



SNC • LAVALIN

INTERIM REPORT

Halifax Regional Municipality

**Chester Spur Line Functional Alignment –
Interim Report**

**SLI Project Number
020447-0001**

January 2010



Interim Report

Chester Spur Line Functional Alignment:
Options Analysis

January 2010

Prepared for:

**Halifax Regional Municipality
40 Alderney Gate, 5th Floor
Dartmouth, Nova Scotia
B2Y 2N5**

Prepared by:

SNC-LAVALIN INC.

Suite 200, Park Lane Terraces
5657 Spring Garden Road
Halifax, Nova Scotia
B3J 3R4

Ph: (902) 492-4544, Fx: (902) 492-4540

Revision:	Date (y/m/d):	Prepared By: / initials	Reviewed By: / initials	Approved By: / initials	Date (y/m/d):
C01	2010-01-04	M. Connors <i>RWB</i>	R. Boychuk <i>RWB</i>	R. Boychuk <i>RWB</i>	2010-01-04

020447-0001-T-CI-REP-0002 Rev C01



SNC-LAVALIN INC.
Suite 200
Park Lane Terraces
5657 Spring Garden Road
Halifax, Nova Scotia
Canada B3J 3R4

Telephone: 902-492-4544
Fax: 902-492-4540

January 4, 2009

Halifax Regional Municipality
40 Alderney Gate, 5th Floor
Dartmouth, Nova Scotia

Attention: Roxane MacInnis
Project Manager

Dear Ms. MacInnis:

RE: Chester Spur Line Functional Alignment

SNC-Lavalin Inc. (SNC-Lavalin Inc.) appreciates the opportunity to work with Halifax Regional Municipality on the development of functional alignment options for the connection of the Chester Spur Line with existing and planned active transportation corridors on the Halifax Peninsula. SNC-Lavalin Inc. is pleased to submit three (3) bound copies, one (1) unbound copy, and one (1) electronic copy of our Interim Report for this assignment.

If there are any questions, please do not hesitate to contact the undersigned at 902-492-4544.

Yours truly,

SNC • LAVALIN INC.

A handwritten signature in black ink, appearing to read "Roger Boychuk".

Roger Boychuk, P.Eng.
Manager, Transportation Engineering

RB/mc

020447-0001-T-CI-REP-0002.doc

TABLE OF CONTENTS

	Page No.
Letter of Transmittal	
1. INTRODUCTION	1
1.1 Study Objectives	1
1.2 Scope of Work	1
1.3 Study Area	2
1.4 Background Information	3
1.4.1 Halifax Regional Municipality Active Transportation Plan	3
1.4.2 Halifax Urban Greenway Association (HUGA) Trail	3
1.4.3 Bedford Highway Trail	4
1.4.4 Seaview Park Trail	4
2. METHODOLOGY & APPROACH	5
2.1 Initial Field Investigations and Identification of Preliminary Options	5
2.2 Presentation of Preliminary Options and Halifax Regional Municipality Feedback	5
2.3 SNC-Lavalin Inc. / Halifax Regional Municipality Field Investigation	5
2.4 Development of Key Areas in Preliminary Options	6
3. HUGA TRAIL CONNECTION	7
3.1 Option #1 – St. Margaret’s Bay Road – Armdale Roundabout	8
3.1.1 The Armdale Roundabout	8
3.1.2 Crown Drive / Keating Road / St. Margaret’s Bay Road	9
3.2 Option #2 – Fairmount Connection to West End Mall	11
4. SEAVIEW PARK / BEDFORD HIGHWAY CONNECTION	13
4.1 Bedford Highway Connection	13
4.1.1 Crossing the CN Marshalling Yards	14
4.1.2 Joseph Howe Drive - Atlantic Superstore	15
4.2 Fairview Cemetery	16
4.2.1 Windsor Exchange / Kempt Road Area	18
4.3 Container Terminal Service Road / Seaview Park	19
4.4 Memorial Drive Connection to Seaview Park	20
5. SUMMARY AND CONCLUSION	21

List of Figures

Figure 1-1:	Overall Study Area	2
Figure 3-2:	Halifax Urban Greenway Association Trail Connection through Armdale Roundabout	8
Figure 3-3:	Halifax Urban Greenway Association Trail Connection Options from Chester Spur Line to St. Margaret's Bay Road	9
Figure 3-6:	Halifax Urban Greenway Association Trail Connection Options Adjacent to West End Mall.....	11
Figure 4-1:	Bedford Highway Connection Options	13
Figure 4-2:	Options for Crossing the CN Marshalling Yards.....	14
Figure 4-4:	Superstore Rail Cut Crossing Options	16
Figure 4-5:	Proposed Route through Fairview Cemetery	17
Figure 4-7:	Fairview Cemetery.....	18
Figure 4-8:	Windsor Exchange / Kempt Road Area.....	19
Figure 4-9:	Proposed Alignment Utilizing Container Terminal Service Road	20
Figure 4-10:	Memorial Drive AT Connection.....	21

Appendices

- Appendix 1(a): Preliminary Routes – Chester Spur Line to Halifax Urban Greenway Association Trail
- Appendix 1(b): Preliminary Routes – Chester Spur Line to Seaview Park / Bedford Highway
- Appendix 1(c): Preliminary Routes – Chester Spur Line to Seaview Park / Bedford Highway

1. INTRODUCTION

SNC Lavalin Inc. (SNC-Lavalin Inc.) was retained by the Halifax Regional Municipality (Halifax Regional Municipality) to develop functional alignments for connections between the now inactive Chester Spur Line rail corridor and the Bedford Highway / Seaview Park areas and the Halifax Urban Greenway Association (HUGA) trail as identified in the Halifax Regional Municipality Active Transportation Plan. Functional alignment connection options considered under this study included a combination of off-road options (multi-use trails) and on-road options (bike lanes, side walks, multi-use pathways). SNC-Lavalin Inc. has completed background review, field investigation, route development, identification of constraints / opportunities, and option evaluation for both connections. The results of this analysis are presented in this interim report in preparation for the subsequent functional design work.

1.1 STUDY OBJECTIVES

Given the many topographic, property, and other constraints on the Halifax Peninsula, identification of the best locations for the connection of active transportation corridors is challenging and requires careful consideration of a variety of factors. The Halifax Regional Municipality Active Transportation Plan provides the general location of the proposed connections, however, detailed review and functional design has not been undertaken to any significant degree. The primary objective of this study was the further development of functional alignment options for the connection of the Chester Spur Line with the following active transportation corridors:

- Halifax Urban Greenway (HUGA) Trail;
- Seaview Park Trail; and,
- Bedford Highway Trail.

1.2 SCOPE OF WORK

The scope of work for this study includes the following:

- Carry out necessary background information reviews, field investigations, and stakeholder consultations to identify appropriate active transportation connection routes;
- Develop two alternative active transportation routes for connection of the Chester Spur Line to the planned Halifax Urban Greenway Association Trail connection and the Bedford Highway / Seaview Park area;
- Identify and evaluate constraints and opportunities for each option, including:
 - Solutions to bypass potential barriers;
 - Investigation of potential grade issues;
 - Identify where on-road and off-road connections can be made;
 - Examine solutions for crossing the rail cut, where necessary;

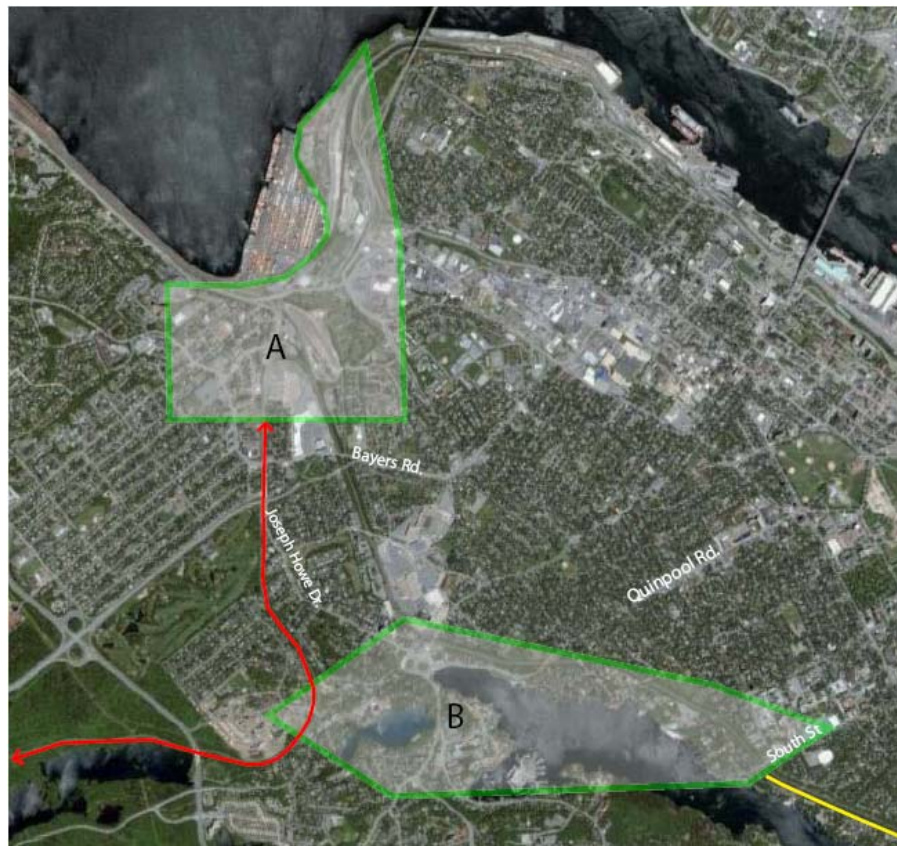
- Identification of necessary property acquisitions.
- Develop the functional design elements of the route as required to support its selection and required operation;
- Preparation of presentation materials and hosting of a public meeting to obtain public feedback on the functional alignment options that are developed; and
- Preparation of Class "C" cost estimates for the construction of each route.

This interim report specifically addresses the development of the proposed routes and the evaluation of constraints and opportunities to support their selection. Subsequent work will include the preparation of functional design sketches and costing.

1.3 STUDY AREA

The study area is split into two general areas at the north end of the Halifax peninsula, as shown in Figure 1-1. Each area has been identified in the figure including the Chester Spur Line (shown in red) and the other planned Active Transportation routes including: (a) Bedford Highway / Seaview Park trails, and (b) Halifax Urban Greenway Association Trail.

Figure 1-1: Overall Study Area



1.4 BACKGROUND INFORMATION

1.4.1 Halifax Regional Municipality Active Transportation Plan

Halifax Regional Municipality has incorporated active transportation in its regional planning strategy through the creation of the Active Transportation Functional Plan, one of five functional plans that make up the Transportation Master Plan. The Active Transportation Plan includes policies related to the development of active transportation infrastructure, promotion of active transportation modes, technical guidelines, and proposed locations for active transportation corridors. The primary goal of the plan is a twofold increase (over a 20-year implementation period) in the number of people who use active transportation modes, which is to be facilitated through the implementation of a diverse group of facility types including:

- Multi-use trails;
- Cycling routes;
- Bicycle lanes;
- Sidewalks; and
- Paved shoulders on high volume collector and rural roads.

The Active Transportation Plan includes a technical appendix that provides facility planning and design guidelines for the implementation of the plan. The technical appendix, which was designed through consultation with Halifax Regional Municipality, stakeholders, and the public, is a supplement to the main report that serves as a general reference to Halifax Regional Municipality and its partners during the planning and design process.

1.4.2 Halifax Urban Greenway Association (HUGA) Trail

The Halifax Urban Greenway Association is a community group dedicated to promoting the construction of an Active Transportation corridor along the CN Rail cut in Peninsular Halifax between Point Pleasant Park and Chebucto Road. The proposed greenway includes a system of trails, footpaths, and multi-use trails along either edge of the rail cut. The greenway is envisioned as one of the very few remaining opportunities to preserve a natural setting for trail development in the Downtown Halifax area.

The Halifax Urban Greenway Proposal, which was completed by the Halifax Urban Greenway Association in 2002, provides a framework for planning and implementation of the trail. The proposal includes discussion of the facility types envisioned, facility standards, a review of potential alignment options, and an analysis of the agreements and partnerships necessary for the proposal to move forward. Of particular note, the preliminary routing investigation provides a valuable evaluation of the opportunities and constraints that exist for trail development along the corridor.

After several years of work between Halifax Urban Greenway Association and Halifax Regional Municipality including many public consultations, detailed design for Phase 1 of the Halifax

Urban Greenway Association Trail, between South Street and Roxton Road, has been completed. Tendering of the work was completed in fall 2009, and construction commenced shortly thereafter.

1.4.3 Bedford Highway Trail

The Halifax Regional Municipality Active Transportation Plan includes a recommendation for the connection of Bedford and the Halifax Peninsula via an active transportation corridor along the Bedford Highway. The connection is anticipated to utilize space within the existing rail corridor, creating a "rails with trails" corridor, which have been used with success in many other projects in Canada and the United States. The rails with trails plan is currently in the preliminary stages, and still requires further feasibility analysis, which will be addressed in this study, along with coordination with CN in acquiring the necessary lands.

1.4.4 Seaview Park Trail

Seaview Park is located near the MacKay Bridge and is surrounded by major roadway corridors including Barrington Street, the MacKay Bridge approaches, and Kempt Road. The most significant challenges in creating an active transportation corridor are related to the crossing of Kempt Road, Windsor Street and Robie Street. Options through this area are also restricted due to the presence of the Fairview Container Terminal which occupies a significant portion of the lands adjacent to the Bedford Basin and northwest of Kempt Road.

2. METHODOLOGY & APPROACH

2.1 INITIAL FIELD INVESTIGATIONS AND IDENTIFICATION OF PRELIMINARY OPTIONS

SNC-Lavalin Inc. conducted field investigations in both study areas, exploring potential connections from the former rail line to the Bedford Highway / Seaview Park areas and the proposed Halifax Urban Greenway Association (HUGA) trail. Preliminary investigations were documented extensively with photos, and yielded several potential connection route opportunities. Based on analysis of demand lines, topography, and property ownership, several areas were identified that are priority connection points as well as constraints to active transportation corridor connectivity. The preliminary route options are presented in Appendix A.

2.2 PRESENTATION OF PRELIMINARY OPTIONS AND HALIFAX REGIONAL MUNICIPALITY FEEDBACK

Upon completion of preliminary field investigations, all potential connection options were presented to Halifax Regional Municipality in a progress meeting on June 5, 2009. The intent of the meeting was to obtain feedback on the preliminary options that were developed, including identification of routes that were favourable or unfavourable, discussion regarding constraints associated with each, and addition or deletion of routes based on Halifax Regional Municipality's existing knowledge and experience. Halifax Regional Municipality Real Property Planning provided valuable information regarding the property ownership issues, including the evaluation of routes based on their potential for land acquisition. Subsequently, the preliminary options were refined to reflect the results of the meeting in preparation of a more detailed site investigation to be attended by Halifax Regional Municipality and SNC-Lavalin Inc..

2.3 SNC-LAVALIN INC. / HALIFAX REGIONAL MUNICIPALITY FIELD INVESTIGATION

A comprehensive field investigation was carried out by Halifax Regional Municipality and SNC-Lavalin Inc. on Tuesday, June 23 at several key locations identified in the preliminary options. The intent of the field investigation was an "on the ground" review of the opportunities and challenges for connectivity at each location, and identification of Halifax Regional Municipality's preferred options for further consideration. Site investigations were carried out at the following locations:

- West End Mall adjacent to the CN rail tracks;
- Crown Drive / Keating Road and St. Margaret's Bay Road near the Armdale Roundabout;
- Terminus of Chester Spur Line section adjacent to Joseph Howe Drive Atlantic Superstore and CN Marshalling Yards;
- Fairview Cemetery; and,
- Fairview Container Terminal service road.

2.4 DEVELOPMENT OF KEY AREAS IN PRELIMINARY OPTIONS

Based on SNC-Lavalin Inc.'s site investigations, progress meetings, and SNC-Lavalin Inc.-Halifax Regional Municipality field meetings, two options were developed for each of the Halifax Urban Greenway Association Trail and Seaview Park / Bedford Highway trail connections. These options each include a number of sub-options for consideration. The following report sections outline our approach and understanding of these proposed connection points, including perceived opportunities and constraints and their influence on the viability of potential options.

3. HALIFAX URBAN GREENWAY ASSOCIATION TRAIL CONNECTION

The Halifax Urban Greenway is an important component of Halifax Regional Municipality's envisioned future Active Transportation (AT) network. The proposed Halifax Urban Greenway Trail will run along the apron of the CN rail cut between Point Pleasant Park and Chebucto Road, providing an attractive environment and functional connection for Active Transportation users. From the perspective of overall connectivity of Halifax Regional Municipality's active transportation network, connection of the Halifax Urban Greenway Association Trail and the Chester Spur Line is important in providing a link between peninsular Halifax and outlying points in Halifax Regional Municipality, and beyond.

With Phase 1 of the Halifax Urban Greenway Association Trail (between South Street and Roxton Road) currently set for construction, one of the next steps in the development process will be the portion of the trail north of South Street. Based on a review of the Halifax Urban Greenway Association Trail Proposal and preliminary site investigations, it is evident that development of the portion of the trail between South Street and Chebucto Road will be much more challenging than the portion south of South Street. Rugged terrain, steep slopes, private property encroachment, and road crossings will inevitably make construction of the trail a difficult and expensive undertaking. However, it appears that despite the challenges, good potential exists for completion of the trail.

Feedback from Halifax Regional Municipality has indicated that Halifax Urban Greenway Association Trail development will maintain an alignment along the rail cut where feasible, potentially extending north of the previously envisioned terminus at Chebucto Road. Advantages associated with extending the Halifax Urban Greenway Association Trail as far north as possible include maximizing available opportunities for off-road Active Transportation facilities, and providing access to commercial areas and transit facilities. Based on these assumptions, investigation of connection options between the Chester Spur Line and the Halifax Urban Greenway Association Trail at South Street will be focused primarily on the alignment proposed in the Halifax Urban Greenway Association's proposal. These investigations will include a review of the proposed alignments, with particular focus on developing solutions to the various constraints (i.e. pinch points) that have been identified.

Two separate primary routes have been identified to link the Chester Spur Line with the proposed Halifax Urban Greenway Association Trail. The first option connects to the rail cut corridor via the Armdale Roundabout, while the second connects further north at the West End Mall. Each option contains multiple potential sub-options, each with their own advantages and disadvantages.

3.1 OPTION #1 – ST. MARGARET’S BAY ROAD – ARMDALE ROUNDABOUT

3.1.1 *The Armdale Roundabout*

The Armdale Roundabout is an obvious location to facilitate the connection of the Chester Spur Line corridor to the Halifax Urban Greenway Association Trail, as it is a hub for several routes in and out of the Halifax core. The recently re-designed roundabout is capable of safely accommodating pedestrians and cyclists, with sidewalks that are multi-use trail width and have bicycle exit ramps that accommodate movements from roadway to trail (See Figure 3-1). The roundabout provides access to both Chebucto Road and Quinpool Road, which intersect with the rail cut corridor in the area intended for use in the Halifax Urban Greenway Association Trail.



Figure 3-1: Armdale Rotary

Two separate routes have been identified for connection through the Armdale Roundabout: Chebucto Road and Quinpool Road. Figure 3-2 shows a rough layout of the location considered for each option. Each has good potential for connection to the Halifax Urban Greenway Association Trail, although there are challenges due to the necessary road crossings at each of the major arterial roads. Use of CN Rail property, rail cut crossing structures, and steep grades accessing rail cut are all important considerations.

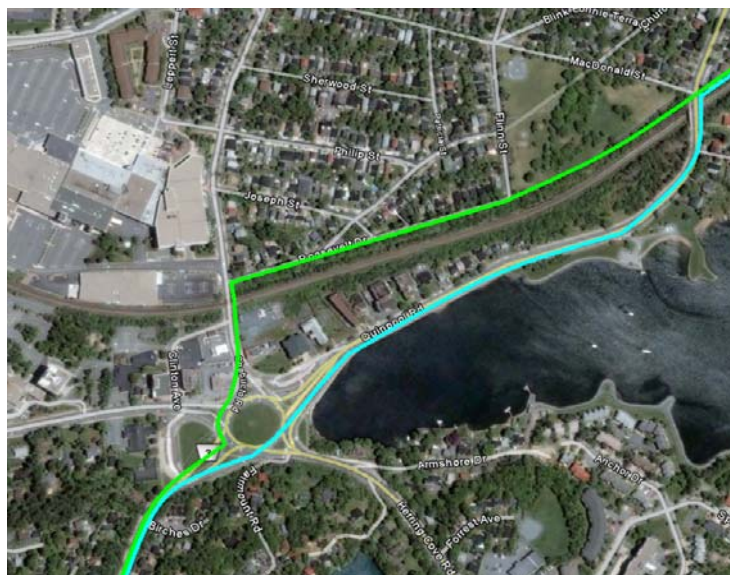


Figure 3-2: Halifax Urban Greenway Association Trail Connection through Armdale Roundabout

3.1.2 Crown Drive / Keating Road / St. Margaret's Bay Road

The area between the Armdale Roundabout and the Chester Spur Line is relatively rugged, with considerable grade changes and dense development along narrow streets. Traffic volumes in the area are relatively low, as many of the streets are limited almost solely to local traffic. Preliminary routes were identified from both Crown Drive and Keating Road, both of which feed onto St. Margaret's Bay Road and the nearby Armdale Roundabout. Figure 3-3 shows the two separate routes from Crown Drive (blue line) and Keating Road (green line). A brief description of each is provided below.

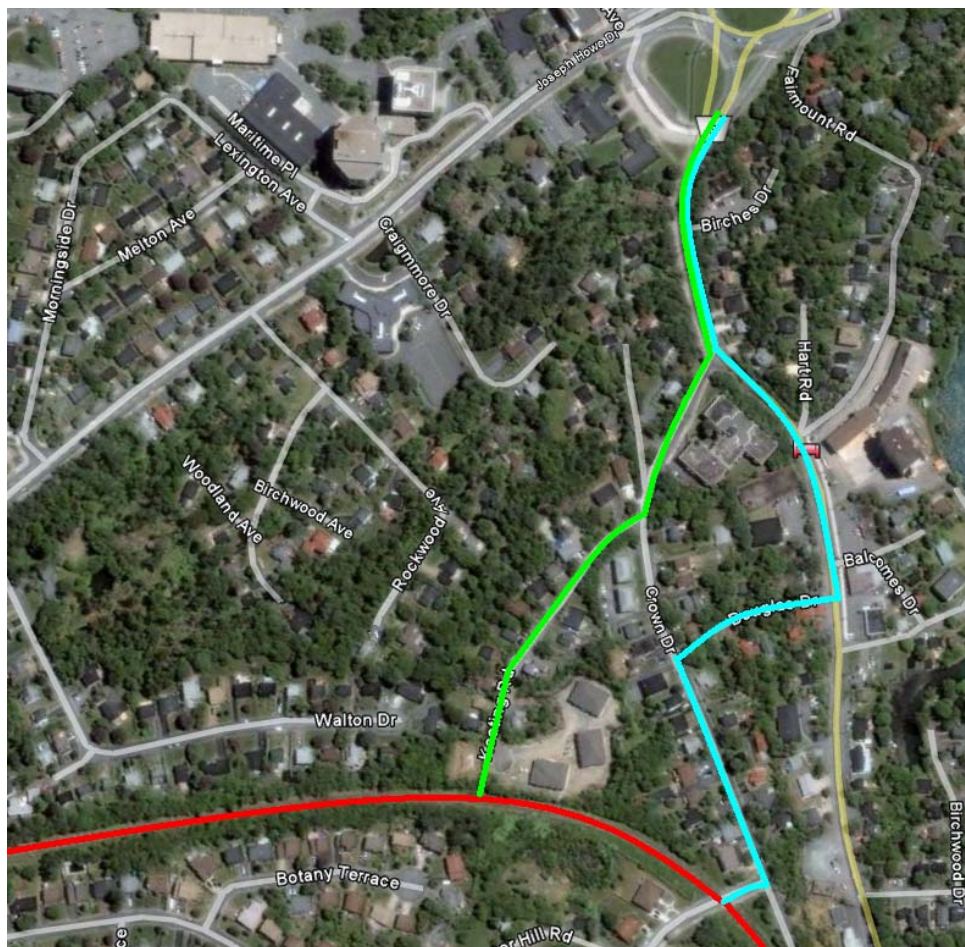


Figure 3-3: Halifax Urban Greenway Association Trail Connection Options from Chester Spur Line to St. Margaret's Bay Road

Crown Drive:

- The Spur Line (shown in red) intersects Brook Street and provides a reasonable mid-block crossing location (trimming of vegetation in key areas may be required to address potential sight line issues). The proximity of the crossing to the stop-controlled Crown Drive intersection should also be considered. In particular, this will include selection of an appropriate crossing location, which will be dependant on which side of Crown Drive

is pursued.

- Douglas Drive is approximately 150m from the Crown Drive-Brook Street intersection, where a set of steps is present and potential exists for a sloped path (See Figure 3-4). This provides connection to St. Margaret's Bay Road, which is being upgraded to include more accommodating lane and sidewalk widths, and which Halifax Regional Municipality has identified as a preferred route for the active transportation connection. Douglas Drive also has the advantage that it is in close proximity to a pedestrian crosswalk across St. Margaret's Bay Road.



Figure 3-4: Douglas Drive Stairway

- A limitation of this route is use of Crown Drive, which has higher traffic volumes than other streets in the vicinity, limited opportunity for widening, and presently has no sidewalks.
- It appears that the stairs on Douglas Drive could be replaced with a ramp, though it is likely that a switchback would be required to resolve the grade difference while meeting maximum recommended slopes. The use of ramps and landings would have to be carefully considered and some minor land acquisition may be required close to Crown Drive.

Keating Road

- Halifax Regional Municipality has previously considered this location for a connection for planning purposes. The cul-de-sac has potential for connection to the Spur Line, as grades are reasonable and traffic volumes are light. A path is currently present between the Spur Line and cul-du-sac (See Figure 3-5). Keating Road intersects at Crown Drive and continues directly to St. Margaret's Bay Road.



Figure 3-5: Keating Road

- The option of connecting to the Armdale Roundabout via an extension of the rugged northeast end of Crown Drive was investigated, however, significant grade issues likely make this option unfeasible. The best option for connection will most likely be to follow Keating Drive to St. Margaret's Bay Road.

3.2 OPTION #2 – FAIRMOUNT CONNECTION TO WEST END MALL

The second option considered for connection to the Halifax Urban Greenway Association Trail is located further north of the roundabout in the Fairmount area. The Chester Spur line runs through Fairmount and intersects with side streets from Joseph Howe Drive including Walton Drive, Rosemount Avenue, Retreat Avenue, and Springvale Avenue. It appears that Springvale Avenue offers the best connection from the Spur Line to Joseph Howe Drive, as sidewalks are present and the intersection at Joseph Howe Drive is signalled for safe pedestrian crossing.

Feasibility of the use of the Mount Olivet Cemetery as a trail option (shown in blue) should be investigated. The cemetery, which is privately owned, is an ideal green space connecting from Joseph Howe Drive to the Halifax Shopping Centre area, and contains many historically significant internments (Halifax Explosion / Titanic victims). Alternatively, Mumford Road may provide a feasible connection (shown in green) that runs adjacent to the cemetery. Both options are shown in Figure 3-6.



Figure 3-6: Halifax Urban Greenway Association Trail Connection Options Adjacent to West End Mall

Options for crossing the rail cut between the Wal-Mart parking lot and the apartment complex were investigated. It is evident that this location has a high demand, as holes have been cut through the CN fence and a path has been clearly worn across the rail right-of-way. There are a number of issues that affect the potential location of the rail crossing, including:

- Grades: The grades along the edge of the rail cut vary considerably in this location. It appears that there is a suitable location for an at-grade crossing approximately halfway between Wal-Mart and Tim Horton's. The existing crossing point defined by pedestrians occurs near the low point of the fence and results in a relatively flat grade between the mall and the apartments.
- Routing through parking lot: Crossing the main circulation aisle just east of the fence is challenging, as there are presently no well-defined receiving areas or pedestrian corridors internal to the parking lot. There appears to be an option to widen the existing concrete islands east of the circulation aisle to build a more defined corridor, which would allow pedestrians to get to Wal-Mart. There also appears to be some advantages to keeping pedestrians west of the circulation aisle and provide a corridor between Tim Horton's and the circulation aisle. This option would connect to existing sidewalks and crossing locations, though would require some modification to the existing grassed areas and potentially to existing trees. Routing of the path through the parking lot will need to consider the primary desire lines. The primary desire lines appear to be between the rail cut and:
 - Wal-Mart and points beyond, including Sobeys and the main West End Mall buildings;
 - The transit terminal and surrounding area, which includes Tim Horton's and various retail pads.
- Agreements with CN will be necessary to facilitate the crossing of the rail corridor.
- Crossing type: Depending on budget constraints, agreements with CN / stakeholders, etc., the crossing may be at-grade or a grade-separated structure, though the surrounding topography favours the use of an at-grade crossing.

It appears that this location could accommodate an active transportation corridor, as feasible options exist for meeting what appears to be a high demand movement. Moving forward, SNC-Lavalin Inc. will identify a potential crossing location, and discuss, in general terms, some of the options and considerations for getting pedestrians across the parking lot to the preferred locations. However, defining specific routing through the parking lot is considered beyond the scope of this study.

The pursuit of this option has been driven by Halifax Regional Municipality's interest in a potential active transportation connection to the West End Mall area, and in particular a crossing of the CN rail tracks between Olivet Street and the West End Mall. The extension of the Halifax Urban Greenway Association Trail to this location is beyond the scope of the Halifax Urban Greenway Association's proposal and outside of the study area for this assignment, however, appears to be a viable option and should be considered as a separate work item.

4. SEAVIEW PARK / BEDFORD HIGHWAY CONNECTION

Routing options have been developed for connection of the Chester Spur Line to planned active transportation corridors in the Seaview Park and Bedford Highway areas in north end Halifax. There are several potential opportunities and challenges to connection along with uncertainty surrounding the development potential and probable timelines for conceptual active transportation options that have already been considered by Halifax Regional Municipality. Therefore, it is particularly important that the preferred options are identified by Halifax Regional Municipality before more detailed functional design is carried out.

4.1 BEDFORD HIGHWAY CONNECTION

A potential location for the Bedford Highway connection extends from the terminus of the Chester Spur Line (adjacent to Atlantic Superstore) along Joseph Howe Drive, where it must navigate the Fairview overpass and either run along the Bedford Highway sidewalk (shown in blue) or adjacent to the rail tracks (shown in green, i.e. Rails with Trails). Figure 4-1 shows the area, including the proposed path along the Bedford Highway Sidewalk. The connection to the rail tracks would likely need to occur further downstream on the Bedford Highway, or closer to the container terminal. Another potential “rails with trails” option is identified in a subsequent section entitled “Container Terminal Service Road / Seaview Park”.

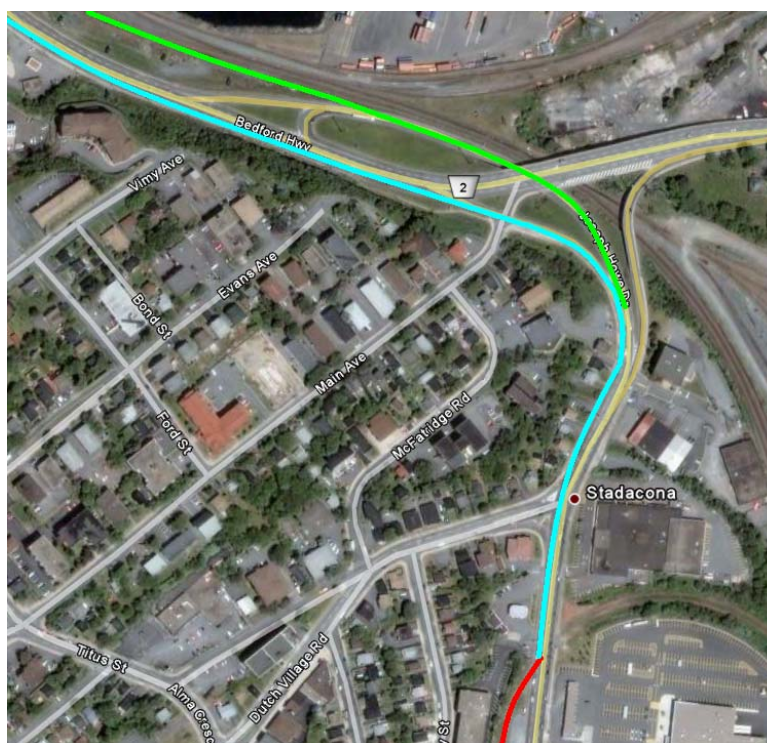


Figure 4-1: Bedford Highway Connection Options

4.1.1 Crossing the CN Marshalling Yards

The CN Marshalling Yards represent a considerable challenge for connection of the active transportation corridor between the Chester Spur Line and the Seaview Park area. Two separate options have been investigated, and are represented in Figure 4-2:

- Continuation of the route along Joseph Howe Drive and through the Fairview overpass and Windsor Exchange (blue line): This would accommodate demand between the Joseph Howe Drive corridor and the Seaview Park area, along with points south. However, there is limited space on the Fairview overpass ramp, and the Windsor Exchange poses other challenges (discussed in greater detail below). The amount of space provided on the ramp, which will be replaced relatively soon, will be critical.
- Rail-cut crossing at Atlantic Superstore (green line): This option was identified in site visits as a potential way to meet considerable demand between the Superstore and the adjacent residential areas. Connection options on both the north and south sides of the Superstore are possible, and are discussed in further detail in subsequent sections.

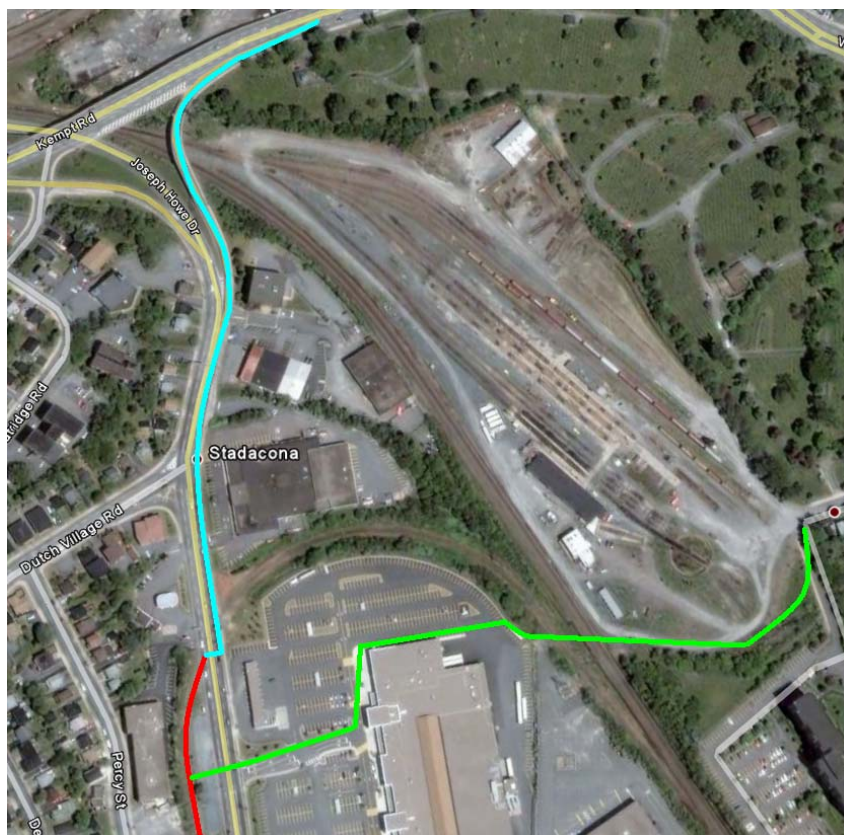


Figure 4-2: Options for Crossing the CN Marshalling Yards

4.1.2 Joseph Howe Drive - Atlantic Superstore

The Atlantic Superstore on Joseph Howe Drive has been considered a good candidate for a pedestrian crossing of the rail cut due to the apparent demand of pedestrian traffic between the store and adjacent residential areas. A crossing at this location may also provide an option for connection to Seaview Park and points south.

The portion of the Chester Spur Line that Halifax Regional Municipality has purchased terminates near the Superstore; therefore, the connection between the Spur Line and the rail cut crossing behind Atlantic Superstore will need to cross the existing Superstore lot in some way. Scot Street may provide a good connection between the Superstore parking lot and the Chester Spur Line.

The area behind the Superstore has been identified as a potential location for installation of a rail cut crossing. Two separate locations were investigated, as shown in Figure 4-4 and discussed below.

- Existing crossing location (blue line: Figure 4-4): This location experiences a significant amount of pedestrian traffic making the crossing already and the grades appear reasonable for an at-grade crossing, as shown on the right in Figure 4-3. Safety and security may be a concern, as the path would enter the rear of the parking lot, which includes a receiving area and is relatively secluded. Careful application of Crime Prevention through Environmental Design (CPTED) principles will need to be considered.



Figure 4-3: Superstore Rail Crossing

- Village at Bayers Road rear parking lot (green line: Figure 4-4): This location is currently not usable due to significant grade differences and vegetation, however, may provide a good location for a grade-separated crossing. The entrance location to the parking lot between the Superstore and the Village at Bayers Road shopping facility may provide a desirable access point.

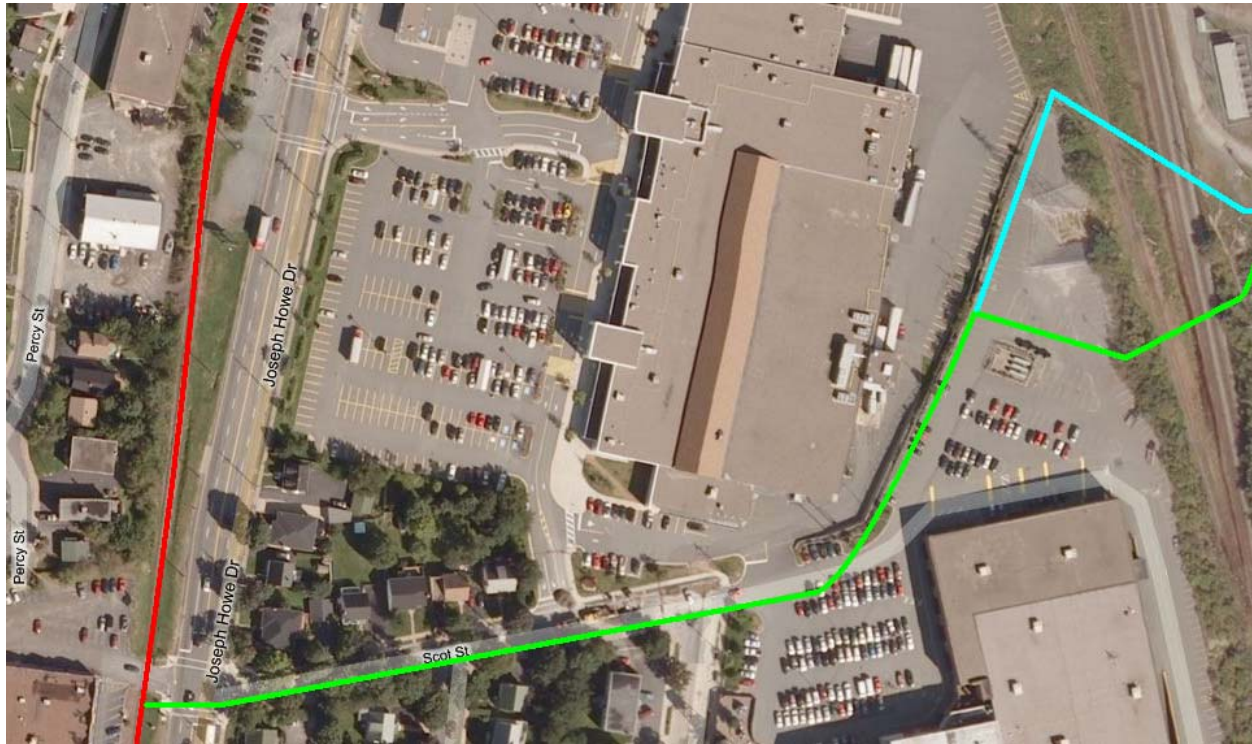


Figure 4-4: Superstore Rail Cut Crossing Options

4.2 FAIRVIEW CEMETERY

The Fairview Cemetery is a preferred location for connection between the potential Superstore rail cut crossing and the Windsor Exchange area. The cemetery would require minimal effort to incorporate into the active transportation network, and provides an opportunity to add an aesthetically pleasing setting with historical significance, along with a safe off-road route for travel. Figure 4-5 shows the proposed route through the main road within the cemetery connecting to Windsor Street. Figures 4-6 and 4-7 show the Fairview Cemetery driveway on Windsor Street and the main thoroughfare through the Cemetery, respectively.

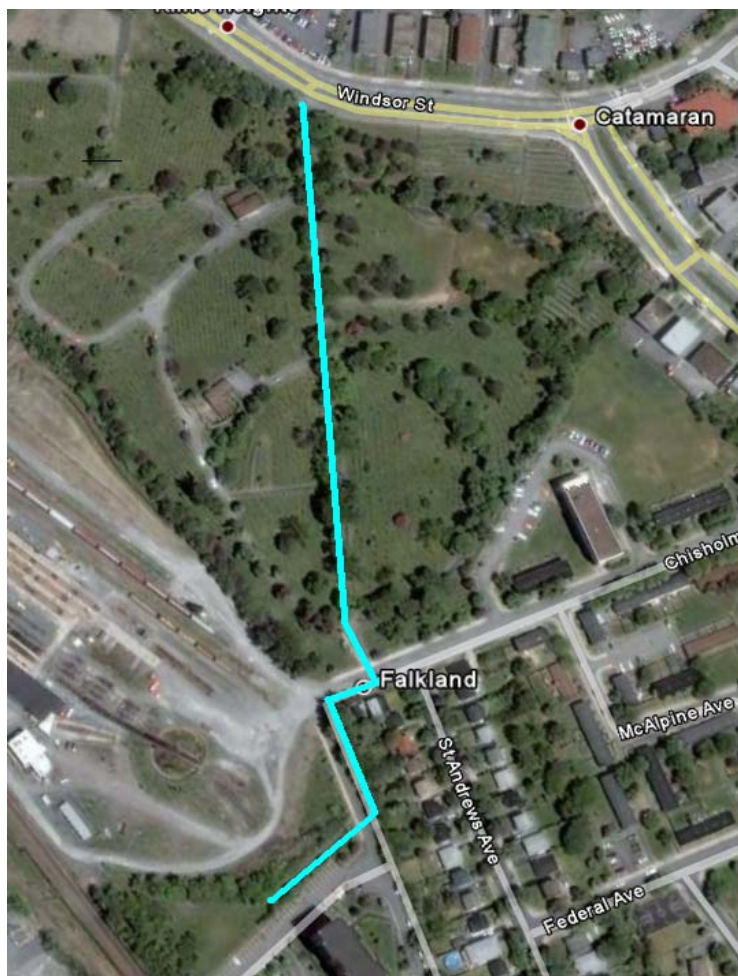


Figure 4-5: Proposed Route through Fairview Cemetery

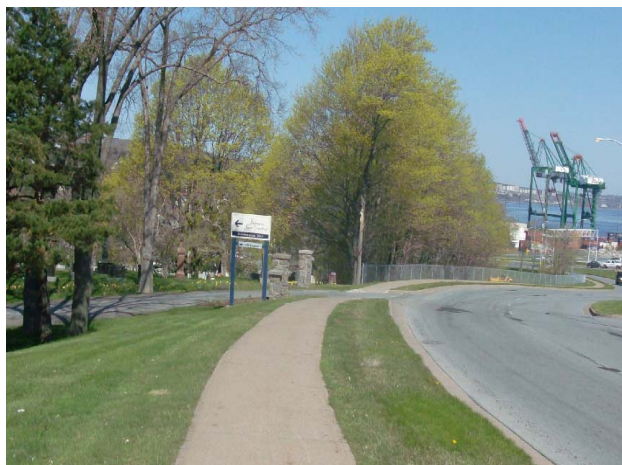


Figure 4-6: Windsor Street



Figure 4-7: Fairview Cemetery

4.2.1 Windsor Exchange / Kempt Road Area

Connection of the cemetery route to points north including Seaview Park and the Bedford Highway will require consideration of multiple options due to the constraints imposed by the Windsor Exchange. The two preliminary options that have been identified for connection to the Seaview Park area from the cemetery route are identified in Figure 4-8, and discussed below.

- Bayne Street via Mackintosh Road / Lady Hammond Road / Windsor Street (green line): This option provides access to the container terminal, and subsequently Seaview Park via the container terminal road (discussed in the following section), while bypassing conflicting movements at the congested Windsor Street Exchange intersection.
- Proposed Halifax Regional Municipality Seaview Park trail via Lady Hammond Road (green / blue line): The proposed Halifax Regional Municipality Seaview Park trail runs along an abandoned rail line between Kempt Road and the MacKay Bridge area. The trail is a long-term vision and will likely not be implemented for several years, however, would be a potential connection to Seaview Park. A connection to the trail could be made at the abandoned rail line's Robie Street overpass, at its intersection with Lady Hammond Road. It should be noted that there may be several other potential connection options within the Kempt Road commercial area (shown in red), however, the one shown offers the most direct route.



Figure 4-8: Windsor Exchange / Kempt Road Area

4.3 CONTAINER TERMINAL SERVICE ROAD / SEAVIEW PARK

The container terminal service road, accessible via Bayne Street, has good potential for a connection between Seaview Park and the Active Transportation network, along with a potential connection to the proposed Bedford Highway “rails with trails” connection. Figure 4-9 shows the proposed alignment for both – the Seaview Park connection is shown in blue, and the Bedford Highway connection is shown in pink. There is space for road widening, if necessary, along both sides of the service road. The road runs 1.5 km between Bayne Street and the driveway to Seaview Park, and, based on feedback from Halifax Regional Municipality, this is a connection option that has considerable potential and should be pursued.

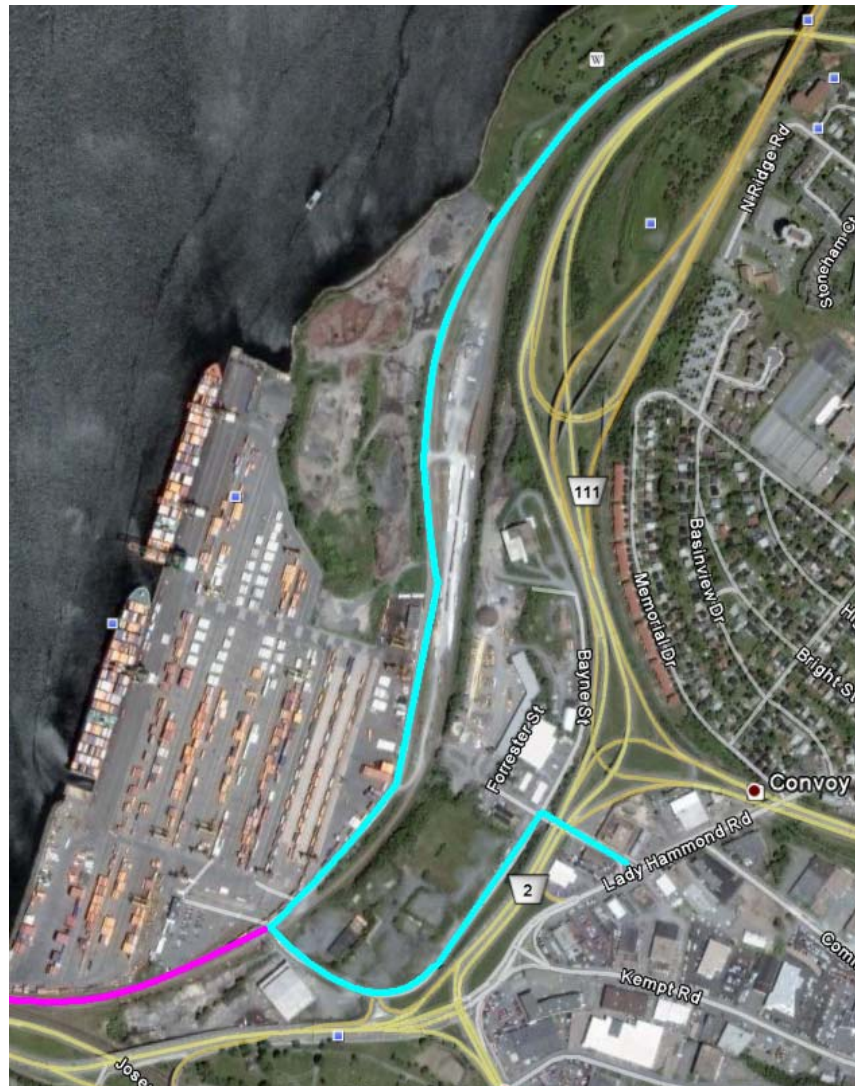


Figure 4-9: Proposed Alignment Utilizing Container Terminal Service Road

4.4 MEMORIAL DRIVE CONNECTION TO SEAVIEW PARK

As discussed in Section 4.2.1, Halifax Regional Municipality has considered a connection to the Seaview Park area that utilizes abandoned rail lines adjacent to Kempt Road and further down Memorial Drive and the MacKay Bridge approaches. Although still a long-term planning item, the route has had some functional design, including an active transportation bridge connecting the terminus of the existing Memorial Drive trail to green space between the MacKay Bridge approaches and Barrington Street. The proposed alignment, shown in Figure 4-10, can provide a connection to Seaview Park along with tying into future plans for an active transportation route circumnavigating the peninsula.



Figure 4-10: Memorial Drive Active Transportation Connection

5. SUMMARY AND CONCLUSION

SNC-Lavalin Inc. has completed background review, field investigations, route development, identification of constraints and opportunities, and option evaluations for potential connections between the Chester Spur Line and planned active transportation corridors including:

- Halifax Urban Greenway (HUGA) trail;
- Seaview Park Trail; and
- Bedford Highway trail.

This interim report is intended to provide Halifax Regional Municipality with an opportunity to review the approach taken to the project to date, and enable any necessary refinement to assumptions prior to the more detailed functional design stage of the project. Halifax Regional Municipality feedback following the review process will allow SNC-Lavalin Inc. to narrow the project scope and pursue more detailed aspects of the project.

A Preliminary Options Sketches



SNC • LAVALIN



APP. 1a

LEGEND

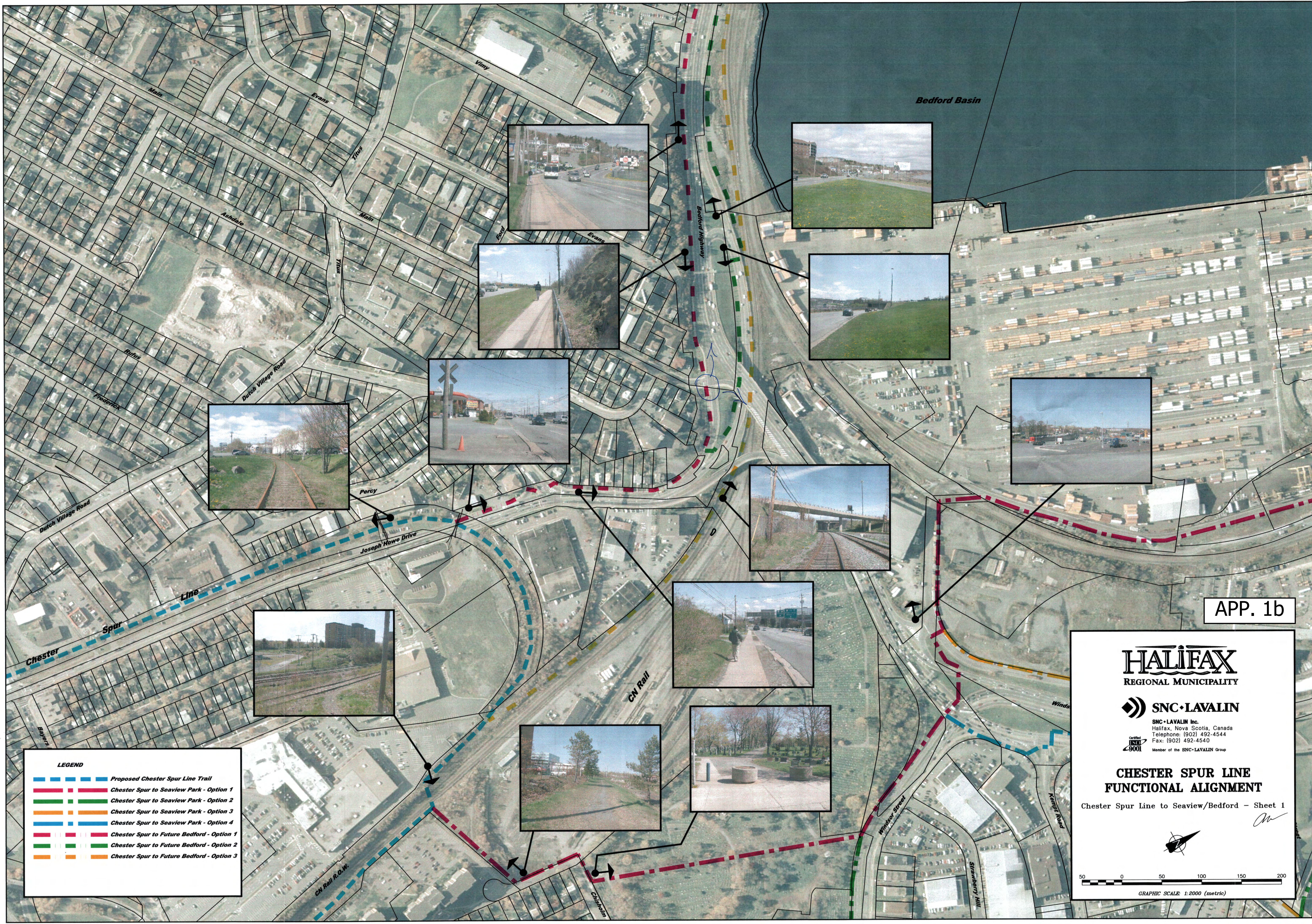
- Proposed Chester Spur Line/HUGA Trail
- Chester Spur to Future HUGA - Option 1
- Chester Spur to Future HUGA - Option 2
- Chester Spur to Future HUGA - Option 3
- Chester Spur to Future HUGA - Option 4

HALIFAX
REGIONAL MUNICIPALITY

SNC-LAVALIN
SNC-LAVALIN Inc.
Halifax, Nova Scotia, Canada
Telephone: (902) 492-4544
Fax: (902) 492-4540
Member of the SNC-LAVALIN Group

**CHESTER SPUR LINE
FUNCTIONAL ALIGNMENT**
Chester Spur Line to HUGA Trail

GRAPHIC SCALE: 1:2000 (metric)



APP. 1b

- LEGEND**
- Proposed Chester Spur Line Trail
 - Chester Spur to Seaview Park - Option 1
 - Chester Spur to Seaview Park - Option 2
 - Chester Spur to Seaview Park - Option 3
 - Chester Spur to Seaview Park - Option 4
 - Chester Spur to Future Bedford - Option 1
 - Chester Spur to Future Bedford - Option 2
 - Chester Spur to Future Bedford - Option 3

HALIFAX
REGIONAL MUNICIPALITY

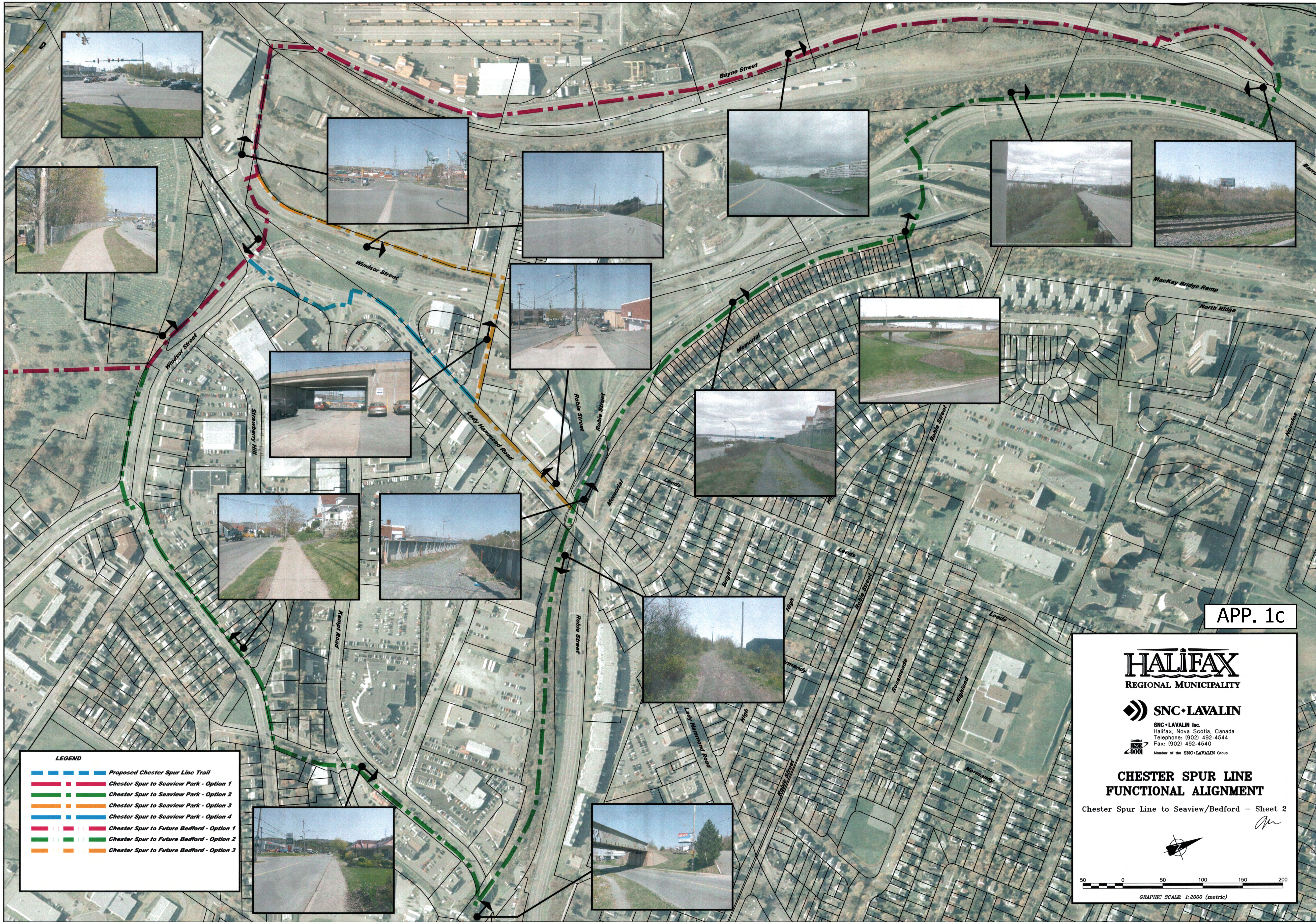
SNC-LAVALIN
SNC-LAVALIN Inc.
Halifax, Nova Scotia, Canada
Telephone: (902) 492-4544
Fax: (902) 492-4540
Member of the SNC-LAVALIN Group

**CHESTER SPUR LINE
FUNCTIONAL ALIGNMENT**

Chester Spur Line to Seaview/Bedford - Sheet 1

GRAPHIC SCALE: 1:2000 (metric)

50 0 50 100 150 200



LEGEND

- Proposed Chester Spur Line Trail
- Chester Spur to Seaview Park - Option 1
- Chester Spur to Seaview Park - Option 2
- Chester Spur to Seaview Park - Option 3
- Chester Spur to Seaview Park - Option 4
- Chester Spur to Future Bedford - Option 1
- Chester Spur to Future Bedford - Option 2
- Chester Spur to Future Bedford - Option 3

APP. 1c

HALIFAX
REGIONAL MUNICIPALITY

SNC-LAVALIN
SNC-LAVALIN Inc.
Halifax, Nova Scotia, Canada
Telephone: (902) 492-4544
Fax: (902) 492-4540
Member of the SNC-LAVALIN Group

**CHESTER SPUR LINE
FUNCTIONAL ALIGNMENT**

Chester Spur Line to Seaview/Bedford - Sheet 2

GRAPHIC SCALE 1:2000 (metric)



SNC • LAVALIN

www.snclavalin.com

SNC-LAVALIN Inc.

Park Lane Terraces, Suite 200

5657 Spring Garden Road

Halifax, Nova Scotia

B3J 3R4 Canada

Tel.: (902) 492-4544

Fax: (902) 492-4540