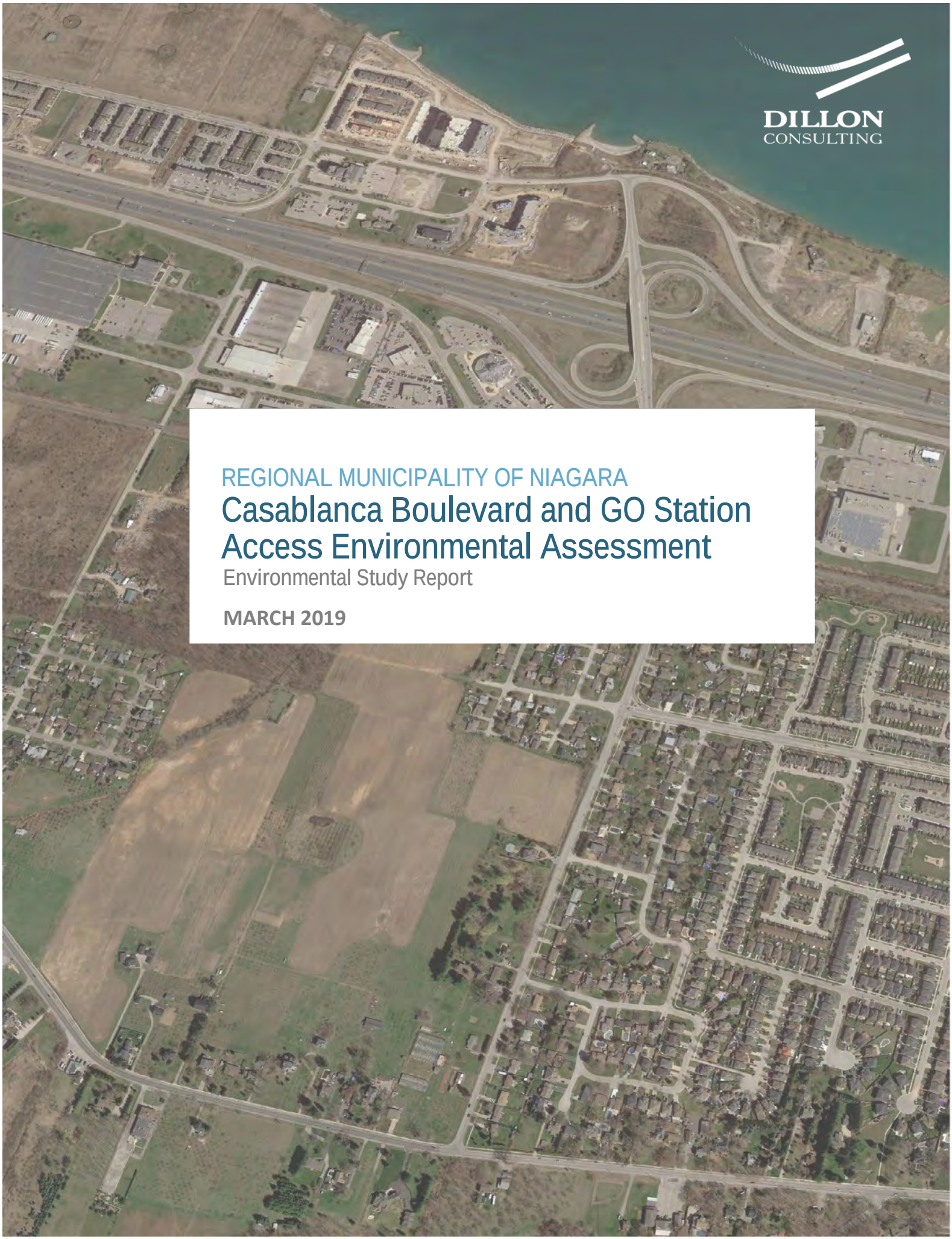


DILLON CONSULTING

REGIONAL MUNICIPALITY OF NIAGARA

Casablanca Boulevard and GO Station Access Environmental Assessment

Environmental Study Report

MARCH 2019

18-7650

Executive Summary

The Regional Municipality of Niagara (the Region) retained Dillon Consulting Limited (Dillon) in 2018 to complete an Environmental Assessment (EA) Study for proposed improvements to Casablanca Boulevard (from the North Service Road to Main Street West) and other adjacent roadways (the North Service Road, South Service Road, and Livingston Avenue) to support the projected population and employment growth targeted for 2041 in the vicinity of the aforementioned road network and to support the planned Grimsby GO Transit Station, scheduled for opening day in 2021. The scope of the EA Study (hereafter referred to as the Study) also includes a review of proposed improvements to the Casablanca Boulevard/QEW interchange.

The Study Area is shown on Figure ES-1. A number of background studies were undertaken that pertained to the Study Area, as well as for the Focused Study Area. These included:

- Transportation Assessment;
- Stormwater and Drainage;
- Natural Heritage Assessment;
- Noise Assessment;
- Socio-Economic Assessment;
- Cultural Assessment; and
- Archaeological Assessment.

The purpose of this Study is to address the transportation needs of the surrounding area to 2041, with a view to providing adequate operations to support population growth and access to the QEW and the planned Grimsby GO Transit Station.

In response to this study purpose, an EA was undertaken to:

- Assess the need and justification for the proposed project or undertaking;
- Assess the environmental effects of the alternatives;
- Identify a preferred solution and design; and
- Recommend measures to mitigate any potential adverse effects.

In completing the above steps, consultation with stakeholders, regulatory agencies, Indigenous Communities, and the general public was undertaken. The EA was completed to meet the Municipal Engineers Association (MEA) *Ontario Municipal Class EA* Schedule C project requirements. In addition, as improvements are also proposed at the Casablanca Boulevard/QEW Interchange, the project was completed to meet the Ministry of Transportation (MTO)'s Class EA for Group B Projects.

The study area (shown on **Figure ES-1**) includes the following segments:

- Approximately 1.7 kilometres (km) of the Casablanca Boulevard corridor, extending from the North Service Road to Main Street West and including the QEW Interchange bridge;
- The South Service Road from Casablanca Boulevard west to Industrial Drive, and approximately 100 metres (m) east of Casablanca Boulevard; and
- Livingston Avenue from Casablanca Boulevard to west of Emily Street.

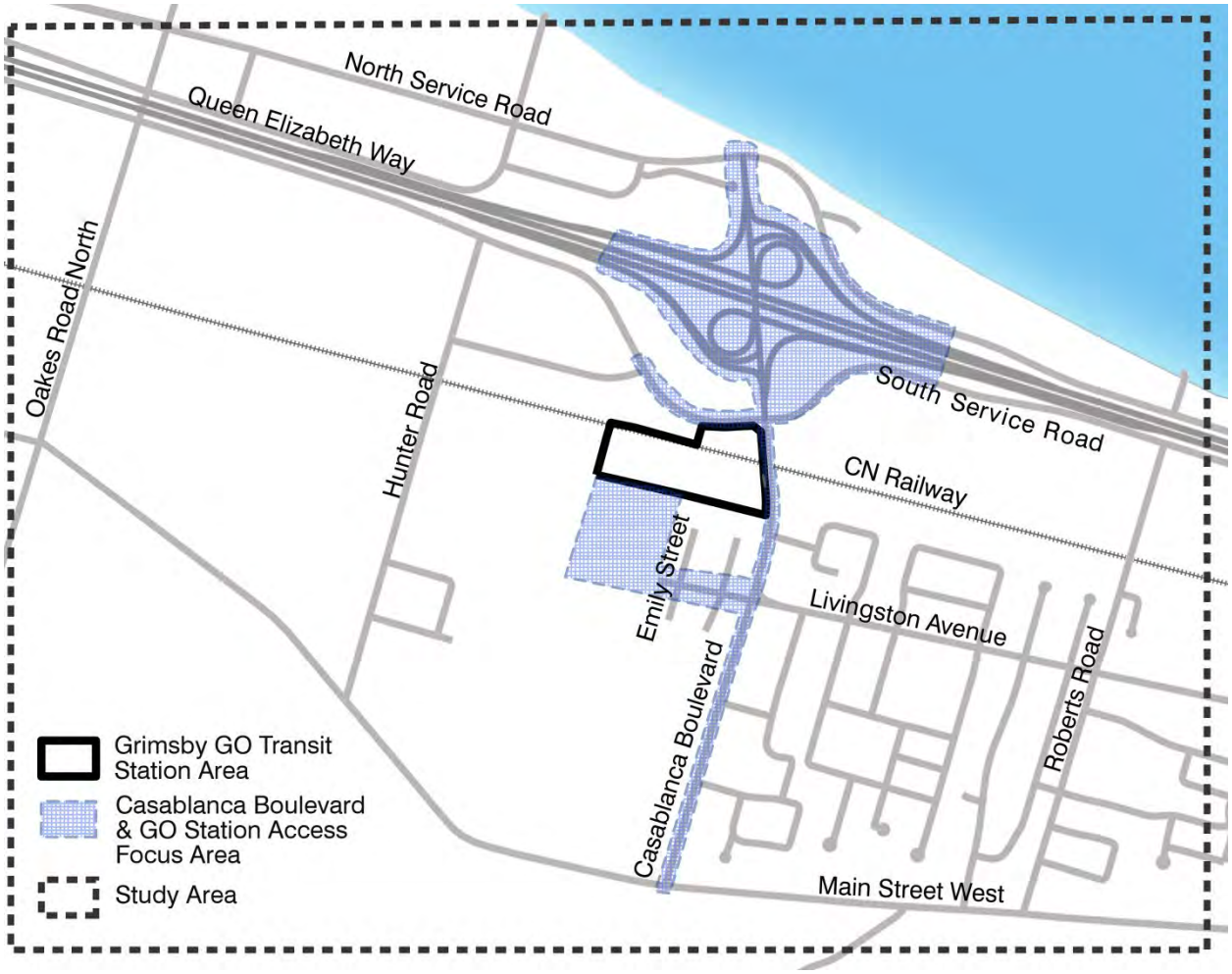


Figure ES-1 EA Study Area

Consultation and Communications

Indigenous Community, public and agency consultation was an integral component of this Study. The primary purpose of the consultation program was to involve the local community, Indigenous Communities, government agencies and potentially affected stakeholders in project

planning and decision-making. Specifically, the overall objectives of the consultation program were to:

- Create general awareness of the project to as many potentially interested stakeholders as possible; and
- Generate an open and interactive approach to the planning process by creating opportunities for the public, Indigenous Communities, government agencies and interest groups to provide project comments and suggestions.

A number of consultation activities were undertaken for this project including:

- Development of a stakeholder contact list, including federal departments, provincial ministries/agencies, the Niagara Peninsula Conservation Authority, various departments of Niagara Region, and the Town of Grimsby;
- Confirmation of project interest with identified Indigenous Communities;
- Development of a project page on the Niagara Region website which was updated throughout the Study;
- Distribution of project notices, including publishing in the local newspapers and mailings/emails;
- Holding two Public Information Centres (PICs);
- Two online surveys hosted on the Region's website;
- Holding a Workshop with directly affected property owners;
- Additional meetings with key stakeholders, including affected property owners and elected officials;
- Holding a workshop with utility companies with assets in the Study Area;
- Communication with Indigenous Communities;
- Presentation at Niagara Region Council; and
- Public release of the Environmental Study Report (ESR).

Comments received from various interested persons throughout the study were considered in the decision making process and are summarized in this ESR.

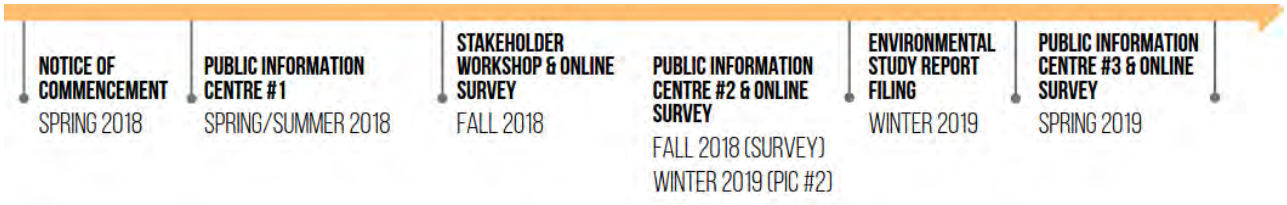


Figure ES-2 Study Process and Public Consultation Channels

PIC #1 was held on June 20th, 2018 at the Casablanca Winery Inn and Spa in Grimsby. The PIC included a formal presentation from the Region and Dillon team, followed by an informal open house with display boards set up around the room, along with aerial plots of the Study

Area and sample road cross-sections for each segment of the Study Area. Information provided at the PIC included: project overview, study purpose, study area context, problems/opportunities, and draft alternative solutions.

A Workshop was held on September 27th, 2018, with affected property owners. The workshop included a brief presentation from Region staff followed by a drop-in style event with the alternative designs for each segment of the Focused Study Area presented for feedback.

PIC #2 was held on January 16th, 2019 at the Casablanca Winery Inn and Spa in Grimsby. As with PIC #1, this PIC included a formal presentation followed by an open house with display boards and large plots of Study Area and preferred alternative. In total, 49 people signed the Record of Attendance. Information presented at this PIC focused on the evaluation criteria and process, results of background studies, and alternative designs including the preferred design.

Two online surveys were also conducted. Survey #1 was run from September-October 2018, and collected feedback to confirm the key issues and opportunities in the Focused Study Area. Survey #2 presented the Alternative Designs and collected feedback on the perception of safety/comfort of each of the alternatives from the perspective of motorists, cyclists, and pedestrians.

Letters were sent to Indigenous Communities at each stage of the project process. Additional follow up was conducted with the Mississaugas of the New Credit First Nation per a request for information received regarding the Stage 1 Archaeological Assessment conducted for the Study.

Key Issues Identified

The key issues identified for the Regional Road corridors in the Study Area to the year 2041 are summarized below by road segment.

- QEW Interchange/Bridge (**Figure ES-3**):
  - North and Southbound traffic conditions are forecast to be at/over capacity
- South Service Road (**Figure ES-3**):
  - Existing roadway capacity will be inadequate to support future growth in activity associated with both area development and the future GO Transit Station at a reasonable level of service; and
  - Increased traffic flow could potentially result in significant conflicts between roadway users.

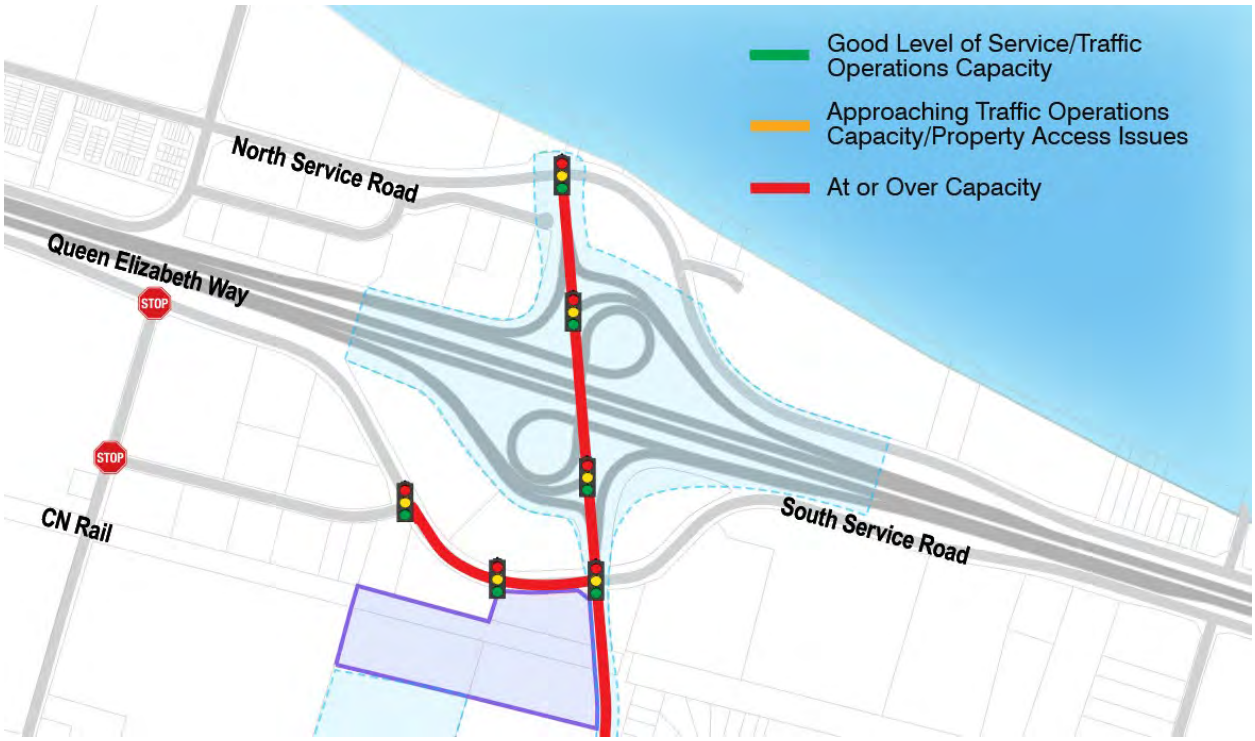


Figure ES-3 Roadway Problems (2041) Identified: QEW and the South Service Road

- Casablanca Boulevard between the South Service Road and Livingston Avenue (**Figure ES-4**):
  - Lack of dedicated pedestrian and cyclist facilities;
  - Need for improved capacity at the at-grade rail crossing, including a long-term need for a grade separated rail crossing;
  - Lack of future roadway capacity to support the forecast growth in activity associated with both area development and the future GO Transit Station at a reasonable level of service;
  - Increased traffic flow resulting in significant potential conflicts between roadway users.; and
  - Impact on increased activity on ability of local residents to safely access roadway.
- Casablanca Boulevard between Livingston Avenue and Main Street West (**Figure 5-2**):
  - Lack of dedicated pedestrian and cyclist facilities; and
  - Impact on increased activity on ability of local residents to safely access roadway.
- Livingston Avenue west of Emily Street (**Figure ES-4**):

  Need for access to Region-owned lands, intended for the Regional Multi-Modal Transportation hub and potential GO Transit Station south parking lot.

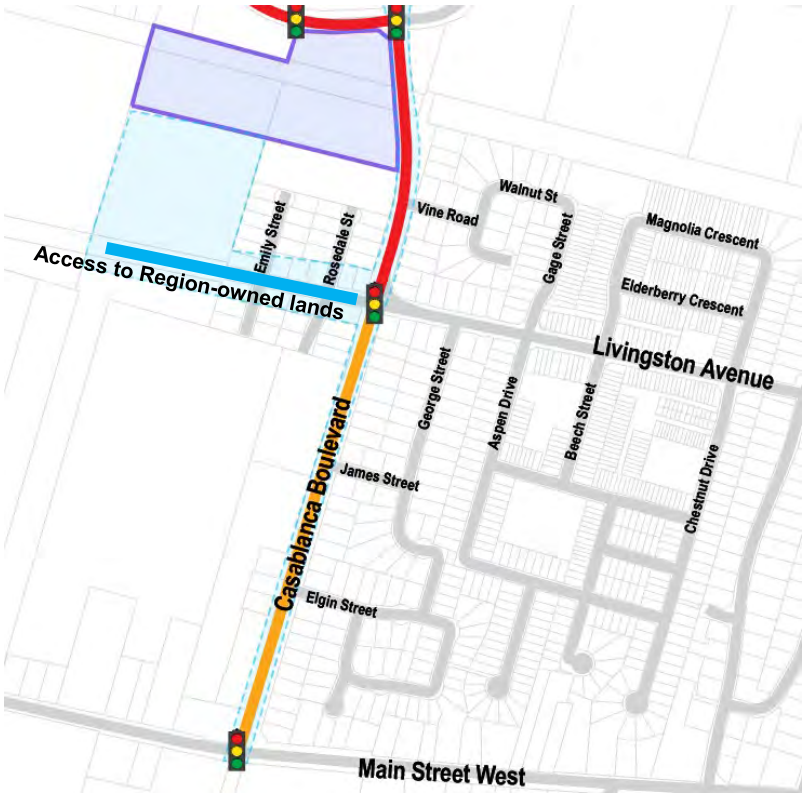


Figure ES-4 Roadway Problems Identified: Casablanca Boulevard

Opportunities Identified

The key opportunities identified for improvements to the Regional Road corridors in the Study Area include opportunities to:

- Implement the policies and direction of the relevant plans and studies for the Study Area road corridors (as identified in Section 3.0);
- Improve the character of the roadway through improved design;
- Improve active transportation opportunities by providing dedicated space for all users;
- Allow safe access to driveways along corridor; and
- Improve safety along the corridor.

Considering the above, the problem/opportunity statement for the project is identified as follows:

Improvements to the Casablanca Boulevard corridor are needed to address traffic operations, access, and capacity issues related to development activity in the Town of Grimsby and specifically in the Study Area, in addition to providing access to the planned new GO Transit Station. The improved transportation corridor will serve the

needs of the transportation system for the surrounding area, support area growth to 2041, and support the planned GO Transit Station. The project also provides an opportunity to implement the Region's active transportation objectives through the provision of pedestrian and cycling facilities.

The following sections provide more detail on the technical work and analysis that informed the identification of the problems/needs/opportunity and the development of the above problem statement.

Alternative Solutions

Considering the problem and opportunity statement, the following set of Alternative Solutions were identified, presented to the public at PIC #1, and subsequently assessed/evaluated:

- Alternative #1: Do Nothing/Status Quo, with no improvements made to the Regional Roads in the Study Area;
- Alternative #2: Transportation Demand Management, involving improvements that would broaden the range of opportunities for a range of travel modes;
- Alternative #3: Improve Other Road Corridors, which looks at whether improvements to other roads in the Study Area might satisfy the problem/opportunity;
- Alternative #4: Roadway Operational Improvements, focusing on improving intersection operations to move traffic through the Study Area more efficiently; and
- Alternative #5: Additional Roadway Lanes, with a view to improving traffic capacity on Casablanca Boulevard and the South Service Road through widening to add travel and turning lanes.

The evaluation of the Alternative Solutions concluded that Alternative #1 (Do Nothing) would not address the problem/opportunity, and would not be carried forward for further development. Alternative #3 could reduce some but not all of the traffic issues in the Study Area, but would not aid in addressing the need specific to Casablanca Boulevard. This alternative would also not be carried forward. Alternatives #2, #4, and #5 all had the potential to contribute to a partial satisfaction of the problem/opportunity, and could therefore be combined to work in tandem.

Evaluation of Alternative Designs and the Preferred Design

Alternative Designs were developed for each key road corridor segment of the Focused Study Area considering a range of factors, including: the identified problems and opportunities, baseline conditions in the Study Area, design issues and constraints associated with the preferred alternative solution, and public and stakeholder feedback received during the consultation process. Alternative Designs were developed for each of the following project components:

- Casablanca Boulevard/QEW interchange;
- Casablanca Boulevard – Intersections;

- South Service Road Improvements;
- Casablanca Boulevard – Roadway Widening and Drainage;
- Livingston Avenue West of Casablanca Boulevard;
- Casablanca Boulevard – Stormwater Management; and
- Casablanca Boulevard – CN Rail Crossing Treatment.

Once developed, the design alternatives were assessed and compared on the basis of a comprehensive set of evaluation criteria organized on the basis of the following criteria groups:

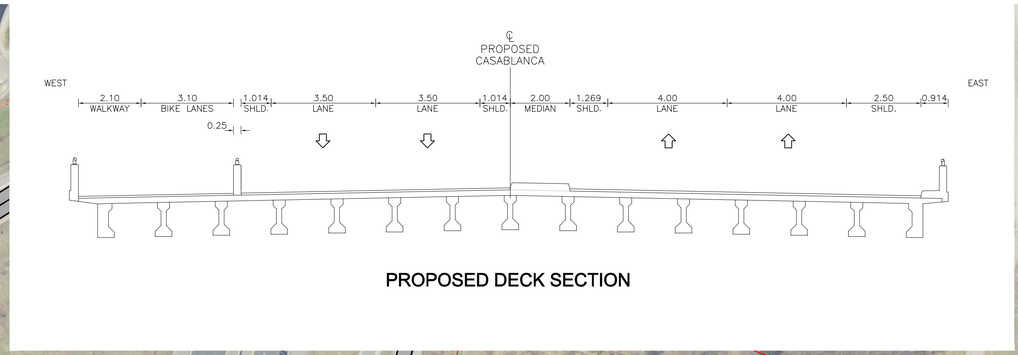
- Transportation;
- Engineering;
- Cultural Environment;
- Socio-economic Environment;
- Natural Environment; and
- Cost.

The following are the design alternatives evaluated for each of these project components, with the alternative in **blue bolded font** identifying the preferred alternative that was determined based on the results of the detailed evaluation.

Casablanca Boulevard/QEW interchange

- Base Plus Active Transportation (A/T) Facilities
- **Improved Parclo A4 Interchange**
- Diverging Diamond Interchange (DDI)
- Straight Diamond

A layout of the preferred QEW Interchange treatment showing the Improved Parclo A4 concept is provided in **Figure ES-5**. In order to support cycling and pedestrian traffic across the interchange, a multi-use path was designed on the west side of the bridge over the QEW. This path will be separated from vehicle traffic and provide connectivity from the North Service Road to the South Service Road.



PROPOSED DECK SECTION

CASABLANCA INTERCHANGE

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Horizontal

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NOTES/LEGEND

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DRAFTING	SMP
DESIGN	SMP
CHECKED BY	DPM
APPROVED BY	PAM

Niagara Region
PUBLIC WORKS

PREFERRED DESIGN

CASABLANCA/QEW INTERCHANGE

CONSULTANT FILE No.	18-7650
DATE	2019-02-22
SCALE	AS SHOWN
REF. No.	#
DWG No.	ES-5
REV.	0

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Casablanca Boulevard – Intersections

The four major intersections along Casablanca Boulevard were evaluated in terms of potential to provide a roundabout or add/improve signals at the intersection. These were:

- North Service Road;
- South service Road;
- Livingston Ave; and
- Main Street West.

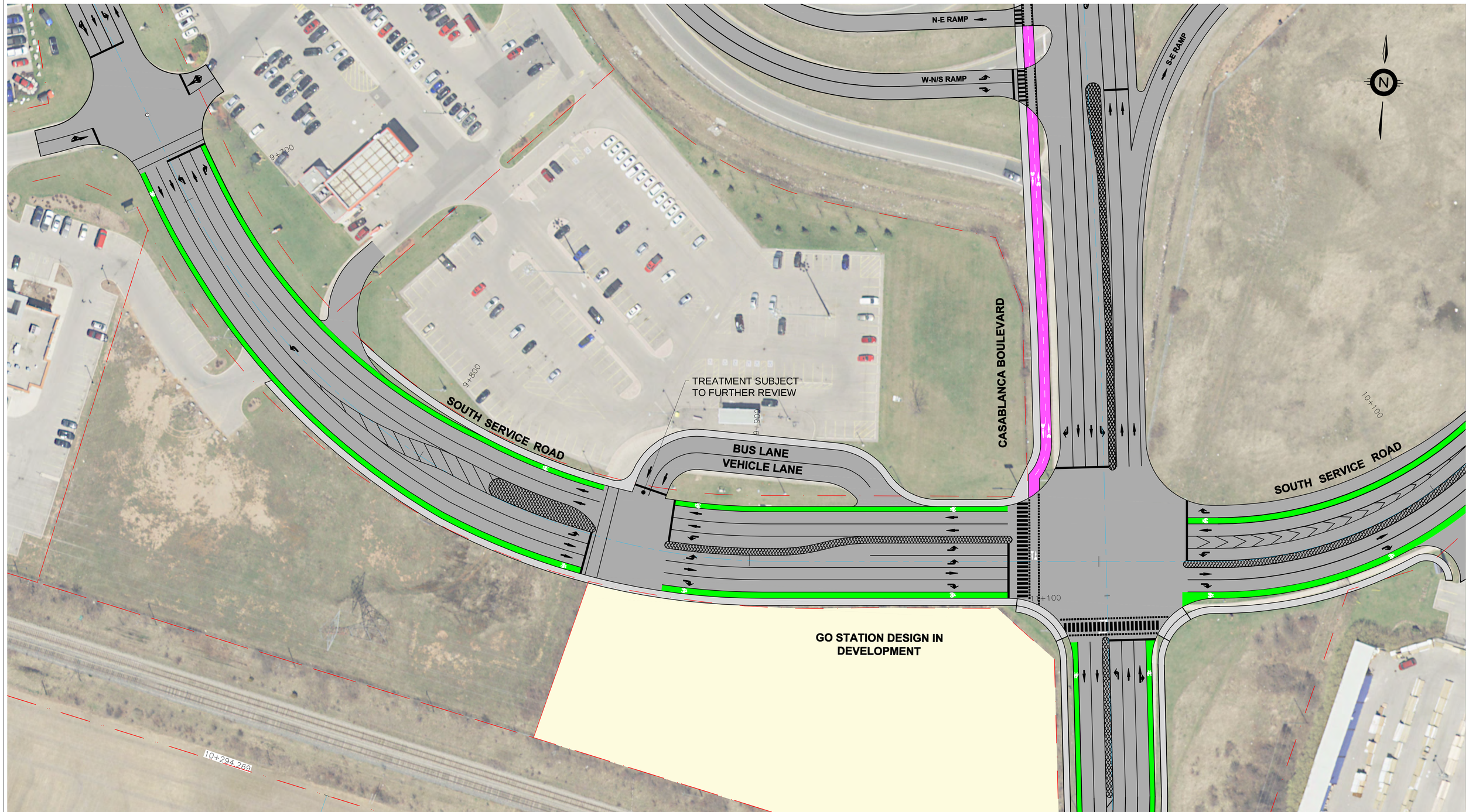
The assessment indicated that a roundabout would not be suited to any of the intersections, due to property impact or topographic constraints. Signalization therefore emerged as the preferred solution, which would involve new signals at the intersection of Casablanca Boulevard with Livingston Avenue and with Main Street West. The existing signals at the South Service Road and the North Service Road would need to be modified to support roadway and turning lane improvements.

South Service Road Improvements

Two main alternatives were considered for improvements to the South Service Road to provide access to the GO Transit Station and improve traffic flow between Industrial Drive and Casablanca Boulevard:

- **Alternative A – Intersection with Loop Road Access,** which includes development of a vehicle access road integrated with the existing GO Bus loop on the north side of the South Service Road, opposite the site of the planned GO Transit Station. This would allow for accommodation of more vehicles turning into the GO Transit Station.
- **Alternative B – Intersection with Left-turn Lane**, which includes a conventional west-bound left-turn lane, and would provide for more immediate/short term access needs to the GO Transit Station.

Alternative A for the South Service Road Improvements shown on **Figure ES-6** is considered to be the preferred design due to the greater potential to accommodate vehicles turning into the GO Transit Station; however Alternative B could be implemented as a first stage, short-term alternative, avoiding the need for modifications to the existing bus loop.



SOUTH SERVICE ROAD/CASABLANCA BOULEVARD INTERSECTION

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DRAFTING	SMP
DESIGN	SMP
CHECKED BY	DPM
APPROVED BY	PAM

Niagara Region
PUBLIC WORKS

PREFERRED DESIGN

CASABLANCA BOULEVARD (SOUTH OF QEW TO SOUTH OF SOUTH SERVICE ROAD) AND SOUTH SERVICE ROAD

CONSULTANT FILE No.	18-7650
DATE	2019-02-22
SCALE	AS SHOWN
REF. No.	#
DWG No.	ES-6
REV.	0

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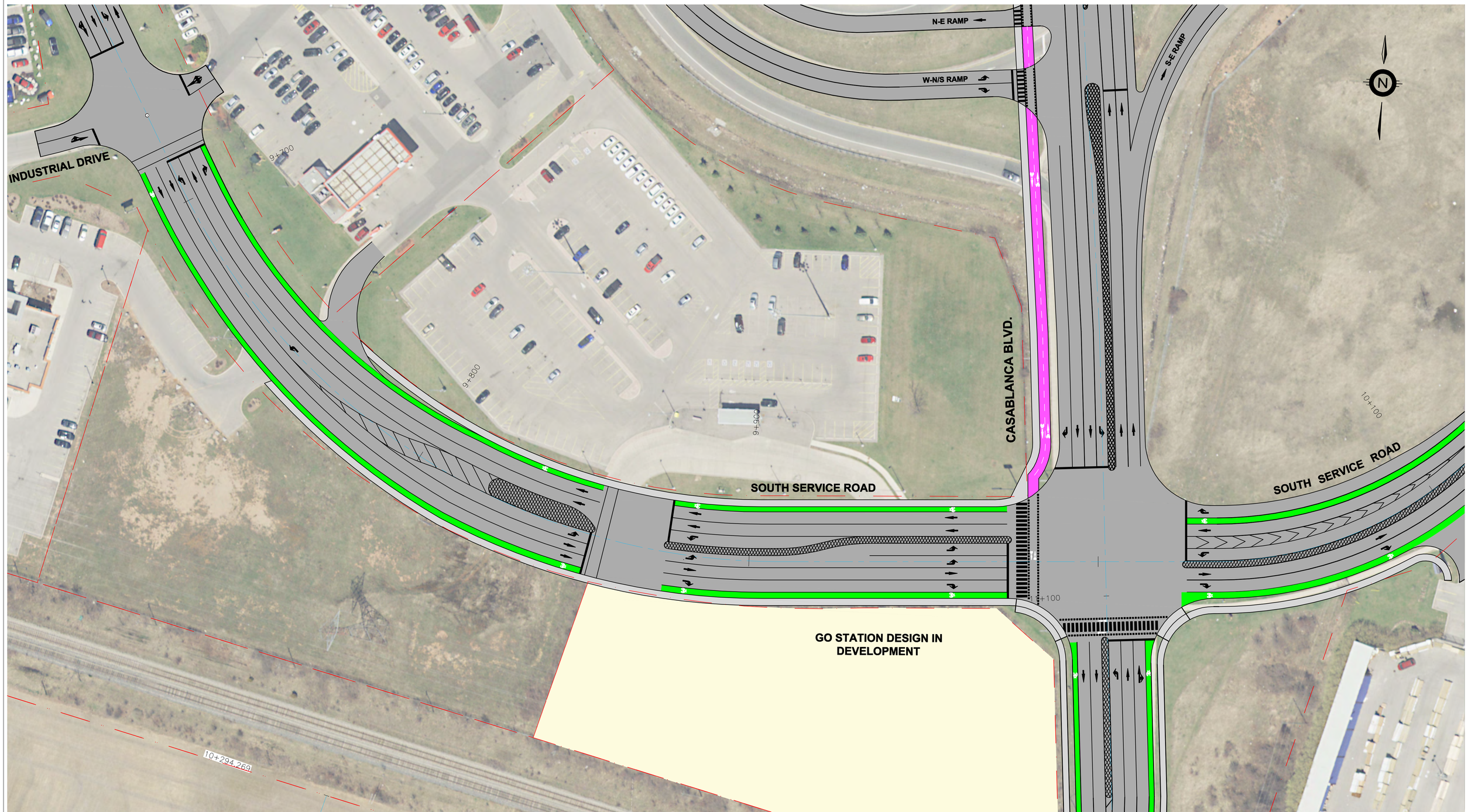

SOUTH SERVICE ROAD/CASABLANCA BOULEVARD INTERSECTION

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Niagara Region
PUBLIC WORKS

SOUTH SERVICE ROAD INTERSECTION WITH LEFT ALTTERNATIVE B

CONSULTANT FILE No.	18-7650
DATE	2019-02-22
SCALE	AS SHOWN
REF. No.	#
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REV.	0

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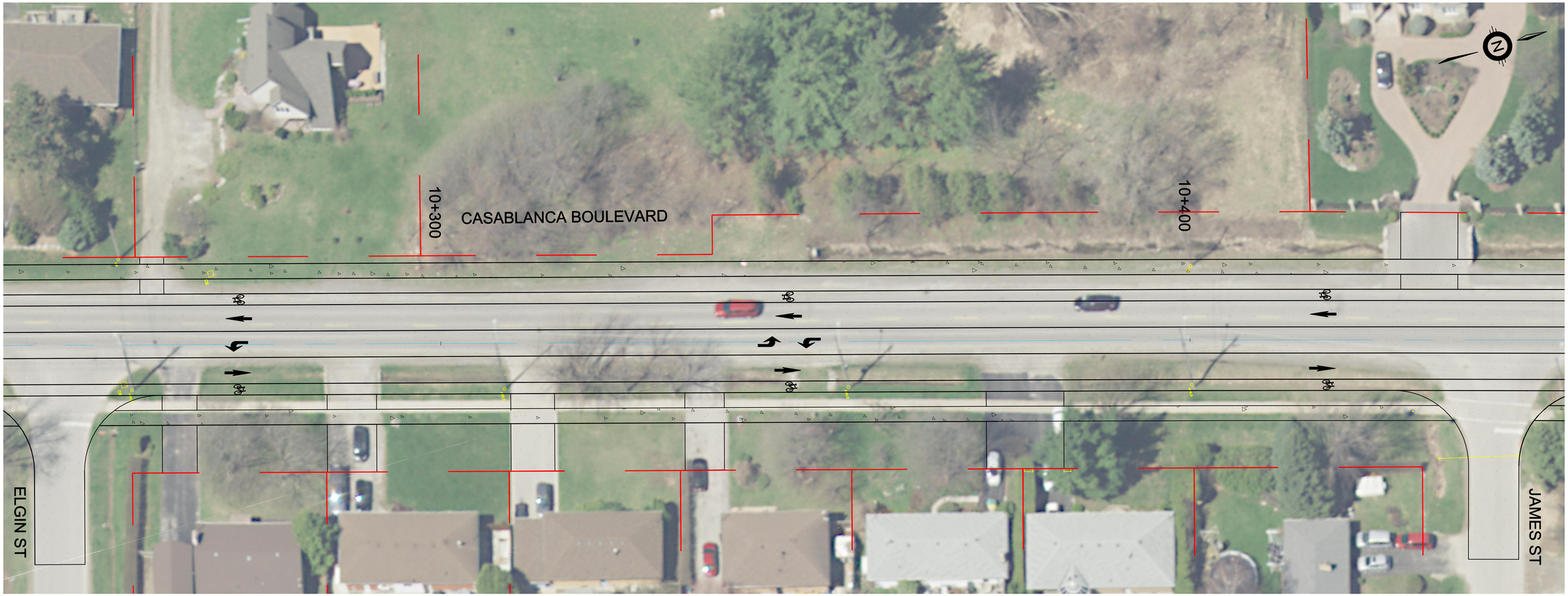
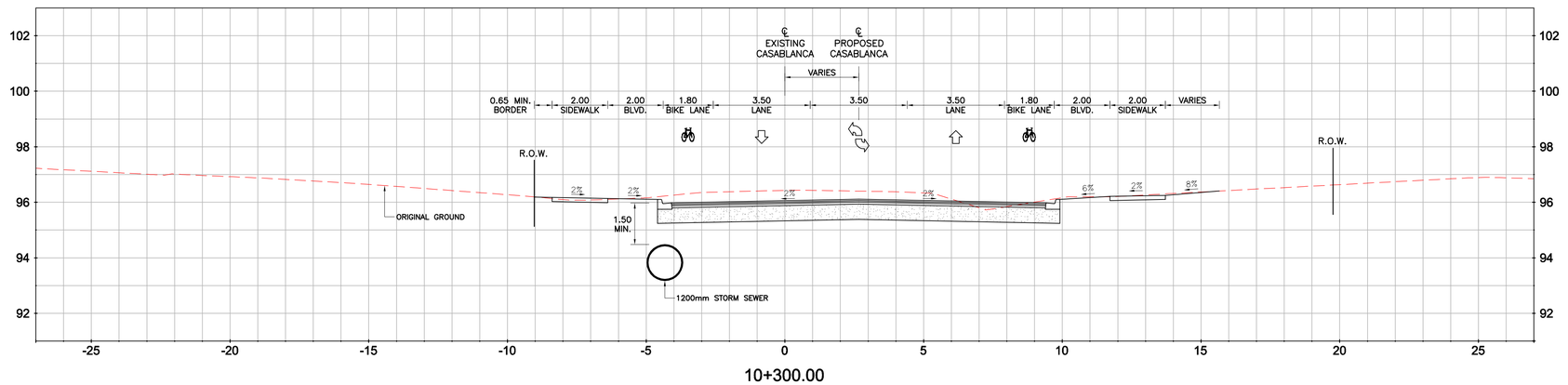
Casablanca Boulevard – Roadway Widening and Drainage

Two main alternatives were explored with respect to improving the roadway and managing stormwater along the road right-of-way of Casablanca Boulevard and along Livingston Avenue from Casablanca Boulevard extending to just west of Emily Street:

- **Alternative A - Urbanized Cross-Section** which would involve the replacement of the existing roadside drainage ditches with a buried storm sewer. With this option the road area along Casablanca Boulevard would be "lowered" and adjacent properties graded so that run-off from adjacent lands would be directed to new roadway catch basins.
- **Alternative B - Maintain Rural Cross-Section** with a road ditch along the west side of the roadway that receives roadway surface flows. Under this design the road surface remains elevated compared to the surrounding lands.

Alternative A was selected as the preferred design due to the ability to improve the road character, effectively manage drainage, and limit property impacts as a result of widening the roadway. Cycling lanes and sidewalks are proposed on both sides of the road, in order to support a complete streets approach, provide improved access for active transportation users to the GO Transit Station, and align with the Region's Complete Streets Guidelines (2017). A layout of the urbanized treatment for Casablanca Boulevard is shown on **Figure ES-8**.





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CASABLANCA BOULEVARD

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DRAFTING	SMP
DESIGN	SMP
CHECKED BY	DPM
APPROVED BY	PAM

Niagara Region PUBLIC WORKS

DILLON CONSULTING

CASABLANCA BOULEVARD

TOWN OF GRIMSBY
URBAN CROSS SECTION

CONSULTANT FILE No.	18-7650
DATE	YYYY-MM-DD
SCALE	AS SHOWN
REF. No.	#
DWG No.	ES-8
REV.	0

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The widening of Casablanca Boulevard is segmented into three portions:

- Between the North Service Road and the South Service Road, the improvements are related to the QEW Interchange as described above;
- Between the South Service Road and Livingston Avenue, widening to four travel lanes with a centre turning lane is proposed, in addition to providing sidewalks and cycling lanes on both sides of the road; and
- Between Livingston Avenue and Main Street West, a centre turning lane is proposed, in addition to providing sidewalks and cycling lanes on both sides of the road.

The cross-sections shown on **Figures ES-9** and **ES-10** provide a conceptual layout of the widening and improvements to Casablanca Boulevard. **Figures ES-11** and **ES-12** provide a more detailed layout of each of the segments of Casablanca Boulevard between the South Service Road and Main Street West.

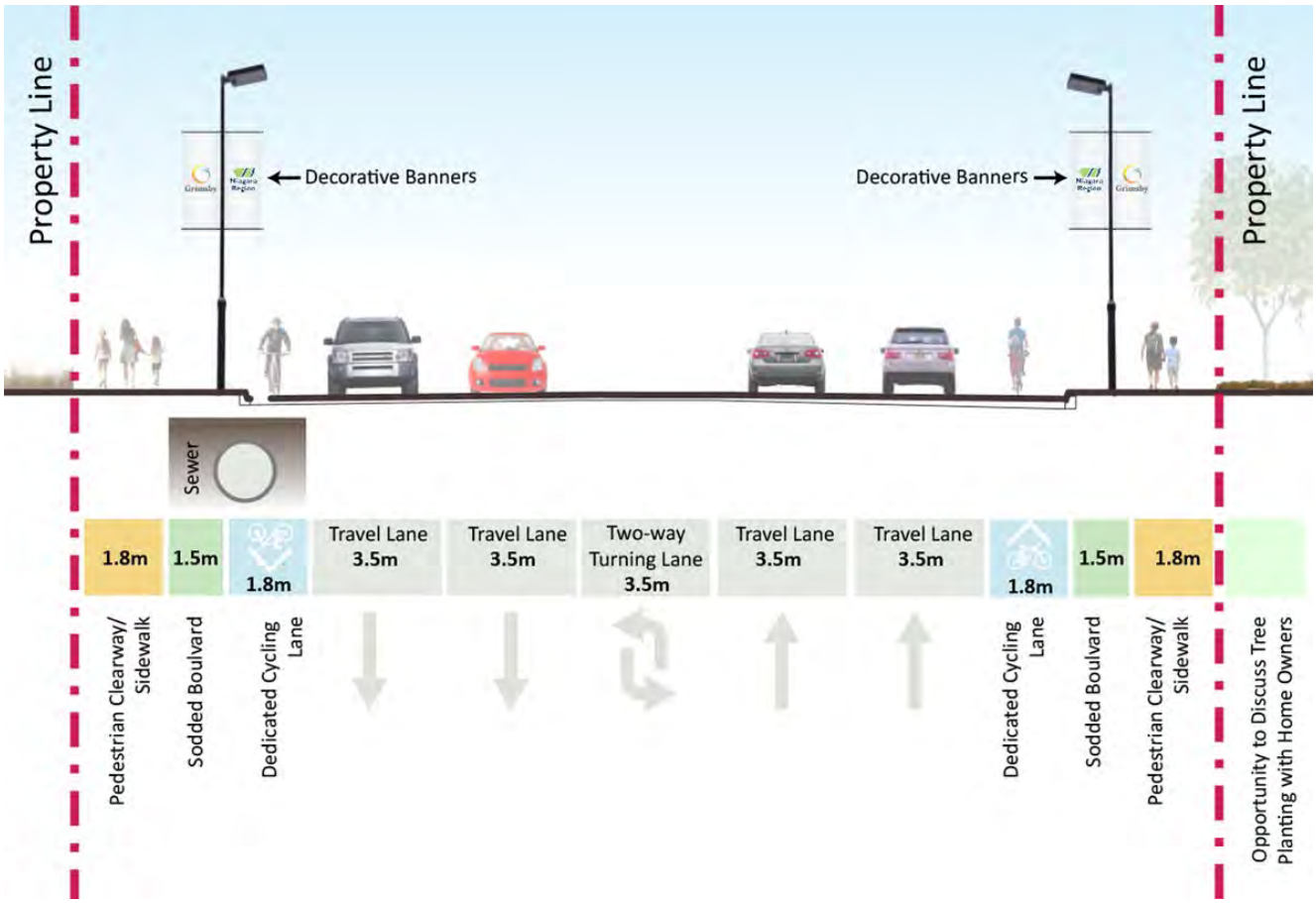


Figure ES-9 Typical Casablanca Boulevard Cross Section (north of Livingston Avenue)

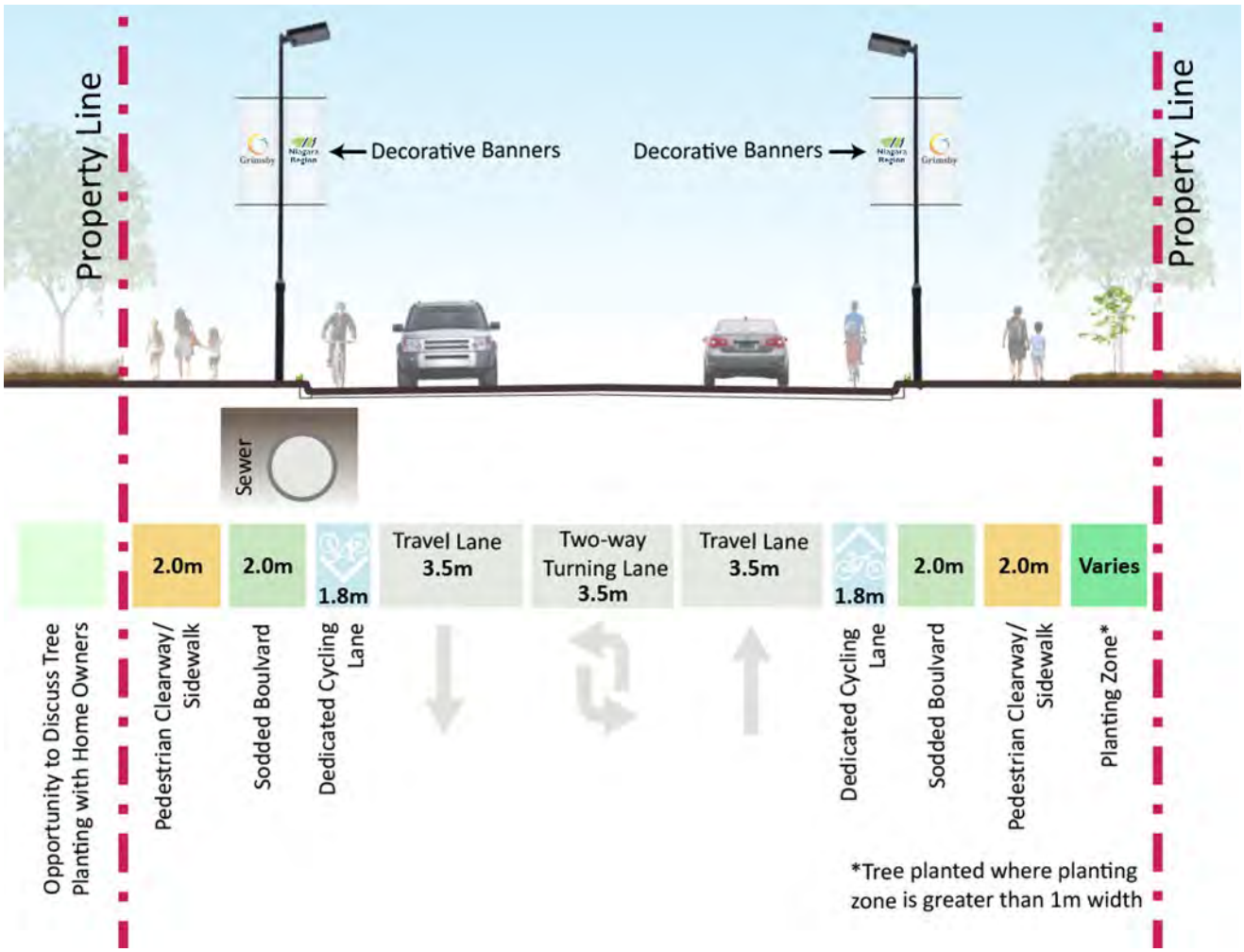
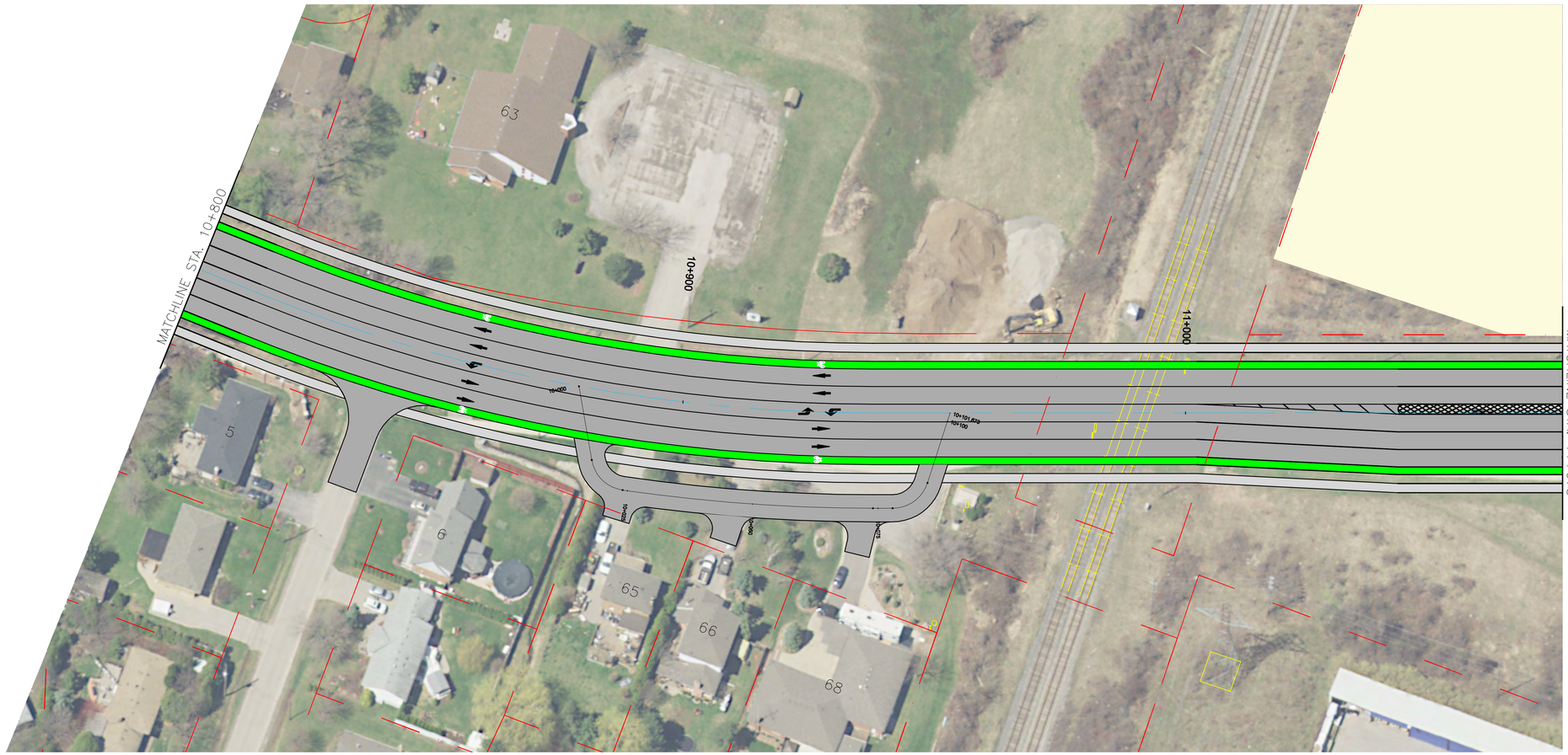


Figure ES-10 Typical Proposed Casablanca Boulevard Cross Section (south of Livingston Avenue)



CASABLANCA BOULEVARD

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Horizontal

NO.	REVISION	DATE	INIT.
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DRAFTING	GCC
DESIGN	SMP
CHECKED BY	SMP
APPROVED BY	PAM

Niagara Region PUBLIC WORKS

DILLON CONSULTING

PREFERRED DESIGN

CASABLANCA BOULEVARD (SOUTH OF SOUTH SERVICE ROAD TO NORTH OF LIVINGSTON AVENUE)

CONSULTANT FILE No.	18-7650
DATE	2019-01-07
SCALE	AS SHOWN
REF. No.	#
DWG No.	ES-11
REV.	0

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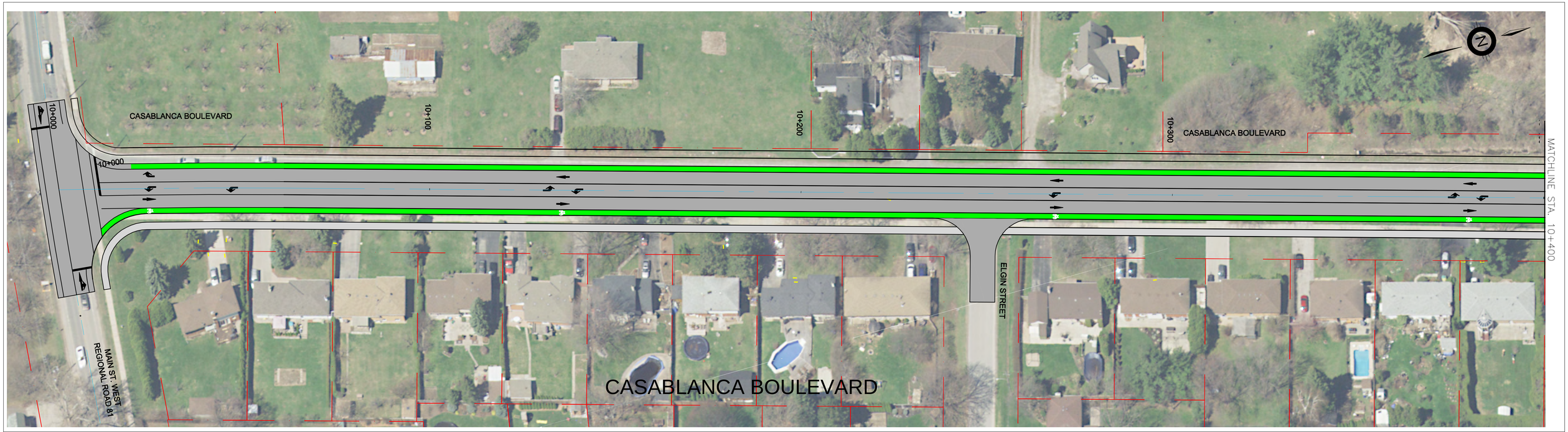

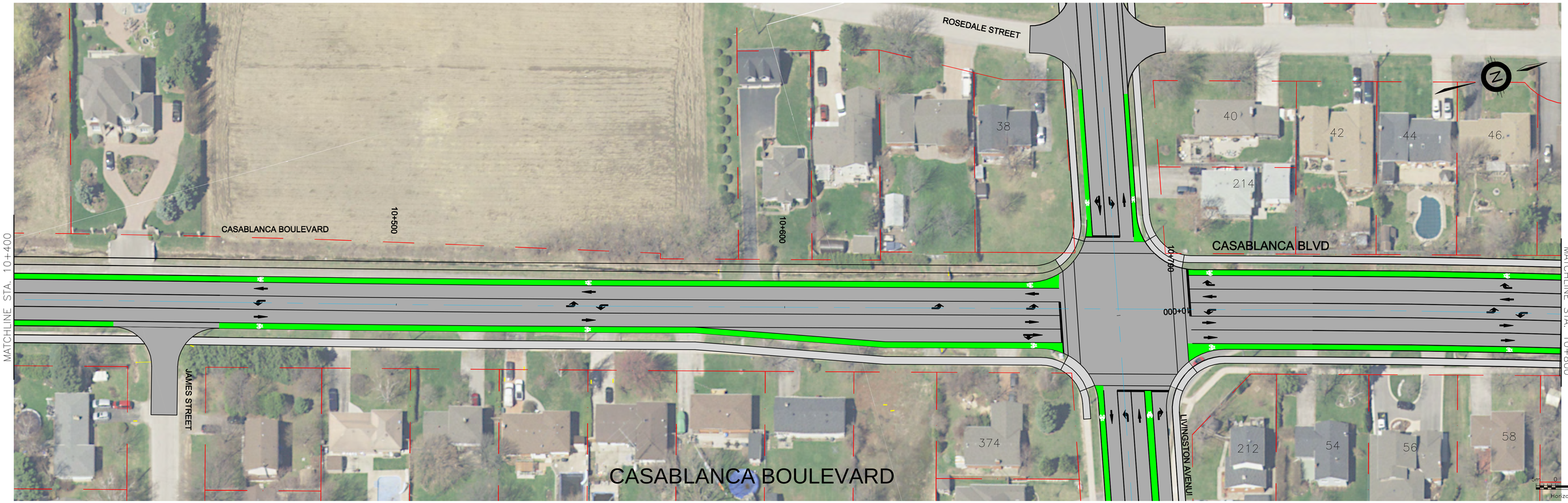

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DESIGN	SMP
CHECKED BY	SMP
APPROVED BY	PAM

Niagara Region
PUBLIC WORKS

DILLON CONSULTING

PREFERRED DESIGN

CASABLANCA BOULEVARD (NORTH OF LIVINGSTON AVENUE TO MAIN STREET WEST)

CONSULTANT FILE No.	18-7650
DATE	2019-01-07
SCALE	AS SHOWN
REF. No.	#
DWG No.	ES-12
REV.	0

DRAWING FILE: C:\projectwise\working directory\projects 2018\20gcc\dms42232\187650 - Casablanca and Livingston Corridor Option 1_V4.dwg PLOTTED: Jan 07, 2019 - 10:32am PLOTTED BY: 20gcc

Livingston Avenue West of Casablanca Boulevard

Livingston Avenue between Casablanca Boulevard to just west of Emily Street is proposed to be improved to provide a centre turning lane along with sidewalks and cycling lanes on both sides of the road, as depicted in the conceptual cross section on Figure ES-13, and in the more detailed layout on Figure ES-14.

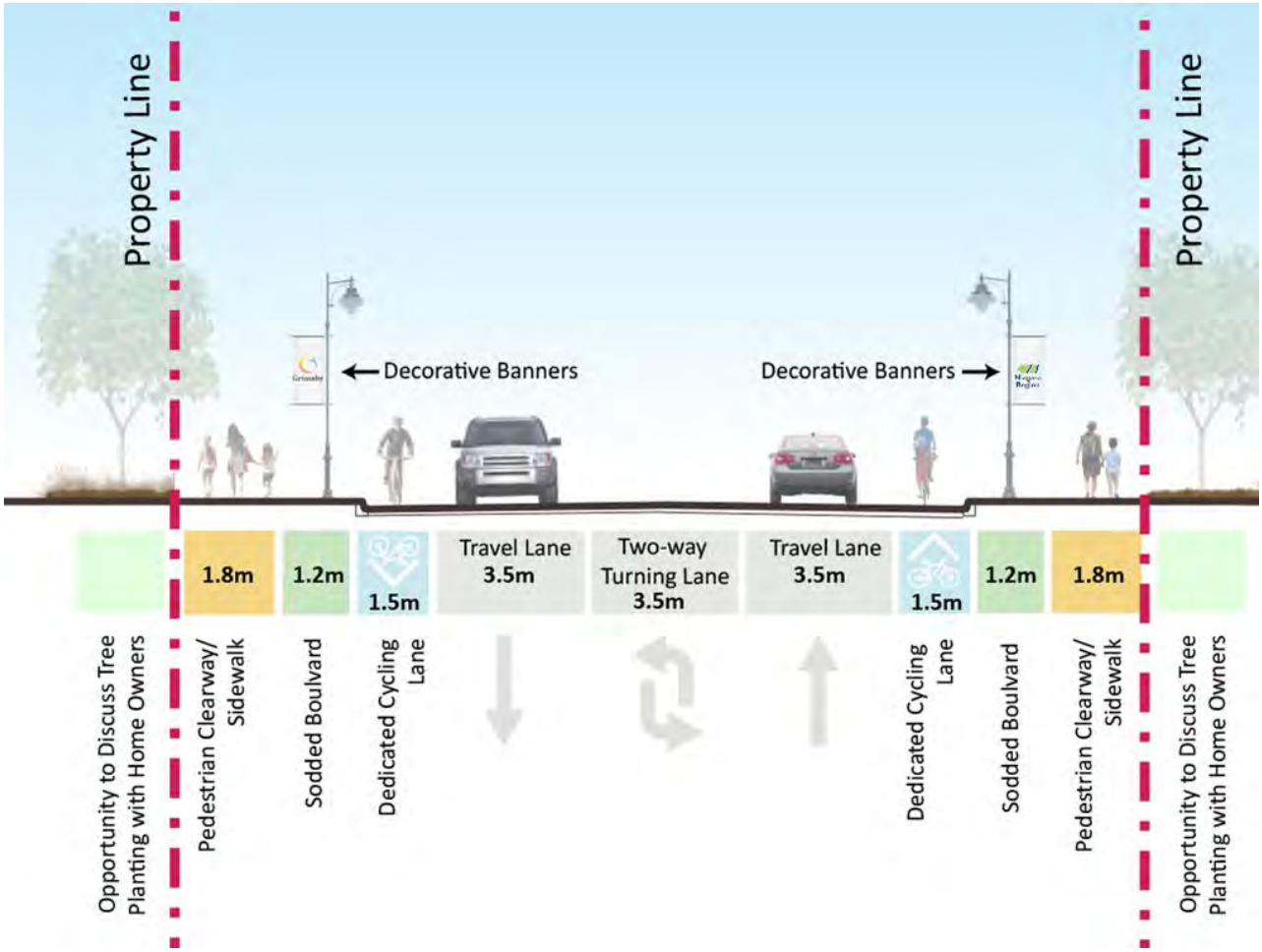
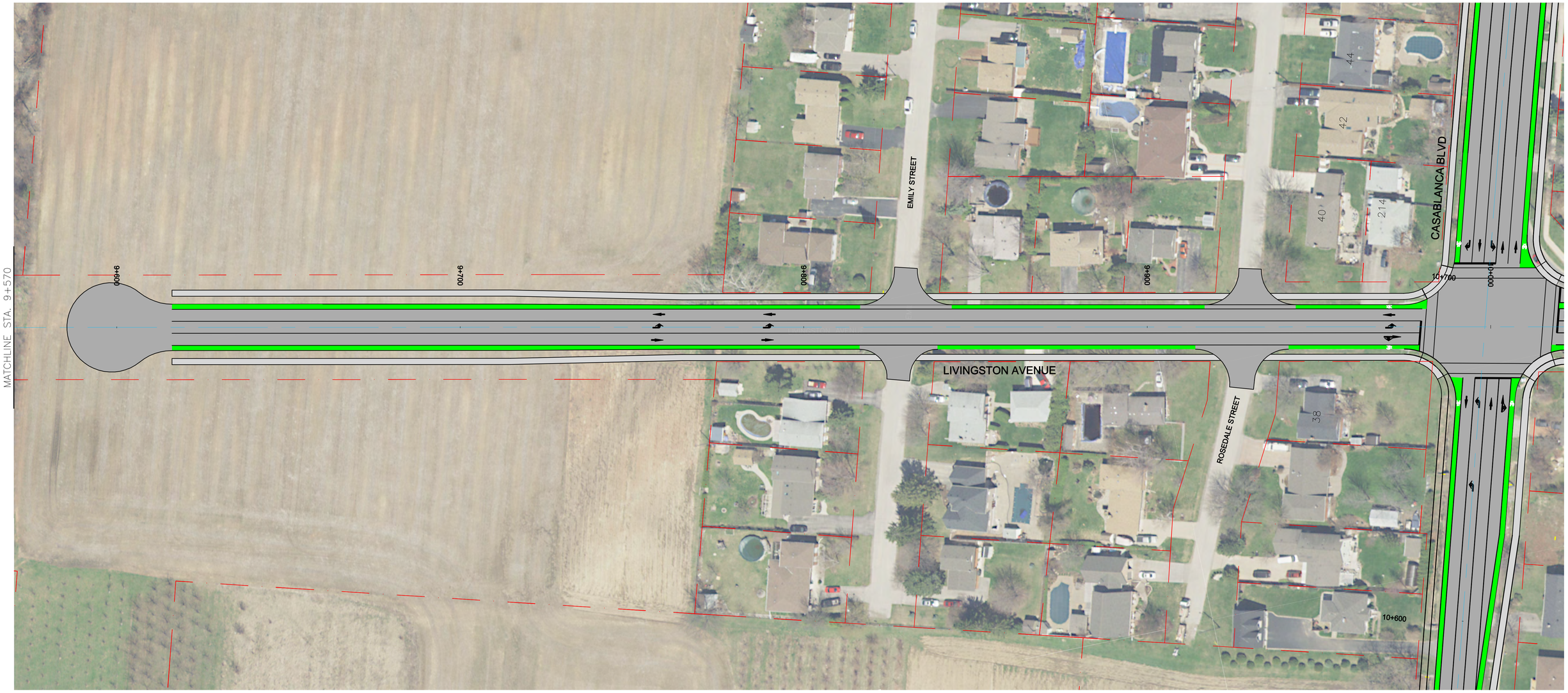


Figure ES-13 Proposed Livingston Avenue Road Cross Section form Casablanca Boulevard to West of Emily Street



LIVINGSTON AVENUE

NOTES/LEGEND

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2 PROPERTY LINES WERE PLOTTED USING REGISTERED PLANS AND BARS LOCATED IN THE FIELD. TO VERIFY THE ACCURACY OF THESE PROPERTY LINES, A LEGAL SURVEY SHOULD BE PERFORMED PRIOR TO CONSTRUCTION.

NO.	REVISION	DATE	INIT.
0	ISSUED FOR	YYYY-MM-DD	XXX

DRAFTING	GCC
DESIGN	SMP
CHECKED BY	SMP
APPROVED BY	PAM

Niagara Region PUBLIC WORKS

DILLON CONSULTING

PREFERRED DESIGN

LIVINGSTON AVENUE (CASABLANCA BOULEVARD TO WEST OF EMILY STREET)

CONSULTANT FILE No.	18-7650
DATE	2019-01-07
SCALE	NTS
REF. No.	#
DWG No.	ES-14
REV.	0

DRAWING FILE: C:\projectwise\working directory\projects 2018\20gcc\dms42232\187650 - Casablanca and Livingston Corridor Option 1_V4.dwg PLOTTED: Jan 07, 2019 - 10:44am PLOTTED BY: 20gcc

Casablanca Boulevard – Stormwater Management

Four main alternatives were identified for managing stormwater along the roadways within the Focused Study Area identified on **Figure ES-1**:

- **Alternative A – Conveyance and End of Pipe Control in MTO Corridor**, which involves using the general strategy referred to as 'end-of-pipe' stormwater management control. The improved Casablanca Boulevard corridor would be serviced with a new trunk storm sewer capable of conveying runoff generated by the corridor and external drainage areas for both major and minor storm events.

- **Alternative B – New Conveyance, End of Pipe Control and Use of Vine Road Drain**, which employs a combination end-of-pipe and conveyance system stormwater management control strategies. Similar to Alternative A, the improved Casablanca Boulevard corridor would be serviced with a new trunk storm sewer capable of conveying runoff generated by the corridor and external drainage areas for both major and minor storm events. A proposed stormwater management facility located on the Region-owned lands south of the CN Railway (west of Casablanca Boulevard) could consist of a traditional stormwater management pond, an underground stormwater management system located under the future parking lot facility, or a hybrid combination of the two facilities. The facility could be designed to minimize impact on other future land uses on this property.

- **Alternative C – New Conveyance and End of Pipe Control, an evolution of Alternative B** in that it has been developed using a combination end-of-pipe (stormwater management facility located on the Region's property) and conveyance system stormwater management control strategies, but in addition it incorporates a new storm sewer outlet that diverts surface water from the Vine Road intermittent flow channel. Similar to Alternatives A and B, the improved Casablanca Boulevard corridor would be serviced with a new trunk storm sewer capable of conveying runoff generated by the corridor and external drainage areas for both major and minor storm events. Similar to Alternative A, a crossing of the CN Railway is required for the storm sewer.

- **Alternative D – New Conveyance with Super-Pipes and New Storm Sewer Outlet,** which minimizes the property implications along the Casablanca Boulevard corridor while incorporating a new storm sewer outlet that diverts surface water away from the Vine Road intermittent flow channel. Similar to the previous options, the improved Casablanca Boulevard corridor would be serviced with a new trunk storm sewer capable of conveying runoff generated by the corridor and external drainage areas for both major and minor storm events. Similar to previous options, the proposed trunk storm sewer would intercept surface water runoff from the residential areas directly adjacent to the road corridor. The use of super-pipes

provides for the stormwater storage needs within this system and avoids the need for an additional stormwater management facility on the Region-owned lands south of the CN Railway.

Alternative D as depicted in the conceptual layout on **Figure ES-15** was selected as the preferred alternative based on the evaluation, which noted the reduced property impacts and more streamlined infrastructure associated with this alternative as well as the ability to address flood risk through diversion of a significant area from the existing drainage outlet along Vine Road and shifting the outlet to a location downstream of the existing drainage channel located on private property.

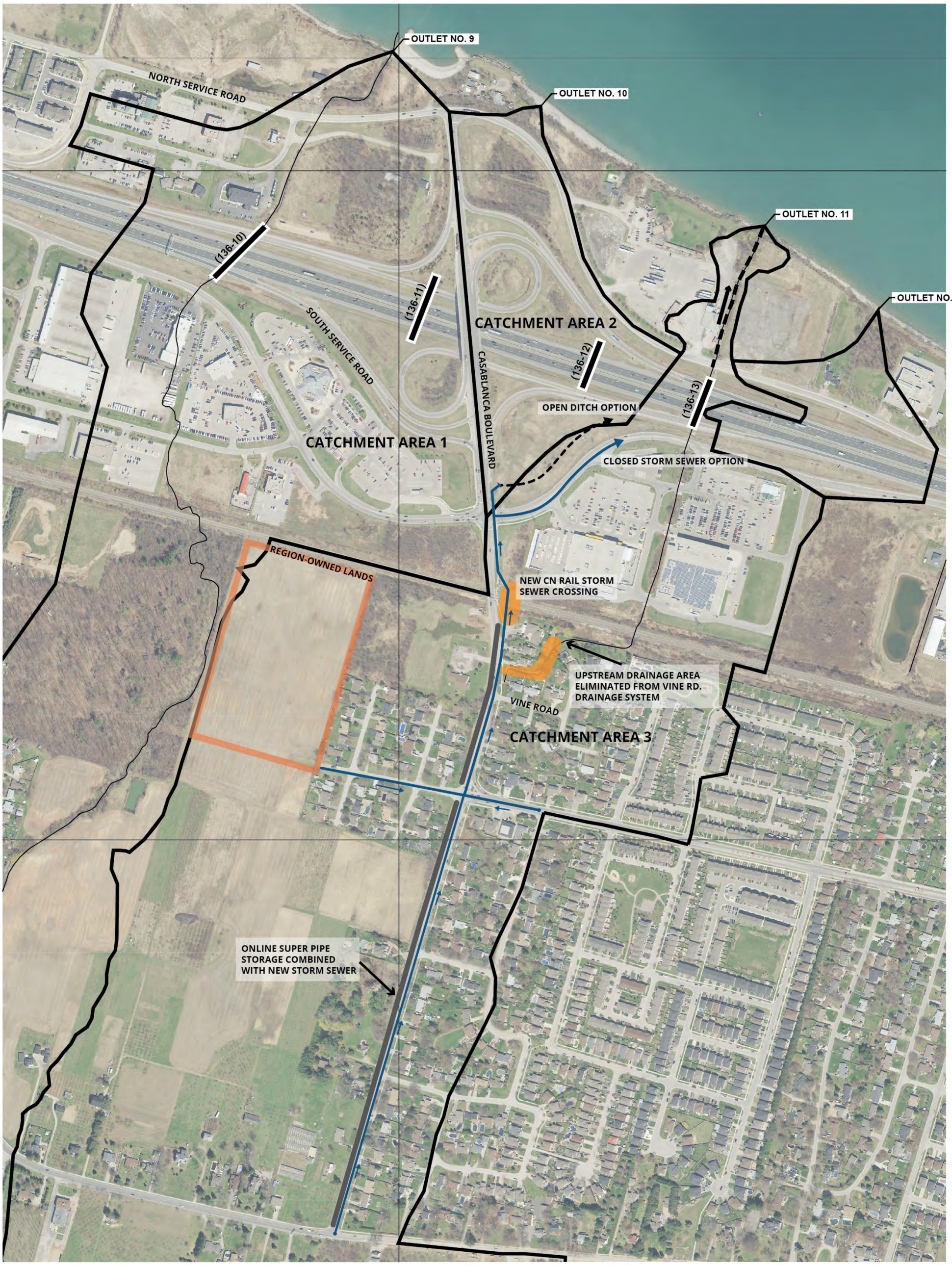


Figure ES-15 Preferred Drainage Strategy

Casablanca Boulevard – CN Rail Crossing Treatment

Three main alternatives were identified for addressing the traffic queueing and safety concerns at the CN Rail crossing:

- **Alternative A - Improved At-Grade Crossing**, which includes crossing control and signal upgrades. The cross-section for Alternative A would be confirmed in consultation with CN as the Rail owner, and would mimic the 5-lane cross section proposed for Casablanca Boulevard north of Livingston Avenue, with property protection for a third southbound queueing lane crossing the CN Railway and terminating shortly south of the CN Railway when if required in the future for queue capacity;
- **Alternative B - Underpass Grade Separated Crossing**, which would involve the development of an underpass for Casablanca Boulevard to go under the CN Rail Corridor and emerge back to grade to meet north of the intersection with the South Service Road; and
- **Alternative C - Overpass Grade Separated Crossing,** which would involve creation of a road overpass over the CN Rail corridor, tying back into to Casablanca Boulevard well north of the intersection with South Service Road.

Alternative A as depicted in the cross section in **Figure ES-16** was determined through the evaluation to be the preferred design for the short-medium term, with Alternative B as conceptualized in **Figure ES-17** being required in the longer term based on ongoing monitoring of the at-grade crossing. A more detailed layout of the future grade separation is provided on **Figure ES-18.**

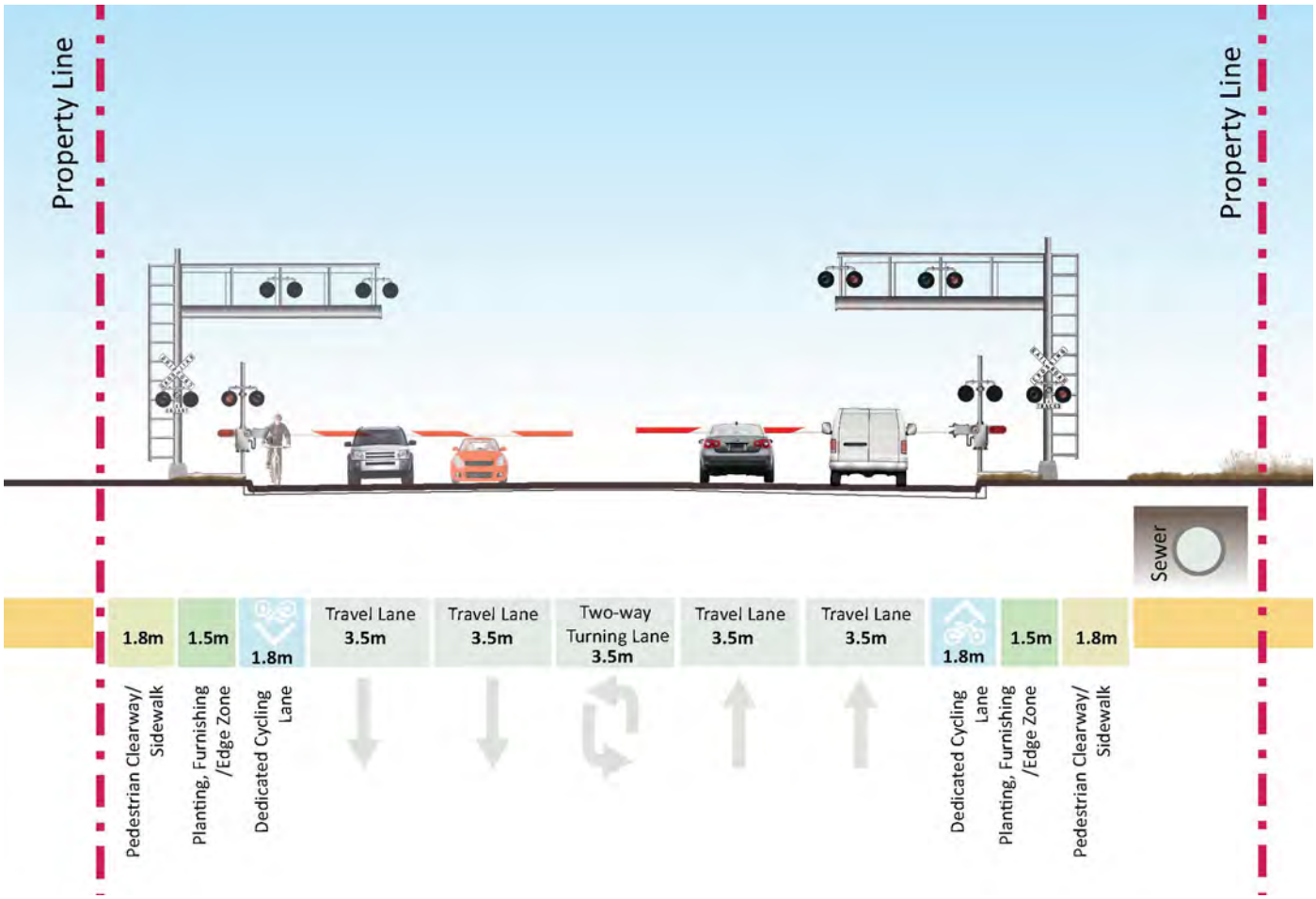


Figure ES-16 SSR Loop Road Cross Section of Alternative A – Improved At-Grade Crossing

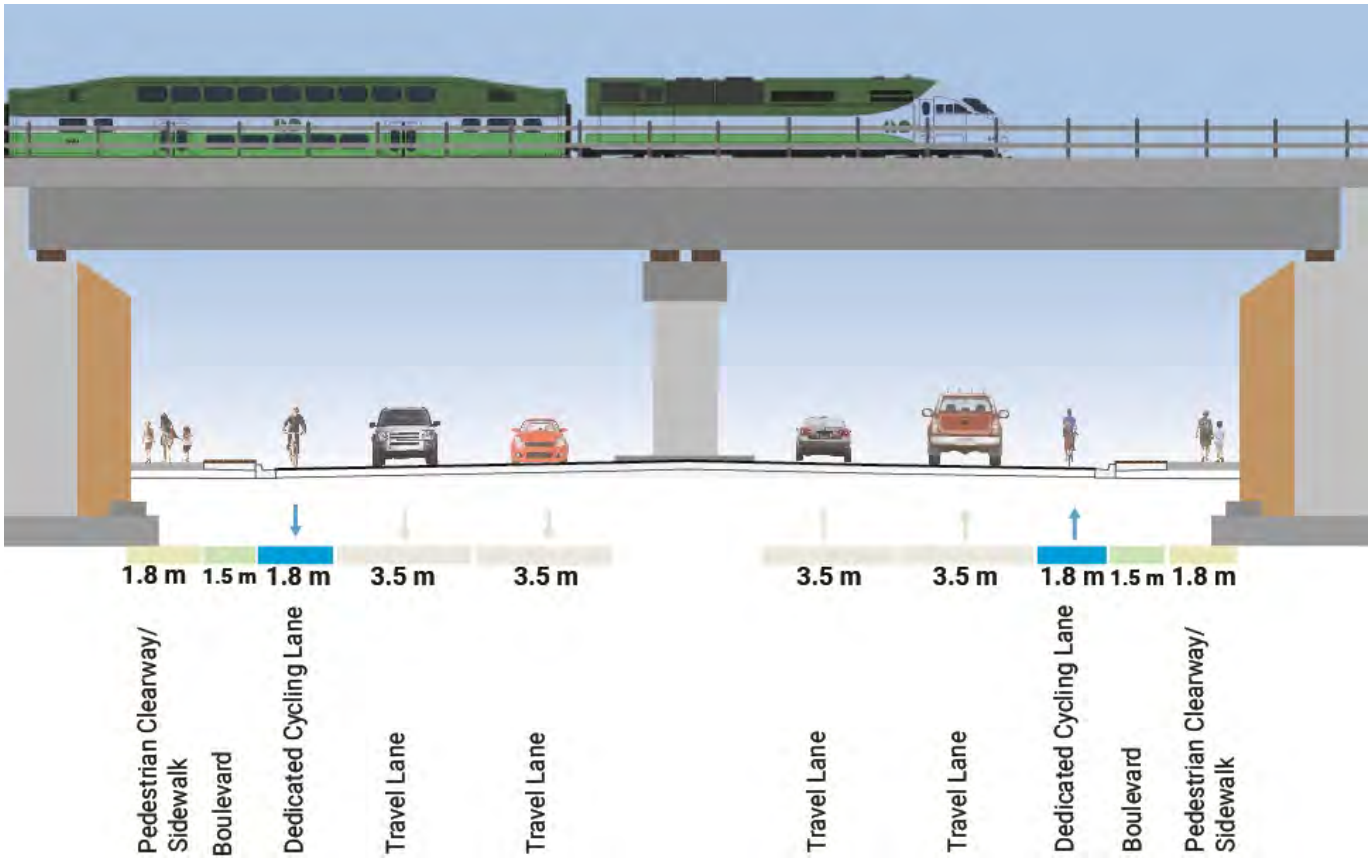
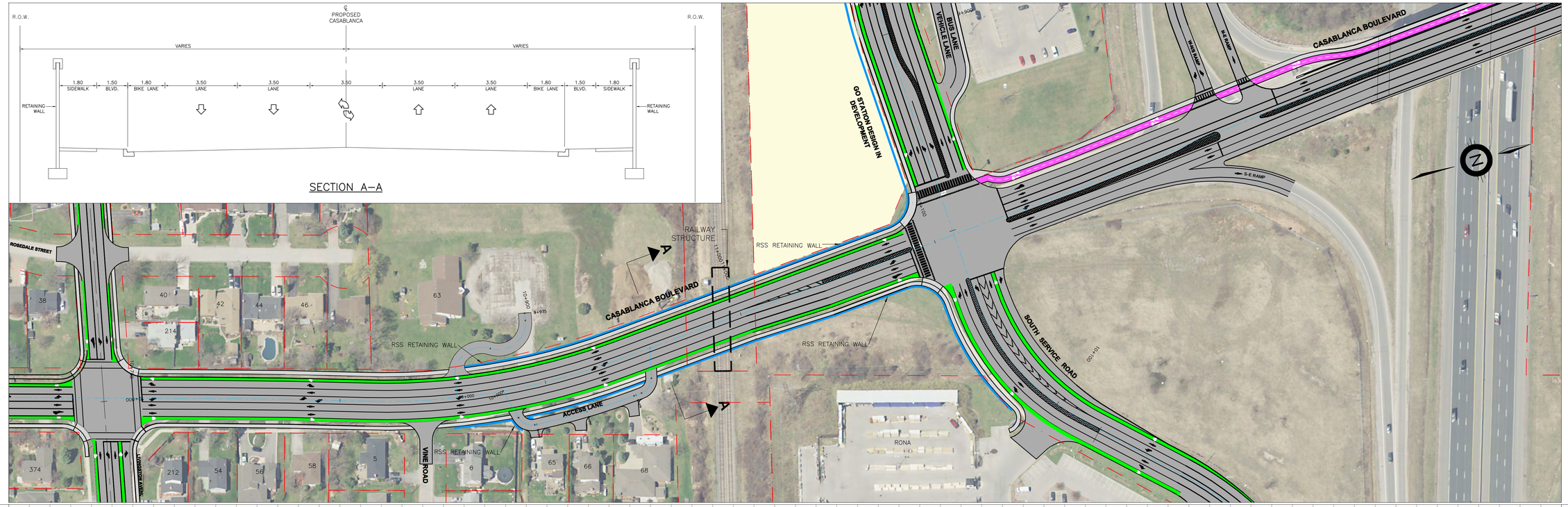


Figure ES-17 Cross Section of Alternative B – Underpass Grade Separated Crossing

SECTION A–A



SCALE
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Horizontal
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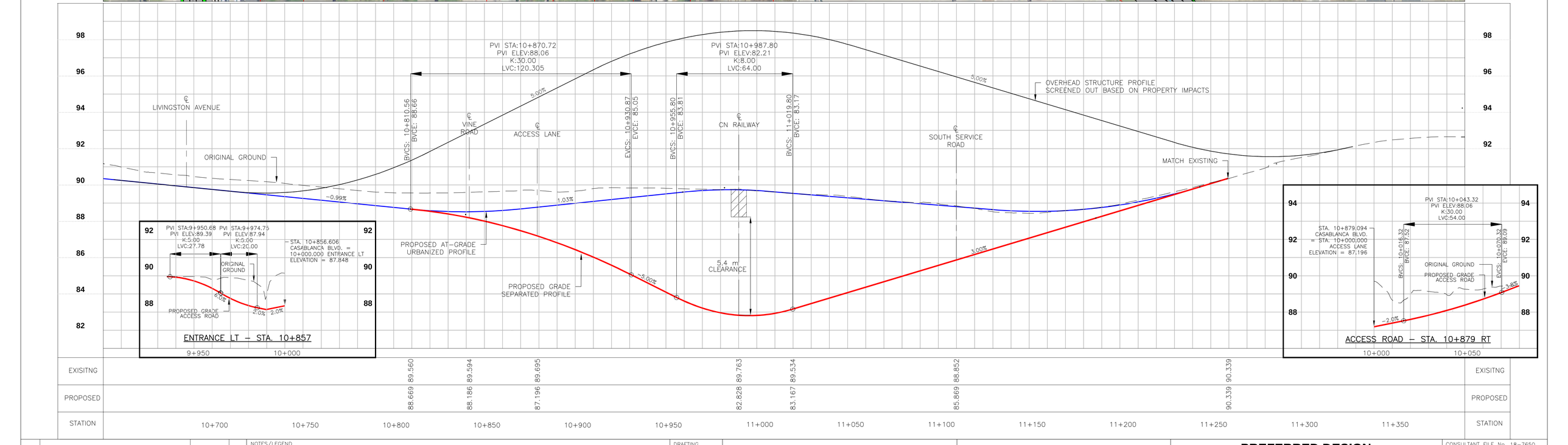

ENTRANCE LT – STA. 10+857

ACCESS ROAD – STA. 10+879 RT

NO.	REVISION	DATE	INIT.
1	ISSUED FOR STAKEHOLDER REVIEW	2018–09–18	PAM

NOTES/LEGEND

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PRELIMINARY ONLY

DRAFTING	SMP
DESIGN	SMP
CHECKED BY	SMP
APPROVED BY	PAM

Niagara Region PUBLIC WORKS

DILLON CONSULTING

PREFERRED DESIGN

FUTURE CASABLANCA BOULEVARD CN RAIL GRADE SEPARATION

CONSULTANT FILE No.	18–7650
DATE	2019–02–22
SCALE	AS SHOWN
REF. No.	
DWG No.	ES-18
REV.	0

Impacts and Mitigation

The impacts associated with implementing the recommended improvements for the preferred alternatives for each component of the Focused Study Area were identified, along with mitigation measures to address these related to the construction and operational phases of the project, as summarized in the tables below.

Table ES 1 Summary of Project Effects and Mitigation

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
TRANSPORTATION			
Potential for impact on traffic operations during construction.	Project construction could lead to traffic delays through the corridor particularly for the construction of new travel lanes, and intersection improvements including turning lanes.	As part of Detailed Design, prepare a construction phasing plan/detour plan as required to minimize delays to through movement of traffic.	Some temporary delays to traffic movement through the corridor.
Potential for conflicts with driveways and other entrances.	During construction there could be obstruction to entrances, including residential properties, along the corridor. The possible long term implementation of a grade separated crossing of the rail corridor could block entrances to residences along the east side of the corridor.	Property owners to be informed of any temporary entrance restrictions in advance. Restrictions to entrances to be minimized as much as possible. Alternative parking to be provided in the event that entrances are blocked during construction. In regards to the CN Rail crossing, an alternative driveway/entrance to be provided for residences along the east side of the corridor as per the design.	Some short term entrance restrictions may occur during construction.

[1] Mitigation to be refined during Detailed Design phase.

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
Potential to accommodate school buses and waiting students.	Potential for some delay to school bus travel through the corridor during construction. Potential for disturbance/safety issues to students waiting for school bus during construction.	Project constructor to be made aware of school bus activity and location of school bus stops prior to construction. Use of heavy equipment in vicinity of school bus stop locations to be minimized during student pick-up and drop-off periods. Project constructor to inform school boards/transportation provider of construction phasing and activities in advance.	Some temporary minor disturbance to students during construction.
Potential for impact on response times/access for Emergency Vehicles during construction.	Project construction could lead to delays in response times of emergency access vehicles.	Consult with emergency service providers during Detailed Design and development of the construction phasing plan to seek their input. Keep emergency response providers aware of construction phasing and any roadway lane closures.	Minimal delay to emergency response times.
ENGINEERING CONSIDERATIONS			
Impact to existing and planned servicing and utilities (e.g. hydro poles) within the corridor.	Depending on the project area location and proposed improvement, there is the potential need for the relocation of below/above ground utilities (power, communications, TV, municipal) as described in Section 8.0 of the ESR.	Need for relocations to be confirmed during detailed design. Consultation with utility companies and the Town of Grimsby to be undertaken as part of Detailed Design to confirm utility relocations.	Some short-term service interruption possible during construction. Long-term effects to utilities or service levels are not expected.

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
Impact on existing drainage related infrastructure.	The project will require alteration to drainage infrastructure to accommodate the widened footprint of the roadway. This will include the change from the Casablanca Boulevard rural ditch based system to an urban drainage system that includes the installation of an underground storm sewer.	Finalize new drainage system/underground pipe as part of Detailed Design.	With implementation of recommended drainage infrastructure corridor drainage system(s) will function more efficiently.
Increase in stormwater run-off (water quantity).	The additional roadway lanes and cycle facilities will result in an increase in the impervious area in the corridor. This will lead to an increase in the area of imperviousness and result in a greater amount of runoff.	The upgraded drainage and stormwater management system will need to accommodate the additional amount of run-off as a result of the additional roadway lanes.	With implementation of recommended drainage and stormwater management infrastructure and improvements, impacts to existing storm systems are anticipated to be minor. No flooding issues are anticipated. With the new system in place the potential for flooding to properties along the Vine Road ditch east of Casablanca Boulevard is reduced.
CULTURAL ENVIRONMENT			
Potential for impacts to registered archaeological sites	As a result of road widening and wider/relocated pathway, there could be some impact to undisturbed lands with archaeological potential as identified	Conduct Stage 2 Archaeological Assessment on planned extension to Livingston Ave. Pending results of Stage 2 work, additional archaeological investigations may be	No net adverse effects anticipated through following of provincial archaeological

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
and undisturbed lands.	through the Stage 1 work.	warranted.	assessment protocol.
Potential to impact known built heritage resources (i.e. listed/designated under Part IV or Part V of the Ontario Heritage Act and/or identified as culturally significant).	There are no cultural heritage features along Casablanca Boulevard The closest cultural heritage building, 400 Main Street West, is approximately 400m away from Casablanca Boulevard and is not expected to face any impacts as a result of this project.	No specific mitigation required due to absence of cultural heritage features within or in vicinity of the project area.	No net adverse effects to cultural heritage resources.
SOCIO-ECONOMIC ENVIRONMENT			
Requirement for property and/or easement acquisition(s) and impacts to buildings.	Buildings are generally well set back from the edge of roadway/Right-of-Way. For the most part the project will not require further acquisition of property. Relatively minor property widenings will be required at the Casablanca intersections at Livingston Avenue and at Main Street West. The exception would be if a third south bound (SB) lane (3.5 m) is provided between the South Service Road and north of Livingston Ave. If a third SB lane is included, property would be required from a few landowners. It is recommended that this widening be protected for.	If implemented in the longer term, landowners will be compensated at fair market value for the required property.	With provision of compensation to property owners for required property, not adverse net effects are anticipated.

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
Air emission/quality effects to residents and business during construction.	Temporary air emission effects to residents and businesses from construction equipment operation and soil disturbance.	• Develop and implement a dust control plan. • Apply water and dust suppressants during construction to protect air quality due to dust. • Contractors are required to keep idling of construction equipment to a minimum and maintain equipment in good working order to reduce emissions from the construction activities. Air quality related complaints received by the public (e.g. dust) will be monitored by the proponent and/or the project constructor. Follow up action will be taken where appropriate.	Some short-term air quality nuisance effects (e.g. dust) may occur for some receptors during construction. With monitoring and follow-up/mitigation to any received complaints, the effects should be minimized.
Noise disturbance effects to residents and business during construction.	There are no businesses located along Casablanca Boulevard. There is potential for temporary noise effects to residents from construction equipment operation.	• Develop and implement noise control plan. • Contractor operational constraints related to construction noise will be incorporated into the contract documents. • Construction activities throughout the project will conform to current Municipal noise by-laws giving due consideration to such factors as the time of day, proximity and size of equipment and type of operation.	Some short-term noise effects may occur for some receptors during construction. With mitigation and the monitoring and follow-up to any received complaints, the effects should be minimized.

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
		• Contractors are required to keep idling of construction equipment to a minimum and maintain equipment in good working order to reduce noise from the construction activities. • Noise related complaints received by the public will be monitored by the proponent and/or the project constructor. Follow-up action will be taken where appropriate.	
Change in noise levels during operations	More vehicles will be attracted to the corridor as a result of roadway improvements and changing land use in the area. This will result in increased noise levels to surrounding residents. The noise modelling undertaken (see **Appendix K**), shows that noise level increases will be less than 5 dB and are not considered to be significant.	No mitigation recommended.	No significant noise impacts are predicted to result from the project.
Disruption in access to residential property and local businesses.	Very low potential for temporary access restrictions to property during construction. No long-term access restrictions.	Contractor to minimize access restrictions as much as possible. Landowners to be notified of any access restrictions in advance.	Minimal to no restrictions to/from property access are expected.

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
Impacts on farm operations/Removal of agricultural land.	The Livingston Avenue Right-of-Way is owned by the Region. Active agricultural land will not be removed for the extension of Livingston Ave. This land has been fallow for several years and is no longer designated for long term agricultural use.	The area of impact is owned by the Region and is intended for a long-term transit facility.	No specific mitigation warranted.
NATURAL HERITAGE FEATURES			
Potential impacts to terrestrial vegetation and wildlife habitat.	There are minimal natural features located within the project footprint/along Casablanca Boulevard. Notable effects include the removal of the ditch along the west side both sides of Casablanca Boulevard The drainage feature ditch on the west side is covered by emergent vegetation throughout and shaded by trees for approximately 30% of the area. The banks of this drainage feature do not contain significant wildlife habitat. Vegetation cover along a portion of South Service Road consists of Dry - Fresh Mixed Meadow/ Gray Dogwood Deciduous Shrub Thicket complex which will be impacted. There is also the potential for the removal of about up to 40-45 individual trees of varying levels of maturity. The final number	• Develop a tree compensation/re-planting plan during Detailed Design to compensate for tree removals. • Establish Tree Protection Zones (TPZs) during Detailed Design and show the TPZs on the contract drawings adjacent to proposed work areas in the Study Area to protect vegetation to be retained. Tree protection fences/barriers demarcate TPZs and protect existing trees along cut lines from equipment damage. • Avoid vegetation clearing during sensitive timing windows for nesting birds. • Plant replacement trees during/following construction. Areas to be planted to be determined with input from landowners,	With the implementation of the mitigation measures and re-planting of replacement trees and/or habitat, net impact will be minimal.

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
	to be removed will be confirmed during Detailed Design.	local Municipalities and (Niagara Peninsula Conservation Authority) NPCA.	
Potential impact to fisheries and fish habitat.	The results of the assessment indicated that the main west-side drainage feature along Casablanca Boulevard is used for flow conveyance and does not provide suitable fish habitat. As such, it is not anticipated that the proposed road widening activities at Casablanca Boulevard and proposed entrapment replacement of the drainage feature with a storm sewer will cause serious harm to fish or fish habitat as per Section 35 of the Fisheries Act.	No specific mitigation other than those noted below with respect to mitigating potential for alteration to water quality.	No significant impacts to fish or fish habitat are anticipated from the project.
Potential to impact to Species at Risk (SAR).	The potential for SAR and SAR habitat has been assessed. While no SAR were observed in association with the 2018 field investigations, it was determined that the Study Area has the potential for the following species to be present: • Barn Swallow (THR) • Eastern Meadowlark (THR) • Bobolink (THR) • Monarch Butterfly (SC) None of these species have regulated habitat under Ontario Regulation	• Future follow-up work is recommended to confirm the presence or absence of species (and/or habitat) at the Detailed Design stage. • If necessary, develop species specific mitigation plans. • Review species specific seasonal timing windows to avoid sensitive periods for species. • If necessary, conduct wildlife sweeps prior to the commencement of work activities to determine if SAR (or other wildlife) are present at the site and engaged in critical	With implementation of the mitigation measures, impacts to SAR are anticipated to be minimal.

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
	242/08.Potential impacts to the above SAR as a result of the project include: • Potential removal of habitat; • Potential encroachment of SAR habitat; • Potential to kill harm or harass the species during construction.	life processes (e.g. nesting, etc.). • Potential impacts to these species and their habitat should be identified as early as possible. Depending on the extent of work proposed and the potential impact, targeted surveys may be required to confirm presence of these species and identify any permitting requirements under the ESA 2007. It is recommended that if permits are required, the process be initiated as early as possible, as permitting can take significant time and potentially affect the project delivery schedule. Many infrastructure rehabilitation and replacement works proposed by MTO can be addressed under Section 23.18 of the Ontario Regulation 242/08 “Threats to Health and Safety, Not Imminent”, which should be reviewed as part of the impact assessment during the Detailed Design phase.	

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
Potential for wildlife disturbance during construction.	While the surrounding lands do not contain significant wildlife habitat, there is potential for some species (e.g. birds) to be present. As such, there is some potential for temporary disturbance to wildlife due to noise, dust and habitat encroachment during construction.	• Conduct wildlife sweeps prior to the commencement of work activities to determine if or other wildlife are present at the site and engaged in critical life processes (e.g. nesting, etc.). • Following the wildlife sweep, the area of activity is to be isolated to wildlife from entering the work space area. • Develop and implement a dust control plan.	Some temporary disturbance to wildlife is possible although species are likely habituated to road noise etc. With mitigation effects expected to be minimal.
Potential for alteration to surface water quality	The project area includes a ditch/drain that runs parallel to the corridor and empties into Lake Ontario to the north of the project area. During construction there is the potential for alterations to surface water quality due to sedimentation and the introduction of deleterious substances to watercourses. Sources may include fuel leaks from construction equipment, entry of sediment or stockpiled materials into the watercourses. With the installed stormwater management controls, surface water resources are not	• Develop and implement an effective erosion and sediment control plan (ESCP) to prevent migration of loose soils and accumulated sediment into local drains and downstream areas. • Include measures for managing water flow onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering the drain. • Handling of fuel, excess materials and debris will be properly managed on-site and removed as per standard construction practices necessary to protect watercourses. • Develop a spills response plan.	During construction some increase in sedimentation levels in local watercourses may occur. With the implementation mitigation, adverse effects are anticipated to be temporary and minimal.

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
	expected to be impacted.	• All materials used or generated (e.g. organics, soils, woody debris, temporary stockpiles, construction debris, etc.) will be temporarily stored, handled and disposed of during site preparation, construction and clean-up in a manner that prevents entry into watercourses. • Erosion and sediment control measures are inspected and maintained on a regular basis during drainage works. • Any damages to erosion and control measures are to be repaired immediately. • Removal of non-biodegradable erosion and sediment control materials once site has been stabilized. • During operations, monitor effectiveness of the SWM facility. Monitoring program to be determined during detailed design. ….	
Potential for impact to groundwater resources.	During construction, uncontrolled runoff could potentially result in contamination of groundwater through infiltration of potential contaminants, and/or infiltration of contaminated surface water. Local water resource/supply impacts are not anticipated as residents are serviced by Town piped water.	• Implement best management practices (BMPs) as noted above in regards to potential impacts on surface water quality. If groundwater dewatering is required during construction, then dewatering should be conducted in accordance with applicable procedures including determination of the need for a Permit to Take Water (PTTW) from MECP.	During construction there is some potential for effects to groundwater resources in the local area (primarily in the vicinity of lands requiring dewatering). With the implementation mitigation, adverse effects are anticipated to be temporary and minimal.

Potential Impact	Description of Potential Impact	Mitigation/Monitoring[1]	Net Effect
		Give regard to and implement measures required to meet source water protection policies – to be defined during Detailed Design.	

Project Benefits

Casablanca Boulevard Road Widening

The benefits associated with this project primarily relate to the improvement of transportation along Casablanca Boulevard and parts of the South Service Road and Livingston Avenue. The improvements to Casablanca Boulevard through road widening and creation of a complete street will accommodate forecasted future vehicle demands, including those associated with the planned GO Transit Station, and with the included active transportation facilities that will promote more cycling and walking through the corridor.

CN Rail Crossing Treatment

The improvements to the CN Rail crossing on Casablanca Boulevard north of Vine Road will benefit the safety of drivers and reduce the probability of incidents involving train and vehicular conflict.

South Service Road Improvements

Improvements made to the South Service Road will provide for more efficient access into the GO Transit Station for west bound vehicles, and allows for better traffic flow as it provides additional queue storage for vehicles making west bound left-turns into the GO Transit Station and also reduces chances of delay.

Effects Monitoring

Recommended effects monitoring during the construction period includes:

- Monitoring of traffic flow to ensure the minimization of delays;
- Public complaints monitoring and follow-up regarding construction disturbances;
- Monitoring of vegetation removal; and
- Monitoring of the effectiveness of SWM controls to ensure erosion and sedimentation effects are minimized.

Effects monitoring during the operations phase once the project has been implemented is proposed for the CN Rail crossing, to monitor traffic and queues relevant to the need for a grade separation at this location.

Considerations for Detailed Design

A number of key considerations were put forward through the stakeholder and public consultation process, to be carried forward for consideration in the detailed design process:

- Traffic calming and control of speeding, to be investigated through the refinement of the roadway design;
- Noise and property security concerns due to the road widening and completion of the active transportation network, to be considered in the roadway design (e.g. landscaping);
- Mitigation of visual distractions or other sightline impacts from streetscaping elements (e.g. roadside banners and signage);
- Development of a Signage Strategy to improve laneway legibility and direct drivers to appropriate lanes on the QEW Interchange and at the GO Transit Station access on the South Service Road;
- Utility pole placement relative to residences, with mitigation to keep poles as removed from residences as possible; and
- Development of a Signals and Illumination Strategy to coordinate signal timing for intersections and the CN Rail crossing on Casablanca Boulevard.

Phasing of the recommended improvements associated with the preferred alternative for each component of the Focused Study Area as discussed in this section will also be determined through the detailed design process.