte Street East as a continuous alignment connecting to Dillon Drive

- Constructing Wyandotte Street East establishes a second access to provide appropriate emergency response, connections for Active Transportation and connection to surrounding road network and Transit routes;
- The road segments cannot be connected without property acquisition and demolition of existing homes on the east side of Jarvis Avenue;
- There is no tangible improvement to traffic operations for connectivity of Dillon and Wyandotte in response to the financial investment to achieve this outcome. Therefore this option is not recommended.

Recommendation: This alternative was no longer carried forward.

3.2.4 Scenario 3: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, extension of Beverly Glen Street to Jarvis Avenue, and closure of Jarvis Avenue at Riverside Drive East

- Constructing Wyandotte Street East and Beverly Glen Street establish new access points to provide appropriate emergency response, connections for Active Transportation and connection to surrounding road network and Transit routes;
- Portions of the properties to the rear of 1071 and 1081 Jarvis Avenue along the existing sanitary sewer alignment must be purchased by the City to complete the Beverly Glen Street road extension;
- There exists many Species at Risk (SAR) concerns around the Beverly Glen Street extension and therefore this alternative is not recommended;

- Closure of the intersection of Jarvis Avenue at Riverside Drive was considered that would redirect all entering and exiting local traffic to Wyandotte Street East or Dillon Drive. This option would reduce appropriate emergency response and connection to surrounding road network and Transit routes and therefore this alternative is not recommended.

Recommendation: This alternative was no longer carried forward.

3.2.5 Scenario 4: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, and extension of Beverly Glen Street to Jarvis Avenue

- Constructing Wyandotte Street East and Beverly Glen Street establish new access points to provide appropriate emergency response, connections for Active Transportation and connection to surrounding road network and Transit Routes;
- Portions of the properties to the rear of 1071 and 1081 Jarvis Avenue along the existing sanitary sewer alignment must be purchased by the City to complete the Beverly Glen Street road extension;
- There exists many Species at Risk (SAR) concerns around the Beverly Glen Street extension and therefore this alternative is not recommended.

Recommendation: This alternative was no longer carried forward.

3.2.6 Scenario 5: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, extension of Beverly Glen Street to Jarvis Avenue, and extension of Jarvis Avenue to Little River Boulevard

- Constructing Wyandotte Street East and Beverly Glen Street establish new access points to provide appropriate emergency response, connections for Active Transportation and connection to surrounding road network and Transit Routes;

- Portions of the properties to the rear of 1071 and 1081 Jarvis Avenue along the existing sanitary sewer alignment must be purchased by the City to complete the Beverly Glen Street road extension;
- There exists many Species at Risk (SAR) concerns around the Beverly Glen Street extension and therefore this alternative is not recommended;
- The extension of Jarvis Avenue to Little River Boulevard is not recommended, however the cul-de-sac of Jarvis Avenue and Little River Boulevard Road requires an upgrade to meet municipal standards and should be relocated further south to improve geometrics and to service surplus property. The driveway approach at Little River Boulevard should be removed.

Recommendation: This alternative was no longer carried forward.

3.3 Preferred Alternative Solution

Based on the evaluations of the above scenarios, **Scenario 2A: the extension of Wyandotte Street East as an offset intersection at Jarvis Avenue** is the preferred alternative solution. This preferred solution addresses the need to establish a second access to provide appropriate emergency response, provides a connection for Active Transportation and a connection to surrounding road networks and Transit routes. It also requires no property acquisition and minimizes any environmental impacts.

4.0 ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION

4.1 Development of Alternative Designs

Phase 3 of the Class EA process requires identification and evaluation of various alternative design concepts, based on the preferred solution chosen in Phase 2. Alternative design concepts represent different ways of carrying out the preferred solution. Based on the evaluation, the preferred alternative design concept is identified and presented to the public, Indigenous Nations, Government Review Agencies, and key stakeholders for input and review.

The following key feedback from residents based on the Public Information Centres are noted:

- Concern for bringing cut-through traffic into the neighbourhood possibly destined for the Town of Tecumseh, and resulting public safety impacts from increased motor vehicle use;
- Concern that updating the road to the municipal design standard of 8.60 metres will encourage speeding and higher traffic volumes;
- Concern that additional flood and sewer system capacity risk may be created due to new runoff created by the Wyandotte Street East and expanded Jarvis Avenue pavement;
- Natural environment protection.

4.1.1 Active Transportation

The City of Windsor's Active Transportation Master Plan, (ATMP), dated May 2019, outlines a network that connects key existing trails and pathways to a developed on-street network which will allow commuters, recreational users, and others to have safe, convenient, attractive and fun options to travel by walking, cycling, or transit.

Cycling Facilities

The ATMP identified cycling facilities to be installed on Wyandotte Street West to Jarvis Avenue, down Jarvis Avenue to Dillon Drive and east to the City limits (See ATMP Figure 26). The ATMP identifies this cycling facility to be a proposed off-street pathway and an "All Ages and Abilities (AAA) Bicycle Network" (ATMP Figures 24 & 27).

Sidewalks

The ATMP identifies Jarvis Avenue to have sidewalks on one side of the street from Castle Hill Road to Little River Boulevard (ATMP Figures 24 & 32).

Based on public feedback, and further based on the classification of the roadway, active transportation network connections, and connection to the surrounding road network, the following alternative design concepts were considered.

4.2 Alternative Designs for Wyandotte Street Extension

4.2.1 Alternative Design 1

Figure 4-1 shows the Wyandotte Street East extension with:

- a 10.40 m wide cross-section with concrete curbs and gutters;
- 1.50 m wide on-street bicycle lanes;
- a 1.50 m wide sidewalk on one side of the road;
- a 3.50 m wide multi-use trail on one side of the road.

4.2.2 Alternative Design 2

Figure 4-2 shows the Wyandotte Street East extension with:

- a 9.60 m wide cross-section with concrete curbs and gutters;

- 1.50 m wide on-street bicycle lanes;
- a 1.50 m wide sidewalk on one side of the road;
- a 4.0 m wide multi-use trail on one side of the road.

4.3 Alternative Designs for Jarvis Avenue

4.3.1 Jarvis Avenue from Wyandotte Street East to Dillon Drive

4.3.1.1 Alternative Design 1

Figure 4-3 shows Jarvis Avenue with:

- a widened 10.40 m cross-section with concrete curbs and gutters;
- 1.50 m wide on-street bicycle lanes;
- a 1.50 m wide sidewalk on one side of the road.

4.3.1.2 Alternative Design 2

Figure 4-4 shows Jarvis Avenue with:

- a 6.74 m wide cross-section with concrete gutters (no curbs) and swale to maintain a rural feel;
- a 1.50 m wide sidewalk on one side of the road;
- a 3.0 m wide multi-use asphalt trail on one side of the road.

4.3.2 Jarvis Avenue from Riverside Drive East to Wyandotte Street East and from Dillon Drive to Little River Boulevard

4.3.2.1 Alternative Design 1

Figure 4-5 shows Jarvis Avenue with:

- an 8.60 m wide cross-section with concrete curbs and gutters;
- a 1.50 m sidewalk on one side of the road.

4.3.2.2 Alternative Design 2

Figure 4-6 shows Jarvis Avenue with:

- a 6.74 m wide cross-section with concrete gutters (no curbs) and swale to maintain a rural feel;
- a 1.50 m wide sidewalk on one side of the road.

Figure 4-1: Alternative Design 1 - Wyandotte Street East Extension

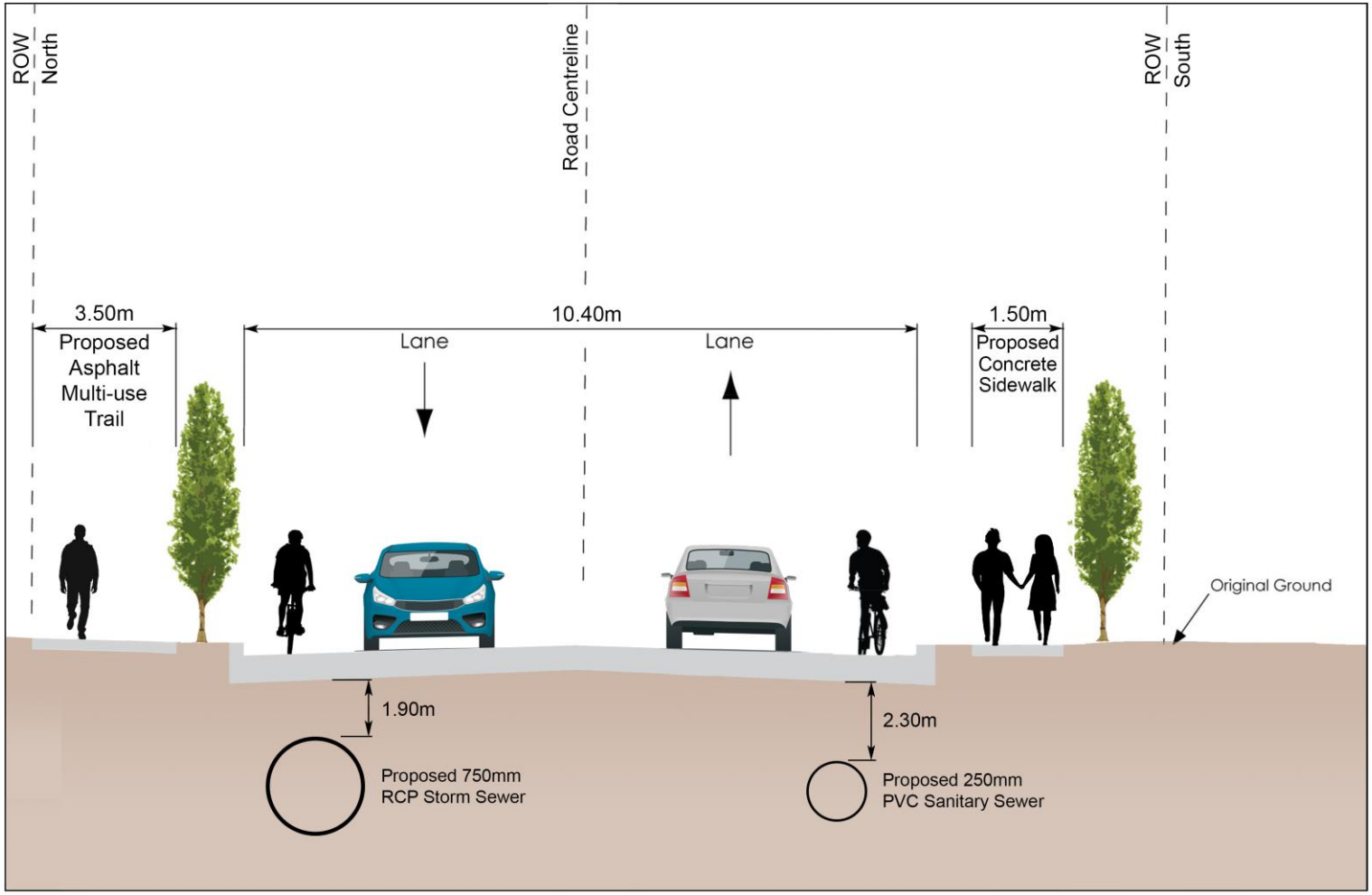


Figure 4-2: Alternative Design 2 - Wyandotte Street East Extension

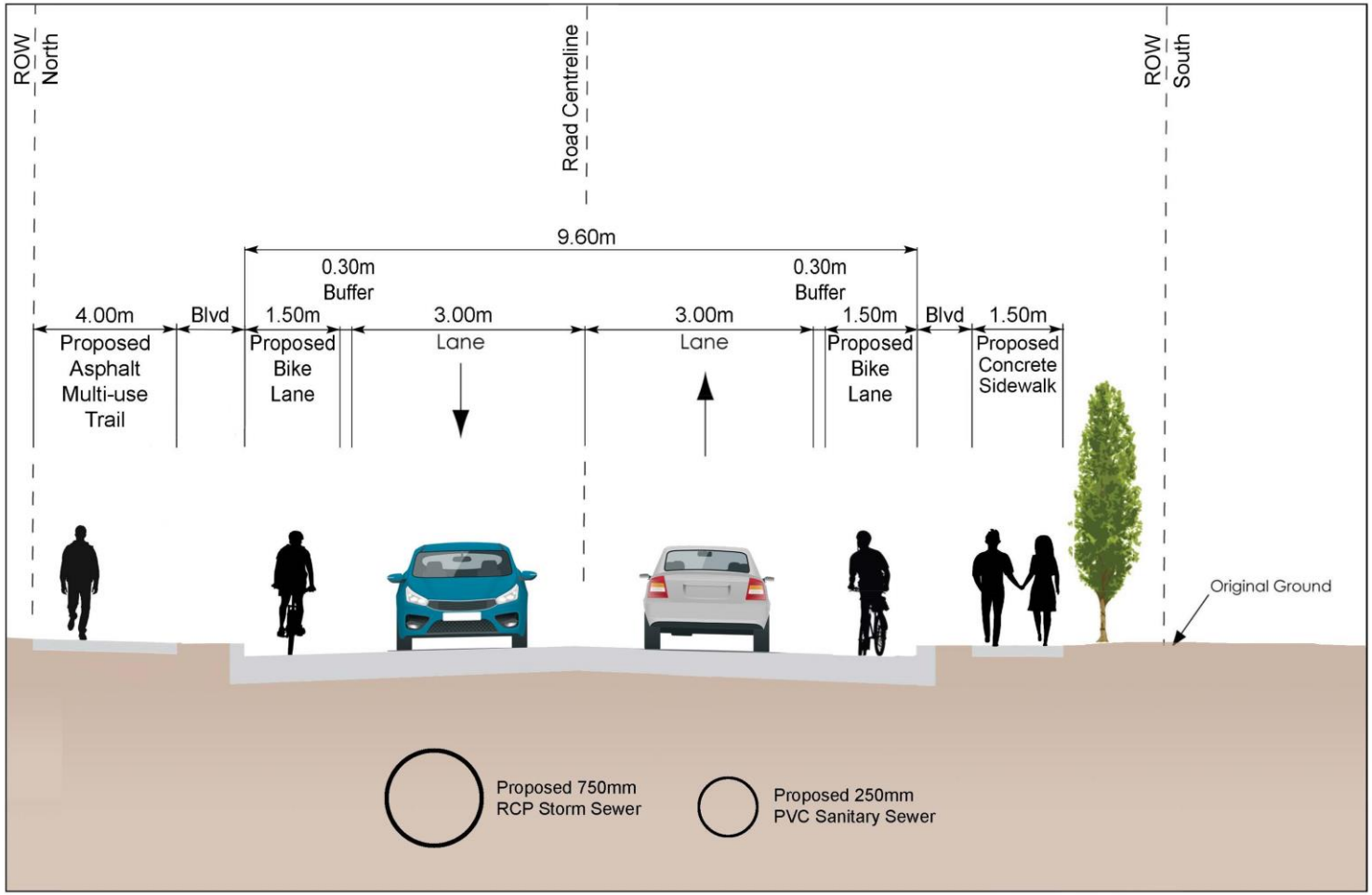


Figure 4-3: Alternative Design 1 – Jarvis Avenue from Wyandotte Street East to Dillon Drive

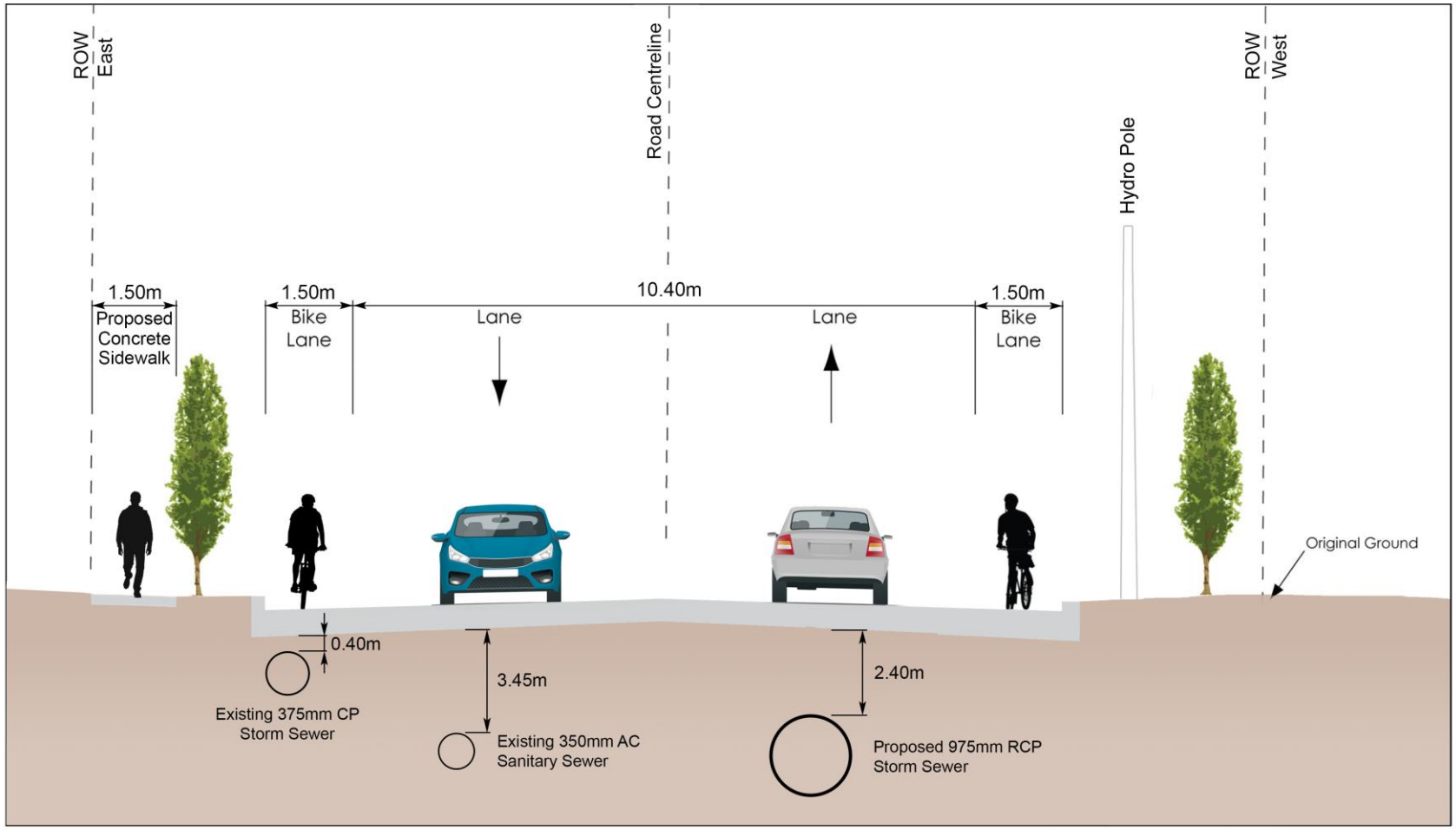


Figure 4-4: Alternative Design 2 - Jarvis Avenue from Wyandotte Street East to Dillon Drive

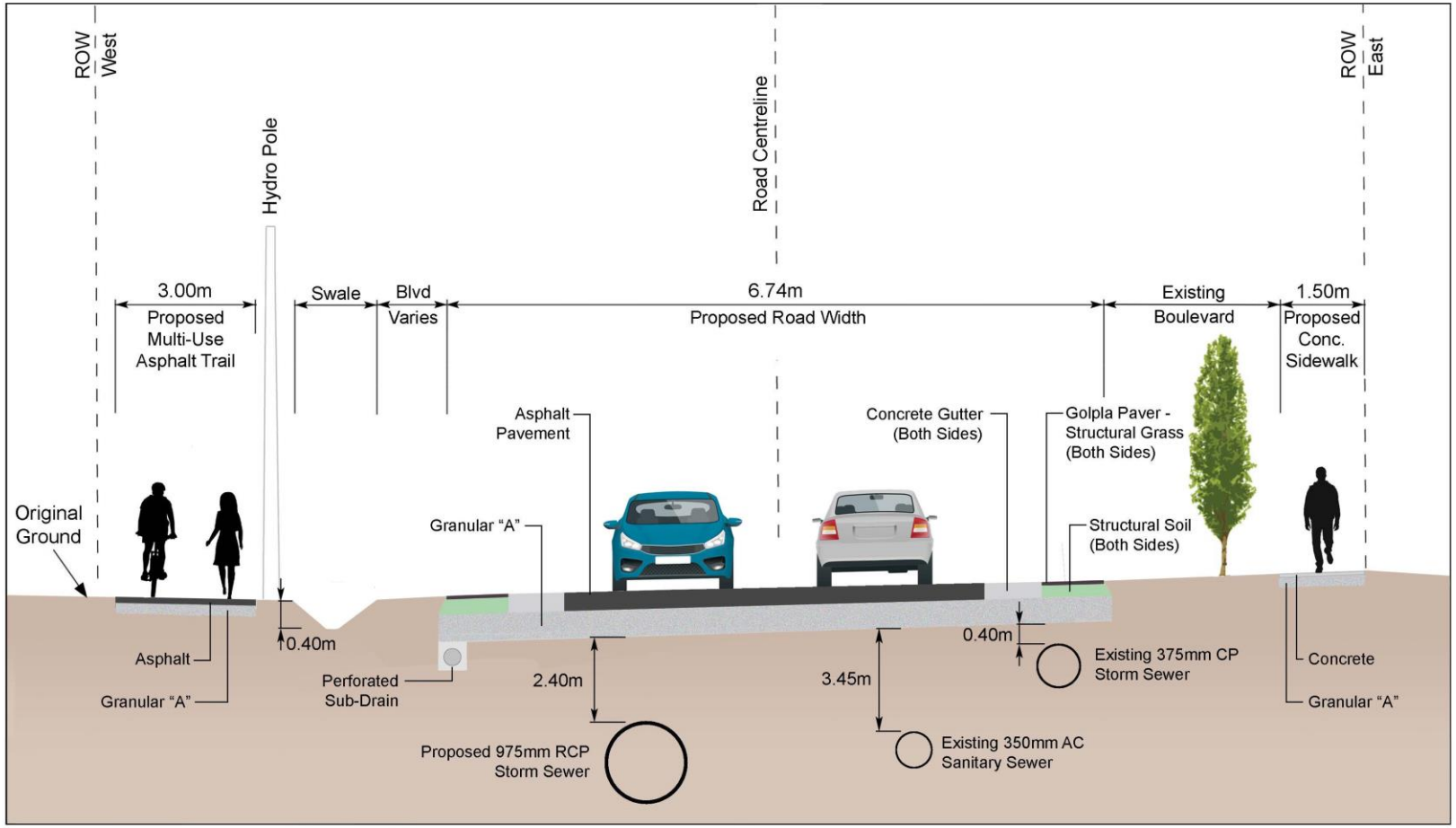


Figure 4-5: Alternative Design 1 – Jarvis Avenue from Riverside Drive East to Wyandotte Street East and from to Dillon Drive to Little River Boulevard

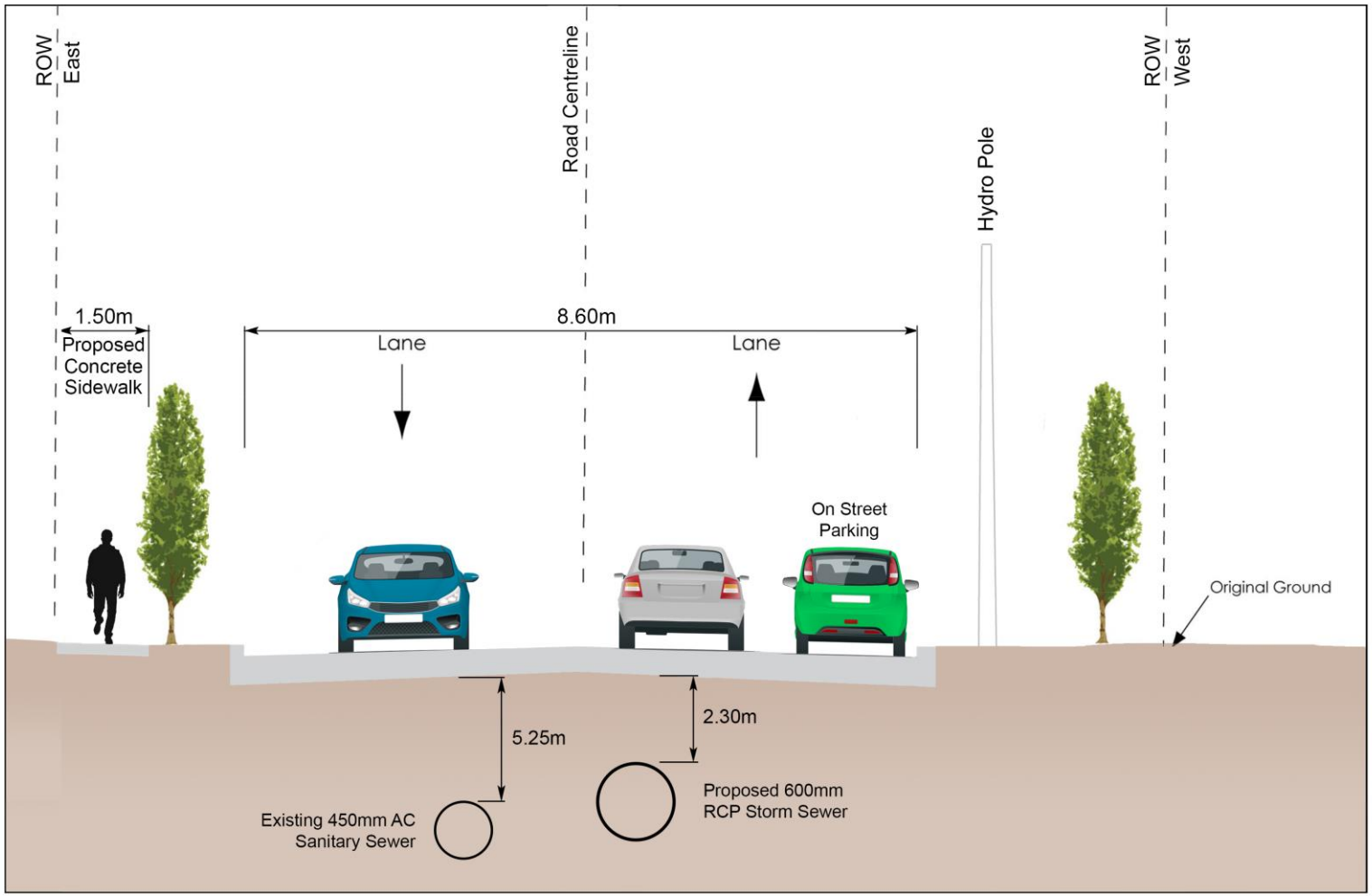
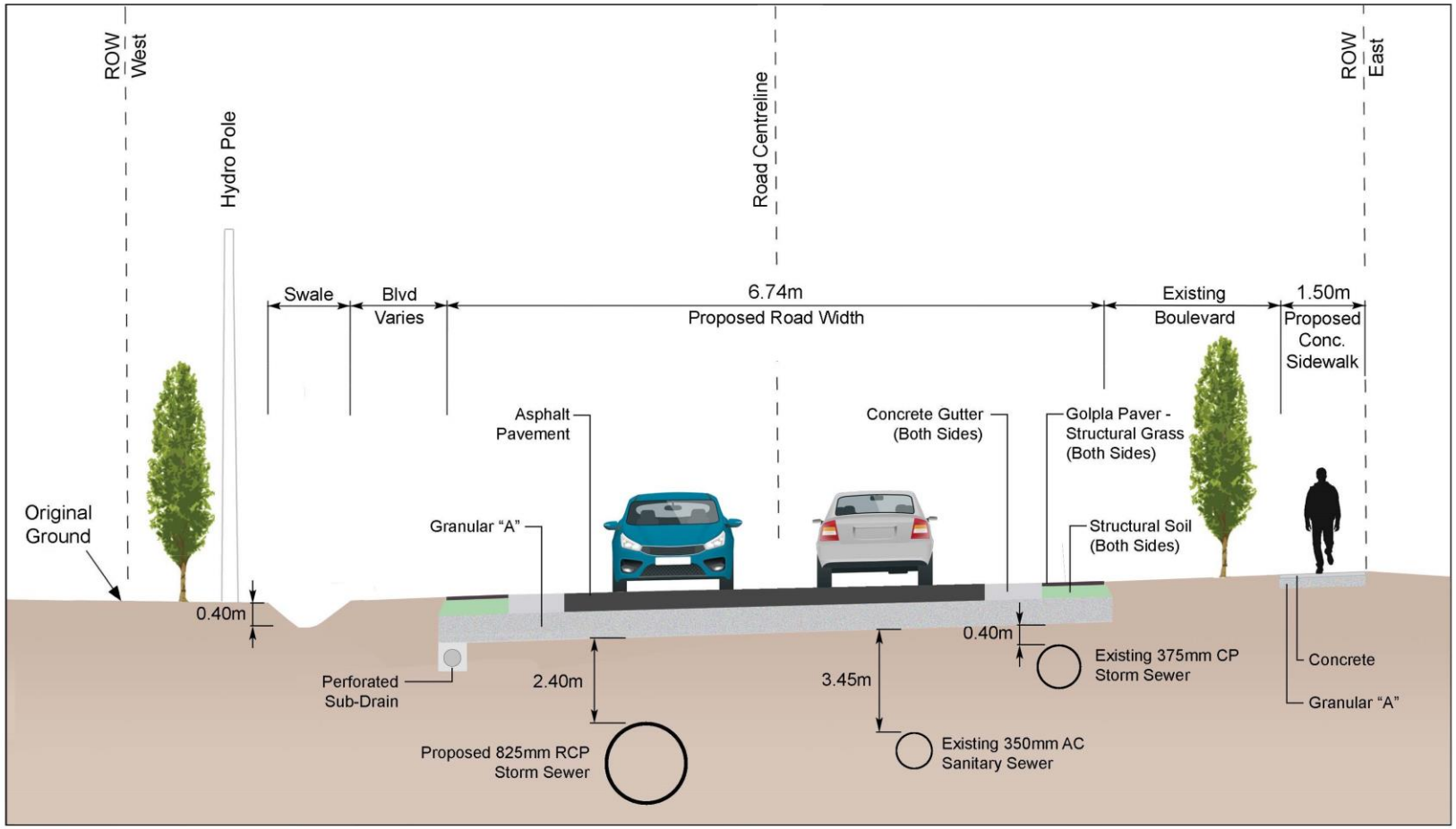


Figure 4-6: Alternative Design 2 - Jarvis Avenue from Riverside Drive East to Wyandotte Street East and from to Dillon Drive to Little River Boulevard



4.4 Evaluation and Recommended Alternative Designs

Several factors and criteria were used in the assessment of the design alternatives, including natural environment, social and cultural environment, economic environment, technical considerations, and financial consideration, which includes public feedback, active transportation network connections, and connection to the surrounding road network. Tables 4-1, 4-2 and 4-3 provides the evaluation of the alternative design concepts for Wyandotte Street East and Jarvis Avenue.

4.4.1 Wyandotte Street East Extension – Recommended Design

Alternative design 2 is the recommended design as shown in Figures 4-7a (cross-section) and 4-7b (plan view) and includes:

- Construct the Wyandotte Street East extension to a 9.6 m wide cross-section with full curb and gutter, including 1.50 m wide on-street bicycle lanes;
- a 1.50 m wide concrete sidewalk on the south side of the road;
- a 4.0 m wide asphalt multi-use trail on the north side of the road;
- Construct a traffic island on Wyandotte Street East at Jarvis Avenue;
- Construct a trunk storm sewer to service all neighbourhood drainage, including Wyandotte Street.

Table 4-1: Evaluation of Alternative Design Concepts - Wyandotte Street East Extension

Factors & Criteria	Alternative Design 1 – 10.40 m Wide Cross-Section	Alternative 2 – 9.60 m Wide Cross-Section
Natural Environment		
Vegetation and ecological communities loss and/or damage through clearing, grubbing and grading.	• More impact due to increased cross-section width.	• Reduced impact due to narrower cross-section width.
Wildlife habitat loss and/or damage.	• More impact due to increased cross-section width.	• Reduced impact due to narrower cross-section width.
Species at Risk (SAR) and Species of Conservation Concern (SOCC) habitat loss and/or damage.	• More impact due to increased cross-section width.	• Reduced impact due to narrower cross-section width.
Social / Cultural Environment		
Potential impact due to increased traffic volume and speeding.	• Implementation of the proposed traffic islands on Wyandotte at Jarvis to deter cut through traffic and promote traffic calming.	• Implementation of the proposed traffic islands on Wyandotte at Jarvis to deter cut through traffic and promote traffic calming. • Narrowing of road lane widths from municipal standard and addition of bicycle lanes on Wyandotte Street East to promote traffic calming.
Potential impact to Emergency Services access and response time to Jarvis Avenue.	• Emergency services access is increased and response time reduced.	• Emergency services access is increased and response time reduced.
Active Transportation	• Meets the City of Windsor's Active Transportation Master Plan for "All Ages and Abilities (AAA) Bicycle Network".	• Meets the City of Windsor's Active Transportation Master Plan for "All Ages and Abilities (AAA) Bicycle Network".
Property Impacts due to acquisition or easements.	• No property acquisition or easements required.	• No property acquisition or easements required.
Property Access	• No impact as Wyandotte Street East extension is currently vacant land.	• No impact as Wyandotte Street East extension is currently vacant land.
Potential impacts on cultural archaeological resources.	• There were no cultural heritage resources identified in the Stage 1 Archaeological Assessment. A Stage 2 archaeological assessment will be required for undisturbed areas within the construction footprint limits to determine any impacts and potential mitigation measures.	• There were no cultural heritage resources identified in the Stage 1 Archaeological Assessment. A Stage 2 archaeological assessment will be required for undisturbed areas within the construction footprint limits to determine any impacts and potential mitigation measures.
Economic Environment		
Potential impacts associated with implementation of project.	• No impacts to local businesses. • Temporary economic activity resulting from construction. • Creates opportunity for residential construction on adjacent vacant properties.	• No impacts to local businesses. • Temporary economic activity resulting from construction. • Creates opportunity for residential construction on adjacent vacant properties.
Technical Considerations		
Drainage and stormwater concerns	• More runoff due to increased pavement width. • This alternative includes construction of a trunk storm sewer on Jarvis Avenue from Wyandotte Street East to Castle Hill Avenue. This sewer is sized to accept runoff from all adjacent properties along Jarvis Avenue in a fully developed condition, and from the proposed road pavement.	• Less runoff due to reduced pavement width. • This alternative includes construction of a trunk storm sewer on Jarvis Avenue from Wyandotte Street East to Castle Hill Avenue. This sewer is sized to accept runoff from all adjacent properties along Jarvis Avenue in a fully developed condition, and from the proposed road pavement.
Coastal Flooding concerns	• The Essex Region Conservation Authority indicates that the 1:100 year flood level for the area of Wyandotte St. E and Jarvis Ave is 176.000 m G.S.C. • Minimum road elevations shall be constructed to an elevation no lower than 175.700 m to ensure no more than 0.30 metres depth of water during the current approved 1:100 year flood event.	• The Essex Region Conservation Authority indicates that the 1:100 year flood level for the area of Wyandotte St. E and Jarvis Ave is 176.000 m G.S.C. • Minimum road elevations shall be constructed to an elevation no lower than 175.700 m to ensure no more than 0.30 metres depth of water during the current approved 1:100 year flood event.
Financial Considerations		
Construction Cost	• Higher overall construction cost due to wider pavement width.	• Lower overall construction cost due to reduced pavement width.
Maintenance and Rehabilitation Costs	• Minor rehabilitation will be required at 10-years, consisting of asphalt repairs, crack sealing, sewer flushing. • Major rehabilitation will be required at 25-years consisting of asphalt pavement resurfacing/replacement. • Estimated maintenance and rehabilitation cost higher due to increased pavement width.	• Minor rehabilitation will be required at 10-years, consisting of asphalt repairs, crack sealing, sewer flushing. • Major rehabilitation will be required at 25-years consisting of asphalt pavement resurfacing/replacement. • Estimated maintenance and rehabilitation lower due to narrowed pavement width.
Overall Recommendation	**Not Recommended**	**Recommended**

Table 4-2: Evaluation of Alternative Design Concepts – Jarvis Avenue from Wyandotte Street East to Dillon Drive

Factors & Criteria	Alternative Design 1 – 10.40 m Wide Cross-Section	Alternative 2 – 6.74 m Wide Cross-Section
Natural Environment		
Vegetation and ecological communities loss and/or damage through clearing, grubbing and grading.	• Minimal impact due to Jarvis being a developed neighborhood.	• Minimal impact due to Jarvis being a developed neighborhood. • Narrower cross-section width from municipal standard results in lower impact.
Wildlife habitat loss and/or damage.	• Minimal impact due to Jarvis being a developed neighborhood.	• Minimal impact due to Jarvis being a developed neighborhood. • Narrower cross-section width from municipal standard results in lower impact.
Species at Risk (SAR) and Species of Conservation Concern (SOCC) habitat loss and/or damage.	• Minimal impact due to Jarvis being a developed neighborhood.	• Minimal impact due to Jarvis being a developed neighborhood. • Narrower cross-section width from municipal standard results in lower impact.
Social / Cultural *E*nvironment		
Potential impact due to increased traffic volume and speeding.	• Implementation of the proposed traffic islands on Dillon Drive and Wyandotte Street to deter cut through traffic and promote traffic calming.	• Implementation of the proposed traffic islands on Dillon Drive and Wyandotte Street to deter cut through traffic and promote traffic calming. • Narrowing of road lane widths from municipal standard to promote traffic calming.
Potential impact to Emergency Services access and response time to Jarvis Avenue.	• Emergency services access is increased and response time reduced due to Wyandotte Street extension.	• Emergency services access is increased and response time reduced due to Wyandotte Street extension.
Property Impacts due to acquisition or easements.	• No property acquisition or easements required.	• No property acquisition or easements required.
Property Access	• Temporary road/lane closures are required during period of construction.	• Temporary road/lane closures are required during period of construction.
Potential impacts on cultural archaeological resources.	• There were no cultural heritage resources identified in the Stage 1 Archaeological Assessment. A Stage 2 archaeological assessment will be required for undisturbed areas within the construction footprint limits to determine any impacts and potential mitigation measures.	• There were no cultural heritage resources identified in the Stage 1 Archaeological Assessment. A Stage 2 archaeological assessment will be required for undisturbed areas within the construction footprint limits to determine any impacts and potential mitigation measures.
Economic Environment		
Potential impacts associated with implementation of project	• No impacts to local businesses. • Temporary economic activity resulting from construction. • Creates opportunity for residential construction on adjacent vacant properties.	• No impacts to local businesses. • Temporary economic activity resulting from construction. • Creates opportunity for residential construction on adjacent vacant properties.
Technical Considerations		
Drainage and stormwater concerns	• More runoff due to increased pavement width. • This alternative includes construction of a trunk storm sewer on Jarvis Avenue from Wyandotte Street East to Castle Hill Avenue. This sewer is sized to accept runoff from all adjacent properties in a fully developed condition, and from the proposed road pavement.	• Less runoff due to reduced pavement width. • This alternative includes construction of a trunk storm sewer on Jarvis Avenue from Wyandotte Street East to Castle Hill Avenue. This sewer is sized to accept runoff from all adjacent properties in a fully developed condition, and from the proposed road pavement.
Coastal Flooding concerns	• The Essex Region Conservation Authority indicates that the 1:100 year flood level for the area of Wyandotte St. E and Jarvis Ave. is 176.000 m G.S.C. • Minimum road elevations shall be constructed to an elevation no lower than 175.700 m to ensure no more than 0.30 metres depth of water during the current approved 1:100 year flood event.	• The Essex Region Conservation Authority indicates that the 1:100 year flood level for the area of Wyandotte St. E and Jarvis Ave. is 176.000 m G.S.C. • Minimum road elevations shall be constructed to an elevation no lower than 175.700 m to ensure no more than 0.30 metres depth of water during the current approved 1:100 year flood event.
Financial Considerations		
Construction Cost	• Higher overall construction cost due to wider pavement width.	• Lower overall construction cost due to reduced pavement width.
Maintenance and Rehabilitation Costs	• Minor rehabilitation will be required at 10-years, consisting of asphalt repairs, crack sealing, sewer flushing. • Major rehabilitation will be required at 25-years consisting of asphalt pavement resurfacing/replacement. • Estimated maintenance and rehabilitation cost higher due to increased pavement width.	• Minor rehabilitation will be required at 10-years, consisting of asphalt repairs, crack sealing, sewer flushing. • Major rehabilitation will be required at 25-years consisting of asphalt pavement resurfacing/replacement. • Estimated maintenance and rehabilitation lower due to narrowed pavement width.
Overall Recommendation	**Not Recommended**	**Recommended**

Table 4-3: Evaluation of Alternative Design Concepts – Jarvis Avenue from Riverside Drive East to Wyandotte Street East and from Dillon Drive to Little River Boulevard

Factors & Criteria	Alternative Design 1 – 8.60 m Wide Cross-Section	Alternative 2 – 6.74 m Wide Cross-Section
Natural Environment		
Vegetation and ecological communities loss and/or damage through clearing, grubbing and grading.	• Minimal impact due to Jarvis being a developed neighborhood.	• Minimal impact due to Jarvis being a developed neighborhood. • Narrower cross-section width from municipal standard results in lower impact.
Wildlife habitat loss and/or damage.	• Minimal impact due to Jarvis being a developed neighborhood.	• Minimal impact due to Jarvis being a developed neighborhood. • Narrower cross-section width from municipal standard results in lower impact.
Species at Risk (SAR) and Species of Conservation Concern (SOCC) habitat loss and/or damage.	• Minimal impact due to Jarvis being a developed neighborhood.	• Minimal impact due to Jarvis being a developed neighborhood. • Narrower cross-section width from municipal standard results in lower impact.
Social / Cultural Environment		
Potential impact due to increased traffic volume and speeding.	• Implementation of the proposed traffic islands on Dillon Drive and Wyandotte Street deter cut through traffic and promote traffic calming.	• Implementation of the proposed traffic islands on Dillon Drive and Wyandotte Street deter cut through traffic and promote traffic calming. • Narrowing of road lane widths from municipal standard to promote traffic calming.
Potential impact to Emergency Services access and response time.	• Emergency services access is increased and response time reduced.	• Emergency services access is increased and response time reduced.
Property Impacts due to acquisition or easements	• No property acquisition or easements required.	• No property acquisition or easements required.
Property Access	• Temporary road/lane closures on required during period of construction.	• Temporary road/lane closures on required during period of construction.
Potential impacts on cultural archaeological resources	• There were no cultural heritage resources identified in the Stage 1 Archaeological Assessment. A Stage 2 archaeological assessment will be required for undisturbed areas within the construction footprint limits to determine any impacts and potential mitigation measures.	• There were no cultural heritage resources identified in the Stage 1 Archaeological Assessment. A Stage 2 archaeological assessment will be required for undisturbed areas within the construction footprint limits to determine any impacts and potential mitigation measures.
Economic Environment		
Potential impacts associated with implementation of project	• No impacts to local businesses. • Temporary economic activity resulting from construction. • Creates opportunity for residential construction on adjacent vacant properties.	• No impacts to local businesses. • Temporary economic activity resulting from construction. • Creates opportunity for residential construction on adjacent vacant properties.
Technical Considerations		
Drainage and stormwater concerns	• More runoff due to increased pavement width. • This alternative includes construction of a trunk storm sewer on Jarvis Avenue from Wyandotte Street East to Castle Hill Avenue. This sewer is sized to accept runoff from all adjacent properties in a fully developed condition, and from the proposed road pavement.	• Less runoff due to reduced pavement width. • This alternative includes construction of a trunk storm sewer on Jarvis Avenue from Wyandotte Street East to Castle Hill Avenue. This sewer is sized to accept runoff from all adjacent properties in a fully developed condition, and from the proposed road pavement.
Coastal Flooding concerns	• The Essex Region Conservation Authority indicates that the 1:100 year flood level for the area of Wyandotte St. E and Jarvis Ave. is 176.000 m G.S.C. • Minimum road elevations shall be constructed to an elevation no lower than 175.700 m to ensure no more than 0.30 metres depth of water during the current approved 1:100 year flood event.	• The Essex Region Conservation Authority indicates that the 1:100 year flood level for the area of Wyandotte St. E and Jarvis Ave. is 176.000 m G.S.C. • Minimum road elevations shall be constructed to an elevation no lower than 175.700 m to ensure no more than 0.30 metres depth of water during the current approved 1:100 year flood event.
Financial Considerations		
Construction Cost	• Higher overall construction cost due to wider pavement width.	• Lower overall construction cost due to reduced pavement width.
Maintenance and Rehabilitation Costs	• Minor rehabilitation will be required at 10-years, consisting of asphalt repairs, crack sealing, sewer flushing. • Major rehabilitation will be required at 25-years consisting of asphalt pavement resurfacing/replacement. • Estimated maintenance and rehabilitation cost higher due to increased pavement width.	• Minor rehabilitation will be required at 10-years, consisting of asphalt repairs, crack sealing, sewer flushing. • Major rehabilitation will be required at 25-years consisting of asphalt pavement resurfacing/replacement. • Estimated maintenance and rehabilitation lower due to narrowed pavement width.
Overall Recommendation	**Not Recommended**	**Recommended**

4.4.2 Jarvis Avenue – Recommended Designs

4.4.2.1 Jarvis Avenue from Wyandotte Street East to Dillon Drive

Alternative design 2 is the recommended design as shown in Figures 4-8a (cross-section) and 4-8b (plan view) and includes:

- Reconstruct Jarvis Avenue to a 6.74 m wide cross-section with concrete gutters and no curbs to maintain a rural feel;
- a 1.50 m wide concrete sidewalk on the east side of the road;
- a 3.0 m wide multi-use asphalt trail on the west side of the road;
- Construct a traffic island on Dillon Drive at Jarvis Avenue.

4.4.2.2 Jarvis Avenue from Riverside Drive East to Wyandotte Street East and from Dillon Drive to Little River Boulevard

Alternative design 2 is the recommended design as shown in Figures 4-9a (cross-section) and 4-9b, 4-9c and 4-9d (plan views) and includes:

- Reconstruct Jarvis Avenue to a 6.74 m wide cross-section with concrete gutters and no curbs to maintain a rural feel;
- a 1.50 m wide concrete sidewalk on the east side of the road;
- Rebuild the cul-de-sac on Jarvis Avenue to municipal standards at Little River Boulevard and remove the driveway approach.

Figure 4-7a: Recommended Design (Cross-Section) - Wyandotte Street East Extension

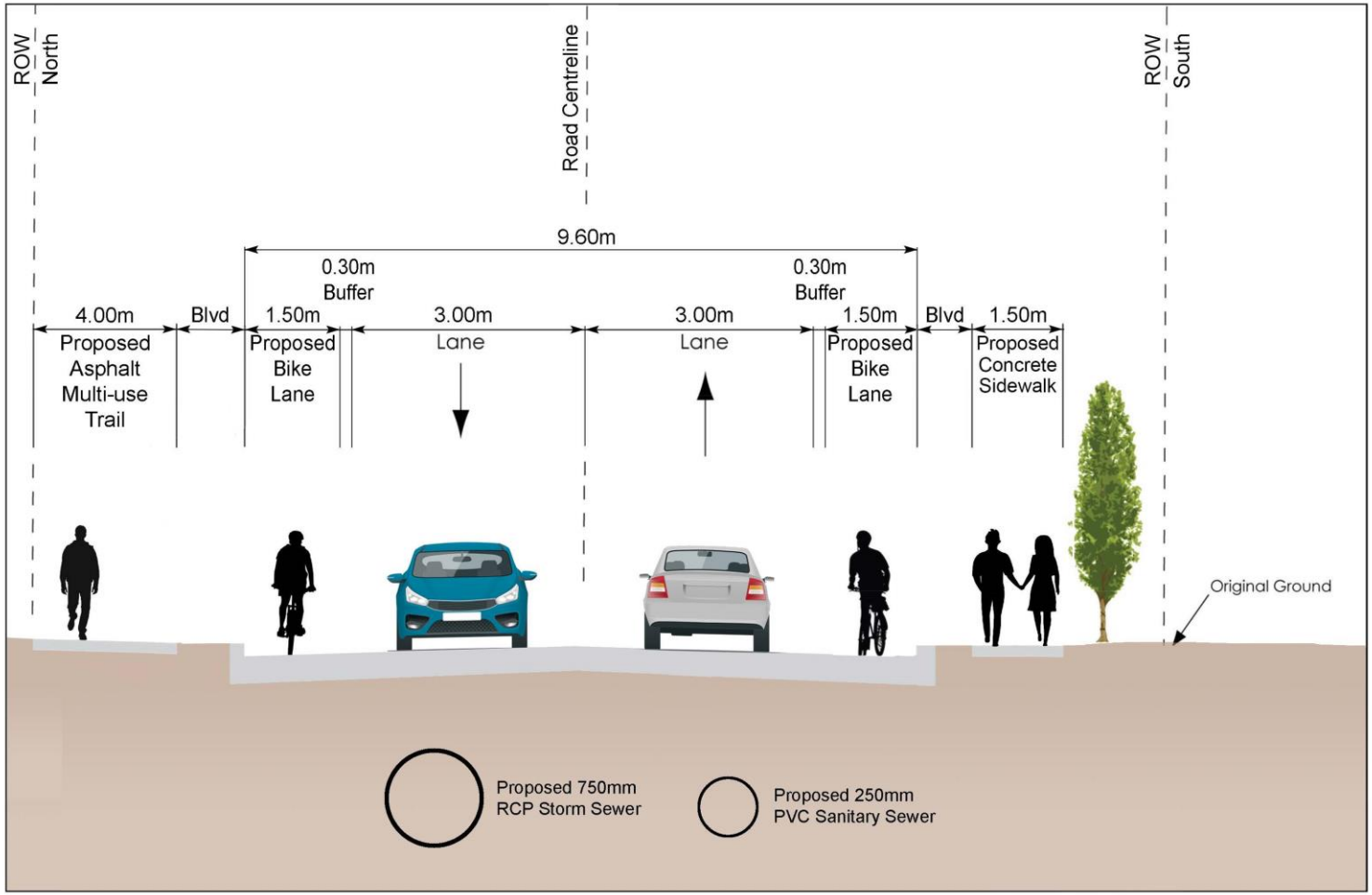


Figure 4-7b: Recommended Design (Plan View) - Wyandotte Street East Extension

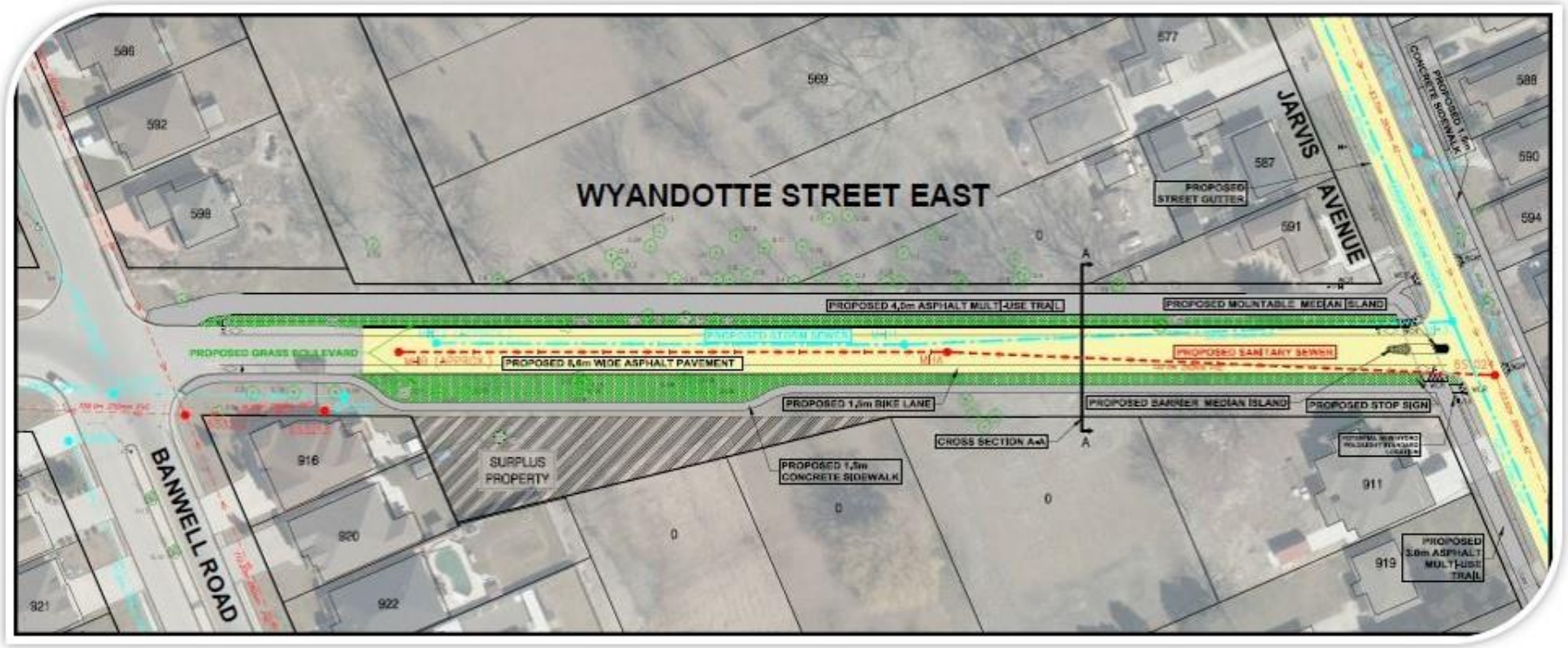
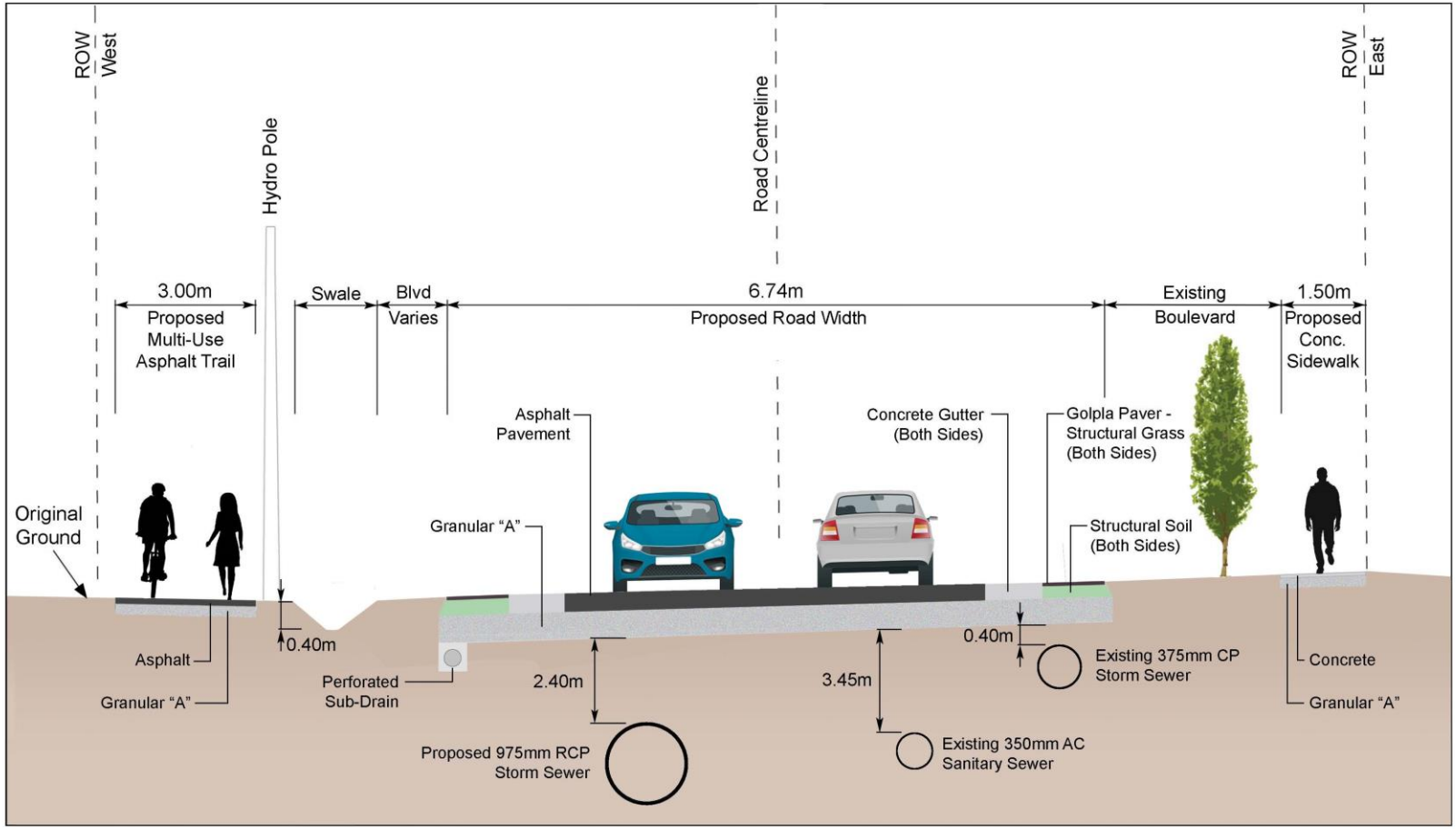


Figure 4-8a: Recommended Design (Cross-Section) - Jarvis Avenue from Wyandotte Street East to Dillon



Drive

Figure 4-8b: Recommended Design (Plan View) - Jarvis Ave from Wyandotte Street East to Beverly Glen Street

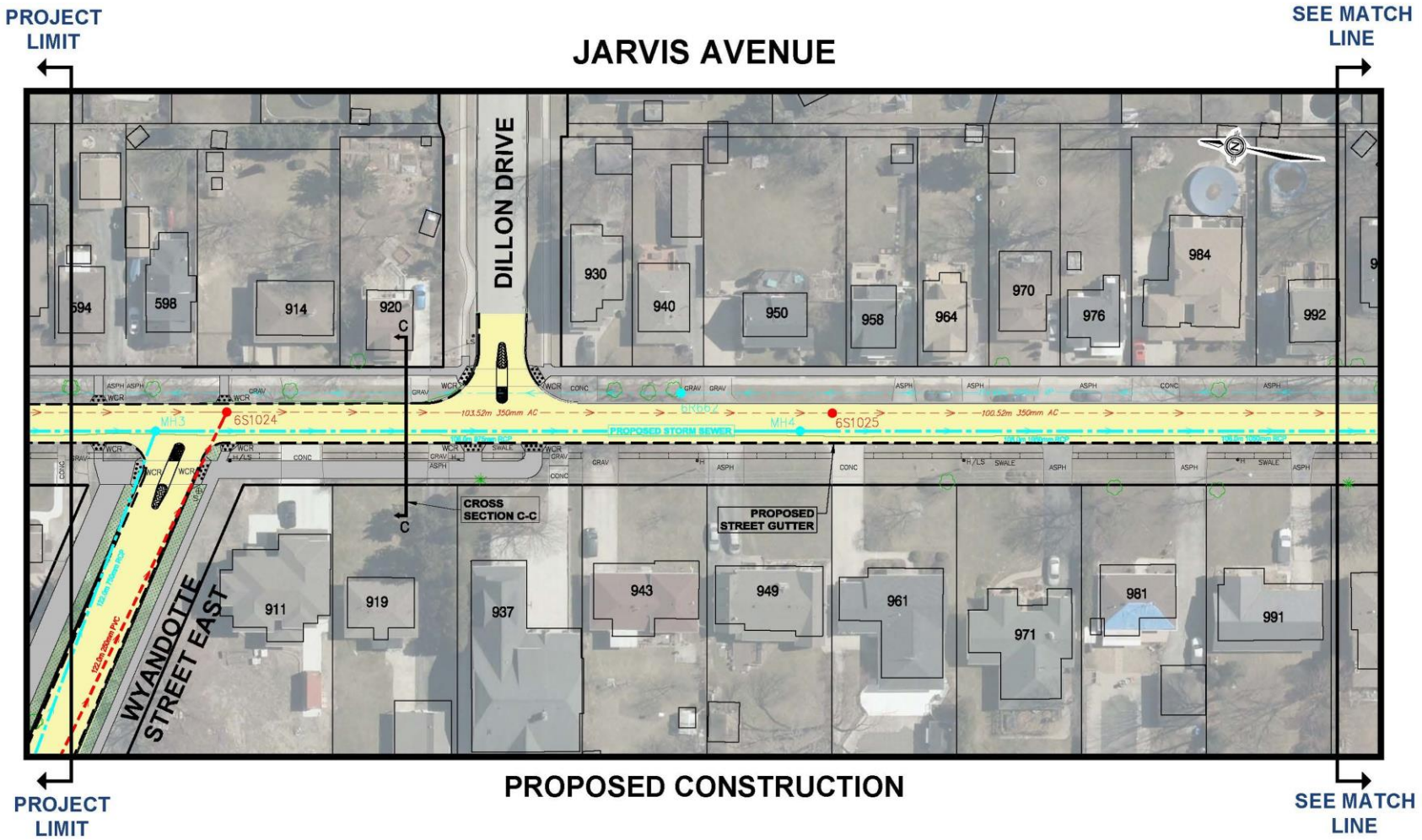


Figure 4-9a: Recommended Design (Cross-Section) - Jarvis Ave from Riverside Drive East to Wyandotte Street East and from Dillon Drive to Little River Boulevard

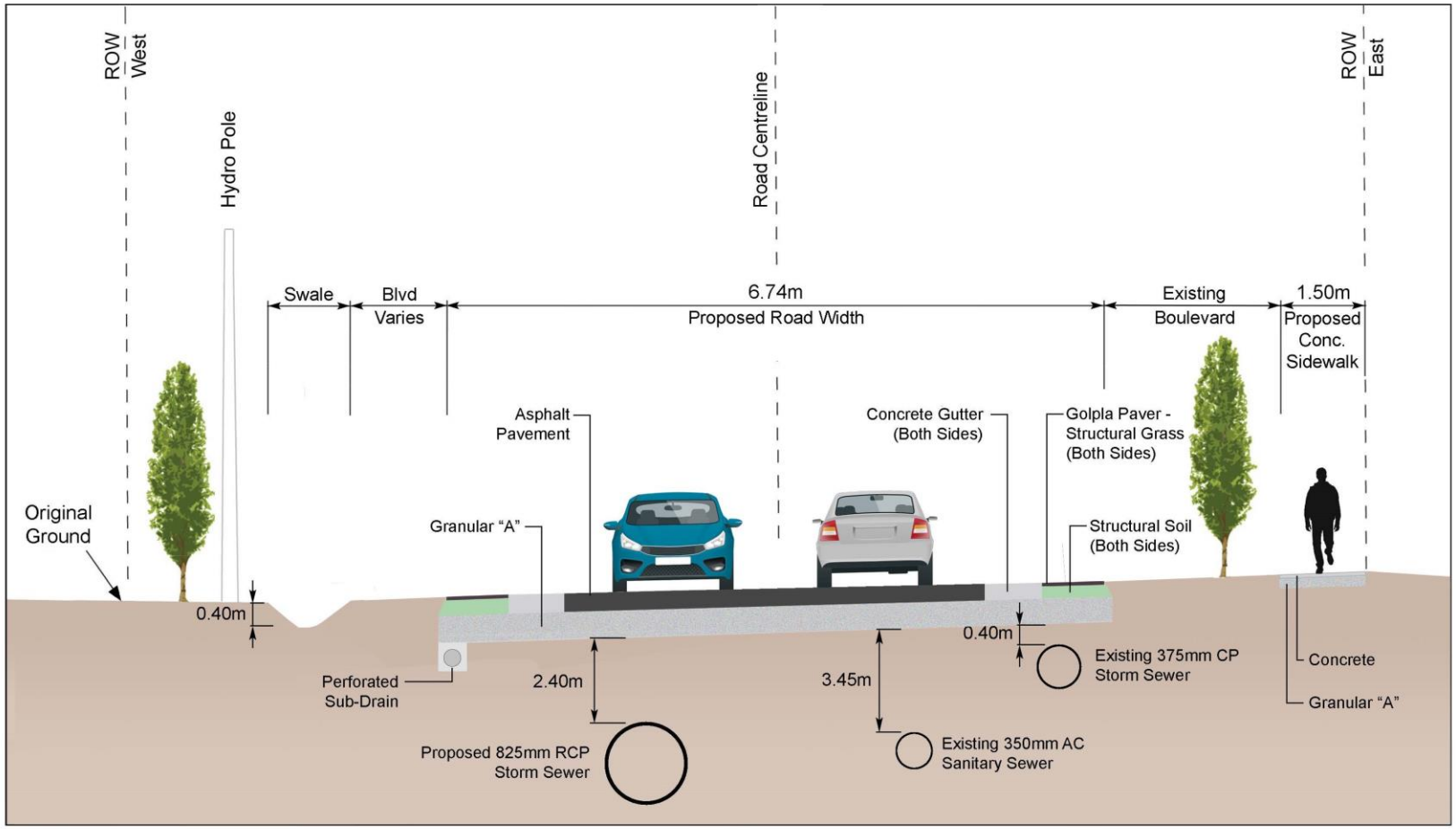


Figure 4-9b: Recommended Design (Plan View) - Jarvis Avenue from Riverside Drive East to Wyandotte Street

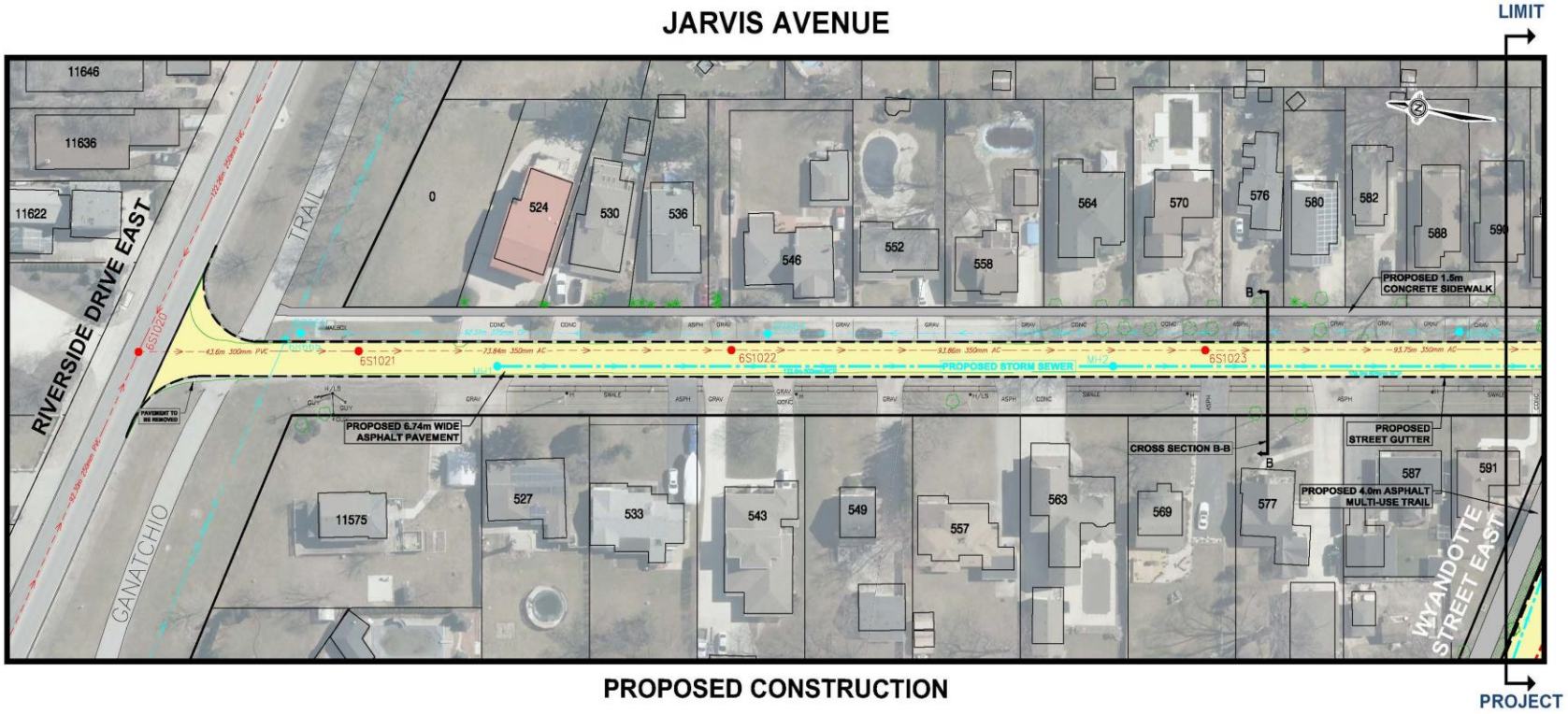


Figure 4-9c: Recommended Design (Plan View) - Jarvis Ave from South of Dillon Drive to Beverly Glen Street

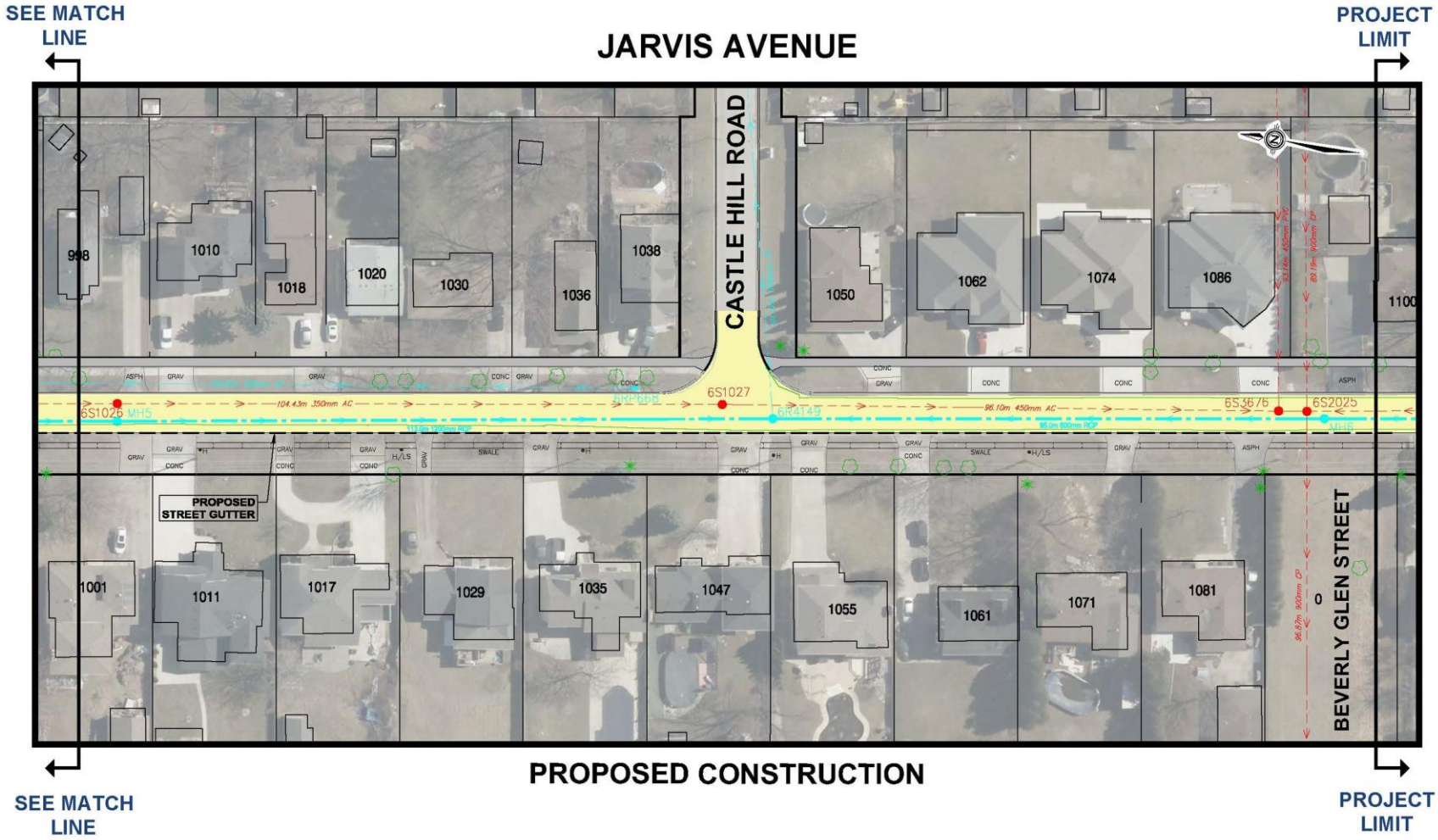
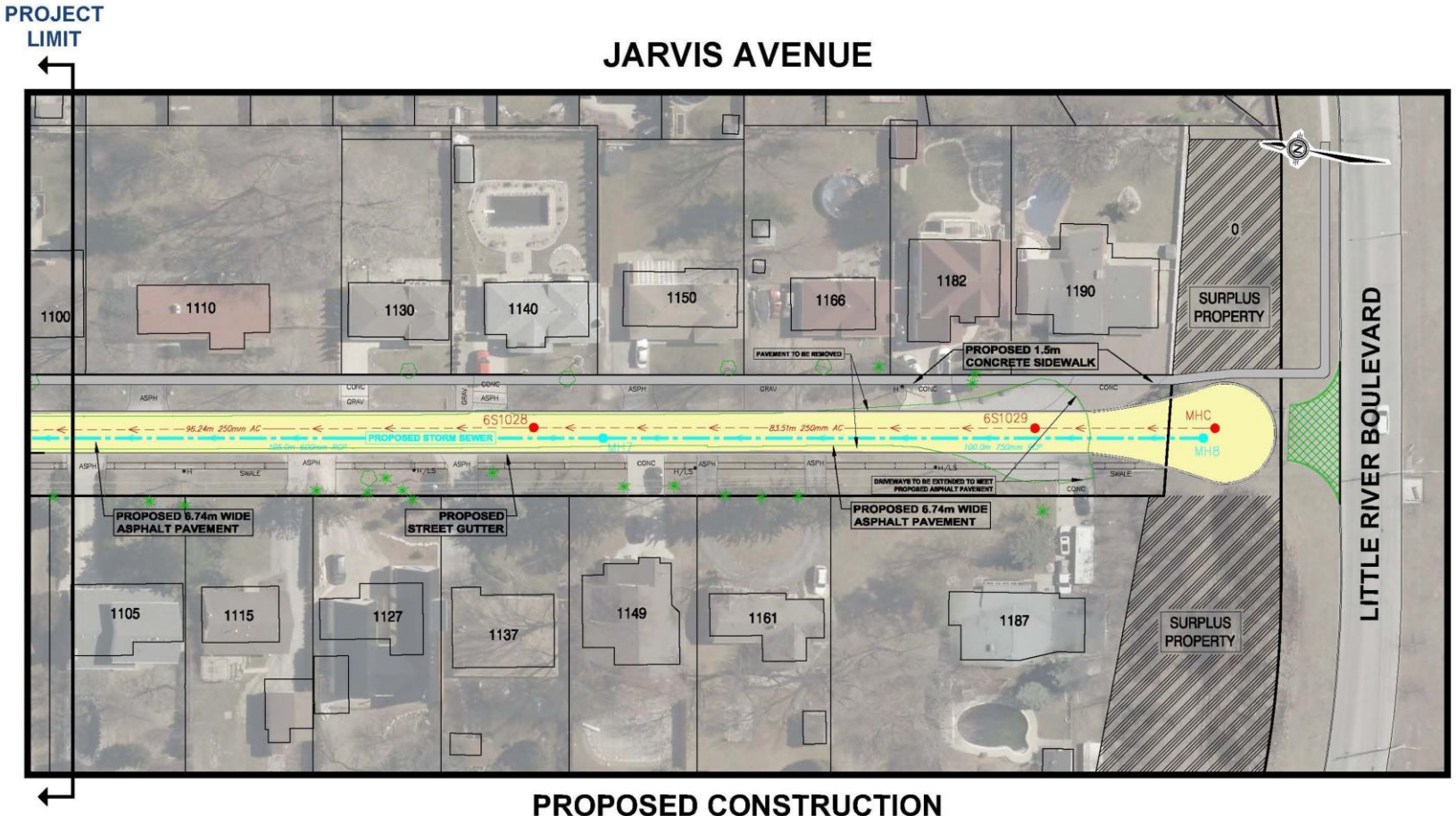


Figure 4-9d: Recommended Design (Plan View) - Jarvis Ave from Beverly Glen Street to Little River Boulevard



4.5 Description of the Preferred Designs

Based on the evaluations of the alternative designs and the comments received, the project team concluded that Alternative 2 for both Wyandotte Street East and Jarvis Avenue are the preferred designs, subject to minor refinements in detailed design.

The preferred design for Wyandotte Street East and Jarvis Avenue comprises two through lanes throughout the Study Area and were developed to address the concerns for cut-through traffic into the neighbourhood and resulting public safety impacts from increased motor vehicle use; concern that updating the road to the municipal design standard of 8.60 metres will encourage speeding and higher traffic volumes; concern that additional flood and sewer system capacity risk may be created due to new runoff created by the Wyandotte Street East and expanded Jarvis Avenue pavement; and natural environment protection.

4.5.1 Intersections

Wyandotte Street East and Jarvis Avenue

A new intersection will be created with the extension of Wyandotte Street East to Jarvis Avenue. In order to provide traffic calming and reduce cut through traffic, the implementation of a traffic island is proposed. In addition, Wyandotte Street East and Jarvis Avenue will be a stop intersection and Wyandotte Street will be narrowed below the municipal standard with bicycle lanes to promote traffic calming.

Jarvis Avenue and Dillon Drive

For the existing intersection of Jarvis Avenue and Dillon Drive, the implementation of a traffic island is also proposed. In addition, Jarvis Avenue and Dillon Drive will remain a stop intersection and Jarvis Avenue will be narrowed below the municipal

standard to promote traffic calming. No other traffic calming measures (speed humps, etc.) would be considered due to the lack of curbs on the roadway.

4.5.2 Active Transportation

The City of Windsor's Active Transportation Master Plan, (ATMP), dated May 2019, outlines a network that connects key existing trails and pathways to a developed on-street network which will allow commuters, recreational users, and others to have safe, convenient, attractive and fun options to travel by walking, cycling, or transit.

Cycling Facilities

The ATMP identified cycling facilities to be installed on Wyandotte Street West to Jarvis Avenue, down Jarvis Avenue to Dillon Drive and east to the City limits (See ATMP Figure 26). The ATMP identifies this cycling facility to be a proposed off-street pathway and an "All Ages and Abilities (AAA) Bicycle Network" (ATMP Figures 24 & 27).

4.5.3 Drainage and Stormwater Management Requirements

To address the concerns of poor drainage along Jarvis Avenue and to service Wyandotte Street East, it is proposed to construct a new trunk storm sewer on Jarvis Avenue between Wyandotte Street East and the outlet trunk storm sewer at Castle Hill Road. This trunk storm sewer will be sized to accept runoff from all adjacent properties in a fully developed condition, and from the proposed road pavement. The trunk storm sewer cost is borne in full by the municipality.

To address potential risks of coastal flooding impacts to the area, the Essex Region Conservation Authority (ERCA) provided the 1:100 year flood level for the area of Wyandotte Street East and Jarvis Avenue of 176.000 metres G.S.C. The minimum road elevations shall be constructed to an elevation no lower than 175.700 metres

to ensure no more than a 0.300 metre depth of water during the a 1:100 year flood event.

4.5.4 Sanitary Sewer

Due to its poor condition, the sanitary sewer between Wyandotte Street East and the Beverly Glen Street right-of-way will undergo reconstruction.

4.5.5 Property Impacts

The preferred designs require no property impacts along Wyandotte Street East or Jarvis Avenue.

4.5.6 Local Improvement

City Portion

- The City will be assessed the full cost of all new pavement on both Wyandotte Street East and Jarvis Avenue, sanitary sewer rehabilitation between Wyandotte Street East and the Beverly Glen Street right-of-way, trunk storm sewer on Jarvis Avenue between Wyandotte Street East and the outlet trunk storm sewer at Castle Hill Road, and all existing local storm sewer replacement and drainage works.

Resident Portion

- Under the existing Local Improvement policy, residents will be assessed the cost of new concrete gutters along Jarvis Avenue.
- Where no local storm sewers currently exist, the abutting residents will be assessed a portion of the cost of new storm sewers and new private drain connections to this sewer. This area exists south of Castle Hill Road to Little River Road.
- These improvements can be rejected by residents.

4.5.7 Parking on Road and Boulevard

The current parking by-law (No. 9023) does not allow parking on Jarvis Avenue. Boulevard parking is also prohibited. The intention with the updated design is to maintain no parking on Jarvis Avenue. City Council would have to approve any amendment to the current no parking by-law to allow parking on Jarvis Avenue.

4.5.8 Construction Implementation and Phasing

Construction is scheduled to take place as soon as approved budget funding is in place and will consist of the following phases:

Phase 1 – In order to provide a storm sewer connection for the Wyandotte Street East extension and provide for proper drainage for Jarvis Avenue north of Castle Hill Road, the trunk storm sewer on Castle Hill Road will need to be extended up to the Wyandotte Street East extension. In addition, a new sanitary sewer on Jarvis Avenue between Wyandotte Street East and the Beverly Glen Street right-of-way would also be reconstructed under this phase due to its poor condition.

Therefore the roadway section on Jarvis Avenue from the Beverly Glen Street right-of-way to the Wyandotte Street East extension would be the first phase of construction.

Future Phases – Three sections are considered for the remaining work on Jarvis Avenue and Wyandotte Street East.

A - Riverside Drive East to Wyandotte Street East;
B - Beverly Glen Street to Little River Boulevard;
C - Wyandotte Street East Extension.

4.5.9 Preliminary Construction Cost Estimate

Table 4-4: Preliminary Construction Cost Estimate

Description	Wyandotte Street East Extension and Jarvis Avenue (Wyandotte Street to Beverly Glen)	Jarvis Avenue (Riverside Drive to Wyandotte Street & Beverly Glen to Little River)
Road Works	$1,010,000	$734,000
Drainage Works	$149,000	$401,000
Restoration	$330,000	$250,000
Multi-Use Trail and/or Sidewalk	$280,000	$296,000
Sanitary Sewer	$999,000	$1,726,000
Storm Sewer	$1.496,000	$1,438,000
Private Drain Connections	$350,000	$1,180,000
Miscellaneous	$132,000	$249,000
Contingency Allowance (20%)	$949,200	$1,254,800
Engineering and other internal costs (20%)	$949,200	$1,254,800
GRAND TOTAL (excluding HST)	**$6,644,400**	**$8,783,600**

5.0 CONCLUSION AND NEXT STEPS

This ESR documents the rationale and background to the project, existing conditions within the Study Area, the planning, design and consultation process leading to the selection of preferred designs, anticipated positive and negative impacts, proposed mitigation measures and future works.

In accordance with the requirements of the Municipal Class EA process, this report is being filed on public record for a minimum of 30-day public review period. Interested persons may provide written comments to our project team by March 1, 2024. All comments and concerns should be sent directly to the following:

Paul Mourad, P. Eng.
Engineer III
City of Windsor
350 City Hall Square West
Windsor, Ontario, N9A 6S1
Email: pmourad@citywindsor.ca

In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e., requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g., require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered.

Requests should include the requester contact information and full name. Requests should specify what kind of order is being requested (request for conditions or a request for an individual/comprehensive environmental assessment), how an order may prevent, mitigate or remedy potential adverse impacts on Aboriginal and treaty rights, and any information in support of the statements in the request. This will ensure that the Ministry is able to efficiently begin reviewing the request.

The request should be sent in writing or by email to:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

Requests should also be copied by e-mail to the Project Contact identified above.

All personal information included in your request – such as name, address, telephone number and property location – is collected, under the authority of section 30 of the Environmental Assessment Act and is collected and maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the Freedom of Information and Protection of Privacy Act (FIPPA) does not apply (s.37). Personal information you submit will become part of a public record that is available to the general public unless you request that your personal information remain confidential.