



GRAND RIVER STREET NORTH CORRIDOR ENVIRONMENTAL STUDY REPORT VOLUME 1, REVISION 1

Schedule C Municipal Class Environmental Assessment

April 2021





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Revision History	Date	Description of Change
1	September 22, 2020	Updates to Recommended Plan Plates 5 and 6, and Recommended Plan Urban Design Plates 5A and 5B.
2	September 22, 2020	Addition of Cultural Heritage Evaluation Criteria to Table 3, 21 and 22.
3	November 25, 2020	Revisions to Section 4.1.4 Sourcewater Protection.
4	November 25, 2020	Revisions to the “Summary of Issues, Proposed Mitigation and Commitments to Future Work” table to state: <ul style="list-style-type: none"> • No receiver sites will experience sound level changes greater than 5 dBA and no receiver site will have a total sound level of over 65 dBA with the project in the year 2030. • The construction of a barrier solely for noise abatement is not warranted, however a noise barrier will be installed along Paris Links Road to mitigate sound and visual intrusion. The posted speed along West River Road will be 50 km/h. • Two wells are located on the Girl Guides property within 500 m of the project (Well ID 1301380 and 1304573). The County will monitor the wells post construction.
5	April 14, 2021	Revision to Section 4.2.2 Noise.
6	April 14, 2021	Updates to Appendix H and Appendix G.

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Appendix H Noise
Appendix I Land Use Planning Report
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EXECUTIVE SUMMARY

ES.1 EA PROJECT

The County of Brant initiated this Class Environmental Assessment (Class EA) in August 2017 for the planning of operational improvements to Grand River Street North from Watts Pond Road to William Street. These improvements will address traffic operation, multi-modal transportation and safety concerns associated with increased traffic demand and population growth related to the Province's Places to Grow Policy and the County's expansion areas in Paris. The study has taken into consideration the adjacent institutional, commercial and residential land uses. The project is subject to Schedule C of the Municipal Class Environmental Assessment (Class EA) process, under the Province of Ontario's Environmental Assessment Act (revised 2015).

This Environmental Study Report (ESR) documents the existing needs, environmental inventories and constraints, planning and preliminary design alternatives, and the analysis and evaluation of these alternatives resulting in a Recommended Plan for improvements to the Grand River Street North Corridor.

Problem Statement

Grand River Street North represents the northern gateway to the Community of Paris, providing access to existing commercial and residential developments. Increased area traffic congestion has been projected as a result of proposed residential and employment growth. Safety concerns have been noted to exist along the corridor for pedestrians and cyclists.

The need for improvements to the Grand River Street North corridor, south of Bradbury Crescent, was identified in the 2016 Transportation Master Plan (TMP) Update, predominantly as a result of the planned Paris on the Grand development, and assuming a 30% diversion of traffic to a new corridor by 2031. Future development, north of Scott Avenue, that will include the Northwest Paris Secondary Plan Area, the Cordon lands and the Vicano site, will further increase traffic along the corridor. This study has considered the roadway requirements to meet existing and future travel demands, so that these can potentially be coordinated with the roadway construction that will be required to service those developments.

Study Area

The study area encompasses Grand River Street North from Watts Pond Road to William Street. It is bounded by Watts Pond Road to the north, William Street to the south, and West River Road to the east.

The study area is illustrated in **Figure E1**.

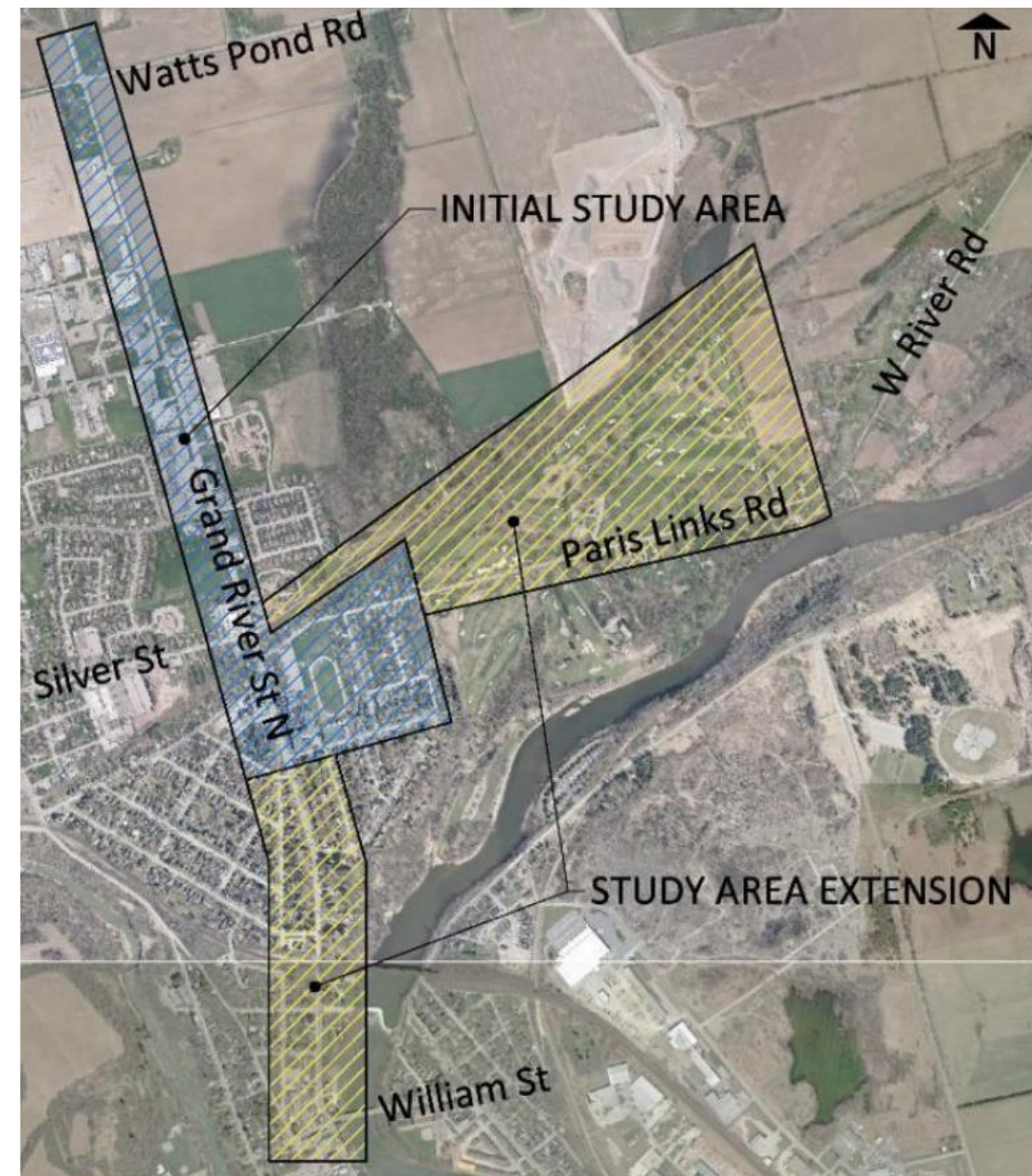


Figure E1: Study Area

ES.2 MUNICIPAL CLASS EA PROCESS

This project was undertaken to satisfy the Provincial EA Act following the “Municipal Class Environmental Assessment” process for a Schedule C project as amended by the Municipal Class EA 2015. This document specifies the procedures required to plan specific road projects according to an approved planning process.

The Class EA process was undertaken in a series of phases commencing with problem identification and culminating in the filing of this ESR.

The Class EA process includes an evaluation of all reasonable alternatives and the selection of a preferred alternative(s) with acceptable effects (including avoidance and mitigation of any residual adverse effects) on the natural and social/cultural environments. The Municipal Class EA process entails five phases:

- Phase 1: Identify the Problem
- Phase 2: Alternative Solutions
- Phase 3: Alternative Design Concepts for the Preferred Solution
- Phase 4: Environmental Study Report (ESR)
- Phase 5: Implementation

ES.3 CONSULTATION

The public consultation approach used several techniques to proactively involve the public. The study was carried out in consultation with staff from the County of Brant, external agencies, property owners and the public.

The EA process included circulating a draft Study Design describing the proposed methodology for the Class EA at the start of the study, exceeding the requirements of an EA study. The draft Study Design was circulated to external agencies and was available to the general public through posting on the County website. The final Study Design is included in **Appendix A**. The Study Design circulation was completed as a discretionary public consultation, Step 1.2 of the Municipal Class EA Planning and Design Process.

A Community Café Event and three (3) Public Information Centres were held during the study to present the project, the assessment of alternatives and the Technically Preferred Plan. These meetings were an integral component of the study – seeking input and comments from the local community/stakeholders.

At each PIC a series of display panels were presented that included descriptive text, photos and drawings around the meeting room for viewing. Public and agency representatives were encouraged to provide input/feedback. County of Brant and consultant staff were available to respond to any verbal comments/questions at these events.

ES.4 ANALYSIS AND EVALUATION

The evaluation of alternatives was completed in a two-step process. The initial step was to consider alternative planning solutions. For this study, the alternative planning solutions included:

- Alternative 1 – “Do Nothing”
- Alternative 2 – Transportation Demand Management (TDM)
- Alternative 3 – Restrict Development
- Alternative 4 – Improvements to Existing Infrastructure (Grand River Street North)
- Alternative 5 – Encourage Use of Local Roads
- Alternative 6 – Construction of a New Corridor/Bypass

Alternative 4 – Improvement to Existing Infrastructure was carried forward as the preferred alternative. This strategy would be to improve existing infrastructure to accommodate existing and future demand, and follow the Complete Streets methodology.

The Construction of a New Corridor/Bypass Alternative would be beyond the timeline of the current Transportation Master Plan and would not reduce traffic demands to accommodate the existing and planned development. This alternative is not recommended as a standalone solution for this study. It is the recommendation of this EA that a future study be conducted on the feasibility of a new bypass. This current EA Study includes consideration of property protection and planning for roadway connections to a potential future bypass.

Generation of Alternatives

A range of improvements were considered to provide solutions to existing and future operational and safety concerns. The alternatives were categorized under 5 groups of Preliminary Design Alternatives:

1. Cross Section Alternatives
 - a. 3 lanes (Do Nothing)
 - b. 3 lanes
 - c. 4 lanes (no median)
 - d. 4 lanes (raised median)
 - e. 5 lanes
2. Horizontal Alignments
 - a. Alignment follows existing GRSN Centreline
 - b. Alignment Shifted East of ROW Centreline along the GRSN Corridor
 - c. Alignment Shifted West of ROW Centreline along the GRSN Corridor
 - d. Alignment Varies - Centre, East and West of ROW Centreline along the GRSN Corridor
3. Intersection Alternatives
 - a. Stop Controlled (unsignalized)
 - b. Signalized
 - c. Roundabout
 - d. Lane Configurations (i.e. addition of turning lanes)
4. Active Transportation

- a. Do Nothing
 - b. Sidewalk Improvements
 - c. Provision of a Multi-Use Path
 - d. Designation of Shared Lanes
 - e. Provision of Bicycle Lanes
5. West River Road Extension (referred to in initial planning documents as “New Paris Links Road”)
- a. Intersection alternatives
 - b. Paris Link Road/West River Road Alignment
 - c. Longer Term Bypass Connections

The fifth group of alternatives was assessed along Paris Links Road to consider the connection to an expansion area in the east (Paris Grand Estates). This assessment was undertaken to establish the preferred corridor for this road link, considering using either Paris Links Road or the abandoned railway corridor (West River Road extension).

Preliminary design alternatives were developed for each group of alternatives. These alternatives were presented to the public at the PIC’s. Alternatives are described in **Section 7.0**.

Analysis and Evaluation

The Project Team reviewed and approved screening and the subsequent technical evaluations for all alternatives. The Technically Preferred Alternatives (TPAs) were presented to the public at the second PIC.

ES.5 RECOMMENDED PLAN

After the PIC, the TPA was subject to refinements based on community input as described in **Section 9.0**.

The Grand River Street North Recommended Plan includes:

- Operational improvements to Grand River Street North including:
 - Provision of a 4-lane cross section
 - Roundabouts at applicable intersections to improve traffic flow and safety
 - A new road within the right-of-way of the old railway corridor
 - A new traffic signal at the intersection with Banfield Street, to provide a safe opportunity for vehicles to turn onto Grand River Street North and better accommodate pedestrian crossings
 - A left-turn only lane and through lane at William Street/Grand River Street North Intersection, extending the existing left-turn lane, to improve traffic flow
 - Long-term property protection for the extension of St. Patrick Street to St. George Street
- Active Transportation improvements including:
 - North of Silver Street - widening the right-of-way, improving safety and separation of modes to include (where applicable):
 - 1.0 m boulevard
 - 2.0 m sidewalk

- 3.0 m multi-use path for cyclists and pedestrians
 - Creating a new trail along the former railway corridor.
 - Property protection for a multi-use grade separation to improve connectivity to new railway corridor trail and planned Capron Street multi-use trail and provide additional aesthetic green space. Implementation of the grade separation is not included as part of this study and would require further study.
 - Statement of flexibility for long-term property protection for the re-alignment of west sidewalk behind the abutment of the CN bridge to provide a wider path to improve accessibility and various modes of active transportation. Implementation of the pedestrian tunnel is not included as part of this study and would require further study.
- Changes to Parking:
 - Modification of angled parking to parallel parking on Grand River Street North, north of William Street
 - Removal of parallel parking on the west side of Grand River Street North
 - Addition of parking along Kings Ward Park
 - Addition of parking north of William Street on the east side of Grand River Street North
 - Removing the connection between Woodslee Avenue and Grand River Street North and adding a parallel street to connect Woodslee Avenue with Hartley Avenue
 - Cul-de-sac at the end of existing Paris Links Road to prevent increased vehicle traffic from cutting through the existing neighbourhood

The Recommended Plan is illustrated in **Figure E2** to **Figure E5**.

Statement of Flexibility

The Recommended Plan contains key features with flexibility for refinements during detailed design which are summarized as follows.

1. Parking at Kings Ward Park: Modifications to the parking along Grand River Street North are recommended to improve traffic flow and safety near the south boundary of the Study Area. Additional parking has been identified along the boundary of Kings Ward Park and Grand River Street North (south of Charlotte Street).

However, if the ongoing Downtown Paris Master Plan addresses the loss of parking spaces, the parking along Kings Ward Park and Grand River Street North can be removed from the Recommended Plan.
2. Active Transportation under the CN Rail: This ESR recommends long-term property protection for a future multi-use path behind the existing CN Rail abutment as an alternative to the existing sidewalk. Implementation of the multi-use path will require further study and is not included as part of this plan.

3. Active Transportation under Silver Street: This ESR recommends property protection for a future grade-separated crossing at Silver Street/Grand River Street North (see **Figure 78**). Implementation of this crossing will require further study and is not included as part of this study.
4. Land Development Capacity Threshold: This ESR recommends flexibility for the development capacity threshold to be re-evaluated based on changes in driver behaviour, travel characteristics and development plans. Development in north Paris will be limited to 700 dwelling units until a bypass is constructed, or until the County of Brant is satisfied that traffic patterns or demands have changed sufficiently to allow the traffic that would be generated by additional development to be accommodated.

ES.6 MITIGATION PLAN

Key issues and commitments to future work have been identified and are summarized in **Table S-1**.

Identified mitigation measures reflect the results of individual meetings with property owners and commitments by the County of Brant to mitigate environmental effects. Effects on the environment were considered in accordance with the Municipal Class EA process.

ES.7 NEXT STEPS

The Technically Preferred Alternative (TPA) was presented for information to County Council in October 2019 in advance of Public Information Centre (PIC) No. 3. Following PIC No. 3, the TPA was finalized to form the Recommended Plan. The Recommended Plan is being presented to Council in August 2020 for endorsement and direction to advertise for the 30-day public review period.

Following the 30 day public review period, if there are no objections, then the project, or any individual element of this project, may proceed to detail design and construction after obtaining the necessary environmental permits and approvals. The timing of implementation of the project will be subject to availability of funding and Council's direction on priorities of competing projects.

Figure E2: Recommended Plan

Figure E3: Recommended Plan

Figure E4: Recommended Plan

Figure E5: Recommended Plan

Figure E6: Recommended Plan

Figure E7: Recommended Plan

Figure E8: Recommended Plan

Figure E9: Recommended Plan

Figure E10: Recommended Plan

Figure E11: Recommended Plan

Figure E12: Recommended Plan

Table E1: Summary of Issues, Proposed Mitigation and Commitments to Future Work





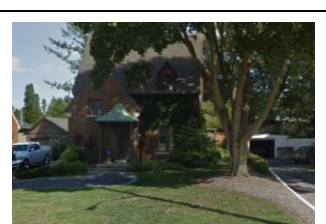

No.	Issue	Refinement/Mitigation Plan	Commitments
1	Property Impacts		
1.1	139 Grand River Street North 	Property acquisition is required north of the commercial building at 139 Paris Links Road to accommodate additional parking spaces. This parking may not be implemented if the parking supply is addressed by the Downtown Paris Master Plan (see Statement of Flexibility).	Property owners will be compensated at fair market value. Existing structures and mature trees (where possible) will be protected or replaced.
1.2	7 Broadway Street East (Paris Central Elementary School) 	Property acquisition is required from the northeast corner of the Paris Central Elementary School to accommodate additional parking spaces. This parking may not be implemented if the parking supply is addressed by the Downtown Paris Master Plan (see Statement of Flexibility).	Property owners will be compensated at fair market value. Existing sports fields and mature trees (where possible) will be protected or replaced.
1.3	200 Grand River Street North 	Sliver widening is required across the front of 200 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.4	202 Grand River Street North 	Sliver widening is required across the front of 202 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.5	221 Grand River Street North 	Sliver widening is required across the front of 221 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.6	223 Grand River Street North 	Sliver widening is required across the front of 223 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.

Table E1: Summary of Issues, Proposed Mitigation and Commitments to Future Work







No.	Issue		Refinement/Mitigation Plan	Commitments
1.7	225 Grand River Street North		Sliver widening is required across the front of 225 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.8	227 Grand River Street North		Sliver widening is required across the front of 227 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.9	230 Grand River Street North		Property acquisition required for the St. Patrick Street connection to St. George Street.	<p>Long-term property protection is recommended at this location for the extension of St. Patrick Street to St. George Street. Intersection improvements and property acquisition will be deferred until the homeowner is a willing seller or the property comes up for sale. At a future date, property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.</p> <p>To mitigate the future loss of vegetation resulting from construction, advance planting of new trees along the future extension is recommended (with home owner approval).</p>
1.10	231 Grand River Street North (Paris District High School)		Sliver widening is required across the front of 231 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.11	233 Grand River Street North		Sliver widening is required across the front of 233 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.12	235 Grand River Street North		Sliver widening is required across the front of 235 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.

Table E1: Summary of Issues, Proposed Mitigation and Commitments to Future Work







No.	Issue		Refinement/Mitigation Plan	Commitments
1.13	237 Grand River Street North		Sliver widening is required across the front of 237 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.14	239 Grand River Street North		Sliver widening is required across the front of 239 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.15	240 Grand River Street North		Sliver widening is required across the front of 240 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.16	242 Grand River Street North		Sliver widening is required across the front of 242 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.17	8 Silver Street		Property acquisition is required from 8 Silver Street to accommodate the proposed interim signalization and ultimate roundabout at the Silver Street/Grand River Street North intersection.	Property owners will be compensated at fair market value.
1.18	6 Paris Links Road		Impacts to property resulting from construction of West River Road and the proximity of the roundabout at Grand River Street North and West River Road.	Mitigation will include: construction of a noise barrier within the County's ROW to maximize available land at 6 Paris Links Road; and planting new trees.

Table E1: Summary of Issues, Proposed Mitigation and Commitments to Future Work







No.	Issue		Refinement/Mitigation Plan	Commitments
1.19	Girl Guides Camp (Camp Tekahionwake)		The entrance to the Girl Guide Camp will be modified following construction of the West River Road extension.	A driveway access will be provided on West River Road to the Girl Guides Camp. Two wells are located on the Girl Guides property within 500 m of the project (Well ID 1301380 and 1304573). The County will monitor the wells post construction.
1.20	245 Grand River Street North (Telfer Place)		Sliver widening is required across the front of 245 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.21	246 Grand River Street North (Home Building Centre)		Property acquisition is required from 246 Grand River Street North to accommodate the proposed interim signalization and ultimate roundabout at the Silver Street/Grand River Street North intersection, and road widening of Grand River Street North. The current site layout has parking located within the County's right-of-way.	The site will be reconfigured to accommodate the proposed infrastructure. This will include construction of a truck access lane behind the building connecting to Silver Street. The site configuration (on private property) is subject to change based on consultation between the County and property owner. Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.22	170 Trillium Way		Property acquisition is required from 170 Trillium Way to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced. The loss of parking supplies will be offset by replacement parking based on consultation between the County and property owner.
1.23	275 Grand River Street North		Property acquisition is required from 275 Grand River Street North to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.24	279 Grand River Street North (Shell Gas Station)		Property acquisition is required from 279 Grand River Street North to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.

Table E1: Summary of Issues, Proposed Mitigation and Commitments to Future Work





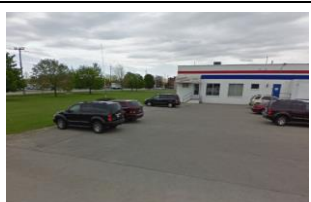

No.	Issue		Refinement/Mitigation Plan	Commitments
1.25	280/300 Grand River Street North		Property acquisition is required from 280/300 Grand River Street North to accommodate the proposed roundabout and road widening.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.26	304 Grand River Street North (Tim Hortons)		Sliver widening is required across the front of 304 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.27	308 Grand River Street North (Plaza)		Sliver widening is required across the front of 308 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.28	315 Grand River Street North (Sobeys)		Property acquisition is required from 315 Grand River Street North to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.29	2 Scott Avenue (Advance Printing)		Property acquisition is required from 2 Scott Avenue to accommodate the proposed roundabout and road widening.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.30	321 Grand River Street North		Property acquisition is required from 321 Grand River Street North to accommodate the proposed roundabout and road widening.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.

Table E1: Summary of Issues, Proposed Mitigation and Commitments to Future Work







No.	Issue		Refinement/Mitigation Plan	Commitments
1.31	326 Grand River Street North (Plaza)		Property acquisition is required from 326 Grand River Street North to accommodate the proposed roundabout and road widening.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.32	334 Grand River Street North (Truck Yard)		Sliver widening is required from 334 Grand River Street North to accommodate the road widening and Woodslee Avenue cul-de-sac. Site access will also be modified because of the cul-de-sac at the end of Woodslee Avenue. Trucks accessing the site will have to use the intersection at Hartley Avenue/Grand River Street North.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.33	340 Grand River Street North		Property acquisition is required from 340 Grand River Street North to accommodate the proposed new road connecting Woodslee Avenue to Hartley Avenue.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.34	191 Pinehurst Road		Sliver widening is required across the front of 191 Pinehurst Road to accommodate the road widening.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.35	777 Watts Pond Road		Property acquisition is required from 777 Watts Pond Road to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.36	793 Watts Pond Road		Property acquisition is required from 793 Watts Pond Road to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.37	Vicano Development		Land is required from the Vicano Development for road widening along Grand River Street North.	To be addressed as part of the site plan agreement.

Table E1: Summary of Issues, Proposed Mitigation and Commitments to Future Work

No.	Issue	Refinement/Mitigation Plan	Commitments
1.38	Brookfield Development	Land is required from the Brookfield Development for road widening along Grand River Street North/Pinehurst Road and for the roundabouts at Watts Pond Road and Hartley Avenue.	To be addressed as part of the site plan agreement.
1.39	Cordon Development	Land is required from the Cordon Development for road widening along Grand River Street North/Pinehurst Road and for the roundabouts at Watts Pond Road and Hartley Avenue.	To be addressed as part of the site plan agreement.
1.40	Paris Grand Estates Development	Land is required from the Paris Grand Estates Development to provide access from the development to Grand River Street North.	To be addressed as part of the site plan agreement.
1.41	19, 21, 23, 25 and 27 Bradbury Crescent	Impacts to property resulting from construction of West River Road.	Mitigation will include: construction of a privacy screen; inventory of existing trees; and protection of mature trees (where possible) or replacement.
2.0	Natural, Social and Cultural Environment		
2.1	Natural Environment	The study area along Grand River Street North has been transformed from its natural state to accommodate residential and commercial land uses. The West River Road extension along the former rail corridor is lined with a number of mature specimen trees and scrub growth.	During detailed design, terrestrial and botanical investigations will be undertaken to supplement previous investigations and provide input into the design. The consultant will be required to prepare an Agency-approved and comprehensive Environmental Protection Plan. Mature trees will be protected (where possible). Existing vegetation that is removed will be replaced in accordance with a landscaping/streetscaping plan.
2.2	Stage 2 Archaeological Assessment	A Stage 1 Archaeological Assessment was completed in the study area. The lands along the Grand River Street North ROW and former rail corridor have been significantly disturbed and do not retain archaeological potential. The remaining lands, as identified on Figure 3 will require a Stage 2 Archaeological Assessment.	During detailed design, a Stage 2 Archaeological Assessment will be completed for all lands not significantly disturbed.
2.3	Cultural Heritage	The road improvements have no impact on the designated or listed heritage properties with the exception of King's Ward Park where parking may be created adjacent to it. There will be minor impacts along the frontage of the general collection of historic properties from St. Patrick Street south to William Street. There will also be medium impact on the lands abutting 6 Paris Links Road. The technically preferred alternative has retained this residence in its location. The major impact is the demolition of Grace Gospel Church which does not have heritage significance to warrant its retention.	The proposed road improvements from Silver Street north to Watts Pond Road will not create any adverse impact on potential heritage properties. Mitigation strategies for minor impacts include: <ul style="list-style-type: none"> • Replacement plantings to restore properties to their pre-construction character • Documentation of the Grace Gospel Church prior to removal • Replanting of vegetation along West River Road (historical Great Western Railway) and interpretive signage relating to the vital contribution of the railway to Paris • Salvage and reinstatement of the historic stone wall, steps and ornamental ironwork along the former "Claremont" property (now Kipp's Funeral Home)

Table E1: Summary of Issues, Proposed Mitigation and Commitments to Future Work

No.	Issue	Refinement/Mitigation Plan	Commitments
			<ul style="list-style-type: none"> • Preparation of a vegetation protection plan for King’s Ward Park (prior to construction of parking spaces, if required) • Protection of mature trees (where possible)
2.4	Sourcewater Protection	Sections of the study area are designated intake protection zones and highly vulnerable drinking water supply areas.	The County will protect against sourcewater threats including: <ul style="list-style-type: none"> • Salt impact assessment to design roads and sidewalks to minimize the need for repeat application of road salts, and to ensure the handling and storage of road salts doesn’t become a significant drinking water threat. • Ensure that the removal and storage of snow doesn’t become a significant drinking water threat. • Spill Prevention, contingency plans and emergency response plans during construction. • Discharge from a stormwater management facility does not become a significant drinking water threat. • Compliance with the Salt Management Plan to reduce potential for salt related surface water run-off and groundwater infiltration.
2.5	Noise	No receiver sites will experience sound level changes greater than 5 dBA and no receiver site will have a total sound level of over 65 dBA with the project in the year 2030.	The construction of a barrier solely for noise abatement is not warranted, however a noise barrier will be installed along Paris Links Road to mitigate sound and visual intrusion. The posted speed along West River Road will be 50 km/h.

1.0 INTRODUCTION

The County of Brant initiated this Class Environmental Assessment (Class EA) in August 2017 for the planning of operational improvements to Grand River Street North from Watts Pond Road to William Street. These improvements will address traffic operation, multi-modal transportation and safety concerns associated with increased traffic demand and population growth related to the Province's Places to Grow Policy and the County's expansion areas in Paris. The study has taken into consideration the adjacent institutional, commercial and residential land uses. The project is subject to Schedule C of the Municipal Class Environmental Assessment (Class EA) process, under the Province of Ontario's Environmental Assessment Act (revised 2015).

This Environmental Study Report (ESR) documents the existing needs, environmental inventories and constraints, planning and preliminary design alternatives, and the analysis and evaluation of these alternatives resulting in a Recommended Plan for improvements to the Grand River Street North Corridor.

1.1 Background

The 2016 Transportation Master Plan Update recommended roadway improvements to accommodate growth in Paris associated with the Province's Places to Grow Policy for achieving higher population and employment in the County. The growth necessitates improvements on Grand River Street North and future consideration of a long-term bypass to divert traffic onto an alternate route(s).

In 2017, IBI completed the Grand River Street North Corridor Transportation Study which evaluated existing and long-term traffic impacts resulting from future expansion along the corridor, primarily large residential and commercial developments. Grand River Street North is a 3-lane north south arterial road providing access to downtown Paris and Highway 403 to the south, as well as surrounding communities including Brantford and Cambridge.

This 2017 Traffic Study recommended the widening of the corridor to 4 lanes, with a multi-use trail on one side of the street and a sidewalk along the other side of the street. The use of signalized intersections or roundabouts at key intersections was recommended to improve traffic flow.

1.2 Study Area

The study area encompasses Grand River Street North from Watts Pond Road to William Street. It is bounded by Watts Pond Road to the north, William Street to the south, and West River Road to the east. Following the Community Café in December 2017, the Study Area was expanded to consider future connections to the future eastern bypass (connecting to West River Road) and traffic impacts along Grand River Street North south of St. Patrick Street, where the road narrows, creating a bottleneck into downtown Paris.

Several local 2-lane roads connect to Grand River Street North. These local roads provide access to residential areas and existing/planned subdivisions.

To the north, Watts Pond Road is a 2-lane rural County Road which connects to local gravel pits. It is scheduled for future upgrades and will become a truck route to the west. To the south, Grand River Street North provides access into downtown Paris, and William Street provides a crossing of the Grand River and connects to Paris Road/Highway 2 and the provincial transportation network (Highway 403).

The northwest and northeast quadrants of the study area are currently undeveloped but are planned for future commercial and residential developments. Along the corridor, there are various commercial and institutional land uses including Paris District High School, Willett Hospital and Telfer Place Retirement Residence. In the southwest quadrant there is an existing stormwater management facility, located in Charlton Park (currently used as a soccer field).

The study area is illustrated in **Figure 1**.

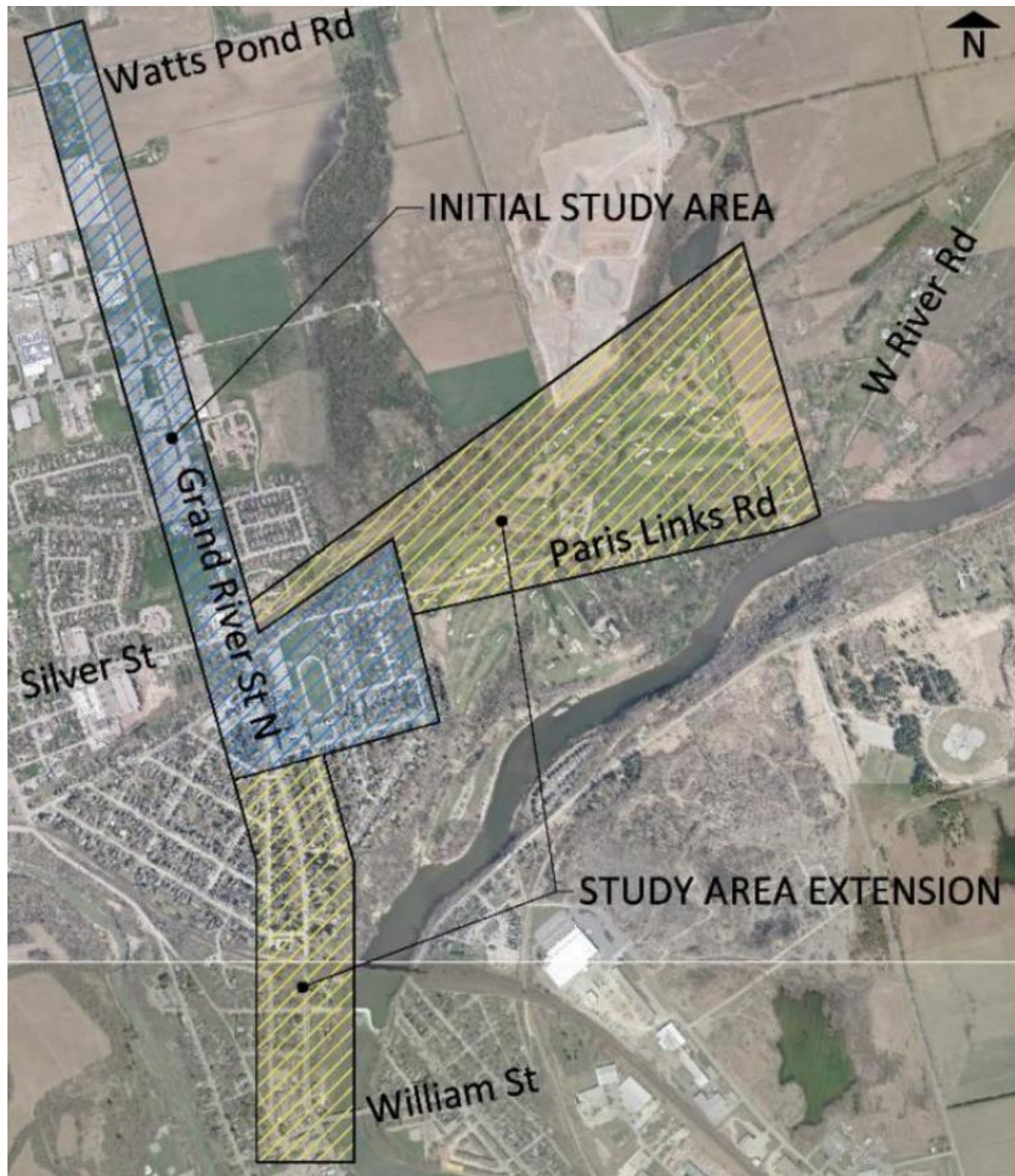


Figure 1: Study Area

1.3 Problem Statement

Grand River Street North represents the northern gateway to the Community of Paris, providing access to existing commercial and residential developments. Increased area traffic congestion has been projected as a result of proposed residential and employment growth. Safety concerns have been noted to exist along the corridor for pedestrians and cyclists.

The need for improvements to the Grand River Street North corridor, south of Bradbury Crescent, was identified in the 2016 Transportation Master Plan (TMP) Update, predominantly as a result of the planned Paris on the Grand development and assuming a 30% diversion of traffic to a new corridor by 2031. Future development, north of Scott Avenue, that will include the Northwest Paris Secondary Plan Area, the Cordon lands and the Vicano site, will further increase traffic along the corridor. This study has addressed the roadway requirements to meet existing and future travel demands, so that these can potentially be coordinated with the roadway construction that will be required to service those developments.

Key issues which this study has considered include:

- Accommodating existing and future traffic volumes associated with increased population and employment levels identified by the Province of Ontario's Places to Grow Policy;
- The importance of the corridor as a gateway to the community;
- Reducing traffic congestion for vehicles travelling southbound towards downtown Paris (bottleneck exists where the cross section narrows to 3 lanes south of Silver Street);
- Access management with proposed land development and existing businesses/institutions;
- Consideration of the right-of-way and property requirements for future and long-term property protection;
- Protection of vulnerable road users (i.e. pedestrians and cyclist safety);
- Need for sidewalks or multi-use pathways;
- Consideration of sidewalk widths and AODA Needs;
- Need for additional pedestrian crossings;
- Drainage and stormwater management;
- Requirement to maintain traffic along Grand River Street North during construction; and
- Environmental constraints (archeological, cultural and natural heritage resources).

2.0 CLASS ENVIRONMENTAL ASSESSMENT PROCESS

This Class EA has followed the Schedule C requirements of the Municipal Class Environmental Assessment, as amended in 2015 under the Environmental Assessment Act (1). This is a self-assessment process that includes mandatory public consultation.

2.1 Municipal Class EA Process

This project was undertaken to satisfy the Provincial *Environmental Assessment Act* following the Municipal Class Environmental Assessment process for a Schedule C project as amended by the Municipal Class EA 2015. This document specifies the procedures required to plan specific road projects according to an approved planning process.

The approach to the study includes the Ministry of the Environment, Conservation and Parks (MECP's) five guiding principles for Municipal Class EA studies, namely:

- Consider all reasonable alternatives;
- Provide a comprehensive assessment of the environment;
- Utilize a systematic and traceable evaluation of net effects;
- Undertake a comprehensive public consultation program; and
- Provide clear and concise documentation of the decision-making process and public consultation program.

The Class EA process was undertaken in a series of phases commencing with problem identification and culminating in the filing of an ESR.

The Class EA process includes an evaluation of all reasonable alternatives and the selection of a preferred alternative(s) with acceptable effects (including avoidance and mitigation of any residual adverse effects) on the natural and social/cultural environments. The Municipal Class EA process entails five phases.

The following is the specific breakdown of tasks by phase for a Class EA project¹.

Phase 1: Identify the Problem

Step 1: Identification and description of the problem or opportunity.

Step 2: Community Café Event with the public and stakeholders.

Phase 2: Alternative Solutions

Step 1: Identification of all alternative solutions to the problem.

Step 2: Identify the study area and a general inventory of the natural, social and cultural environments.

Step 3: Identification of the net positive and negative effects of each alternative solution.

Step 4: Review of Alternative Planning Solutions and preliminary recommendation of a preferred solution.

Step 5: Public Consultation (Study Design available on the County's website).

Step 6: Finalization of Study Design for work program, and refinements and/or addition of Alternative Planning Solutions to be carried forward for Phase 3. The Study Design Report can be found in **Appendix A**.

Step 7: Public consultation at the Public Information Centre (PIC).

Step 8: Selection of the preferred solution, following public and agency review.

Phase 3: Alternative Design Concepts for the Preferred Solution

Step 1: Identification of reasonable design alternatives for the preferred solution.

Step 2: Preparation of a detailed inventory of the social and economic environments.

Step 3: Identification of the potential impacts of the alternative designs.

Step 4: Evaluation of the alternative designs.

Step 5: Public consultation at the Public Information Centre (PIC).

Phase 4: Environmental Study Report (ESR)

Step 1: Completion of the ESR.

Step 2: Public consultation at the Public Information Centre (PIC).

Step 3: 30-day public review period.

Step 4: File the ESR and Notice of Completion.

Phase 5: Implementation

Future phase, after this Study.

The Municipal Class EA process is illustrated in **Figure 2**.

This study has been completed to the end of Phase 4 of the Municipal Class EA process.

¹ Municipal Class Environmental Assessment, Municipal Engineers Association, 2015.

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA

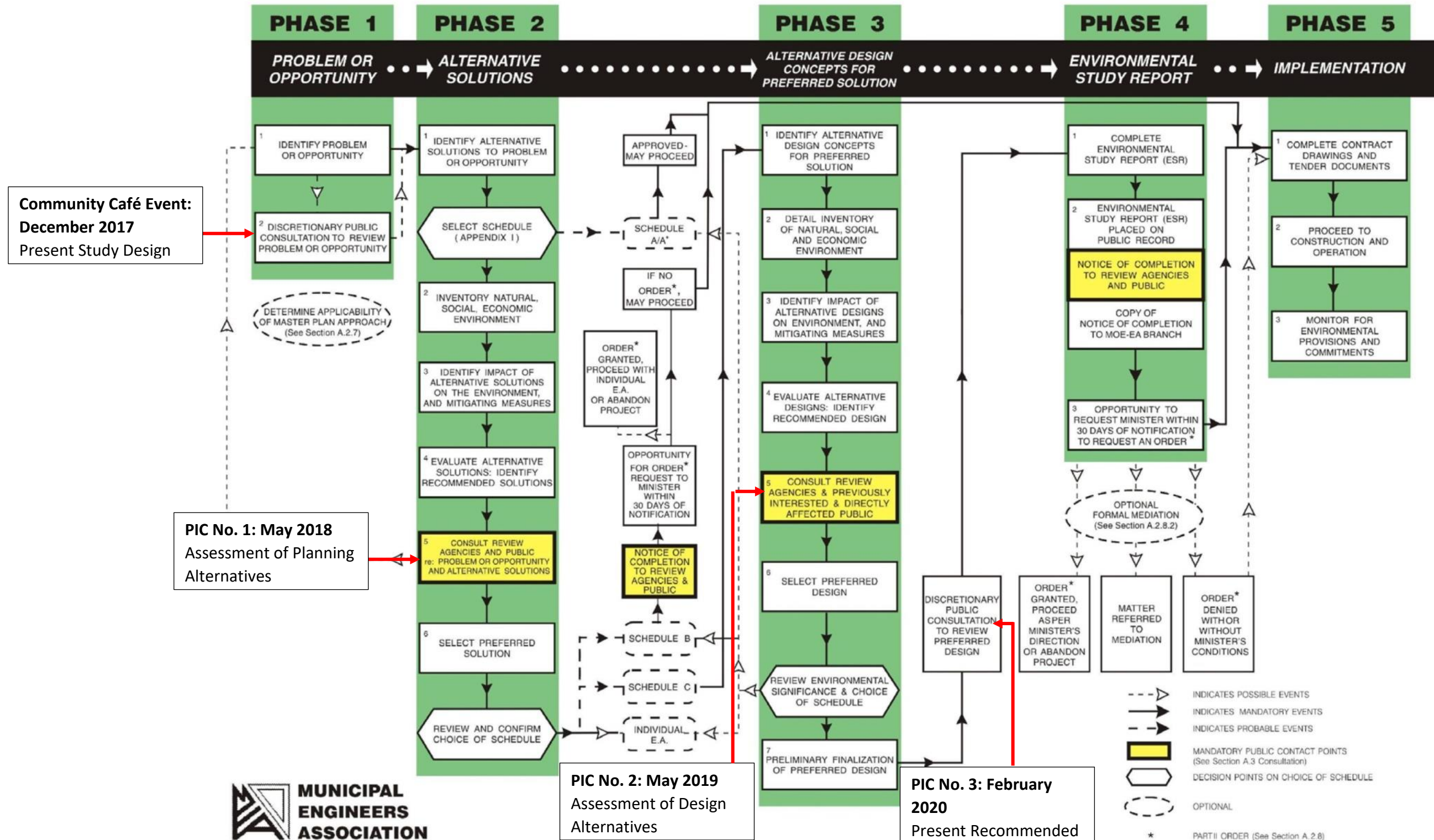


Figure 2: Municipal Class Planning and Design Process

3.0 CONSULTATION PROGRAM

The following sections provide a summary of the consultation activities held during the study.

3.1 Notices

Notices for the Study were published as follows:

- Study Commencement and Community Café – Brantford Expositor and Paris Star on November 30, 2017
- PIC No. 1 – Brantford Expositor and Paris Star on May 10, 2018 and May 17, 2018
- PIC No. 2 - Brantford Expositor and Paris Star on April 26, 2019 and May 2, 2019
- PIC No. 3 – Brantford Expositor on January 30, 2020 and Paris Star on January 31, 2020

See **Appendix B** for copies of the Notice of Study Commencement and Community Café, PIC Notices, and the Notice of Filing for Study Completion.

3.2 Contact List

A public/agency mailing list was developed at the start and was updated during the study. See **Section 3.4** for the list of stakeholders contacted.

3.3 Public Meetings

A Community Café Event and three (3) Public Information Centres were held during the study to present the project, the assessment of alternatives and the Technically Preferred Plan. These meetings were an integral component of the study – seeking input and comments from the local community/stakeholders.

At each PIC, a series of display panels were presented that included descriptive text, photos and drawings around the meeting room for viewing. Public and agency representatives were encouraged to provide input/feedback. County of Brant and consultant staff were available to respond to any verbal comments/questions at these events.

See **Appendix B** for the Community Café and Public Information Centre Summary Reports.

3.3.1 Community Café Event

A Community Café was held on December 7, 2017 at the Paris Fairgrounds Community Room in Paris, Ontario. The Community Café was an informal event for the public and stakeholders to facilitate conversation about issues that matter to the community. Four topics were chosen as discussion points to consider the concerns of the public including: vehicle safety and delays; pedestrian safety; cyclist safety; and community design elements.

The Community Café process followed the principles of the ‘World Café’ philosophy; namely that people want to talk together about issues that matter and secondly, that as they talk together, they can collectively achieve greater wisdom. The Community Café is a simple yet effective conversational method for fostering dialogue, accessing collective intelligence and creating innovative possibilities for action. Discussion from the event was recorded and used as an input for subsequent steps in the Environmental Assessment Study.

Based on input from the Community Café, the Study Area was expanded to include connections to the future eastern bypass (connecting to West River Road) and traffic impacts along Grand River Street North south of St. Patrick Street, where the road narrows creating a bottleneck into Paris.

3.3.2 Public Information Centre No. 1

The first Public information Centre was held on May 24, 2018 from 5:00 to 8:00 pm, with a formal presentation at 6:30 pm, at the Paris Fair Grounds (Exhibition Centre, 139 Silver Street, Paris, Ontario). The Public Information Centre presented information on the Municipal Class EA Process, background information/need and justification, preliminary groups of alternatives, the Technically Preferred Plan for the alignment of Paris Links Road and the Silver Street intersection, and next steps.

The notice of PIC No. 1 was published in the Brantford Expositor and Paris Star on May 10, 2018 and May 17, 2018.

One hundred and eight (108) members of the public registered at the PIC. Twenty-three (23) comment sheets were received at the PIC, and 27 comment sheets were subsequently submitted.

3.3.3 Public Information Centre No. 2

The second Public information Centre was held on May 9, 2019 from 5:00 to 8:00 pm, with a formal presentation at 6:30 pm, at the Paris Fair Grounds (Exhibition Centre, 139 Silver Street, Paris, Ontario). The Public Information Centre presented information on the Municipal Class EA Process, traffic, preliminary design alternatives, effects and mitigation, the Technically Preferred Alternative, and next steps.

The notice of PIC No. 2 was published in the Brantford Expositor and Paris Star on April 26, 2019 and May 2, 2019.

One hundred and twenty-three (123) members of the public registered at the PIC. Sixteen (16) comment sheets were received at the PIC, and 39 comment sheets were subsequently submitted.

3.3.4 Public Information Centre No. 3

The third Public information Centre was held on February 12, 2020 from 6:00 to 8:00 pm at the Paris Fair Grounds (Exhibition Centre, 139 Silver Street, Paris, Ontario). The Public Information Centre presented information on the Municipal Class EA Process, the Recommended Plan, and next steps.

The notice of PIC No. 3 was published in the Brantford Expositor and Paris Star on April 26, 2019 and May 2, 2019.

Approximately 300 members of the public attended at the PIC. Fourteen (14) comment sheets were received at the PIC, and 44 comment sheets were subsequently submitted.

3.4 Stakeholder Consultation

All agencies of groups that may have had an interest in the project or any documentation to contribute to the study were contacted at the start of the Class EA for their input. The following ministries, agencies and stakeholders were invited to attend the PIC meetings:

- Ministry of the Environment, Conservation and Parks (MECP)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Tourism, Culture and Parks (MTCS)
- Ministry of Municipal Affairs and Housing
- Ministry of Indigenous Affairs
- Infrastructure Ontario (IO)
- Ontario Federation of Agriculture
- Grand River Conservation Authority (GRCA)
- County of Brant Fire Department
- County of Brant Ambulance Services
- OPP Brant County
- Brantford-Brant Chamber of Commerce
- Paris Downtown BIA
- CN Rail
- Brant Haldimand Norfolk Catholic District School Board
- Conseil Scolaire Catholique MonAvenir
- Grand Erie District School Board
- MPP Brantford-Brant (Will Bouma and Dave Levac)

Select Correspondence received from study stakeholders is in **Appendix C**.

3.4.1 Interest Groups

In June 2018, the Paris Links Road (West) Area Residents Group was formed in response to the Grand River Street North Class EA. The group was comprised of approximately 200 community members with representatives from Telferwood Estates, Paris Links Road, and Bayly Drive.

A meeting was held with the group representatives on August 7, 2018 to discuss concerns with the EA including the Municipal Class EA Process and notification of meetings, impacts to existing residential areas, safety concerns, and the loss of greenspace/character of Paris.

A copy of the meeting notes is provided in **Appendix B**. The County of Brant has committed to keeping all members of the Paris Links Road (West) Area Residents Group updated on the progress of the project.

3.4.2 Property Owners

Property meetings were held with impacted property owners along the corridor and where property acquisition was required. Mitigation measures for impacted properties are provided in **Section 11.0**.

3.4.3 Paris Grand Estates

In June 2018, a Local Planning Appeal Tribunal was held between the County of Brant and Paris Grand Estates regarding a decision respecting an application for a proposed Plan of Subdivision. The Minutes of Settlement identified the Phases of the proposed development, which are partially summarized below:

- For the Short-Term Phase, Paris Grand Estates will be permitted to develop and build up to 125 single-detached dwelling traffic equivalents (STE's)
- For the Medium-Term Phase, Paris Grand Estates will be permitted to develop and build a minimum of another 100 STE's, for a total minimum, including the ST Phase, of 225 STE's.
- For the Long Term Phase, Paris Grand Estates' right to develop and build out the balance of the proposed plan of subdivision will be subject to the completion and implementation of the EA and construction of the Paris By-Pass, or the Tribunal will determine the matter in the LT Phase Hearing.

The Settlement notes that "Nothing in these Minutes shall derogate from or otherwise affect the rights and obligations accruing to the Parties under the DC Act or the EA Act."

3.5 Indigenous Communities Consultation

Notices were also sent to Indigenous Communities within the vicinity of the Study Area notifying them of key milestones. A record of Indigenous consultation is provided below:

- Six Nations of the Grand River
- Metis Nation of Ontario
- Mississaugas of the Credit First Nation

The County of Brant have offered to meet with each Indigenous Community and have committed to keeping all communities updated on the progress of the projects.

4.0 EXISTING CONDITIONS

Existing conditions of the natural and built environment, land use and property, and socio-economic environment are described in this chapter.

4.1 Natural Environment

4.1.1 Terrestrial Environment

A general reconnaissance of the Grand River Street North corridor was undertaken on April 4, 2018. To the south of the Study Area, the natural landscape has been transformed to accommodate residential and commercial land uses. To the north of the Study Area, near Watts Pond Road, the adjacent lands transition to a more rural setting with cultivated lands. Specimen trees and tree and shrub groupings are present along the corridor.

On July 11, 2018 and August 28, 2018, a reconnaissance of the abandoned rail corridor (north of Paris Links Road) was undertaken. The corridor is lined with several mature specimen trees and scrub growth. Three possible Butternut specimen trees were identified along the corridor and samples were sent for genetic testing. It was determined that these trees are a hybrid variety.

The Natural Environment Site Overview Technical Memorandum is provided in **Appendix D**.

4.1.2 Cultural Heritage

A Cultural Heritage Assessment was completed in October 2019. The assessment was based on historical research, field investigation, inventory work and determination of heritage value and significance, considering the guidance of Ontario Regulation 9/06 of the Ontario Heritage Act. An evaluation of the extent and location of the proposed road improvements identified several built heritage properties that were either listed or have the potential to be listed on the County of Brant’s Municipal Heritage List, based on their historical association. The field work has also identified extant cultural landscape features of heritage value based on the criteria of Ontario Regulation 9/06 of the Ontario Heritage Act. The final list of heritage resources that was evaluated, for potential impacts resulting from the proposed road improvements, was based on this process. The proposed road improvements have been designed and refined to avoid or moderate any major adverse impacts on properties with potential heritage value.

The Cultural Heritage Assessment Reports are documented in **Appendix E**.

4.1.3 Archaeology

A Stage 1 Archaeological Assessment was conducted for the improvements to Grand River Street North. Based on the review, background studies and field review of the Study Area, it was determined that the land along the existing Grand River Street North right-of-way and former rail corridor have been extensively disturbed and do not retain archaeological potential. The lands outside the right-of-way have archaeological

potential and, if impacted, will require a Stage II Archaeological Assessment as part of Detail Design. **Figure 3** illustrates areas with archaeological potential.

The Stage I Archaeology Report is documented in **Appendix F**.

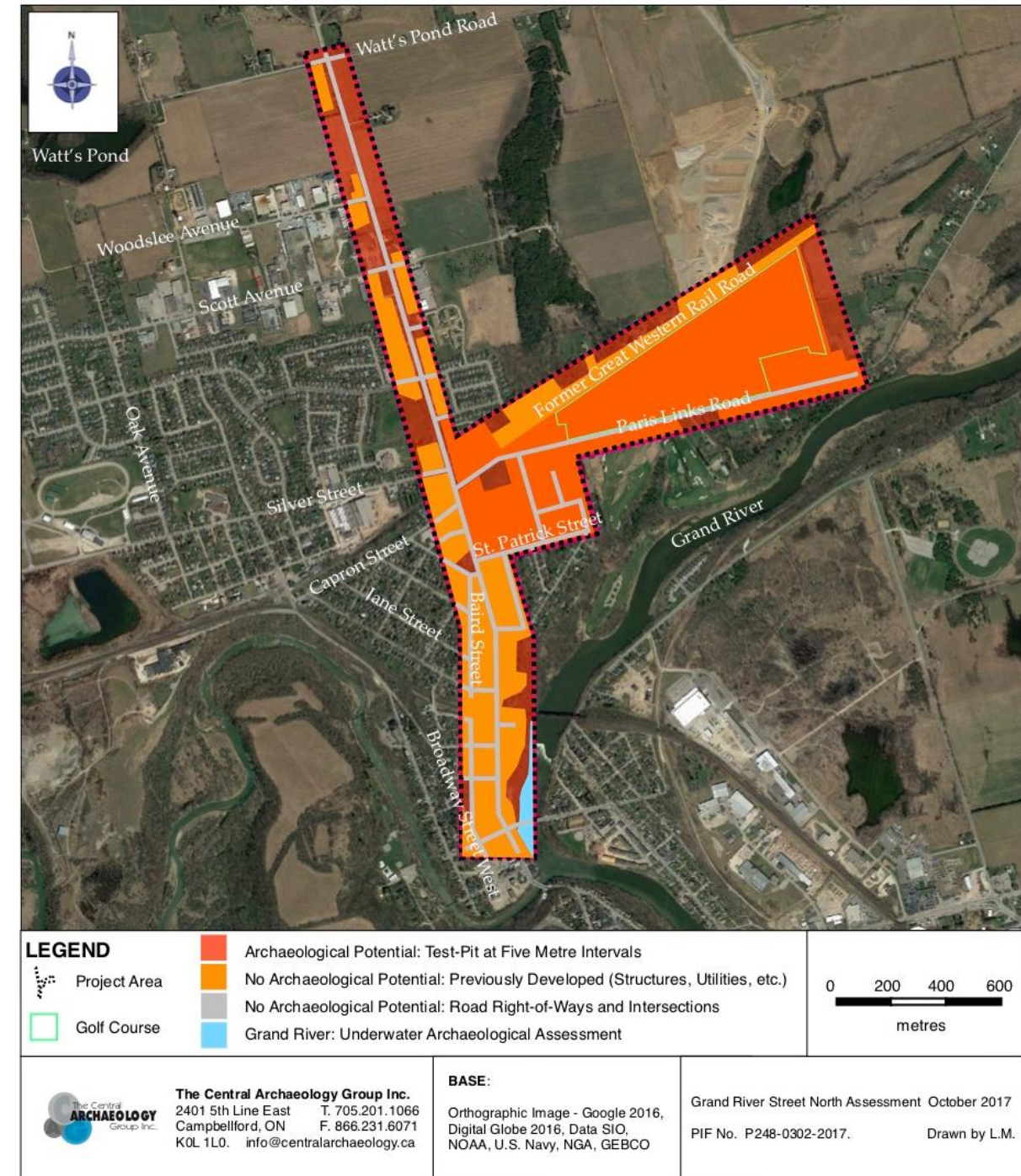


Figure 3: Map indicating Areas of Archaeological Potential

4.1.4 Sourcewater Protection

The study area is located within the Grand River Source Protection Area and is subject to the Grand River Source Protection Plan. Parts of the study are located within:

- Wellhead protection area B (WHPA-B) with a vulnerability score of 10;
- Wellhead protection area C (WHPA-C) with a vulnerability score of 8;
- Intake Protection Zone (IPZ-3) with a vulnerability score of 8;
- Issue Contributing Area (ICA) for nitrogen; and
- Highly Vulnerable Aquifer (HVA).

These areas are illustrated on **Figure 4**, **Figure 5**, and **Figure 6**. The Grand River Source Protection Plan identifies policies to protect municipal drinking water against existing and future threats in compliance with the *Clean Water Act, 2006 (Ontario Regulation 287/07)*. The Clean Water Act requires municipalities to notify Source Protection Authorities and Committees when the municipalities receive applications that could create or modify a transport pathway.

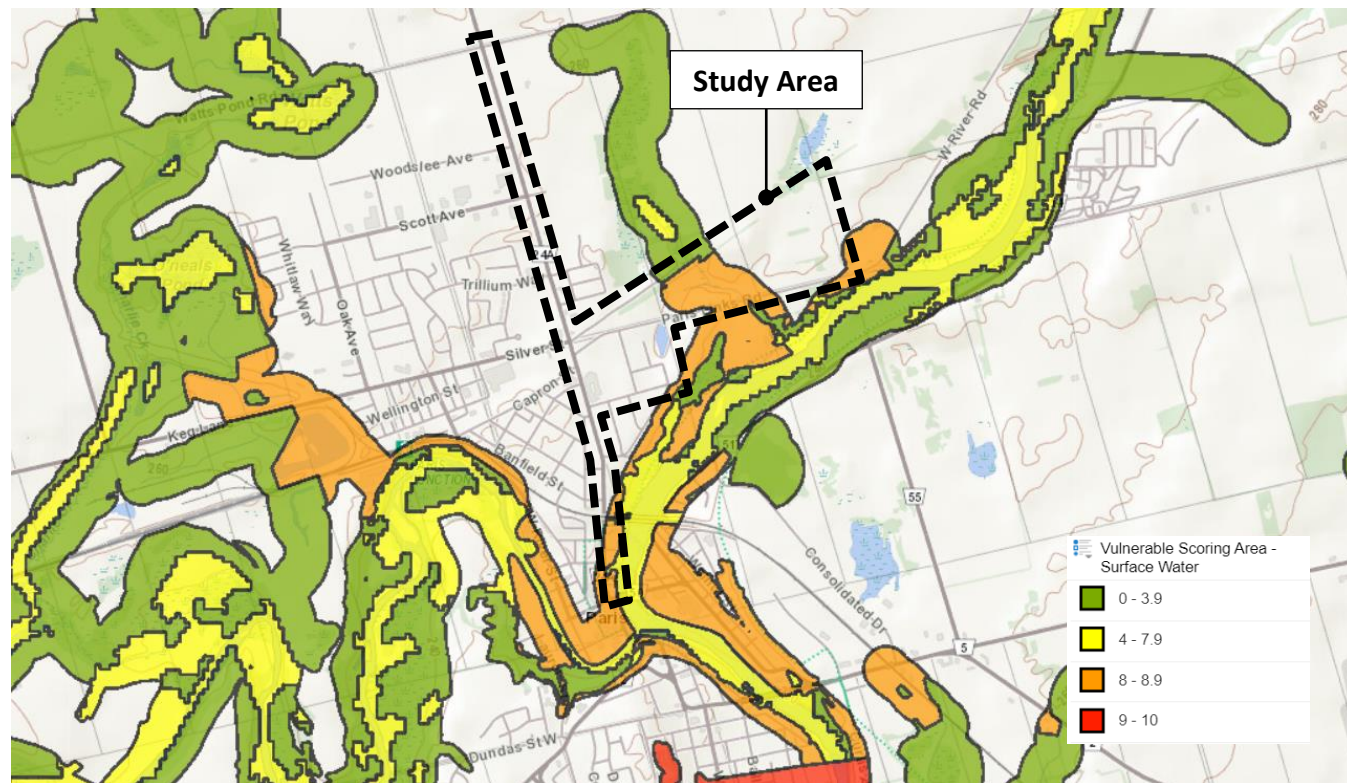


Figure 4: Surface Water Protection Zones

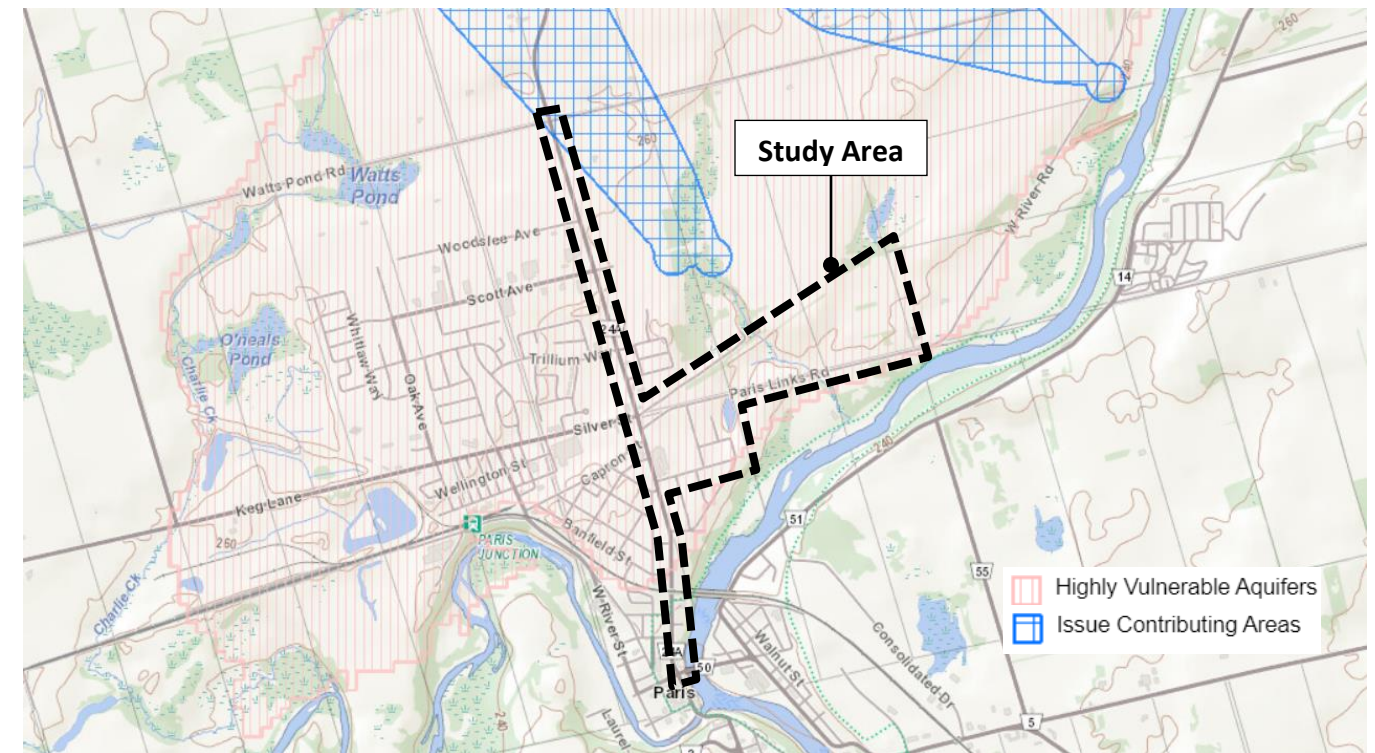


Figure 5: Location of Highly Vulnerable Aquifer and Issue Contributing Areas

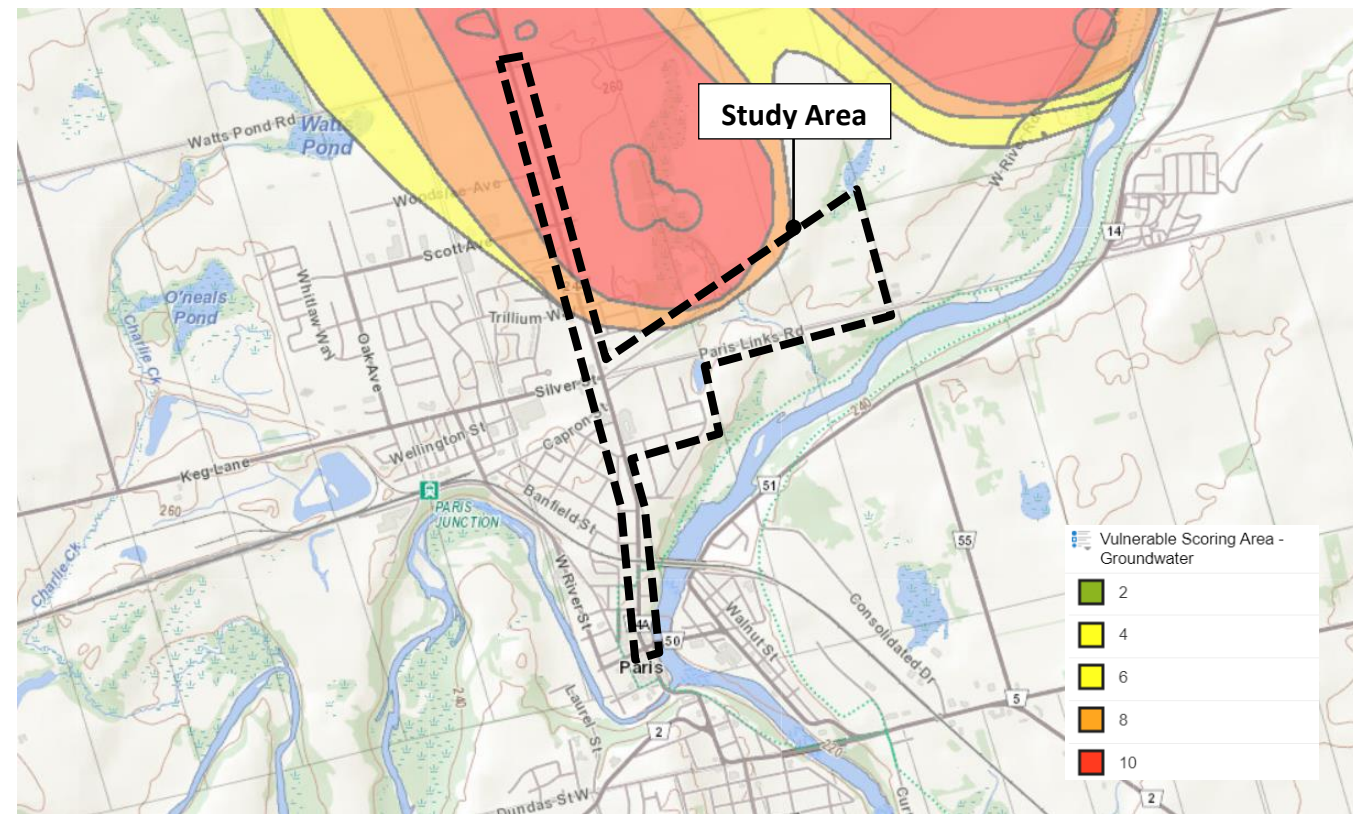


Figure 6: Groundwater Protection Zones

The County is required to protect against source water threats. Source protection policies, which will apply to this study, are summarized below. Each policy number refers to the County of Brant – Grand River Source Protection Plan. All policies identified in **Table 1** need to be followed during and post construction.

Table 1: Policies in the Grand River Source Protection Plan (County of Brant Chapter)		
Policy Number	Summary of Policy	Future Work / Mitigation
BC-MC-3.4	MECP shall review, prepare and/or amend Environmental Compliance Approvals for any existing or new sanitary sewer and pipes to reduce the risks to municipal drinking water sources.	An application for Environmental Compliance Approvals will be submitted in advance of construction.
BC-MC-3.5	MECP shall review, prepare and/or amend Environmental Compliance Approvals for any existing or new discharge from a stormwater management facility to reduce the risks to municipal drinking water sources.	An application for Environmental Compliance Approvals will be submitted in advance of construction.

BC-NB-1.19	The County shall incorporate the location of Well Head Protection Areas (WHPAs) and Intake Protection Zones (IPZs) into their emergency response plans to protect drinking water sources when a spill occurs along a transportation corridor.	The location of WHPAs and IPZs will be included in the Contractor’s Environmental Protection Plan.
BC-CW-6.1	A Risk Management Plan shall be prepared to ensure any existing handling and storage of road salt ceases to be a significant threat to drinking water (designated for the purpose of Section 58 of the Clean Water Act).	A Risk Management Plan is only required when the prescribed significant drinking water threat activity is taking place or is proposed in a vulnerable area. No salt storage facilities are proposed within the limits of the project.
BC-CW-6.3	A Risk Management Plan shall be prepared to ensure any existing handling and storage of road salt within a WHPA-B ceases to be a significant threat to drinking water (designated for the purpose of Section 58 of the Clean Water Act).	No salt storage facilities are proposed within the limits of the project.
BC-CW-7.1	A Risk Management Plan shall be prepared to ensure any existing snow storage in an area greater than 0.01 hectares within a WHPA-B ceases to be a significant threat to drinking water (designated for the purpose of Section 58 of the Clean Water Act).	There is no snow storage facility proposed within the limits of the project.
BC-CW-7.2	The County shall encourage best management practices (e.g. handling and storage) for any existing snow storage within a Nitrate ICA.	The County commits to follow best management practices.
BC-CW-7.3	Any new snow handling and storage in an area greater than 0.01 hectares shall be prohibited where this activity would be a significant drinking water threat (designated for the purpose of Section 57 of the <i>Clean Water Act</i>).	There is no snow handling and storage area proposed within the areas of WHPA-B and the Nitrate ICA.
BC-CW-8.1	The County shall develop and implement an education and outreach program outlining requirements for the proper maintenance of fuel storage tanks and the steps to be taken if there is a spill or leak.	Education and outreach programs related to drinking water source protection plan policies are managed within the County but are outside the scope of this EA.

BC-CW-8.2	A Risk Management Plan shall be prepared to ensure any existing/future handling and storage of liquid fuel of more than 2,500 L within a WHPA-B ceases to be a significant threat to drinking water (designated for the purpose of Section 58 of the Clean Water Act).	No liquid fuel storage facilities in excess of 2,500L are proposed within the limits of the project. The construction contract will include conditions to ensure contractors do not handle or store liquid fuels in excess of 2,500 L in a vulnerable area (WHPA-B) without obtaining a Risk Management Plan from the County's Risk Management Office in advance.
BC-CW-9.1	A Risk Management Plan shall be prepared to ensure any existing handling and storage of a dense non-aqueous phase liquid (DNAPL) within a WHPA-B ceases to be a significant threat to drinking water (designated for the purpose of Section 58 of the Clean Water Act).	Existing DNAPL handling and / or storage is not happening as part of this project.
BC-CW-9.2	Any future handling and storage of a dense non-aqueous phase liquid (DNAPL) within a WHPA-B shall be prohibited (designated for the purpose of Section 57 of the Clean Water Act).	The construction contract will include conditions to ensure contractors are aware that handling and storage of DNAPL's is prohibited.
BC-CW-9.3	The County shall develop and implement an education and outreach program regarding DNAPLs to encourage the use of alternative products, where available, and the proper handling/storage and disposal procedures for these products.	Education and outreach programs related to drinking water source protection plan policies are managed within the County but are outside the scope of this EA.
BC-CW-10.1	A Risk Management Plan shall be prepared to ensure any existing handling and storage of an organic solvent ceases to be a significant threat to drinking water (designated for the purpose of Section 58 of the Clean Water Act).	Existing handling and / or storage of organic solvents is not happening as part of this project.
BC-CW-10.2	Any new handling and storage of an organic solvent within a WHPA-B shall be prohibited where this activity would be a significant drinking water threat (designated for the purpose of Section 57 of the Clean Water Act).	The construction contract will include conditions to ensure contractors are aware that handling and storage of organic solvents is prohibited in a vulnerable area (WHPA-B).

4.1.5 Climate Change

The recommendations of the ESR considered the impacts of climate change and the effectiveness of adaptation strategies to reduce the County's vulnerability. One strategy being implemented is the expansion of cycling infrastructure to encourage active transportation.

The Grand River Street North roadway improvements are not anticipated to produce an increase or decrease in greenhouse gas emissions. This is based on the following:

- Increases in traffic volume along the corridor will be a result of the planned and future development in Paris. The road improvements including active transportation sidewalks and multi-use pathways are proposed to support this growth and reduce both traffic delays and idling, by utilizing roundabout traffic control which eliminates queues associated with stop control at signalized intersections, and by reducing vehicular trips.
- The widening of Grand River Street North does not result in a significant increase or decrease in greenspace.
- Air quality and climate change were included as evaluation criteria for the evaluation of the extension of West River Road (new Paris Links Road); however, all alternatives were considered equal as there was not an appreciable difference between alternatives.
- The construction will not be a significant source of greenhouse gasses.
- The addition of cycling infrastructure will encourage more active transportation along the corridor and will have a beneficial long-term effect on greenhouse gas emissions.

4.2 Technical Investigations

4.2.1 Traffic

Grand River Street North is an arterial road that functions as the northern gateway to the Community of Paris. South of Woodslee Avenue, the roadway is predominantly a 3-lane cross-section with a centre left-turn north of Silver Street, and two northbound lanes with a single southbound lane from north of the intersection with William Street to Paris Links Road, south of Silver Street. Traffic volumes along the corridor average approximately 18,000 vehicles/day near William Street, at the south end of the study area. Existing (2018) PM Peak Hour travel demands are summarized in **Figure 7**.

The corridor serves local traffic needs providing access to area residential and retail commercial development, the hospital and the High School. Grand River Street North is also part of a main route to and from Highway 403. The intersection of Grand River Street North and William Street is recognized to be a constraint on the capacity of the corridor. During peak hours the intersection operates at a reduced level of service as evidenced by the traffic queuing in **Photo 1**.



Photo 1: Southbound Grand River Street North Vehicular Queuing at William Street (PM Peak Hour)

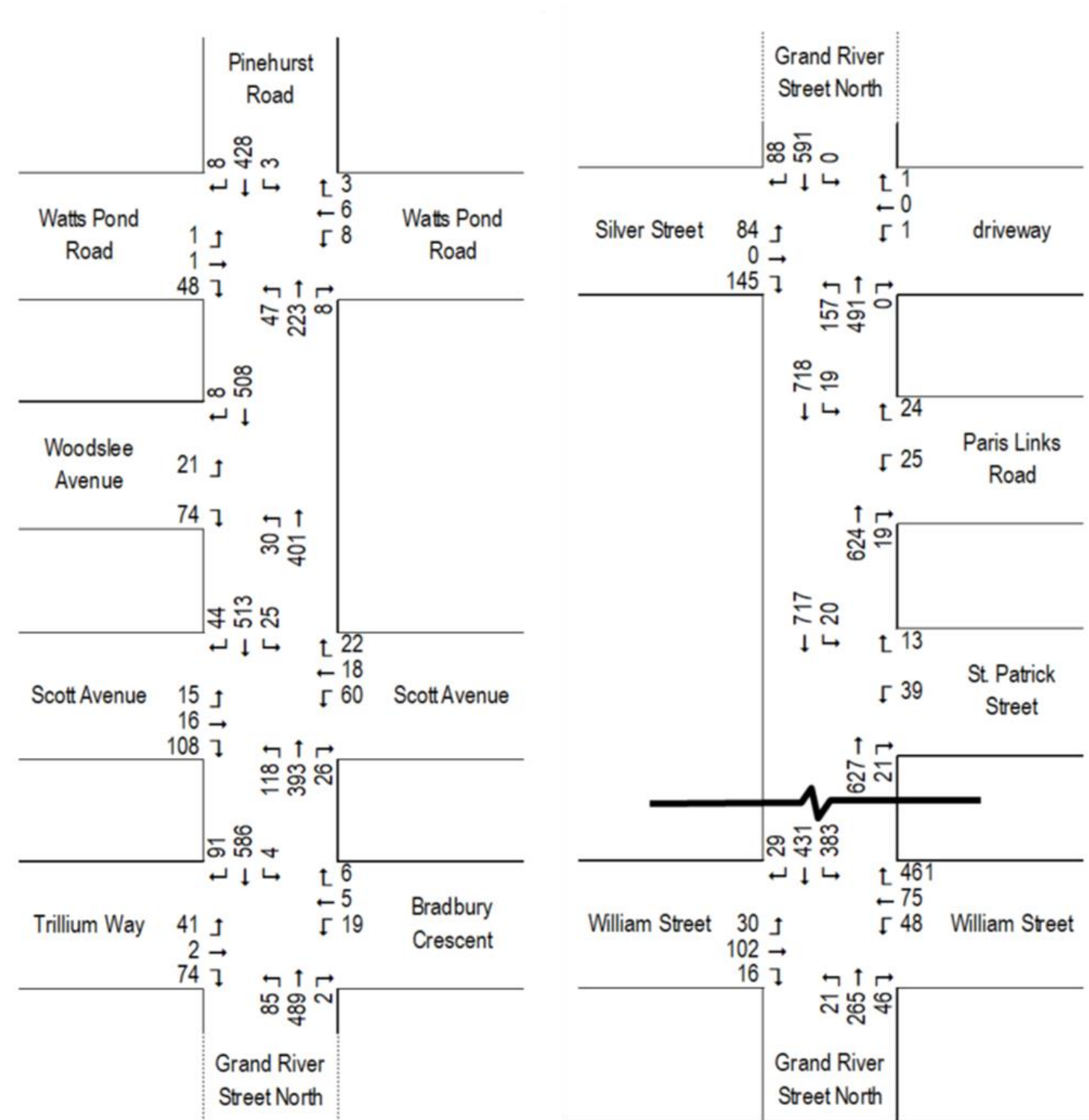


Figure 7: 2018 PM Peak Hour Traffic Volumes

Travel speeds along Grand River Street North and the effect this has on traffic safety are concerns that have been expressed by area residents. The Ontario Provincial Police reiterated this concern to Brant County staff, identifying Grand River Street North as one of the top three locations where speeding is an issue in the County.

Pedestrians are not accommodated along a large section of the corridor. No sidewalk exists north of the entrance to the Dollarama site, south of Scott Street. Where sidewalk does exist north of Silver Street, it is currently only provided on the east side of the street. From Homestead Road to William Street, the sidewalk on the east side of the street is discontinuous.

The Transportation Master Plan Update identified the provision of infrastructure to support walking and cycling as a key transportation issue in the County. Other concerns regarding provisions for pedestrians include:

- The width of existing sidewalks, as shown in Photo 2, makes it difficult to pass someone in an electric wheelchair
- Curb face sidewalks which leave no room for snow storage, and the dangers that the changes in crossfall at driveways create for pedestrians and wheelchairs
- Increased development-generated traffic and the lack of sidewalks on all local streets surrounding the High School



Photo 2: Existing Sidewalk Width



Photo 3: Use of Sidewalk by Cyclists

There are currently no designated facilities for cyclists within the corridor. To avoid travelling on the road, cyclists have been observed, as shown in **Photo 3**, to commonly ride on the sidewalk. Cyclists on the narrow (1.2 to 1.5 m wide) sidewalks are an additional hazard for pedestrians.

See **Appendix G** for traffic reports related to this study.

4.2.2 Noise

A noise assessment was conducted along the former rail corridor north of Paris Links Road to analyze the effects of alternatives considering a new roadway along this corridor. The Paris Grand Estates subdivision is proceeding as approved and in time the traffic volumes as noted in the report will occur whether they are on Paris Links Road or an extension of West River Road to Grand River Street North (the project). The new roadway would provide a link to the planned development to the east, with an expected traffic volume (AADT) of 3,500 vehicles/day. Seven representative receiver sites adjacent to the roadway were modelled to

assess the impact on the outdoor living area (OLA)/ most exposed side within the noise sensitive environment. See **Appendix H** for the Noise Assessment Report.

It is projected that no receiver sites will experience sound level changes greater than 5 dBA and no receiver site will have a total sound level of over 65 dBA with the project in the year 2030. Therefore, the construction of a barrier for these properties solely for noise abatement is not warranted. The incremental cost to design and construct the visual barrier to also address noise abatement is modest; therefore, it is recommended that the visual screen be implemented as a 2.5 m noise barrier to provide acoustical shielding to these properties as well.

The proposed barrier limits and receiver sites are illustrated in **Figure 8**.



Figure 8: Recommended Barrier Limits and Receiver Sites

4.3 Existing Land Use

Grand River Street North is an urban arterial road providing access to residential, institutional and commercial properties. Urban arterial roads are design to “carry high volumes of traffic from Provincial Highways and other Urban Arterial Roads to the collector road system, and vice versa”². The roads connecting to Grand River Street North are primarily residential. The Land Use Planning Report is included in **Appendix I**.

² The County of Brant Official Plan, 2012

The County of Brant Official Plan designates the adjacent area as Urban Residential Land, with some areas listed as General Commercial and Institutional.

4.3.1 Transportation Upgrades

The County of Brant's Transportation Master Plan Update (2016) recommended the construction of an interchange at Bishopsgate Road and Highway 403 to accommodate planned development and aggregate operations within the County. The Study found that a new interchange at Bishopsgate Road "will provide a substantial improvement to the road network for County of Brant, serving background and development traffic growth as well as providing new accessibility to Highway 403 for the County"³. The new interchange would be a key element of a West Bypass, encouraging drivers passing through Paris to divert around the downtown area and thus providing relief to traffic congestion on Grand River Street North.

The TMP also calls for an Eastern Bypass to be located along the end of West River and connect to Green Lane. According to the 2010 Truck Route Paris Bypass Study, it would cost a substantial amount to build this project and require crossing through land that currently serves as the Dufferin Gravel Pits. The Eastern Bypass would be designed to alleviate much of the traffic currently on Grand River Street North; however, due to the existing aggregate extraction land use and high capital cost of the project it is expected to be a much longer term solution, and may not be implemented for many decades.

4.3.2 Future Development

Future growth is occurring within lands identified within the Official Plan and as approved in the Provinces 2017 Places to Grow Growth Plan for the Golden Horseshoe area of Ontario. The Growth Plan for the Greater Golden Horseshoe, 2017, was prepared and approved under the *Places to Grow Act, 2005* which took effect on July 1, 2017.

The successful realization of this vision centres on effective collaboration between the Province, other levels of government, First-Nations and Métis communities, residents, private and non-profit sectors across all industries, and other stakeholders. The policies of this Plan regarding how land is invested are based on the following principles:

- Support the achievement of complete communities that are designed to support healthy and active living and meet people's needs for daily living throughout an entire lifetime.
- Prioritize intensification and higher densities to make efficient use of land and infrastructure and support transit viability.

The Places to Grow Plan targets the County of Brant to achieve population thresholds of: 49,000 (2031), 53,000 (2036) and 57,000 (2041) and employment thresholds of: 22,000 (2031), 24,000 (2036) and 26,000 (2041).

The County's Official Plan describes the land use plan and zoning of lands that are designed to achieve these Provincial targets. That plan is being implemented by the County. The transportation plan is integrating transportation projects that can sustain the future land use plan, and protect sufficient right-of-way to accommodate all modes of travel. Specifically, the TMP has defined improvements along Grand River Street North: a new interchange on Highway 403 at Bishopsgate Road (part of an alternative western route to Highway 403); and a longer term eastern bypass that would require include a future crossing of the Grand River and provide a connection to Highway 403.

Planned developments, illustrated in **Figure 9**, that are known at the time of this EA study from which traffic demand will occur along the Grand River Street North and Paris Links Road corridors include:

1. General background growth resulting from overall area development that includes substantial housing in the Paris South Development area along Rest Acres Road (estimated population of 10,000 persons), which increases area traffic including along the Grand River Street North corridor;
2. Paris Grand Estates (745 dwelling units) residential development of the former golf course which is planning phased expansion of housing to the east of Grand River Street North;
3. Northwest Secondary Area which includes: Brookfield Homes (391 total dwelling units); Gusenbauer development (75 dwelling units); Valery Homes (294 dwelling units); 58,000 ft² of commercial development; and
4. The Cordon Lands, a major development site to the north of the Vicano site which was not part of the Northwest Secondary Plan (currently with no approvals in place to define the intensity of development).

The travel demand from these future expansion areas, shown in **Figure 7**, requires a serviceability plan for all municipal services (storm, water and sanitary services) as well as a transportation plan to accommodate vehicular (general and truck traffic vehicles), pedestrian and cycling modes of travel. This EA will describe the associated improvements required along the Grand River Street North and Paris Links Road corridors and the associated other improvements of the western and eastern bypass roadways to accommodate the land use plans.

³ County of Brant Transportation Master Plan Update, IBI Group, 2016

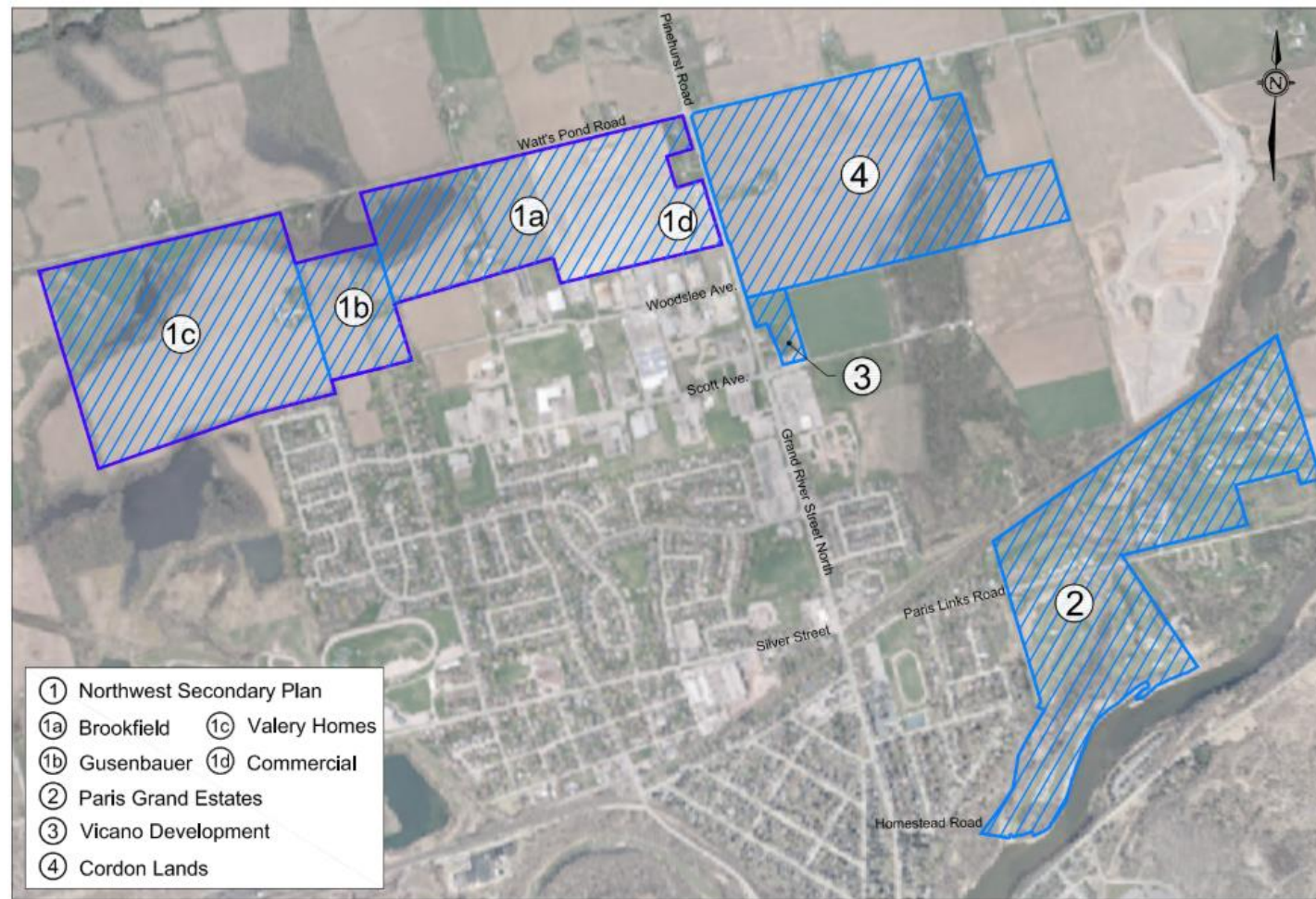


Figure 9: Development in North Paris

4.3.3 2031 Travel Demands

The planned residential and commercial developments combined would represent the addition of 1,563 new dwelling units and approximately 58,000 square feet of new commercial development. Combined these developments would generate approximately 17,000 vehicle trips per day before any development takes place on the Cordon Lands. Highway 403 and downtown Paris will be 2 major origins and destinations for those vehicle trips; therefore, much of the new traffic will be to and from the south along Grand River Street North. Due to the capacity constraint at the intersection of Grand River Street North and William Street, the corridor will be unable to accommodate that magnitude of growth.

Intersection improvement alternatives at William Street were evaluated to optimize the traffic



Photo 4: Pinehurst Community (Brookfield Homes)

operations and accommodate growth potential. As a best case scenario, with an assumed low growth in background traffic, the Grand River Street North and William Street intersection could only accommodate the traffic growth resulting from a maximum of approximately 700 new dwelling units and 58,000 square feet of commercial space, without the construction of additional improvements to divert traffic to an alternative corridor. Construction of Brookfield Homes' Pinehurst development is proceeding as shown in **Photo 4** and 616 units have either already been constructed or have been allocated for approval as follows:

Development	Dwelling Units	
Pinehurst Community (Brookfield Homes)	391	Completed or under construction
Paris Grand Estates (Phase 1)	125	Approved
Paris Grand Estates (Phase 2)	100	Allocated - subject to the completion of this EA
Total	616	

Projected 2031 PM peak hour traffic volumes resulting from the development of the 700 dwelling units and 58,000 square feet of commercial development are presented in **Figure 10**.

The projected daily traffic volume will range from an estimated 13,000 vehicles/day north of Hartley Avenue, to 25,000 vehicles/day north of William Street. The volumes will be dependent on the allocation of development between the sites where servicing can be provided. To accommodate those travel demands, widening of the corridor to 4 through lanes will be required south of Hartley Avenue, with the protection for a potential future 4 lanes of traffic to Watts Pond Road. The provision of roundabouts would:

- Improve safety for motorists and pedestrians;
- Control traffic speeds;
- Optimize traffic operations;
- Reduce vehicle delays; and
- Reduce traffic noise.

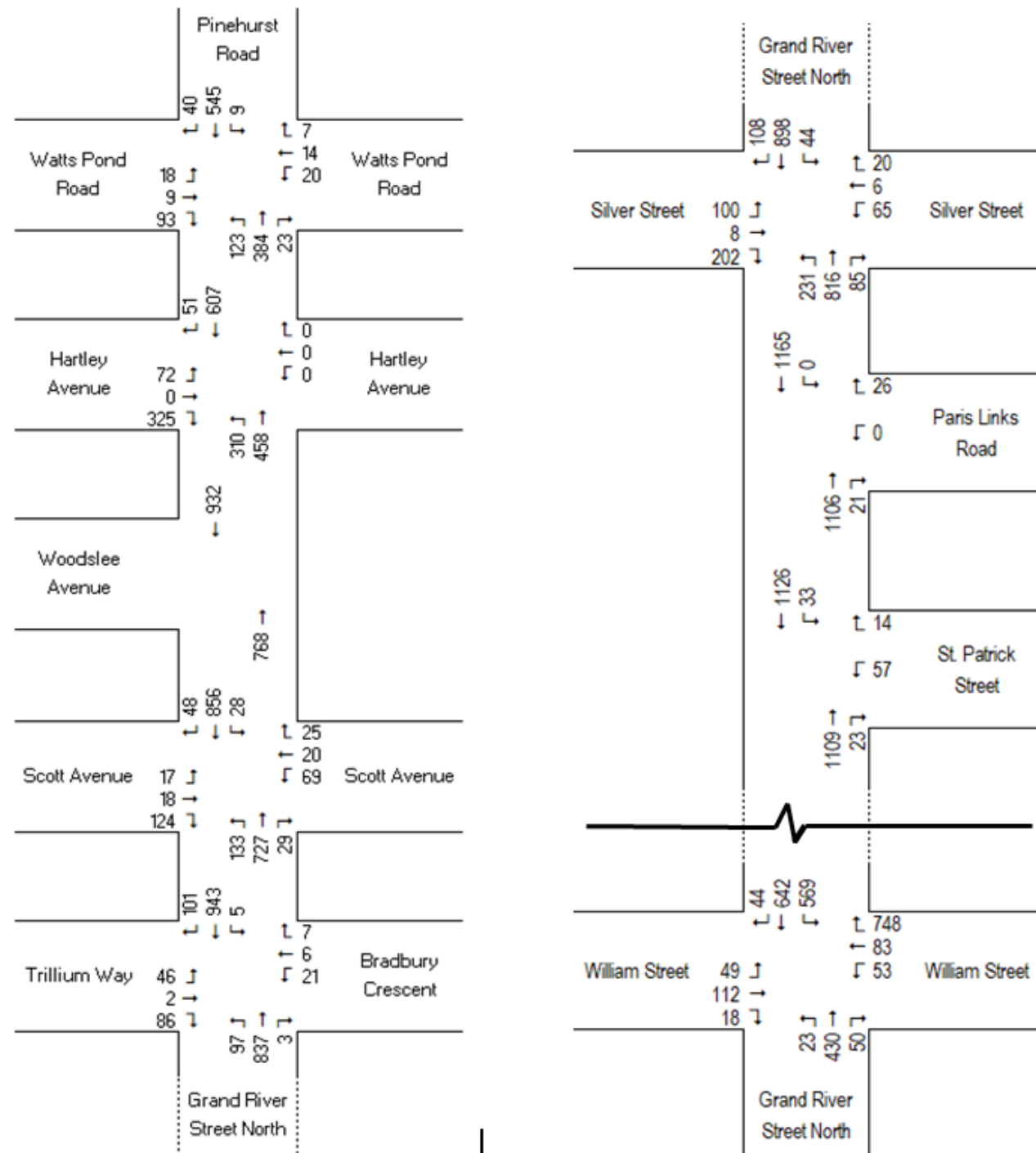


Figure 10: 2031 PM Peak Hour Traffic Volumes

5.0 GENERATION OF ALTERNATIVES

The analysis and evaluation of alternatives involves a 2-step process for decision-making. The first step is the analysis and evaluation of Planning Solutions, which considers different broad approaches to address the problem. The second step is the generation and evaluation of preliminary design alternatives which are determined based on the selected Planning Solution. These two steps in the evaluation are described in the following sections.

5.1 Assessment of Alternative Planning Solutions

Six (6) Alternative Planning Solutions were considered for the proposed improvements to Grand River Street North, namely:

- Alternative 1 – Do Nothing. As mandated by the Class EA process, this solution must be considered. It represents a baseline from which other approaches can be compared.
- Alternative 2 – Transportation Demand Management (TDM). This strategy would reduce vehicular demand and encourage work at home and more active modes of transportation (cycling and walking).
- Alternative 3 – Restrict Development. This alternative would restrict development of the adjacent areas to limit growth in the County. This strategy does not align with the County’s planning objectives and policies and does not account for existing traffic volumes and safety concerns.
- Alternative 4 – Improvements to Existing Infrastructure (Grand River Street North). This strategy would be to improve existing infrastructure to accommodate existing and future traffic demand, and follow the Complete Streets methodology. Alternatives may include widening, operational improvements and/or realignment of Grand River Street North.
- Alternative 5 – Encourage Use of Local Roads. This strategy would encourage the use of existing local roads to reduce the demand on Grand River Street North. Limitations of using local roads include limited connectivity to the wider transportation network through Paris, and limited crossings of the Nith and Grand River.
- Alternative 6 – Construction of a New Corridor/Bypass. Construction of a new corridor or bypass was considered as part of the 2010 and 2016 Transportation Master Plans (TMP) completed by the County. The 2016 TMP update presented the potential for an eastern bypass, by recommending protection of a corridor as a potential longer term improvement.

Alternative 4 – Improvement to Existing Infrastructure was carried forward as the preferred alternative. Transportation Demand Management was not carried forward as a standalone solution but will be incorporated with the preferred alternative as a recommended solution.

The Do Nothing and Restrict Development alternatives do not align with the County’s planning objectives and policies or provide a solution for the existing capacity and safety concerns along the corridor. Encouraging the Use of Local Roads is not recommended due to the geographic limitations of the Town and water crossings.

The Construction of a New Corridor/Bypass Alternative would be beyond the timeline of the current Transportation Master Plan and would not reduce traffic demands to accommodate the existing and planned development. This alternative is not recommended as a standalone solution for this study. It is the recommendation of this EA that a future study be conducted on the feasibility of a new bypass. This current EA Study includes consideration of property protection and planning for roadway connections to a potential future bypass. These conclusions were presented to the public in the Study Design Report and discussed at the Public Information Centres. Feedback from the public/stakeholders supported the evaluation and implementation of a future bypass.

5.2 Generation and Assessment of Preliminary Design Alternatives

The analysis and evaluation process is a central requirement of the Class EA process.

In adhering to this process, a number of alternatives were generated for consideration which would improve traffic operations through the study area to meet existing and future traffic and active transportation demands. A “long list” of alternatives was generated, based on identified needs, to ensure consideration of a wide range of transportation alternatives (i.e. all reasonable alternatives are considered).

A range of operational improvements was generated to provide site specific solutions to existing and future transportation and safety concerns. The preliminary design alternatives were categorized under 5 groups:

1. Cross Section Alternatives
2. Horizontal Alignments
3. Intersection Alternatives
4. Active Transportation
5. West River Road Extension (referred to in initial planning documents as ‘New Paris Links Road’)

The fifth group of alternatives was assessed along Paris Links Road to consider the connection to an expansion area in the east (Paris Grand Estates). This assessment was undertaken to establish the preferred corridor for this road link, considering using either Paris Links Road or the abandoned railway corridor (West River Road extension).

6.0 EVALUATION OF PARIS LINKS ROAD/ WEST RIVER ROAD CORRIDOR ALTERNATIVES

The evaluation of alternatives was completed using both quantitative and qualitative assessments to compare the net effects and performance of the alternatives.

The quantitative assessment used various global factors and a weighted additive score method to mathematically evaluate the alternatives being considered. The methodology is referred to as the Multi Attribute Trade-off System (MATS).

The qualitative evaluation method measured the relative differences and compared the advantages and disadvantages of each alternative using evaluation criteria. The evaluation criteria looked at the effects each alternative had on the natural, social/cultural, economic and physical elements in the study area. The evaluation criteria ranking legend is provided in **Table 2**.

Table 2: Evaluation Criteria Ranking Legend				
Best	←—————→			Worst
●	◐	○	◑	●

The Analysis and Evaluation Report detailing the evaluations for each alternative is included in **Appendix J** and is summarized in this section.

6.1 Quantitative Evaluation: Paris Links Road/West River Road Corridor Analysis

This section describes the formal quantitative evaluation approach used in this study for evaluating alternative corridors, using Paris Links Road or the extension to West River Road along the abandoned subway corridor to provide access to the Paris Grand Estates subdivision. This evaluation was presented to the public/stakeholders at PIC No. 1.

Combinations of intersection, alignment and bypass connection alternatives were evaluated to determine the recommended alternative corridor for a roadway connection that can also serve as access to the future Eastern Bypass identified in the TMP. The combinations of the 13 alternatives carried forward for evaluation are illustrated in **Figure 11**. Six (6) cross section alternatives were then evaluated for the preferred corridor (use of the abandoned rail corridor), as described in **Section 7.0**.

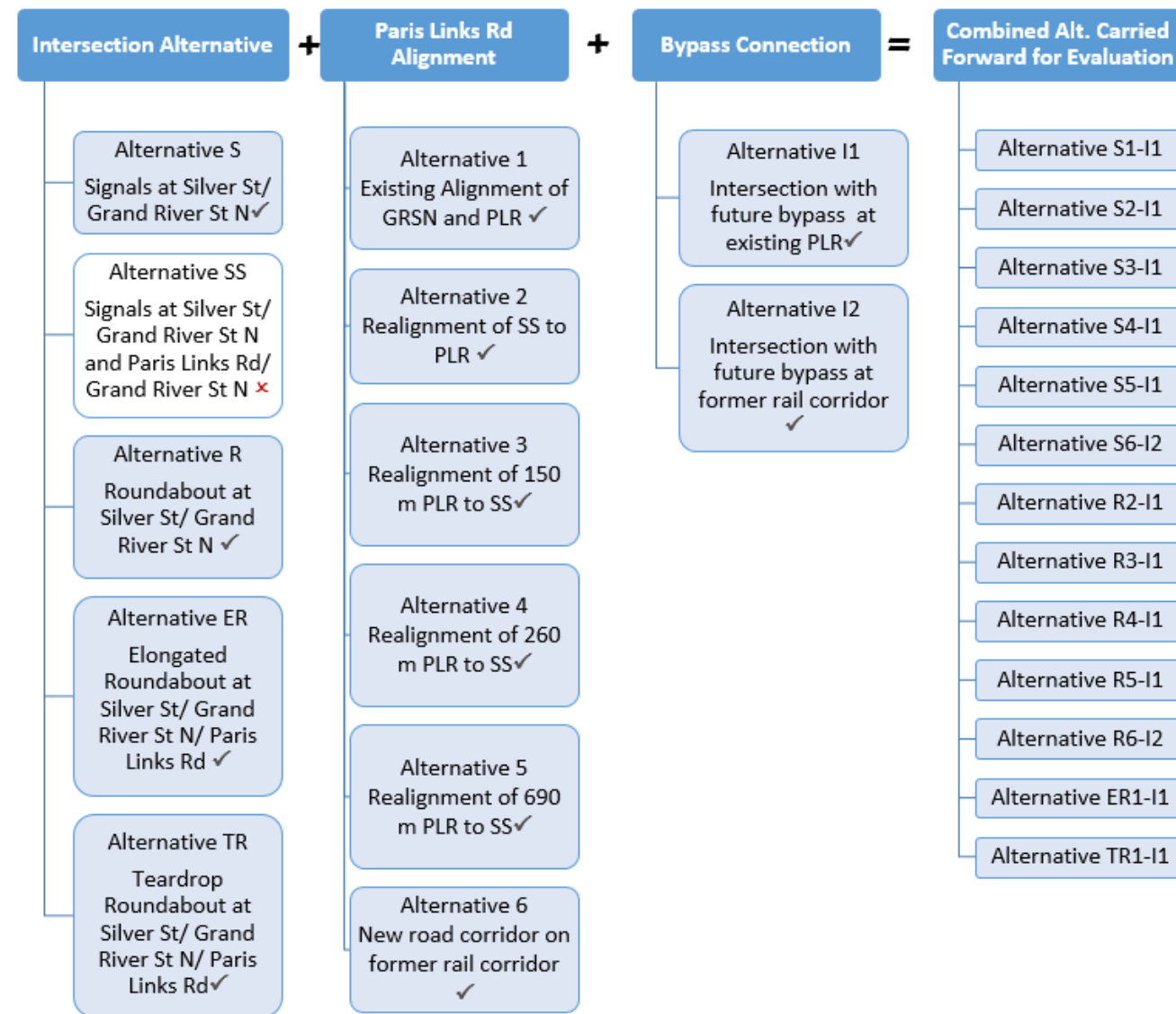


Figure 11: Combination of Alternatives to select the Technically Preferred Corridor to/from West River Road

Multi Attribute Trade-off System (MATs)

The quantitative approach is based on the “Weighted Additive Method” which focuses on the differences between the alternatives, addressing the complexity of the base data collected and providing a traceable decision-making process. Sensitivity tests are also performed to determine the impact of the alternatives and the trade-offs between each alternative.

Overall scores are assigned to each alternative and the alternative with the highest score is selected as the preferred alternative. The initial task in the evaluation is to develop criteria from which alternatives will be

evaluated and assessed. This process includes the identification of “global” groups of factors followed by the selection of a number of “local” sub-factors (sub-factors) under these global groups.

The evaluation criteria are grouped into broad categories (global factors) to describe the study specific engineering and environmental concerns. The global factors for the evaluation of the combined alternatives included: Transportation; Natural Environment; Social and Cultural Environment; Land Use and Property; and Cost.

Under each of the global factors, several sub-factors are selected under which measurements could be made. These sub-factors are the individual descriptors for the evaluation. Each sub-factor must adequately describe the issue or aspect of the environment to be evaluated and the unique features of each alternative. A long list of potential sub-factors is generated based on discussions with the Technical Team, Project Team, stakeholders and the public. Each sub-factor is then reviewed, and the sub-factors considered equal or not applicable are screened out. The long list of sub-factors and short list screening is in **Appendix J**.

To evaluate the alternatives using the short-listed criteria, the Evaluation team members rated each global factor and sub-factor based on their opinion. It is noted that every person assigning weights has a personal bias and understanding of the scope of the project, with various life experiences. Hence, the Evaluation Team consists of a diversified team of professionals with varied backgrounds.

Each member of the Evaluation Team assigns percentage weights to each global factor and sub-factor based on their opinion of the relative importance of each. Their individual weights are then averaged to determine the Evaluation Team weight for each global factor and sub-factor.

Sensitivity Tests

Sensitivity testing is an essential component in the analysis and evaluation process. It evaluates whether the average weighting of the factors was the sole reason for the results of the evaluation. Since each specialist assigns weights based on their professional opinion, there is a spread of values for the selection of weights. The range is dependent on the value judgements of the individuals and specialists. Using the average of the group does not necessarily capture what the standard deviation was among the individual scores. Therefore sensitivity testing is conducted to test a range of weights either higher or lower than the group’s average.

6.1.1 Intersection Alternatives

Two types of intersection configurations were considered: signalized intersection; and roundabout (three variations). These intersection alternatives include:

- Alternative S: Signalized intersection at Silver Street/ Grand River Street North, see **Figure 12**;
- Alternative SS: Two signalized intersections at Silver Street/Grand River Street North and Paris Links Road/ Grand River Street North. (Signalized intersections should have a spacing of 400 m (desirable) and 250 m (minimum). This alternative was screened from the evaluation for not meeting this standard for acceptable traffic operations and safety);

- Alternative R: Single roundabout at Silver Street/ Grand River Street North, see **Figure 13**;
- Alternative TR: Teardrop roundabout at Silver Street/ Grand River Street North/ Paris Links Road, see **Figure 14**; and
- Alternative ER: Elongated roundabout at Silver Street/ Grand River Street North/ Paris Links Road, see **Figure 15**.

Alternative SS (two signalized intersections) was coarse screened to not be carried forward due to the short distance between the two intersections which would cause issues with traffic queuing.



Figure 12: Intersection Alternative S – One Signalized Intersection

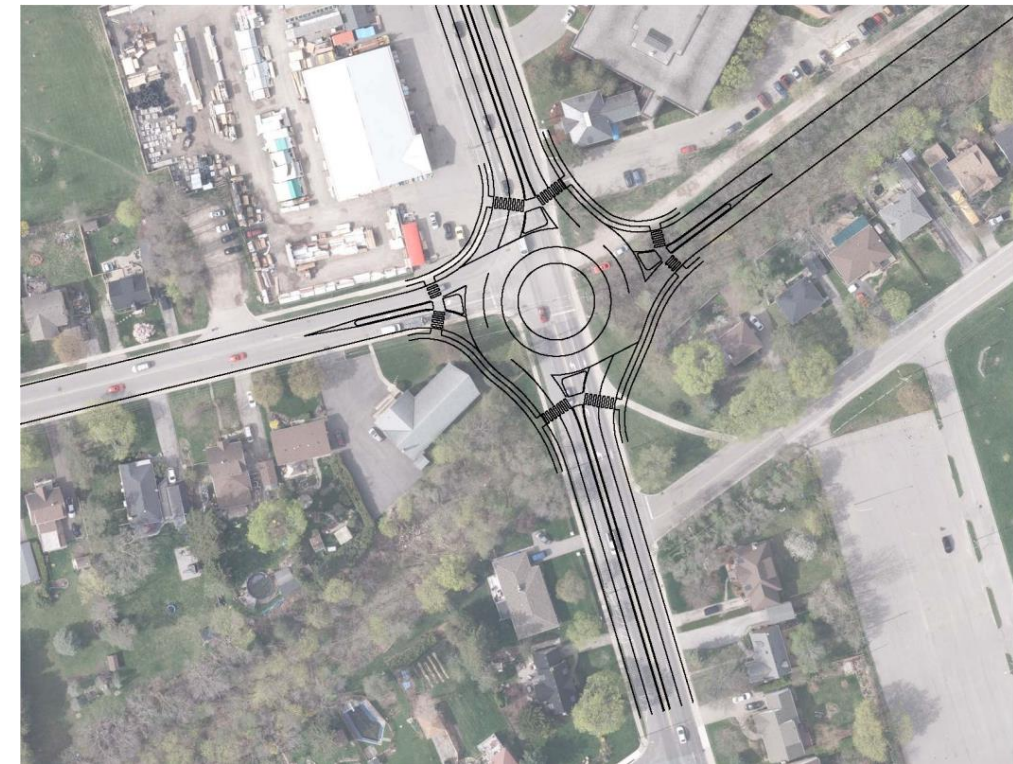


Figure 13: Intersection Alternative R – Single Roundabout

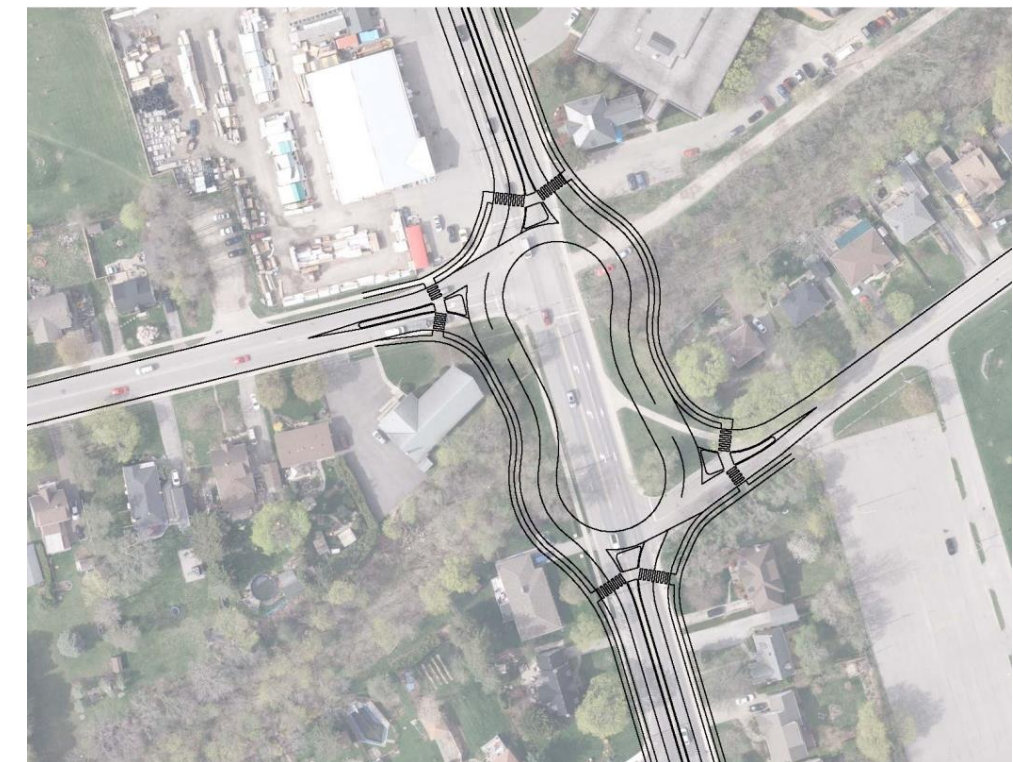


Figure 14: Intersection Alternative TR – Elongated Roundabout



Figure 15: Intersection Alternative ER – Elongated Roundabout

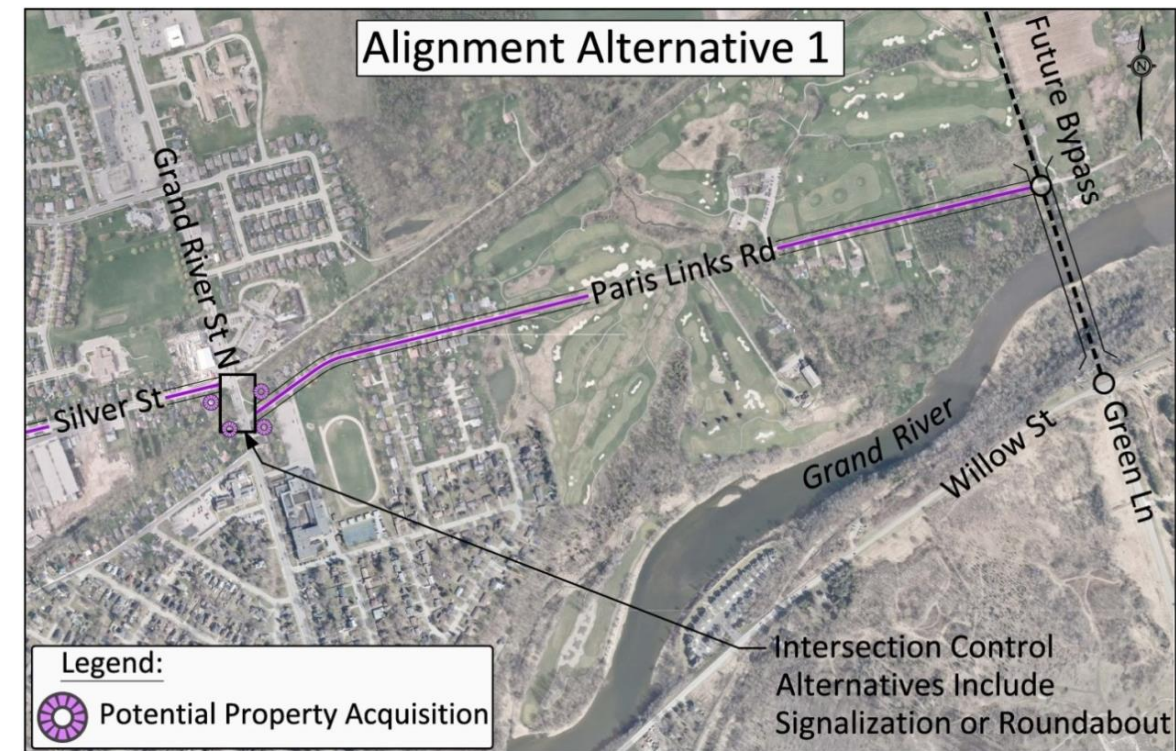


Figure 16: Alignment Alternative 1

6.1.2 Alignment Alternatives

Six alignment alternatives were considered for the Silver Street/ Paris Links Road alignment:

- Alternative 1: Maintain existing alignment of Grand River Street North, Paris Links Road and Silver Street, see **Figure 16**;
- Alternative 2: Realignment of Silver Street and Paris Links Road to create one intersection with Grand River Street North, see **Figure 17**;
- Alternative 3: Realignment of 150 m of west portion of Paris Links Road to Silver Street/ Grand River Street North, see **Figure 18**;
- Alternative 4: Realignment of 260 m of west portion of Paris Links Road to Silver Street/ Grand River Street North, see **Figure 19**;
- Alternative 5: Realignment of 690 m of west portion of Paris Links Road to Silver Street/ Grand River Street North, see **Figure 20**; and
- Alternative 6: New road corridor on the former rail corridor, see **Figure 21**.

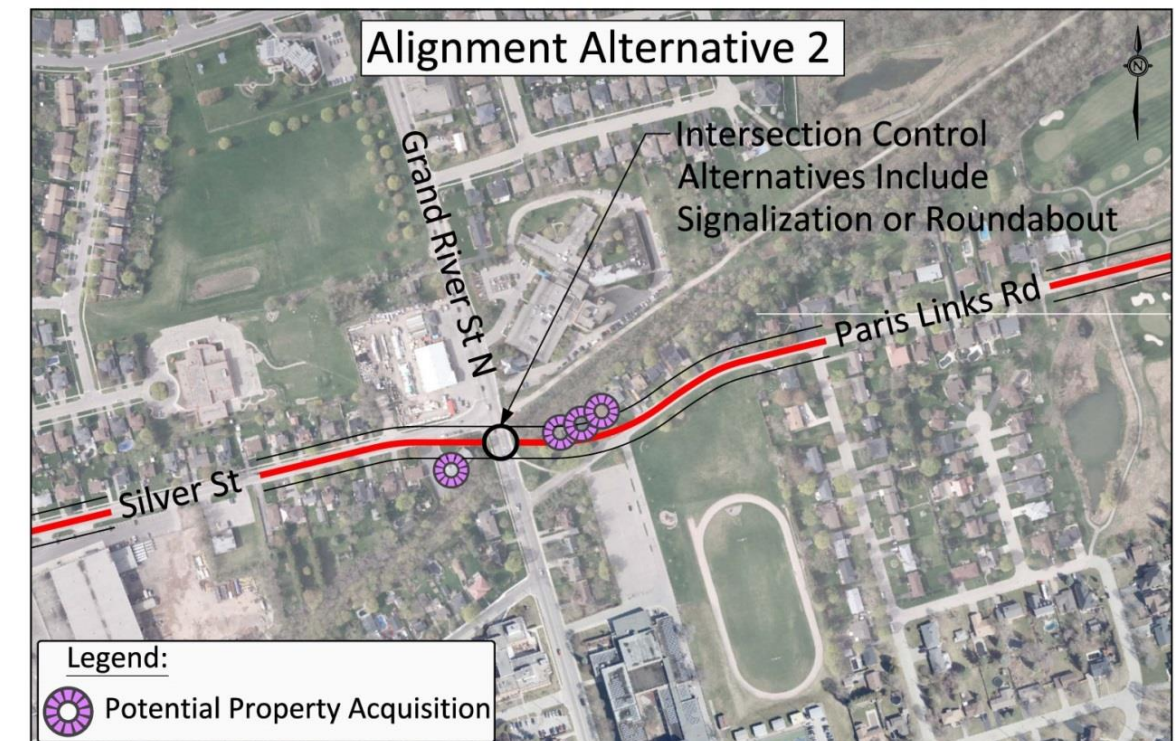


Figure 17: Alignment Alternative 2

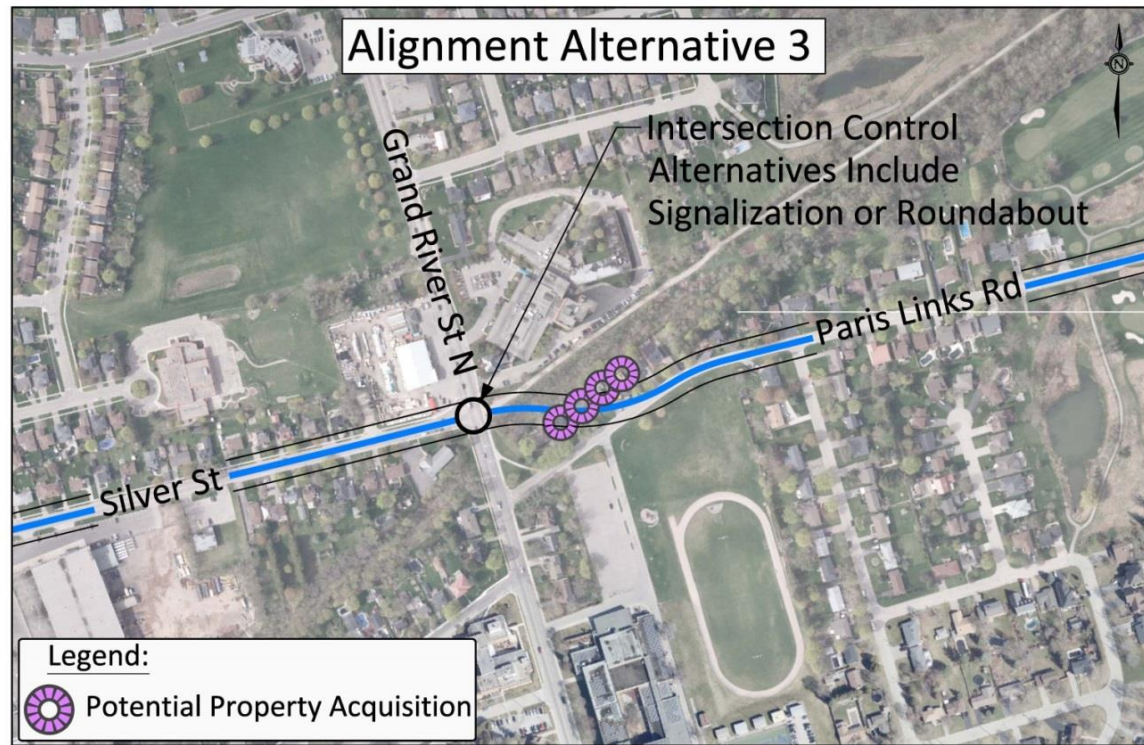


Figure 18: Alignment Alternative 3

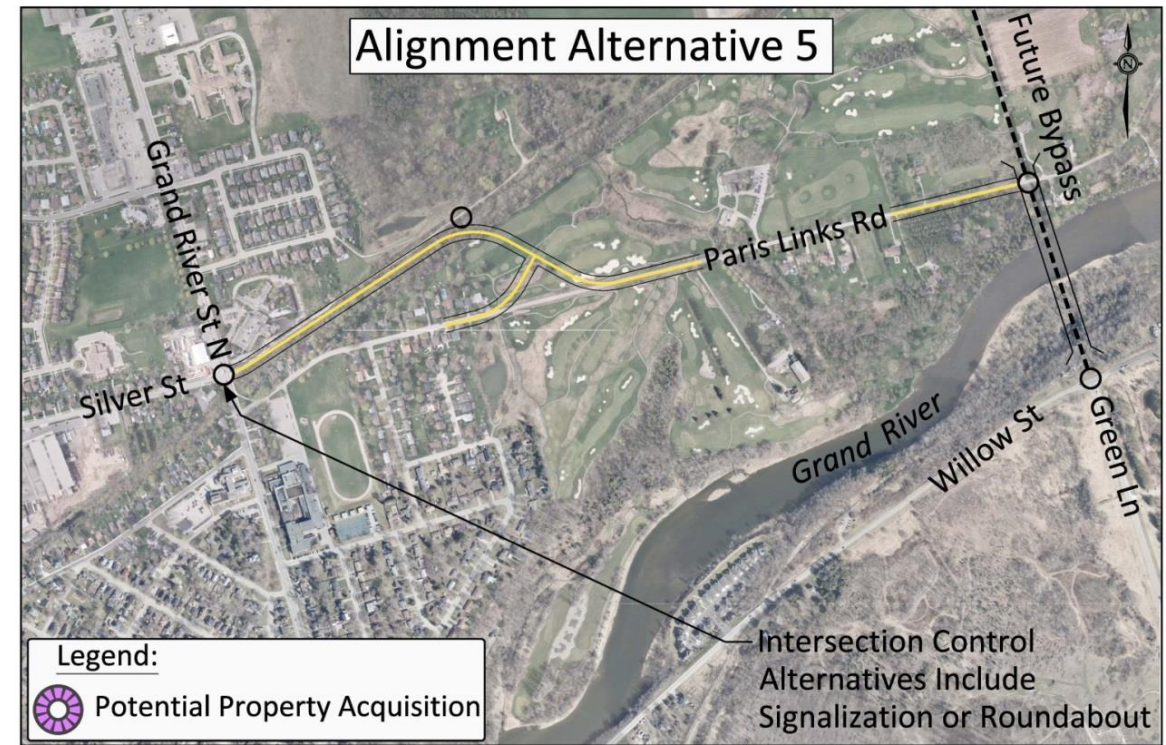


Figure 20: Alignment Alternative 5

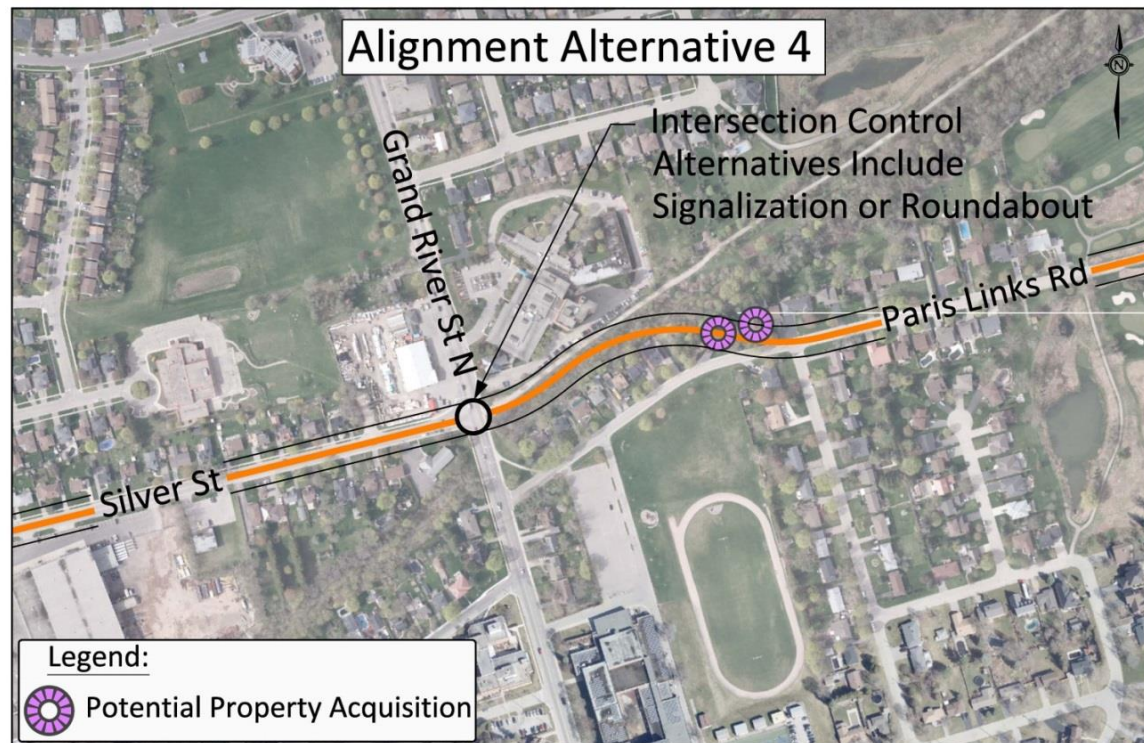


Figure 19: Alignment Alternative 4

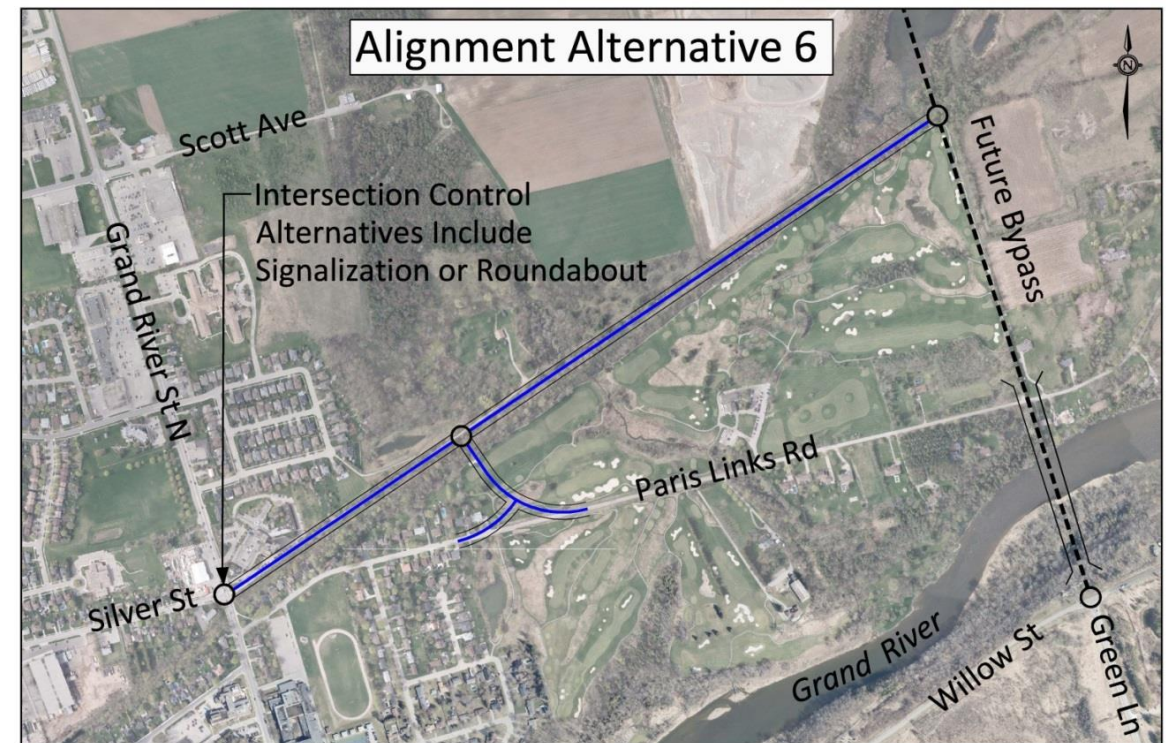


Figure 21: Alignment Alternative 6

6.1.3 Bypass Connection Alternatives

Two alternatives were considered for connecting to the future bypass in Paris:

- Alternative I1: Intersection with the future bypass at the former rail corridor (West River Road extension); and
- Alternative I2: Intersection with the future bypass at the existing Paris Links Road alignment.

6.1.4 Evaluation of Paris Links Road/West River Road Corridor Alternatives

Thirteen (13) combined alternatives were evaluated for the possible corridor either using the Paris Links Road or the abandoned railway corridor to provide connections to West River Road:

1. Alternative 1 (S1-I1): Signals at Silver Street/Grand River Street North with the existing alignment of Grand River Street North and Paris Links Road and the intersection with the potential future bypass at Paris Links Road.
2. Alternative S2-I1: Signals at Silver Street/Grand River Street North with the realignment of Silver Street to Paris Links Road and the intersection with the potential future bypass at Paris Links Road.
3. Alternative S3-I1: Signals at Silver Street/Grand River Street North with the realignment of 150 m of Paris Links Road to Silver Street and the intersection with the potential future bypass at Paris Links Road.
4. Alternative S4-I1: Signals at Silver Street/Grand River Street North with the realignment of 260 m of Paris Links Road to Silver Street and the intersection with the potential future bypass at Paris Links Road.
5. Alternative S5-I1: Signals at Silver Street/Grand River Street North with the realignment of 690 m of Paris Links Road to Silver Street and the intersection with the potential future bypass at Paris Links Road.
6. Alternative S6-I2: Signals at Silver Street/Grand River Street North with new road corridor on the former rail corridor and the intersection with the potential future bypass at the former rail corridor.
7. Alternative R2-I1: Roundabout at Silver Street/Grand River Street North with the realignment of Silver Street to Paris Links Road and the intersection with the potential future bypass at Paris Links Road.
8. Alternative R3-I1: Roundabout at Silver Street/Grand River Street North with the realignment of 150 m of Paris Links Road to Silver Street and the intersection with the potential future bypass at Paris Links Road.
9. Alternative R4-I1: Roundabout at Silver Street/Grand River Street North with the realignment of 260 m of Paris Links Road to Silver Street and the intersection with the potential future bypass at Paris Links Road.
10. Alternative R5-I1: Roundabout at Silver Street/Grand River Street North with the realignment of 690 m of Paris Links Road to Silver Street and the intersection with the potential future bypass at Paris Links Road.

11. Alternative R6-I2: Roundabout at Silver Street/Grand River Street North with new road corridor on the former rail corridor and the intersection with the potential future bypass at the former rail corridor.
12. Alternative ER1-I1: Elongated Roundabout at Silver Street/Grand River Street North/Paris Links Road with the existing alignment of Grand River Street North and Paris Links Road and the intersection with the potential future bypass at Paris Links Road.
13. Alternative TR1-I1: Teardrop Roundabout at Silver Street/Grand River Street North/Paris Links Road with the existing alignment of Grand River Street North and Paris Links Road and the intersection with the potential future bypass at Paris Links Road.

The results of the weighting exercise for each alternative are provided in detail in **Appendix J**. The results of the weights and rankings of the corridor analysis of the Paris Links Road/West River road connection evaluation are illustrated on **Figure 22** and **Figure 23**, respectively. The conclusion of the corridor evaluation was to utilize the abandoned railway corridor for the connection to West River Road using roundabout intersection control at the Silver Street/Grand River Street North intersection.

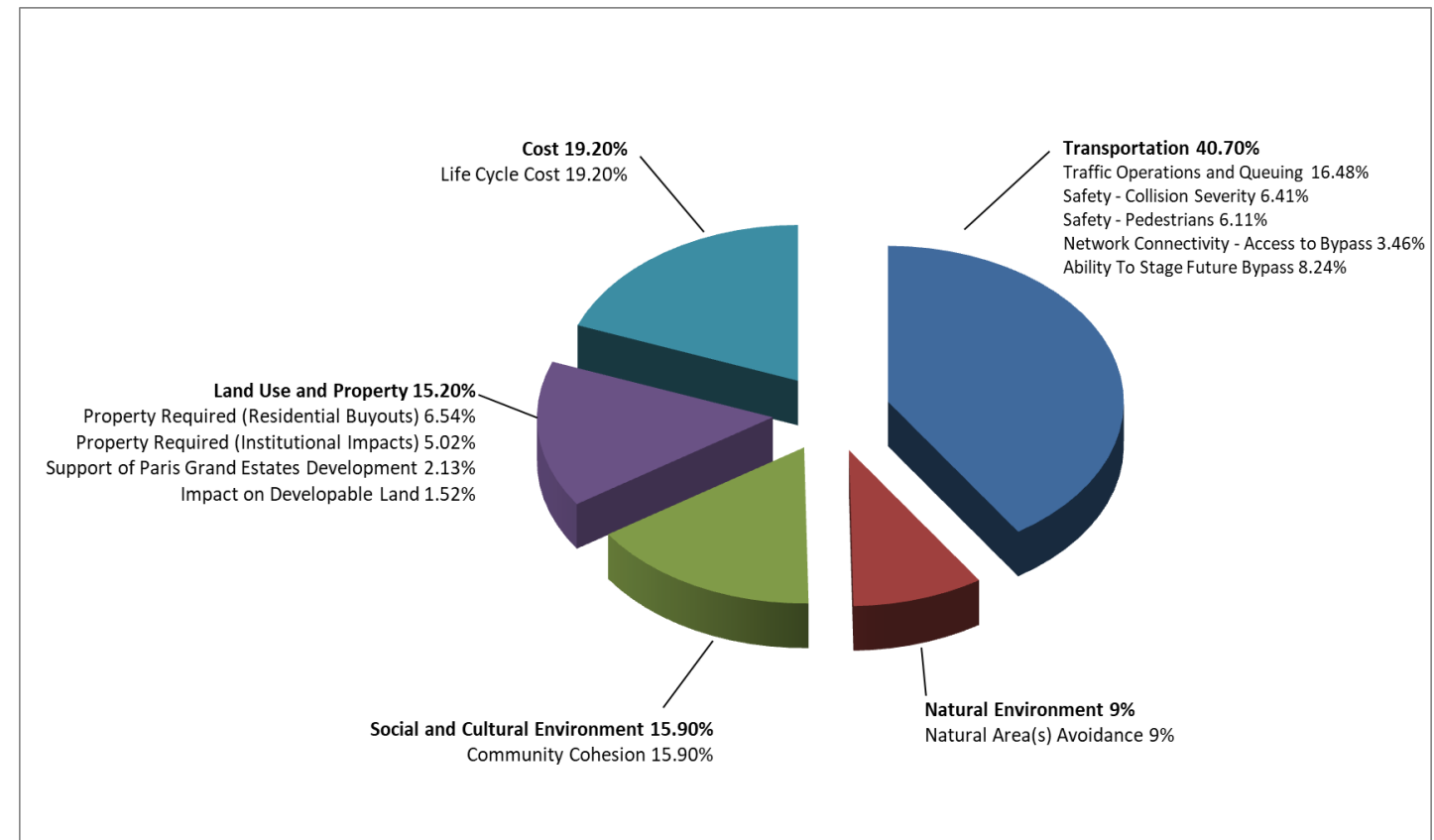


Figure 22: MATS Weighting Results

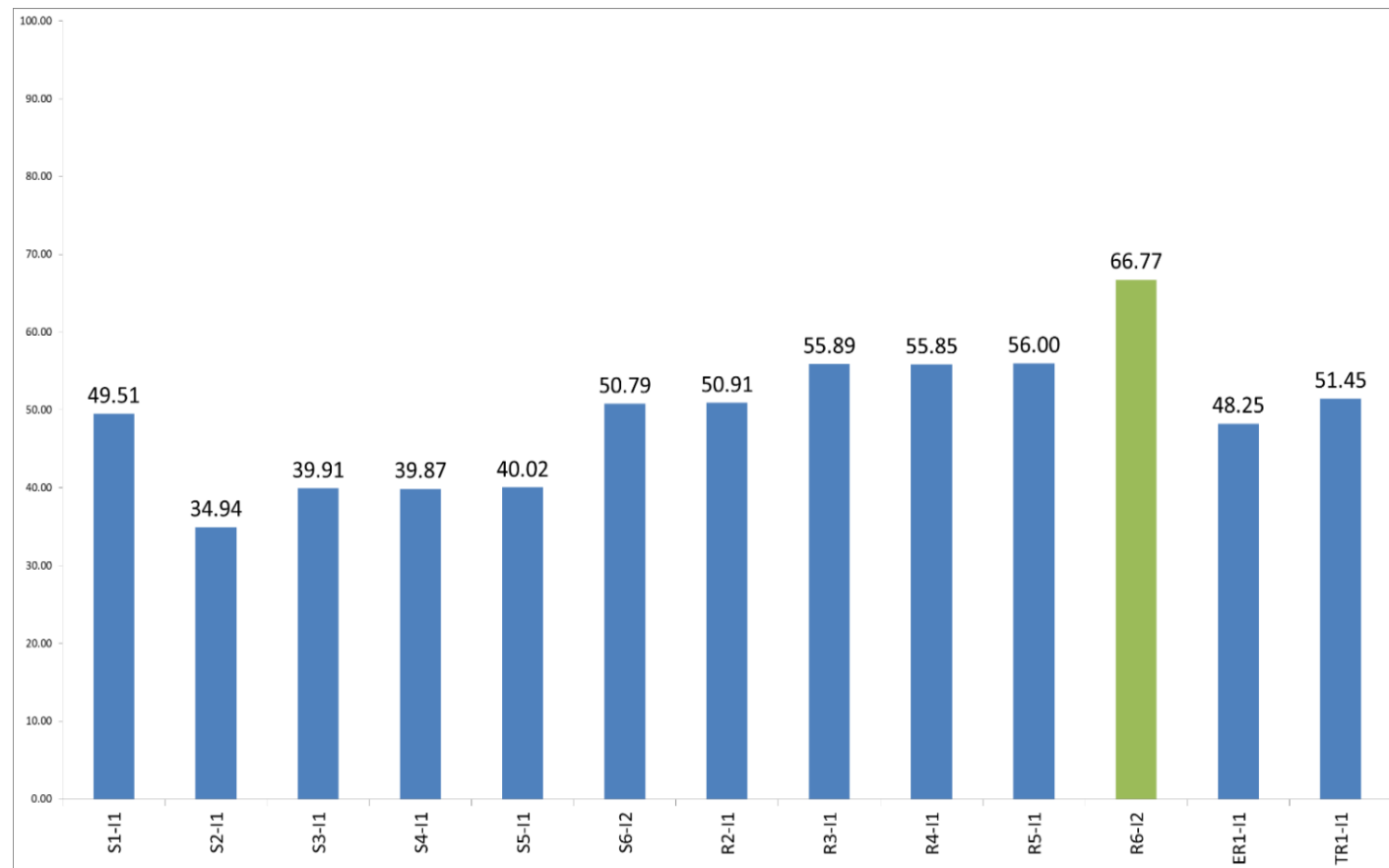


Figure 23: Paris Links Road Combined Alternatives MATS Evaluation Ranking Results

Sensitivity Tests

A series of tests was completed varying the weight for each global factor. The three tests included:

- Average TAC weight
- Highest weight in a factor group by any TAC member
- Lowest weight in a factor group by any TAC member

The results of these tests are shown in **Table 3**. The green box shows the first rated alternative.

Alternative	S1-I1	S2-I1	S3-I1	S4-I1	S5-I1	S6-I2	R2-I1	R3-I1	R4-I1	R5-I1	R6-I2	ER-I1	TR-I1	
Rank	8	13	11	12	10	7	6	3	4	2	1	9	5	
Transportation	High	9	13	10	11	12	8	5	2	3	4	1	7	6
	Low	9	13	10	11	12	7	6	2	3	4	1	8	5
Natural Environment	High	9	13	10	11	12	8	5	2	3	4	1	7	6
	Low	9	13	12	10	11	7	5	4	2	3	1	8	6
Social/Cultural Environment	High	9	13	11	12	10	6	5	3	4	2	1	8	7
	Low	9	13	10	11	12	8	5	2	3	4	1	7	6
Land Use and Property	High	9	13	12	11	10	6	5	4	3	2	1	8	7
	Low	9	12	10	11	13	8	4	2	3	5	1	7	6
Cost	High	9	12	10	11	13	8	4	2	3	6	1	7	5
	Low	10	13	12	11	9	6	5	4	3	2	1	8	7

The sensitivity test results showed that there were no trade-offs between the alternatives. **Alternative R2-I2:** Roundabout at Silver Street/Grand River Street North with new road corridor on the former rail corridor and the intersection with the potential future bypass at the former rail corridor, was determined to be the preferred alternative. This new road has been named “West River Road” as an extension of the existing road corridor just beyond the Paris Links Road Connection.

6.1.5 West River Road Connection Cross Section Alternatives

Six (6) potential cross section alternatives were evaluated for the new West River Road Connection using a quantitative methodology:

- Alternative A: 2-lane Rural (see **Figure 24**)
- Alternative B: 2-lane Semi-Urban (see **Figure 25**)
- Alternative C1: 2-lane Urban Collector with Sidewalk and MUP (see **Figure 26**)
- Alternative C2: 2-lane Urban with Sidewalk and Bike Lane or Parking (see **Figure 27**)
- Alternative D1: Divided 2-lane Urban 5 m Median (see **Figure 28**)
- Alternative D2: Divided 2-lane Urban 6 m Median (see **Figure 29**)

Alternative C1: 2-lane Urban Collector with Sidewalk and MUP was selected as the preferred alternative. This alternative requires the least amount of property, promotes slower speeds and is consistent with the cross section selected for Grand River Street North, providing space for all modes of travel.

The evaluation results are shown in **Table 4**.

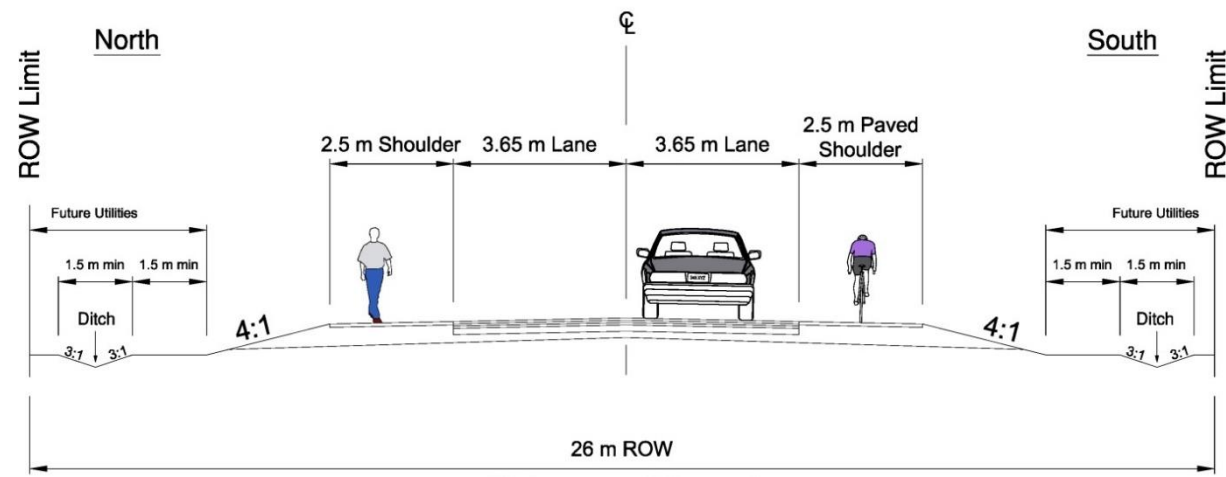


Figure 24: Alternative A: 2-Lane Rural

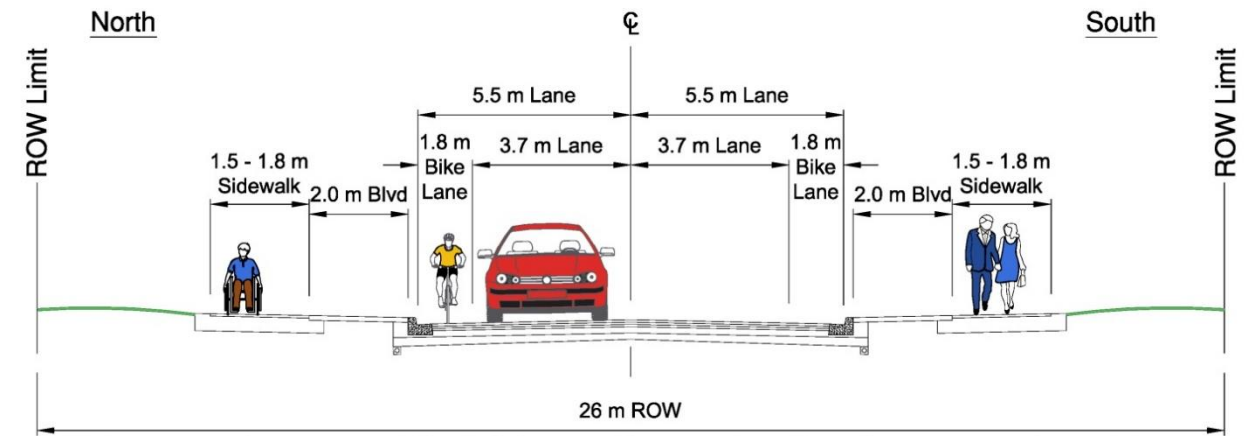


Figure 27: Alternative C2: 2-Lane Urban with Sidewalk and Bike Lane or Parking

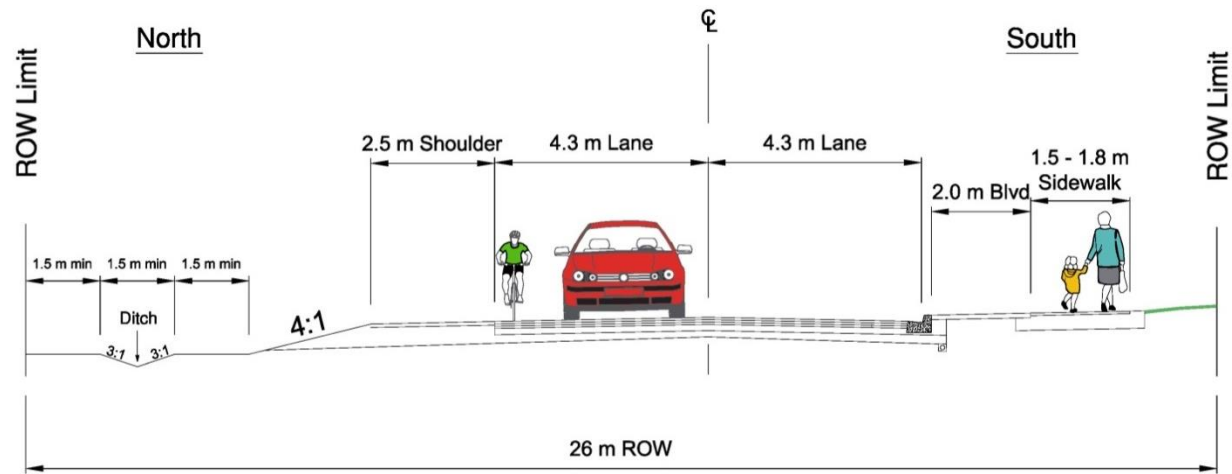


Figure 25: Alternative B: 2-Lane Semi-Urban

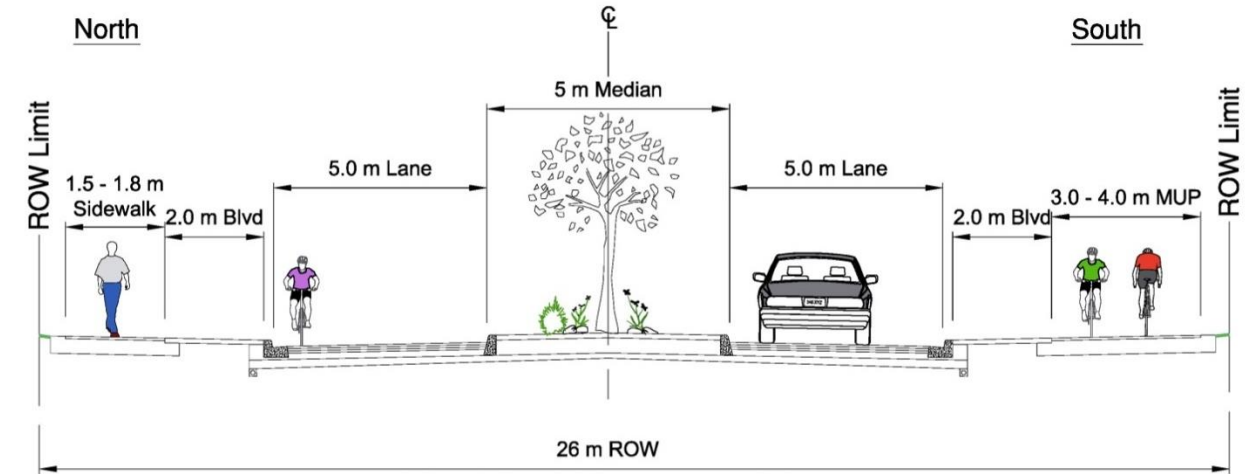


Figure 28: Alternative D1: Divided 2-Lane Urban with 5 m Median

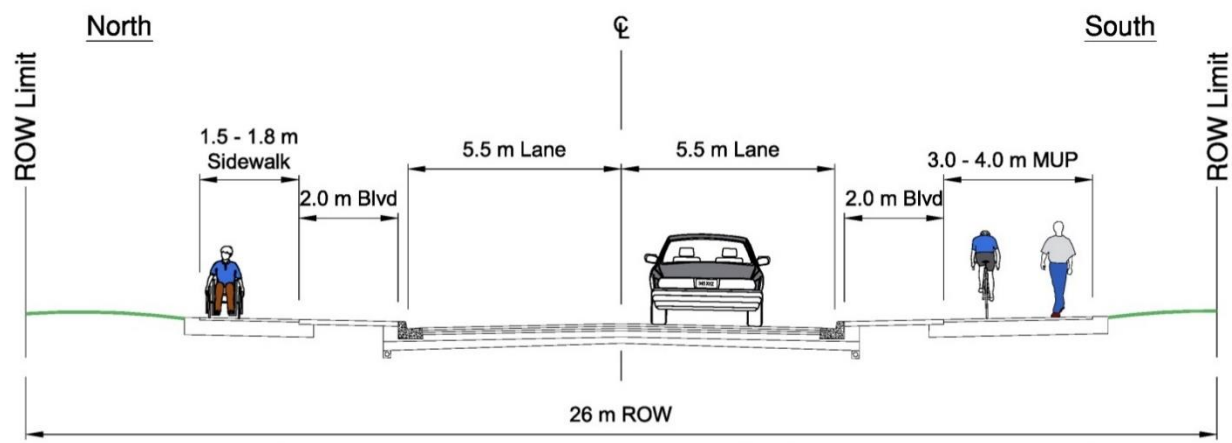


Figure 26: Alternative C1: 2-Lane Urban Collector with Sidewalk and MUP

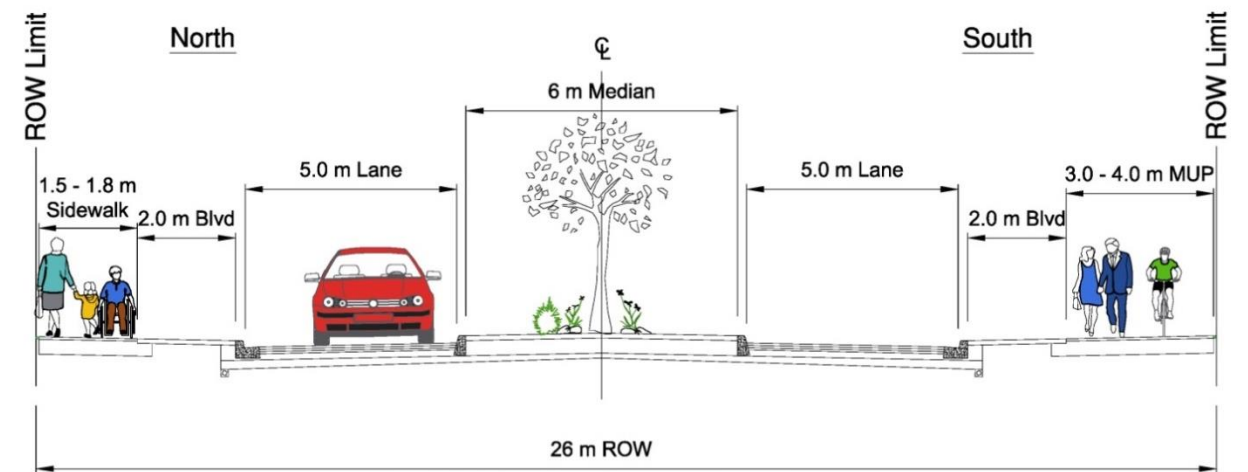


Figure 29: Alternative D2: Divided 2-Lane Urban with 6 m Median

Table 4: Cross Section for the West River Road Extension

Evaluation Criteria	Description	Alternative A 2-lane Rural	Alternative B 2-lane Semi-Urban	Alternative C1 2-lane Urban Collector with sidewalk and MUP	Alternative C2 2-lane Urban with sidewalk and bike lane or parking	Alternative D1 Divided 2-lane Urban 5 m median	Alternative D2 Divided 2-lane Urban 6 m median
Transportation							
Travel Speeds	Lower design speeds are desirable through this area. Higher speeds increase noise levels and decrease safety.	●	●	●	●	●	●
Cycling Service	Promotes cycling along the corridor. A separated facility improves safety and lowers perceived risk for a cyclist (desirable).	○	○	●	○	●	●
Pedestrian Service	Promotes pedestrian travel along the corridor and provides a facility.	●	◐	●	●	●	●
Natural Environment							
Loss of Vegetation	Removal of vegetation along the new corridor; space to reinstate vegetation is preferred.	●	●	●	●	○	○
Social Environment							
Noise	Faster speeds increase noise levels.	●	●	●	●	●	●
Screening of residential properties	A larger separation between the residences and roadway elements is preferred.	○	○	●	●	●	●
Cultural Heritage	Impact on existing heritage properties/landmarks.	○	○	○	○	○	○
Cost							
Capital Cost		●	●	○	○	●	●
Preliminary Technical Recommendation							
		Not Recommended ✘	Not Recommended ✘	Preferred ✓	Not Recommended ✘	Not Recommended ✘	Not Recommended ✘

7.0 ANALYSIS AND EVALUATION OF ALTERNATIVES

The qualitative evaluation measured the relative differences and compared the advantages and disadvantages of each alternative based on transportation, environmental impacts, land use/property and cost. The evaluation criteria ranking legend is provided in **Table 5**. These alternatives were presented to the public at PIC No. 2.

Table 5: Evaluation Criteria Ranking Legend				
Best	←—————→			Worst

7.1 Group 1: Grand River Street North (GRSN) Cross Section Alternatives

Five (5) alternatives were evaluated for each individual cross section between intersections. These alternatives are illustrated in **Figure 30** to **Figure 33**. These evaluations considered the relative performance with regard to the transportation engineering, environmental, social and cost criteria. The Study Area is separated into the following evaluation sections:

- Group 1A: William Street to Silver Street
- Group 1B: Silver Street to Trillium Way
- Group 1C: Trillium Way to Scott Avenue
- Group 1D: Scott Avenue to Hartley Avenue
- Group 1E: Hartley Avenue to north of Watts Pond Road
- Group 1F: CN Structure

The results of the evaluation are summarized in **Table 6** below. The analysis and evaluation process and results are described in more detail in **Section 6.1.1** to **Section 6.1.5**.

Table 6: Summary of Cross Section Technically Preferred Alternatives	
Section	Recommendation
Group 1A: William Street to Silver Street	Alternative C: 4 Lanes, No Median Addresses long-term traffic demands with low environmental impacts.
Group 1B: Silver Street to Trillium Way	Alternative D2: 4Lanes Raised Median, no designated bike lanes Addresses long-term traffic demand and facilitates active transportation in an area of mixed development. Based on a preference for cyclists to primarily travel on the MUP, the technical recommendation is for this alternative to not have a designated bike lane.

Group 1C: Trillium Way to Scott Avenue	Alternative D2: 4 Lanes Raised Median, no designated bike lanes Addresses long-term traffic demand and facilitates active transportation in an area of mixed development. Based on a preference for cyclists to primarily travel on the MUP, the technical recommendation is for this alternative to not have a designated bike lane.
Group 1D: Scott Avenue to Hartley Avenue	Alternative D2: 4-Lanes Raised Median, no designated bike lanes Addresses long-term traffic demand and facilitates active transportation in an area of mixed development. Based on a preference for cyclists to primarily travel on the MUP, the technical recommendation is for this alternative to not have a designated bike lane.
Group 1E: Hartley Avenue to north of Watts Pond Road	Alternative D2: 4 Lanes Raised Median, no designated bike lanes Addresses long-term traffic demand and facilitates active transportation in an area of mixed development. Based on a preference for cyclists to primarily travel on the MUP, the technical recommendation is for this alternative to not have a designated bike lane. Alternative B2: 3 Lanes This alternative was also carried forward. It addresses transportation demands in the foreseeable future and provides active transportation facilities.
Group 1F: CN Structure	Alternative C: 4 Lanes (2 x 3.35m + 2 x 3.6m) Provide 4 lanes and a sidewalk This alternative is recommended to be carried forward as an initial phase of the recommended plan as a statement of flexibility and protection for Alternative D. Alternative D: 4 Lanes and relocate sidewalk behind west abutment The provision of a pedestrian structure behind the west abutment is preferred to improve the safety and accessibility and to decrease annual maintenance costs.

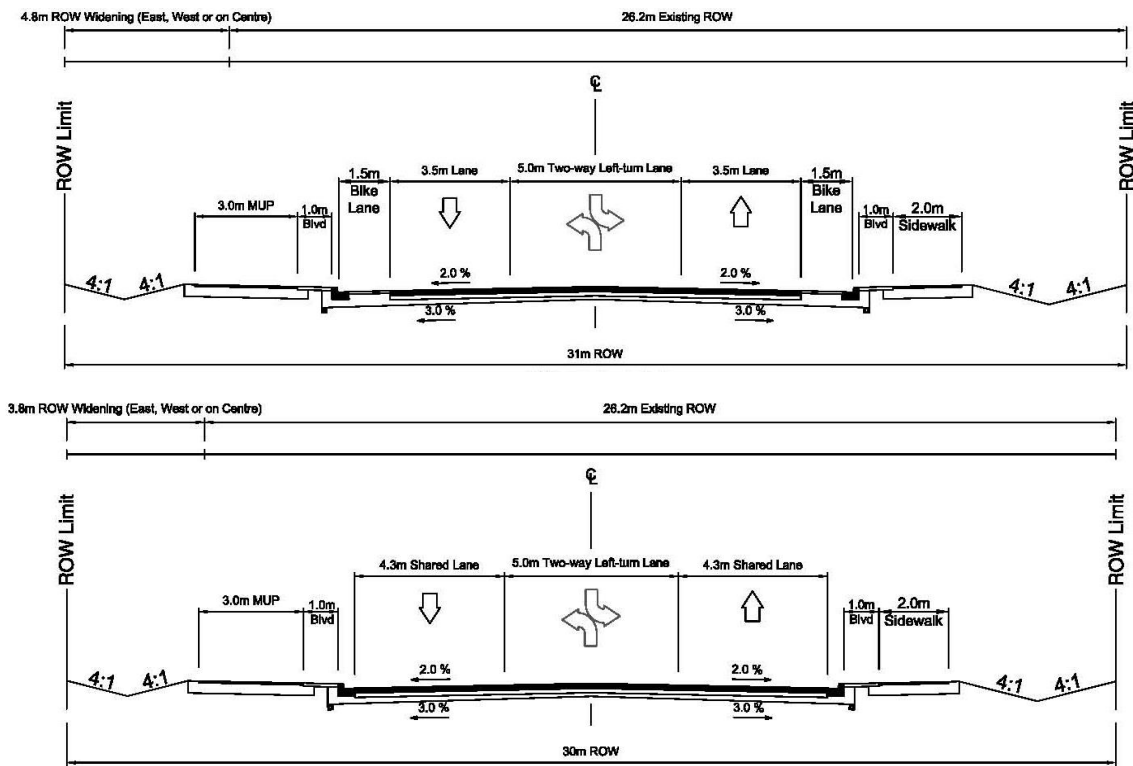


Figure 30: Alternative B1/B2 3 Lanes

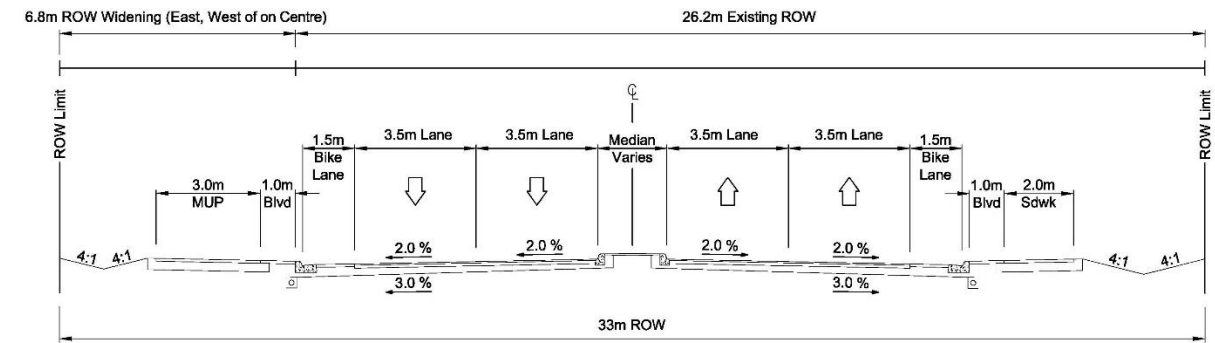


Figure 32: Alternative D1/D2 4 Lanes Raised Median

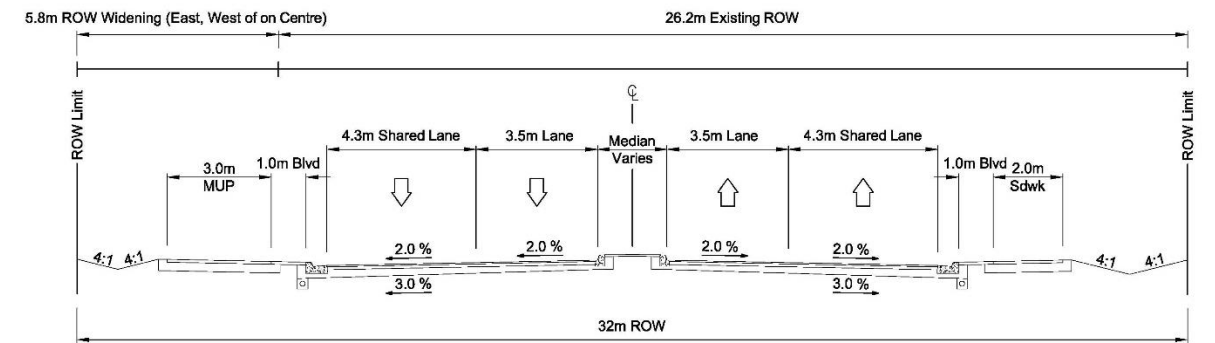


Figure 33: Alternative E1/E2 5 Lanes

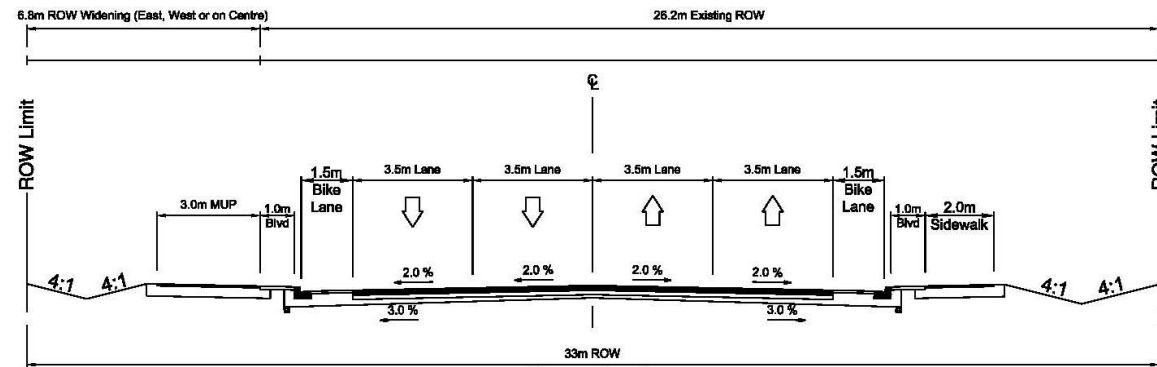
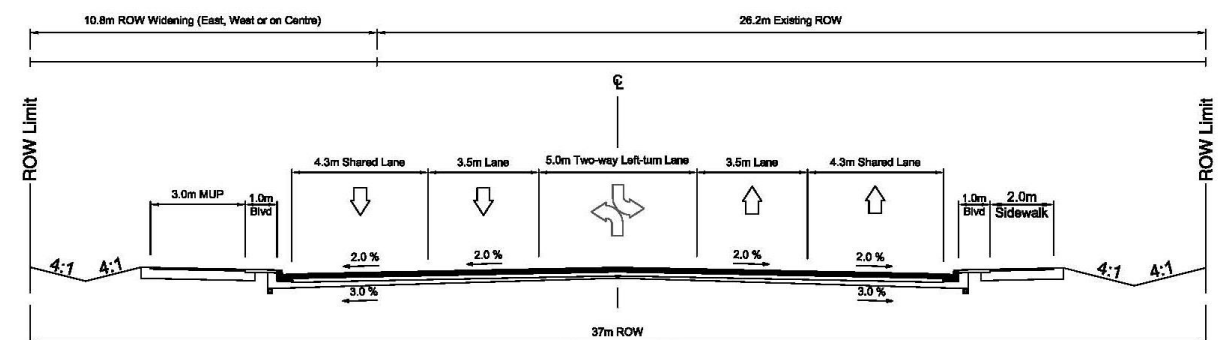
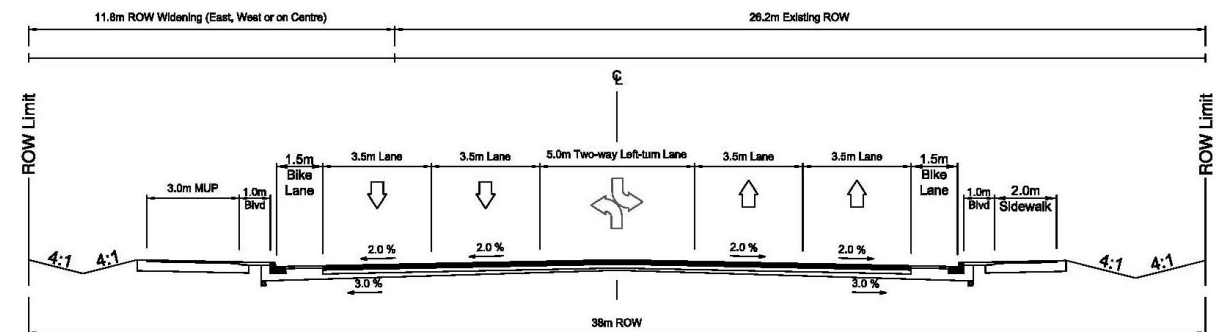
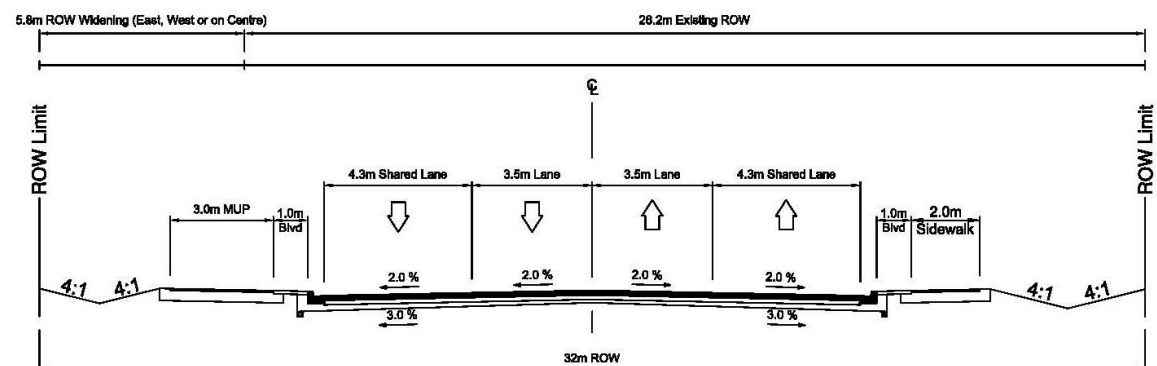


Figure 31: Alternative C1/C2 4 Lanes, No Median



7.1.1 Group 1A: GRSN Cross Section between William Street and Silver Street

The evaluation of the cross section alternatives is shown in **Table 7**. Within this study area segment, the available space for considering alternative cross sections is significantly constrained by existing buildings, many of which are cultural heritage features in the settlement area. Therefore, only the alternatives that maintain the road surface within the existing curbs have been considered (i.e. Alternative A and Alternative C).

Table 7: GRSN Cross Section between William Street and Silver Street											
Evaluation Criteria	Description	Alternative A Do Nothing (3 lanes)		Alternative B 3 Lanes		Alternative C 4 Lanes, No Median		Alternative D 4 Lanes, Raised Median		Alternative E 5 Lanes	
Transportation											
Walking	Mobility, comfort, safety		No change				Existing pedestrian crossings to be maintained				
Cycling	Mobility, comfort, safety		No cycling facility				Broadway Street to be designated as the cycling route				
Driving	Delays, comfort, safety		Potential long-term peak hour congestion				Reduced delays and improved access from side streets				
Regional Mobility	Mobility across the region		Limited capacity				Increased southbound capacity				
Environmental Impact											
Natural	Parklands, trees		No change				No significant change, existing curb lines to be maintained				
Natural / Social	Noise and Air Quality		No change				Reduced traffic queuing (idling) improved air quality				
Heritage	Landmarks		No change				No significant change				
Economic	Commercial access and parking		No change				Peak hour parking restrictions				
Land Use and Property											
Land Use and Property	Right-of-way requirement		No change				No significant change				
Cost											
Cost	Construction and maintenance		No cost				Low cost				
Preliminary Technical Recommendation											
		Does not address long-term traffic demand. Not carried forward.		Not Applicable for this Section of GRSN.		Addresses long-term traffic demand with low environmental impacts. Carried forward using 3.5 m outside lanes from William Street to St. Patrick Street where it transitions to using 4.3 m outside lanes.		Not Applicable for this Section of GRSN.		Not Applicable for this Section of GRSN.	
		x		x		✓		x		x	

7.1.2 Group 1B: GRSN Cross Section between Silver Street and Trillium Way

Within this section of the Study Area all 5 cross section alternatives were considered. The evaluation of these alternatives is illustrated in **Table 8**.

Table 8: GRSN Cross Section between Silver Street and Trillium Way											
Evaluation Criteria	Description	Alternative A Do Nothing		Alternative B1/B2 3 Lanes		Alternative C1/C2 4 Lanes, No Median		Alternative D1/D2 4 Lanes, Raised Median		Alternative E1/E2 5 Lanes	
Transportation											
Walking	Mobility, comfort, safety		No sidewalk on the west side		Sidewalk added and provision of boulevards for a more pedestrian friendly environment		Sidewalk added and provision of boulevards for a more pedestrian friendly environment		Sidewalk added and provision of boulevards for a more pedestrian friendly environment		Sidewalk added and provision of boulevards for a more pedestrian friendly environment
Cycling	Mobility, comfort, safety		No cycling facilities		Added bicycle lanes/MUP		Added bicycle lanes/MUP		Added bicycle lanes/MUP		Added bicycle lanes/MUP
Driving	Delays, comfort, safety		Does not accommodate longer term traffic growth		Does not accommodate longer term traffic growth		Increased vehicle conflicts		Reduced delays and conflicts		Reduced delays and conflicts
Regional Mobility	Mobility across the region		Does not accommodate longer term traffic growth		Does not accommodate longer term traffic growth		Limited increase in roadway capacity		Increased roadway capacity to accommodate long term growth		Increased roadway capacity to accommodate long term growth
Environmental Impact											
Natural	Parklands, trees				No significant change		Road widening requirement		Road widening requirement		Road widening requirement
Social	Aesthetics				No significant change		Reduced aesthetics		Increased landscaping opportunity		Reduced aesthetics
Heritage	Landmarks				No significant change		No significant change		Limited property impact (Telfer House)		Limited property impact (Telfer House)
Economic	Commercial access and parking				No change		No significant change		With roundabouts access impacts are mitigated and businesses benefit from improved safety		No significant change
Land Use and Property											
Land Use and Property	Right-of-way requirement				No significant change		Limited property impacts		Limited property impacts		Greatest impact on properties
Cost											
Cost	Construction and maintenance				Low cost		Low cost		Higher cost		Higher cost
Preliminary Technical Recommendation											
		Does not address transportation needs. Not carried forward.		Only addresses short-term traffic demand. Not carried forward		Improves traffic operations but does not fully address safety and aesthetics. Not carried forward.		Addresses long-term traffic demand and facilitates active transportation in an area of mixed development. Based on a preference for cyclists to primarily travel on the MUP, the technical recommendation is for Alternative D2 to not have a designated bike lane. Alternative D2 is recommended to be carried forward.		Addresses long-term traffic demand but with the greatest impact on property and cost. Not carried forward.	

7.1.3 Group 1C: GRSN Cross Section between Trillium Way and Scott Avenue

Within this section of the Study Area, all 5 cross section alternatives were considered. The evaluation of these alternatives is shown in **Table 9**.

Table 9: GRSN Cross Section between Trillium Way and Scott Avenue											
Evaluation Criteria	Description	Alternative A Do Nothing		Alternative B1/B2 3 Lanes		Alternative C1/C2 4 Lanes, No Median		Alternative D1/D2 4 Lanes, Raised Median		Alternative E1/E2 5 Lanes	
Transportation											
Walking	Mobility, comfort, safety		No sidewalk on the west side		Sidewalk added and provision of boulevards for a more pedestrian friendly environment		Sidewalk added and provision of boulevards for a more pedestrian friendly environment		Sidewalk added and provision of boulevards for a more pedestrian friendly environment		Sidewalk added and provision of boulevards for a more pedestrian friendly environment
Cycling	Mobility, comfort, safety		No cycling facility		Added bicycle lanes/MUP		Added bicycle lanes/MUP		Added bicycle lanes/MUP		Added bicycle lanes/MUP
Driving	Delays, comfort, safety		Does not accommodate longer term traffic growth		Does not accommodate longer term traffic growth		Increased vehicle conflicts		Reduced delays and conflicts		Reduced delays and conflicts
Regional Mobility	Mobility across the region		Does not accommodate longer term traffic growth		Does not accommodate longer term traffic growth		Limited increase in roadway capacity		Increased roadway capacity to accommodate long term growth		Increased roadway capacity to accommodate long term growth
Environmental Impact											
Natural	Parklands, trees				No significant change		Road widening requirement		Road widening requirement		Road widening requirement
Social	Aesthetics				No significant change		Reduced aesthetics		Increased landscaping opportunity		Reduced aesthetics
Heritage	Landmarks				No significant change		No significant change		Limited property impact (Telfer House)		Limited property impact (Telfer House)
Economic	Commercial access and parking				No change		No significant change		With roundabouts access impacts are mitigated and businesses benefit from improved safety		No significant change
Land Use and Property											
Land Use and Property	Right-of-way requirement				No significant change		Limited property impacts		Limited property impacts		Greatest impact on properties
Cost											
Cost	Construction and maintenance				Low cost		Low cost		Higher cost		Higher cost
Preliminary Technical Recommendation											
		Does not address transportation needs. Not carried forward.		Only addresses short-term traffic demand. Not carried forward		Improves traffic operations but does not fully address safety and aesthetics. Not carried forward.		Addresses long-term traffic demand and facilitates active transportation in an area of mixed development. Based on a preference for cyclists to primarily travel on the MUP, the technical recommendation is for Alternative D2 to not have a designated bike lane. Alternative D2 is recommended to be carried forward.		Addresses long-term traffic demand but with the greatest impact on property and highest cost. Not carried forward.	

7.1.4 Group 1D: GRSN Cross Section between Scott Avenue and Hartley Avenue

Within this section of the Study Area all 5 cross section alternatives were considered. The evaluation of these alternatives is shown in **Table 10**.

Table 10: GRSN Cross Section between Scott Avenue and Hartley Avenue											
Evaluation Criteria	Description	Alternative A Do Nothing		Alternative B1/B2 3 Lanes		Alternative C1/C2 4 Lanes, No Median		Alternative D1/D2 4 Lanes, Raised Median		Alternative E1/E2 5 Lanes	
Transportation											
Walking	Mobility, comfort, safety		No sidewalk on the west side		Sidewalk added and provision of boulevards for a more pedestrian friendly environment		Sidewalk added and provision of boulevards for a more pedestrian friendly environment		Sidewalk added and provision of boulevards for a more pedestrian friendly environment		Sidewalk added and provision of boulevards for a more pedestrian friendly environment
Cycling	Mobility, comfort, safety		No cycling facility		Added bicycle lanes/MUP		Added bicycle lanes/MUP		Added bicycle lanes/MUP		Added bicycle lanes/MUP
Driving	Delays, comfort, safety		Does not accommodate longer term traffic growth		Does not accommodate longer term traffic growth		Increased vehicle conflicts		Reduced delays and conflicts		Reduced delays and conflicts
Regional Mobility	Mobility across the region		Does not accommodate longer term traffic growth		Does not accommodate longer term traffic growth		Limited increase in roadway capacity		Increased roadway capacity to accommodate long term growth		Increased roadway capacity to accommodate long term growth
Environmental Impact											
Natural	Parklands, trees				No significant change		Road widening requirement		Road widening requirement		Road widening requirement
Social	Aesthetics, noise				No significant change		reduced aesthetics		Increased landscaping opportunity		Reduced aesthetics
Heritage	Landmarks				No significant change		No significant change		Limited property impact (Telfer House)		Limited property impact (Telfer House)
Economic	Commercial access and parking				No change		No significant change		With roundabouts access impacts are mitigated and businesses benefit from improved safety		No significant change
Land Use and Property											
Land Use and Property	Right-of-way requirement				No significant change		Limited property impacts		Limited property impacts		Greatest impact on properties
Cost											
Cost	Construction and maintenance				Low cost		Low cost		Higher cost		Higher cost
Preliminary Technical Recommendation											
		Does not address transportation needs. Not carried forward.		Only addresses short-term traffic demand. Not carried forward		Improves traffic operations but does not fully address safety and aesthetics. Not carried forward.		Addresses long-term traffic demand and facilitates active transportation in an area of mixed development. Based on a preference for cyclists to primarily travel on the MUP, the technical recommendation is for Alternative D2 to not have a designated bike lane. Alternative D2 is recommended to be carried forward.		Addresses long-term traffic demand but with the greatest impact on property and cost. Not carried forward.	

7.1.5 Group 1E: GRSN Cross Section between Hartley Avenue and Watts Pond Road

Within this section of the Study Area all 5 cross section alternatives were considered. The evaluation of these alternatives is shown in **Table 11**.

Table 11: GRSN Cross Section between Hartley Avenue and Watts Pond Road											
Evaluation Criteria	Description	Alternative A Do Nothing		Alternative B1/B2 3 Lanes		Alternative C1/C2 4 Lanes, No Median		Alternative D1/D2 4 Lanes, Raised Median		Alternative E1/E2 5 Lanes	
Transportation											
Walking	Mobility, comfort, safety		No sidewalk		Sidewalk added		Sidewalk added but degraded crossing opportunities		Sidewalk added and improved crossing opportunities		Sidewalk added but degraded crossing opportunities
Cycling	Mobility, comfort, safety		No cycling facility, high speed zone		Added bicycle lanes/MUP		Added bicycle lanes/MUP but limited comfort		Added bicycle lanes/MUP		Added bicycle lanes/MUP but limited comfort
Driving	Delays, comfort, safety		No change		Reduced conflicts, accommodates growth in the foreseeable future		Reduced delays but increased conflict		Reduced delays and conflicts		Reduced delays and conflicts
Regional Mobility	Mobility across the region		No change		Increased capacity		Increased capacity		Increased capacity		Increased capacity
Environmental Impact											
Natural	Parklands, trees		No change		Road widening requirement		Road widening requirement		Road widening requirement		Road widening requirement
Social	Aesthetics, noise		No change		No significant change		Reduced aesthetics		Increased landscaping opportunity		Reduced aesthetics
Heritage	Landmarks		No change		No change		No change		No change		No change
Economic	Commercial access and parking		No change		No change		No change		No change		No change
Land Use and Property											
Land Use and Property	Right-of-way requirement		No change		No significant change		Limited property impacts		Limited property impacts		Greatest impact on properties
Cost											
Cost	Construction and maintenance		No cost		Low cost		Higher cost		Higher cost		Higher cost
Preliminary Technical Recommendation											
		Does not address active transportation and safety needs. Not carried forward.		Addresses traffic demands in foreseeable future and provides active transportation facilities. Carried forward. (NOTE: 2-lane variant also carried forward.)		Higher property impact and higher cost not justified by long-term traffic demand. Not carried forward.		Addresses long-term traffic demand and facilitates active transportation in an area of mixed development. Based on a preference for cyclists to primarily travel on the MUP, the technical recommendation is for Alternative D2 using not designated bike lane. Alternative D2 is recommended to be carried forward.		Addresses traffic demand of full development but with the greatest impact on property and cost. Not carried forward.	

7.1.6 Group 1F: GRSN Cross Section at CN Structure

The geographic area where Grand River Street North passes under the existing CN Rail line today includes a 2-lane cross section with an elevated sidewalk behind a retaining wall. The existing sidewalk has a narrow width of 1.2 m. The alternatives considered have included maintaining a 2-lane street with an elevated sidewalk (Alternative A), alternatives providing 4 lanes with the existing elevated sidewalk (Alternatives B and C), and alternatives providing 4 lanes and relocating the sidewalk behind either the west or east abutments (Alternatives C and D). The evaluation of these alternatives is shown in **Table 12**.

Table 12: GRSN Cross Section at CN Structure											
Evaluation Criteria	Description	Alternative A Maintain existing lanes and sidewalk		Alternative B 4 Lanes (4 x 3.4 m) Provide 4 lanes and sidewalk		Alternative C 4 lanes (2x 3.35 + 2x3.6) Provide 4 lanes and sidewalk		Alternative D 4 Lanes + Relocate sidewalk behind West Abutment with sidewalks 2-3 m width		Alternative E 4 Lanes + Extend east sidewalk behind East Abutment with sidewalks 2-3 m width	
Transportation											
Traffic	Delays, Safety		Unable to accommodate increased traffic demands		Removes existing bottleneck for southbound traffic		Removes existing bottleneck for southbound traffic		Removes existing bottleneck for southbound traffic and accommodates snow storage		Removes existing bottleneck for southbound traffic
Active Transportation	Accessibility for pedestrians				No Change		Wider curb lanes a minor benefit		No Change		Continuous sidewalk provided on both sides of GRSN
Environmental Impact											
Natural Environment	Loss of mature trees				No Change		No Change		Adjust sidewalk profile to mitigate impact on mature trees affected		Limited number of mature trees affected
Land Use and Property											
Land Use and Property	Right-of-way requirement				No Change		No Change		Widening required from 4 properties		Would include purchase of 181 GRSN
Social Environment											
Community Impact	Accessibility of local neighbourhoods				No Change		No Change		No Change		Improved pedestrian access to area homes / businesses
Heritage Impact	Impact on existing Heritage properties				No Change		No Change		Requires relocation of funeral Home's stone wall and gate		Impacts Pemarvian Site
Cost											
Cost	Construction and maintenance				Repair of sidewalk / retaining wall required, Increased snow removal		Repair of sidewalk / retaining wall required, Increased snow removal		Higher Capital Cost Reduced annual maintenance (snow removal cost)		Highest Capital Cost, Increased snow removal
Preliminary Preferred Alternative											
		Not carried forward – unable to accommodate increased traffic. 		Not carried forward –Alternative C with wider curve side lanes is preferred. 		This alternative is recommended to be carried forward as an initial phase of the Recommended Plan. This will be described in a statement of flexibility which will protect for the ultimate Alternative D design. 		The provision of a pedestrian structure behind the west abutment is preferred to improve safety and reduce annual maintenance costs by providing a less constrained roadway. 		Not carried forward – property and cultural heritage impacts. 	

7.2 Group 2: GRSN Horizontal Alignments

Four (4) alternative horizontal alignments for Grand River Street North from Silver Street to Watts Pond Road were evaluated using the preferred cross section described in **Section 7.0**, to assess where the technically preferred cross section could best be accommodated and minimize impacts to properties. These horizontal alignment alternatives are illustrated in **Figure 34**. This alignment considered widening entirely to the east or west side of the street or using a variable alignment (shifting either to the east or west) to reduce impacts to adjacent properties. The evaluation is presented in **Table 13**. The selected alternative provides the best overall balance between transportation performance, and environmental, social and cost effects.

Table 13: Grand River Street North (GRSN) Alignment Alternatives (Silver Street to Watts Pond Road)									
Evaluation Criteria	Description	Alternative A (Centre) Alignment follows existing GRSN Centreline	Alternative B (East) Alignment Shifted East of ROW Centreline along the GRSN Corridor	Alternative C (West) Alignment Shifted West of ROW Centreline along the GRSN Corridor	Alternative D (Variable) Alignment Varies - Centre, East and West of ROW Centreline along the GRSN Corridor				
Transportation									
Multi-Modal Traffic Demands	None (All alignment alternatives can satisfy transportation needs equally)								
Natural Environment									
Environmental Impact	Effect on surrounding habitat and trees.		Potential to retain the majority of mature trees along the corridor		Increased impact on mature trees along the east side of the right-of-way		Increased impact on mature trees along the west side of the right-of-way		The variable alignment alternative has the greatest flexibility to minimize impacts on surrounding natural environment.
Land Use and Property									
Impact to residents and businesses along GRSN	Integration into current GRSN infrastructure.		The Centre alignment alternative has a low impact on surrounding properties but affects a large number of residents and businesses.		The Eastern alignment alternative has a significant impact on surrounding residential and commercial land.		The Western alignment alternative has a significant impact on surrounding residential and commercial land.		The Variable alignment alternative has the smallest impact on surrounding residential and commercial land.
Social Environment									
Community Intrusion	Community disruption, residential land acquisition and safety within the school zone.		The Centre alignment alternative produces high community disruption because it results in the largest number of affected properties.		The Eastern alignment alternative produces high community disruption because of the large impact on properties. (From Silver Street to north of Scott Street the majority of properties on the east side of GRSN have less of an offset from the road and would be affected more.)		The Western alignment alternative produces high community disruption because of the large impact on properties. (From south of Woodslee Avenue to the north, the opposite (east) side is largely undeveloped and would have less impact.)		The Variable alignment alternative has the lowest community disruption by varying the road geometry to best fit into existing available County property.
Heritage Impact	Area of Heritage land required for the alternative.		North of Silver Street, Telfer Place is the heritage property located in closest proximity to the existing roadway alignment		North of Silver Street, Telfer Place is the heritage property located in closest proximity to the existing roadway alignment		North of Silver Street, Telfer Place is the heritage property located in closest proximity to the existing roadway alignment.		The Variable alignment alternative has the greatest flexibility to minimize impacts on surrounding heritage resources.
Cost									
Construction Cost	The total cost of construction for the alternative.		The Centre alignment alternative has a high cost because of the large number of properties impacted.		The Eastern alignment alternative has a high cost because of large property impacts and necessary buy-outs.		The Western alignment alternative has a high cost because of large property impact; however, north of Silver Street more of the existing development is offset further from the road and there would be fewer buy-outs.		The cost of this alternative is low compared to the other alternatives due to the smaller amount of property and necessary buy-outs required.
Preliminary Recommendations									
		Not carried forward due to the increased impacts resulting from the alignment 	Not carried forward due to the increased impacts resulting from the alignment 	Not carried forward due to the increased impacts resulting from the alignment 	The variable alignment alternative is carried forward. It has the lowest property, natural environment and social environment effects. 				

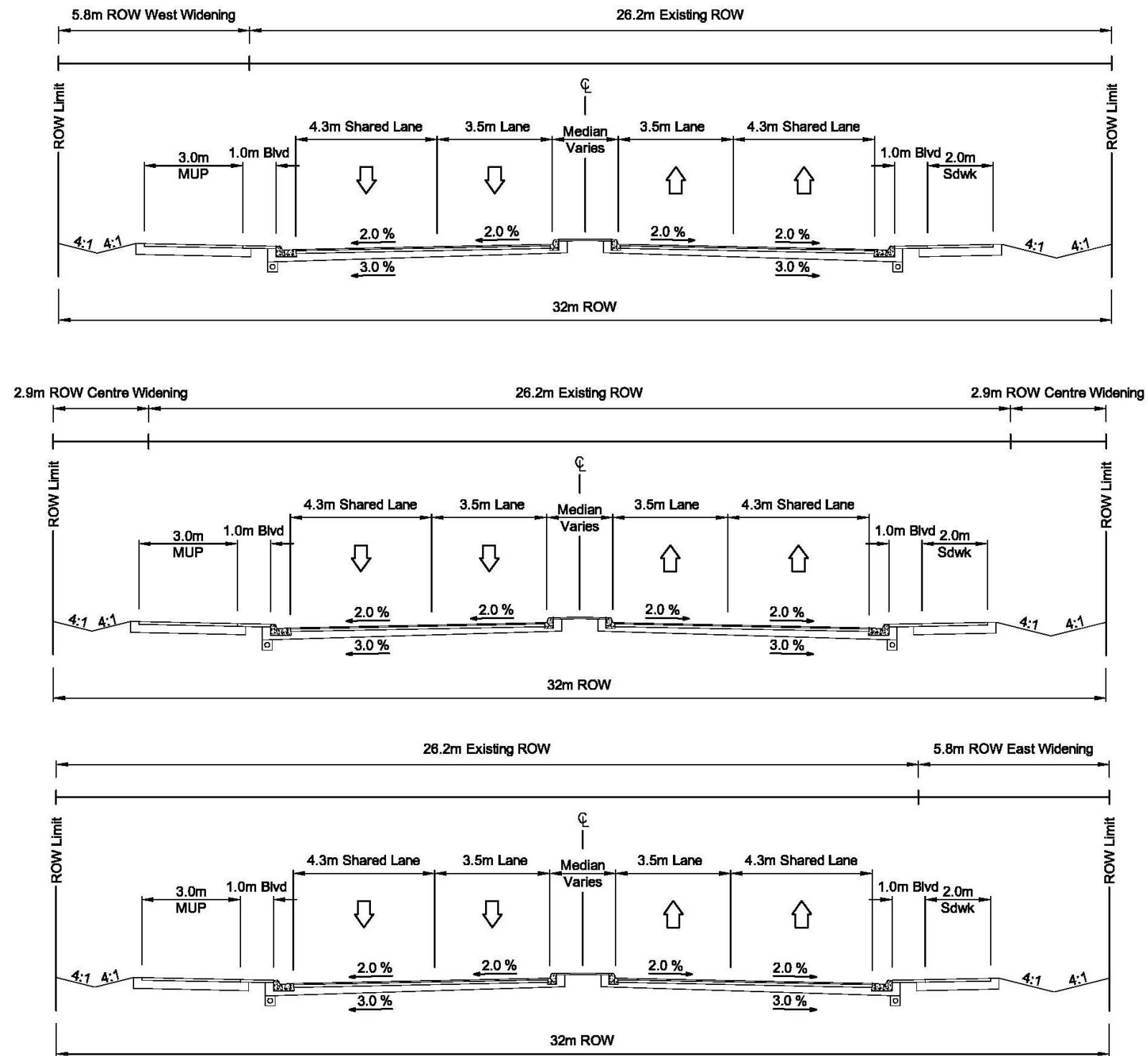


Figure 34: GRSN Horizontal Alignment Alternatives

7.3 Group 3: Intersection Alternatives

Alternatives were evaluated for each individual intersection along the Grand River Street North corridor, for a total of 8 selected alternatives. The selected alternatives will form a part of the Recommended Plan and will provide the best overall balance between transportation performance, and environmental, social and cost effects.

Typical signalized and roundabout designs are illustrated in **Figure 35** and **Figure 36** at the Silver Street/Paris Links Road intersection. The Silver Street and Paris Links Road combination of closely spaced intersections was considered in the analysis of where the alignment of Paris Links Road could be located (described in **Section 6.1**). Based on the analysis presented in **Section 6.1.1**, a recommendation was presented at PIC No. 1 that a single intersection would be located at Silver Street/Grand River Street North. Based on this recommendation, only intersection alternatives for the Silver Street location are considered in this section.

- Group 3A: Grand River Street North at William Street
- Group 3B: Grand River Street North at St. Patrick
- Group 3C: Grand River Street North at Silver Street/West River Road
- Group 3D: Grand River Street North at Trillium Way/Bradbury Crescent
- Group 3E: Grand River Street North at Scott Avenue
- Group 3F: Grand River Street North at Woodslee Avenue
- Group 3G: Pinehurst Road at Hartley Avenue
- Group 3H: Pinehurst Road at Watts Pond Road

Group 3A: Grand River Street North at William Street

Eight (8) alternatives were considered at the intersection of Grand River Street North and William Street:

- Alternative 1A – Extend Southbound Left Turn Lane (**see Figure 39**)
- Alternative 1B – Extend Southbound Left Turn Lane and replace Angle Parking (north of William Street)
- Alternative 2 – Southbound Double Left (**see Figure 40**)
- Alternative 3 – Southbound Double Left with Widened William Street Bridge (**see Figure 41**)
- Alternative 4 – Westbound Double Right Turn Lanes (**see Figure 42**)
- Alternative 5 – Westbound Double Right Turn lanes with Widened William Street Bridge (**see Figure 43**)
- Alternative 6 – Channelized Westbound Right Turn Lane (**see Figure 44**)
- **Alternative 7 – Free-Flow Ramp for Westbound Right Turns (see Figure 45)**

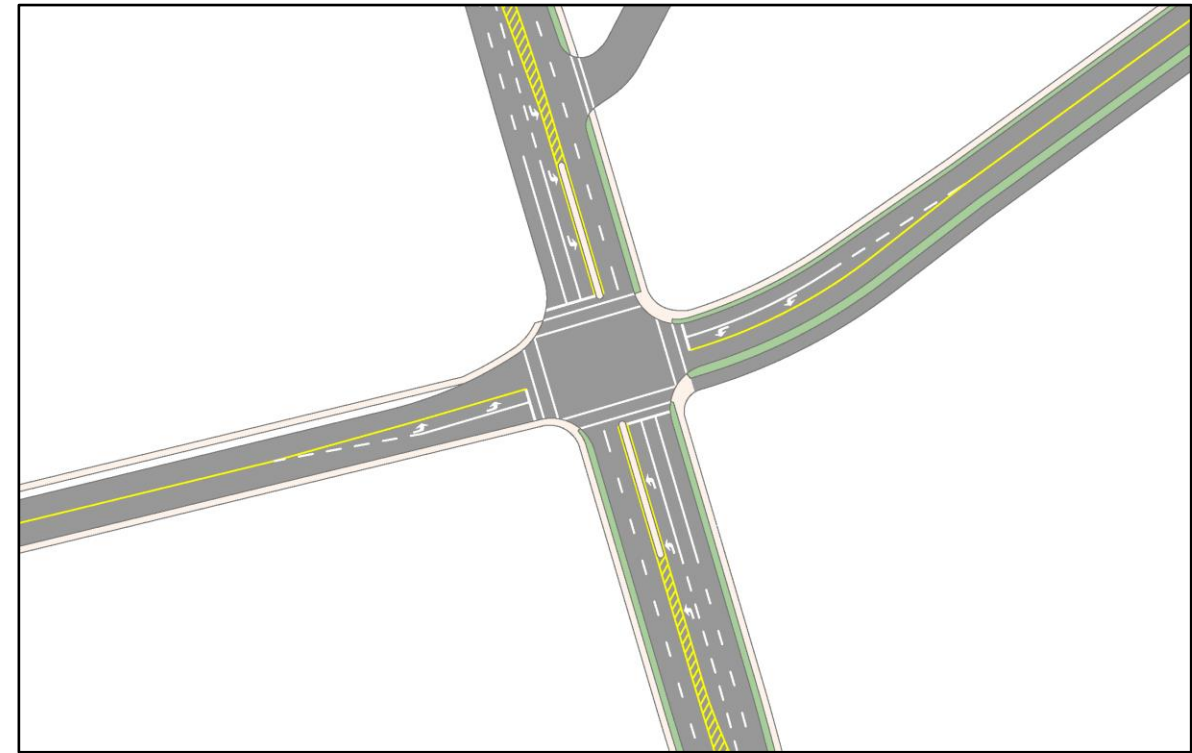


Figure 35: Typical Signalized Intersection

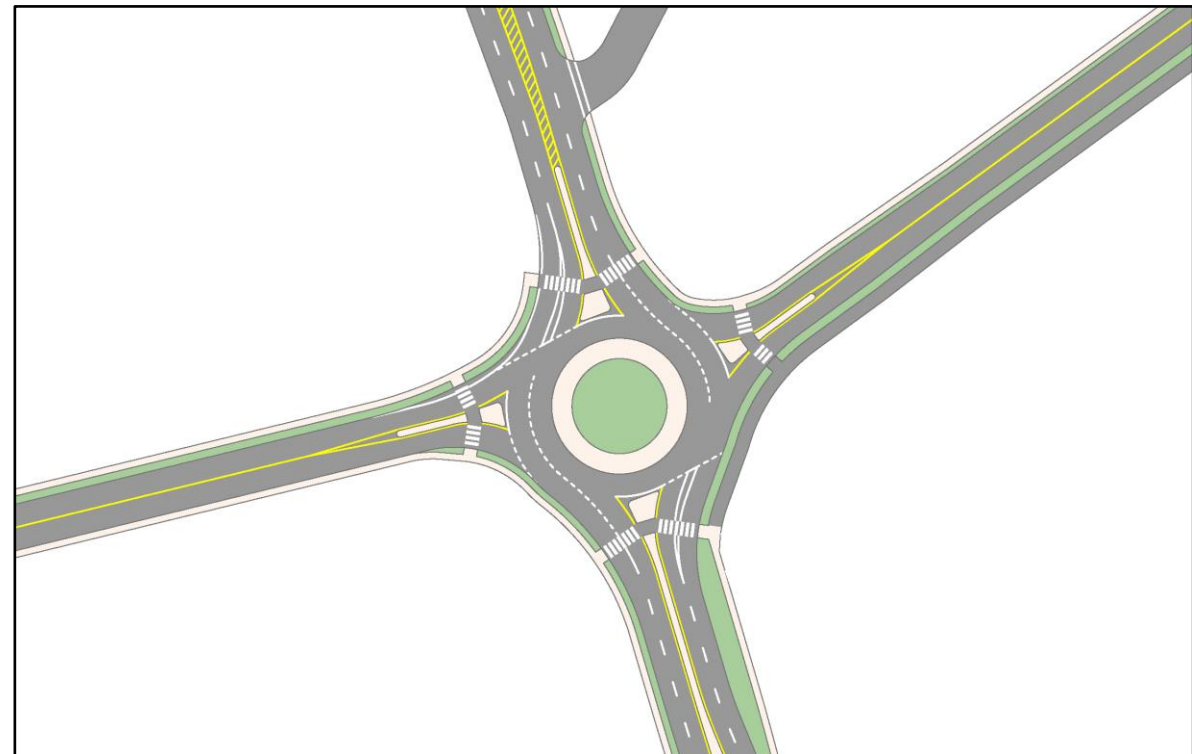


Figure 36: Typical Roundabout

7.3.1 Group 3A: GRSN at William Street Intersection Alternatives A-D

The evaluation of the alternatives is shown in **Table 14** and **Table 15**. The William Street/ Grand River Street North intersection will be the overall constraint for vehicular capacity for all expansion areas in North Paris. As such, this intersection was reviewed for all possible scenarios to maximize vehicle throughput. However, at this intersection historic buildings (including the building Graham Bell’s first telephone call was made) surround the intersection. It is also located within the influence of the historic downtown with low operating speeds (reducing the capacity of the intersection because of lower saturation flow rates at William Street), and large volumes of pedestrians and on-street parking that are both a safety concern and a constraint on capacity. The alternatives considered are illustrated in **Figure 39** to **Figure 45**.

Table 14: Intersection Alternatives: William Street Alternatives A-D

Evaluation Criteria	Description	Do Nothing	Scenario 1A Extend Southbound Left Turn Lane	Scenario 1B Extend SB Left Turn Lane and replace Angle Parking (north of William Street)	Scenario 2 Southbound Double Left	Scenario 3 Southbound Double Left with widened William Street Bridge
Transportation						
Traffic	Accommodate increased traffic demands Improve safety	Unable to accommodate increased traffic demands	Increased roadway capacity to accommodate controlled growth	Further increase in roadway capacity to accommodate controlled growth, improved safety	Requires fully protected left turn phasing 24/7 reducing roadway capacity and increasing delays during off-peak periods	Requires fully protected left turn phasing 24/7 reducing roadway capacity and increasing delays during off-peak periods
Active Transportation	Promotes a pedestrian friendly environment	No Significant Change	No Significant Change	Addition of countdown pedestrian signals to reduce conflicts with right turning motorists	No Significant Change	No Significant Change
Emergency Services	Ease of access for Emergency Services	No Significant Change	Improved traffic operations will also benefit EMS	Improved traffic operations will also benefit EMS	No Significant Change	No Significant Change
Natural Environment						
Environmental Impact	Impact on the Grand River	No change	No change	No change	No Change	Requires Grand River in-water work
Land Use and Property						
Land Use and Property	Right-of-way requirement	No change	No change	No change	No Change	Impacts sightlines for some William Street Driveways
Social Environment						
Community Intrusion		Additional off-street parking could offset loss of on-street parking during peak periods	Additional off-street parking could offset loss of on-street parking during peak periods	Additional off-street parking could offset loss of on-street parking during peak periods	Additional off-street parking could offset loss of on-street parking during peak periods	Additional off-street parking could offset loss of on-street parking during peak periods
Heritage Impact	Impact on existing Heritage structures	No change	No change	No change	No Change	No Change beyond impact to bridge
Cost						
Construction Cost	Total Cost of Construction	Low Cost	Low Cost	Low Cost	Moderate Cost	Higher Cost (existing bridge piers cannot be widened)
Preliminary Recommendation						
		Not carried forward. 	Not Recommended 	Recommended 	Not Recommended • No increase in capacity • Benefit of second left-turn lane is offset by the need to provide fully protected left-turn phasing • Technical recommendation not to carry forward 	Not Recommended • No increase in capacity • Benefit of second left-turn lane is offset by the need to provide fully protected left-turn phasing • Technical recommendation not to carry forward

7.3.2 Group 3B: GRSN at William Street Intersection Alternatives E-H

Table 15: Intersection Alternatives: William Street Alternatives E-H

Evaluation Criteria	Description	Scenario 4 Westbound Double Right Turn Lanes	Scenario 5 Westbound Double Right Turn Lanes with widened William Street Bridge	Scenario 6 Channelized Westbound Right Turn Lane	Scenario 7 Free-Flow Ramp for Westbound Right Turns
Transportation					
Traffic		● Truck traffic will be required to utilize both right turn lanes No significant net benefit in roadway capacity since the right turn overlap phase would be lost	● Truck traffic will be required to utilize both right turn lanes No significant net benefit in roadway capacity since the right turn overlap phase would be lost	● Will not accommodate local truck traffic	
Active Transportation		◐ Visibility (safety) of pedestrians for westbound right turning motorists will be reduced	◐ Visibility (safety) of pedestrians for westbound right turning motorists will be reduced		
Emergency Services					
Natural Environment					
Environmental Impact			◐ Requires Grand River in-water work	◐ Requires Grand River in-water work	● Increased impacts on the Grand River
Land Use and Property					
Social Environment					
Community Intrusion					
Heritage Impact					● High Potential for impacts on archaeological resources adjacent to the Grand River
Cost					
Construction Cost			● Higher Cost (existing bridge piers cannot be widened)	● Higher Cost (existing bridge piers cannot be widened)	● Higher Cost
Preliminary Preferred Alternative					
		Not carried forward. The wheel tracking results in overlap between westbound right turn and southbound left turn. See Figure 37 and Figure 38 . Reasons for not carrying forward Scenario 4 include: <ul style="list-style-type: none"> Turning path for truck traffic conflicts with southbound left-turn movement Requires trucks to be prohibited Exacerbates safety concerns regarding conflicts with pedestrians Restricted pedestrian movements on north leg of intersection Technical recommendation not to carry forward x	Not carried forward. x	Not carried forward. Reasons for not carrying forward Scenario 6 include: <ul style="list-style-type: none"> Induces higher operating speeds for right turns Not supportive of pedestrian safety Potential to signalize right-turn moves Cannot accommodate trucks without impacting northbound through movement Technical recommendation not to carry forward x	Not carried forward because of significant capital cost and environmental impact. x

Conclusions and Recommendations

Previous traffic analyses completed for Grand River Street North did not consider the William Street intersection. Preliminary traffic analyses completed by BTE reviewed 5 growth scenarios as sensitivity tests. The growth scenarios assume no (zero) dwelling units for the Cordon Lands (which was not included as part of the North West Paris Area Study and currently has no approvals), development ranging from 0 to 294 dwelling units for Valery Homes (currently appealing at the LPAT), and up to 58,000 square feet of commercial development based on the Northwest Paris Area Study. The critical movements at the William Street intersection are during the PM peak hour and include the westbound right turn, northbound through and southbound left turn movements.

Scenarios for intersection improvements including the Do Nothing Alternative were considered. Scenario 7 included construction of a new one-way bridge east of Grand River Street North. This alternative, although good from a traffic perspective, was recommended to be coarse screened and not carried forward because it would have significant environmental and property impacts. Grand River Street North and William Street is a key intersection that provides access to one of only two crossings of the Grand River in Paris. Based on the technical evaluation, the recommendation is that Scenario 1B be carried forward as the only feasible alternative that can marginally improve traffic operations with the least environmental impacts. To improve safety and traffic operations, the number of available parking spaces will be reduced by replacing the angled parking currently along the east side of Grand River Street North, north of William Street with parallel parking. The William Street Technically Preferred Alternative (TPA) is shown in **Figure 46**.

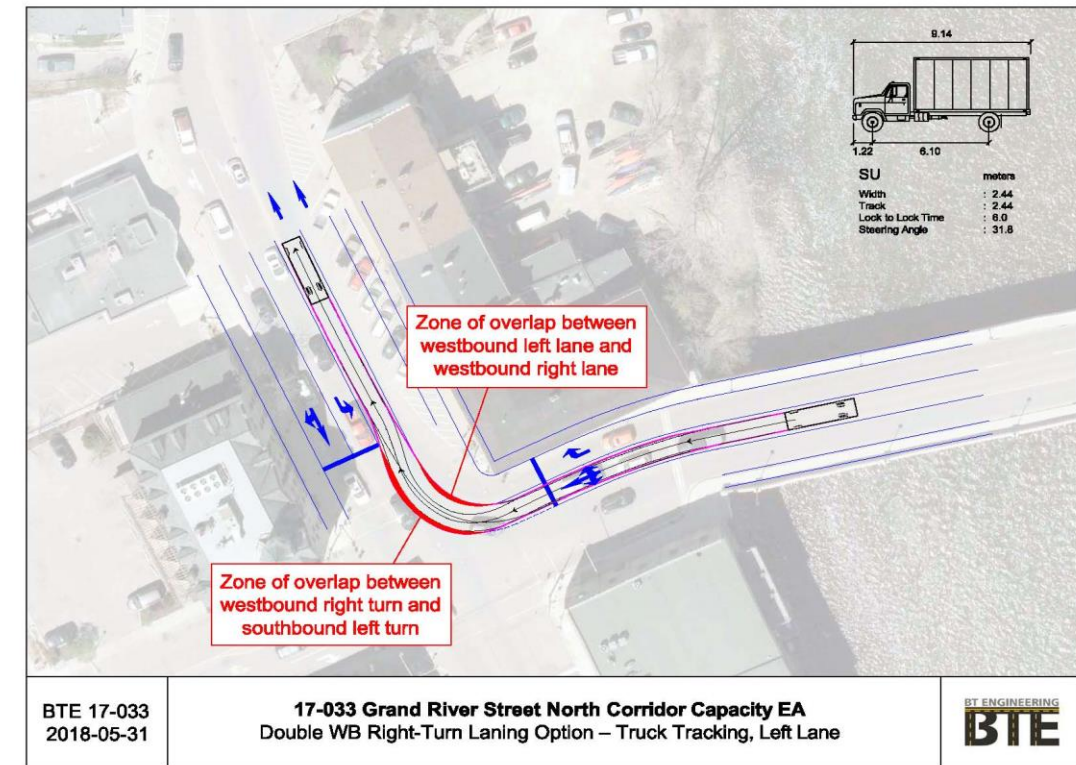


Figure 37: Truck Tracking, Left Lane

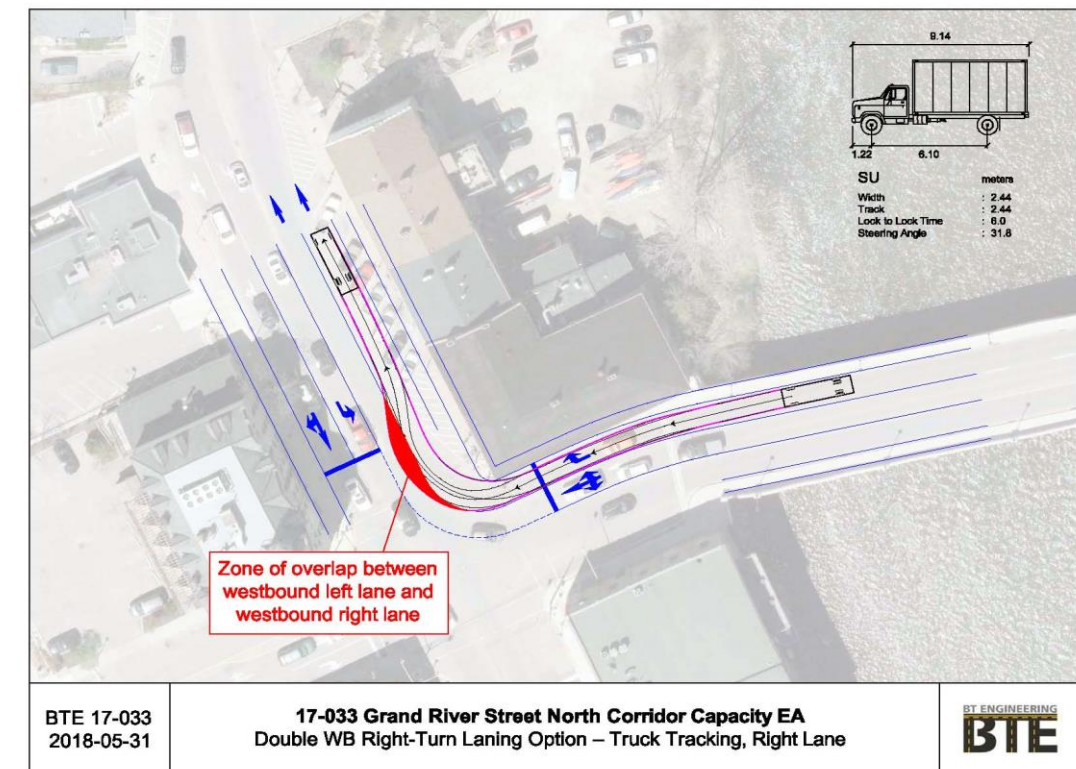


Figure 38: Truck Tracking, Right Lane

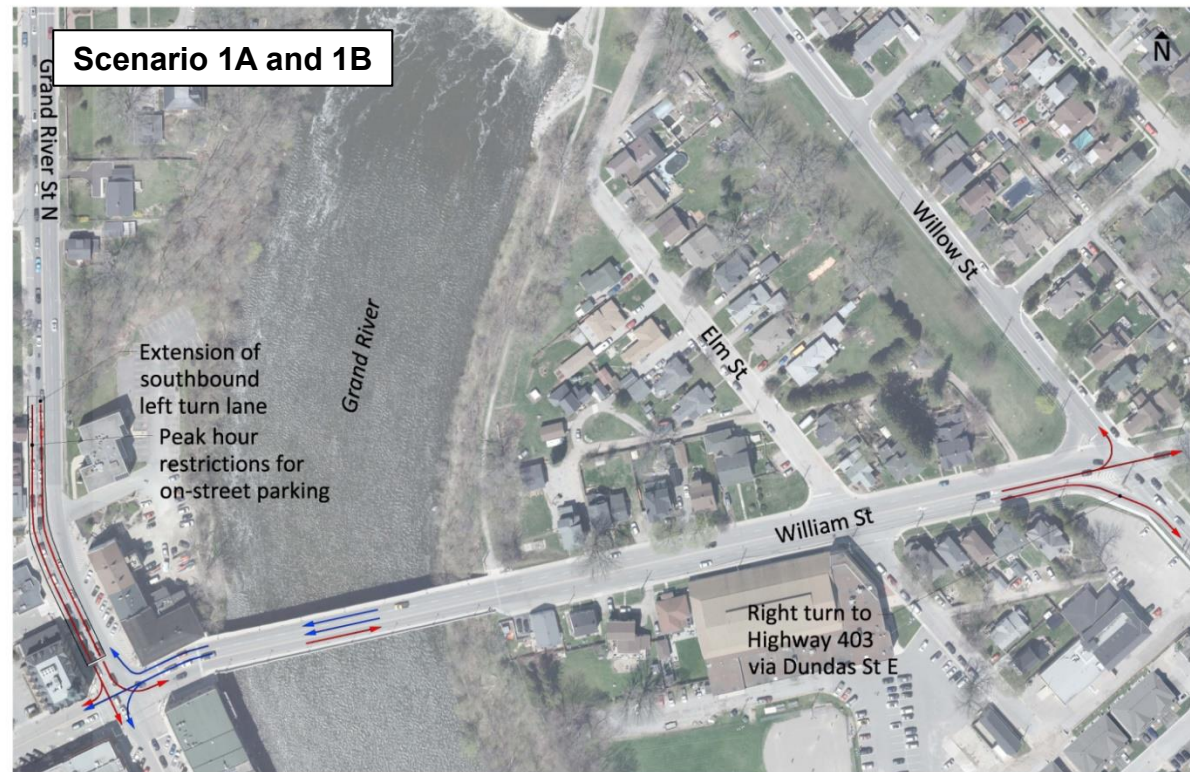


Figure 39: 1A - Extend Southbound Left Turn Lane and 1B - Replace Angle Parking (North of William Street)



Figure 41: Southbound Double Left with Widened William Street Bridge



Figure 40: Southbound Double Left

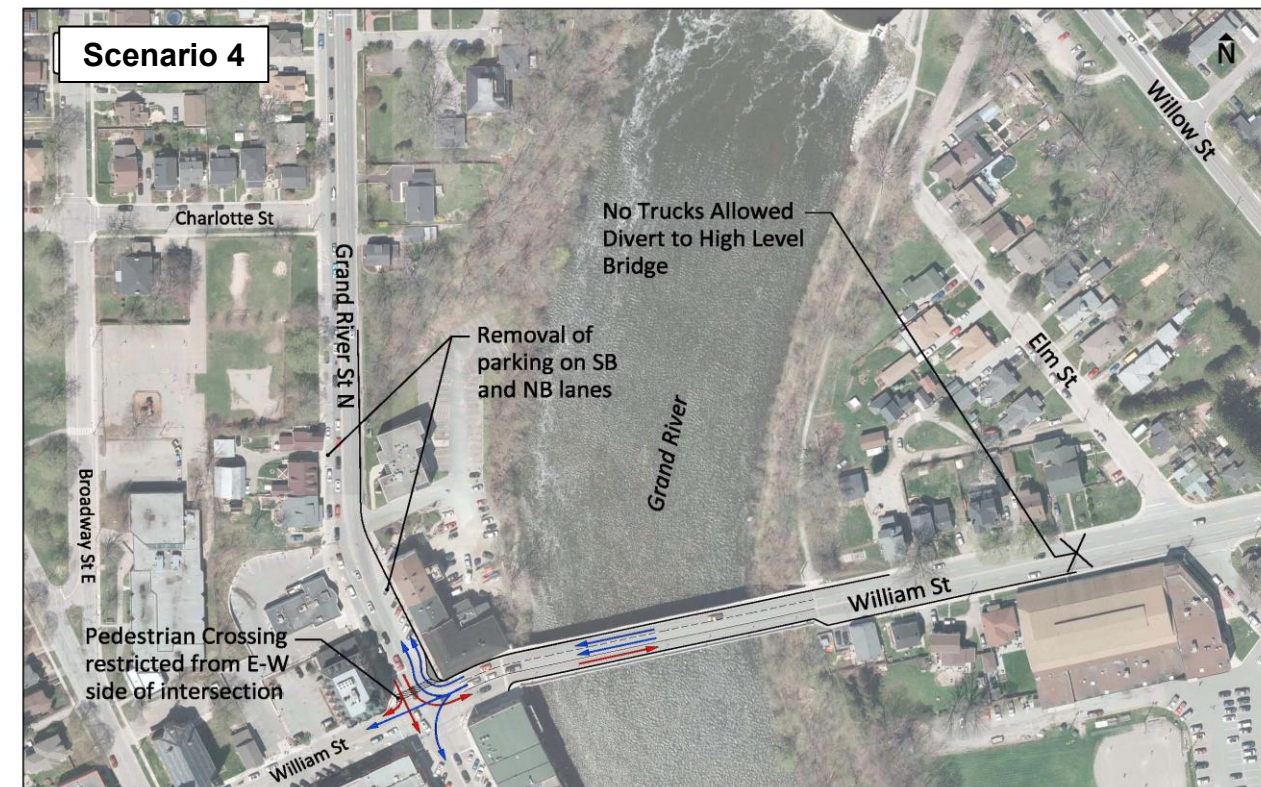


Figure 42: Westbound Double Right Turn Lanes



Figure 43: Westbound Double Right Turn Lanes with widened William Street Bridge

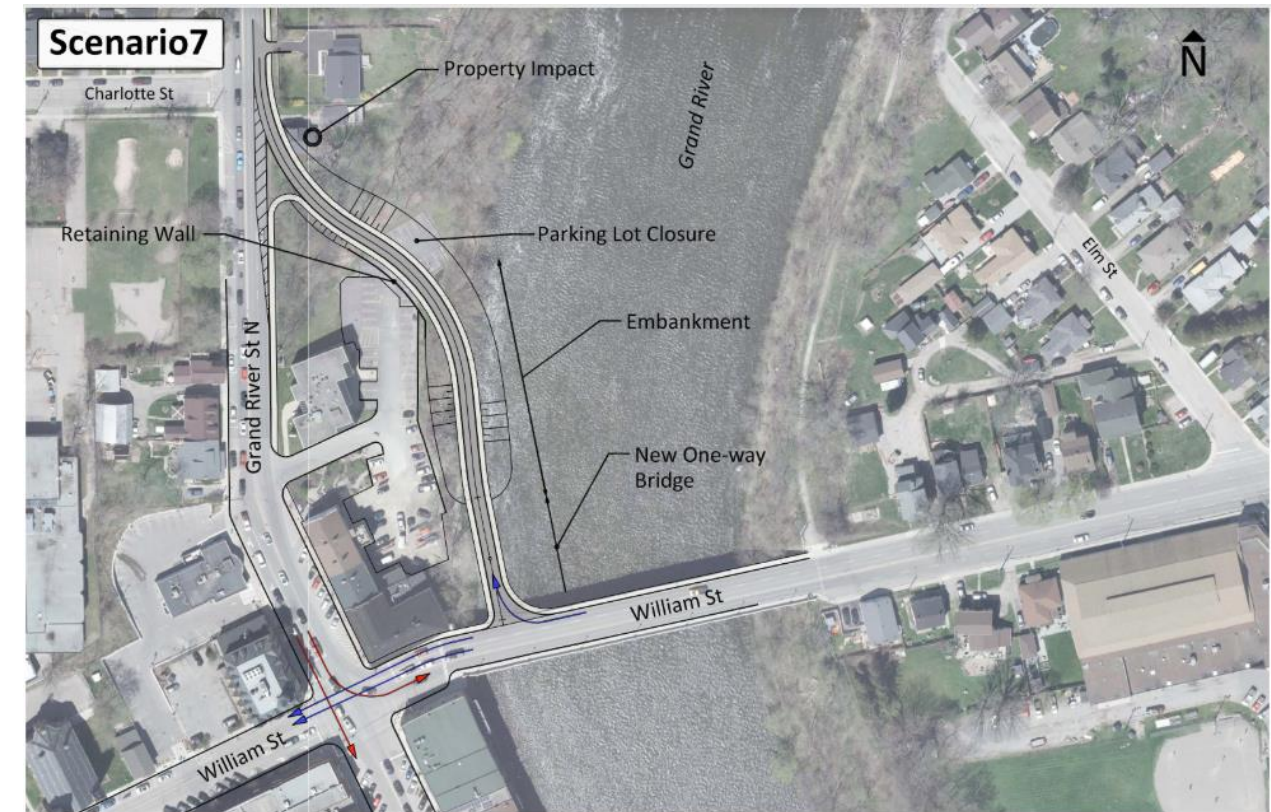


Figure 45: Free-Flow Ramp for Westbound Right Turns

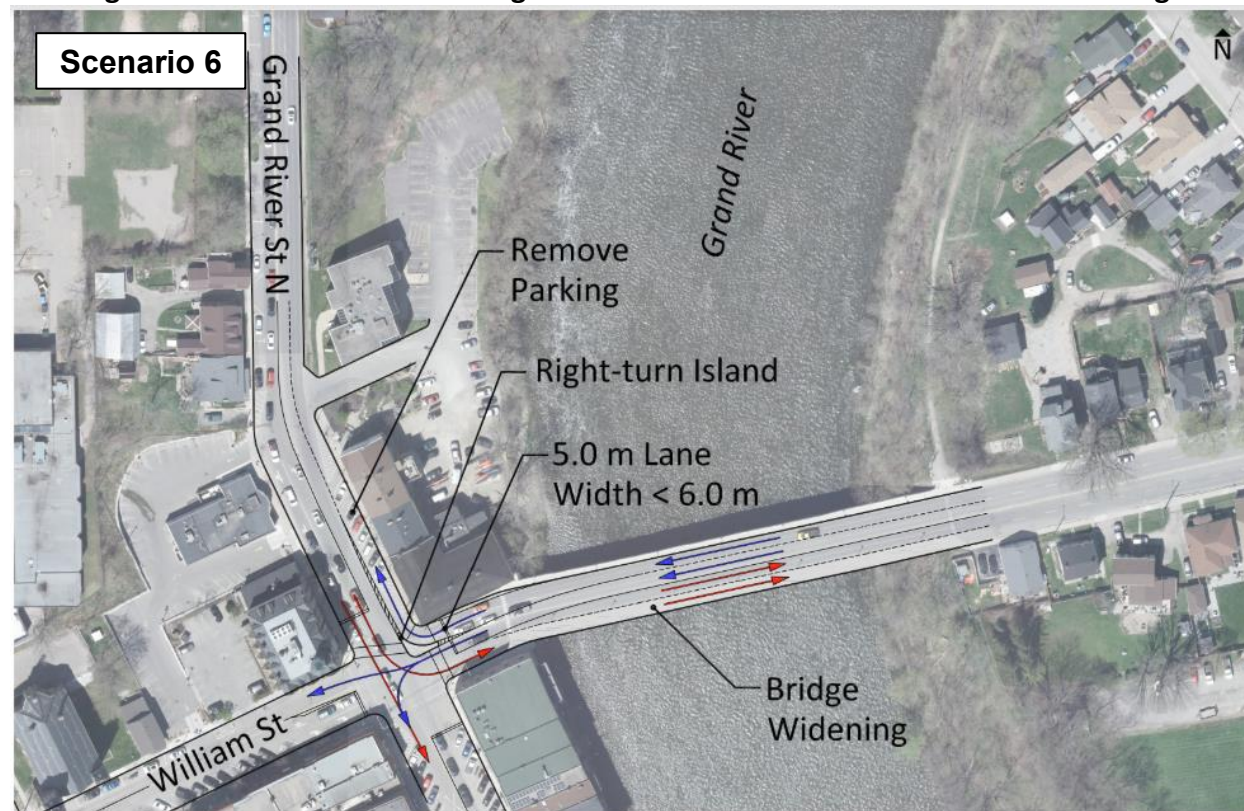


Figure 44: Channelized Westbound Right Turn Lane



Figure 46: TPA Grand River Street North at William Street

7.3.3 Group 3C: GRSN at St. Patrick Street Intersection

Within this section of the corridor there are significant constraints, and at this location there is a 3-legged intersection that has reduced traffic demand. However, the current intersection does not include a southbound left-turn lane and this restricts southbound capacity on Grand River Street North. **Table 16** shows the evaluation of the alternatives. The roundabout (Alternative C) was screened as not required based on traffic demand and the greater property impacts when compared with signalized intersection alternatives.

Table 16: Intersection Alternatives: Grand River Street North at St. Patrick Street						
Evaluation Criteria	Description	Alternative A 4 Lanes Signalized Intersection (SB no left turn lane)		Alternative B 5 Lanes Signalized Intersection (with SB left turn lane)		Alternative C 4 Lanes Roundabout
Transportation						
Traffic	Impact on Traffic Operations		This alternative provides an additional lane therefore improving traffic operations and reducing delays from existing conditions, but any southbound left turns are made from a through lane. This has potential for rear end collisions.		This alternative provides improved traffic operations, reduced delays, and reduced potential for rear-end collisions.	
Active Transportation	Accommodate cyclists and pedestrians.		All alternatives will be able to safely accommodate both cyclists and pedestrians.		All alternatives will be able to safely accommodate both cyclists and pedestrians.	
Emergency Services	Ease of access for Emergency Service Vehicles to all present and future residents.		No change		Reduced queuing and improved traffic operations will improve access for Emergency Service Vehicles.	
Natural Environment						
Environmental Impact	Effect on surrounding habitat and trees.		This alternative does not require any additional property and will not impact the surrounding habitat and trees.		This alternative requires additional property and will require trimming of two existing trees.	
Land Use and Property						
Land Use and Property	Right-of-way requirement		This alternative does not require any additional property.		This alternative requires acquisition of a limited amount of property.	
Social Environment						
Community Impacts	Community disruption, residential land acquisition and safety within the school zone.		No significant change		Improves access to the school and improved traffic flow will reduce traffic queuing and improve access to residential driveways	
Heritage Impact	None					
Cost						
Construction Cost	The total cost of construction.		Limited Cost		Low cost improvement	
Preliminary Preferred Alternative						
		No improvement in traffic operations. Not carried forward. 		Improves traffic operations and safety with limited property acquisition. Carried forward. 		Requires significant property requirements. Not carried forward.

Conclusions and Recommendations

To address the current and future traffic demands of Grand River Street North at St. Patrick Street, three (3) intersection alternatives were evaluated. **Alternative B: 5 Lanes, Signalized Intersection** with a new southbound left turn lane is carried forward. This alternative improves traffic operations and safety with a new left-turn lane for southbound vehicles and limited property acquisition. The TPA is illustrated in **Figure 47**.



Figure 47: TPA Grand River Street North at St. Patrick Street Intersection

7.3.4 Group 3D: GRSN at Silver Street / West River Road Extension Intersection

At this intersection location there is the potential to consider a conventional signalized intersection or a roundabout. As presented at PIC No. 1, it could be possible to implement this project with a signalized intersection and protect property for a longer term roundabout when land use changes around the intersection. The evaluation in **Table 17** reflects this approach.

Table 17: Intersection Alternatives: Grand River Street North at Silver Street/New Paris Links Road Intersection							
Evaluation Criteria	Description	Alternative A Optimized Signals		Alternative B Intersection Widening		Alternative C Roundabout	
Transportation							
Walking	Mobility, comfort, safety	<input type="radio"/>	No change	<input type="radio"/>	Longer crossings	<input checked="" type="radio"/>	Shorter, safer crossings
Driving	Delays, comfort, safety	<input checked="" type="radio"/>	Potential long-term peak hour congestion	<input type="radio"/>	Reduced delays	<input checked="" type="radio"/>	Reduced delays and collision rate (50%)
Regional Mobility	Mobility across the region	<input checked="" type="radio"/>	Limited capacity	<input checked="" type="radio"/>	Increased capacity	<input checked="" type="radio"/>	Increased capacity
Environmental Impact							
Natural	Parklands, trees	<input type="radio"/>	No change	<input type="radio"/>	Intersection widening requirement	<input checked="" type="radio"/>	Intersection widening requirement
Social	Aesthetics, noise	<input type="radio"/>	No change	<input checked="" type="radio"/>	Increased noise and degraded aesthetics	<input checked="" type="radio"/>	Landscape opportunity
Heritage	Landmarks	<input type="radio"/>	No change	<input type="radio"/>	Limited property impact (Telfer House)	<input type="radio"/>	Limited property impact (Telfer House)
Economic	Commercial access & parking	<input type="radio"/>	No change	<input type="radio"/>	Impact on Home Hardware parking	<input type="radio"/>	Impact on Home Hardware store
Land Use and Property							
Land Use and Property	Right-of-way requirement	<input type="radio"/>	No change	<input type="radio"/>	Right-of-way widening requirement and impact on properties	<input checked="" type="radio"/>	Right-of-way widening requirement and impact on properties. The impact to the Gospel Church will be mitigated by acquisition from a willing seller.
Cost							
Construction		<input type="radio"/>	No cost	<input type="radio"/>	Low cost	<input checked="" type="radio"/>	Higher cost
Maintenance		<input type="radio"/>	No change in cost	<input checked="" type="radio"/>	Higher cost	<input checked="" type="radio"/>	Lower cost
Preliminary Technical Recommendation							
		Does not address long-term traffic demand. Not carried forward. x		Addresses long-term traffic demand but not as safely and efficiently as a roundabout. Not carried forward. x		Addresses long-term traffic demand safely and efficiently. Carried forward as the long-term plan for improvements to Grand River Street North. ✓	

Conclusions and Recommendations

To address the current and future traffic demands of Grand River Street North at Silver Street/New Paris Links Road, the evaluation recommends that **Alternative C** (Roundabout) be carried forward as the long-term plan (when warranted). This alternative safely and efficiently addresses long-term traffic demand. Signalization of the intersection is recommended as an interim phase (until the warrant for a roundabout is met). See **Figure 48** for the Technically Preferred intersection design.

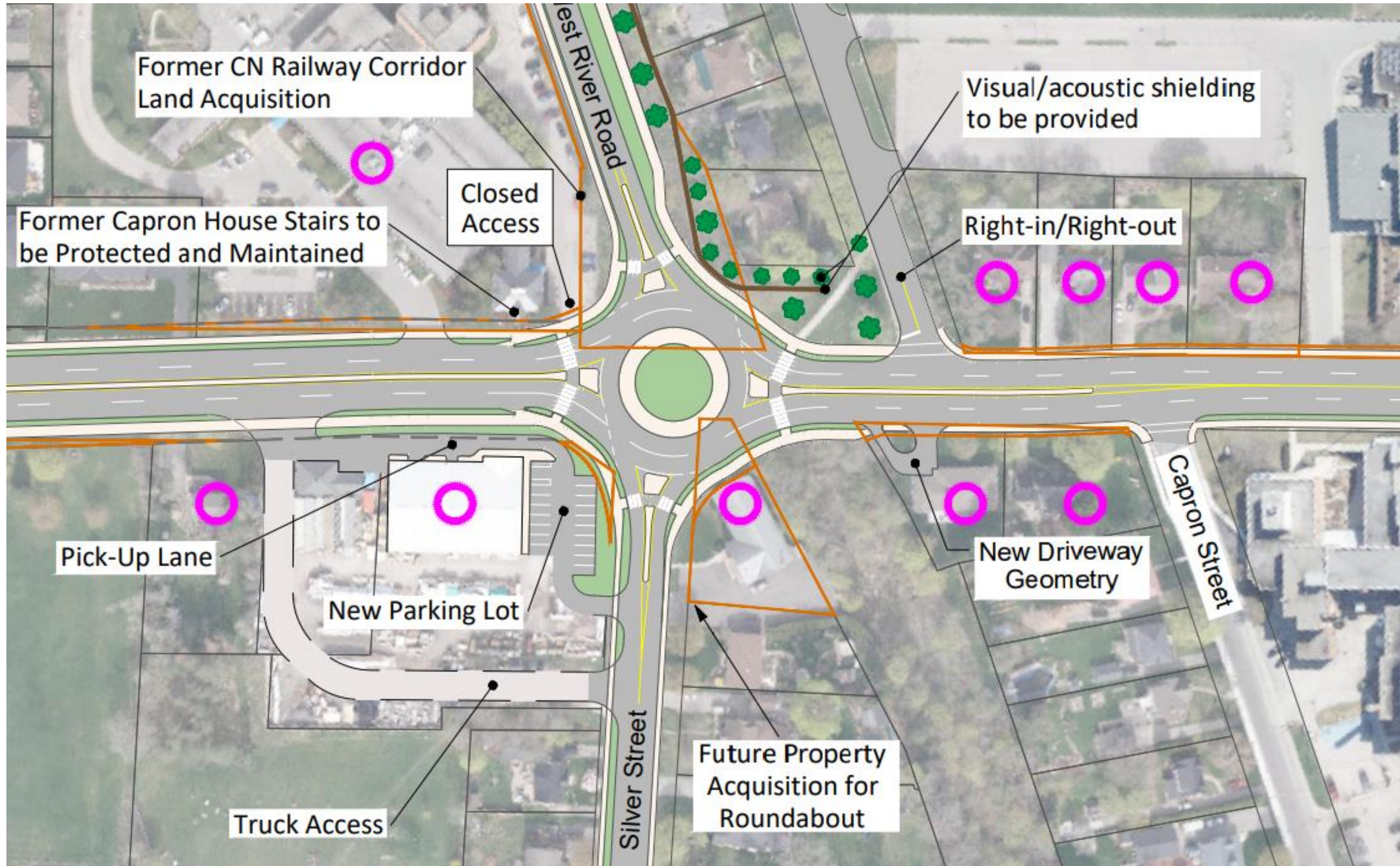


Figure 48: Long-term TPA Grand River Street North at Silver Street/New Paris Links Road Intersection (when warranted)

7.3.5 Group 3E: GRSN at Trillium Way/ Bradbury Crescent Intersection

At this intersection there is a major property constraint in the northeast quadrant of the intersection (Shell gas station and convenience store). The close proximity of the pumps to the street is a constraint for any widening alternatives. The evaluation of the alternatives is shown in **Table 18**.

Table 18: Intersection Alternatives: Grand River Street North at Trillium Way/Bradbury Crescent							
Evaluation Criteria	Description	Alternative A Optimized Signals		Alternative B Intersection Widening		Alternative C Roundabout	
Transportation							
Walking	Mobility, comfort, safety		No change		Longer crossings		Shorter, safer crossings
Driving	Delays, comfort, safety		Potential long-term peak hour congestion		Reduced delays		Reduced delays and collision rate (50%)
Regional Mobility	Mobility across the region		Limited capacity		Increased capacity		Increased capacity
Environmental Impact							
Natural	Parklands, trees		No change		Intersection widening requirement		Intersection widening requirement
Social	Aesthetics, noise		No change		Increased noise and degraded aesthetics		Landscape opportunity
Heritage	Landmarks		No change		No heritage impact		No heritage impact
Economic	Commercial access and parking		No change		Impact on gas station.		Impact on gas station.
Land Use and Property							
Land Use and Property	Right-of-way requirement		No change		Right-of-way widening requirement and impact on properties		Right-of-way widening requirement and impact on properties
Cost							
Construction			No cost		Low cost		Higher cost
Maintenance			No change in cost		Higher cost		Lower cost
Preliminary Technical Recommendation							
		Does not address long-term traffic demand. Not carried forward. 		Addresses long-term traffic demand; however, provides reduced safety in comparison to the roundabout design and carrying forward the roundabout design provides design consistency. 		Addresses long-term traffic demand and provides the highest level of safety and efficiently. Carried forward. 	

Conclusions and Recommendations

To address the current and future traffic demands of Grand River Street North at Trillium Way/Bradbury Crescent, three (3) intersection alternatives were evaluated and **Alternative C** (Roundabout) is recommended to be carried forward. This alternative addresses long-term traffic demands and provides the greatest safety. It will also provide design consistency within the corridor. See **Figure 49** for the TPA.

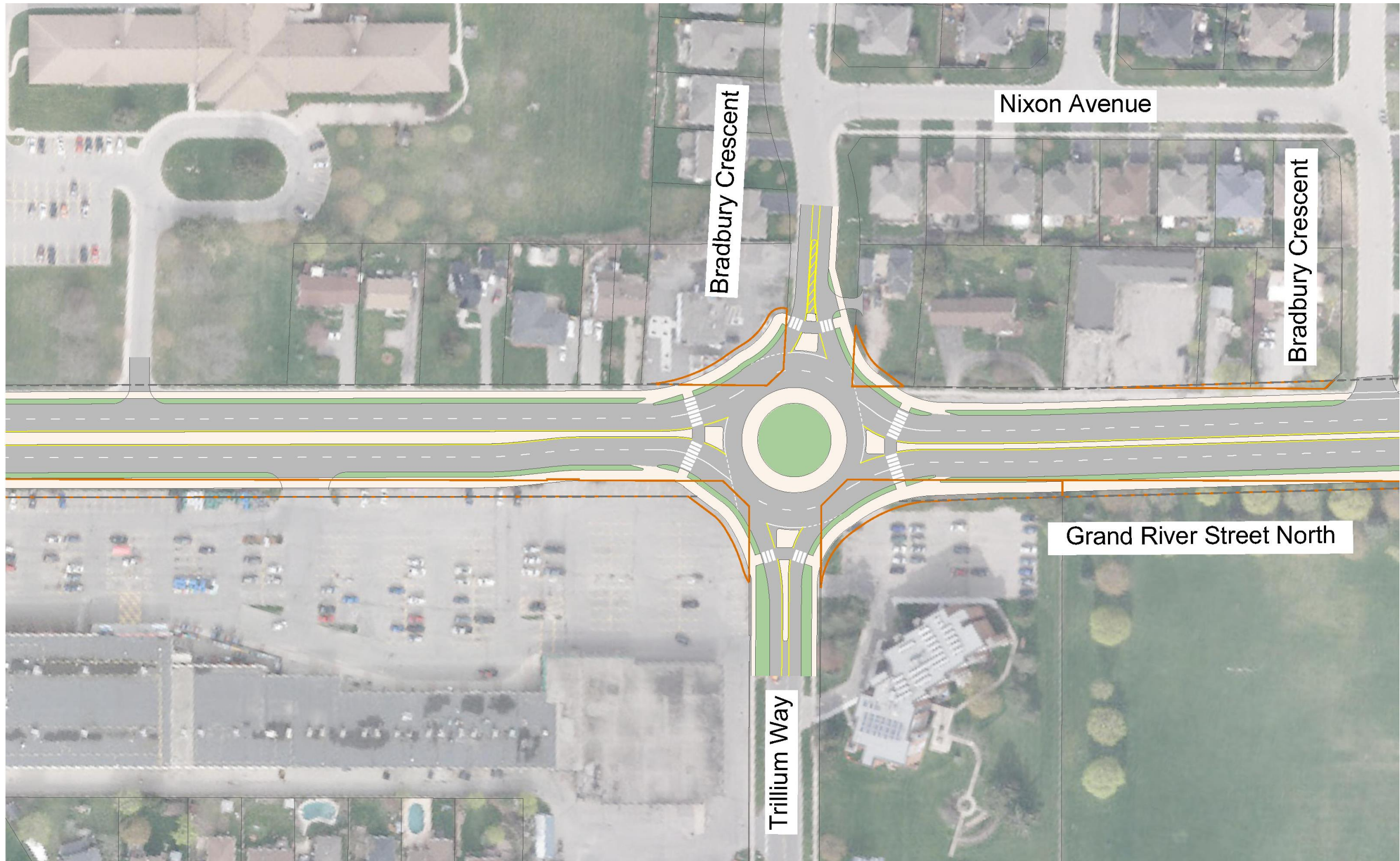


Figure 49: TPA Grand River Street North at Trillium Way/Bradbury Crescent Intersection

7.3.6 Group 3F: Grand River Street North at Scott Avenue Intersection

At this intersection both conventional and roundabout designs are feasible, with property impacts in each of the four quadrants. The evaluation of the alternatives is shown in **Table 19**.

Table 19: Intersection Alternatives: Grand River Street North at Scott Avenue							
Evaluation Criteria	Description	Alternative A Optimized Signals		Alternative B Intersection Widening		Alternative C Roundabout	
Transportation							
Walking	Mobility, comfort, safety		No change		Longer crossings		Shorter, safer crossings
Driving	Delays, comfort, safety		Potential long-term peak hour congestion		Reduced delays		-Reduced delays and collision rate (50%) -Speed control along corridor
Regional Mobility	Mobility across the region		Limited capacity		Increased capacity		Increased capacity
Environmental Impact							
Natural	Parklands, trees		No change		Intersection widening requirement		Intersection widening requirement
Social	Aesthetics, noise		No change		Increased noise and degraded aesthetics		Landscape opportunity
Heritage	Landmarks		No change		No heritage impact		No heritage impact
Economic	Commercial access and parking		No change		No significant impact		Impact on NW parking lot
Land Use and Property							
Land Use and Property	Right-of-way requirement		No change		Right-of-way widening requirement and impact on properties		Right-of-way widening requirement and impact on properties
Cost							
Construction			No cost		Low cost		Higher cost
Maintenance			No change in cost		Higher cost		Lower cost
Preliminary Technical Recommendation							
		Does not address long-term traffic demand. Not carried forward. 		Addresses long-term traffic demand but not as safely and efficiently as a roundabout. Not carried forward. 		Addresses long-term traffic demand safely and efficiently. Carried forward. 	

Conclusions and Recommendations

To address the current and future traffic demands of Grand River Street North at Scott Avenue, the evaluation assessed the three (3) intersection alternatives. **Alternative C** (Roundabout) is carried forward. This alternative addressed long-term traffic demands, provides the greatest safety and will provide design consistency in the corridor. This intersection design will provide physical measures to control vehicle speeds and this was a major concern identified by the public at PIC No. 1. See **Figure 50** for the TPA.

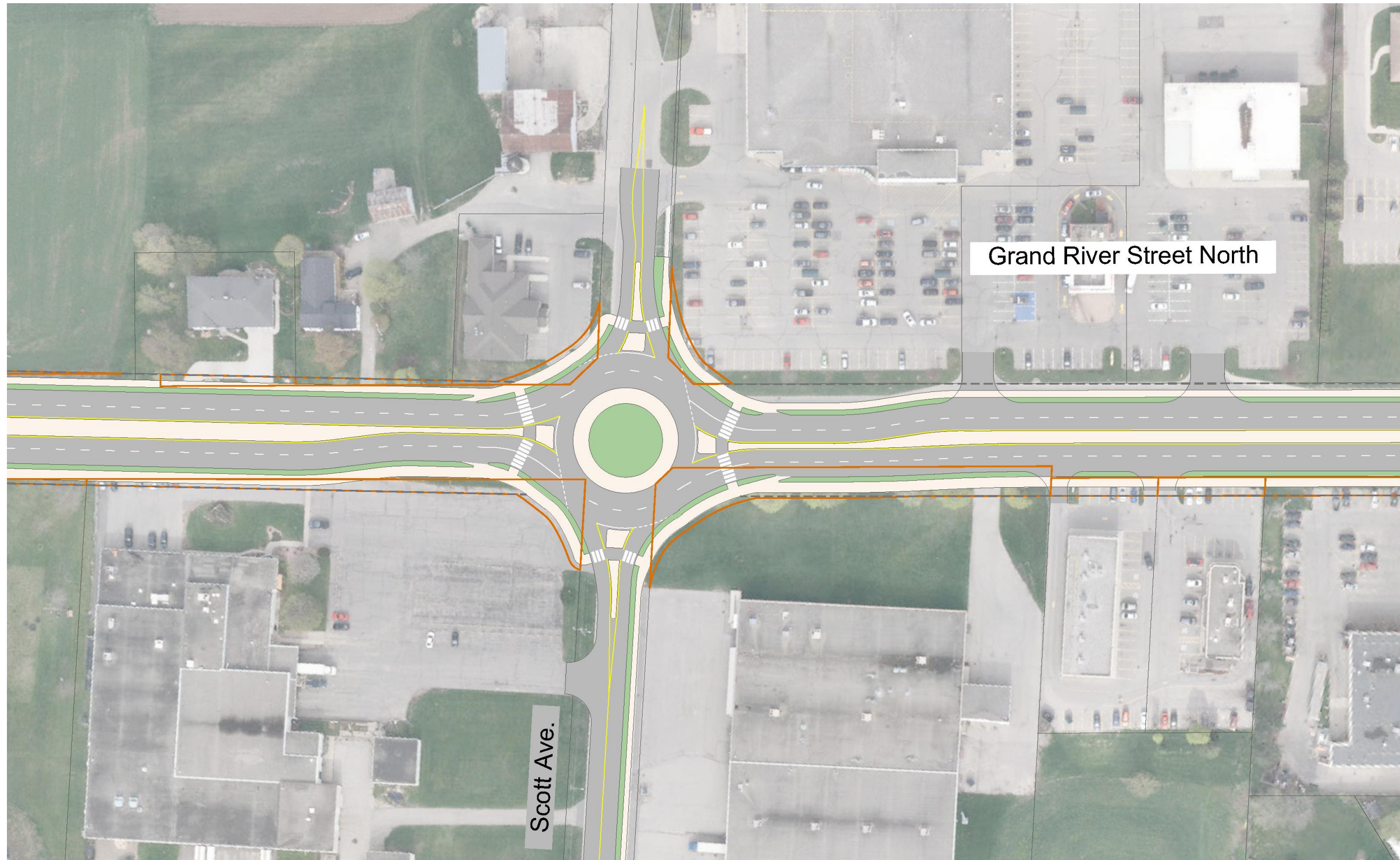


Figure 50: TPA Grand River Street North at Scott Avenue Intersection

7.3.7 Group 3G: GRSN at Woodslee Avenue Intersection

At the existing Woodslee Avenue intersection, the intersection spacing does not meet the 400 m (desirable), 250 m (minimum) spacing to Hartley Avenue. Therefore a new street connection to Hartley Avenue was considered. Based on the ability for a land exchange to create a new street connection directly to Hartley Avenue to Woodslee Avenue, this is recommended as the preferred alternative. This minimizes out-of-way travel for commercial traffic in the industrial park. The TPA is illustrated in **Figure 51**.

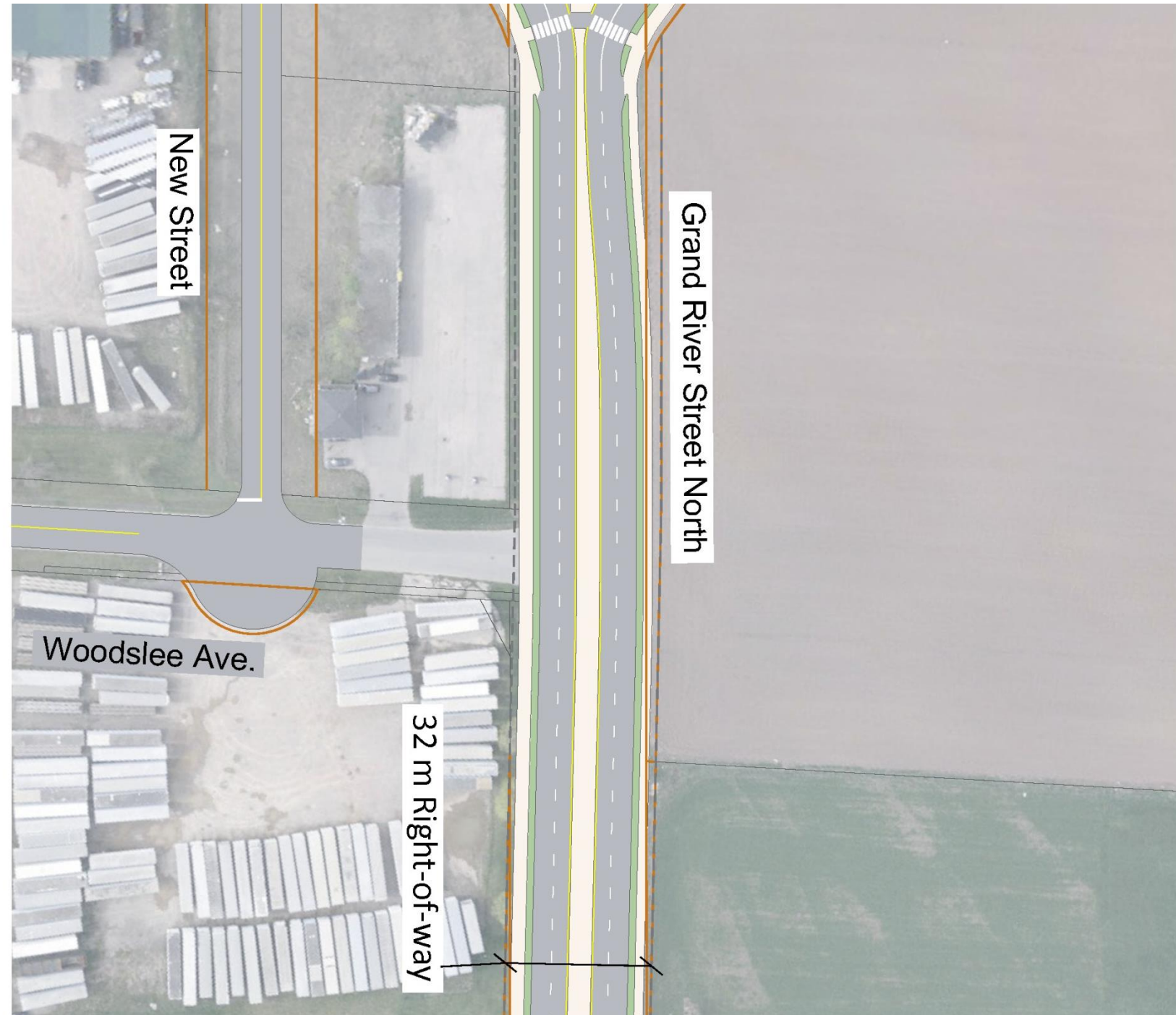


Figure 51: TPA Grand River Street North at Woodslee Avenue Intersection

7.3.8 Group 3H: Pinehurst Road at Hartley Avenue Intersection

At this intersection both conventional and roundabout designs are feasible with acceptable property impacts, as no quadrants are currently being developed. The evaluation of the alternatives is shown in **Table 20**.

Table 20: Intersection Alternatives: Pinehurst Road at Hartley Avenue							
Evaluation Criteria	Description	Alternative A Traffic Signals Only		Alternative B Intersection Widening		Alternative C Roundabout	
Transportation							
Walking	Mobility, comfort, safety		No sidewalk		Longer crossings		Shorter, safer crossings
Driving	Delays, comfort, safety		Potential long-term peak hour congestion		Reduced delays		Reduced delays and collision rate (50%)
Regional Mobility	Mobility across the region		Limited capacity		Increased capacity		Increased capacity
Environmental Impact							
Natural	Parklands, trees		No change		Intersection widening requirement		Intersection widening requirement
Social	Aesthetics, noise		No change		Increased noise and degraded aesthetics		Landscape opportunity
Heritage	Landmarks		No change		No heritage impact		No heritage impact
Economic	Commercial access and parking		No change		No impact		No impact
Land Use and Property							
Land Use and Property	Right-of-way requirement		No change		Right-of-way widening requirement		Right-of-way widening requirement
Cost							
Construction			No cost		Low cost		Higher cost
Maintenance			No change in cost		Higher cost		Lower cost
Preliminary Technical Recommendation							
		Does not address long-term traffic demand. Not carried forward. 		Addresses long-term traffic demand but not as safely and efficiently as a roundabout. Not carried forward. 		Addresses long-term traffic demand safely and efficiently. Carried forward. 	

Conclusions and Recommendations

To address the current and future traffic demands of Grand River Street North at Hartley Avenue, three (3) intersection alternatives were evaluated. **Alternative C** (Roundabout) is carried forward. This intersection design will provide physical measures to control vehicle speeds and this was a major concern identified by the public at PIC No. 1. See **Figure 52** for the TPA.



Figure 52: TPA Grand River Street North at Hartley Avenue Intersection

7.3.9 Group 3I: Pinehurst Road at Watts Pond Road Intersection

At this intersection both conventional and roundabout designs are feasible with acceptable property impacts, as no quadrants are currently being developed. The evaluation of the alternatives is shown in **Table 21**.

Table 21: Intersection Alternatives: Pinehurst Road at Watts Pond Road							
Evaluation Criteria	Description	Alternative A Traffic Signals Only		Alternative B Intersection Widening		Alternative C Roundabout	
Transportation							
Walking	Mobility, comfort, safety		No sidewalk		Sidewalk added but longer crossings		Shorter, safer crossings
Driving	Delays, comfort, safety		Potential long-term peak hour congestion		Reduced delays		Reduced delays and collision rate (50%)
Regional Mobility	Mobility across the region		Limited capacity		Increased capacity		Increased capacity
Environmental Impact							
Natural	Parklands, trees		No change		Intersection widening requirement		Intersection widening requirement
Social	Aesthetics, noise		No change		Increased noise and degraded aesthetics		Landscape opportunity
Heritage	Landmarks		No change		No heritage impact		No heritage impact
Economic	Commercial access & parking		No change		No impact		No impact
Land Use and Property							
Land Use and Property	Right-of-way requirement		No change		Right-of-way widening requirement		Right-of-way widening requirement
Cost							
Construction			No cost		Low cost		Higher cost
Maintenance			No change in cost		Higher cost		Lower cost
Preliminary Technical Recommendation							
		Sufficient for long-term traffic demand but does not address safety. Not carried forward. 		Not warranted by long-term traffic demand. Not carried forward. 		A 1-lane roundabout addresses long-term traffic demand safely and efficiently. Carried forward. 	

Conclusions and Recommendations

To address the current and future traffic demands of Grand River Street North at Watts Pond Road, three (3) intersection alternatives were evaluated. **Alternative C** (Roundabout) is carried forward. This intersection design will provide physical measures to control vehicle speeds and this was a major concern identified by the public at PIC No. 1. See **Figure 53** for the TPA.

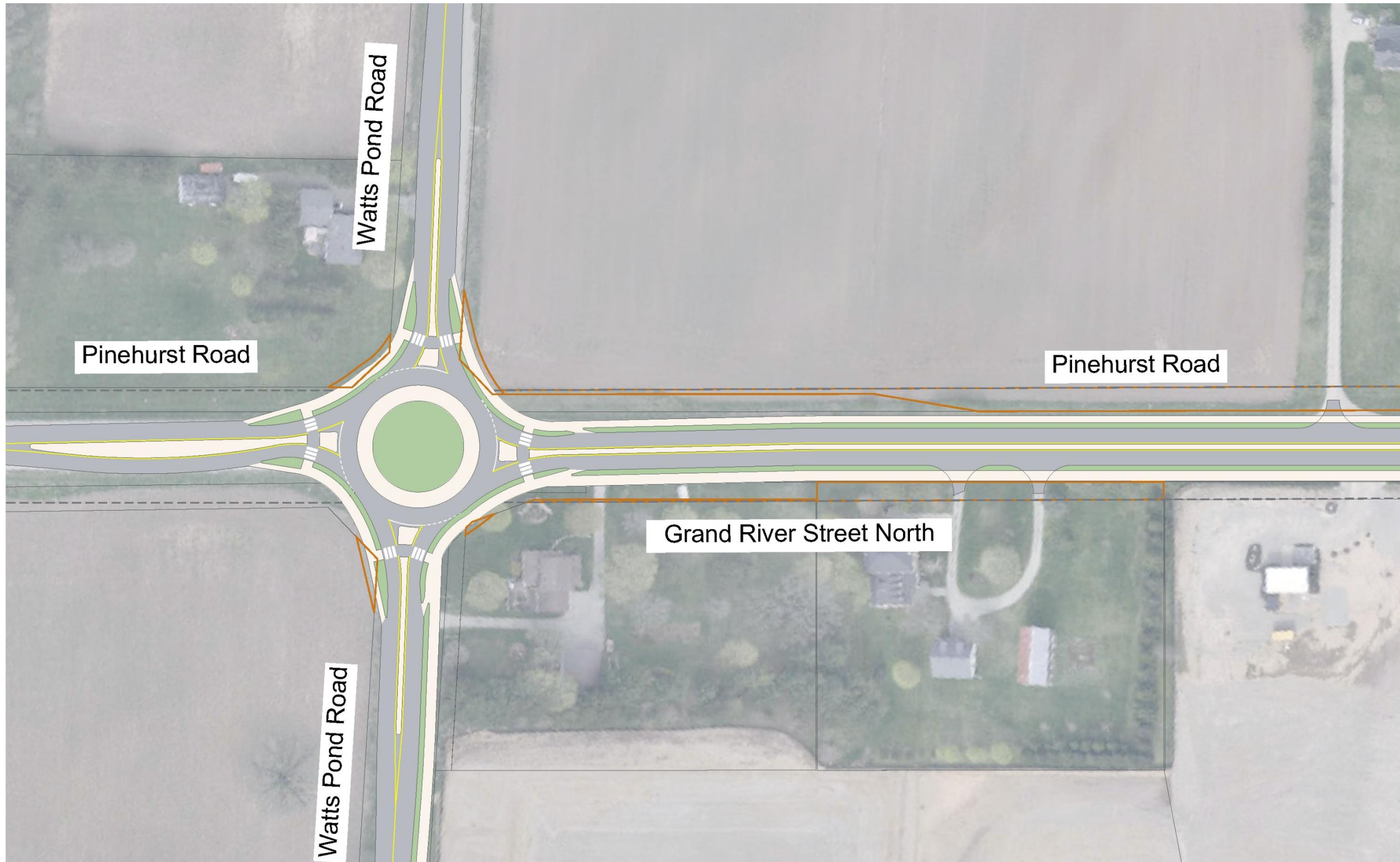


Figure 53: TPA Grand River Street North at Watts Pond Road Intersection

7.4 Group 4: Active Transportation

Alternatives were evaluated for accommodating Active Transportation (pedestrians and cyclists) along the Grand River Street North corridor, north of Silver Street and a multi-use pathway crossing of Grand River Street North in the area south of Silver Street. The 2 cross section alternatives that have been considered would both maintain the existing curb lines. This provides limited opportunity to accommodate cyclists within the Grand River Street North corridor. The Trails Master Plan identifies that cyclists should be accommodated along the former railway corridor between Grand River Street North and Market Street and identifies this linkage as the proposed Capron Street Multi-use Trail. Broadway Street West is an alternative north/south corridor that would be utilized as a bicycle route linking the Capron Street Multi-use Trail to the Nith Trail through Lions Park. Alternatives for a realigned Paris Links Road have identified a multi-use trail along the south side of the corridor. A Great Western Rail Trail along the former railway corridor has been promoted by area residents, and would be a natural extension of the Capron Street Multi-use Trail identified in the Trails Master Plan. Alternatives to connect these 2 proposed trails within the railway corridor across Grand River

Street North have been considered. A total of 2 selected alternatives will form a part of the Recommended Plan and will provide the best overall balance between transportation engineering objectives, environmental, social and cost objectives.

- Provision for Pedestrians and Cyclists (north of Silver Street)
- Multi-use Pathway Crossing of Grand River Street North

7.4.1 Group 4A: Provisions for Pedestrians and Cyclists (north of Silver Street)

Four (4) alternatives were evaluated as part of the roadway cross sections north of Silver Street. The Do Nothing alternative, reconstructing curb face sidewalks to match the existing sidewalk widths, was not carried forward for further evaluation since it would not meet AODA requirements. The remaining 3 alternatives are illustrated in **Figure 54**. The evaluation considered the relative performance when considering transportation engineering, environmental, social and cost. The evaluation of the alternatives is shown in **Table 22**.

Table 22: GRSN Provisions for Cyclists

Evaluation Criteria	Description	Alternative A Do Nothing	Alternative B Sidewalk on Both Sides: 2 m	Alternative C Shared Vehicle Lanes: 4.3 m Multi-use Path and Sidewalk: 3 m and 2 m	Alternative D Vehicle Lanes: 3.5 m Multi-use Path and Sidewalk: 3 m and 2 m
Transportation					
Walking	Mobility and AODA Compliance		Existing curb face sidewalk does not meet AODA requirements.	Cyclists will continue to use the sidewalk conflicting with pedestrians.	Improves safety for pedestrians by separation of alternative modes consistent with recent County. Provides the greatest division of alternative modes, reducing conflicts with pedestrians, cyclists, and
Cycling	Accommodates cyclists and pedestrians		Does not accommodate cyclists.	Accommodates cyclists' safety on one side of the road and pedestrians on both. Avid cyclists will use the shared lanes.	Accommodates both cyclists and pedestrians
Natural Environment					
Environmental Impact	Effect on surrounding habitat and trees.		Least impact on area trees.	Requires slightly more additional land with marginal potential to impact trees.	Requires the largest right-of-way, therefore creating the greatest potential to impact trees.
Land Use and Property					
Land Use and Property	Right-of-way requirement.		Sidewalks that are AODA compliant are required at a minimum for both sides.	Requires limited additional space to better accommodate cyclists with a multi-use path and shared vehicle lanes.	Widest right-of-way requirement.
Social Environment					
Community Intrusion	Community disruption and safety		Fails to accommodate area residents (children and seniors).	Requires some additional land and provides greater safety for pedestrians and cyclists.	Requires the largest amount of land acquisition impacting area driveways and existing landscaping.
Cultural Heritage	Impact on existing heritage properties/landmarks.		No Impact.	No Impact.	No Impact.
Cost					

Construction Cost	Total Cost of Construction		<input type="radio"/>	Comparable Cost to Alt C	<input type="radio"/>	Comparable Cost to Alt B	<input checked="" type="radio"/>	Greatest Cost	
Preliminary Recommendations									
	Not carried forward because the alternative would reconstruct curb-face sidewalks that are not compliant with AODA standards	x		Not carried forward because with no provision for cyclists; they will continue to use the sidewalk creating conflicts with pedestrians	x	Carried forward because a multi-use path on one side will encourage cyclists to ride on the west side, reducing conflicts with seniors and other pedestrians on the east side. Shared lanes provide some space for avid cyclists without requiring a larger right-of-way	✓	Not carried forward because this alternative has the greatest impact on adjacent properties	x

Conclusion and Recommendations

To address cyclists’ needs along Grand River Street North, an evaluation was conducted to assess the 4 alternatives. **Alternative C:** Shared Vehicle Lanes (4.3 m curb lanes) with a 3 m Multi-use Path on the west side and 2 m sidewalk on the east side, is carried forward as a part of the Recommended Plan. This alternative is carried forward because a multi-use path on one side will encourage cyclists to ride on the west side, reducing conflicts with seniors and other pedestrians on the east side. The provision of a boulevard separating the sidewalk and multi-use pathway from the curb will provide a more pedestrian-friendly environment by providing an offset from the adjacent lane of vehicle traffic, and allowing a uniform crossfall to be provided across any driveway entrances. Shared lanes provide some space for avid cyclists without requiring a larger right-of-way.

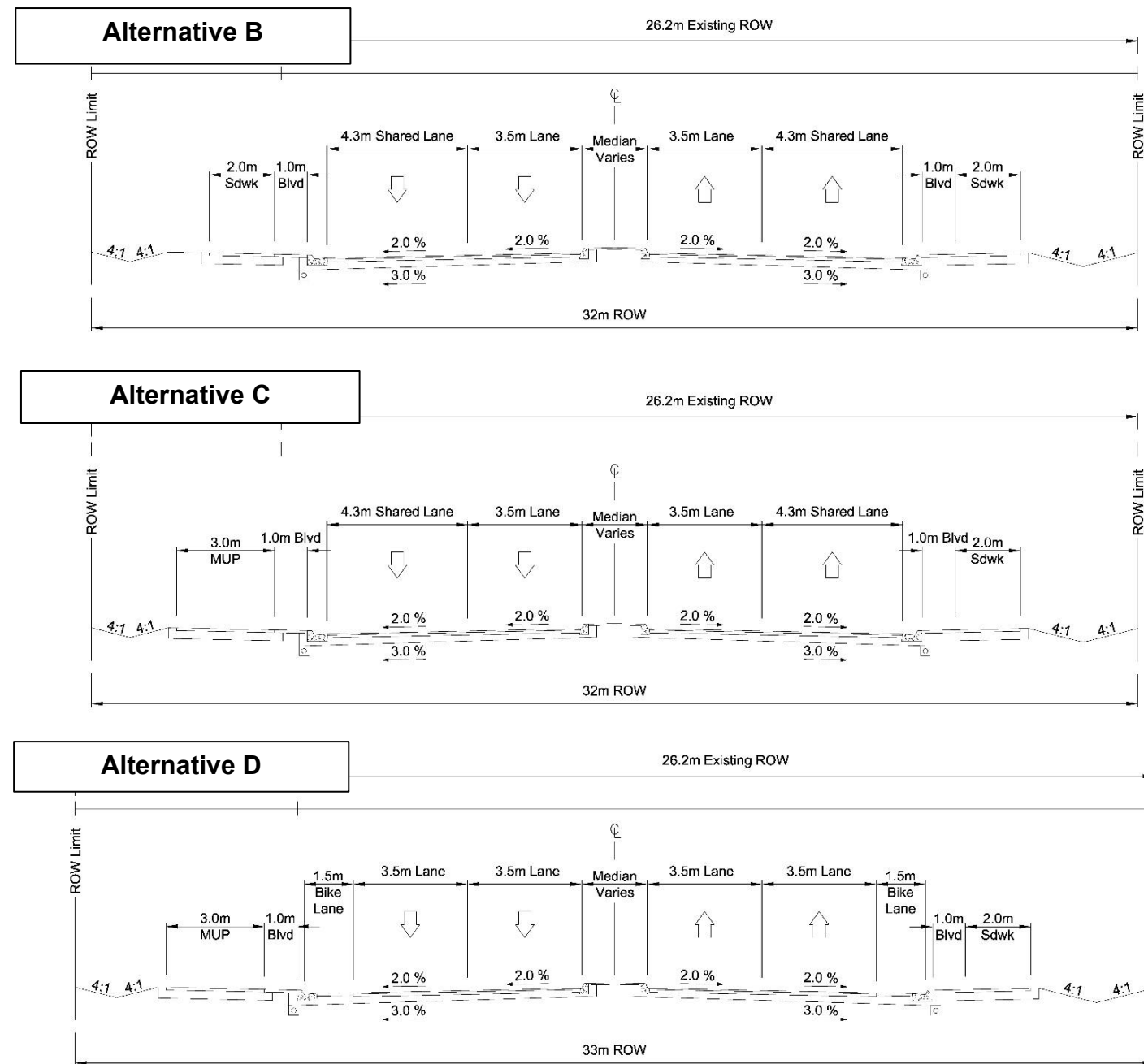


Figure 54: Alternative Provisions for Pedestrians and Cyclists (north of Silver Street)

7.4.2 Group 4B: Multi-use Trail Crossing

Two (2) alternatives to connect the future Capron Street Multi-use Trail on the west side of Grand River Street North with the proposed Western Rail Trail on the east side were evaluated. The alternatives are an at-grade crossing of Grand River Street North at the intersection with Silver Street, and the provision of a Multi-use trail grade separation along the former railway corridor. The evaluation considered the relative performance in meeting the transportation engineering, environmental, social and cost objectives. The evaluation of the alternatives is shown in **Table 23**.

Table 23: Multi-Use Trail Crossing Alternatives					
Evaluation Criteria	Description	Alternative A At-grade crossing of Grand River Street North at Silver Street		Alternative B Provision of a Multi-use trail Grade Separation	
Transportation					
AT Network Continuity	Mobility and connectivity		The intersection with Grand River Street North represents a discontinuity in the future trail system		Providing the option of a grade separated crossing of Grand River Street North improves the continuity of the future trail system
Safety for pedestrians and cyclists	Potential vehicle conflicts		Increased conflicts with motor vehicles will reduce safety for pedestrians and cyclists		The grade separated multi-use trail provides a route alternative that eliminates potential conflicts with motor vehicles improving safety for pedestrians and cyclists
Traffic Operations	Vehicle capacity and delay		Increased volume of pedestrians and cyclists crossing Grand River Street North will reduce the capacity for automobile traffic at the intersection with Silver Street		The reduced volume of pedestrians and cyclists crossing Grand River Street North will improve traffic operations by increasing the capacity for automobile traffic at the intersection with Silver Street
Natural Environment					
Environmental Impact	Effect on surrounding habitat and trees.		Environmental impacts are comparable to Alternative B		Environmental impacts are comparable to Alternative A
Land use and Property					
Land use and property	Property impacts		Reduces the right-of-way requirements but provides limited opportunity to mitigate the impacts on 6 Paris Links Road which would be surrounded on 3 sides by roadways. This is a concern that has been expressed by the property owner		Provides mitigation for intrusion resulting from with the provision of an adjacent roundabout, and the realignment of Paris Links Road which would result in roadways surrounding 6 Paris Links Road on 3 sides
Social Environment					
Aesthetics	Opportunity for Landscaping		The available property adjacent to the intersection results in less opportunity for landscaping green space		Will result in additional green space to improve aesthetics around a major node in the community's roadway network.
Security	Visibility of pedestrians		Pedestrian traffic remains visible to passing motorists		A tunnel reduces visibility of unaccompanied individuals during periods of low activity creating the potential for a risk to personal security. This risk is mitigated by maintaining the option of an at-grade crossing of Grand River Street North
Cost					
Construction Cost	Total Cost of Construction		Lower Cost		Higher cost
Preliminary Recommendations		Not Recommended *		Preferred because a grade-separated multi-use trail crossing of Grand River Street North will help to promote a Great Western Rail Trail that is supported by area residents while improving safety and traffic operations adjacent to the school. Property protection is recommended for the grade separation; however, implementation of this recommendation would require further study. ✓	

Conclusions and Recommendations

To address the needs of cyclists and pedestrians at a multi-use trail crossing of Grand River Street North, two (2) alternatives were evaluated. **Alternative B:** Provision of a grade-separated multi-use trail crossing under Grand River Street North. Property protection at the location is recommended; however, this will require further study and design by the County of Brant.

7.5 West River Road Refinements

Based on comments received at PIC No. 1, refinement alternatives were developed for:

- The alignment of the West River Road extension and alternative links; and

- Connections from the Paris Links Road to the Paris Grand Estates subdivision.

The analysis and evaluation of these alternatives is described in this section.

Refinement 1: West River Road Alignment and Connection Alternatives

Following PIC No. 1, alternatives were generated for the alignment of the West River Road extension and alternative connections to the community. These included: a northerly shift of the West River Road extension (see **Figure 55**); inclusion of a collector road to Scott Avenue (see **Figure 56**); and a new road network/bypass suggested by the public (see **Figure 57**). The analysis and evaluation of these alternatives is presented in **Table 24**.

Based on the significant environmental impacts, the alternative collector road to Scott Avenue and the new road network/bypass are not recommended. The northerly shift to the West River Road extension is recommended to be carried forward. This alternative reduces the impacts to the abutting property owners on Paris Links Road.



Figure 55: Alternative B - Refined TPA

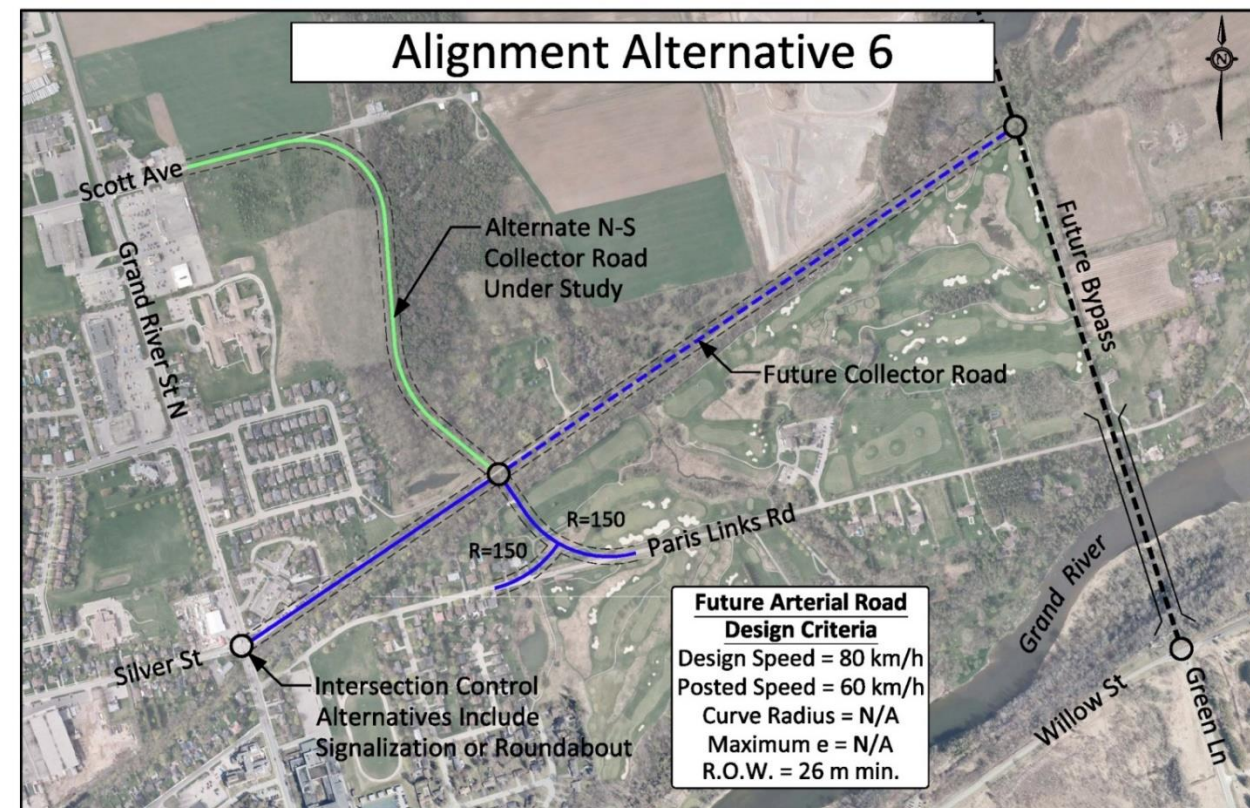


Figure 56: Alternative C - Inclusion of North-South Collector Road to Scott Avenue

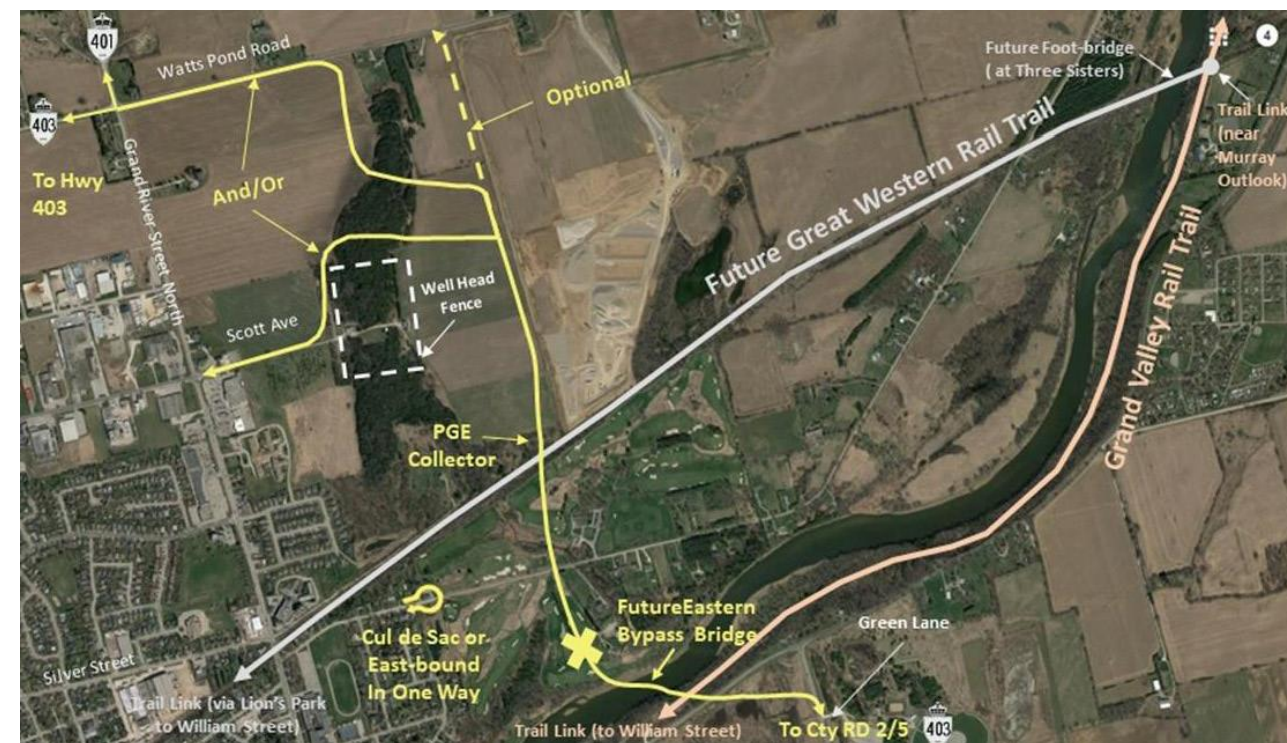


Figure 57: Alternative D - Alternate Eastern Bypass Alignment

Table 24: Evaluation of Paris Links Road Alignment Refinements

Evaluation Criteria	Description	Alternative A PIC No. 1 TPA	Alternative B Refined TPA (Modified) Shifted Centreline and Reduced Curve Radius	Alternative C PIC No. 1 (Alternative 6) Alternate N-S Collector Road Under Study	Alternative D Suggested by Community Group (Alternative 7)				
Transportation									
Future Traffic Flow Demand	Accommodate Future Traffic Demands (3500 AADT) on GRSN corridor		Improvements will accommodate future residential growth and provide an adequate LOS.		Improvements will accommodate future residential growth and provide an adequate LOS.		This alternative does provide a secondary travel route for local trips that choose not to use GRSN. It is not forecast to attract large volumes of traffic but would be desirable for local trips. Future traffic demands will not be met.		This proposes a new location for a future eastern bypass and no connections from the Paris Grand Estates westerly to GRSN. The connection to GRSN from the expansion over would be to the north of Scott Avenue or Watts Pond. This road network creates out-of-way travel.
Conformance to Transportation Master Plan (TMP)	Integration with the County's future TMP design		Supports connection to the future eastern bypass (TMP).		Supports connection to the future proposed eastern bypass (TMP).		Road alignment does not support direct connection to the future eastern bypass (TMP).		Proposed road alignment provides minimal access to the future eastern bypass (TMP).
Active Transportation	Accommodate cyclists and pedestrians on GRSN corridor		No grade separation at the GRSN - Silver Street intersection. Future Great Western Rail Trail provided adjacent to proposed roadway.		Future Great Western Rail Trail provided adjacent to planned roadway. Grade separation at the GRSN - Silver Street intersection connecting to proposed Capron Street Multi-use trail.		No grade separation at the GRSN - Silver Street intersection. Future Great Western Rail Trail provided adjacent to proposed roadway.		Provides improved access for cyclists and pedestrians to GRSN and the future Great Western Rail Trail. No grade separation at the GRSN - Silver Street intersection.
Emergency Services	Ease of access for Emergency Service Vehicles to all present and future residents		Provides direct access route to future Paris Grand Estates development.		Provides direct access route to future Paris Grand Estates development.		Provides direct access route to future Paris Grand Estates development.		Diverts Emergency Service vehicles north, lengthening critical response time.
Natural Environment									
Loss of Green Space	Acquisition of surrounding agricultural and parkland		Minimal impact on surrounding green space.		Minimal impact on surrounding green space.		Larger impact on agricultural land.		Large impact on surrounding agricultural and parkland.
Loss of Wetland	Habitat loss including potential contamination of waterways		Minimal loss of habitat. Little to no effect on waterways.		Minimal loss of habitat. Little to no effect on waterways.		Significant loss in wetland habitat.		Significant loss in Provincially Significant Wetland habitat and cold water fish spawning habitat.
Species at Risk (SAR)	Butternut trees have been identified within the study area		Minimal impact on SAR. Road alignment passes through 50 m butternut tree buffer zone.		Minimal impact on SAR. Road alignment passes through 50 m butternut tree buffer zone.		Minimal impact on SAR trees. Road alignment passes through 50 m butternut tree buffer zone.		Road alignment passes through wooded area with high quality SAR habitat.
Risk of Groundwater Contamination	Impact on the Gilbert Municipal Well Field located in the study area		No effect on Gilbert Municipal Well Field.		No effect on Gilbert Municipal Well Field.		Potential risk of groundwater contamination in Gilbert Municipal Well Field.		Significant risk of groundwater contamination given close proximity to well heads.
Land Use and Property									
Impact to Paris Grand Estates Inc.	Integration with future Paris Grand Estates development		Minor impact on future development layout.		No impact on future development layout. Provides optimal path for access between development and GRSN.		Minor impact on future development layout.		Significant impact on future development layout (Terms of Minutes under Planning Act). Access between development and GRSN reduced.

Table 24: Evaluation of Paris Links Road Alignment Refinements

Evaluation Criteria	Description	Alternative A PIC No. 1 TPA	Alternative B Refined TPA (Modified) Shifted Centreline and Reduced Curve Radius	Alternative C PIC No. 1 (Alternative 6) Alternate N-S Collector Road Under Study	Alternative D Suggested by Community Group (Alternative 7)	
Social Environment						
Community Intrusion	Community disruption, residential land acquisition, safety of school zones		Potential AM/PM peak hour detour route through residential neighborhood. Some residential land acquisition along GRSN corridor.	No community disruption due to Cul-de-Sac. Some residential land acquisition required along GRSN corridor.	Potential AM/PM peak hour detour route through residential neighborhood. Some residential land acquisition along GRSN corridor.	No community disruption on existing Paris Links Road due to road alignment and cul-de-Sac.
Heritage Impact	Area of Heritage land required		Impact on Great West Rail (GWR) corridor.	Reduced impact on GW Rail corridor.	Impact on GW Rail corridor.	Low impact on GWR corridor.
Cost						
Construction	Total cost to construct proposed roadway		Fair cost in comparison to other alternatives.	Fair cost in comparison to other alternatives.	Fair cost in comparison to other alternatives.	High roadway and environmental cost due to length of proposed alignment, risk of groundwater contamination and removal of natural habitat. Risk of obtaining required construction permits from MECP, MNRF, DFO and GRCA.
Maintenance and Operation	Future cost to maintain and operate proposed roadway		Fair cost in comparison to other alternatives.	Fair cost in comparison to other alternatives.	Fair cost in comparison to other alternatives.	High roadway and environmental cost due to length of proposed alignment, risk of groundwater contamination and removal of natural habitat.
Preliminary Recommendation						
			Alternative B, the refined TPA (Modified), has been chosen as the preferred alternative because it reduces the community and natural effects of Alternative A by increasing offsets to residential properties. It will include sound and visual screening mitigation for residential properties.	Not carried forward because of significant environmental effects and risk to the municipal groundwater intake.	Not carried forward because of significant environmental effects, risk to municipal groundwater intake and community impacts. The positive social environment and active transportation elements of a rail trail are included in the Refined TPA being carried forward.	

Refinement 2: West River Road Connection Alternatives

At PIC No. 1, comments were received regarding the potential for traffic disruption to the existing residential areas along Paris Links Road and Bayly Drive as a result of cut-through traffic accessing Paris Grand Estates. Several refinements were considered to limit vehicle short-cutting through these areas.

Three (3) alternatives as shown in **Figure 58** to **Figure 60** were evaluated to determine the connection from Paris Links Road to Grand River Street North and West River Road (new road). The selected alternative will form a part of the Technically Preferred Alternative and will provide the best overall balance between transportation performance, and environmental, social and cost effects. The evaluation of the alternatives is shown in **Table 25**.

Alternative C, right-in/right-out at GRSN and Paris Links Road with a cul-de-sac on Paris Links Road at West River Road is carried forward as the preferred refinement alternative. It does not allow am/pm peak hour traffic to short-cut through the residential streets and is the highest rated alternative for traffic, active transportation and community intrusion evaluation criteria.



Figure 58: Alternative A – Right-in/ Right-out and T-intersection



Figure 59: Alternative B – Cul-de-sac and T-intersection



Figure 60: Alternative C – Right-in/ Right-out and Cul-de-sac

Table 25: Old Paris Links Road Connection Alternatives

Evaluation Criteria	Description	Alternative A		Alternative B		Alternative C	
		Right-in/Right-out at GRSN and old Paris Links Road Tee intersection at old Paris Links Road and new Paris Links Road		Cul-de-Sac on old Paris Links Road at GRSN Tee intersection at old Paris Links Road and new Paris Links Road		Right-in/Right-out at GRSN and old Paris Links Road Cul-de-Sac on old Paris Links Road at new Paris Links Road	
Transportation							
Traffic	Peak hour traffic on Old Paris Links Road.		This alternative creates an alternative route that could be used by residents of Paris Grand Estates as an AM/PM peak hour shortcut		This alternative creates an alternative route that could be used by residents of Paris Grand Estates as an AM/PM peak hour shortcut		No shortcuts are created. New development generated traffic must use the new Paris Links Road for access to / from GRSN.
Active Transportation	Accommodate cyclists and pedestrians.		Traffic passing through the residential neighborhood will be in conflict with pedestrians and cyclists in the school zone.		Traffic passing through the residential neighborhood will be in conflict with pedestrians and cyclists in the school zone.		Only local traffic will be present in the residential neighborhood. Pedestrians and cyclists will also have access to the new MUP.
Emergency Services	Ease of access for Emergency Service Vehicles to all present and future residents.		Provides direct access route to future Paris Grand Estates development and maintains access to current residents.		Provides direct access route to future Paris Grand Estates development and maintains access to current residents.		2 accesses to future Paris Grand Estates development (New Paris Links Road and West River Road) and maintains access to current residents.
Natural Environment							
Environmental Impact	Effect on surrounding habitat and trees.		All alternatives have an equivalent impact on the surrounding environment.		All alternatives have an equivalent impact on the surrounding environment.		All alternatives have an equivalent impact on the surrounding environment.
Land Use and Property							
Impact to Grand River Estates Inc.	Integration with future Paris Grand Estates development.		This alternative reflects the layout plan designed by Grand River Estates Inc.		This alternative reflects the layout plan designed by Grand River Estates Inc.		The cul-de-sac placed at the end of old Paris Links Road requires the acquisition of a small portion of land on the Paris Grand Estates development.
Social Environment							
Community Intrusion	Community disruption, residential land acquisition and safety within the school zone.		Potential AM/PM peak hour detour through residential neighborhood will increase traffic and vehicular noise. It will also reduce the safety of pedestrians and cyclists in the school zone.		Potential AM/PM peak hour detour through residential neighborhood will increase traffic and vehicular noise. It will also reduce the safety of pedestrians and cyclists in the school zone.		The cul-de-sac on the east end of old Paris Links Road will limit the residential area to local traffic only. This will increase pedestrian and cyclist safety in the school zone and lower traffic and vehicular noise.
Heritage Impact	Area of Heritage land required for the alternative.		This alternative has no impact on the surrounding Heritage land.		This alternative has no impact on the surrounding Heritage land.		This alternative has no impact on the surrounding Heritage land.
Cost							
Construction Cost	The total cost of construction.		All alternatives have comparable construction cost.		All alternatives have comparable construction cost.		All alternatives have comparable construction cost.
Preliminary Preferred Alternative							
			Not carried forward because of AM/PM peak hour traffic short-cut through residential streets. 		Not carried forward because of AM/PM peak hour traffic short-cut through residential streets. 		Alternative C is carried forward as the preferred alternative because it does not allow am/pm peak hour traffic to short-cut through residential streets. This alternative rates highest for traffic, active transportation and community intrusion evaluation criteria.

8.0 TECHNICALLY PREFERRED ALTERNATIVE

The Technically Preferred Alternative (TPA) for the improvements to the Grand River Street North Corridor was presented at PIC No. 2, and is illustrated in **Figure 61** and **Figure 62**. This plan includes:

- Operational improvements to Grand River Street North including:
 - Provision of a 4-lane cross section
 - Roundabouts at applicable intersections to improve traffic flow and safety
 - A new road within the right-of-way of the old railway corridor
 - Changing Banfield Street to a one-way operation, due to existing safety and sight distance issues associated with right turns and the decision to increase the road to 4 lanes
 - Left turn only lane and through lane at William Street/Grand River Street North Intersection, to improve traffic flow and avoid vehicular through traffic
- Active Transportation improvements including:
 - North of Silver Street, widening the right-of-way, improving safety and separation of modes to include (where applicable):
 - 1.0 m boulevard
 - 2.0 m sidewalk
 - 3.0 m Multi-use Path
 - Creating a new Trail along the old railway corridor
 - Provision of a multi-use grade separation to improve connectivity to new railway corridor trail and planned Capron Street multi-use trail, and provide additional aesthetic green space
 - Statement of flexibility for realignment of west sidewalk behind the abutment of the CN bridge to provide a wider path for accessibility and various modes of active transportation
- Changes to Parking, net zero change to number of spots
 - Modification of angled parking to parallel parking on Grand River Street North, north of William Street
 - Removal of Parallel Parking on the west side of Grand River Street North
 - Addition of Parking along Kings Ward Park
 - Addition of Parking north of William Street on the east side of Grand River Street North
- Removing the connection between Woodslee Avenue and Grand River Street North and adding a parallel street to connect Woodslee Avenue with Hartley Avenue
- Cul-de-sac at the end of existing Paris Links Road to avoid excessive vehicle traffic cutting through the nearby neighbourhood

Overall Technically Preferred Alternative - Grand River Street North Corridor

From Watts Pond Road to Homestead Road

Project Number: 17-033

Legend: Property Acquisition Pavement Concrete Landscaping Impacted Properties 32m ROW

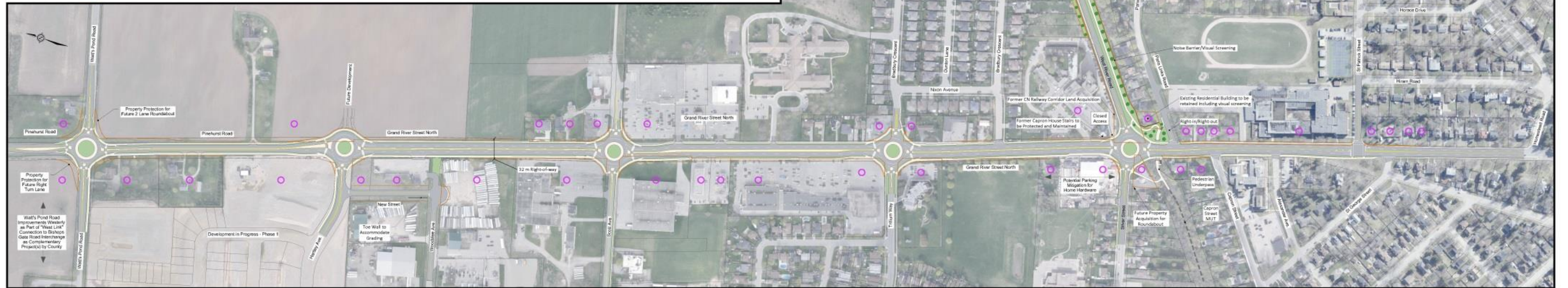


Figure 61: Technically Preferred Alternative (Watts Pond Road to Homestead Road)

Overall Technically Preferred Alternative - Grand River Street North Corridor

From Homestead Road to William Street
 Project Number: 17-033

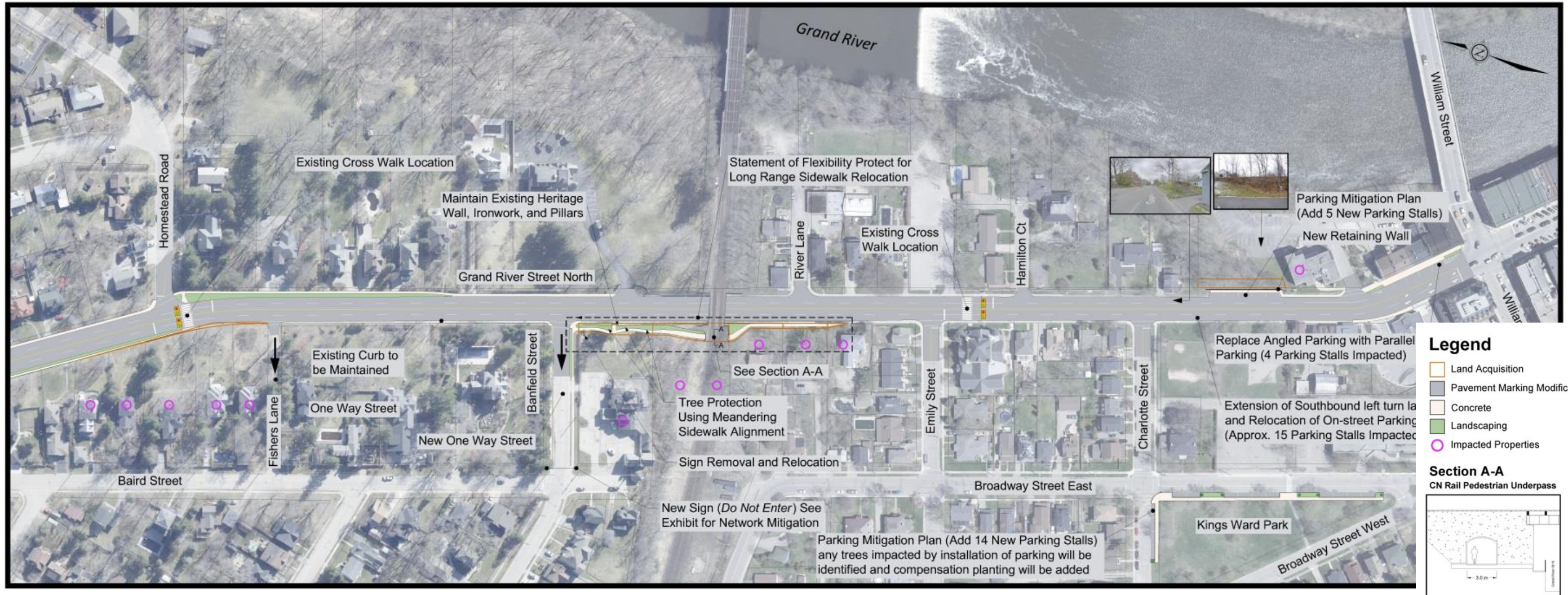


Figure 62: Technically Preferred Alternative (Homestead Road to William Street)

9.0 REFINEMENTS TO TECHNICALLY PREFERRED ALTERNATIVE

The Technically Preferred Alternative (TPA) described in **Section 7.5**, was presented at PIC No. 2. Following the PIC, the TPA was subject to refinements based on community input. Refinements for the following groups were developed and evaluated as described in the following sections.

1. Grand River Street North and William Street Intersection Design (as per Downtown Master Plan)
2. Additional Parking on Grand River Street North (south of Charlotte Street)
3. Emily Street Signals
4. Banfield Street Signals
5. Homestead Road Signals
6. St. George Street Connection
7. East Sidewalk – St. Patrick Street to Silver Street
8. West Sidewalk – Capron Street to Silver Street
9. Paris Links Road Cul-de-sac
10. Home Hardware Site Layout
11. Silver Street Interim Signals
12. Trillium Way/Bradbury Crescent Intersection (Shell)
13. Silver Street Pedestrian Crossovers

9.1 Refinement 1: Grand River Street North and William Street Intersection Design

The southern leg of the Grand River Street North and William Street intersection was modified to match the Recommended Design identified in the Downtown Paris Master Plan.

9.2 Refinement 2: Additional Parking on Grand River Street North (south of Charlotte Street)

The right-of-way along Grand River Street North (south of Charlotte Street) was widened to create additional parking spaces on Grand River Street North. The additional parking allowed for a reduction in the number of spaces at Kings Ward Park and maintained the overall supply of parking in Downtown Paris.

9.3 Refinement 3: Emily Street Signals

The midblock pedestrian signal at Emily Street was evaluated (see **Figure 63**) to determine if it should be converted into a signalized intersection. This evaluation also considered signalization of Banfield Street and Homestead Road (see **Section 9.4** and **Section 9.5**). Based on intersection spacing, it is not recommended to signalize Emily Street. The existing mid-block pedestrian signals are recommended to remain. The analysis and evaluation of the 3 alternatives is in **Table 26**.

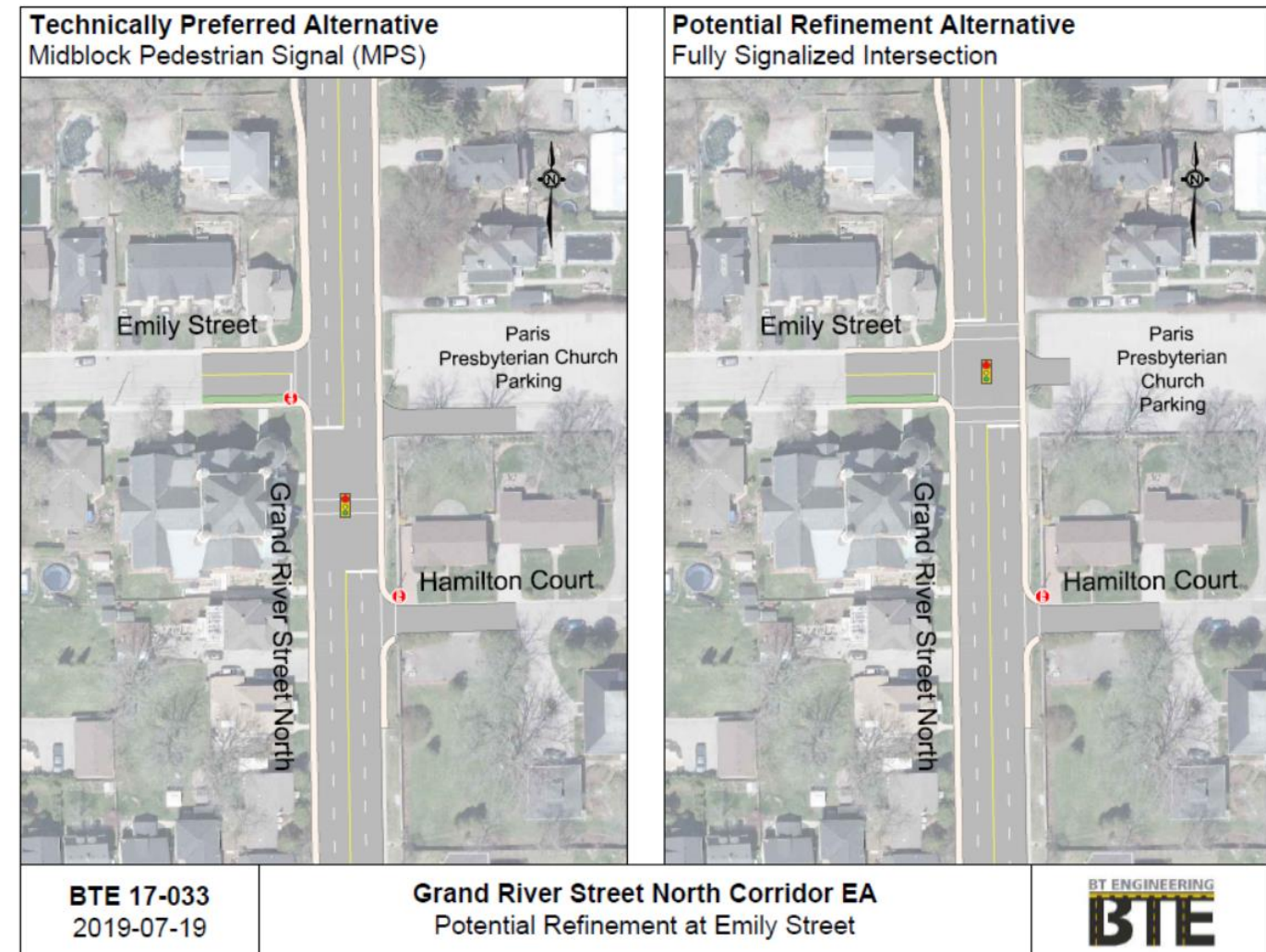


Figure 63: Refinement 3 – Emily Street Signal Alternatives

9.4 Refinement 4: Banfield Street Signals

The Banfield Road intersection was evaluated to consider signalization (see **Figure 64**). The addition of signals at Banfield Street would eliminate the conversion to a one-way street, providing an opportunity for vehicles to safely turn right onto Grand River Street North. This alternative also provides pedestrians an opportunity to safely cross Grand River Street North before the sidewalk ends at the CN Rail bridge, and has desirable intersection spacing. Signalization of Banfield Street is recommended.

This evaluation also considered signalization of Emily Street and Homestead Road (see **Section 9.3** and **Section 9.5**). The analysis and evaluation of the 3 alternatives is shown in **Table 26**.

9.5 Refinement 5: Homestead Road Signals

The pedestrian signal at Homestead Road (see **Figure 65**) was evaluated to determine if it should be converted into a signalized intersection. This evaluation also considered signalization of Emily Street and Banfield Street (see **Section 9.3** and **Section 9.4**). Based on intersection spacing, it is not recommended to signalize Emily Street. The existing pedestrian signals are recommended to remain. The analysis and evaluation of the 3 alternatives is shown in **Table 26**.



Figure 64: Refinement 4 – Banfield Street Intersection Refinement



Figure 65: Refinement 5 – Homestead Road Signal Alternatives

Table 26: New Signalized Intersection Alternatives

Evaluation Criteria	Description	Signalized Intersection at Emily Street		Signalized Intersection at Banfield Road		Signalized Intersection at Homestead Road	
Transportation							
Active Transportation	Accommodate cyclists and pedestrians on GRSN corridor	<input type="radio"/>	No change. There is an existing pedestrian crossing immediately south of the Emily Street intersection.	<input checked="" type="radio"/>	Provides an additional crossing of Grand River Street North for pedestrians and cyclists. Allows for pedestrians to cross before the east sidewalk ends at the rail crossing.	<input type="radio"/>	No change. There is an existing pedestrian crossing at the Homestead Road intersection.
Vehicular	Safely accommodates future traffic demands.	<input checked="" type="radio"/>	Improves safety for vehicles turning from Emily Street. Desirable spacing between signalized/roundabout controlled intersections is 400 m.	<input checked="" type="radio"/>	Improves safety for vehicles turning from Banfield Road. There is limited visibility at this location, and vehicles cannot safely turn without a traffic signal. Desirable spacing between signalized/roundabout controlled intersections is 400 m. This location is preferred for signalization.	<input checked="" type="radio"/>	Improves safety for vehicles turning from Homestead Road. Desirable spacing between signalized/roundabout controlled intersections is 400 m.
Regional Mobility	Mobility across the region	<input type="radio"/>	No Change	<input type="radio"/>	No Change	<input type="radio"/>	No Change
Environmental Impact							
Natural	Impacts to adjacent natural environment	<input type="radio"/>	No Change	<input type="radio"/>	No Change	<input type="radio"/>	No Change
Social	Community disruption, residential land acquisition, safety of school zones	<input type="radio"/>	No Change	<input type="radio"/>	No Change	<input type="radio"/>	No Change
Heritage	Area of Heritage land required	<input type="radio"/>	No Change	<input type="radio"/>	No Change	<input type="radio"/>	No Change
Land Use and Property							
Land Use and Property	Integration with existing and future land use planning	<input checked="" type="radio"/>	Minor impacts to the parking lot access east of Emily Street (realignment of the existing entrance).	<input type="radio"/>	No Change	<input type="radio"/>	No Change
Cost							
Construction Cost	Total cost to construct proposed roadway	<input checked="" type="radio"/>	Minor Cost	<input checked="" type="radio"/>	Minor Cost	<input checked="" type="radio"/>	Minor Cost
Preliminary Preferred Alternative		A signalized intersection at this location does not provide desirable intersection spacing, and does not provide improvements for vehicular movements. This refinement is not recommended to be carried forward. It is recommended that the existing pedestrian crossing be maintained. x		This alternative provides the desirable intersection spacing. It provides vehicles the opportunity to safely turn right onto Grand River Street North and removes the need to create a one-way street. It also provides an opportunity for pedestrians to cross the street before the east sidewalk ends at the rail crossing. This refinement is recommended to be carried forward. ✓		A signalized intersection at this location does not provide desirable intersection spacing, and does not provide improvements for vehicular movements. This refinement is not recommended to be carried forward. It is recommended that the existing pedestrian crossing be maintained. x	

9.6 Refinement 6: St. George Street Connection

The St. George Street intersection was evaluated to determine if it could be realigned to tee into St. Patrick Street. Three alternatives were generated and evaluated for this intersection. Three (3) alternatives were developed and are illustrated in **Figure 66** to **Figure 68**.

Alternative 1 is recommended to be carried forward for long-term property protection as a part of the Recommended Plan. It requires the least amount of property acquisition and minimal impact to the natural and cultural environment. The realignment provides improved access for residents and increases safety for vehicles travelling to/from Grand River Street North.

Long-term property protection is recommended for these improvements; however, these intersection improvements will not be implemented until property acquisition is from a willing seller or the property comes up for sale.

The analysis and evaluation of these alternatives is in **Table 27**.



Figure 66: Refinement 6 – St. George Street Connection Alternative 1



Figure 67: Refinement 6 – St. George Street Connection Alternative 2

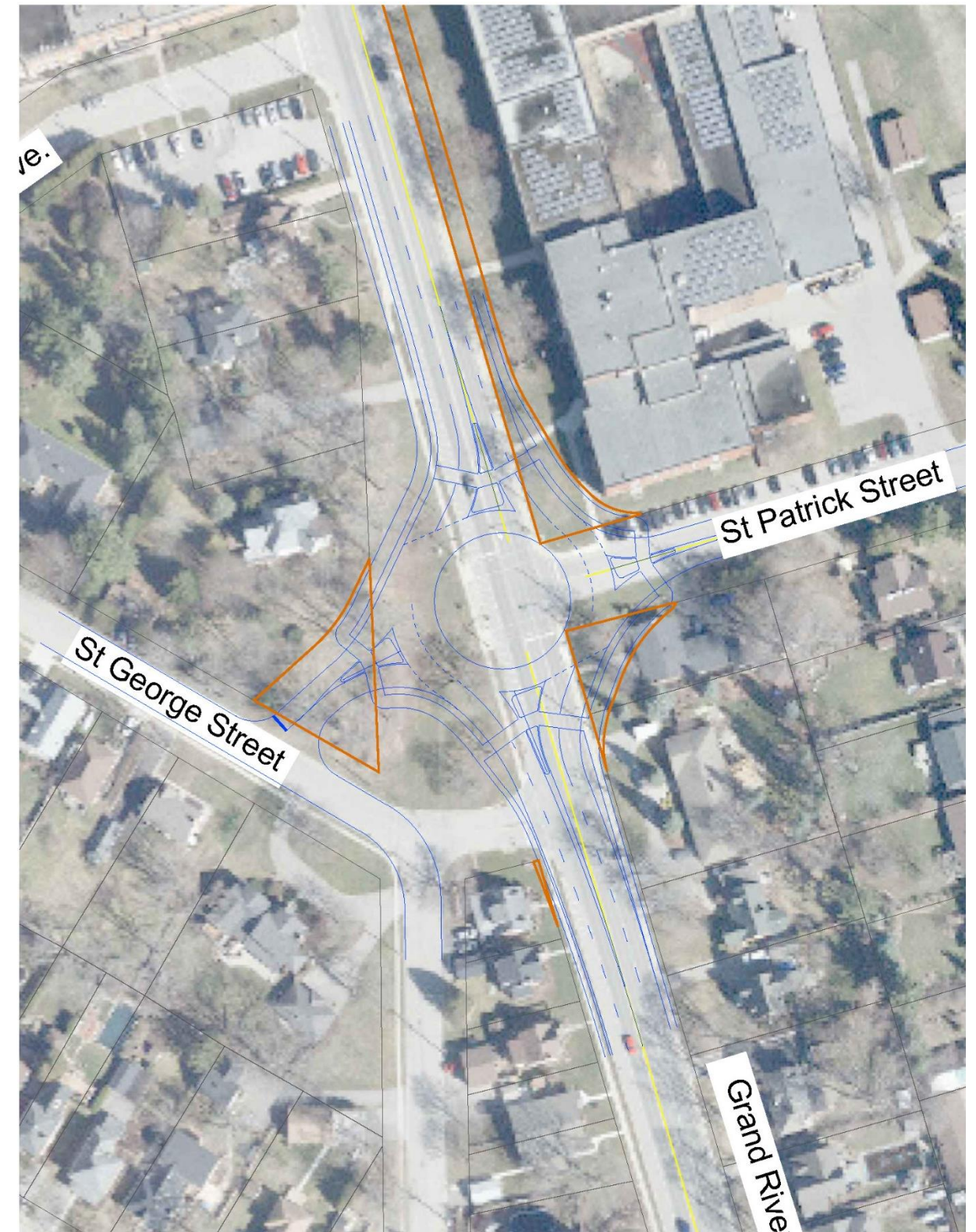


Figure 68: Refinement 6 – St. George Street Connection Alternative 3

Table 27: St. George Street Connection									
Evaluation Criteria	Description	Do Nothing		Alternative 1: Link to St. George Street		Alternative 2: Realigned St. George Street and St. Patrick Street extension		Alternative 3: Roundabout	
Transportation									
Active Transportation	Accommodate cyclists and pedestrians on GRSN corridor		The existing St. George Street intersection location does not provide a crossing for pedestrians/cyclists.		Removes the offset intersection to accommodate pedestrians and cyclists at the signalized intersection.		Removes the offset intersection to accommodate pedestrians and cyclists at the signalized intersection.		Removes the offset intersection to accommodate pedestrians and cyclists at the signalized intersection.
Vehicular Transportation	Safely accommodates future traffic demands.		The offset intersection at St. George Street and St. Patrick Street increases the potential for collisions.		Removes the offset intersection and improves safety. Improves access to the adjacent community.		Removes the offset intersection and improves safety. Improves access to the adjacent community.		Removes the offset intersection and improves safety. Improves access to the adjacent community.
Regional Mobility	Mobility across the region		No change.		Improves access to St. George Street.		Improves access to St. George Street.		Improves access to St. George Street.
Environmental Impact									
Natural	Impacts to adjacent natural environment		No change.		St. George Street link requires removal of a few mature trees.		Road extension requires removal of a few mature trees.		Roundabout requires removal of several mature trees.
Social	Community disruption, residential land acquisition, safety of school zones		No change.		Improves access to community west of the intersection. Land acquisition required from property owners. Opportunities for landscaping on remnant lands		Improves access to community west of the intersection. Major and acquisition required from property owners. Opportunities for landscaping on remnant lands		Improves access to community west of the intersection. Major land acquisition required from property owners and Paris District High School. Opportunities for landscaping on remnant lands
Heritage	Area of Heritage land required		No change.		No change.		No change.		No change.
Land Use and Property									
Land Requirement	Integration with existing and future land use planning		No change.		Requires moderate property acquisition from 230 Grand River Street North.		Requires extensive property acquisition from 230 Grand River Street North.		Requires property acquisition from several residential properties, the Paris District High School and demolition of 227 Grand River Street North.
Cost									
Construction Cost	Total cost to construct proposed roadway		No change.		Low Cost		Medium Cost		High Cost
Preliminary Preferred Alternative		Not recommended to be carried forward. Does not provide safety or operational improvements for vehicles, pedestrians or cyclists. *		Recommended to be carried forward. Provides an alternate and safer access to Grand River Street North. ✓		Not recommended to be carried forward. This alternative provides equivalent benefits to Alternative B but has a larger impact on the natural environment and property owners. *		Not recommended to be carried forward due to property impacts. *	

9.7 Refinement 7: East Sidewalk – St. Patrick Street to Silver Street

The east sidewalk from St. Patrick Street to Silver Street was modified to remove the 1.0 m boulevard and multi-use path and widen the existing curb face sidewalk to 1.8 m. This will reduce sliver widenings through this section of Grand River Street North.

9.8 Refinement 8: West Sidewalk – Capron Street to Silver Street

The west sidewalk from Capron Street to Silver Street was modified to remove the 1.0 m boulevard and multi-use path and widen the existing curb face sidewalk to 1.8 m. This will reduce the sliver widenings through this section of Grand River Street North.

9.9 Refinement 9: Paris Links Road Cul-de-Sac

The cul-de-sac at the end of Paris Links Road (as illustrated on the TPA in **Figure 69**) is on land owned by Paris Grand Estates (PGE). Based on feedback from PGE, in support of maintaining the connection between Paris Links Road and West River Road, additional alternatives were evaluated. These included:

- Alternative A: Cul-de-sac as shown on the TPA at PIC No. 2
- Alternative B: Shifted cul-de-sac on County property (see **Figure 70**)
- Alternative C: Maintain the road connection between Paris Links Road and West River Road. This connection would include a smaller right-of-way and raised crosswalk, and would prohibit turning during peak hours to encourage drivers to slow down and limit shortcutting through the nearby neighborhood (see **Figure 71**).

The analysis and evaluation of these alternatives is in **Table 28**.

Maintaining a road connection between Paris Links Road and West River Road would negatively impact the social environment (disruption to existing community). Maintaining the link is not required as access will be provided via West River Road to the wider transportation network.



Figure 69: Alternative A - Cul-de-sac shown at PIC No. 2



Figure 70: Alternative B – Shifted Cul-de-sac

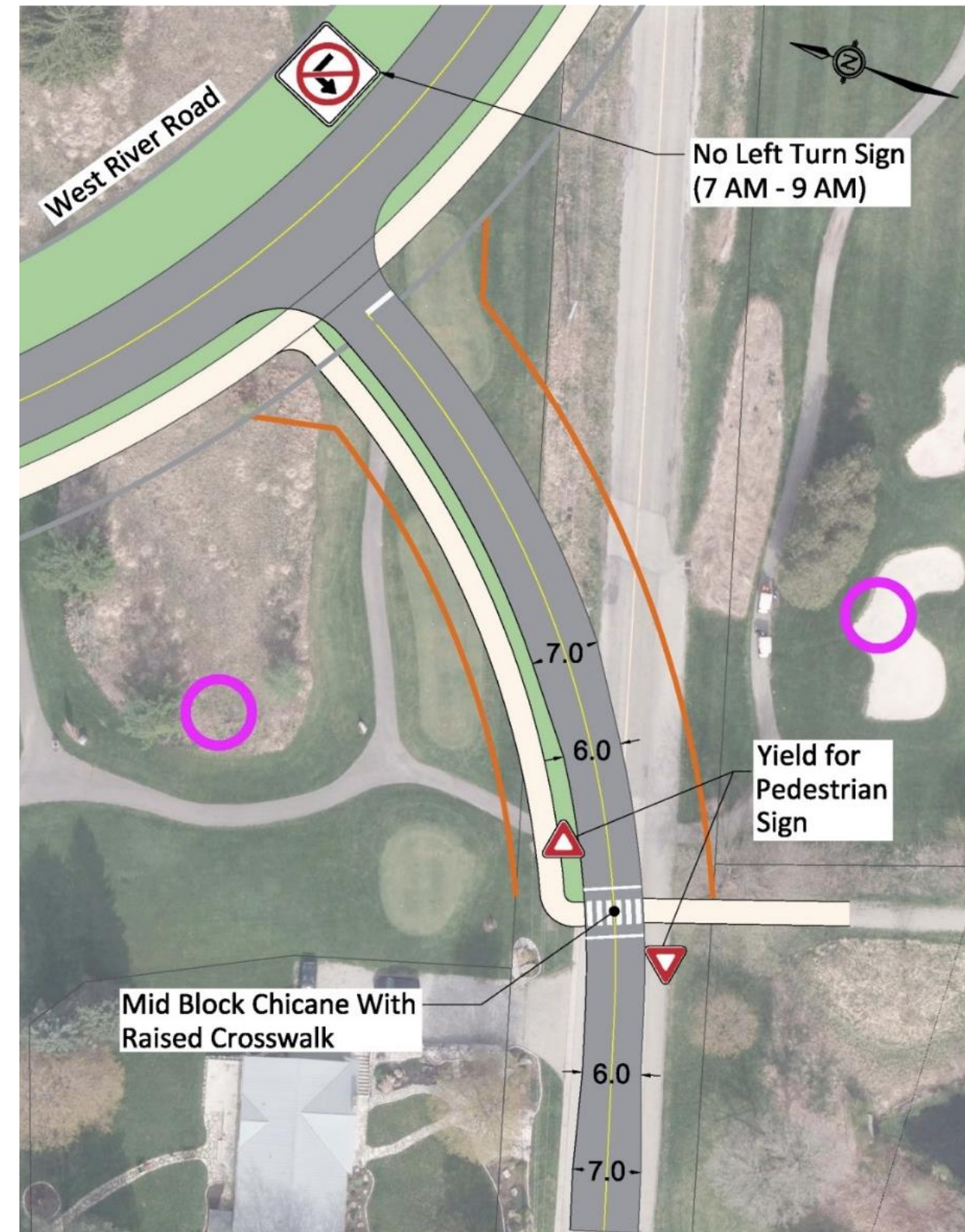


Figure 71: Alternative C – West River Road/Paris Links Road Connection

Table 28: Refinement 9: Cul-de-sac Alternatives

Evaluation Criteria	Description	Alternative A: Cul-de-sac TPA		Alternative B: Shifted Cul-de-sac		Alternative C: Road connection with narrow right-of-way, raised crosswalk and no turning during peak hours	
Transportation							
Vehicular	Safely accommodates future traffic demands.		Removes additional connection to Grand River Street North, and forces vehicles to access the Paris Grand Estate neighbourhood using West River Road. This will eliminate vehicles shortcutting through the Bayly Drive neighbourhood.		Removes additional connection to Grand River Street North, and forces vehicles to access the Paris Grand Estate neighbourhood using West River Road. This will eliminate vehicles shortcutting through the Bayly Drive neighbourhood.		Provides alternate access to Grand River Street North and County road network. This connection would restrict certain movements to discourage drivers shortcutting through the Bayly Drive neighbourhood.
Active Transportation	Accommodate cyclists and pedestrians.		Provides multi-use pathway connections separated from vehicular traffic		Provides multi-use pathway connections separated from vehicular traffic		Requires cars to yield to pedestrians and provides raised crosswalk for increased safety
Regional Mobility	Mobility across the region		No impact		No impact		No impact
Environmental Impact							
Natural	Impacts to adjacent natural environment		No impact		No impact		No impact
Social	Community disruption, residential land acquisition, safety of school zones		Prevents through traffic reducing traffic disruption.		Prevents through traffic reducing traffic disruption.		Allows for cars to go through the Bayly Drive increasing noise and disruption.
Heritage	Area of Heritage land required		No Change		No Change		No Change
Land Use and Property							
Impact to Paris Grand Estates	Integration with existing and future land use planning		Would require some property from Paris Grand Estates.		Requires no property from Paris Grand Estates. The cul-de-sac and realigned driveway were shifted onto property owned by the County to avoid property impacts.		
Cost							
Construction Cost	Total cost to construct proposed roadway		Moderate cost.		Moderate cost.		Moderate cost.
Preliminary Preferred Alternative		Not recommended to be carried forward.		Recommended to be carried forward. This alternative will improve the local social environment, does not impact the land of Paris Grand Estates and provides safer connections for active transportation users.		Not recommended to be carried forward. This alternative disrupts the local community and the social environment. Although it provides an additional connection to the local road network and Grand River Street North, it is unnecessary due to the connection provided by West River Road.	

9.10 Refinement 10: Home Building Centre Site Layout

Existing customer parking at the Home Building Centre, located at 246 Grand River Street North, is within the County's right-of-way. To accommodate the Technically Preferred Alternative, the Home Building Centre site will need to be reconfigured. Three (3) alternatives were developed with a new parking lot and pick-up lane, and a variable truck access lane behind the building (see **Figure 72**, **Figure 73** and **Figure 74**).

Alternative/Option 1 is carried forward to minimize the impact on nearby properties.

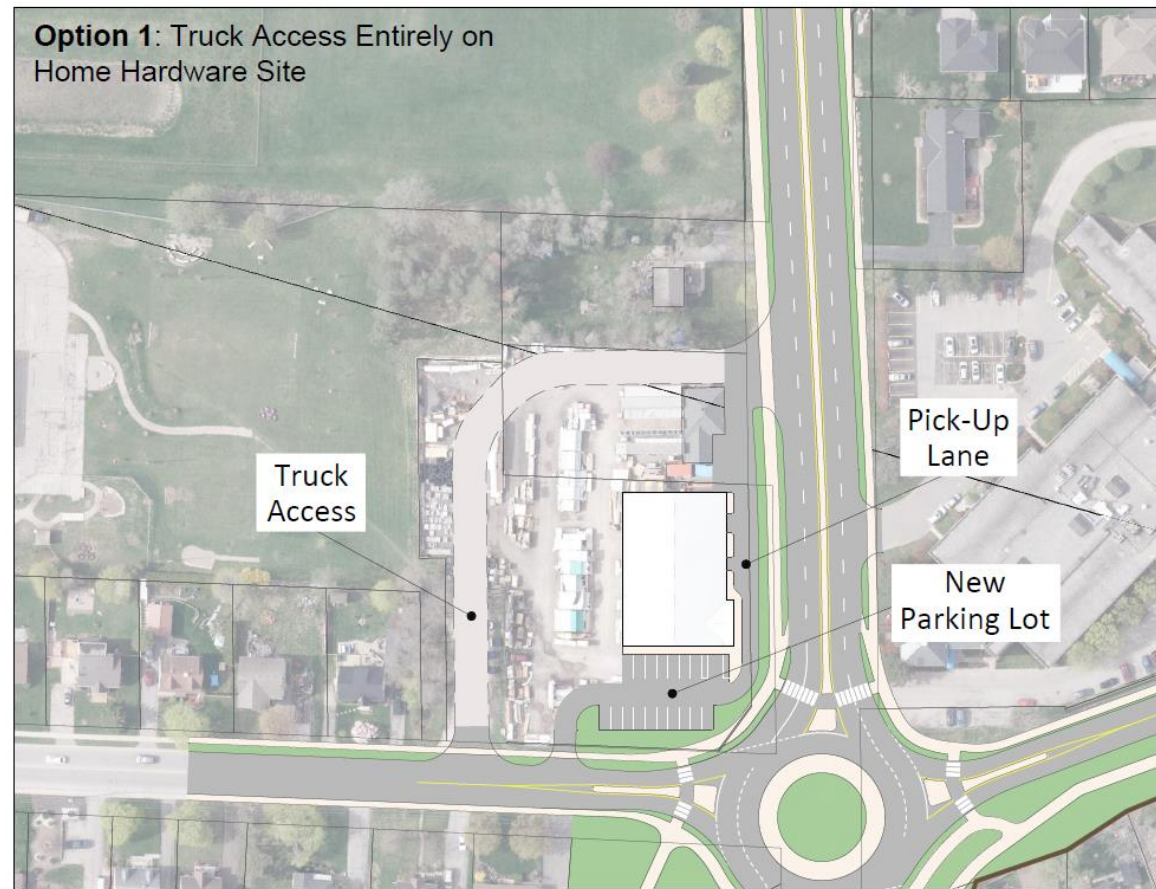


Figure 72: Refinement 10 – Home Building Centre Option 1

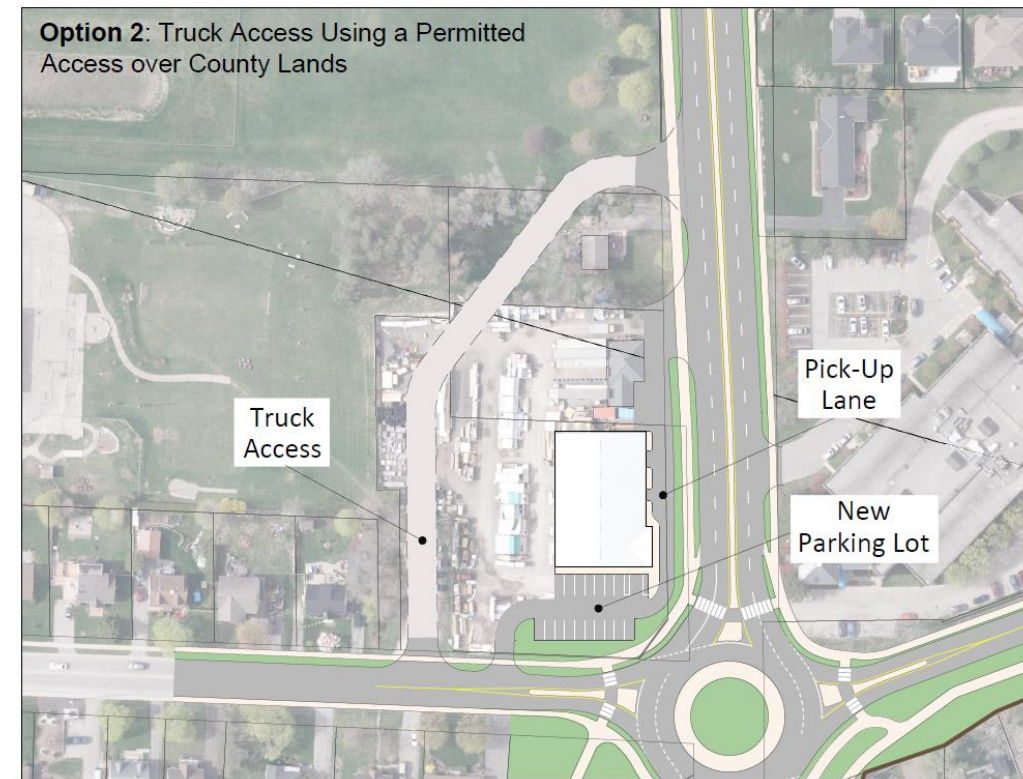


Figure 73: Refinement 10 – Home Building Centre Option 2

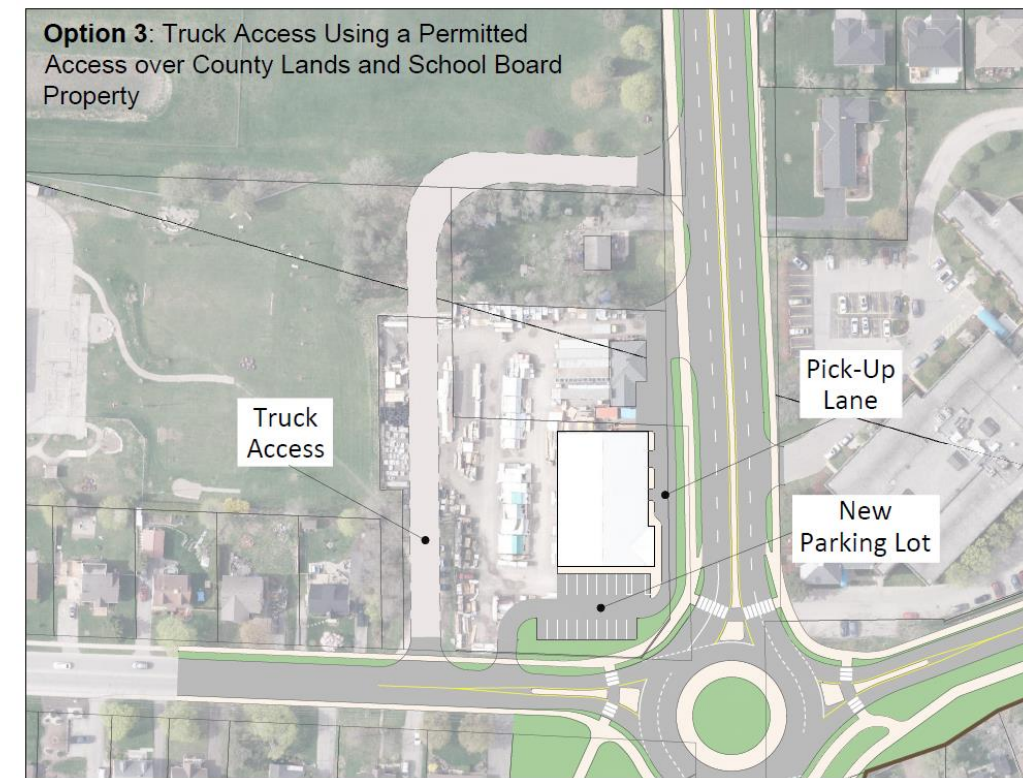


Figure 74: Refinement 10 – Home Building Centre Option 3

9.11 Refinement 11: Silver Street Interim Signals

Based on the evaluation completed for the Silver Street/ West River Road intersection with Grand River Street North, a roundabout is recommended for protection as a long-term infrastructure project when warranted. It is recommended that the initial phase of the intersection be signalized (see **Figure 75**) which allows for reconfiguration to a roundabout when required by traffic operations. The signals will be constructed to fit within the footprint of the roundabout design. A full signalized intersection with opposing left-turn lanes would require more property than the recommended design.

Construction of West River Road is expected to be initiated before the widening of Grand River Street North. Upon the road's construction, the intersection at Grand River Street North and Silver Street/West River Road will be signalized. When Grand River Street North is widened, the intersection at Silver Street/West River Road and Grand River Street North is recommended to be converted to a roundabout.



Figure 75: Interim Signalization at Silver Street and Grand River Street North

9.12 Refinement 12: Trillium Way/Bradbury Crescent Intersection (Shell Gas Station)

Alternatives were developed at the Trillium Way/Bradbury Crescent intersection to minimize property impacts. Two (2) alternatives were generated that required reconfiguration of the Shell Gas Station property (see **Figure 76** and **Figure 77**) and the third alternative shifted the roundabout to the west (see **Figure 78**). Reconfiguration of the gas station was determined not to be feasible because of the limited space, required approvals from TSSA and resulting costs. **Alternative 3** is recommended to be carried forward as part of the Recommended Plan.

9.13 Refinement 13: Silver Street Pedestrian Crossings

Pedestrian/cyclist safety enhancements at the long-term Silver Street/West River Road and Grand River Street North roundabout are recommended. These will include the use of crossing guards and pedestrian crossover lights to notify vehicles using the roundabout of a pedestrian to reduce the risk of a collision.

It is recommended that crossing guards be stationed at each crossing of the intersection, regardless of the type of intersection implemented.

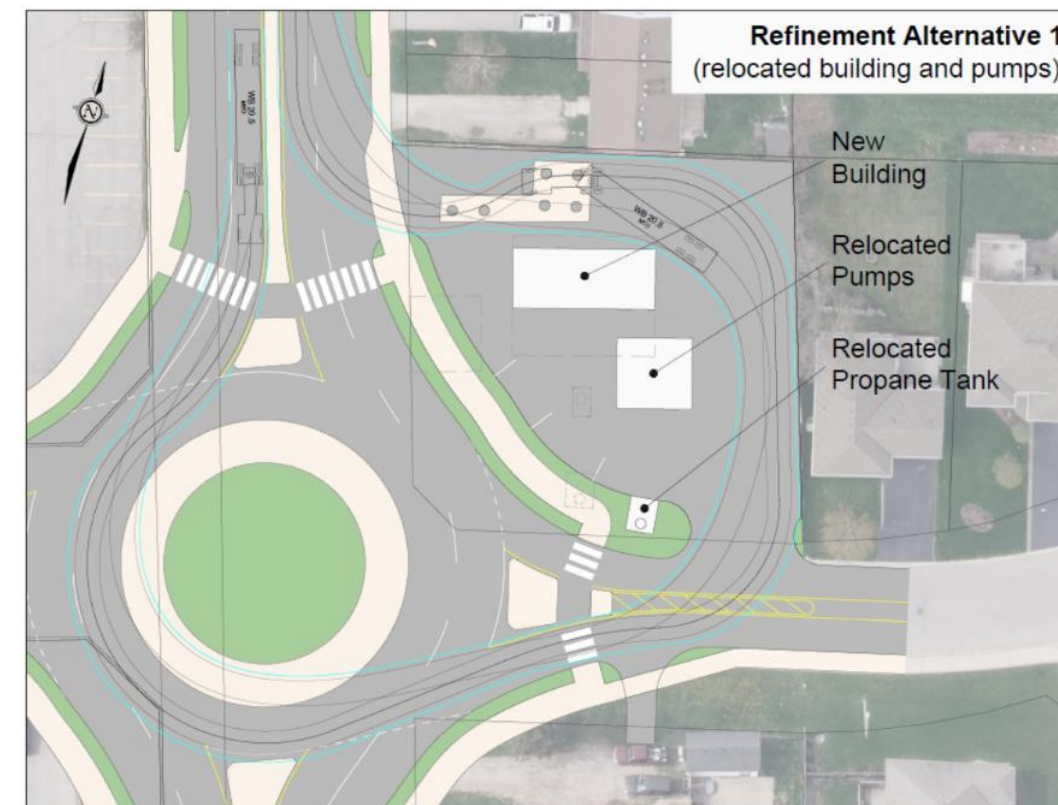


Figure 76: Refinement Alternative A – Shell Gas Station Relocation 1

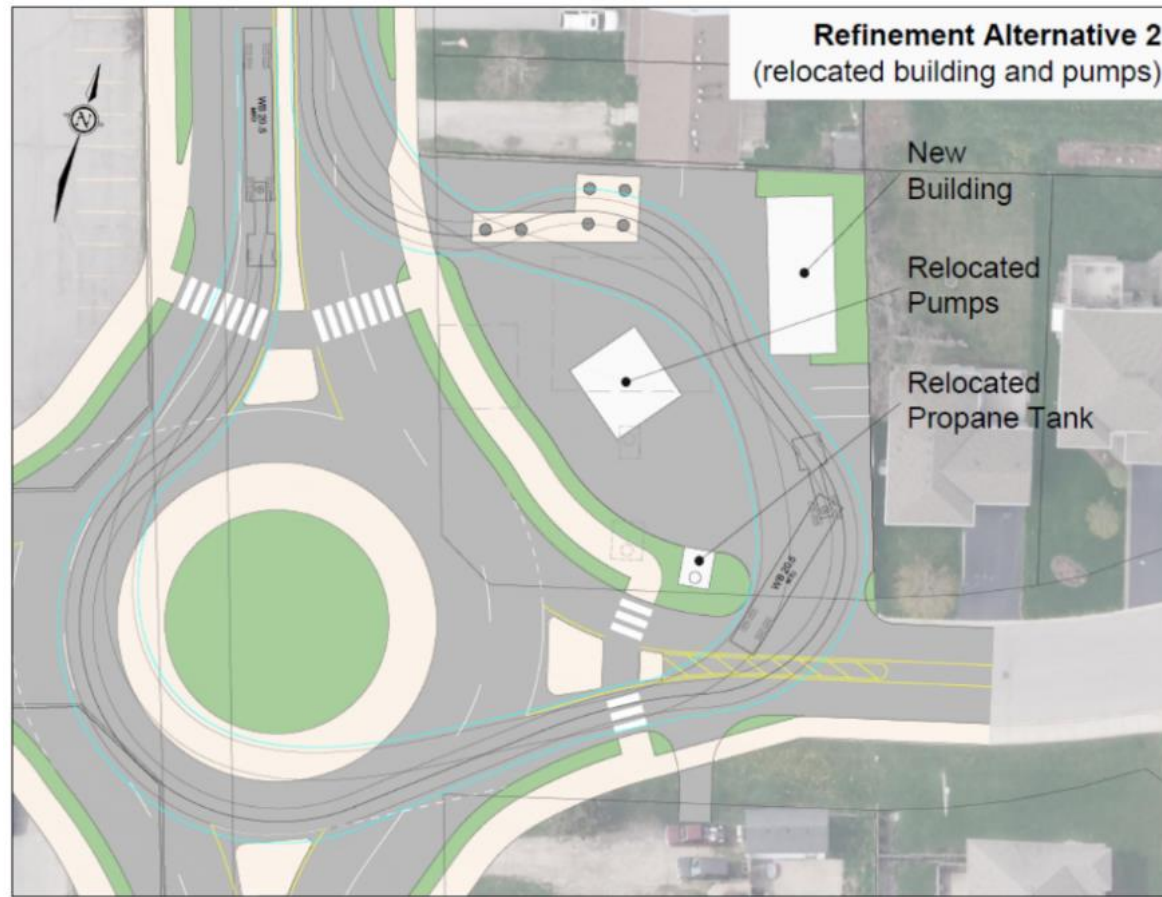


Figure 77: Refinement Alternative B - Shell Gas Relocation 2



Figure 78: Refinement Alternative C – Shifted Roundabout

10.0 RECOMMENDED PLAN

The Grand River Street North Recommended Plan includes:

- Operational improvements to Grand River Street North including:
 - Provision of a 4-lane cross section
 - Roundabouts at applicable intersections to improve traffic flow and safety
 - A new road within the right-of-way of the old railway corridor
 - A new traffic signal at the intersection with Banfield Street, to provide a safe opportunity for vehicles to turning onto Grand River Street North and better accommodate pedestrian crossings
 - A left-turn only lane and through lane at William Street/Grand River Street North Intersection, extending the existing left-turn lane to improve traffic flow
 - Long-term property protection for the extension of St. Patrick Street to St. George Street
- Active Transportation improvements including:
 - North of Silver Street - widening the right-of-way, improving safety and separation of modes to include (where applicable):
 - 1.0 m boulevard
 - 2.0 m sidewalk
 - 3.0 m multi-use path for cyclists and pedestrians
 - Creating a new trail along the old railway corridor
 - Property protection for a multi-use grade separation to improve connectivity to new railway corridor trail and planned Capron Street multi-use trail and provide additional aesthetic green space. Implementation of the grade separation is not included as part of this study and would require further study.
 - Statement of flexibility for long-term property protection for the re-alignment of west sidewalk behind the abutment of the CN bridge to provide a wider path for accessibility and various modes of active transportation. Implementation of the pedestrian tunnel is not included as part of this study and would require further study.
- Changes to Parking:
 - Modification of angled parking to parallel parking on Grand River Street North, north of William Street
 - Removal of parallel parking on the west side of Grand River Street North
 - Addition of parking along Kings Ward Park
 - Addition of parking north of William Street on the east side of Grand River Street North
- Removing the connection between Woodslee Avenue and Grand River Street North and adding a parallel street to connect Woodslee Avenue with Hartley Avenue
- Cul-de-sac at the end of existing Paris Links Road to prevent increased vehicle traffic cutting through the existing neighbourhood

The Recommended Plan is illustrated on the Plates in **Section 13.0**.

10.1 Active Transportation

The Recommended Plan includes Active Transportation improvements including the construction of boulevards, sidewalks and multi-use paths to improve safety and separate transportation (i.e. vehicular traffic, pedestrians and cyclists). The implementation of active transportation facilities helps to promote a healthy, prosperous and sustainable community and a safe, accessible and integrated transportation system. Cycling, walking and other active modes of transportation offer an opportunity to become physically active while completing travel trips that may otherwise have relied on an automobile. Additional benefits of active transportation include:

- Opportunities to promote eco-tourism in support of area businesses;
- Healthier lifestyles as increased physical activity leading to a significant improvement in several health indicators; and
- Decreased emissions of greenhouse gases with a reduced reliance on motor vehicles.

10.2 Statement of Flexibility

The Recommended Plan contains key features with flexibility for refinements during detailed design which are summarized in the following sections.

10.2.1 Parking at Kings Ward Park

Modifications to the parking along Grand River Street North are recommended to improve traffic flow and safety near the south boundary of the Study Area. Additional parking has been added along the boundary of Kings Ward Park and Grand River Street North (south of Charlotte Street).

However, if the ongoing Downtown Paris Master Plan addresses the loss of parking spaces, the parking along Kings Ward Park and Grand River Street North can be removed from the Recommended Plan.

10.2.2 Active Transportation under the CN Rail

This ESR recommends long-term property protection for a future multi-use path behind the existing CN Rail abutment as an alternative to the existing sidewalk. Implementation of the multi-use path will require further study and is not included as part of this plan.

10.2.3 Active Transportation under Silver Street

This ESR recommends property protection for a future grade-separated crossing at Silver Street/Grand River Street North (see **Figure 79**). Implementation of this crossing will require further study and is not included as part of this plan.



Figure 79: Grade Separated Pedestrian Crossing Example

10.2.4 Land Development Capacity Threshold

This ESR recommends flexibility for the development capacity threshold to be re-evaluated based on changes in driver behaviour, travel characteristics and development plans. Development in north Paris will be limited to 700 dwelling units until a bypass is constructed or until the County of Brant is satisfied that traffic patterns or demands have changed sufficiently to allow the traffic that would be generated by additional development to be accommodated.

10.3 Preliminary Cost Estimate

The preliminary cost estimate in **Table 29** for the Grand River Street North Improvements is in 2019 dollars and does not include HST. This is a preliminary estimate and will be refined during detailed design.

Table 29: Technically Preferred Alternative Cost Estimate				
General				
Item	Quantity	Unit	Unit Cost	Total
General	1	LS	\$350,000.00	\$350,000.00
Traffic Staging	1	LS	\$300,000.00	\$300,000.00
Subtotal				\$650,000.00
Civil / Roadworks				
Road Works	1	LS	\$7,000,000.00	\$7,000,000.00
Contamination Remediation	1	LS	\$1,000,000.00	\$1,000,000.00
Subtotal				\$8,000,000.00
Utilities				
Storm Sewer	1	LS	\$3,000,000.00	\$3,000,000.00
Storm Water Management Facilities	3	ea	\$250,000.00	\$750,000.00
Traffic Signals	1	LS	\$400,000.00	\$400,000.00
Street Lighting	1	LS	\$1,000,000.00	\$1,000,000.00
Watermain Allowance		m		
Sanitary Sewer Allowance		m		
Utility Relocation	1	LS	\$250,000.00	\$250,000.00
Subtotal				\$5,400,000.00
Property				
Property	1	LS	\$7,000,000.00	\$7,000,000.00
Summary				
Total				\$21,050,000.00
Contingency (25%)				\$5,262,500.00
Engineering (15%)				\$3,157,500.00
Landscaping (3%)				\$631,500.00
Grand Total (2019 dollars)				\$30,101,500.00

- i) Excludes allowance for municipal water and sanitary sewer replacement or rehabilitation
- ii) Parametric pricing based on 2019 Rest Acres Road Tender

11.0 RECOMMENDED PLAN EFFECTS, MITIGATION MEASURES AND COMMITMENTS TO FUTURE WORK

Key issues and commitments to future work have been identified and are summarized in **Table 30**.

Identified mitigation measures reflect the results of individual meetings with property owners and commitments by the County of Brant to mitigate environmental effects. Effects on the environment were considered in accordance with the Municipal Class EA process.






Table 30: Summary of Issues, Proposed Mitigation and Commitments to Future Work			
No.	Issue	Refinement/Mitigation Plan	Commitments
1	Property Impacts		
1.1	139 Grand River Street North 	Property acquisition is required north of the commercial building at 139 Paris Links Road to accommodate additional parking spaces. This parking may not be implemented if the parking supply is addressed by the Downtown Paris Master Plan (see Statement of Flexibility).	Property owners will be compensated at fair market value. Existing structures and mature trees (where possible) will be protected or replaced.
1.2	7 Broadway Street East (Paris Central Elementary School) 	Property acquisition is required from the northeast corner of the Paris Central Elementary School to accommodate additional parking spaces. This parking may not be implemented if the parking supply is addressed by the Downtown Paris Master Plan (see Statement of Flexibility).	Property owners will be compensated at fair market value. Existing sports fields and mature trees (where possible) will be protected or replaced.
1.3	200 Grand River Street North 	Sliver widening is required across the front of 200 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.4	202 Grand River Street North 	Sliver widening is required across the front of 202 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.5	221 Grand River Street North 	Sliver widening is required across the front of 221 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.

Table 30: Summary of Issues, Proposed Mitigation and Commitments to Future Work







No.	Issue		Refinement/Mitigation Plan	Commitments
1.6	223 Grand River Street North		Sliver widening is required across the front of 223 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.7	225 Grand River Street North		Sliver widening is required across the front of 225 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.8	227 Grand River Street North		Sliver widening is required across the front of 227 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.9	230 Grand River Street North		Property acquisition required for the St. Patrick Street connection to St. George Street.	<p>Long-term property protection is recommended at this location for the extension of St. Patrick Street to St. George Street. Intersection improvements and property acquisition will be deferred until the homeowner is a willing seller or the property comes up for sale. At a future date, property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.</p> <p>To mitigate the future loss of vegetation resulting from construction, advance planting of new trees along the future extension is recommended (with home owner approval).</p>
1.10	231 Grand River Street North (Paris District High School)		Sliver widening is required across the front of 231 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.11	233 Grand River Street North		Sliver widening is required across the front of 233 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.

Table 30: Summary of Issues, Proposed Mitigation and Commitments to Future Work





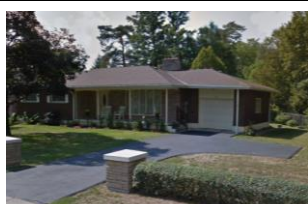

No.	Issue		Refinement/Mitigation Plan	Commitments
1.12	235 Grand River Street North		Sliver widening is required across the front of 235 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.13	237 Grand River Street North		Sliver widening is required across the front of 237 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.14	239 Grand River Street North		Sliver widening is required across the front of 239 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.15	240 Grand River Street North		Sliver widening is required across the front of 240 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.16	242 Grand River Street North		Sliver widening is required across the front of 242 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.17	8 Silver Street		Property acquisition is required from 8 Silver Street to accommodate the proposed interim signalization and ultimate roundabout at the Silver Street/Grand River Street North intersection.	Property owners will be compensated at fair market value.

Table 30: Summary of Issues, Proposed Mitigation and Commitments to Future Work







No.	Issue	Refinement/Mitigation Plan	Commitments
1.18	6 Paris Links Road 	Impacts to property resulting from construction of West River Road and the proximity of the roundabout at Grand River Street North and West River Road.	Mitigation will include: construction of a noise barrier within the County's ROW to maximize available land at 6 Paris Links Road; and planting new trees.
1.19	Girl Guides Camp (Camp Tekahionwake) 	The entrance to the Girl Guide Camp will be modified following construction of the West River Road extension.	A driveway access will be provided on West River Road to the Girl Guides Camp. Two wells are located on the Girl Guides property within 500 m of the project (Well ID 1301380 and 1304573). The County will monitor the wells post construction.
1.20	245 Grand River Street North (Telfer Place) 	Sliver widening is required across the front of 245 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.21	246 Grand River Street North (Home Building Centre) 	Property acquisition is required from 246 Grand River Street North to accommodate the proposed interim signalization and ultimate roundabout at the Silver Street/Grand River Street North intersection, and road widening of Grand River Street North. The current site layout has parking located within the County's right-of-way.	The site will be reconfigured to accommodate the proposed infrastructure. This will include construction of a truck access lane behind the building connecting to Silver Street. The site configuration (on private property) is subject to change based on consultation between the County and property owner. Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.22	170 Trillium Way 	Property acquisition is required from 170 Trillium Way to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced. The loss of parking supplies will be offset by replacement parking based on consultation between the County and property owner.
1.23	275 Grand River Street North 	Property acquisition is required from 275 Grand River Street North to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.

Table 30: Summary of Issues, Proposed Mitigation and Commitments to Future Work







No.	Issue		Refinement/Mitigation Plan	Commitments
1.24	279 Grand River Street North (Shell Gas Station)		Property acquisition is required from 279 Grand River Street North to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.25	280/300 Grand River Street North		Property acquisition is required from 280/300 Grand River Street North to accommodate the proposed roundabout and road widening.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.26	304 Grand River Street North (Tim Hortons)		Sliver widening is required across the front of 304 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.27	308 Grand River Street North (Plaza)		Sliver widening is required across the front of 308 Grand River Street North to accommodate the road widening and sidewalk.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.28	315 Grand River Street North (Sobeys)		Property acquisition is required from 315 Grand River Street North to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.29	2 Scott Avenue (Advance Printing)		Property acquisition is required from 2 Scott Avenue to accommodate the proposed roundabout and road widening.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.

Table 30: Summary of Issues, Proposed Mitigation and Commitments to Future Work







No.	Issue		Refinement/Mitigation Plan	Commitments
1.30	321 Grand River Street North		Property acquisition is required from 321 Grand River Street North to accommodate the proposed roundabout and road widening.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.31	326 Grand River Street North (Plaza)		Property acquisition is required from 326 Grand River Street North to accommodate the proposed roundabout and road widening.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.32	334 Grand River Street North (Truck Yard)		Sliver widening is required from 334 Grand River Street North to accommodate the road widening and Woodslee Avenue cul-de-sac. Site access will also be modified because of the cul-de-sac at the end of Woodslee Avenue. Trucks accessing the site will have to use the intersection at Hartley Avenue/Grand River Street North.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.33	340 Grand River Street North		Property acquisition is required from 340 Grand River Street North to accommodate the proposed new road connecting Woodslee Avenue to Hartley Avenue.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.34	191 Pinehurst Road		Sliver widening is required across the front of 191 Pinehurst Road to accommodate the road widening.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.35	777 Watts Pond Road		Property acquisition is required from 777 Watts Pond Road to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.

Table 30: Summary of Issues, Proposed Mitigation and Commitments to Future Work


No.	Issue	Refinement/Mitigation Plan	Commitments
1.36	793 Watts Pond Road 	Property acquisition is required from 793 Watts Pond Road to accommodate the proposed roundabout.	Property owners will be compensated at fair market value. Mature trees will be protected (where possible) or replaced.
1.37	Vicano Development	Land is required from the Vicano Development for road widening along Grand River Street North.	To be addressed as part of the site plan agreement.
1.38	Brookfield Development	Land is required from the Brookfield Development for road widening along Grand River Street North/Pinehurst Road and for the roundabouts at Watts Pond Road and Hartley Avenue.	To be addressed as part of the site plan agreement.
1.39	Cordon Development	Land is required from the Cordon Development for road widening along Grand River Street North/Pinehurst Road and for the roundabouts at Watts Pond Road and Hartley Avenue.	To be addressed as part of the site plan agreement.
1.40	Paris Grand Estates Development	Land is required from the Paris Grand Estates Development to provide access from the development to Grand River Street North.	To be addressed as part of the site plan agreement.
1.41	19, 21, 23, 25 and 27 Bradbury Crescent	Impacts to property resulting from construction of West River Road.	Mitigation will include: construction of a privacy screen; inventory of existing trees; and protection of mature trees (where possible) or replacement.
2.0	Natural, Social and Cultural Environment		
2.1	Natural Environment	The study area along Grand River Street North has been transformed from its natural state to accommodate residential and commercial land uses. The West River Road extension along the former rail corridor is lined with a number of mature specimen trees and scrub growth.	During detailed design, terrestrial and botanical investigations will be undertaken to supplement previous investigations and provide input into the design. The consultant will be required to prepare an Agency-approved and comprehensive Environmental Protection Plan. Mature trees will be protected (where possible). Existing vegetation that is removed will be replaced in accordance with a landscaping/streetscaping plan.
2.2	Stage 2 Archaeological Assessment	A Stage 1 Archaeological Assessment was completed in the study area. The lands along the Grand River Street North ROW and former rail corridor have been significantly disturbed and do not retain archaeological potential. The remaining lands, as identified on Figure 3 will require a Stage 2 Archaeological Assessment.	During detailed design, a Stage 2 Archaeological Assessment will be completed for all lands not significantly disturbed.
2.3	Cultural Heritage	The road improvements have no impact on the designated or listed heritage properties with the exception of King's Ward Park where parking may be created adjacent to it. There will be minor impacts along the frontage of the general collection of historic properties from St. Patrick Street south to William Street.	The proposed road improvements from Silver Street north to Watts Pond Road will not create any adverse impact on potential heritage properties. Mitigation strategies for minor impacts include:

Table 30: Summary of Issues, Proposed Mitigation and Commitments to Future Work

No.	Issue	Refinement/Mitigation Plan	Commitments
		<p>There will also be medium impact on the lands abutting 6 Paris Links Road. The technically preferred alternative has retained this residence in its location. The major impact is the demolition of Grace Gospel Church which does not have heritage significance to warrant its retention.</p>	<ul style="list-style-type: none"> • Replacement plantings to restore properties to their pre-construction character • Documentation of the Grace Gospel Church prior to removal • Replanting of vegetation along West River Road (historical Great Western Railway) and interpretive signage relating to the vital contribution of the railway to Paris • Salvage and reinstatement of the historic stone wall, steps and ornamental ironwork along the former “Claremont” property (now Kipp’s Funeral Home) • Preparation of a vegetation protection plan for King’s Ward Park (prior to construction of parking spaces, if required) • Protection of mature trees (where possible)
2.4	Sourcewater Protection	<p>Sections of the study area are designated intake protection zones and highly vulnerable drinking water supply areas.</p>	<p>The County will protect against sourcewater threats including:</p> <ul style="list-style-type: none"> • Salt impact assessment to design roads and sidewalks to minimize the need for repeat application of road salts, and to ensure the handling and storage of road salts doesn’t become a significant drinking water threat. • Ensure that the removal and storage of snow doesn’t become a significant drinking water threat. • Spill Prevention, contingency plans and emergency response plans during construction. • Discharge from a stormwater management facility does not become a significant drinking water threat. • Compliance with the Salt Management Plan to reduce potential for salt related surface water run-off and groundwater infiltration.
2.5	Noise	<p>No receiver sites will experience sound level changes greater than 5 dBA and no receiver site will have a total sound level of over 65 dBA with the project in the year 2030.</p>	<p>The construction of a barrier solely for noise abatement is not warranted, however a noise barrier will be installed along Paris Links Road to mitigate sound and visual intrusion. The posted speed along West River Road will be 50 km/h.</p>

12.0 FUTURE ACTIVITIES

Following Class EA clearance and a 30 day public review period, if there are no objections, this project, or any individual element of this project, may proceed to detail design and construction after obtaining the necessary environmental permits and approvals, and subject to availability of funding and construction priorities. Mitigation measures listed in **Section 11.0** are to be incorporated during detailed design and construction, as appropriate.

13.0 RECOMMENDED PLAN PLATES

14.0 RECOMMENDED PLAN URBAN DESIGN PLAN